STUDY IN THE FIELD OF MARITIME POLICY

"Approach towards an Integrated Maritime Policy Database"

Volume 1: Main Part

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"The views expressed in this report are those of the authors.
The authors are grateful to Steve Clarke, Marcel Ernens and their colleagues
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Content

Executive Summary

Executive Summary

With the publication of the Blue Book "An Integrated Maritime Policy for the European Union" in October 2007, the Commission proposed a policy combining measures aimed at enhancing competitiveness and sustainable development, following the Lisbon and Gothenburg strategies. The IMP is confronted with having to deal with very different policy areas involving a range of the EU institutions and stakeholders, in a range of maritime sectors and regions.

Given its complexity, this objective requires a solid set of information to document policy areas, including information on maritime activities and regions. In this purpose, the Blue Book and its Action Plan proposed the development of database on economic and social data for maritime sectors and coastal regions (Action 6.5 of the Action Plan). EC / Eurostat launched a study for the development of the database. The present report presents and analyses the results of this study which started in January 2008 and was achieved in January 2009.

Structure of the Database

The structure of the database includes:

- A geographical dimension, under which coastal regions are defined and documented in terms of local maritime activities and employment. The standard statistical classification of the EU – the NUTS – was used to identify coastal regions and islands, and more generally, to have a geographical breakdown of maritime activities.
- A sector / activity dimension, whereby maritime activities and employment are defined and characterized through a set of key economic and social indicators. The standard statistical classification of EU's economic sectors – the NACE – was used to identify the sectors by codes. These sectors include: a) the exploitation of marine resources: living, energy and non-energy resources; b) transport and related services; c) equipment manufacturing, incl. shipbuilding; d) maritime services; e) tourism industry and related services.
- The key variables which were selected to be documented are: Number of enterprises, Value Added (at basic prices and factor cost), Purchases of goods and services, Personnel costs, Number of persons employed (jobs and full-time equivalents), Purchases of energy products, Turnover, Production Value, Growth Rate of Value Added. In addition, External Trade data were collected.
- Additional indicators were selected to complement the database (see below).

IT Design of the Database

A determining aspect of the structure of the IMP database is its IT design. It is based on the Reference Database approach. This database is very well known and introduced at Eurostat. The tool which is used by Eurostat as an interface between the users and the database is the MDT System for the Management of Multidimensional Objects and is used by the Eurostat statisticians who work with the Reference Database. So the IMP database fits smoothly into the general Eurostat way of working and is ready for use by the authorised working team in the future.

The database stores multidimensional objects. The multidimensional model is based on the concepts of dimensions, observation values, flags, footnotes and constraints. The major dimensions mapped in the IMP database are basically “time”, “geo”, “NACE”, “Indicators”. The “time” dimension in all datasets actually covers the period from year 2000 to year 2007, but can be easily extended for the future years. The “geo” dimension is the standard geographical dimension used by Eurostat in the Reference Database based on the NUTS nomenclature. This dimension has been extended by additional dimensions mapping Maritime Basins which group the NUTS 3 regions by the maritime basin and as well islands and ports. The “NACE” dimension is the standard Eurostat dimension for the classification

of economic activities – (NACE Rev 1.1). A subset describing the defined maritime sectors has been used ("Sectoral dimension"). Suitable groupings of single NACE indicators have been implemented in order to map the different maritime sectors accordingly. The "indicator" dimension is based on a subset of the Eurostat's list of economical indicators for structural business statistics. However, additional indicators, beyond those available from the SBS system, for special evaluation of the coastal sustainable development have been proposed.

To summarize, the IMP database is to accommodate the following ten main datasets:

- Maritime Policy NACE related data for all NUTS units
- Maritime Policy NACE related data for coastal NUTS units
- Maritime Policy NACE related data for NUTS units with available data
- Maritime Policy NACE related data for islands
- Maritime Policy CPA and Prodcom related data
- Maritime Policy Interregional Trade Data
- Maritime Policy External Trade Data
- Maritime Policy Environmental Data
- Fishery Data (as of the Reference database)
- Maritime Transport Data of Goods and Passengers (as of the Reference database) extended by the Maritime Basin Approach

Physically implemented in the described way, the IMP database represents a total of 36 dimensions and 150 datasets. This all together add up to a theoretical content of 4,3 bn data. However, actual coverage of collected data for the NACE dimension only is about 27% on NUTS 0 (Member States) level and <1% on NUTS 3 level.

Strengths and Weaknesses of the IMP Database Structure

So described, the structure of the IMP database presents strengths and weaknesses.

Its strengths consist of:

- The systematic classification of maritime affairs, their split per economic sector and per maritime region, and their measurement in terms of key indicators: this structure permits to analyse maritime activities and regions, their development over the recent past, their economic significance, and the dependence of coastal regions on specific maritime activities. It also permits to have a clear understanding of the relative significance of maritime activities at national and regional levels, these two visions possibly differing and explaining differences between national and local policy objectives.
- An important feature of the database is linked to competitiveness objectives. The production intensiveness of maritime regions can be assessed, which permits to identify areas and regions with a strong maritime industry and/or a range of diverse maritime services. EC's objective to promote maritime clusters would require such information.
- Another important strength of the database – of social dimension – is its ability to identify maritime employment areas, and to analyse the nature of the jobs concerned (full time of seasonal).

It is obvious that these "potential" strengths depend on the relevant content of the database.

However, the database as it stands has weaknesses that must be analysed.

- Indirect sector coverage. A number of sectors as identified through the standard classification – the NACE – include both maritime and non-maritime components. This is typically the case of a number of activities involved in the marine equipment industry, inter alia (although, on the other hand, typical sectors such as fishing, shipping or shipbuilding, etc., can be seen as purely maritime). This lack of accuracy is explained by the general fact that the standard classification does not discriminate sea-related activities and businesses. As a result, the database, in its present shape, is not yet an accurate description of EU Maritime Affairs.
- The geographical dimension of the database – namely the identification of maritime regions – rests on a statistical breakdown which is not based on any maritime criterion. This difficulty led Eurostat to define coastal regions as including both coastal NUTS 3 units, and non-coastal NUTS 3 units with 50% of their population or more located at 50 km or less from the coastline. This is a practicable convention – though debatable as the extent of coastal zones varies depending on maritime sectors – which can be relevant for certain sectors, e.g. for the definition of coastal tourism in spatial terms.
- Interactions between maritime sectors and between maritime regions are important to analyse as the objective of having an integrated maritime policy requires a good knowledge of its impacts on maritime affairs. But they are also extremely diverse and, given the difficulty in collecting relevant indicators, the database architecture will be of limited help in this respect.
- Interactions between R&D and industry would also be an area for which detailed information is required for informing the IMP, to analyse maritime clusters' innovation power and capability of attracting companies.
- Finally, the database has been purposefully limited in terms of the valuation of coastal natural assets. This is a topic of growing interest for coastal management, but which requires sophisticated, and still much debated tools. In addition, the environment dimension comes in addition to the economic and social dimension, the latter being central in the database, as its initial target.

Data Collection and Assessment of the Results

Data collection was carried out per Member State. As a first step, relevant data were extracted from the Eurostat New Cronos database. Then additional data were acquired from the National Statistical Offices (NSOs), when it was possible; contacts were taken with each NSO in this purpose. This source was prioritised in order to secure a satisfactory quality level. However, NSOs' responsiveness was diverse; few of them proved actively co-operative and provided data; most of them referred the project team to their online sources.

Data Collection Process and main Difficulties

The main difficulties encountered in collecting data, though not typical of Maritime Affairs, were amplified in this particular context, as the maritime economy is of modest size:

- Important difficulties in collecting NUTS 3 data;
- Trade-off between NACE and NUTS resolution, principally for confidentiality reasons. Data for NACE 4-digit codes (the finest sector level for this database) were available for NUTS 0 (country level) but very seldom for a higher geographical resolution. At NUTS 3 level, except for some countries, only NACE 2-digit data were available.
- Trade-off between coverage and data quality, as a result of indirect coverage of many maritime activities by statistical sectors, which may also include non maritime activities; in these cases, direct coverage requires estimates which would not meet ESS quality standards.
- Branch-based data, based on the split of businesses into the different economic activities they are involved in, were generally unavailable, except for few member states. They have not been used in the data collection phase.

Assessment of the IMP Database Coverage

The unbalanced clarity and definiteness of the maritime sector coverage does not allow using the IMP database in its full scope, unless considerable effort is made to improve it. The coverage must be assessed in terms of sector, key indicators and space.

a) Maritime Affairs can be classified into four categories of sectors:

- sectors fully identifiable in the statistical classification (e.g. shipbuilding and shipping);
- sectors partly identifiable in the classification (fishing and seaports);
- sectors only indirectly identifiable, i.e. whose outlets are partly maritime, partly non maritime (e.g. marine equipment and a range of services);
- coastal tourism, which includes a diversity of small local businesses and sectors, certain of which are identifiable on the basis of their coastal location, and certain others (e.g. travel agencies) are indirectly identifiable.

Many sectors are therefore only indirectly covered, and this is a major limitation in the use of the database.

b) In terms of key indicators, the coverage is satisfactory (turnover, value added, employment).

c) In spatial terms, the quality of coverage widely varies among Member States, many of them having no NUTS 3 coverage of Maritime Affairs. These gaps in the spatial coverage are another important limitation in the use of the database.

However, some Member States (AT, FI, FR, DE, LV, LT, UK).give good practice examples. On this basis and through targeted benchmarking of NSOs' on coverage quality of Maritime Affairs, in terms of sectors, indicators and geographical units the situation may be improved in the future.

Improvement of the Database

Improving Coverage and Resolution

The above remarks show that it is critical to improve the database in terms of coverage, resolution and periodicity. In this area, the main remarks are the following:

- Experience of data collection for certain countries (e.g. UK, France) shows that is it possible to find relevant NUTS 3 / NACE 4-digit data, subject to the usual confidentiality clause. Overcoming the difficulties in having detailed enough business inquiries will be a matter of NSOs' effort and of selecting relevant economic indicators which can remain accurate at such resolution level.
- However, as NSOs are aware of, the collection of accounting data of high NACE and NUTS resolution supposes a method to secure consistency. If reported without precaution for the spatial units where head offices are located, business data do not necessarily reflect the real economic activity in NUTS 3 units where production units reside. This situation – generally dealt with by NSOs, but in a specific manner, depending on their own statistical environment – may lead to accept some limits in spatial resolution.
- The problem remains that, for certain sectors which are critical for EU's maritime competitiveness (e.g. Marine Equipment), the lack of data is general throughout the EU. For such sectors, a possible step forward would consist: 1) in analysing best practice solutions as applied e.g. for Marine Equipment by Member States' industry associations and may be also by external countries (e.g. Norway and Japan); 2) in defining and carrying out specific business inquiries; this would suppose a cost. The exercise could be tested on certain maritime sectors to be identified.
- A range of maritime and coastal services have a low coverage. Again, information cannot be improved without considering business inquiries. As regards coastal tourism – a specific case among coastal services –, experience shows that visitor surveys produce interesting information. A relevant option to fill data gaps is to consider coastal visitor surveys on an EU harmonised basis. As usual, the risk is an "over-survey" of visitors, leading to their growing unwillingness to

respond. Test surveys could be carried out in co-operation with national and regional authorities. Another option is to extend business inquiries up to NUTS 3 level in countries where the spatial coverage is not sufficient. Again, this supposes a cost.

Database Improvements Costs

Given the required improvements in the sector and geographical fields, a tentative assessment of the costs which would be incurred – rather their order of magnitude – is proposed. Unfortunately, too little information has been provided by NSOs, and the assumptions presented in the report a very fragile. They tend to suggest however that the cost of improving the spatial resolution would be substantially higher than that of improving the sector resolution. This attempt highlights the needs for in-depth discussions between Eurostat and NSOs on data collection and processing costs. A major issue is the cost incurred by respondents.

Additional Indicators

The report proposes a list of additional indicators in two categories: a) Sustainable Development; b) the Maritime Basin Approach.

- Sustainable Development indicators are essential to develop for coastal zones, which are narrow areas with rich ecosystems, and especially sensitive to pollution risks and damages. The approach consists in the definition of indicators describing the pressure on coastal zones and polluting emissions: e.g. pressure for road travel near the coast, pressure for coastal and marine leisure, bathing water quality. This data set would require an assessment in terms of quality standards.
- The objective of the Maritime Basin Approach is to analyse the wealth yielded by each sea region of the EU zone, i.e. by its marine resources (energy, non-energy, living) and by the diversity of industries located and operating in this sea region. A set of indicators is proposed in the report, including non-monetary indicators such as port traffic, beach visits and aggregate extraction, and monetary indicators such as tourism expenditures and value added in sectors specific to each sea region. The data set would only aggregate existing indicators, and not require generating additional variables.

Geospatial Tools

Far from being technical instruments only for a local survey of coastal problems, geospatial tools have a major policy dimension. If appropriately managed by regional authorities, they can constitute a relevant extension of the IMP database, provided effort is made in this direction.

The INSPIRE Directive will improve the accessibility and interoperability of spatial data by laying down general rules applying to data and services held by or on behalf of public authorities and by private operators who choose to make their data available through the INSPIRE infrastructure. Spatial data and services will be accompanied by "metadata" facilitating search, quality assessment and potential use. Detailed technical rules are under development to facilitate the combination of different data sets.

Detailed information on Germany is useful to provide as North Germany is generally considered as an advanced stage of what can be done and pursued in terms of geospatial data on coastal areas. An interesting example is that of the South-East France region of Provence-Alpes-Côte d'Azur (PACA), which has implemented an efficient portal / geospatial data exchange system at regional level.

These best practise examples show that regional complements to the IMP database can be elaborated, based on a different architecture, with different categories of data. For example, geospatial tools are efficient at locating coastal activities – not enterprises – and thereby coastal employment; they can also locate coastal activities exposed to specific risks (e.g. water pollution, sea level rise). Local maritime policies and coastal zone management initiatives require operational geospatial tools which are too detailed for EC's level of analysis. The IMP database cannot include relevant information for local maritime policies. It should be acknowledged that the architecture of datasets can change according to the resolution level of information required and to the geographical scope of maritime policies.

List of recommended Actions

The IMP database as developed in this project phase, necessitates significant improvements before being operational. This will require time and effort, and also co-ordination at EU level. The following list of actions is proposed for the future improvement of the IMP database. They refer to the recommendation and the Road Map as proposed in the last chapter of the report.

Action 1: Improve Data Collection and the Resolution of the Database

This recommendation is a set of recommendations based on the findings of the report in terms of missing data and on comments from stakeholders as reported in the "sector description". As addressed in the Road Map, a correct knowledge of the maritime economy requires more detailed data on: a) NACE 4-digit sectors involved in the maritime economy; b) the content of coastal regions in terms of maritime sectors; c) the maritime components of maritime-related sectors. This necessitates improving business inquiries. The following steps are recommended:

1) Co-operation between Eurostat and NSOs, in order to:
   a) systematically identify the NACE sectors for which information is required on their maritime components;
   b) analyse the feasibility of business inquiries focused on those maritime components, so as to deal with the present indirect identification of a range of activities in the present classification discuss the feasibility of a regulatory instrument in this respect;
   c) agree on a harmonized and practicable definition of coastal regions; the definition proposed by Eurostat – referred to in this report – is an option to be considered;
   d) discuss the feasibility of reporting data from business inquiries, on coastal regions specifically[1].
   e) discuss the feasibility of reporting data collection and processing cost through business inquiries, on a harmonised basis, in order to better inform the impacts of improvement strategies on NSOs' and respondents' costs. Discuss the feasibility of a regulatory instrument for such harmonised reporting.
2) Co-operation between Eurostat and stakeholder associations in order to:
   a) Draw up a list of relevant economic indicators per sector, used and / or generated by associations;
   b) have stakeholders' views on which sectors and sub-sectors to prioritise for the definition of business inquiries, and on which relevant indicators to select for the description of their businesses;
   c) involve NSOs in discussions on such selection, with a view to compliance with ESS quality standards.
   d) **Remark**: there are ongoing discussions between Eurostat and certain stakeholders (e.g. shipping, shipbuilding); for the sectors involved, if necessary, it would be relevant to focus the discussions on the aspects mentioned above.
3) Address the specific case of coastal tourism:
   a) Address sectors with maritime components indirectly described in the database (e.g. travel agencies, sporting clubs and certain leisure businesses), on the basis of item 1) of Recommendation 1;
   b) for sectors and businesses potentially directly described per NUTS 3 area (e.g. hotels and catering), discuss and check with NSOs the need for business inquiries with this geographical resolution if not yet performed by Member States;

[1] Though the maritime economy is not only located on the coast, as largely illustrated in the report.

c) discuss with NSOs the cost of having a better NUTS 3 coverage of business inquiries, for NSOs and respondents, and discuss the feasibility of a regulatory instrument for harmonised reporting in this area;

d) discuss with NSOs the feasibility of harmonised coastal visitor surveys to collect spending data per main tourism consumption categories, bearing in mind that much is done in this area under Directive 95/57/EC and its subsequent amendments, but not necessarily in a harmonised way at EU level.

Action 2: Adapt the Architecture of the Database

Further progress in line with Recommendation 1 would possibly result in new components to be incorporated into the architecture of the database: the definition of maritime sub-sectors and of new relevant indicators would not necessarily correspond to the standard NACE components and to the standard key variables. Likewise, the definition of coastal regions, if it is in line with Eurostat's definition, will lead to the selection of parts of NUTS 3 areas, based on a demographical criterion. Subsets of NUTS 3 areas would then have to be included in the geographical dimension. A step toward the adjustment of the database architecture is therefore recommended, the feasibility of which is secured by the flexibility of the IT design of the database:

1) adapt the "sector", "key variable" and "geographical" dimensions of the database to the new components. This may require adding new dimensions.

Action 3: Additional Indicators

The list of additional indicators as proposed in the report will have to be discussed with the relevant DGs of the EC. They concern: a) the Maritime Basin approach, which would consist in gathering existing data per sea regions in order to better characterize these entities in terms of wealth, maritime value added and employment; b) sustainable development indicators, in order to have a synthetic view of a selection of environmental aspects of maritime activities, through available indicators; the objective is also to avoid redoing with a lower resolution what is performed locally by geospatial tools.

1) Discuss with relevant DGs the list of indicators to be included in the framework of:
   a) a Maritime Basin approach,
   b) sustainable development of maritime activities.

Action 4: Bridge with Geospatial Tools

For a higher resolution than NUTS 3 – and probably also for NUTS 3 units, with regard to certain activities – most of the limitations of the IMP database must be accepted. A search for finer economic and social data runs the risk of losing accuracy for reasons mentioned in the report: high resolution economic data for certain businesses may assign the data to geographical areas from those where jobs are located, mainly for accounting reasons. It is suggested that the best option for the IMP database is to find solutions as to how it can be complemented by external data sets. A good option is offered by geospatial data which include a considerable amount of information on coastal zone and their uses: this would be especially relevant as far as environment and the location of many coastal activities are concerned.

The question, as addressed in the last chapter, as to how to establish links between the database and geospatial data, has to be considered on the basis of the potential impacts of the INSPIRE Directive and the standardisation of metadata it permits. If the resolution level of geospatial data is very high, the appropriate level to follow their development is the NUTS 2 regions, which have the potential for both developing geospatial data and co-ordinating local initiatives in terms of information exchange.

1) follow the implementation of INSPIRE, especially in terms of metadata to be developed;
2) consider including coastal geospatial metadata information into the database (under a new dimension);

3) to do this, put in place a working group involving coastal NUTS 2 region representatives and experts, to discuss practical issues relating to the development of metadata and information exchange.

Concluding Remarks

The recommended set of actions is highly conditioned by a wide consultation process to be launched on a permanent basis, between Eurostat, the DGs and a range of stakeholders, including NSOs. This does not mean that nothing was done in the past. But the project simply want to insist that improving the IMP database will require an intense co-ordination, much motivation among stakeholders, and a comprehensive vision of the issues raised at different levels, i.e. for very different economic sectors and national and local authorities, each of them having a specific way of thinking and of addressing IMP issues.

Management Part

Acronyms

BEA	US Bureau of Economic Analysis
CESA	Confederation of European Shipbuilders Associations
CODED	Concepts and Definitions Database
CPA	Statistical Classification of Products by Activity in the European Economic Community
CPMR	Conference of Peripheral Maritime Regions
DG	Directorate-General
EC	European Commission
ECSA	European Community of Shipbuilders Associations
EEA	European Environment Agency
EMEC	European Marine Equipment Council
ESA	European System of Accounts
ESPON	European Spatial Planning Observation Network
ESS	European Statistical System
EU	European Union
EuDA	European Dredging Association
FTE	Full time equivalent
GEOSS	Global Earth Observation System of Systems
GISCO	Geographic Information System of the European Commission
GMES	Global Monitoring for Environment and Security
GVA	Gross Value Added
ICES	International Council for the Exploration of the Sea
IMP	Integrated Maritime Policy
INSPIRE	Infrastructure for Spatial Information in the European Community
IT	Information Technology
JRC	Joint Research Centre
LEI	Landbouw-Economisch Instituut
MB	Maritime Basin
MDAR	Multidimensional Array Representation
NACE	Nomenclature d'activités de la Communauté européenne
ND	Normalised Dataset
NSO	National Statistical Office
NOEP	US National Ocean Economic Program
NTA	National Tour Association
NUTS	Nomenclature des unités territoriales statistiques
OECD	Organization for Economic Co-operation and Development
OGP	International Association of Oil and Gas Producers
PHD	Physical Dataset
PRC	Policy Research Corporation NV
R&D	Research and Development
SDDS	Special Data Dissemination Standards
SEIS	Shared Environmental Information System
SME	Small and Medium Size Enterprise
TDS	Target Data Storage
TS	Tender Specifications
TSA	Tourism Satellite Accounts
UNEP	United Nations Environment Programme
VA	Value added
WGEXT	Working Group on the Effects of Extraction of Marine Sediments on the Marine Ecosystems (ICES working group)
WTO	World Tourism Organization

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Introduction

Marine and coastal areas are of vital importance for Europe's economic growth and social life. They provide food, and space for trans-boundary exchange by transport navigation and through submarine physical links such as telecom and electricity cables and pipe-lines. A number of major cities and urban areas develop in coastal areas. The seas are also used for defence, safety and monitoring purposes. Oceans are of growing interest for marine research as an ecosystem to preserve and through their interactions with climate. In addition, marine and coastal areas are attached value for landscapes and leisure areas: tourism is a major economic activity in coastal zones.

Marine and coastal areas are exposed to many threats: growing pressure from urbanisation, from pollution through river basins (from industry and farming), from overexploitation of resources and space. New threats are now posed by sea level rise forecast and other sorts of implications of climate change.

Marine and coastal areas therefore appear as both key for Europe's development and productivity and a fragile environment to manage. They are at the core of the Lisbon and Göteborg strategies and require specific attention.

The option adopted by the European Commission is that maritime affairs, in their economic, social and environmental dimensions, require an integrated policy. Maritime policy makers are generally aware of the complexity of the interactions between maritime activities in social and economic terms, and between those and the coastal and marine environment, and that this requires a fine and comprehensive knowledge integrating a number of maritime specific aspects, including solid economic and social information of marine activities.

The EC's Green Paper on the future EU Maritime Policy[2] emphasized the need for a better understanding of ocean uses, and for better data and information on the economic and social aspects of maritime activities. The Blue Book[3] announced the development of a database on socioeconomic data for maritime sectors and coastal regions by 2009. The Action Plan[4], annexed to the Blue Book, listed the actions to be taken by 2010, and included the achievement of such database. In addition, the EC commissioned studies on employment in maritime industries and in fisheries[5].

The experience gained so far in the assessment of national and regional maritime economies shows difficulties in documenting the economic and social dimensions of maritime affairs with a reliable database. Pioneering studies were conducted on US maritime industries by the US Bureau of Economic Analysis in the 1970s. Other US studies followed in the 1980s and 1990s and more recently through the National Ocean Economics Project[6]. UK's, Italy's and France's reports were among the earliest contributions in the EU[7]. In the 1990s, reports were also issued on Norway and the Netherlands[8], on EU-15 & Norway[9], on non-EU countries such as Australia[10], Canada and Canadian Provinces[11], on EU regions[12], and at world scale[13]. Reports were also commissioned by industries, in particular studies on maritime "clusters" in Norway, the Netherlands, Germany, Denmark, Finland, and Italy.

[2] EC (2006).
[3] EC (Oct. 2007a).
[4] EC (Oct. 2007b).
[5] Ecotec, (2006); LEI and Framian (2006).
[6] See Kildow et al. (2000); Kildow and Colgan (2005).
[7] Pugh and Skinner (1996), Federazione del Mare (1996), Kalaydjian (1997).
[8] Wijnolst at al. (2003).
[9] PRC-ISL (2001).
[10] Allen (2005).
[11] Several studies in the 1990s and 2000s including RASCL (2003) and GSGislason (2007).
[12] For Schleswig-Holstein see Ministry of Sciences (2005).
[13] Douglass-Westwood (2005).

Several of these contributions, including those of the US, UK, Canada and France, are periodically updated with different time periods.

These studies are often confronted with different problems:

- Problems related to their scope and coverage of maritime activities. Should they include all or some of the activities located on the coast? How far inland does the coast extend? Should they include activities indirectly connected to specific maritime businesses, e.g. logistic platforms, or inland transport to ports, whether waterborne or not, upstream supply of certain equipments and subcontracted services, and downstream wholesale and retail trade marine-related products?
- Difficulties in collecting reliable maritime-specific data: in the absence of business inquiries, the studies estimate basic economic indicators (value added, employment, etc.), especially for complex sectors such as maritime equipment, coastal tourism and a number of maritime-related services.

The national and regional studies mentioned above have made different responses to these questions but have a common experience of the difficulties.

The development of a database, as foreseen in the Blue Book and the Action Plan, was put out to tender in September 2007. The Tender Specifications (TS)[14] included to lots:

- Lot 1 consisted in developing the "Architecture and elaboration of an integrated socio-economic database". The present report focuses on this project only.
- Lot 2 consisted in analysing available data, per country, describing the "socio-economic state in all sea related sectors", at Member State and EU-27 level.

The two projects started simultaneously in January 2008, but Lot 2 study was shorter and finished earlier. Lot 2 final report (Eurostat, 2008) was instrumental for Lot 1 and the preparation of the present report.

1.1 Objective of the "Study in the field of Maritime Policy" – Lot 1

The objective of the present Study is to gather the relevant economic and social data for developing the EU Maritime Policy as summarized in EC's communication of Oct. 2007 (the "Blue Book"). This objective requires:

a) Designing the architecture of a database for the various maritime activities, by including and characterizing sectors, geographical areas and key social and economic indicators to be documented by time series;

b) Collecting relevant data related to the above economic and social indicators, in line with the database architecture, with an analysis of data quality based on the standards of ESS European Statistical System;

c) Proposing methods to collect missing data (including new data collection strategies) and proposing other relevant indicators to analyse maritime affairs;

d) Analysing the potential contribution of geospatial tools to documenting the geographical dimension of maritime affairs.

1.2 Work Plan of the Study

The work plan was based on the TS and on permanent discussions with Eurostat.

[14] Eurostat (2007a).

Part A. Design of the database architecture

- Geographical breakdown: design an appropriate geographical breakdown for maritime affairs; identify coastal and maritime areas including islands.
- Sector breakdown: identify sectors to be included in the database and key variables characterizing social and economic aspects of sectors in terms of:
  - Key figures: value added, employment, exports, imports, income distributed;
  - Development over time: growth, price evolution, seasonality;
  - Links with EU economies, and trade flows from and to maritime regions.
- Design the IT components of the database in line with EC's standards, and create a metadata directory.
- Demonstrate the relevance of the database for regional maritime policies purposes.

Part B. Data collection

- Identification of existing available sources;
- Inventory of available data covering the 2000-2006 period, and quality evaluation.

Part C. New initiatives to collect missing data

- Identify missing data and appropriate data collection methods;
- Propose alternative data collection strategies for difficult cases, in line with ESS rules;
- Recommend a list of additional indicators;
- Analyse available geo-spatial tools as a framework for integrating data.

1.3 Working Organisation of the Study

The execution of the study was carried out by a Consortium in partnership with Eurostat as project leader. The Consortium included five partners: two contractors (BALance and Ifremer) and three sub-contractors (MC, Nasca and Tender).

Organisation	***Name***	***Position***	***Expertise***
BALance Technology Consulting GmbH, Bremen	Joachim Brodda	Managing director	Shipbuilding, maritime equipment and technology management consulting
	Michal Czaplinski	Consultant	IT, software development
	Stephan Wurst	Senior consultant	IT, software development
Ifremer, Paris	Régis Kalaydjian	Research Scientist, economy	Coastal activities and uses, maritime economy
MC Marketing Consulting, Kiel	Michael Jarowinsky	Owner	Management and technology consulting, market studies
	Hans-Jürgen Bartels	Senior consultant	Management and technology consulting, market studies
Nasca-Géomarine, Brest	Gildas Borel	Senior consultant	Fisheries, maritime economy
Tender, Ancona	Claudio Sdogati	Economist, senior consultant	Maritime ports, fisheries and tourism

Table 1: Consortium

In operational terms, the consortium included:

- Staff from all partners for the designing the architecture of the database, data collection in member states concerned, and further improvement of the database;
- Data management staff (from BALance) for the processing of data under the European Statistical System (ESS) standards.

The partnership included regular contacts:

- Three project meetings gathering all partners,
- monthly progress meetings between Eurostat staff and the contractor,
- co-ordination meetings with Action Group 6.5: the EC inter-service group set up for monitoring Action 6.5 of the EC's Action Plan, and chaired by Eurostat,
- exchange of information, data and discussion notes through emails and working parties with IT staff and statisticians at Eurostat premises,
- Support through circulation of an introductory letter to National Statistical Offices (NSOs) of member states.

Partners were in contact with stakeholders:

- The Tender Specifications stated that a comprehensive exchange of views should take place as part of the analyses made in the study, in particular the national statistical offices and certain other companies and institutions, listed in the TS. Most of the organisations included in this list were European associations, national research institutes and universities. Actually, the project team opted to contact some of these organisations (Interreg IIIB/ESPON, CESA, CPMR, ECSA, EMEC, ESPO, Europêche, Ifremer, Marine Institute, certain maritime clusters, and NSOs) on a case by case basis. Other organisations in this list were not contacted, as the project team did not hold the list for mandatory and, in carrying out the tasks, did not see a strong necessity, rightly or wrongly, to contact them.
- Instead, an informal advisory group was set up (table 2),
- NSOs were contacted during the data collection phase,
- Certain industry associations (e.g. CESA Confederation of European Shipbuilders Associations, EMEC European Marine Equipment Council, EuDA European Dredging Association) and national administrations (e.g. for Tourism, Fisheries) offered opportunities for in-depth discussions.

The execution of Lot 1 also involved the Lot 2 team, who provided the Consortium with information useful to build upon for the execution of the Lot 1: notably stocktaking of accessible data: geographical, economic, demographic and social indicators.

Name	***Contact person / position***
CPMR (Conference of Peripheral Maritime Regions), Rennes	Patrick Anvroin, Director
Nordregio, Stockholm	Rasmus Ole Rasmussen, Senior Research Fellow
CESA (Community of European Shipyards Associations), Brussels	Paris Sansoglou, Policy Advisor
IACS (International Association of Classification Societies), London	Colin Wright, Principal Technical Officer, Permanent Secretariat
French Maritime Cluster, Paris	Philippe Perennez, Director
CRT (Center for Regional and Tourism Research), Bornholm	Peter Billing, Director; Bjarne Madsen, Senior Research Fellow
Michael Cuddy, Galway	Professor of economics at National University of Ireland, Galway, adviser at Marine Institute, participant in the "Beaufort

	Marine Research" project, and responsible scientist for the Economic Database Work Package
David Pugh, Liverpool	Research associate at Liverpool University and Proudman Oceanographic Laboratory, Marine Science consultant, chairman of the Intergovernmental Oceanographic Commission, Unesco (2003-2007)

Table 2: Informal Advisory Group

1.4 Timetable and Milestones

The project started in January 2008 and finished in end January 2009. The milestones were: a) the design of the architecture, b) data collection, c) inventory of missing data, and of new approaches to collect them. These three steps constitute the three parts of the present report.

- Part A of the report explains partners' approach to the architecture, its different dimensions, variables and indicators, and the IT products delivered to Eurostat, including the metadata. A section of Part A is dedicated to the assessment the relevance of the database for EU, national and regional maritime policies.
- Part B summarizes the content of the database, progress and difficulties encountered in data collection, and the assessment of the quality of collected data.
- Part C lists missing data and the causes of unavailability, and proposes alternative collection strategies, complementary indicators to be developed for updating the database over time, and the analysis of geo-spatial tools.

Part A	**M 1**	**M 2**	**M 3**	**M 4**	**M 5**	**M 6**	**M 7**	**M 8**	**M 9**	**M 10**	**M 11**	**M 12**	**M13**
Project Meeting 1	X												
Geo breakdown													
Sector breakdown													
IT components													
Database relevance													
Project Meeting 2			X										
Part A report													
Part B													
Inventory of sources													
Data collection													
Project Meeting 3						X							
Part B report													
Part C													
Project Meeting 4									X				
Missing data													
Alternative strategies													
Additional indicators													
Geo-spatial tools													
Project Meeting 5												X	
Part C report													

Table 3: Timetable

1.5 IT Structure of the Database

The database structure is based on the Reference Database approach. This model is different from the Target Data Storage (TDS) model described in the Annex 7 of the tender specifications. This decision was made during the meeting with ESTAT Unit B4 (reference databases) representatives[15] and the main reason was the usability of the project results. The project team should avoid delivering a database in format not guarantying any compatibility with the existing tools. The results couldn't be

[15] Meeting in Luxembourg on 8th of February 2008 with Mr. Georges Pongas, Maurizio Capaccioli and August Goetzfried

easily incorporated into the existing infrastructure, if that would have been developed in the TDS format. It is very important to mention that the main project result is the database, but not software communicating and allowing any operation on it. Since there are already available tools managing databases at ESTAT, it is more convenient to develop a database in a format compatible with those tools.

One of database structures used by ESTAT is represented by the Reference Database. This database is very well known and widespread at ESTAT and the TDS model was developed on that structure. Another reason for using this format is the fact that the conversion of the Reference Database to the TDS model hasn't taken place yet. It means that developing a conversion strategy for the Reference Database would automatically cover the results of the project, which can be converted together with the whole Reference Database.

The tool which is planned to be used as an interface between the users and the database is called MDT - a System for the Management of Multidimensional Objects and is used by all staff working with the Reference Database.

It should be also mentioned that the IT specialists from the ESTAT played an essential role in the development of the database. The support provided by them was on a very high level. There were no problems with the communication and quality of the delivered information was very good. For instance the idea of providing project with the dump of the reference database was the key to the efficient development of the maritime policy database. The persons, who supported the project, were:

Maurizio Capaccioli – the initiator of the reference database concept and the author of the MDT system

Gyula Szabo – the person testing the database in the last phase of the project

Technical Part

1 Integrated Maritime Policy Context and Scope of the Database

1.1 The IMP

For the first time with the Blue Book of October 2007, an Integrated Maritime Policy (IMP) was proposed for the European Union. This initiative was intended to integrate policy components that were subject to separate approaches so far, by DGs and by Member States:

- A European maritime transport space without barriers
- A European strategy for marine research
- National integrated maritime policies to be developed by member states
- A European network of maritime surveillance
- A roadmap towards maritime spatial planning by member states
- A strategy to mitigate the effects of climate change on coastal regions
- Reduction of CO2 emissions and pollution by shipping
- Elimination of pirate fishing and destructive high seas bottom trawling
- A European network of maritime clusters
- A review of EU's labour law exemptions for the shipping and fishing sectors.

These headings are included in the Blue Book; they show that the proposed IMP aims at integrating a number of competitiveness and sustainability objectives in the field of maritime affairs, as proposed in more general terms in the Lisbon and Gothenburg strategies. The IMP is then meant to contribute to maritime industry competitiveness and safety, to knowledge and innovation, and to the protection of marine and coastal environment through a range of regulatory provisions and various incentives.

1.1.1 A new Inter-Sector Approach

The Blue Book based the IMP on the "recognition that all matters relating to Europe's oceans and seas are interlinked, and that sea-related policies must develop in a joined-up way if we are to reap the desired results"[16]. The major feature of the new approach is therefore that interactions between maritime affairs components must be allowed for in designing the IMP.

Maritime affairs include as many files as maritime transport; shipping and other maritime related enterprise development and competition; marine environment protection; coastal zone management; local, regional and urban development; fishing, aquaculture and seafood products; employment and safety at work; marine science and maritime R&D. So far, these files have been dealt with separately at both EC and member states level, and separately included in larger files such as transport, competition, environment, regions, employment, etc., irrespective of their maritime dimension. A major feature of the IMP is then the cross-sector treatment of policy issues on the basis of their maritime dimension.

For instance a measure aimed at supporting a given industry – e.g. fisheries – or a given region, may have impacts in terms of environmental pressure – and marine resources – or in terms of local employment, and may lead to new developments in maritime businesses – e.g. boating and coastal tourism. Another important feature of this approach is the scope left to subsidiarity: national and regional maritime policies are seen as major components of the IMP, which is then led to accommodate and harmonise various geographical components.

[16] EC (Oct. 2007a).

1.1.2 Stakeholders

The consultation process which followed the publication of the Green Paper in 2006 was an opportunity for stakeholders to express their interest in the future IMP and to comment the proposals of the EC. Stakeholders include several categories:

- EU institutions and EU member states (ministries, political parties), and local authorities (regions),
- Maritime industry associations, and trade unions,
- International organisations and non-EU states,
- Research and education networks and organisations (e.g. National Oceanography Centre, Waterborne, Marine Board),
- Non-government organisations.

The Blue Book emphasized that the new policy would require co-operation with the different decision-making levels involved. An important objective of the IMP is therefore to take account of the diversity of stakeholders' interests and to analyse their specificities, constraints and requirements in economic and social terms.

1.1.3 IMP and the Need for economic and social Information

The need for economic and social information on maritime affairs results from the main objectives of the IMP:

- To construct a decision-making framework involving national and local authorities and stakeholders in the maritime and coastal area;
- To address a range of policy issues on marine and coastal resources management and monitoring, maritime economy and employment, and R&D.

The Blue Book justified the need for improved social and economic data on maritime sectors by regional stakeholders' need for developing rational, long-term plans and investments. Such an approach makes it necessary to analyse interactions between sectors at national and local levels; between these sectors and marine resources and environment; and the impacts of regulation on maritime activities at local and national levels and on the economy as a whole.

The Action Plan pointed out the inadequacy and the lack of harmonisation of available data. It emphasized that "policy design and projects, as well as the maritime clusters and regions themselves, need more and better data covering all socio-economic aspects of the maritime economy". It viewed these data as able to "provide the basis for an integrated maritime policy"[17]. Action 6.5 of the Action Plan includes commissioning the study which is currently underway. The mention of the Maritime Policy in the Community Statistical Programme 2008-2012[18] is an indication of the scope of the exercise in terms of technical standards.

1.2 The IMP Database

The above remarks show the need for a database to inform the different domains of the IMP. The project of a database for maritime sectors and coastal regions was announced by the Blue Book and the Action Plan[19]. To constitute a reliable set of information, it must combine economic, spatial and social information on maritime affairs, on coastal regions, and on the environmental impacts of maritime affairs.

[17] Action Plan, § 6.5.
[18] Decision 1578/2007/EC of 11 Dec 2007, OJ L344/15 of 28.12.2007.
[19] Item 4.3 of the Blue Book, and Action 6.5 of the Action Plan.

More specifically, the required information includes two major components, following the Lisbon and Gothenburg strategies:

- **Maritime Affairs Competitiveness**: economic and social elements to appraise the national and local significance of maritime activities, in particular for employment in coastal zones: a) the EC must have a clear vision on the geographical location of activities, on how dependent coastal zones are on specific maritime activities, and on cross-impacts between maritime affairs, e.g. impacts of tourism flows in terms of business and traffic development. b) It must have tools to assess the wealth yielded by maritime regions, through resource extraction, manufacturing and service industries, and through the role they play in the integration of the EU internal markets, mainly by freight and passenger transport. c) Finally, it must have basic information available to appraise to role played by the local concentration of businesses and R&D services, the two combined elements being fundamental components of the regional maritime "clusters" which are potential tools for a renewed competitiveness of EU maritime affairs.
- **Maritime Affairs sustainable Development:** the notion of sustainability has three components involving social, environmental and cohesion issues. a) In social terms, the IMP needs information on maritime employment quality and quantity, on the geographical location of maritime related jobs, on how qualified they are (depending on activities), and on their seasonality; these elements would help analyse the social characteristics of coastal regions. b) In environmental terms, the IMP needs combined information on the development of maritime affairs and of coastal environment; this requires information on both the environmental impacts of maritime activities, and the sensitiveness of these activities to environmental policy measures, including the protection of natural assets. c) In terms of cohesion, the main point at issue, in terms of sustainable development, is the case of peripheral maritime regions, especially EU islands and outermost regions: the database must help assess, not only their dependence on specific sub-sets of maritime affairs such as tourism flows or fisheries (covered in the "competitiveness" category above), but also specific requirements resulting from both their economic development and geographical specificities: energy supply; goods supply by freight transport; waste flows and their impacts in terms of management costs.

The objective of the project was therefore to build a database the scope of which would serve to document these two major components. At this stage, a distinction must be made between the scope of the database on the one hand, which directly results from its architecture, and on the other hand, the coverage of the database, which depends on the available data.

In short, the architecture of the database includes:

- A geographical dimension under which coastal regions are defined and documented in terms of local maritime activities and employment. As shown by the issues listed above, this geographical dimension includes inland- and sea-related aspects of coastal regions, through e.g. maritime basin approach and the question of EU islands and outermost regions;
- A sector / activity dimension whereby maritime activities and employment are defined and characterized through a set of key economic and social indicators, but also through their location inside or outside coastal regions;
- The combination of the two abovementioned dimensions will inform the significance of coastal regions for maritime activities in terms of available location and employment, and, conversely, the dependence of the former on the latter; it will also help assess the competitiveness of coastal zones and, additionally, design an approach to the economic significance of larger sea regions for the EU;
- A set of indicators will have to document maritime affairs sustainability and the basic environmental impacts of maritime sectors. So that the state of coastal environment can be crossed-checked with the local content in maritime activities, locationwise as well as productionwise.

The architecture will be described in detail in the following chapter regardless of data availability constraints. But the present report will show that numerous data gaps and other practical difficulties encountered in the data collection phase limit the coverage in the first stage of the development of the database. The improvement of the coverage will be addressed in chapters 4 and 6.

1.3 The IMP Database in Relation to other Tools

It is essential to address the design of the IMP database in the context of the EC's broader effort to develop databases of various scopes, and this has major consequences for the present study. In the first place, the IMP database has to be designed in Eurostat's specific IT environment and to comply with technical rules settled by Eurostat to develop its databases. The present report will address the implications of these requirements (see Chapter 3).

In the second place, it is essential to view the IMP database in the context of several other initiatives taken at EU and at international levels, notably in the area of environmental and geographical information tools. For instance, the Water Framework Directive[20] and the Maritime Strategy Framework Directive[21] aim to achieve good environmental status of the EU's marine and inland waters, and require a detailed assessment of the state of waters at local level. In another environmental domain, the GMES Global Monitoring for Environment and Security, as the main European contribution to the GEOSS Global Earth Observation System of Systems, is developing observation, detection and analysis techniques for mapping and forecasting e.g. the state of marine zones and water resources. The SEIS "Shared Environmental Information System" initiative of the EC and the European Environment Agency (EEA) is designed to establish an integrated and shared EU-wide environmental information system, in co-operation with Member States[22]. It will be linked to GMES and the INSPIRE Directive[23]. The latter lays down general rules to establish the infrastructure for spatial information in the EU, and is designed to contribute to the future GEOSS.

These initiatives are of a different nature from that of the IMP database. But the latter will have to refer to the data sets generated under their umbrella. Consistency and compatibility must be secured between such different but overlapping approaches; furthermore, there will be a need for a method to combine the use of these different tools.

[20] Water Framework Directive: 2000/60/EC of 23/10/2000, OJ L 327/1 of 22/12/2000.
[21] Marine Strategy Framework Directive: 2008/56/EC of 17/06/2008, OJ L 164/19 of 25/06/2008.
[22] EC (Feb 2008).
[23] INSPIRE Directive: 2007/2/EC of 14/03/2007, OJ L 108/1 of 25/04/2007.

2 Content and Structure of the Database

The contentual structure, i.e. architecture is the cornerstone of the database. It must provide the correct set of criteria to identify and characterize maritime affairs in economic and social terms. It goes without saying that their "maritime nature" has something to do with their proximity to the sea: a geographical aspect thus appears. However, the question is more complex: some maritime activities may be located far inland (engineering, inland navigation, etc., even boat building) and, conversely, some activities located close to the sea cannot by any way be classified as maritime or, at best, only through their impacts on coastal employment and demography. Maritime affairs must be therefore also defined by the economic and social nature of activities.

So the architecture of the database must cross three major criteria: a) the nature of the activities to be taken into account; b) their spatial characteristics; c) the nature of the indicators through which the significance of activities for maritime policies has to be assessed. Under these three dimensions, data have to be collected, structured and made accessible. Data will be extracted from time series related to selected indicators, and will refer to activities, to member states and their regions and sub-regions. The design of the architecture is an essential step of the project and the foundation of the database. This section will address its different components and discuss its relevance for maritime policies.

- The architecture must be designed so as to provide an economic, social and geographical definition of the maritime economy, based on the range of maritime activities and coastal regions. Selected key indicators must provide essential criteria for assessing and characterizing maritime activities.
- In economic and social terms, as said above, a host of maritime activities interact with environment and with other activities. The tool to be developed must provide the necessary information to assess these interactions.
- In geographical terms, EU's Maritime Policy must address both sea-related and onshore-related issues: high seas fishing practices and ship source emissions, tourism, coastal zone management, etc. Maritime regions' economic and social significance for maritime affairs must be analysed from both a marine and an onshore and hinterland standpoint; the same is necessary for their economic interactions with other maritime regions.
- Statistically, a correct design of the architecture and a comprehensive metadata directory are essential to comply with Eurostat Statistical Standards and to secure the possibility of further updates of the database. This strict condition requires selecting activities and regions by NACE and NUTS codes and indicators by codes of key variables. At this stage, it is important to note that the most quality-controlled and regularly updated statistical series in the economic and social area, either at Eurostat or at Member States' National Statistical Offices (NSOs) level are the data generated per sector and spatial units: NACE and NUTS. This is a fundamental working base and, to some extent, a constraint in both the architecture design and data collection phases. The present report will come back later to this issue.
- The objective is also to propose an architecture design which enables further updates and improvements. Clarity and flexibility of the architecture are then essential for the sustainability of the database.

These features are reflected in the geographical and sector dimensions of the database.

2.1 Geographical Dimension

The objective of the geographical dimension is to identify the spatial location of maritime activities and to provide the necessary information to analyse maritime and coastal areas in terms of economic activities, and social and geographical constraints.

However, the geographical dimension raises a complex problem as it is subject to a range of different approaches. In addition to the standard geographical classification based on the NUTS, EU policies may involve specific approaches to the spatial aspects of maritime affairs, e.g. "marine regions" as defined for the purpose of the Marine Strategy, or marine areas as defined and used by ICES International Council for the Exploration of the Sea. A clarification is then necessary for the purpose of the database.

The following sub-sections summarize different approaches to the geographical dimension of coastal zones. The conclusion of this quick survey is that the geographical breakdown of maritime and coastal areas and there resolution level, are a policy issue. They depend on the maritime policy and regulatory measures to be implemented on the basis of that breakdown. Through a given breakdown, specific assessments can be made, and specific policy problems may arise and require appropriate policy measures.

2.1.1 NUTS/LAU

The definition of maritime and coastal areas had to be made consistent with Eurostat's geographical classification used for reporting statistics, i.e. the NUTS. NUTS 3 level was considered as an appropriate level for practical reasons: a) for local administrative units (LAUs), defined up to municipality level, data are generally unavailable; b) maritime affairs may extend their impacts up to a sizeable distance from the shore, e.g. in terms of employment and income distribution; they involve a considerable number of LAUs, so that the latter do not prove a very workable way of quantifying economic and social impacts.

This methodology can inform EU policies on the sensitiveness of maritime areas, especially islands, to maritime affairs in terms of economic development and environmental conditions, and to EC's local funding policies[24].

2.1.2 Coastal Zone Definition

Eurostat's approach consists in defining coastal regions as coastal NUTS 3 units (with a shore line) and "near sea" NUTS 3 units, i.e. with 50% of their population or more living at 50 km or less from the coastline[25].

This definition is based on what we know and assume of the concentration of local economic effects of maritime affairs in terms of employment, income and environment. It is probably too broad for certain activities (e.g. fisheries), and too narrow for some others (e.g. transport logistics, manufacturing and business to business services). But this compromise permits to study the local impacts of maritime and coastal activities. In practical terms, the follow-up of population data by member states and Eurostat makes it possible to regularly update the list of relevant units.

2.1.3 The Special Aspects of Islands

Islands are a special case in coastal regions in terms of maritime policy needs. Many of them are remote and peripheral, with both a fragile economy and a fragile environment. Others are rapidly developing and are of important size. Some are located overseas, with quite different specificities in terms of policy issues.

Through the IMP database, the objective is to have a structured and information, to be regularly updated, on the characteristics of islands' economy, and on how much it depends on traditional activities (e.g. fisheries), on coastal tourism and possibly on other activities, in order to inform policy makers on their development conditions vs. their population growth and needs. Such information will help to foresee future developments in islands' economy, e.g. energy consumption, waste treatment and transport, passenger flows.

So, for islands, it is necessary to manage three categories of geographical information:

[24] See European Parliament's analysis of local impacts of coastal tourism (EP, April 2008).
[25] Eurostat (2008), Chapter 1.

- There is a need for an inventory of islands in terms of location by the NUTS. Identifying islands by geographical areas is critical for having this structured information, and for analysing the maritime sectors located in their zones.
- Depending on islands and on the nature of their economy, information on resources in the all or part of the EEZ may be essential, e.g. on fish stocks, and energy and non-energy resources; this would be based on a much different geographical dimension.
- The economy of many small islands depending on the state of the coast and of a sound environment (e.g. for tourism dependent islands), fine geospatial data may be critical for a proper coastal zone management.

Under these terms, and from an economic, social and environmental standpoint, the geographical information related to islands requires combining very different dimensions. This is why islands are subject to a specific treatment in the database. The issue will be further elaborated in the following chapters in the report.

2.1.4 Seaports and the Transport Directive

The Council Directive on statistical returns in respect of carriage of goods and passengers by sea[26] provides that a list of ports coded and classified according to countries and maritime coastal areas shall be drawn by Member States. Appendix IV of the Directive draws up the list of the areas in question per country at world level, each area being coded.

Code	*Maritime coastal area*
FR01	France: Atlantic and North Sea
FR02	France: Mediterranean
FR03	French overseas departments: French Guiana
FR04	French overseas departments: Martinique and Guadeloupe
FR05	French overseas departments: Reunion
DE01	Germany: North Sea
DE02	Germany: Baltic
DE03	Inland
GB01	United Kingdom
GB02	Isle of Man
GB03	Channel Islands
ES01	Spain: Atlantic (North)
ES02	Spain: Mediterranean and Atlantic (South), including the Balearic and Canary Islands
SE01	Sweden: Baltic
SE02	Sweden: North Sea
ZZ01	Offshore installations
ZZ02	Aggregates and not elsewhere specified

Source: Dir 95/64/EC, OJ 1995L0064/01.01.2008

Table 4: Examples of maritime coastal areas

These maritime coastal areas have a limited resolution and may include an entire shoreline of a country; e.g. Spain's North Atlantic shoreline. Main islands may be treated separately, e.g. Isle of Man and the French overseas islands, but this is not systematic as Balearic and Canary Islands are included in Spain's Mediterranean area. Inland may be separately identified as maritime (e.g. Germany).

Such definition permits to report maritime (and inland) traffic intensity by maritime regions on the basis of Eurostat's time series, at least for mid- and upper-size ports. Traffic is part the wealth generated by maritime and coastal zones.

[26] Directive 95/64/EC of 8/12/1995, OJ L320 of 30/12/1995.

An additional remark must be made about seaports. Port areas and facilities extend both offshore and inland. As explained by Optimar in general terms: "Port competitiveness depends nowadays to a large extent on the ability of ports to integrate in global supply chains. Variation in the degree of seaport integration in logistics and supply chain management include adoption of information and communications, technologies, relationship with shipping lines, value added services, interconnectivity/inter-operability with inland modes of transport, relationships with inland transport operators and channel integration practices and performance"[27]. Certain ports authorities develop inland hubs and partnership with a range of logistics businesses. This is the strategy of most EU North range ports. In this context there is no common concept of a port area, as this may largely depend on ports' size and business extension.

2.1.5 ICES and FAO Approaches to maritime Regions

For stock assessment and other marine exploitation purposes, ICES International Council for the Exploitation of the Sea has defined subdivisions of North East Atlantic fishing zones, including those of Europe. This permits to identify fish stocks and other sea resource yielding areas, and to estimate the impacts of fishing on stock productivity, which plays a role in determining fishing quotas. Indirectly, this also permits to more accurately define boarders between regional seas.

Mediterranean fishing subdivisions are not defined by ICES but by FAO. Mediterranean is subdivided into 7 zones, and the Black Sea into 3 zones, including Azov and Marmara Seas.

2.1.6 Maritime Regions in the Marine Strategy Framework Directive

With a view to improving the environmental state of EU seas (see Chapter 1), the Marine Strategy Framework Directive includes marine regions and subregions of European waters.

Maritime regions	***Subregions***
Baltic Sea	
North-east Atlantic Ocean	Greater North Sea, incl. Kattegat and English Channel
	Celtic Seas
	Bay of Biscay, Iberian Coast
	Atlantic Ocean and Macaronesian biogeographic region (Azores, Madeira, Canary Islands)
Mediterranean Sea	Western Mediterranean Sea
	Adriatic Sea
	Ionian Sea and Central Mediterranean Sea
	Aegean-Levantine Sea
Black Sea	

Table 5: Maritime regions

It may be assumed that the low resolution level of the above subdivisions is linked to water currents and the potentially pervasive and unpredictable effects of water pollution in spatial terms. They also suggest that the subdivision of the marine waters required for the analysis of maritime affairs and their environmental impacts may be of a much lower resolution level than the inland side.

2.1.7 High resolution spatial Approach, and coastal Zone Management

Coastal zone managers, concerned about the impacts of construction and other management measures on the state of the coast and on marine resources and environment, need a high resolution analysis of coastal zones. Many of them use geospatial tools[28] which develop a quite different approach to the spatial aspects of coastal zones. The approach refers to a range of parameters, including the physical and demographical characteristics of the zones and of the shoreline at a very local scale (erosion, pollution, sea level rise, state of coastal resources, etc.). For management purposes, this approach may need to include different sites with the same characteristics, even if they are located on either sides of a border between two Member States.

[27] Optimar and al. (2008).

[28] Chapter 5 will come back to the use of geospatial tools.

2.1.8 Mapping of Geographical Aspects in the Database

There are a quite big number of different spatial approaches described above. In the MP database most of them have its place, but not all and not covered by 100%. For instance the described NUTS/LAU classification is the mostly used geographical dimension. However this is the case only up to NUTS 3 level. The Reference Database doesn't include the LAU lists. Since there are very few data which could be gathered on this level (from the project's point of view), the MP database doesn't extend the NUTS classification by introducing the LAU 1 and LAU 2 levels. Another issue would be also the heterogeneity of the LAU nomenclature in the particular member states. The common standard for the codes on the mentioned level hasn't been establish on the European level until now and even within one country there are sometimes 2 or 3 possibilities for defining a particular LAU unit.

Also the high resolution spatial approach is not present in the MP database. The reason for that is the compatibility with the Reference Database. Extension of the MP database by a geo referencing component would cause compatibility problems since this aspect is not covered by the Reference Database

The table below gives a detailed overview of geographical dimensions implemented in the IMP database.

Dimension name used in the database	***Description***	***Subsets and/or extensions***
geo partner[29]	standard geographical dimension included in the Reference Database consisting of the most countries of the worlds and all European NUTS regions (up to NUTS 3) used in the most statistics	extended by maritime basins as an additional aggregation level coastal NUTS 3 regions – this subset was created on the basis of the coastal zone definition
geo_island	new dimension introduced by the project and used in the subset of the structure business statistics describing the activities on the islands, based on island list, NUTS 3 and LAU	
rep_mar	dimension included in the Reference Database used in the maritime transport statistics (mar_go_... and mar_pa_...), describing the origin of the transports and referring to the Seaports and the Transport Directive	extended by maritime basins as an additional aggregation level
region	dimension included in the Reference Database used by aquaculture statistics (fish_aq_...), describing the fishing areas of the aquaculture products	contains following subsets: • coastal NUTS 3 regions, • FAO statistical areas with subdivisions • ICES regions
par_mar	dimension included in the Reference Database used in the maritime transport statistics (mar_go_... and mar_pa_...), describing the destination of the transports and referring to the Seaports and the Transport Directive	

Table 6: Geographical dimensions used in the database

[29] Synonym for the geo dimension

2.2 Maritime Sectors' Dimension

Sectors constitute the other basic dimension for reporting maritime statistics, alongside geographical units. The holistic nature of the Blue Book's approach to Maritime Policy and the diversity of maritime regions' policies make it critical for the database to include a wide range of sectors.

Maritime activities / sectors were identified on the basis of the list proposed in the TS[30], and on the project team's own experience of maritime economy at EU and national levels.

Sectors and NACE Codes

The list of maritime sectors, according to the study outline specification, is categorized into two groups of activities:

- Group 1 includes the following sub-groups: a) the exploitation of marine resources, i.e. fishing (incl. aquaculture and seafood), oil, gas, aggregates and other energy and non-energy raw material extraction; b) transport and related services: ports, maritime and inland shipping, submarine cable and pipeline laying, dredging and civil engineering; c) equipment manufacturing: ship and boat building, repair, scrapping and conversion, marine equipment; d) a diversity of maritime (private and public) services, and offshore supply.
- Group 2 includes the tourism industry specifically and related services; a) tour operators, tourist assistance and cruise; b) a range of leisure activities with local impacts; they include cruise passengers' local expenditures.

Maritime sectors were identified by NACE codes in compliance with the ESS European Statistical System. Codes were reported under NACE Rev 1 (2003) and Rev 2 (2008). As data had to be reported from 2000 to 2006, Rev 1 was practically the relevant version of the NACE for data collection.

Key Indicators

Each sector was characterized by a set key indicators reported for the 2000-2006 period. These indicators were defined to report:

- The structure of maritime affairs through sectors' yearly situation in terms of value generation at national and local levels (value added, income distributed, and exports of products);
- The development of maritime affairs through growth rates of the above indicators, seasonality and price evolution;
- Regional interactions through the analysis of regional and national interdependencies and of inter-regional trade flows.

[30] PRC-ISL (2001, Annexe 3, Sector definitions).

Indicators	
V11110	Number of enterprises
V12110	Turnover or gross premiums written
V12140	Value added at basic prices
V12150	Value added at factor cost
V13110	Total purchases of goods and services
V13120	Purchases of goods and services purchased for resale in the same condition as received
V13310	Personnel costs
V16110	Number of persons employed
V16140	Number of employees in full time equivalent units
V20110	Purchases of energy products (in value)
V99110	Turnover at constant prices
V99120	Production value at constant prices
V99300	Growth rate of value added at factor cost at constant prices

Table 7: Geographical dimensions used in the database – Key indicators

It follows from the objectives that these indicators have to be reported at different geographical levels, from NUTS 0 level (country) to NUTS 3 (local). In other terms, key indicators are defined and reported to link the sector and geographical dimensions.

External Trade and CPA

External trade data are collected from member states on a product basis, products being classified by Prodcom and CPA codes. Relevant Prodcom and CPA codes had therefore to be listed in relation to the maritime related NACE codes.

Main Difficulties

- Maritime vs. NACE: Maritime activities are impossible to strictly classify on the basis of the NACE. The fundamental reason is that the sea is not a criterion for the classification of activities, either at EC or at member state level. This is typically the cases of maritime equipment and tourism.
- Eurostat's requirement for a "sustainable" Maritime Policy database, i.e. which excludes estimates, makes it impossible for the design of the architecture to bypass NACE codes and key indicators as used by member states. Alternative sources often produce one-off datasets, or may include rough and unreliable estimates.

Sector	*NACE sector*		*Assignement to the sector*
Boat building and repair	DM3512	Building and repairing of pleasure and sporting boats	direct
Extraction, mining	CA111	Extraction of crude petroleum and natural gas	indirect
	CB1421	Operation of gravel and sand pits	indirect
	CB144	Production of salt	indirect
Fishing	B0501	Fishing	direct
	B0502	Fish farming	direct
	DA152	Processing and preserving of fish and fish products	direct
	DA1571	Manufacture of prepared feeds for farm animals	indirect
	G5223	Retail sale of fish, crustaceans and molluscs	direct
Inland shipping	I612	Inland water transport	direct
Maritime equipment	DB1752	Manufacture of cordage, rope, twine and netting	indirect
	DG243	Manufacture of paints, varnishes and similar coatings, printing ink and mastics	indirect
	DG2466	Manufac… n.e.c.	
	DH25	…	

Table 8: Maritime Policy data (group 1 only). Coverage of maritime activities by NACE codes (Note the full table is available in Appendix 8)

The following sub-sections address in turn the main maritime sectors and give indications both on their coverage by the standard classification and on stakeholders' views on the coverage.

2.2.1 Shipping

Descriptive Definition of the Sector

Generally the sector shipping includes the different activities of maritime transport. In the context of this report the following items has to be originally considered by the given specification: Merchant shipping & ship management, short-sea shipping, chartering-out, cruise & ferry services, ocean towage (but only with reference to sea and coastal water transport, excluding inland water transport).

In 2006 transport of freight and passengers at sea contributed 24.7 billion € to the EU balance of payments. The EU registered share of the world wide fleet increased to 21.4%. The ship-owners of the EEA (European Economic Area) invested approximately 110-120 billion € during the last three years (2005-2007)[31].

[31] Lloyd´s Register-Fairplay / ECSA-Annual Report 2007-2008

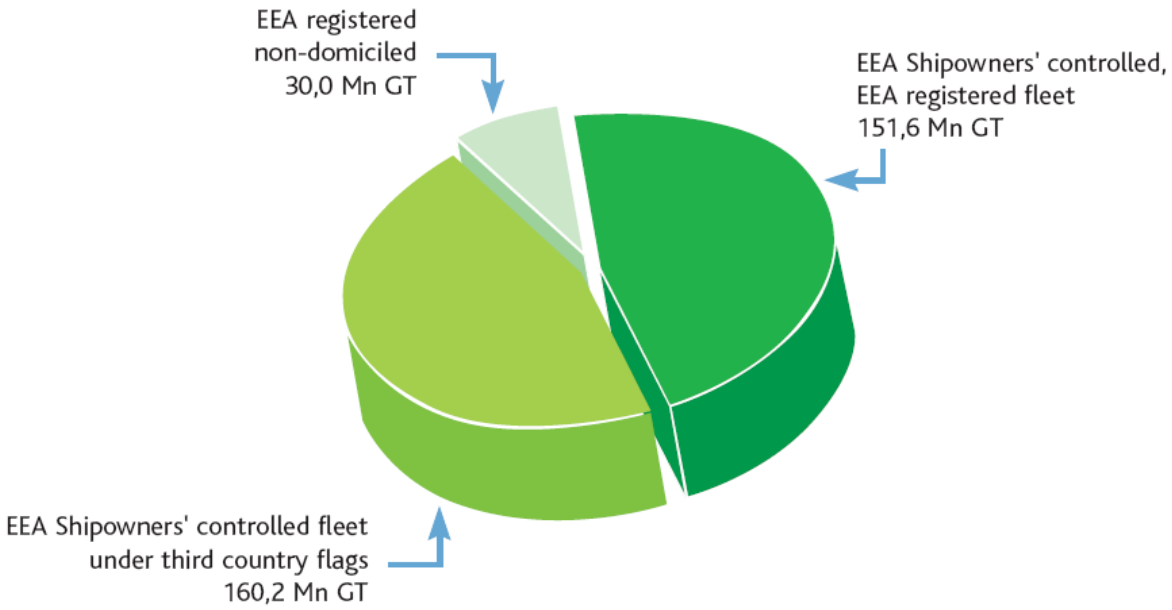


Figure 1: EEA r registered and EEA controlled fleet as at 1st July 2008*

YEAR	EEA		WORLD		EEA AS % OF WORLD TONNAGE
	Nº	MN. TONNES	Nº	MN. TONNES	
1990	7 659	72 326 GRT	38 221	383 955 GRT	18,8
2000	6 783	84351 GT	45 023	518 221 GT	16,3
2005	9 047	154 332 GT	46 801	618 109 GT	25,0
2006	9 037	156 907 GT	48 096	660 749 GT	23,7
2007	9 168	161 719 GT	49 705	704 604GT	23,0
2008	9 732	181 668 GT	51 687	770 980GT	23,6

Table 9: The EEA registered and world fleet development (as at 1st July 2008, ships with 100 GT and above)

Identification of the Sector in the standard Classification

The network cores of the sector shipping are to be described directly by the Standard Classification Among others the NACE division water transport (61 NACE rev. 1.1, 50 NACE rev. 2) includes 61.10 (Sea and coastal water transport) covering for example transport of passengers or freight over water, whether scheduled or not. Also included are the operation of excursion, cruise or sightseeing boats, ferries, water taxis etc and the transport by towing or pushing of barges. In NACE Rev. 2, location is an additional indicator for the useful separation between sea and inland water transport, the deciding factor is the type of vessel used. Transport on sea-going vessels is classified in groups 50.10 (Sea and coastal passenger water transport) and 50.2 (Sea and coastal fright water transport, while transport using other vessels is classified in groups 50.3 and 50.4 that belong to the inland shipping sector.

NACE Rev. 1.1 Code	NACE Rev.1.1 Description	NACE Rev. 2 Code	NACE Rev. 2 Description
61.10	Sea and coastal water transport • transport of passengers or freight over water, whether scheduled or not • operation of excursion, cruise or sightseeing boats • operation of ferries, water taxis, etc. • transport by towing or pushing of barges, oil rigs, etc. • renting of ships and boats with crew • renting of pleasure ships with crew	50.10	Sea and coastal passenger water transport • transport of passengers overseas and coastal waters, whether scheduled or not • operation of excursion, cruise or sightseeing boats • operation of ferries, water taxis etc. • renting of pleasure boats with crew for sea and coastal water transport (e.g. for fishing cruises)
		50.20	Sea and coastal freight water transport • transport of freight over seas and coastal waters, whether scheduled or not • transport by towing or pushing of barges, oil rigs etc • renting of vessels with crew for sea and coastal freight water transport
71.22	Renting of water transport equipment • renting and operational leasing of water-transport equipment such as commercial boats and ships without operator	77.34	Renting and leasing of water transport equipment • renting and operational leasing of water-transport equipment without operator commercial boats and ships

Table 10: Sector description by NACE codes - Shipping

Besides the 4-digit NACE codes (61.10 or 50.10 and 50.20) the Shipping sector can be directly represented by about 11 different codes of the 6-digit CPA regime.

CPA 2002 No.	Description
61	WATER TRANSPORT SERVICES
61.1	Sea and coastal water transportation services
61.10	Sea and coastal water transportation services
61.10.1	Sea and coastal water passenger transportation services
61.10.11	Sea and coastal water passenger transportation by ferries
61.10.12	Other sea and coastal water passenger transportation
61.10.2	Sea and coastal water freight transportation services
61.10.21	Sea and coastal water transportation of frozen or refrigerated goods
61.10.22	Sea and coastal water transportation of crude oil
61.10.23	Sea and coastal water transportation of other bulk liquids or gases
61.10.24	Sea and coastal water transportation of containerized freight
61.10.25	Sea and coastal water transportation of mail
61.10.26	Sea and coastal water transportation of dry bulk goods
61.10.27	Sea and coastal water transportation of other freight
61.10.3	Rental services of sea-going vessels with crew; towing and pushing services
61.10.31	Rental services of sea-going vessels with crew
61.10.32	Sea and coastal water towing and pushing services
71.22	Renting services of water transport equipment
71.22.1	Leasing or rental services of vessels without crew
71.22.10	Leasing or rental services of vessels without crew

Table 11: Sector description by CPA codes - Shipping

The NACE codes 61.10 (NACE rev. 1.1) respectively 50.10 and 50.20 (NACE rev. 2) are directly and completely relevant for the sector shipping. Also the corresponding CPA codes make it possible to identify the shipping sector directly. From this point of view there is only a moderate need for an indirect identification. Codes 61.22 (NACE Rev. 1.1) and 52.22 (NACE Rev. 2) show different “other supporting water transport activities”. These activities should count only partly to the shipping sector. But there is no statistical segmentation into sea-going and non-sea-going / inland shipping activities.

In order to measure the economic performance of the shipping sector also statistical data about loaded and unloaded respectively transported goods or passengers are collected. These sustainable statistical regimes are built up on the recording of transport performance measured by the quantities of goods (in tonnes or units/passengers) respectively the quantities of transported goods connected with the covered assigned distances (for example in tonnes-km) and exist besides the statistics based on socio-economic indicators.

The different national and international port-/transport-statistics make it possible to quantify the worldwide and regional seaborne trade volume and the passenger transport. The following figure shows the development of world seaborne trade based on such data recorded by WTO (World Trade Organization)[32].

	CRUDE OIL	OIL PRODUCTS	IRON ORE	COAL	GRAIN	OTHER CARGO EST.	TOTAL EST.
1990	6 261	1 560	1 978	1 849	1 073	4 400	17 121
2000	8 180	2 085	2 545	2 509	1 244	7 130	23 693
2005	9 239	2 510	3 918	3 113	1 686	9 132	29 598
2006	9 495	2 635	4 192	3 540	1 822	9 763	31 447
2007	9 685	2 755	4 790	3 750	1 857	10 095	32 932
2008 forecast	9 946	2 910	5 195	3 905	1 959	10 280	34 195
2009 forecast	10 423	3 125	5 570	4 095	2 031	10 670	35 914

Table 12: World seaborne trade

[32] World Trade Organization / ECSA-Annual Report 2007-2008

According to port statistics as collected and published by Eurostat, total port handling volume[33] in EU-27 amounted to 3.7 billion tonnes in 2006 and 5.3 billion tonnes in 2007[34].

Region	Country	Outwards	Inwards
Baltic Sea Region	Denmark	43.5	52.6
	Sweden	78.4	82.6
	Finland	47.0	56.0
	Estonia	41.7	6.1
	Latvia	49.2	6.6
	Lithuania	19.0	8.5
	Poland	33.1	19.8
N Sea, UK & Ireland	Germany	120.4	178.9
	Netherlands	118.7	360.8
	Belgium	94.1	124.4
	Ireland	11.2	25.9
	United Kingdom	213.7	356.7
W Med & Atlantic arc	France	*95.9*	*239.8*
	Portugal	19.7	45.5
	Spain	117.1	301.0
	Italy	*157.0*	*342.0*
E Med & Black Sea	Slovenia	5.0	10.5
	Malta	0.2	3.3
	Greece	55.5	76.7
	Cyprus	*1.3*	*5.9*
	Bulgaria	11.3	16.3
	Romania	22.1	24.3
	Total	**1,355.3**	**2,344.1**

Table 13: Total port handling volume of the member countries of the European Union 2006 (in billion tonnes)

Other non-sustainable statistical Studies

- The European Commission's Directorate General for Energy and Transport (DG TREN) decided in 2007 to conduct a study in order to formulate possible future EU policy options for maritime transport. This report drawn up by a consortium of companies led by Lloyd´s Register-Fairplay Research was published in September 2008.[35] Eurostat has provided comprehensive statistical ports data per member country and single ports that had been primarily analysed in part A of the study:

Part A: Geographical distribution and evolving patterns of seaborne trade,
Part B: Signals of future change in shipping,
Part C: SWOT analysis,
Part D: Shipping scenarios and strategic recommendations.

All forecasts presented in the study are designed for a baseline scenario and later used as benchmarks in the impact analyses of the alternative scenarios.

- Another public study, commissioned by EC/DG Fisheries and Maritime Affairs[36], covers nearly all maritime sectors including shipping. This report is also only partly based on official statistics. Because of the lack of comparable data as the statistics gathered by the national statistical offices only employment data for the fisheries sector were comparable to be used.

[33] Including domestic and intra-European trade
[34] Lloyd's Register Fairplay: OPTIMAR – Benchmarking strategic options for European shipping and for the European maritime transport system in the horizon 2008-2018.
[35] Lloyd's Register Fairplay: OPTIMAR – Benchmarking strategic options for European shipping and for the European maritime transport system in the horizon 2008-2018
[36] Ecotec (2006).

- The analysis of the economic impact of all the European maritime industries was the main task of the study commissioned by DG Enterprise and published in 2000.[37]

Among other sectors, Shipping is marked by the existence of a greater number of privately owned service companies specialized in recording and evaluation of statistical shipping data beyond the official statistics of the public authorities. These companies operate their own systems of data acquisition in order to meet the requirements of the sector they belong to.

Because it is impossible to detail all the activities, the following figure gives a rough overview about the specialized services of some of the companies.

European Service Company	*Selected Shipping Data Subject(s)*
AISLive	Ship Movements (Transport)
Drewry Shipping Consultants	Container Trade (Transport)
Dynamar	Container Trade (Transport)
Fearnleys	Seaborne Trade (Transport)
Global Insight (France)	Seaborne/Bulk Trade (Transport)
Lloyd's Register-Fairplay	Merchant Fleet Structure
	Newbuildings (Ships)

Source: MC Marketing Consulting.

Table 14: Maritime transport data activities in Europe (Selection)

Identification of Sector Stakeholders

The European Community Ship-owners Associations (ECSA) can be named as one of the most important European stakeholder of the private shipping sector. ECSA was formed in 1965 and comprises the national ship-owners associations of the EU and Norway. The association works through a permanent secretariat in Brussels and a Board of Directors, as well as a number of specialized committees. ECSA regards its aim "to promote the interests of European shipping so that the industry can best serve European and international trade and commerce in a competitive free enterprise environment to the benefit of shippers and consumers"[38].

Definition of relevant socio economic Indicators and Key Variables

As seen from ECSA the following variables should be modified or supplemented because of the existing doubts and the special interests of the association:

- "Turnover" is very relevant. But it is very difficult to get reliable data about the turnover of the sector in general, supplementing the official statistics own estimations are possible and imaginable. The main problem is the statistical consideration and the recording of the "chartered ships". Here it would be helpful to distinguish between "vessels owned" and "vessels chartered"
- The official verification of "number of persons employed" has to be assessed as critical because only the enterprises of the sector are able to distinguish between "employed onboard" and "employed onshore".
- The use of the variable "value added" is limited because of the lack of a clear definition.

In order to improve the usability of statistical variables, the following modifications were suggested by ECSA:

- Separated verification of the turnover by "vessels owned" and "vessels chartered"

[37] PRC (2000).
[38] Lloyd´s Register-Fairplay / ECSA-Annual Report 2007-2008

- Separated verification of the number of persons employed by “employed onboard” und “employed onshore”
- Additional recording and verification of “investments (in GT)”
- and with lower priority
- Distinction between „EU nationals“ und „non EU nationals“, and the „permanent employment“ and „on the payroll“ referring to the personnel costs

As most important variables will be estimated in general:

- Turnover
- Number of persons employed
- Number of employees in full time equivalent units
- Personnel cost

Evaluation of the Representation, Data Availability and Quality

Shipping is one of those EU maritime sectors that can be directly identified in the standard classification.

Data quality (actuality, completeness, accurateness) is comparatively satisfactory but partly subject of criticism when verifying with sector experts.

Availability of data at regional level (NUTS 3) is extremely limited (or confidential).

2.2.2 Shipbuilding

Descriptive Definition of the Sector

Shipbuilding basically takes place in 15 European countries. Shipyards represented by the European Shipbuilders Association (CESA) cover about 99% of the EU shipbuilding production. European shipyards offer products in three areas: construction of merchant vessels, repair and conversion and naval production. European shipyards hold some 20% of the worldwide production capacity of merchant ships and provide jobs for about 150,000 direct employees.

Geographical Dimension of the Marine Equipment Industry

367 Shipyards listed in the European Association, of which most are located in coastal regions. However, some shipyards are also located at rivers and off the coast (about 10-15%). These shipyards definitely represent those with the main socio-economic impact in the sector. However, the statistical systems in different countries or regions show many more companies assigned to the shipbuilding industry (NACE 3511). This can be proven by the example of Germany, which has about 63 shipyards (17 Inland). The official statistics is counting 202 companies for the sector.

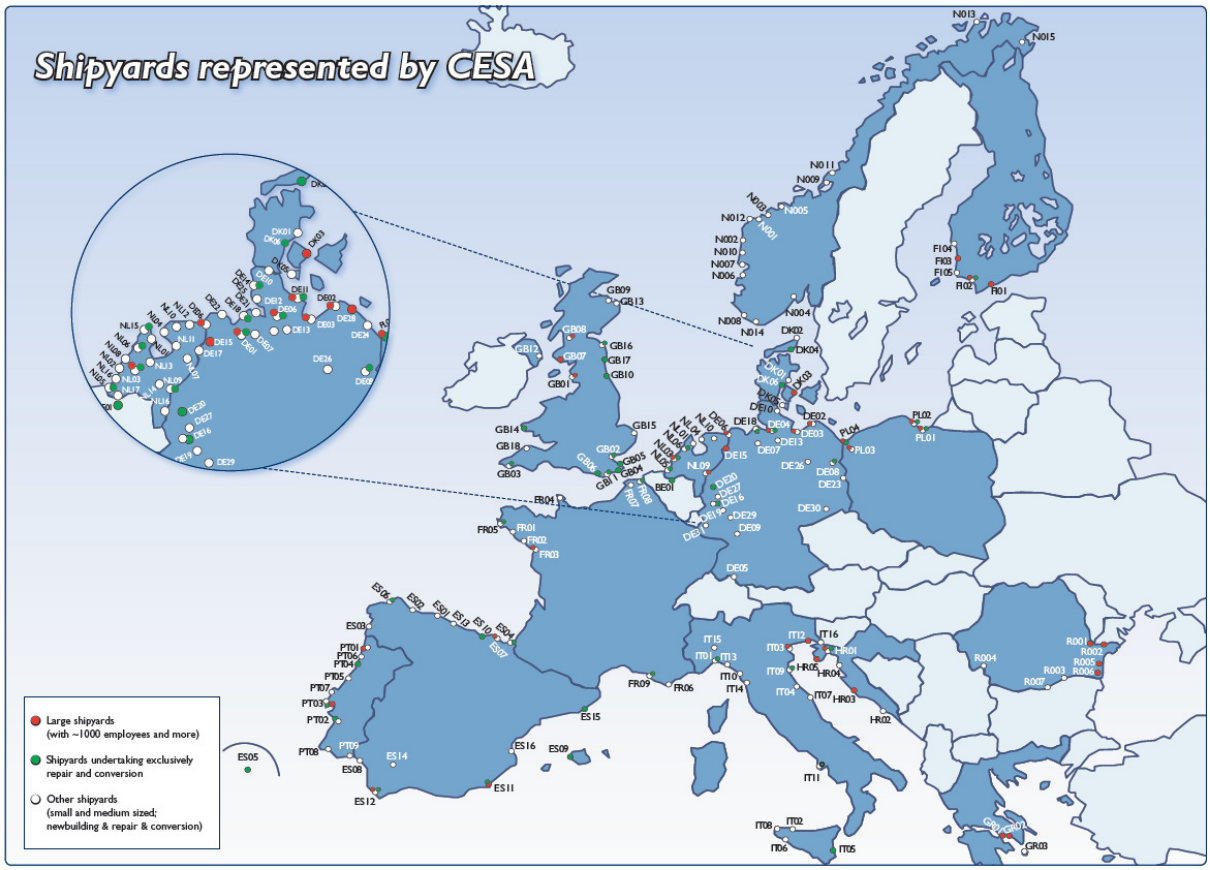


Table 15: Shipyards represented by CESA

Identification of the Sector in the Standard Classification

Shipbuilding can be directly identified in the statistical system by the 4-digit NACE code 3511. Further, shipbuilding is represented by about 12 codes under the 6-digit CPA regime and furthermore by 23 codes under the 8-digit PRODCOM nomenclature. This structure has been under discussion between the industry representatives (CESA) and the Commission (DG ENTR and Eurostat), leading to a revision of the CPA/PRODCOM definitions 2008 for NACE 2.0 class 30.11 and to a separation of the repair business into a new code (33.15) For details on the proposed CPA structure for 30.11 see Appendix 1.

NACE Rev. 1.1 Code	NACE Rev.1.1 Description	NACE Rev. 2 Code	NACE Rev. 2 Description
35.11	Building and repairing of ships Includes: • building fish-processing factory vessels • manufacture of sections for ships and floating structures • building of hovercraft (except recreation-type hovercraft)	30.11	Building of ships and floating structures Includes: Manufacture of seats for ships and floating structures (ex. NACE 36.11)
		33.15	Repair and maintenance of ships and boats Includes: Repair and routine maintenance performed by floating dry-docks
		38.31	Dismantling of wrecks Includes: Breaking of Ships

Table 16: Sector description by NACE codes - Shipbuilding

Beyond the direct statistical identification of the sector in the statistical regime an indirect identification of the sector is normally not applicable. However, some shipbuilding companies have migrated into steel construction companies acting as suppliers for the shipbuilding industry, but also for other industries. These companies may still report their statistics as shipyards, but probably also under other NACE codes.

Other statistical classifications: the shipbuilding industry is also monitored by other statistical data, e.g. the OECD system. However, these data are sourced from NSOs and should be in line with the figures reported nationally or at EU level. Some deviations can be identified due to the fact that the statistical definitions are not absolutely identical. NACE Rev 2.0 may overcome this problem by harmonizing the systems globally.

Other non-sustainable statistical Studies

For shipbuilding, many public and commercial statistics are available. Commercial organisations closely monitor the ships on order, ships delivered by different size classes, ship type, by country, by shipyard, by owner, by value etc. and consolidate all this data in databases. This data is usually very close to the actual market situation. However, no socio economic data on the companies are usually given.

Shipbuilding associations traditionally run statistical analysis frequently by themselves. Statistics are built on commercially available data (Lloyd's, Fairplay, Clarksons) and on own evaluations by annual questionnaires to their member firms.

The European Shipbuilding association CESA for instance is running two permanent expert groups on "Market Monitoring" and on "Market & Forecast". Their task is to monitor the general economic and policy developments related to the global shipbuilding market, to monitor market developments at macroeconomic level and reviews any issues of anti-competitive behaviour. Further they serve as an interface on these issues to the European institutions by offering quarterly briefing and discussion sessions.

As another source for statistical information serves trade union related research organisation, which frequently perform a Shipbuilding Survey, specifically targeted on employment. This analysis gives a very precise report on the actual situation since it is built bottom-up from the files of the individual companies.

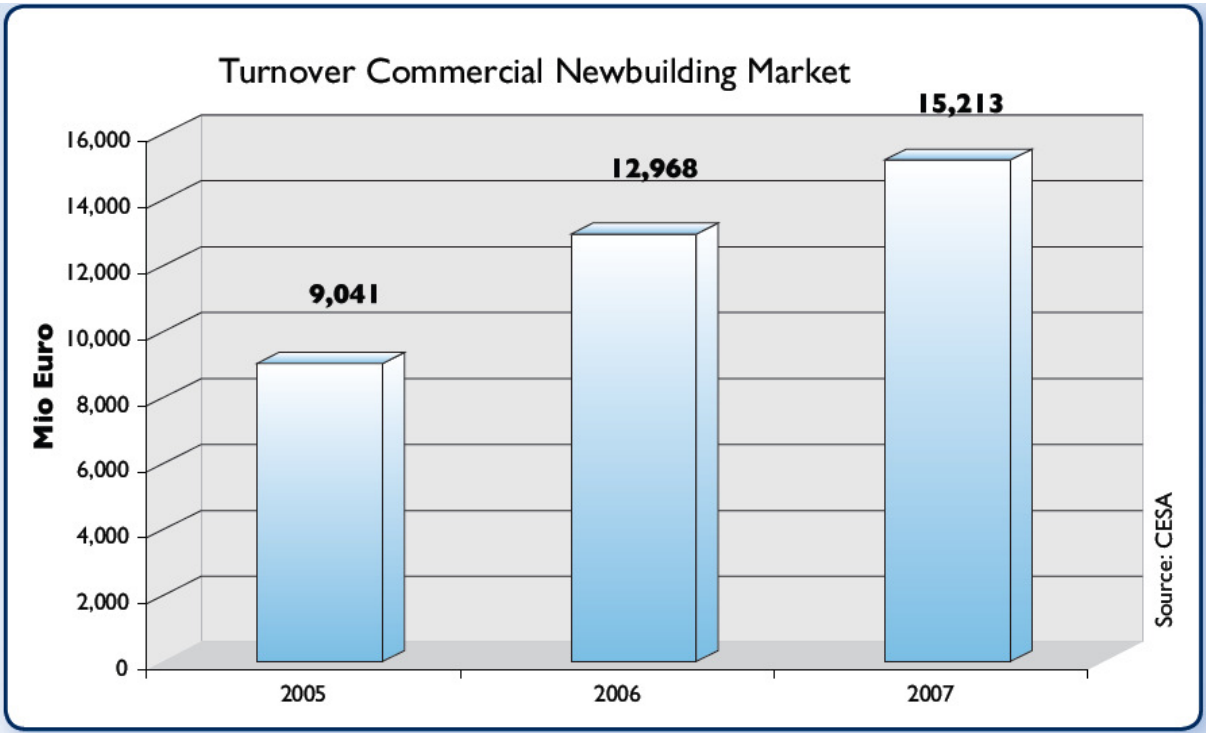


Figure 2: Turnover commercial shipbuilding market

MAINTENANCE, REPAIR AND CONVERSION TURNOVER 2007

	2003	2004	2005	2006	2007
CROATIA	23	27	38	34	33
DENMARK	85	85	85	100	100
FRANCE	95	86	90	100	100
GERMANY	552	620	601	747	955
GREECE	57	0	50	86	108
ITALY	186	280	300	330	351
MALTA	0	26	46	57	49
NETHERLANDS	245	230	250	525	664
NORWAY	69	0	50	90	90
POLAND	123	150	155	180	304
PORTUGAL	81	93	108	121	132
ROMANIA	35	32	55	69	54
SPAIN	245	228	270	275	350
UK	420	428	391	300	252
TOTALS	2.216	2.284	2.488	3.014	3.543

Figure 3: Maintenance, repair and conversion turnover 2007 .

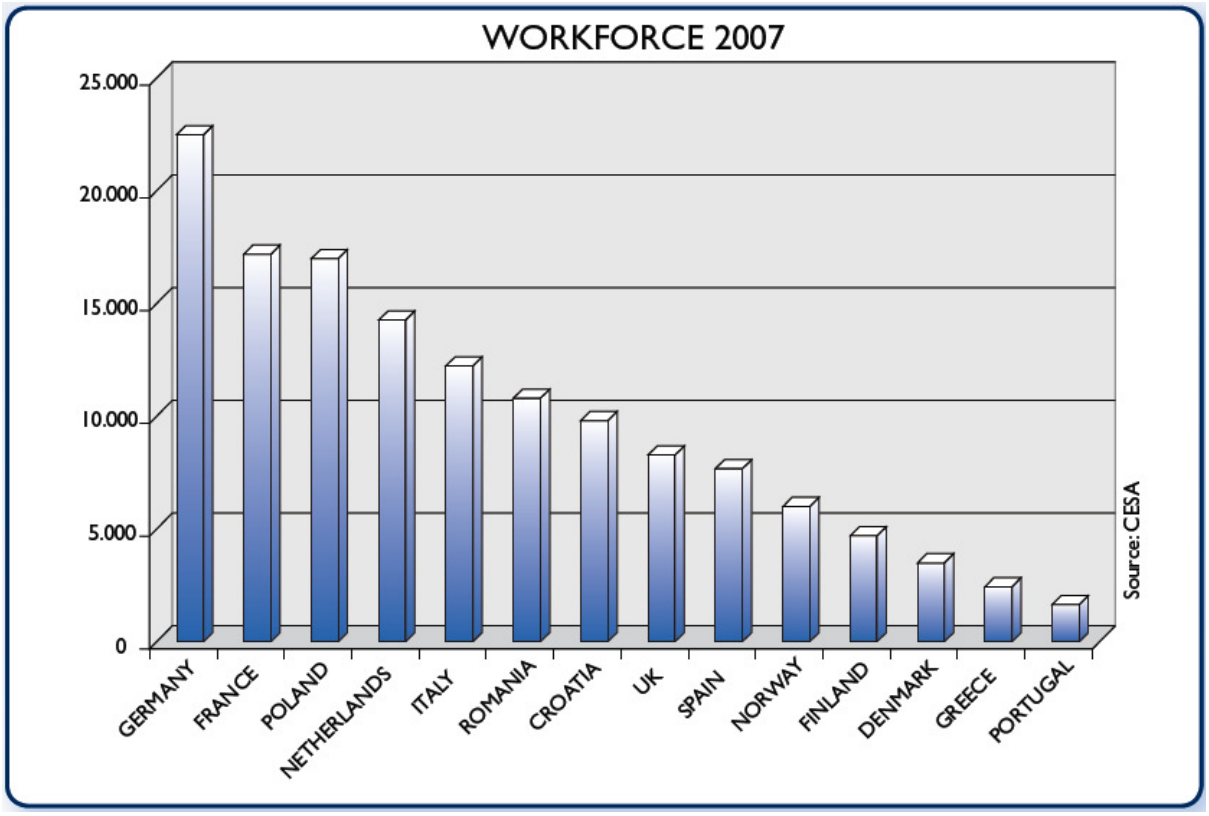


Figure 4: Shipbuilding workforce 2007

Identification of Sector Stakeholders

Traditionally shipbuilding is represented by strong national associations which are co-ordinated by a European roof organisation. Due to the strong political impact of the industry over decades the role of trade unions and contribution to shipbuilding policy is also very strong. This is adequately mirrored in governmental organisations in the Member States and at European level.

Main stakeholders are as follows:

- CESA – Community of European Shipyards' Associations
- National Associations
- EMF – European Metal Workers Federation
- European Commission - DG Enterprise and Industry

Definition of relevant socio economic Indicators and Key Variables

Beyond the basic indicators as defined for the other maritime sectors it is of specific importance for the sector to better understand import and export data for built ships. This is of particular importance to also understand nationality of ownership of delivered vessels and flag states under which the ships are put into operation. This is statistically difficult to distinguish. Specific actions may be taken in the future to improve this situation.

Evaluation of the Representation, Data Availability and Quality

Among the maritime sectors, shipbuilding is one of the best represented sectors in the statistical regime. However, some specifics of the industry also make it difficult to produce continuous sustainable statistics. Reasons are for example the fact of realising extremely big contract values which may stretch over some years. The small number of companies may lead to confidentiality

problems for collected data when it comes down to a higher geographical resolution. Some inappropriate definitions in the statistical regime furthermore create difficulties in accurate of reporting. Here the revised NACE 2.0 regime does not necessarily improve the situation. Example: the statistical system regards “ship conversion” as a shipbuilding task, whereas practically “ship conversion” is performed by ship repair yards, which under NACE 2.0 have to report under another code.

Another not understandable example is that in NACE 2.0 the “Manufacture of seats for ships and floating structures” has now been assigned to the shipbuilding code, but effectively is a product in the category of marine equipment. Further the new code for shiprepair (33.15) does combine repair of ships and boats which effectively is performed by totally different companies and boat repair is basically performed by newbuilding boat yards at the same time.

Beyond the accuracy of information, one of the biggest problems however is the timely availability of information, which does not meet the requirements of the industry in the context of strategic planning tasks.

2.2.3 Boat building and repair

Descriptive Definition of the Sector

NACE division “Building and repairing of pleasure and sporting boats” (35.12 NACE rev. 1.1, 30.12 NACE rev. 2) includes the building of inflatable, building of sailboats with or without auxiliary motor, building of motor boats, building of other pleasure and sporting boats (i.e. canoes, kayaks, skiffs) and maintenance, repair or alteration of pleasure boats. This class excludes manufacture of marine engines, see 29.11 and manufacture of sailboards, see 36.40.

Identification of the Sector in the Standard Classification

The NACE codes make a direct description of the sector. There is no need for an indirect identification. The corresponding CPA codes also directly describe the “Building and repair of pleasure and sporting boats” sector.

NACE Rev. 1.1 Code	*NACE Rev.1.1 Description*	*NACE Rev. 2 Code*	*NACE Rev. 2 Description*
35.12	Building and repairing of pleasure and sporting boats • building of inflatables • building of sailboats with or without auxiliary motor • building of motor boats • building of other pleasure and sporting boats: canoes, kayaks, skiffs • maintenance, repair or alteration of pleasure boats	30.12	Building of pleasure and sporting boats • manufacture of inflatable boats and rafts • building of sailboats with or without auxiliary motor • building of motor boats • building of recreation-type hovercraft • manufacture of personal watercraft • manufacture of other pleasure and sporting boats: canoes, kayaks, rowing boats, skiffs
		33.15	Repair and maintenance of ships and boats • repair and maintenance of pleasure boats

Table 17: Sector description by NACE codes - Boat building and repair

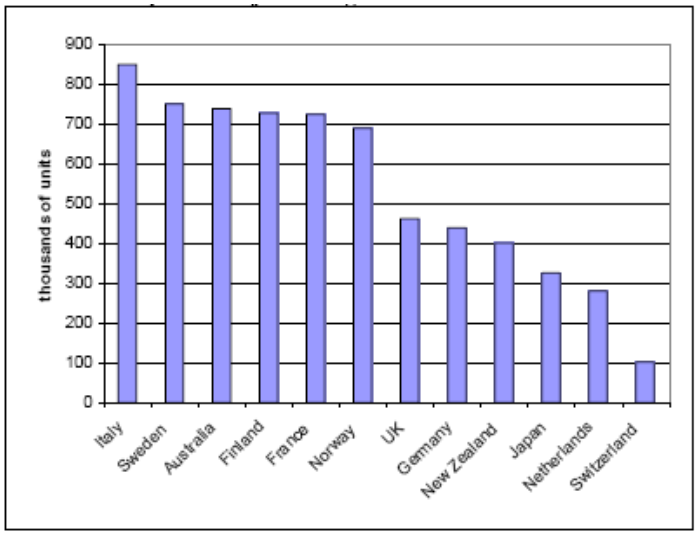
CPA 2002 No.	Description
35.12	Pleasure and sporting boats
35.12.1	Pleasure and sporting boats
35.12.11	Sailboats for pleasure or sports
35.12.12	Inflatable vessels for pleasure or sports
35.12.13	Other vessels for pleasure or sports; rowing boats and canoes
35.12.9	Maintenance, repair, reconstruction, fitting out services of pleasure and sporting boats
35.12.90	Maintenance, repair, reconstruction, fitting out services of pleasure and sporting boats

Table 18: Sector description by CPA codes – Boat building and repair

Other non-sustainable statistical Studies

The boat building industry, whose export rate is generally high, includes advanced technology. Its economic situation is linked to the development of coastal tourism, thus to households' revenue increase. Boating as a whole is a cyclical industry, dependent on growth rate as well as on interest rates, which influence final customers' purchasing power.

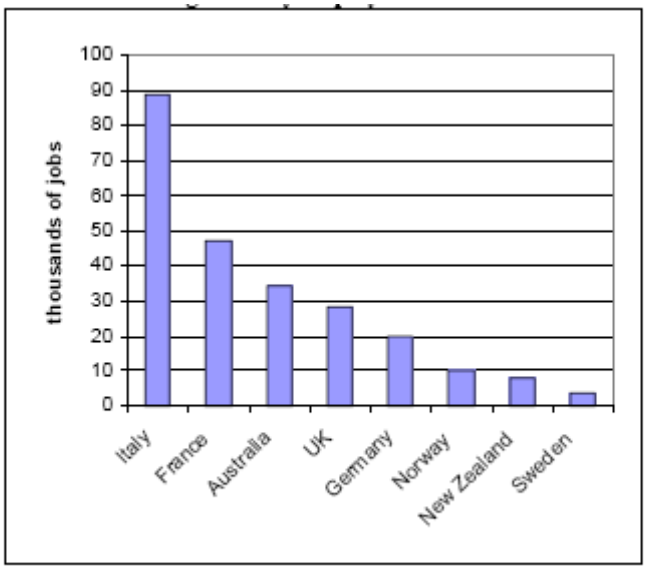
The economic situation of the industry worldwide was good over the past three years, and growth has been remarkable since the 90s. This is probably the worldwide effect of a major shift in leisure consumption towards boating: boat parks (number of persons per boat) are important in high revenue countries. The beginning of the decade was impacted by the short recession in the USA which had a negative effect on leisure boating markets.



* Nb of up to 24 m units of any type locally in use. USA: 16,130,000 units.
Source: International Council of Marine Industry Associations (ICOMIA)

Figure 5: park in major boating countries as of 2004

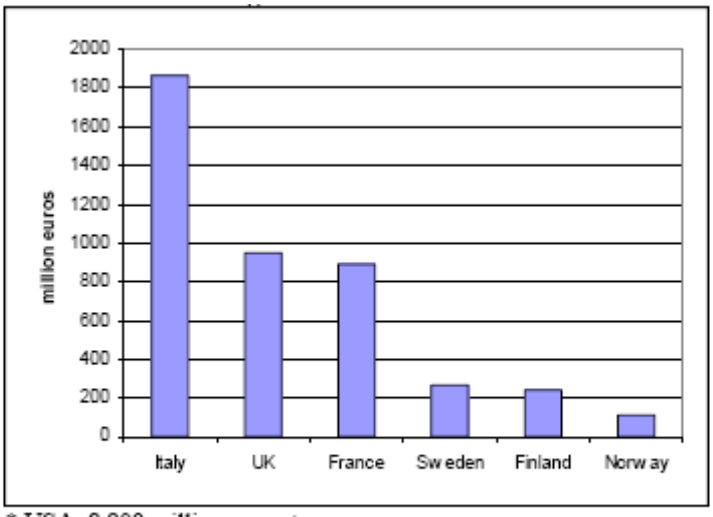
The European industry did very well in the recent past. In terms of supply, some European countries (Italy, UK, France) play a leading role in the development of the boat building and boating industries. The following European countries have an important boat park in use: Finland, France, Germany, Italy, Norway, Sweden, UK and boating is a major component of Europe's coastal tourism, especially in Italy, UK and France.



* USA: 500,000 jobs.
Source: ICOMIA.

Figure 6: Boating industry employment as of 2004

- **Italy** has a very dynamic boating activity and a major inboard and stern drive powerboat producer. Exports (of which one third are towards Americas and two thirds towards Europe) make 48.5% of the boating industry's turnover. The boat building industry's employment is estimated at 9,200 jobs.
- **UK**'s boating industry has been recording a steady growth from 1998 to 2005 (+60%). UK's boat building industry is a major European producer. 68% of its revenue accrues from exports, and more than 30% from exports to the Euro zone. Its employment is estimated at about 9,000 jobs.
- **France** is world leader in terms of sailboat production and exports: in this segment, more than 70% of production in value terms is exported. Overall, boat building exports are estimated at 59%. The US accounts for a major market. Employment in the industry is estimated at 7,100 jobs.



* USA: 8,800 million euros turnover.
Source: ICOMIA.

Figure 7: Boating industry turnover as of 2004

However, the USA outdoes its competitors in terms of supply and demand. Its boat park is more than three times as large as that of Europe, and the US boat building industry's turnover is more than twice as high as that of Europe. Australia, Japan and New Zealand are other non Europe major players.

The growing number of marinas in Europe and the need for available space for new ones might raise a management issue of certain coastal zones in the long run.

An example of specific self-organised statistical activity is the initiative of ICOMIA: "On-line Boat Sales Statistics System". This program is a voluntary-based cooperative effort among boat builders to compile international sales statistics on the recreational boating market. Only participating boat builders contributing data to the program have access to the compiled results.

Identification of the Sector Stakeholders

ICOMIA (the International Council of Marine Industry Associations) was formed in 1967 to bring together in one global organisation all the national boating federations and other bodies involved in the recreational marine industry, and to represent them at international level **EURMIG (European Union Recreation Marine Industry Group)** was formed in 2003 as a new committee within ICOMIA. Its members are the associations belonging to the EU Member States. EURMIG will promote understanding of the sector and provide a platform for the industry to represent mutual European interest and to lobby the European institutions.

- Inter alia, EURMIG is to monitor and influence evolving EU regulations that will impact on the recreation marine industry.
- EURMIG represent 5,400 European companies which are members of one of the association; 18,500 commercial enterprises in the recreational marine sector; 149,000 employees; with an overall turnover of 12,510 million Euros.

Evaluation of the Representation, Data Availability and Quality

The data are principally of two kinds:

- data from business inquiries as carried out by NSOs or other national public bodies,
- data from national associations, often related to the boating chain of businesses.

As regards the first category, data availability at regional level (NUTS 3) is limited or confidential. The quality of second category of data, in terms of Eurostat standards, really depends on each member association.

The main stakeholders of the sector provided useful suggestions and contributions about different topics. I.e. they think that data would be relevant on the boat models a manufacturer makes available on the market, or concerning "Recreation parks, marinas, boat renting, beaches" it is more appropriate to investigate marinas and boat charters separately, while Marinas and moorings should be a category on its own; boat charter/hire/sea school should be another one. About the proposal to add "Bank Loans Leasing" activity they agree that it could be important to have data about boat leasing even if but leasing is applied to boats with success only in some European countries.

The economic activity "Second hand boats" should be more cared and more information is required (i.e. sales revenue, quantity) and specific categories should be identified for "wholesale distribution of boats", "dealership of new boats", "brokerage of second hand boats" .

Furthermore they suggest to let it easier to collect data regarding accessories and equipment for pleasure craft and that it should be considered adding marine engines for pleasure craft in the list of the investigated activities (if EMEC data are not considered as already sufficient).

2.2.4 Offshore Supply

Descriptive Definition of the Sector

This sector comprises the supply and services activities of products and systems to the oil and gas industry. Included are furthermore all oil and gas related drilling, transport, engineering, communication, consultancy & other support activities. The production and of oil and gas itself is part of the sector extraction. Some activities with respect to the oil and gas industry are related to the shipbuilding (NACE code 35.11) and the marine equipment sector (mainly some NACE codes within the 29 group) and have been described in these sectors.

As seen from the statistical output there is at present no segmentation into onshore and offshore related activities available. For the European countries mainly the offshore oil and gas production is from outstanding importance with a share of almost 90% of the total production compared with an offshore share of about 35% for the world production.

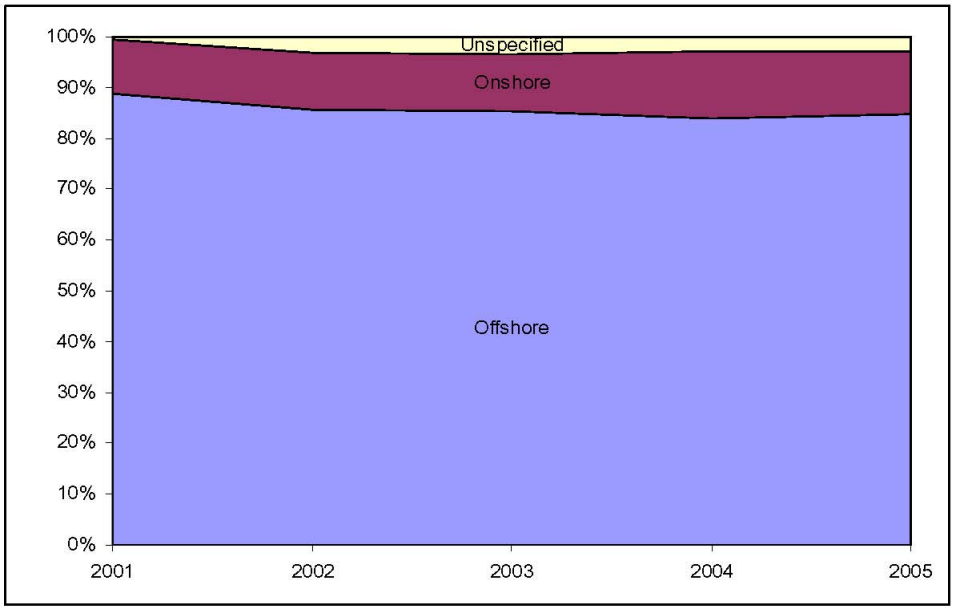


Figure 8: Total European Oil and Gas Production – Onshore/Offshore

Some offshore related activities are also part of marine transport and shipping sector (e.g. with respect to offshore service activities). The offshore oil and gas industry is one of the most important maritime industries in terms of the value of its output. The offshore supply industry encompasses the 2 following main areas[39]:

- capital expenditure (CAPEX), the investment in the offshore field development
- operational expenditure (OPEX), the cost of maintaining and operating the offshore fields.

The following diagram contains an estimation of the total CAPEX and OPEX offshore spend for the years 1992 to 2012 divided into the most important international offshore regions[40].

[39] Douglas Westwood Limited, World Marine Markets, 2005

[40] Douglas Westwood Limited:
The World Offshore Oil and Gas Production and Spend Forecast 2008-2012, The Worlf Offshore Drilling Spend forecast 2008-2012, Energyfiles global databases

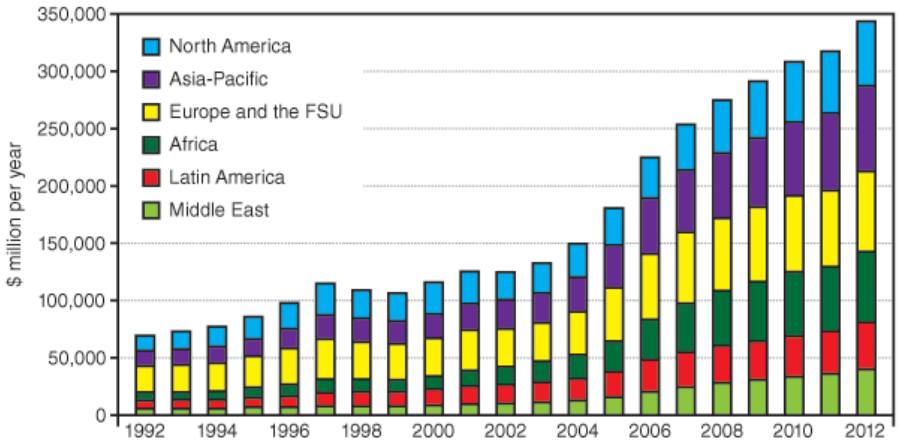


Figure 9: Offshore CAPEX and OPEX: Total spend 1992-2012

Identification of the Sector in the standard Classification

All described NACE and CPA codes are only partly relevant for the offshore supply industry because there is no direct statistical segmentation into offshore activities.

Table xx Sector description by NACE codes

NACE Rev. 1.1 Code	*NACE Rev.1.1 Description*	*NACE Rev. 2 Code*	*NACE Rev. 2 Description*
11.20	Service activities incidental to oil and gas extraction, excluding surveying • oil and gas extraction service activities provided on a fee or contract basis: • directional drilling and redrilling; 'spudding in'; derrick erection in situ, repairing and dismantling; cementing oil and gas well casings; pumping of wells; plugging and abandoning wells, etc.	09.10	Support activities for petroleum and natural gas extraction • exploration services in connection with petroleum or gas extraction, e.g. traditional prospecting methods, such as making geological observations at prospective sites • directional drilling and redrilling; „spudding in"; derrick erection in situ, repairing and dismantling; cementing oil and gas well casings; pumping of wells; plugging and abandoning wells etc. • liquefaction and regasification of natural gas for purpose of transport, done at the mine site • draining and pumping services, on a fee or contract basis • test drilling in connection with petroleum or gas extraction • oil and gas field fire fighting services
60.30	Transport via pipeline • Transport of gases, liquids, slurry and other commodities via pipelines • operation of pump stations	49.50	Transport via pipeline • transport of gases, liquids, water, slurry and other commodities via pipelines • operation of pump stations

NACE Rev. 1.1 Code	NACE Rev.1.1 Description	NACE Rev. 2 Code	NACE Rev. 2 Description
74.20	Architectural and engineering activities and related technical consultancy (only partly with respect to geophysical, geological and seismographic surveys)	71.12	Engineering activities and related technical consultancy (only partly with respect to geophysical, geolo-gic and seismic surveying)
35.11	Building and repairing of ships	30.11 33.15	Building of ships and floating structures Repair and maintenance of ships and boats

Table 19: Sector description by NACE codes – Offshore Supply

CPA 2002 No.	Description
11.20.11	Drilling services incidental to oil and gas extraction
11.20.12	Derrick erection, repair and dismantling services and related services incidental to oil and gas extraction
35.11.4	Floating or submersible drilling or production platforms
35.11.5	Other floating structures
35.11.6	Vessels and other floating structures for breaking up
35.11.9	Maintenance, repair, conversion, fitting out services of ships, floating platforms and structures
60.30.11	Transportation of crude or refined petroleum and petroleum products via pipelines
60.30.12	Transportation of natural gas via pipelines
74.20.71	Geological, geophysical and other scientific prospecting services

Table 20: Sector description by CPA codes – Offshore Supply

Other non-sustainable statistical Studies

For the offshore supply sector some public studies have been published on the basis of sector data and estimations.

- Douglas Westwood Limited
  The World Offshore Oil and Gas Production and Spend Forecast 2008-2012,
  The World Offshore Drilling Spend Forecast 2008-2012
- Energy files global databases

These studies as well as the databases will be updated on a regularly basis.

In addition this sector has partly been covered by some other public studies, which are addressing the maritime industry as a whole. However, the approach never builds on sustainable statistical data. Sector self-organized statistical activities mainly with respect to the offshore supply industry are or not known on a European level.

Identification of Sector Stakeholders

The most important stakeholders are European branch associations. The leading branch association for the oil and gas production is OGP Europe as part of the international association of oil and gas producers. The following overview represents on the one hand the most important branch associations and on the other hand the connection and interactions between the oil and gas production sector and the offshore supply and service sector:[41]

[41] Association of Oil and Gas Producers (OGP)

Figure 10: Oil & gas industry associations and their differing roles in Europe

Two important branch associations with respect to the offshore supply sector are EUROGIF (oil & gas services and supply industry) and GIE (transmission pipelines, storage facilities & LNG terminals).

The activities of EUROGIF, the European oil and gas innovation, are mainly concentrated on technology and R&D activities. EUROGIF has founded the following 8 thematic networks:

- quality, health, safety and environment
- IST (Information Society Technologies) oil and gas technologies
- floating structures
- subsea and downhole production systems
- smart wells, evolving into smart reservoir net
- materials which has not yet been organized.
- gas chain optimization
- CO2 capture and sequestration.

GIE represents the gas infrastructure in Europe with respect to operators of gas infrastructures across Europe as e.g. transmission pipelines, storage facilities and LNG terminals. GIE is the umbrella organization for its three subdivisions:

- GTE - Gas Transmission Europe
- GSE - Gas Storage Europe
- GLE - Gas LNG Europe.

Definition of relevant socio economic Indicators and Key Variables

The most important variables to be estimated are:

- Number of enterprises
- Turnover
- Value added
- Total purchases of goods and services

- Number of persons employed
- Number of employees in full time equivalent units
- Personnel costs.

The following variables are also considered as very valuable, as seen from OGP:

- Share of offshore related activities in all mentioned variables (mainly with respect to number of enterprises, turnover and number of persons employed)
- Share of SMEs mainly in the sector support activities for petroleum and natural gas extraction.

Evaluation of the Representation, Data Availability and Quality of the Sector

- Lack of relevant statistics mainly with respect to the offshore oil and gas industry
- Precise definition of some oil and gas sectors, mainly with respect to the suppliers industry, with a limited direct representation of sectors in the existing nomenclature/ codes of the statistical regime
- Availability of data at regional level (NUTS 3) is extremely limited (or confidential)
- The quality of data (actuality, completeness, accurateness) is often subject of criticism when verifying with sector experts.

2.2.5 Inland Shipping

Descriptive Definition of the Sector

Inland waterway transport plays a remarkable role especially for the transport of goods. More than 37 000 kilometres of waterways provide waterborne inland transport facilities in Europe. About 20 out of 27 member states have inland waterways, 12 interconnected waterway networks.[42] However, the most involved Member States in inland shipping are, by far: Germany, the Netherlands and Belgium.

[42] Dutch Inland Shipping Information Agency (2008).

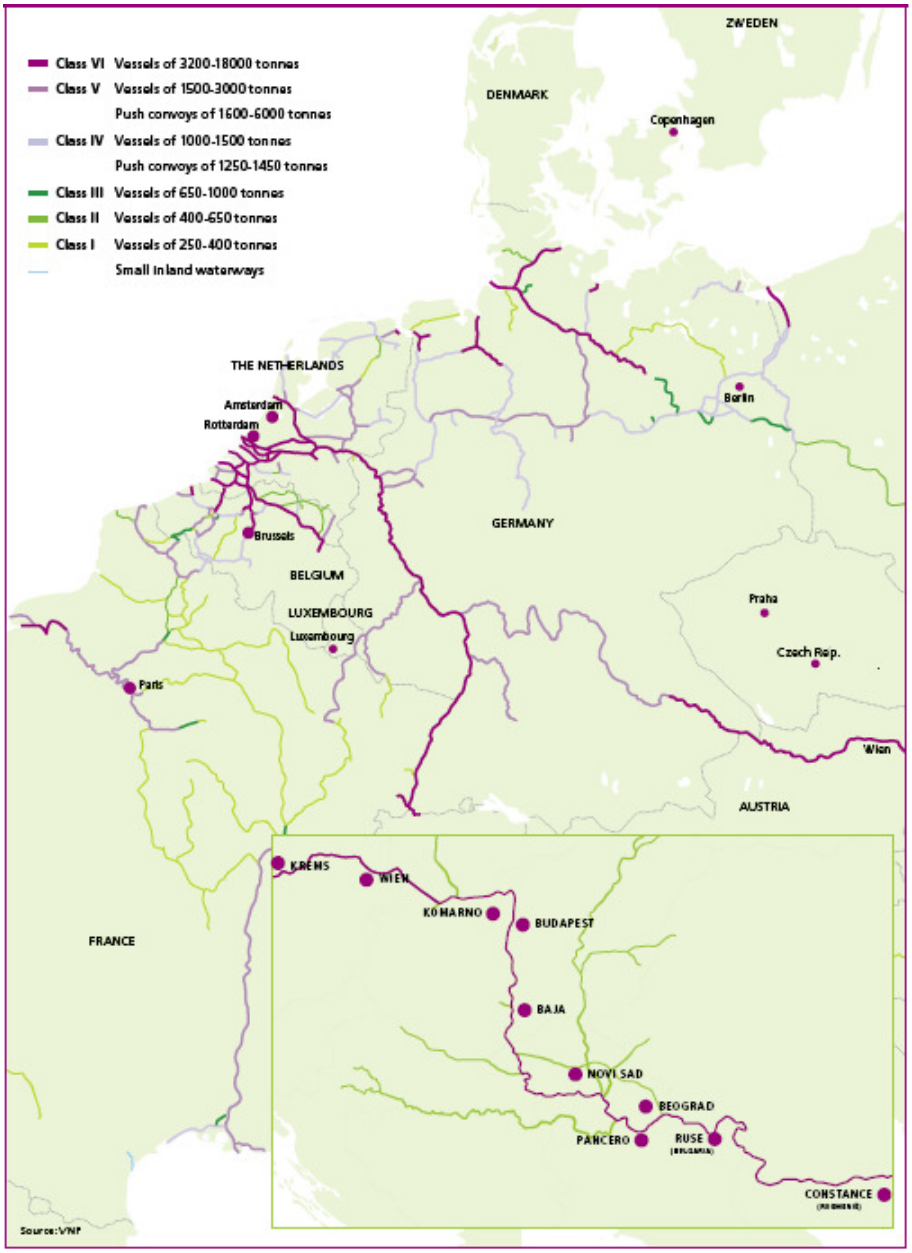
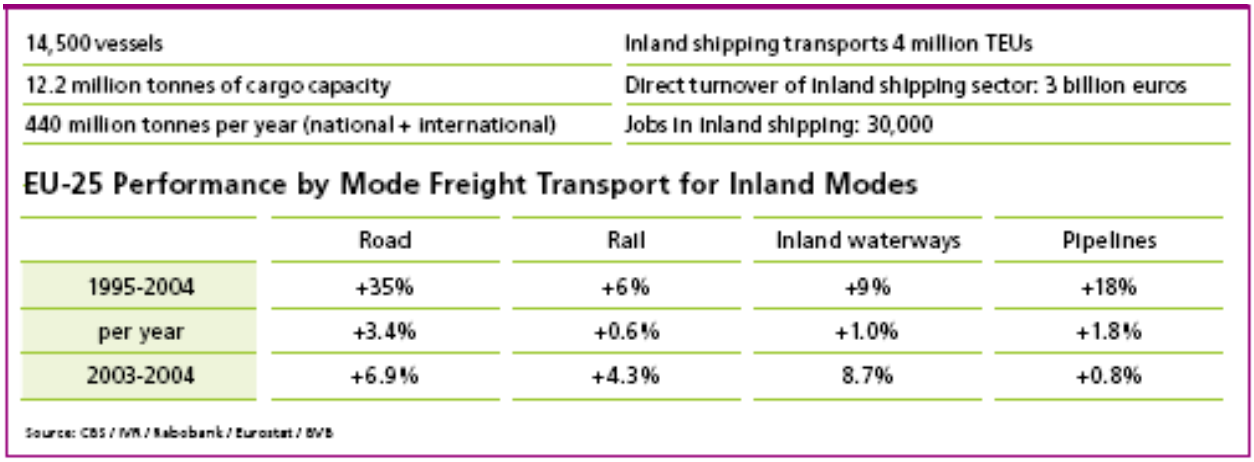


Figure 11: Map of the EU waterways and categories of waterways

The direct turnover of the inland shipping sector was estimated at about 3 billion Euros. The sector covers approximately 30,000 jobs (2004).



14,500 vessels	Inland shipping transports 4 million TEUs
12.2 million tonnes of cargo capacity	Direct turnover of inland shipping sector: 3 billion euros
440 million tonnes per year (national + international)	Jobs in inland shipping: 30,000

EU-25 Performance by Mode Freight Transport for Inland Modes

	Road	Rail	Inland waterways	Pipelines
1995-2004	+35%	+6%	+9%	+18%
per year	+3.4%	+0.6%	+1.0%	+1.8%
2003-2004	+6.9%	+4.3%	8.7%	+0.8%

Source: CBS / IVR / Rabobank / Eurostat / BVB

Figure 12: Inland shipping in Europe[43]

Identification of the Sector in the standard Classification

The NACE codes 61.20 (NACE rev. 1.1) respectively 50.30 and 50.40 (NACE rev. 2) are directly and completely relevant for the sector inland shipping. From this point of view there is no need for an indirect identification in principle. Also the corresponding CPA codes make it possible to identify the inland shipping sector directly.

NACE Rev. 1.1 Code	*NACE Rev.1.1 Description*	*NACE Rev. 2 Code*	*NACE Rev. 2 Description*
61.2	Inland water transport • transport of passenger or freight via rivers, canals, lakes and other inland waterways, including inside harbours and docks • renting of pleasure boats with crew with crew for inland water transport	50.30	Inland passenger water transport • transport of passenger via rivers, canals, lakes and other inland waterways, including inside harbours and ports • renting of pleasure boats with crew with crew for inland water transport
		50.40	Inland freight water transport • transport of freight via rivers, canals, lakes and other inland waterways, including inside harbours and ports • renting of vessels with crew for inland freight water transport

Table 21: Sector description by NACE codes – Inland Shipping

In general the NACE division water transport (61 NACE rev. 1.1, 50 NACE rev. 2) includes passenger and freight waterborne transport, whether scheduled or not. Also included is the operation of towing or pushing boats, excursion, cruise or sightseeing boats, ferries, water taxis etc. Although the location is an indicator for the separation between sea and inland water transport, the decisive factor is the type of vessel used. Transport on sea-going vessels is classified in groups 50.1 and 50.2, while transport using other vessels is classified in groups 50.3 for passengers and 50.4.for freight (NACE rev. 2) forming the statistical category of inland water transport (61.2 NACE rev. 1.1).

[43] Dutch Inland Shipping Information Agency (2008)

CPA 2002 No.	Description
61.2	Inland water transportation services
61.20	Inland water transportation services
61.20.1	Passenger transportation services by vessels on inland waterways
61.20.11	Passenger transportation by ferries on inland waterways
61.20.12	Other passenger transportation on inland waterways
61.20.2	Freight transportation services by vessels on inland waterways
61.20.21	Transportation of frozen or refrigerated goods on inland waterways
61.20.22	Transportation of crude oil on inland waterways
61.20.23	Transportation of other bulk liquids or gases on inland waterways
61.20.24	Transportation of containerized freight on inland waterways
61.20.25	Transportation of other freight on inland waterways
61.20.3	Rental services of non-sea-going vessels with crew; towing and pushing services
61.20.31	Rental services of non-sea-going vessels with crew
61.20.32	Towing and pushing services on inland waterways
63.22	Other supporting services for water transport
63.22.1	Other supporting services for water transport
63.22.11	Port and waterway operation services, excluding cargo handling
63.22.12	Pilotage services
63.22.13	Berthing services
63.22.14	Navigation aid services
63.22.15	Vessel salvage and refloating services
63.12.16	Other supporting services for water transport n.e.c.

Table 22: Sector description by CPA codes – Inland Shipping

Besides the statistics based on socio-economic indicators a greater number of different national and international transport statistics are available. They are built up on the recording of transport performance measured by quantities of transported goods (in tonnes or units/passengers) respectively the quantities of transported goods connected with the covered assigned distances (for example in terms of tonnes-km).

Transport volume expresses the economic performance of the sector. In 2006, transport on inland waterways within the European Union recorded a total volume of about 503 million tonnes. The transport of goods reached nearly 138 million tonnes-km. Based on national and international load transport, the Netherlands, Germany and Belgium carried about 83% of goods carried in Europe[44].

[44] Eurostat / de la Fuente (2007).

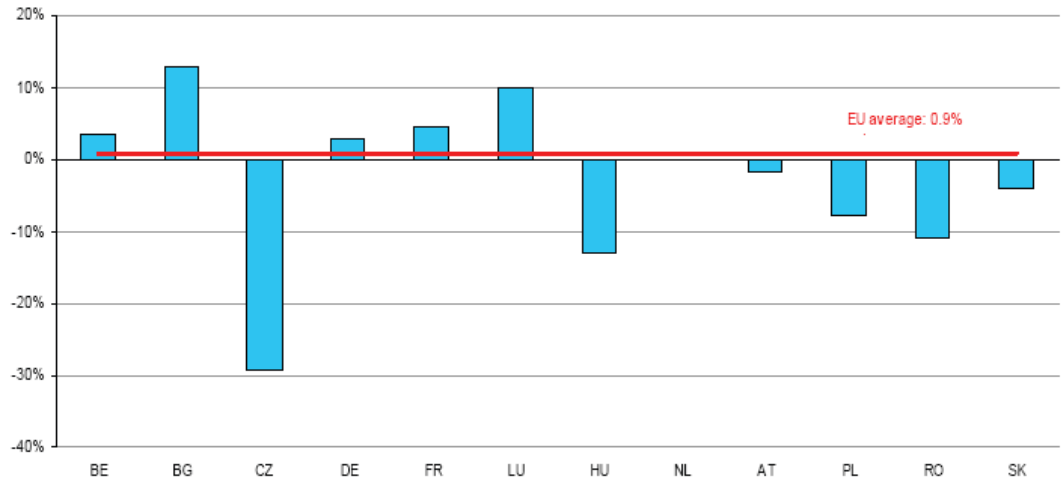


Figure 13: Growth rates of inland waterways freight transport by member state 2005-2006

The following figure shows exemplarily a split of the total goods transport by the different types of flows. National transport played the most important role in Romania (about 81%) and in Poland (around 68%) of total freight transport. In Belgium, Bulgaria, the Czech Republic, Germany, Hungary, the Netherlands, Austria and Slovakia the international transport shares are dominating with more than 50%[45].

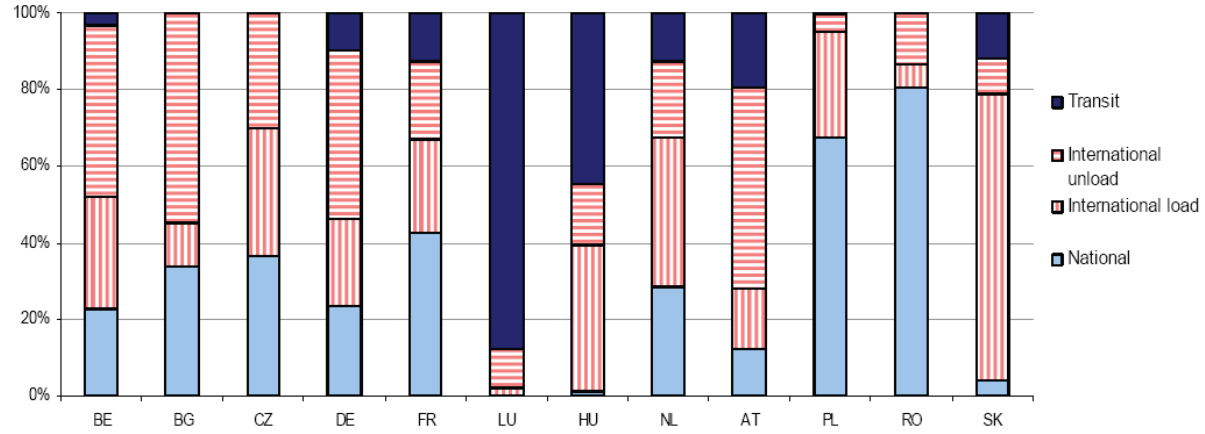


Figure 14: Split of total goods transport by type of flow in 2006 (% on the basis on the volume in tonnes)

Eurostat periodically publishes reports covering different evaluations of the transport / port statistics during the last few years:

- Maritime transport 1997-2006[46] (Statistics in Focus, Transport 62/2008)
- Modal split in the inland transport of the EU[47] (Statistics in Focus, Transport 35/2008)
- Short Sea Shipping of goods 2000-2006[48] (Statistics in Focus, Transport 2/2008)
- Inland Waterways Freight Transport in Europe in 2006[49] (Statistics in Focus, 132/2007)

[45] Eurostat / de la Fuente (2007).
[46] Eurostat / Amerini (2008b).
[47] Eurostat / Noreland (2008).
[48] Eurostat / Amerini (2008a).

- Maritime transport of goods and passengers 1997-2005[50] (Statistics in Focus, 94/2007)
- Transport services[51] (European Business, 2007).

Other non-sustainable statistical Ctudies

This sector has also partly been covered by some other public studies (Ecotec, PRC), which address the maritime industry as a whole[52]. However, the studies do not focus on sustainable statistical data.

Furthermore some other partly statistical or non-statistical studies have been carried out dealing with the European inland waterway sector. Exemplarily those studies should be mentioned that have been published on behalf of the Directorate-General for Energy and Transport in the European Commission during the last few years:

- Modernisation and reinforcement of the organisational framework for inland waterway transport in Europe – 2008
- Funding Guide for Inland Waterway Transport in Europe – 2008
- Administrative and Regulatory Barriers in the field of Inland Waterway Transport – 2008
- Charging and pricing in the area of inland waterways – 2005
- Promotion of inland waterway transport (PINE) - 2004

In co-operation with IVR (International Vereeniging Rijnschepenregister) and EBU (European Barge Union), the Dutch Inland Shipping Information Agency (BVB) regularly publishes a sector survey in order to present current trends of the worldwide and the European development of inland navigation sector. These reports cover, among others, statistical transport data from different national and international sources. The latest issue includes four main chapters[53]:

Chapter 1 – Freight transport over the world seas
Chapter 2 – European freight transport, now and in the future
Chapter 3 – Development in the European inland fleet
Chapter 4 – Innovations in the European inland shipping sector

Identification of Sector Stakeholders

There are different European inland shipping organisations. Four of them will be presented briefly:

- European Barge Union (EBU)

The European Barge Union EBU was founded in 2001 to represent the inland navigation interests towards the European and international institutions. The association has its seat in Brussels, Belgium and in Rotterdam. Aim of the association is to represent the interests of inland navigation on a pan European level and to deal with all questions, arising out of the future development of the inland navigation industry and inland waterway transport. 9 national and international associations from 7 different member states of the EU are members of the EBU.

- European Skippers Organisation (ESO-OEB)

The European Skippers Organization was founded in 1975 in Brussels. ESO looks after the interests of the European private inland shipping entrepreneurs on a European level. The ESO-Council is composed of representatives of Belgian, Dutch, French and German inland shipping organizations. The association has its seat in Brussels.

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[49] Eurostat / de la Fuente (2007).
[50] Eurostat / Amerini (2007).
[51] "Transport services" in Eurostat (2007c).
[52] Ecotec (2006), PRC (2000).
[53] Dutch Inland Shipping Information Agency (2008).

- Inland Navigation Europe (INE)

Inland Navigation Europe – INE is a membership organisation that works across Europe aiming at increased mobility by promoting freight traffic on the inland waterway network. The association links waterway freight promotion bodies and national waterway managers.

- Internationale Vereeniging Rijnschepenregister (IVR)

IVR is thus an international association with representatives among the insurance branch, the inland navigation industry, technical and nautical experts and other related sectors, from many European countries. The IVR is based at Rotterdam.

In addition to the international associations a greater number of national organisations exist.

Definition of relevant socio economic Indicators and Key Variables

As most important variables will be estimated:

- Number of enterprises
- Turnover
- Value added
- Total purchases of goods and services
- Number of persons employed
- Number of employees in full time equivalent units
- Personnel cost.

Evaluation of the Representation, Data Availability and Quality

The sector inland shipping belongs to those maritime sectors within the EU that can largely be identified direct by the classification

The quality of data (actuality, completeness, accurateness) is comparatively satisfactory but partly subject of criticism when verifying with sector experts

Availability of data at regional level (NUTS 3) is extremely limited (or confidential).

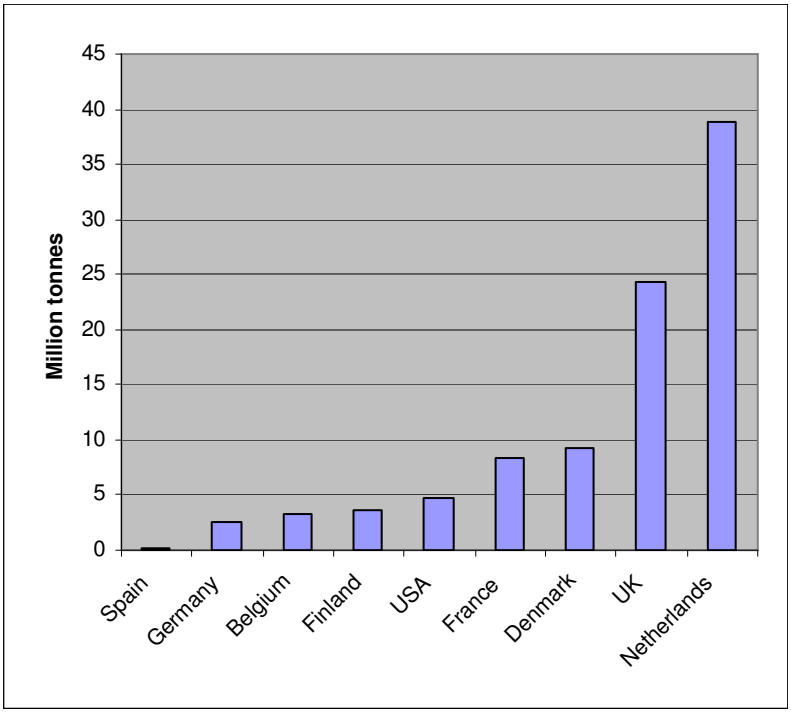
2.2.6 Maritime Works

Descriptive Definition of the Sector

- Maritime works are analyzed as including energy and telecommunication cable laying, and dredging and other works. Though a heterogeneous and modest sector of maritime affairs in terms of value added and employment, the sector is essential for the development of maritime economy.
- Cable laying is a fundamental industry for providing electricity to islands (with the development of coastal tourism explaining the growth in energy consumption on islands) and for internet and other telecommunication links. Cable laying is generally carried out by subsidiaries or branches of telecommunication companies and of cable manufacturers. Offshore cable laying, which is of interest to the present study, requires specialized cable laying ship, generally owned by cable laying companies and sometimes by cable manufacturers.
- Pipeline laying is a major component of energy trade in oil and gas. Offshore laying is of interest to the present study. It requires a pipeline laying ship.
- Dredging experiences a growing demand with, inter alia, the construction of seaport facilities adapted to very large box ships, and also with the need for more waste and sewage water

treatment facilities. However dredging is a diversified business. It includes different categories depending on the activity's objectives: maintenance, construction, protection, installations at sea, aggregate extraction (see below: "Alternative identification of the sector").

- Dredging for aggregate extraction, though of modest size, is specific as it supplies construction material manufacturers with raw material, and thereby pertains to the extraction and mining sector rather than to maritime works properly speaking. With the increasing difficulty and cost of



extracting onshore aggregate, maritime extraction is taking up more importance.

Figure 15: Aggregate extraction in main EU countries and USA in 2006[54]

Identification of the Sector in the standard Classification

The description is direct for codes 45.24 (Rev 1.1) and 42.91 (Rev 2), which includes maritime and river works; indirect for all codes.

Sub-sector	*NACE Rev 1.1 code*	*NACE Rev 1.1 description*	*NACE Rev 2 code*	*NACE Rev 2 description*
Cables and pipelines	4521	General construction of buildings and civil engineering works	4221	Construction of utility projects for fluids (1)
			4222	Construction of utility projects for electricity and telecommunications (2)
Dredging and other works	4524	Construction of water projects (3)	4291	Construction of water projects (3)
	4525	Other construction work involving special trades (4)	4399	Other specialised construction activities not elsewhere classified (4)

Table 23: Sector description by NACE codes – Maritime Works

(1) Including construction of long distance pipelines.
(2) Including construction of long distance power lines.

[54] ICES/WGEXT, 2007

(3) Including: a) construction of waterways, harbour and river works, marinas and locks, b) construction of dams and dykes, c) dredging.
(4) Including construction of foundations and subsurface work (e.g. underwater laying).

CPA 2002 No.	*Description*
45.21	General construction work for buildings and civil engineering work
45.21.2	General construction work for bridges, elevated highways, tunnels and subways
45.21.21	General construction work for bridges and elevated highways
45.21.22	General construction work for tunnels and subways
45.21.3	General construction work for long-distance pipelines, communication and power lines (cables)
45.21.31	General construction work for long-distance pipelines for oil and gas
45.21.32	General construction work for other long-distance pipelines, including for water
45.21.34	General construction work for other electricity power lines, above ground
45.21.35	General construction work for other electricity power lines, underground
45.21.36	General construction work for communication lines, above ground
45.21.37	General construction work for communication lines, underground
45.21.4	General construction work for local pipelines and cables; ancillary works
45.24	General construction work for water projects
45.24.1	General construction work for waterways, harbours, dams and other waterworks
45.24.11	General coastal and port construction work
45.24.12	General construction work of dams, canals, irrigation channels and aqueducts
45.24.13	General construction work of locks, floodgates and other hydro-mechanical structures
45.24.14	Dredging work; other water-associated work
45.25	Other construction work involving special trades
45.25.2	Foundation work; water well drilling
45.25.22	Water well drilling

Table 24: Sector description by CPA codes – Maritime Works

The description is direct for codes 45.24 (Rev 1.1) and 42.91 (Rev 2), which includes maritime and river works; indirect for all codes.

Identification of Stakeholders

- Europacable (founded in 1991): as European platform for cable manufacturers, aimed at the promotion of the use of cables for construction, telecommunications, energy and other industrial applications, Europacable is a very indirect stakeholder in the sector, which is focused on cable laying and not manufacturing. However, some manufacturers own laying ships. “Europacable represents approximately 90% of the European industry and, through national associations, more than 200 individual cable manufacturers.” (Source: Europacable). However, the world largest submarine telecommunication cable manufacturer is not a member of Europacable.
- Pipeline Industries Guild: business association for technical and marketing information exchange; membership comprises those with interests in pipelines world-wide, transporting hydrocarbon products, chemicals, water, wastewater and other substances, both on- and offshore.
- EuDA European Dredging Association: European representative of the dredging industry in the EU.
- Pipeline and cable laying industries: no alternative description of the activity, except in reports on maritime activities[55] where turnover, value added and employment estimates are given.
- Dredging: no alternative description of the activity. However, EuDA have provided a feedback on the present approach: in their view, the current NACE classification is insufficient for a fine analysis of the industry. EuDA analyses the business through the following categories:

  a) Maintenance dredging: the maintenance of waterways, navigation channels and ports

[55] Pugh (2008), Pugh and Skinner (1996, 2002), Kalaydjian (2004, 2006, 2008).

b) Capital dredging: deepening of waterways, port construction, land reclamation
c) Specialty dredging: environmental clean-up, construction of disposal sites for dredged material
d) Marine infrastructure works: artificial islands, coastal protection, dykes and barriers.
e) Offshore support and marine contracting; installation at sea (e.g. wind turbines), services to the oil industry (e.g. construct "glory holes").
f) Aggregate dredging: sand, gravel and other extraction from the sea bed.

Category "a" is carried out by either large enterprises or SMEs. Categories "b" to "e" is related to construction properly speaking. Category b is especially a domain for large size enterprises on the basis of big contracts including dredging. Category "e" is not part of "offshore services" in the database, as it includes preparatory works for offshore drilling and other works. Category f comprises the activity of SMEs, including specialized dredging ship owners, and is modest in terms of turnover and employment.

EuDA therefore suggests an alternative classification of the industry into three sub-groups: category "a", categories "b" to "e", and category "f".

2.2.7 Seaports & related Services

Descriptive Definition of the Sector

In Europe there are over 1.000 seaports handling in total 3.5 billion tonnes of cargo per year. About 700 of these ports each handle less than one million tonnes and there are only 10 ports in Europe which handle more than 50 million tonnes.

350 million passengers pass through European seaports annually, which equal almost 70% of the European population.

Approximately 350.000 people in Europe work in ports and directly related services (excluding industry) the total European maritime cluster provides employment to about 2.5 million people.

Ports and directly related services (excluding industry) generate a value added of about 20 billion Euro, while the value added produced by the total European maritime cluster is estimated at 111 billion Euro.

Over 90% of Europe's trade with the rest of the world is shipped through its seaports as well as 43% of intra-European trade

On average, port costs constitute only between 5 and 10% of the total door-to-door cost of goods exported overseas from Europe.

Maritime transport is 13 times less polluting than road transport in terms of carbon and particulate emission and 19 times less in terms of Hydrocarbons.

Identification of the Sector in the standard Classification

The NACE codes respectively 63.11 and 63.12 and 63.22 (NACE Rev. 1.1) and the codes 52.10 and 52.22 and 52.24 and 52.29 and 49. 50 (NACE Rev. 2) are directly relevant for the sector. From this point of view there is no need for an indirect identification.

NACE Rev. 1.1	NACE Rev.1.1 Description	NACE Rev. 2	NACE Rev. 2 Description
63.11	Cargo handling • loading and unloading of goods or passengers' luggage irrespective of the mode of transport used for transportation • stevedoring	52.24	Cargo Handling • loading and unloading of goods or passengers' luggage irrespective of the mode of transport used for • transportation • stevedoring • loading and unloading of freight railway cars
63.12	Storage and warehousing • operation of storage and warehouse facilities for all kind of goods: operation of grain silos, general merchandise warehouses, refrigerated warehouses, storage tanks, etc.	52.10	Warehousing and storage operation of storage and warehouse facilities for all kinds of goods: • operation of grain silos, general merchandise warehouses, refrigerated warehouses, storage tanks etc. • storage of goods in foreign trade zones • blast freezing
63.22	Other supporting water transport activities activities related to water transport of passengers, animals or freight: • operation of terminal facilities such as harbours and piers • operation of waterway locks, etc. • navigation, pilotage and berthing activities • lighter-age, salvage activities • lighthouse activities	52.22	Service activities incidental to water transportation activities related to water transport of passengers, animals or freight: • operation of terminal facilities such as harbours and piers • operation of waterway locks etc. • navigation, pilotage and berthing activities • lighter-age, salvage activities • lighthouse activities
		85.32	Technical and vocational secondary education

Table 25: Sector description by NACE codes – Seaport & Related Services

CPA 2002 No.	Description
63.11	Cargo handling services
63.11.1	Cargo handling services
63.11.11	Container handling services
63.11.12	Other cargo handling services
63.12	Storage and warehousing services
63.12.1	Storage and warehousing services
63.12.11	Storage services of frozen or refrigerated goods
63.12.12	Storage services of liquids or gases
63.12.13	Storage services of grains
63.12.14	Other storage or warehousing services
63.22	Other supporting services for water transport
63.22.1	Other supporting services for water transport
63.22.11	Port and waterway operation services, excluding cargo handling
63.22.12	Pilotage services
63.22.13	Berthing services
63.22.14	Navigation aid services
63.22.15	Vessel salvage and refloating services
63.22.16	Other supporting services for water transport n.e.c.

Table 26: Sector description by CPA codes – Seaport & Related Services

Other non-sustainable statistical Studies

Currently, no self-organised statistical activity is being developed on a regular basis by seaports. ESPO, the largest sector representative at EU level (see below), gathers and publishes Eurostat's port traffic data in tonnage per EU country. Online available data from seaport authorities are extracted from national "Transport Satellite Accounts" to a large extent. Port authorities usually publish statistics about:

- - Ships, Cargo Boats, Tankers, Ferry, Cruise liner, Liner, Passenger ship, Container ship, War-Defence ship.
- - Goods (liquid and solid goods)
- - Containers (full and empty)
- - Passengers (incoming and outgoing)
- - Cars
- - TIR and Trailers.

Ports Authorities and other national bodies publish one-off or periodical studies on the economic impacts of port activities, mainly in terms of value added and employment[56]. In this domain, the National Bank of Belgium's contribution is a major one: it publishes a periodical report on direct and indirect economic impacts of Belgian ports[57], incl. separate analyses of Flanders seaports and of the inland ports of Liège and Brussels: impacts are measured in terms of value added, employment, investments and financial results; additional social indicators are provided, e.g. on training of employees.

[56] E.g. in the case of French ports: economic impact assessment of the port of Dunkirk (Gachelin, 1995; Gaubert et al., 2003); similar studies have been published by the ports of Le Havre, Marseille and French Atlantic seaports. Similar studies have also been made for several EU seaports.

[57] Vennix (June 2008).

Identification of Sector Stakeholders

The main stakeholder in the industry is ESPO, which represents the seaports of the European Union and has observer members from several other European countries. ESPO has been contacted by the project team but has provided no feedback, nor any comments on the study.

Evaluation of the Representation, Data Availability and Quality

- The "Seaports and related services" sector can be directly identified by the NACE/CPA classification.
- Data being based on annual business inquiries, quality is comparable to other sectors.
- Availability of data at level NUTS 3 is difficult to obtain as NSOs do not publish such data due to confidentiality. Usually the Port Authorities collect such data and information about such economic activities due to their institutional role of control and supervisor of all working activities implemented and provided within the Port areas.
- Studies on seaports' economic and social impacts, as mainly based on specific local business inquiries, raise two issues: one is the standard issue of data quality, which depends on questionnaires and responses; the other issue is about methodology, primarily with regard to the definitions of port "value added" and "employment". The concept of "valued added" of a port is complex and raises questions which will be addressed in this report (see Part C – New indicators).

2.2.8 Extraction, mining

Descriptive Definition of the Sector

This sector comprises the extraction and production of oil and gas, sand and gravel as well as of salt. In 2004 in the EU the oil production, referred to barrels of crude oil extracted each day from drilling operations, amounted to about 2.9 million barrel per day while in the only Norway it was almost 3.0. The number of persons employed in 2004 in the sector in EU amounted to 66,600 with an amount of „Personnel costs" of about 4.9 billion euro. It is also published all the list of the "oil fields, distinguished per country and if offshore or inshore and for Macro areas (i.e. North Sea).

Concerning gas extraction and production in 2003 the first EU natural gas producer was United Kingdom followed by the Netherlands, then Germany, Italy, Romania, Denmark and Poland. Norway itself produced about 83.5 million m^3.

The current volumes of sand and gravel extracted annually by each country range between 3 and 32 million m^3 per annum, with estimates of future extraction per country ranging between 200 and 3000 Mm3 over the next 50 years. The proportions of sand and gravel vary considerably, from 100% sand to 60% gravel, depending on both the availability and the uses in individual countries. The main uses are for beach nourishment, construction, and land reclamation. The exception to the above figures is Norway, where the material is entirely carbonate sands for agricultural use as lime, dredged in small quantities. France and the UK also extract some for this purpose. In different countries, the authorities involved in consultation and regulation are a widely varying combination of government ministries and agencies, regional and local authorities, conservation bodies, and other bodies. Most countries require a formal consultation procedure involving impact studies concerning (some or all of) the coast, the seabed, the environment and ecology. Norway adopts an approach based primarily on local knowledge.

Salt is produced by evaporation of seawater or brine from other sources, such as brine wells and salt lakes, and by mining rock salt, called halite. In Europe the total production capacity for crystallised salt is over 40 million tons: a breakdown by the main methods of production shows that rock-salt (including by-products from potash mines) accounted for 34% of crystallised salt, sea salt for 23% and vacuum salt for 43%. In 2002, total world production was estimated at 210 million tonnes, the top five producers being the United States (40.3 million tonnes), China (32.9), Germany (17.7), India (14.5), and Canada (12.3).

Identification of the Sector in the standard Classification

The NACE codes respectively 11.10, 14.21 and 14.40 (NACE Rev. 1.1) and the codes 06.10, 06.20, 08.12 and 08.93 (NACE Rev. 2) are directly relevant for the sector. From this point of view there is no need for an indirect identification.

All described NACE and CPA codes are only partly relevant for the offshore production as well as marine related production of gravel, sand and salt because there is no statistical segmentation into marine and non-marine activities, but there is no statistical segmentation into marine and non-marine activities ascertainable.

NACE Rev. 1.1 Code	***NACE Rev.1.1 Description***	***NACE Rev. 2 Code***	***NACE Rev. 2 Description***
11.10	Extraction of crude petroleum and natural gas extraction of crude petroleum • production of crude gaseous hydrocarbon (natural gas) • extraction of condensates • draining and separation of liquid hydrocarbon fractions • liquefaction and regasification of natural gas for transportation • gas desulphurization	06.10	Extraction of crude petroleum • extraction of crude petroleum oils • extraction of bituminous or oil shale and tar sand • production of crude petroleum from bituminous shale and sand • processes to obtain crude oils: decantation, desalting, dehydration, stabilisation etc.
		06.20	Extraction of natural gas • production of crude gaseous hydrocarbon (natural gas) • extraction of condensates • draining and separation of liquid hydrocarbon fractions • gas desulphurisation This class also includes: • mining of hydrocarbon liquids, obtained through liquefaction or pyrolysis
14.21	Operation of gravel and sand pits	08.12	Operation of gravel and sand pits; mining of clays and kaolin • extraction and dredging of industrial sand, sand for construction and gravel • breaking and crushing of gravel • quarrying of sand • mining of clays, refractory clays and kaolin
14.40	Production of salt	08.93	Extraction of salt • extraction of salt from underground including by dissolving and pumping • salt production by evaporation of sea water or other saline waters • crushing, purification and refining of salt by the producer

Table 27: Sector description by NACE codes – Extraction, mining

CPA 2002 No.	Description
11.10	Crude petroleum and natural gas
11.10.1	Petroleum oils and oils obtained from bituminous minerals, crude
11.10.10	Petroleum oils and oils obtained from bituminous minerals, crude
11.10.2	Natural gas, liquefied or in gaseous state
11.10.20	Natural gas, liquefied or in gaseous state
11.10.3	Liquefaction and regasification services of natural gas for transportation
11.10.30	Liquefaction and regasification services of natural gas for transportation
11.10.4	Bituminous or oil shale and tar sands
11.10.40	Bituminous or oil shale and tar sands
14.21	Gravel and sand
14.21.1	Gravel and sand
14.21.11	Natural sands
14.21.12	Granules, chippings and powder; pebbles, gravel
14.21.13	Macadam; tarred macadam
14.40	Salt
14.40.1	Salt and pure sodium chloride
14.40.10	Salt and pure sodium chloride

Table 28: Sector description by CPA codes – Extraction, mining

Non-sustainable statistical Studies

Extraction and mining sector is described from the statistical point of view, the main economic variables are collected and monitored by each NSO of the EU Member States, Eurostat and International Organizations but there is no statistical segmentation into marine and non-marine activities ascertainable.

There are many economic information available about sector, but from public bodies and authorities and self-organised statistical activities. Consequently researchers can access and use data collected and provided by NSOs through yearly searches or specific studies and transmitted to Eurostat.

Country	Quantity (bbl/day)
European Union	2,868,000
UK	1,861,000
Denmark	342,000
Italy	164,800
Germany	141,700
Romania	122,700
Netherlands	76,000
France	73,180
Hungary	42,180
Poland	32,800
Spain	29,350
Norway	2,978,000
Russia	9,870,000
World	78,900,000

Table 29: Oil Production (in bbl/day) in 2005[58]

In front of so detailed data and information available for Oil production sector, it is important to remember and underline the precious contribution, sometimes indirectly, provided by the industries of the sector to the introduction of innovation technologies to work at the sea, mainly offshore. Another important relevant contribution to the enhancement of the innovation technologies is due the sea and water pollution consequently to oil extraction and ship crashes; one for all is to remember the technology to separate oil and water.

[58] The World Factbook

The natural gas production is also well monitored and examinated from the economic statistical point of view: it is possible to have data and information per Country in (1.000 m³) (i.e. in 2003 UK was the first EU natural gas producer followed by NL, then Germany, Italy , Romania, Denmark, Poland and so on. Norway itself produced 83,490,000. It is also published all the list of the "gas fields, distinguished per country and if offshore or inshore.

Country	*Quantity (1.000 m³)*
UK	95,970,000
Netherlands	85,980,000
Germany	19,900,000
Italy	12,960,000
Romania	11,800,000
Denmark	9,870,000
Poland	5,957,000
Hungary	2,963,000
Austria	1,637,000
France	1,400,000
Norway	83,490,000
Russia	641,000,000
World	2,821,808,040

Source: The World Factbook

Table 30: Production of natural gas (in 1.000 m3) in 2003[59]

The annual volume of dredged material in the marine environment is estimated at 200-250 million tons/year for the EU.

The annual volume of dredged material in the fresh water environment is available too and is estimated at 50-60 million tons/year in the EU.

VOLUMES EXTRACTED	UK	NL	DK	IT	NO	FR
Demand						
Current annual demand (Mm^3 per annum)	14	32	8	N/A	0.06	3
Demand in next 50 years (Mm^3)	500 - 1000	1600 - 3000	300 - 500	Not available	3	up to 600
Type						
Sand (%)	40	100	10	100		35
Gravel (%)	60	0	15			50
Fill sand(*) (%)			75			
Carbonate sand (%)					100	15
Use						
Beach nourishment	X	X	X	X		
Construction	X	X	X			X
Land reclamation	X	X	X			
Industrial		X	X			
Agriculture	X				X	X
Export	X		X			

(*) for use in beach nourishments and reclamations, and as fill in construction works

Table 31: Volumes extracted of sand and gravel in some EU countries

[59] The World Factbook

Another example, but referred to a different economic sector - Sand, Gravel and Salt -, confirms the wide and detailed availability of economic data and information also for the Countries just entered or that will enter in the next future to EU.

Sand and Gravel

On a global scale, Slovenia ranks second after the USA by mining, production and deposits of sand and gravel. The country mined over 12 million tonnes in 2005, as the figure for 2006 was expected to be similar. The other big producers of that raw material in the region are Croatia and Bulgaria, but they are far behind Slovenia in the production ranking.

	2004	2003	2002	2001	2000
Slovenia	12,373,000	11,012,000	11,277,000	11,661,000	12,526,000
Croatia	3,700,000	4,878,000	4,650,000	3,500,000	3,480,000
Bulgaria	3,333,000	2,098,000	2,385,000	2,375,000	2,291,000
Serbia and Montenegro	1,500,000	1,507,000	2,074,000	1,967,000	2,675,000
Romania	1,458,000	3,061,000	761,000	733,000	814,000
Bosnia and Herzegovina	450,000	476,000	362,000	348,000	400,000
Moldova	300,000	300,000	300,000	306,600	276,400
Macedonia	100,000	100,000	100,000	100,000	150,000

Table 32: Production of Sand and Gravel (in m3) [60]

Salt

In South-eastern Europe Romania and Bulgaria are the biggest producers of salt which is among the main export raw materials for both countries.

	2005	2004	2003	2002	2001
Romania	2,442,640	2,399,956	2,416,970	2,257,886	2,225,052
Bulgaria	1,900,000	1,900,000	1,882,000	1,800,000	1,931,000
Albania	47,219	24,783	21,448	22,746	25,783
Croatia	36,970	32,723	32,533	30,483	32,585
Slovenia	803	2,852	3,632	5,000	2,000
Bosnia and Herzegovina	-	260,456	179,299	400,000	439,106
Serbia and Montenegro	-	32,583	52,882	17,121	35,007

Table 33: Production of Mineral Salt (in tonnes)[61]

Identification of Sector Stakeholders

The oil production, the natural gas production and mining of sand, gravel and minerals are major economic sectors, with many stakeholders. A list of actors on the global, regional, national and local levels will be extensive and will continuously be expanding. The list of links below is non-exhaustive, but could serve as start when searching for institutions and actors within this wide-ranging issue.

The most important stakeholders are European and national branch associations. The most important branch association is the OGP Europe, the international association of oil and gas producers.

[60] US Geological Survey

[61] US Geological Survey

Europe is the world's fourth most important producer of oil and gas after Russia, the United States and Saudi Arabia, although overall production is declining. Looking ahead, there is the potential equivalent of up to 100 billion barrels of oil left beneath the surface in Europe. Given the scale of Europe's oil & gas production, the EU has a key role to play in developing policies and guidelines that help to frame the processes that shape exploration and production. Moreover, EU legislation influences investment in and construction and operation of facilities that import oil and gas.

The non-profit Brussels-based organisation EuSalt is the association of European salt producers and represents the interests of 20 salt producers located all over Europe. Being the voice of the salt industry in Europe, EuSalt provides authoritative information about salt and its many uses to all stakeholders involved in the European policy-making, the general public and other interested parties. EuSalt also offers access to a pool of expert knowledge for authorities.

The association was founded in Paris in 1957 as the European Committee for the Study of Salt (ECSS) and was later re-baptised into the European Salt Producers' Association (ESPA). In the beginning of 2004 the association moved to Brussels and was renamed EuSalt. The association is managed by Wouter Lox. The President of EuSalt is Jürgen Lieberherr (CEO, United Swiss Salt Works).

Leading international or regional private sector associations are:

- The World Organisation of Dredging Associations (WODA)
- International Association of Dredging Companies (IADC)
- European Salt Industry (EuSalt).

The main common visions of main stakeholders, public bodies, institutions and authorities about the statistical system of the sector, and its different activities, is try to let assume a wider and longer term approach to the stakeholders and not constraint the statistical system to the daily vision of the economic needs and utilities.

Create, define, test and select new indicators of environmental impact of the above mentioned activities is strongly requested and recommended within a simple, clear, agreed and common legislative framework defining the ways to get and use above natural resources. Particular attention to EC and EU parliament is requested from EuSalt to the growing investments aimed to reduce and save energy consumption in the sector.

Evaluation of the Representation, Data Availability and Quality

The joint contribution provided by France, Portugal and Spain in 2005 to the Green Paper on the Maritime Policy, about extraction of minerals from the seabed, seems still of incredible actuality: „The seabed contains lot of mineral resources: metals, minerals, materials (marine aggregates, for example) to be found in the continental shelf of coastal states and also beyond their jurisdiction (polymetallic nodules, metal-bearing crusts, etc.) which may ultimately supplement or replace less accessible or nearly exhausted land-based resources. To inventory and study them and develop the appropriate mining technologies requires coordinated efforts that are usually beyond national capacities, and it would be desirable to undertake this at European level, for resources under the jurisdiction of Member States, in the seabed of other European and other states, and in the Area created by the UN Convention on the Law of the Sea and administered by the International Seabed Authority. Mineral resources, oil and gas are not renewable and mining them generally impacts a fragile environment on which other activities depend: examination of mining seabed resources should integrate all ecological and socio-economic impacts and whenever necessary (particularly in closed and semi-closed seas) give priority to an approach coordinated among all relevant coastal state."

The high number of bodies and institutions working on the rules to be applied by the companies working in the sector and the large production of laws, regulations, codes to try to define a common procedure to access, manage and use such natural resources (i.e. the re-use of sand and graves out the marine environment) is really impressive, much more than in the other maritime sectors.

In such a sector, articulated in all its different activities, more than in other maritime sectors examined during the present study, it is needed and absolutely urgent to start to define strategies and rules how to harmonise the implementation of the different economic activities working on the same natural environment, the water, on the different marine natural resources, to measure their own single impact on the other resources (i.e. till now only fishery was monitored and measured like overexploiting the available stocks) but that finally are all together under the same resource which are the oceans.

2.2.9 Fishing

Descriptive Definition of the Sector

Fishing is a diversified activity, as it is defined by the NACE as the use of fish resources from marine or freshwater environments, with the goal of capturing or gathering fish, crustaceans, molluscs and other marine products (e.g. pearls, sponges, etc). This includes a diversity of living resources and of techniques.

In 2005 the EU-27 fisheries production was 6,905,500 tonnes, about 4% of the world total, and 11% of China's production (60,630,894 tonnes). Norway and Iceland together accounted for 3% of the world total. Four Member States (Denmark 14%, France 12%, Spain 14% and the United Kingdom 12%) accounted for 53% of the EU-27 production in 2005. The EU-27 production in 2005 was about 17% less than in 1993.

Aquaculture

EU aquaculture output is of about 1.2 million tonnes (less than 3% of China's output), while its value amounts to €2.8 bn. This represents approximately 18.4 % of the total volume of domestic fisheries production and 2% of world aquaculture production, which continues to expand rapidly. Aquaculture offers attractive development opportunities in Europe, especially in regions affected by the decline of sea fishing. Norway accounted for 1% of the world total. 92% of the world output was produced by Asian countries. Four Member States (France 20%, Italy 14%, Spain 17%, and the United Kingdom 14%) accounted for 66% of the EU-27 production in 2005. The EU-27 production increased by about 27% from 1993-2005.

Species	*Volume (tonnes)*
Blue mussel	361399
Rainbow trout	202900
Salmon	144801
Cupped oyster	127150
Mediterranean mussel	108522
Gilthead sea bream	71475
Common carp	69557
Manila clam	68006
Sea bass	49202
Eel	8202

Source: Eurostat

Table 34: Top ten species produced in aquaculture in EU in 2005

- The Member Associations of the FEAP Federation of European Aquaculture Producers provide production data for their members' activities on an annual basis. Forecasts for the coming year are also indicated. Data is reported online by FEAP in metric tons for fresh, whole (round) weight.
- Average price values are also reported, as annual average ex-farm values (i.e. values obtained by the producer). This comes as a complement to FAO's price data series[62].

[62] See www.globefish.org.

- FAO also provides a range of data for global aquaculture and fisheries statistics while Globefish, an initiative of the FAO, represents a network of regional marketing information services that provides information on markets and prices.

Catches

- EU-27 catches amounted to 5,632,000 tonnes, almost the half of Peru's and one third of China's catches.
- EU-27 catches accounted for 6% of the world total in 2005 (Norway and Iceland together for 4%).
- Five Member States (Denmark 16%, France 11%, the Netherlands 10%, Spain 14% and the United Kingdom 12%) accounted for over 60% of the EU-27 catch in 2005.
- Between 1993 and 2005 the EU-27 catch decreased by 22%. Over the same period the total world catch increased by 8%.

Landings

- According to Eurostat data in 2006 the total landings of fishing products, in tonnes, in EU ports were 4,442,604 corresponding to a value of 6.7 bn euro.
- The 2006 average price of €1.50/kg for fisheries products in the European Union showed a small increase, reflecting a slight decline in landings and a slight increase in the value of the products landed.
- Spain and Italy have the highest average landing value in the EU.

Country	*Volume (tonnes)*	*%*	*Value (1000 euro)*	*%*
DK	893954	20.1	445754	6.7
NL	781360	17.6	335678	5.0
ES	777543	17.5	1679668	25.1
UK	426049	9.6	679924	10.1
FR	325911	7.3	842042	12.6
IT	299266	6.7	1518120	22.7
SE	270170	6.1	116577	1.7
IE	220211	5.0	314810	4.7
PT	162526	3.7	213021	3.2
DE	136686	3.1	113471	1.7
EL	96016	2.2	336186	5.0
FI	26135	0.6	9296	0.1
BE	18259	0.4	82910	1.2
BG	4389	0.1	1698	0.0
CY	1900	0.0	5463	0.1
MT	1298	0.0	5612	0.1
SI	931	0.0	1514	0.0
Total	4.442.604	100	6.701.754	100

Source: Eurostat

Table 35: Landings in EU-27 in 2006

Foreign Trade

The EU-27 Member States have an overall negative trade balance in fishery products, both in terms of volume and value.

Only six of the EU-27 Member States (Denmark, Estonia, Ireland, Latvia, Lithuania (since 2004), Malta (since 2006) and the Netherlands) have positive balances in terms of value.

France, Germany, Italy, Spain and the United Kingdom are the largest net importers among EU Member States. Iceland and Norway are large net exporters of fishery products.

The EU is the world largest importer of fisheries products. It also plays a major role as an exporter of high-value fish products. Spain and France are the key European importers, while Denmark and the Netherlands are major exporters.

According to Eurostat, in 2006, the volume of exports of fisheries products was 3.4 million tonnes for a value of 8.3 bn euro, while the volume of imports was 4.9 million tonnes for a value of 14.5 bn euro.

Seafood Processing

The European seafood processing sector generates three times the turnover of the harvesting sector, with production amounting to a total value of around €18 billion. The mainstay of European production is preserves and preparations of fish, crustaceans and molluscs. Following the enlargement of the European Union, Poland has joined the ranks of the leading processors of fisheries and aquaculture products.

Country	*Value (000)*
ES	3704900
UK	3154900
FR	2866100
DE	2017300
IT	1742700
DK	1286700
PL	878300
NL	643100
PT	628800
BE	499800
SE	383900
IE	323500
LT	194900
LV	145400
FI	105100
EL	100200
EE	93700
CZ	40300
RO	35000
AT	34900
SK	33000
BG	17000
SI	15400
HU	1500
EU27	189.377.00

Source: Eurostat

Table 36: Value of the output of the processing sector (2005)

Food Consumption and Supply per Capita

- In the EU, average fish consumption was 21.4 kg/head/year in 2006. Consumption ranges from 3.9 kg/head/year in Romania to 56.9 kg/head/year in Portugal.
- Portugal and Spain have by far the greatest supply of fishery products per capita in the EU-27.
- Supply per capita in the 12 new Member States (9.1 kg/head) in 2001 is less than half that of the EU-15 Member States (24.8 kg/head).

Fishing Fleet

- In December 2007, the EU-27 fishing fleet accounted 88,520 vessels.
- Over the past 15 years, the capacity of the EU-15 fishing fleet has decreased at a steady yearly rate of approximately 1.5% in terms of tonnage, and 2% in terms of power. Despite the enlargements of the EU in 2004 and 2007, the number of vessels in December 2007 was 88,500, i.e. 18,000 less than in 1995.
- Greece has the largest number of fishing vessels. However on average these vessels are small compared with the vessels from most of the other countries.
- In 2006 Greece (21%), Italy (16%) and Spain (15%) had the largest number of fishing vessels of the EU-25 Member States. The fleets with the largest total power were those of France (15%), Spain (15%) and Italy (17%). The largest fleet in tonnage was that of Spain (25%).
- In the period 1995 to 2006 the EU-15 fishing fleet has decreased by 22% in number, by 14% in total tonnage and by 19% in total power.

Employment

- According to Eurostat data, in 2003 the number of persons employed in the sector in EU-25 was 415,851, of which 307,076 male and 108,775 female.
- Employment in the fisheries sector plays a significant role in coastal regions where employment alternatives are often scarce. The number of people employed in the fisheries sector is not limited to the number of fishermen at sea. The entire sector is concerned, including processing, marketing, distribution and aquaculture.

Identification of the Sector in the standard Classification

The NACE codes respectively 05.01, 05.02, 15.20, 15.71 and 52.23 (NACE Rev. 1.1) and the codes 03.11, 03.12, 70.22, 03.21, 03.22, 10.20, 10.85, 10.91 and 47.23 (NACE Rev. 2) are directly relevant for the sector. From this point of view there is no need for an indirect identification.

NACE Rev. 1.1 Code	*NACE Rev.1.1 Description*	*NACE Rev. 2 Code*	*NACE Rev. 2 Description*
05.01	Fishing	03.11	Marine fishing
		03.12	Freshwater fishing
		70.22	Business and other management consultancy activities
05.02	Fish farming	03.21	Marine aquaculture
		03.22	Freshwater aquaculture
15.20	Processing and preserving of fish and fish products	10.20	Processing and preserving of fish, crustaceans and molluscs
		10.85	Manufacture of prepare meals and dishes
15.71	Manufacture of prepared feeds for farm animals	10.91	Manufacture of prepared feeds for farm animals
52.23	Retail sale of fish, crustaceans and molluscs	47.23	Retail sale of fish, crustaceans and molluscs in specialized stores

Table 37: Sector description by NACE codes - Fishing

The main difference between NACE Rev 1.1 and Rev 2 is that the second revision subdivides fishing into marine and freshwater fishing. This will improve the accuracy of the IMP database.

In NACE Rev 2, aquaculture is also subdivided into marine and freshwater aquaculture. Marine aquaculture includes:

- fish farming in sea water, incl. farming of marine ornamental fish
- production of bivalve spat (oyster, mussel, etc.), lobster lings, shrimp post-larvae, fish fry and fingerlings
- growing of laver and other edible seaweeds
- culture of crustaceans, bivalves, other molluscs and other aquatic animals in sea waters
- aquaculture activities in brackish waters
- aquaculture activities in salt water filled tanks and reservoirs
- operation of fish hatcheries (marine)
- operation of marine worm farms.

CPA 2002 No.	***Description***
05	FISH AND OTHER FISHING PRODUCTS; SERVICES INCIDENTAL TO FISHING
05.0	Fish and other fishing products; services incidental to fishing
05.00	Fish and other fishing products; services incidental to fishing
05.00.1	Fish, live, fresh or chilled
05.00.11	Fish, live
05.00.12	Fish, fresh or chilled
05.00.2	Crustaceans, not frozen; oysters; other aquatic invertebrates, live, fresh or chilled
05.00.21	Crustaceans, not frozen
05.00.22	Oysters
05.00.23	Other molluscs or shellfish and aquatic invertebrates, live, fresh or chilled
05.00.3	Other aquatic products
05.00.31	Corals and similar products, shells of molluscs, crustaceans or echinoderms and cuttle-bone
05.00.32	Natural sponges of animal origin
05.00.33	Seaweeds and other algae
05.00.5	Services incidental to fishing
05.00.50	Services incidental to fishing
05.00.6	Services incidental to fish farming
05.00.60	Services incidental to fish farming
15.20	Processed and preserved fish and fish products
15.20.1	Processed and preserved fish and fish products
15.20.11	Fish fillets, other fish meat and fish livers and roes, fresh or chilled
15.20.12	Fish, fish fillets, other fish meat and fish livers and roes, frozen
15.20.13	Fish, dried, salted or in brine; smoked fish; meal, powder or pellets of fish fit for human consumption
15.20.14	Fish, otherwise prepared or preserved; caviar and caviar substitutes from fish eggs
15.20.15	Crustaceans, frozen; molluscs and other aquatic invertebrates, frozen, dried, salted or in brine
15.20.16	Other prepared and preserved products of crustaceans, molluscs and other aquatic invertebrates
15.20.17	Flours, meals and pellets of fish, crustaceans, molluscs or other aquatic invertebrates, unfit for human consumption
15.20.18	Other inedible products of fish, crustaceans, molluscs or other aquatic invertebrates
15.71	Prepared animal feeds for farm animals
15.71.1	Prepared animal feeds for farm animals, except lucerne meal and pellets

15.71.10	Prepared animal feeds for farm animals, except lucerne meal and pellets
15.71.2	Lucerne (alfalfa) meal and pellets
15.71.20	Lucerne (alfalfa) meal and pellets
15.71.9	Industrial services for prepared animal feeds for farm animals
15.71.99	Industrial services for prepared animal feeds for farm animals
52.23	Retail trade services of fish, crustaceans and molluscs

Table 38: Sector description by CPA codes - Fishing

Other statistical Studies

Eurostat publishes many data on fisheries and aquaculture. Eurostat data is sourced from member states in compliance with the EU legislation:

- Catches: statistics are submitted to Eurostat by EEA member countries in compliance with Regulations 448/2005/EC, 1636/2001/EC, 1638/2001/EC.
- Landings: each EEA member country reports monthly data on the quantities and values of fishery products landed in its ports under Council Regulation 2104/93/EC of 22 July 1993 amending Regulation 1382/91/EC on the submission of data on the landings of fishery products in Member States (OJ L191 of 31.07.1993).
- Foreign Trade: data for EEA States have been extracted from Eurostat COMEXT foreign trade database[63].
- Food supply per capita, as sourced from FAO[64]. Figures are expressed in kg live weight / head of population / year.
- Fishing Fleet: the data for EU Member States are processed from Eurostat Statistical Register of Fishing Vessels which is updated annually from the administrative file of fishing vessels maintained by EC/DG Mare. Data for Iceland and Norway are compiled from fleet files submitted by the national authorities.
- Employment data are collected by FAO from the national authorities in the FISHSTAT FM questionnaire and has been published in FAO Fisheries Circular FIDI/C929-Rev.2 (Number of fishermen1970-1997)[65].
- Regional organisations and FAO make the data for non-EEA countries available to Eurostat. National authorities submit catch statistics for all commercial, subsistence and recreational fisheries. However the reporting of data for recreational fisheries is known to be incomplete. Data are reported as the live weight equivalent of the landings (i.e. the landed weight of a product to which an appropriate conversion factor has been applied). The data therefore exclude quantities of fishery products which are caught but not landed. For example, discards or fish consumed on board vessels are excluded.

Another relevant and qualified source collecting and publishing data is FAO (Food and Agriculture Organization of the United Nations) that receives aquaculture production data from national authorities on the FISHSTAT AQ questionnaire. This questionnaire uses the same concepts and definitions as the EU legislation and the data from the Eurostat and FAO sources are comparable. The FAO Fisheries Department checks the quality of data and makes the results available to Eurostat for inclusion in the New Cronos database.

[63] Trade data are probably under-estimated; in particular, export data records are missing for various reasons, e.g.: trans-shipping of catches at sea to vessels of a different nationality; and landings by fishing vessels in foreign ports.
[64] See: FAO Fisheries Circular FIDI/C821- Rev.7 (Fish and Fishery products: World Apparent Consumption based on Food Balance Sheets 1961-2001). Balance sheets are compiled by FAO Fisheries Department.
[65] National authorities are requested to submit data on the number of fishermen (male and female) from both marine and inland fisheries and the number of employees in aquaculture production. There may be differences between the definitions used by national sources. Since 1990, there is a decrease in the number of fishermen in most of the EU countries.

Data Set	*Regulation*	*Parameters*	*Unit*
CATCH North-West Atl (Statlant 21A: provisional data) (Statlant 21B: definitive data)	2018/93	**Catches (tonnes) by:** - Areas: NAFO divisions and sub-divisions - Species: individually identified fish species according to 3Alpha-codes **Member States shall inform the Commission of any modifications to the initial methodological report within three months of their introduction**	Tonnes in live weight
CATCH North-East Atl	3880/91	Catches (tonnes) by: - Areas: ICES divisions and sub-divisions - Species: individually identified fish species according to 3Alpha-codes **Member States shall inform the Commission of any modifications to the initial methodological report within three months of their introduction**	Tonnes in live weight
CATCH Eastern Central Atl	2597/95	Catches (tonnes) by: - Areas: CECAF divisions and sub-divisions - Species: individually identified fish species according to 3Alpha-codes **Member States shall inform the Commission of any modifications to the initial methodological report within three months of their introduction**	Tonnes in live weight
CATCH Mediterranean & Black Sea	2597/95	Catches (tonnes) by: - Areas: GFCM divisions and sub-divisions - Species: individually identified fish species according to 3Alpha-codes **Member States shall inform the Commission of any modifications to the initial methodological report within three months of their introduction**	Tonnes in live weight
CATCH South-West Atl	2597/95	Catches (tonnes) by: - Areas: Major fishing areas - Species: individually identified fish species according to 3Alpha-codes **Member States shall inform the Commission of any modifications to the initial methodological report within three months of their introduction**	Tonnes in live weight
CATCH South-East Atl	2597/95	Catches (tonnes) by: - Areas: ICSEAF divisions and sub-divisions - Species: individually identified fish species according to 3Alpha-codes **Member States shall inform the Commission of any modifications to the initial methodological report within three months of their introduction**	Tonnes in live weight
CATCH Western Indian Ocean	2597/95	Catches (tonnes) by: - Areas: Major fishing areas - Species: individually identified fish species according to 3Alpha-codes **Member States shall inform the Commission of any modifications to the initial methodological report within three months of their introduction**	Tonnes in live weight

AQUACULTURE PRODUCTION	788/96	- Species (individually identified fish species) - Environment (freshwater, brackish water, and salt water)	Quantities: tonnes live weight
	NEW	- Species: Fish, crustaceans, molluscs, seaweed, other aquatic organisms - Environment: freshwater and salt water - Methods of production **4 tables:** I- Production and value of aquaculture II- Captures based on aquaculture III- Hatcheries Nurseries IV- Structure **Member States shall provide the Commission (Eurostat) with a yearly report on the quality of the data transmitted**	Quantities (Number or Tonnes (live or wet weight)) Unit values (National currency)
LANDINGS	1382/91	- **MONTH** - Fish species - Presentation - Destination - **Vessel nationality (EU / EFTA / or Third countries)**	Quantities (tonnes product weight) Unit values (National currency / Tonnes)
	1921/06	**- YEAR** - Fish species - Presentation - Destination **- Individual flag state (for EU and EFTA vessels)** **By 19 January 2008 each Member State shall submit a detailed methodological report to the Commission.** **Member States shall inform the Commission of any change of the initial methodological report within three months of their introduction.**	Quantities (tonnes product weight) Unit values (National currency / Tonnes)

Table 39: Data available from Eurostat, July 2008

DG Mare publishes, after approval from the STECF Scientific Technological and Economic Committee for Fisheries, and the JRC Joint Research Centre, an Annual Economic Report of EU Fleets[66]. This statistical report is based on economic data and indicators on fleet capacity and catch effort for an important share of the EU fleets; it reports information collected, to a large extent, in the framework of the Data Collection Regulation.

DG Mare manages the FIDES 3 system. FIDES 3, as a system internal to DG Mare, is to automate the management of fisheries data so as to make it accessible by Member States' national administrations and the EC. FIDES has currently the following statistical regimes:

Additional data collection may be performed by Member States, e.g. Italy, at NUTS 0 or NUTS 2 level, and for groups of coastal regions, on catches. In Italy's case: 28 species of fish, 10 molluscs species, 8 crustacean species), income, average prices and type of gear or fishing system. In Slovenia's case: annual data on marine fisheries in 2007 (catch and landing statistics).

A number of studies and reports on specific aspects of fishing and aquaculture sectors have been commissioned by the EC and made public. These are one-off studies, whose data do not seem to be entirely coherent, in terms of time series and quality criteria.

[66] **Council Regulation 1543/2000/EC of 29 June 2000 establishing a Community framework for the collection and management of the data needed to conduct the common fisheries policy. See also: Regulation (EC) 1639/2001 establishing the minimum and extended Community programmes for the collection of data in the fisheries sector and laying down detailed rules for the application of Council Regulation (EC) 1543/2000 [OJ L 222, 17.8.2001].**

Identification of Stakeholders

In 1970 the Common Organisation of the Markets (COM) in fishery and aquaculture products was set up to ensure a common market for fisheries products, which was later expanded to farmed products. It is the oldest pillar of the Common Fisheries Policy. The aim was to stabilize income for fish producers and prices for consumers.

One of the key ideas of the COM is that producers themselves hold a large share of the responses to the problems facing the sector. The regulation in force since 2000 gives more responsibility to Producer Organisations (PO) and grants them financial support. POs are officially recognised on the basis of criteria of representativeness and the nature of their activities to implement the COM mechanisms.

In 2005, there were 203 recognised POs in 16 Member States (BE, DK, DE, EL, ES, FI, FR, IE, IT, LV, LT, NL, PL, PT, SE, UK).

- Spain, France, Italy, Germany and the United Kingdom accounted for 74 % of all the POs.
- The involvement and representativeness of POs vary from one country to the next: in 10 Member States (BE, DK, DE, ES, FR, LT, NL, PT, SE, UK), more than 50 % of fishermen belong to a PO, while in three Member States (LV, PL, FI), membership ranges from 12 % to 23 % of fishermen.
- For aquaculture, the percentage of producers belonging to a PO is over 75 % in three Member States (ES, LT, UK), compared to less than 10 % in two Member States (DK, FR).

Definition of additional relevant Indicators

Oil/gasoline consumption per vessel or engine HP (horse power) is part of the measure of the vessel's efficiency. Sources: Fishermen Associations at regional (NUTS 2) level, fishing vessels, energy suppliers;

Detailed (monthly or per species) data on markets. Source: fish auctions;

Data per vessel (costs and earning) can be accessible through specific business inquiries in certain Member States.

Evaluation of the Representation, Data Availability and Quality

Margins of improvement exist concerning the availability of data at NUTS 2 and NUTS 3 levels. Finer data collection, i.e. those based on vessel inquiries, is sometimes faced with the classic issue of respondents' declaration reliability.

2.2.10 Marine Services - Classification & Inspection

Descriptive Sefinition of the Sector

This sector comprises all maritime related activities of the classification societies, marine laboratories, engineering companies and ship model test tanks mainly with respect to the certification and testing of ships and boats, ship supplies as well as offshore and renewable energies.

Identification of the sector in the standard classification

All described NACE and CPA codes are only partly relevant for this sector because there is no direct statistical segmentation into classification, inspection and engineering activities.

NACE Rev. 1.1 Code	NACE Rev.1.1 Description	NACE Rev. 2 Code	NACE Rev. 2 Description
74.30	Technical testing and analysis • measuring related to cleanness of water or air, measuring of radioactivity and the like; analysis of potential pollution such as smoke or waste water • testing activities in the field of food hygiene, including veterinary testing and control in relation to food production • strength and failure testing • testing of calculations for building elements • certification of ships, aircraft, motor vehicles, pressurized containers, nuclear plant, etc. • periodic road-safety testing of motor vehicles	71.20	Technical testing and analysis • acoustics and vibration testing • testing of composition and purity of minerals etc. • testing activities in the field of food hygiene, including veterinary testing and control in relation to food production • testing of physical characteristics and performance of materials, such as strength, thickness, durability, radioactivity etc. • qualification and reliability testing • performance testing of complete machinery: motors, automobiles, electronic equipment etc. • radiographic testing of welds and joints • failure analysis • testing and measuring of environmental indicators: air and water pollution etc. • certification of products, including consumer goods, motor vehicles, aircraft, pressurised containers, nuclear plants etc. • periodic road-safety testing of motor vehicles • testing with use of models or mock-ups (e.g. of aircraft, ships, dams etc.) • operation of police laboratories

Table 40: Sector description by NACE codes – Marine Services – Classification & Inspection

CPA 2002 No.	Description
74.30.1	Technical testing and analysis services

Table 41: Sector description by CPA codes – Marine Services – Classification & Inspection

Non-sustainable statistical Studies

This sector has partly been covered by some other studies which address the maritime industry as a whole[67]. However, the approaches are not based on sustainable statistical data.

There are no sector self-organized statistical activities mainly with respect to this sector known on an European level.

[67] PRC-ISL (2000), Douglass Westwood, BALance, MC (2005), Ecotec (2006)

Identification of Sector Stakeholders

The main involved branch association is the EurACS (European Association of Classification Societies). EurACS encompasses the leading European classification societies BV (Bureau Veritas, France), DNV (Det Norske Veritas, Norway), GL (Germanischer Lloyd, Germany), LR (Lloyd's Register, UK) and RINA (Registro Italiano Navale, Italy) and is part of the international association IACS (European Association of Classification Societies).

Bureau Veritas (BV), France

Bureau Veritas considers itself to be the world's second largest group (based on revenues and number of employees in 2007). BV covers in total the following eight business sectors:

- Marine
- Industry
- In-Service Inspection & Verification
- Health, Safety & Environment
- Construction
- Certification
- Consumer Products
- Government Services & International Trade.

The total marine business which is the No. 2 worldwide in number of classed ships reached in 2007 about 247 million € revenues € according to approximately 12 % of the total operating revenues (about 2.1 billion €). BV is currently present in 140 countries through a network of 850 offices and laboratories. It employs over 33,000 people and serves approximately 300,000 customers.

Det Norske Veritas (DNV), Norway

The total revenues reached about 1 billion € for the year 2007. DNV has about 8,000 employees in 300 offices in 100 countries. The Norwegian classification society is organized into four following business areas:

- DNV Maritime (with a share of about 45% of the total revenues in 2007)
- DNV Energy
- DNV Industry
- DNV IT Global Services.

In addition DNV has furthermore with DNV Software and DNV Research and Innovation two independent business units.

Germanischer Lloyd (GL), Germany

At the end of 2007 the total revenues of GL amounted to about 422 million €. The GL employs more than 5,000 engineers, surveyors, experts and administrative staff (2008) and is concentrated mainly on maritime services (as the main business field) as well as on industrial services. Container vessels are by far with a share of 69% in 2007 the largest segment for GL classification services.

Lloyd's Register (LR), United Kingdom

The total group income reached about 497 million £ in 2007 with a workforce of over 5,900 employees. The LR group operates through the following five business divisions:

- Marine
- Oil & Gas

- Transportation
- Asset Management
- Management Systems

The marine business accounts for around half of the LR's income.

Registro Italiano Navale (RINA), Italy

2007 was a very successful year for all divisions. Group turnover of RINA reached about 155 million € with a workforce of 1,142 people in 2007. The RINA group is divided into the following 3 divisions:

- Marine (€80 million with 52 per cent of the group total).
- Certification
- Industry.

In addition the association ECMAR (European Council Maritime Applied R&D) is involved in this sector. ECMAR represents among others the leading European ship model test tanks.

Definition of relevant socio economic Indicators and Key Variables

Besides the most relevant variables it could very useful to get a more precise statistical segmentation into the most important sectors of classification including the certification of ships.

Evaluation of the Representation, Data Availability and Quality

- Lack of precise direct representation of the ship and marine classification as well as marine inspection sector in the existing nomenclature/codes of the statistical regime.
- Availability of data at regional level (NUTS 3) is extremely limited (or confidential).

2.2.11 Marine Services - R&D & Education

Descriptive Definition of the Sector

This sector comprises maritime-related research & development activities, relevant faculties at universities and technical colleges, nautical training & education colleges, offshore education colleges, ocean and fisheries research institutions and specialised engineering and consulting companies.

The maritime-related R&D sector encompasses the 3 following main areas[68]:

- Industrial shipbuilding and shipbuilding supplies
- Offshore oil and gas and others
- Government (mainly academic).

Identification of the Sector in the standard Classification

All described NACE and CPA codes are only partly relevant for this sector because there is no direct statistical segmentation into classification, inspection and engineering activities.

[68] Douglas Westwood (2005).

NACE Rev. 1.1 Code	NACE Rev.1.1 Description	NACE Rev. 2 Code	NACE Rev. 2 Description
73.10	Research and experimental development on natural sciences and engineering • systematic studies and creative efforts in the three types of research and development defined above, in natural sciences (mathematics, physics, astronomy, chemistry, life sciences, medical sciences, earth sciences, agriculture, etc.). They are intended to increase the stock of knowledge and to improve the use of this stock of knowledge • multi-disciplinary research and development	72.11	Research and experimental development on biotechnology
		72.19	Other research and experimental development on natural sciences and engineering • research and experimental development on natural science and engineering other than biotechnological research and experimental development: • research and development on natural sciences research and development on engineering and technology • research and development on medical sciences • research and development on agricultural sciences • interdisciplinary research and development, predominantly on natural sciences and engineering
80.21	General secondary education • general school education in the first stage of the secondary level corresponding more or less to the period of compulsory school attendance • general school education in the second stage of the secondary level giving, in principle, access to higher education	85.31	General secondary education
80.22	Technical and vocational secondary education • technical and vocational education below the level of higher education as defined in class 80.30	85.32	Technical and vocational secondary education
80.30	Higher education • first, second and third stages of higher education: • post-secondary education not leading to a university degree or equivalent • post-secondary education leading to a university degree or equivalent	85.41	Post-secondary non-tertiary education This class includes provision of post-secondary education, which cannot be considered tertiary education. For example provision of supplementary post-secondary education to prepare for tertiary education or post-secondary non-tertiary vocational.
		85.42	Tertiary education first, second and third stages of tertiary education performing arts schools providing tertiary education

NACE Rev. 1.1 Code	NACE Rev.1.1 Description	NACE Rev. 2 Code	NACE Rev. 2 Description
80.41	Driving school activities tuition for flying certificates and ships' licences other than for commercial certificates and permits	85.53	Flying, sailing, shipping schools not issuing commercial certificates and permits
80.42	Adult and other education n.e.c. • adult education, i.e. education for people who are not in the regular school and university system. Instruction may be given in day or evening classes in schools or in special institutions providing for adults • education which is not definable by level	85.59	Other education n.e.c.

Table 42: Sector description by NACE codes– Marine Services – R&D & Education

CPA 2002 No.	Description
73.10.11	Research and experimental development services on physical sciences
73.10.13	Research and experimental development services on engineering and technology
73.10.14	Research and experimental development services on agricultural sciences
73.10.15	Research and experimental development services on medical sciences and pharmacy
73.10.16	Research and experimental development services on other natural sciences
80.21.1	General secondary education services
80.22.1	Technical and vocational secondary education services
80.30.1	Higher education services
80.41.12	Flying and sailing school services
80.42	Adult and other education services n.e.c.

Table 43: Sector description by CPA codes– Marine Services – R&D & Education

Non-sustainable statistical Studies

This sector has partly been covered by some other public studies, which address the maritime industry as a whole[69]. However, the approach never builds on sustainable statistical data.

There are no sector self-organized statistical activities mainly with respect to this sector known on an European level.

Identification of main Sector Stakeholders

- COREDES is the working group on R&D of CESA (Community of European Shipyards' Associations).
- ECMAR (European Council Maritime Applied R&D). The scope of the ECMAR represents the national maritime research coordination entities from the most important maritime related European countries is focused on the development of a common strategy for European research in the maritime industry, and to support the adoption of the relevant research priorities within the scope of the EU R&D programmes.
- WEGEMT (European association of universities in marine technology and related sciences). WEGEMT encompasses about 40 mainly technical universities in 17 European countries and was founded in 1978 with the aim of increasing the knowledge base, and updating and extending the

[69] PRC-ISL (2000), Ecotec (2008), Douglass-Westwood, BALance, MC (2005).

skills and competence of practicing engineers and postgraduate students working at an advanced level in marine technology and related sciences.

- CEMT (Confederation of European Maritime Technology Societies)
- European Science Foundation (ESF) is an association of 77 member organisations devoted to scientific research in 30 European countries and represents all scientific fields. Part of ESF are also a Marine Board (mainly concentrated on ocean research strategies and activities) an European Polar Board (EPB).

Definition of relevant socio economic Indicators and Key Variables

In addition the most relevant statistical variables there are no needs for further specific variables known. It could very useful to get a more precise statistical segmentation into maritime related R&D activities.

Evaluation of the Representation, Data Availability and Quality

- Lack of precise definition of most maritime related R&D and education activities.
- Very limited direct representation of this sector in the existing nomenclature/codes of the statistical regime
- Availability of data at regional level (NUTS3) is extremely limited (or confidential).

2.2.12 Marine Services - Support Services

Descriptive Definition of the Sector

This sector comprises all other shipping and maritime related support activities. These support services cover a wide diversity of services including marine shipping support, crewing and brokerage activities, bunkering, ship supply, wholesale, rescue, diving, maritime insurance and reinsurance, financing, law, legal & medical services, marketing and consulting activities as well as the activities of maritime associations and maritime government services.

A lot of companies, specialised in marine support activities are included in NACE code 63.40 (shipping agent, sea-freight forwarders, customs agents etc.) and in NACE code 63.22 (navigation and salvage activities etc). Unfortunately it is not possible to define a clear definition and difference between shipping-related, port-related and other maritime- related activities. Due to a mix of included and partly very different support activities this sector is mostly underestimated concerning its importance for the whole maritime business. Mainly with respect to NACE code 63.22 there is also a problem of possible double counts especially regarding port-related services.

Identification of the Sector in the standard Classification

All described NACE and CPA codes are only partly relevant for this sector because there is no direct statistical segmentation into maritime related support activities.

NACE Rev. 1.1 Code	NACE Rev.1.1 Description	NACE Rev. 2 Code	NACE Rev. 2 Description
51.14	Agents involved in the sale of machinery, industrial equipment, ships and aircraft	46.14	Agents involved in the sale of machinery, industrial equipment, ships and aircraft
51.87	Wholesale of other machinery for use in industry, trade and navigation • wholesale of transport equipment except motor vehicles, motorcycles and bicycles • wholesale of production-line robots • wholesale of wires and switches and other installation equipment for industrial use • wholesale of other electrical material such as electrical motors and transformers • wholesale of other machinery n.e.c. for use in industry, trade and navigation and other services • wholesale of measuring instruments and equipment	46.69	Wholesale of other machinery and equipment • wholesale of transport equipment except motor vehicles, motorcycles and bicycles • wholesale of production-line robots • wholesale of wires and switches and other installation equipment for industrial use • wholesale of other electrical material such as electrical motors, transformers • wholesale of other machinery n.e.c. for use in industry (except mining, construction, civil engineering and textile industry), trade and navigation and other services • wholesale of measuring instruments and equipment
63.22	Other supporting water transport activities • activities related to water transport of passengers, animals or freight: ○ operation of terminal facilities such as harbours and piers ○ operation of waterway locks, etc. ○ navigation, pilotage and berthing activities ○ lighter-age, salvage activities ○ lighthouse activities	52.22	Service activities incidental to water transportation • activities related to water transport of passengers, animals or freight: ○ operation of terminal facilities such as harbours and piers ○ operation of waterway locks etc. ○ navigation, pilotage and berthing activities ○ lighter-age, salvage activities ○ lighthouse activities
		85.32	Technical and vocational secondary education

63.40	Activities of other transport agencies • forwarding of freight • arranging or carrying-out of transport operations by road, sea or air • receipt of group and individual consignments (including pick-up of goods and grouping of consignments) • issue and procurement of transport documents and way-bills • organization of group consignments by road, rail, air or sea (including collection and distribution of goods) • activities of customs agents • activities of sea-freight forwarders and air-cargo agents • goods-handling operations, e.g. temporary crating for the sole purpose of protecting the goods during transit, uncrating, sampling, weighing of goods	52.29	Other transportation support activities • forwarding of freight • arranging or organising of transport operations by rail, road, sea or air • organisation of group and individual consignments (including pickup and delivery of goods and grouping of consignments) • issue and procurement of transport documents and waybills • activities of customs agents • activities of sea-freight forwarders and air-cargo agents • brokerage for ship and aircraft space • goods-handling operations, e.g. temporary crating for the sole purpose of protecting the goods during transit, uncrating, sampling, weighing of goods
		74.90	Other professional, scientific and technical activities n.e.c. • business brokerage activities, i.e. arranging for the purchase and sale of small and medium-sized businesses, including professional practices, but not including real estate brokerage • patent brokerage activities (arranging for the purchase and sale of patents) • appraisal activities other than for real estate and insurance (for antiques, jewellery, etc.) • bill auditing and freight rate information • weather forecasting activities • security consulting • agronomy consulting • environmental consulting • other technical consulting • activities of consultants other than architecture, engineering and management consultants • activities of quantity surveyors

66.03	Non-life insurance - insurance and reinsurance of non-life insurance business: • accident, fire • health • property • motor, marine, aviation, transport • pecuniary loss and liability insurance	65.12	Non-life insurance provision of insurance services other than life insurance: • accident and fire insurance • health insurance • travel insurance • property insurance • motor, marine, aviation and transport insurance • pecuniary loss and liability insurance
		65.20	Reinsurance activities of assuming all or part of the risk associated with existing insurance policies originally underwritten by other insurance carriers
74.11	Legal activities	69.10	Legal activities
74.14	Business and management consultancy activities	70.21	Public relations and communication activities
		70.22	Business and other management consultancy activities
		74.90	Other professional, scientific and technical activities n.e.c. • business brokerage activities, i.e. arranging for the purchase and sale of small and medium-sized businesses, including professional practices, but not including real estate brokerage • patent brokerage activities (arranging for the purchase and sale of patents) • appraisal activities other than for real estate and insurance (for antiques, jewellery, etc.) • bill auditing and freight rate information • weather forecasting activities • security consulting • agronomy consulting • environmental consulting • other technical consulting • activities of consultants other than architecture, engineering and management consultants activities of quantity surveyors
74.20	Architectural and engineering activities and related technical consultancy	71.12	Engineering activities and related technical consultancy
74.70	Industrial cleaning	81.22	Other building and industrial cleaning activities

		81.29	Other cleaning activities • swimming pool cleaning and maintenance activities • cleaning of trains, buses, planes, etc. • cleaning of the inside of road and sea tankers • disinfecting and exterminating activities • bottle cleaning • street sweeping and snow and ice removal • other cleaning activities, n.e.c.
751	Administration of the State and the economic and social policy of the community	84.11	General public administration activities
85.12	Medical practice activities	86.21	General medical practice activities
		86.22	Specialist medical practice activities
90.03	Sanitation, remediation and similar activities	38.11	Collection of non-hazardous waster
		39.00	Remediation activities and other waste management services • decontamination of soils and groundwater at the place of pollution, either in situ or ex situ, using e.g. mechanical, chemical or biological methods • decontamination of industrial plants or sites, including nuclear plants and sites • decontamination and cleaning up of surface water following accidental pollution, e.g. through collection of pollutants or through application of chemicals • cleaning up oil spills and other pollutions on land, in surface water, in ocean and seas, including coastal areas • asbestos, lead paint, and other toxic material abatement • other specialised pollution-control activities
		81.29	Other cleaning activities • swimming pool cleaning and maintenance activities • cleaning of trains, buses, planes, etc. • cleaning of the inside of road and sea tankers • disinfecting and exterminating activities • bottle cleaning • street sweeping and snow and ice removal • other cleaning activities, n.e.c.

91.11	Activities of business and employers' organizations • activities of organizations whose members' interests centre on the development and prosperity of enterprises in a particular line of business or trade, including farming, or on the economic growth and climate of a particular geographical area or political subdivision without regard for the line of business. Included are activities of federations of such associations. The main services supplied involve dissemination of information, representation before government agencies, public relations and labour negotiations: activities of chambers of commerce, guilds and similar organizations	94.11	Activities of business and employers membership organisations • activities of organisations whose members' interests centre on the development and prosperity of enterprises in a particular line of business or trade, including farming, or on the economic growth and climate of a particular geographical area or political subdivision without regard for the line of business. • activities of federations of such associations • activities of chambers of commerce, guilds and similar organisations • dissemination of information, representation before government agencies, public relations and labour negotia-tions of business and employer organisations
92.51	Library and archives activities	91.01	Library and archives activities

Table 44: Sector description by NACE codes– Marine Services – Support Services

CPA 2002 No.	*Description*
51.14.1	Sales on a fee or contract basis of machinery, industrial equipment, ships and aircraft
51.87.11	Wholesale trade services of transport equipment other than motor vehicles, motorcycles and bicycles
63.22.12	Pilotage services
63.22.13	Berthing services
63.22.14	Navigation aid services
63.22.15	Vessel salvage and refloating services
63.22.16	Other supporting services for water transport n.e.c.
63.40.11	Ship-broker services
66.03.31	Marine, aviation and transport insurance services
74.11	Legal services
74.14	Business and management consultancy services
74.20.3	Engineering services
75.1	Administration services of the state and the economic and social policy of the community
85.12	Medical practice services
90.03	Sanitation, remediation and similar services
91.11	Services furnished by business and employers' organizations
92.51	Library and archive services

Table 45: Sector description by CPA codes – Marine Services – Support Services

Non-sustainable statistical Studies

This sector has partly been covered by some other public studies, which address the maritime industry as a whole[70]. However, the approach never builds on sustainable statistical data..

Identification of main Sector Stakeholders

- ECASBA (European Community Association of Ship Brokers and Agents)
- EMPA (European Maritime Pilots' Association)

In addition the most important maritime branch associations presented in the respective maritime sectors are also part of this sector. For some maritime-related support activities there are no special European associations existing because they are involved in international and worldwide active associations and societies.

Definition of relevant socio economic Indicators and Key Variables

Besides the most relevant variables it could very useful to get a more precise statistical segmentation into the most important sectors of other supporting water transport activities and activities of other transport agencies.

Evaluation of the Representation, Data Availability and Quality

- Lack of precise direct representation of almost all support activities in the existing nomenclature/codes of the statistical regime.
- Availability of data at regional level (NUTS 3) is extremely limited (or confidential).

2.2.13 Marine Equipment

Descriptive Definition of the Sector

Marine Equipment in this context means the supply of all products and services which are not produced or supplied by the final manufacturer of the ship, the shipyards. This definition normally comprises all products and services which become part of the ship or are directly needed from external parties to produce the vessel. However, it may also include products and services which are needed to operate shipyards. The following figure gives an idea on a global distribution of values for a ship.

[70] PRC-ISL (2000), Ecotec (2008), Douglass-Westwood, BALance, MC (2005).

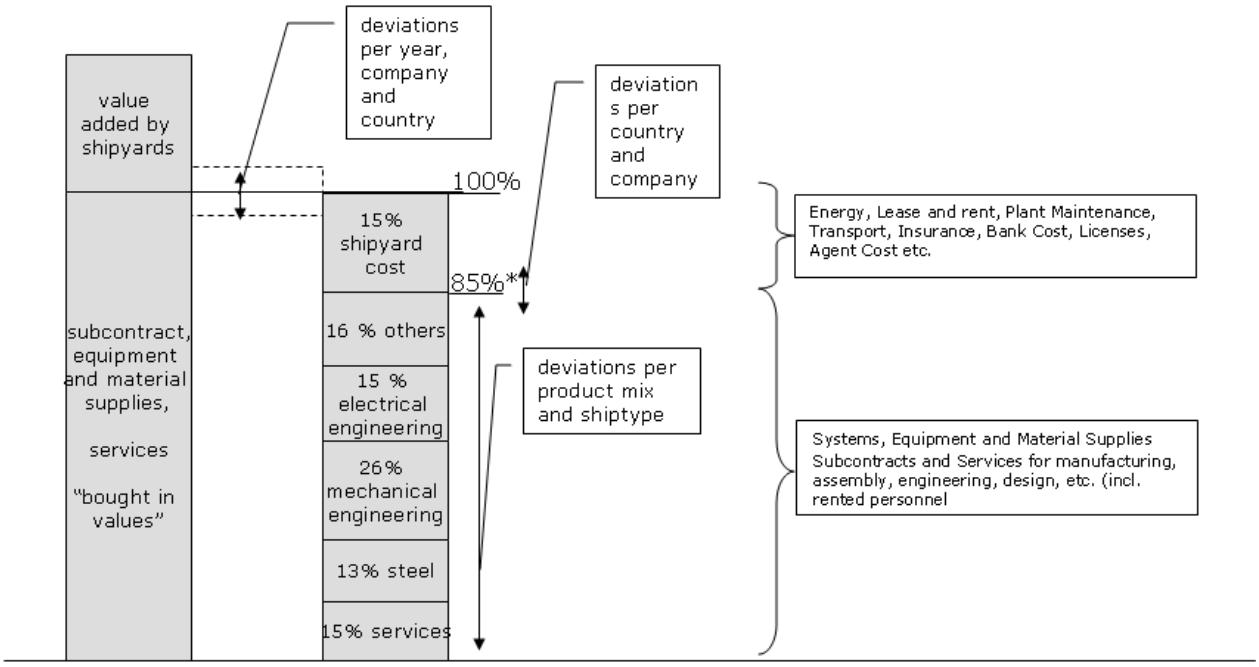


Figure 16: Global distribution of values for a ship

The Marine Equipment Sector includes a number of disciplines, which have to be distinguished before entering into a deeper statistical analysis. Especially marine suppliers and subcontractors have to be differentiated:

Marine suppliers are characterised by the fact that they develop functions or systems according to their own patents and techniques and they operate by respecting the specifications and terms of references defined by the customer for complete products or subassemblies. Marine suppliers are distinguished in "system suppliers", "component suppliers" (to be seen as a subgroup of system suppliers) and "material suppliers"

Marine subcontracting exists and is of increasing importance when outsourcing of earlier in-house functions occurs. Marine subcontractors are subdivided in those offering services for "manufacturing and assembly" and those offering services in the areas of "engineering, design and consulting"

These definitions follow in principle those made by other studies for the European Commission and Eurostat to analyse "New industrial subcontracting in Europe" for four industrial sectors in earlier years (automobile, electronics industry, textile and clothing industry, aeronautics). It is obvious that basically all industries including shipbuilding have the same problem to clearly identify the amount of subcontracting and equipment supply, respectively related figures for number of companies involved, employment, geographical distribution, relative value of products and services for different industrial groups etc.

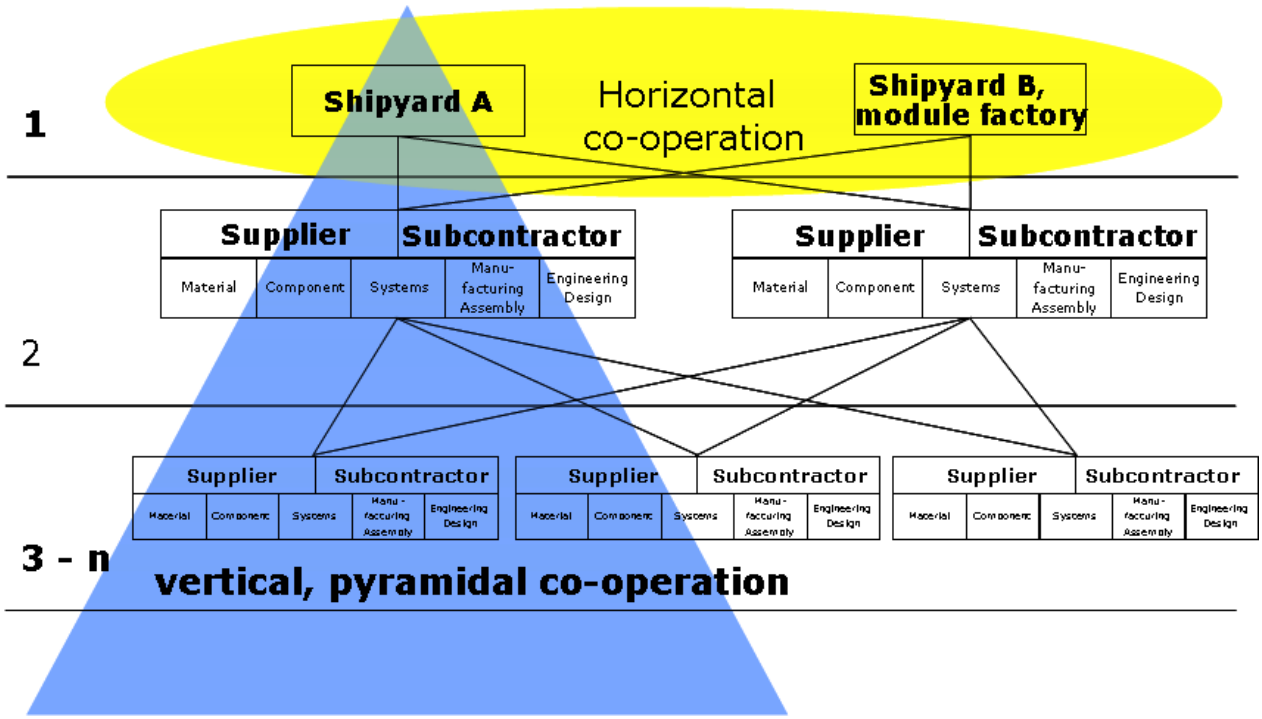


Figure 17: Horizontal and vertical co-operation

Two forms of co-operation (horizontal and vertical) in the form of supplies and subcontracting coexist in the shipbuilding/marine industry sector. “Vertical co-operation” according to the fragmented complexity of products and sub-products. “Horizontal co-operation” between shipyards (or comparable manufacturers of turn-key modules) themselves due to capacity or delivery reasons (Figure above).

Horizontal Co-operation of Shipyards

Horizontal co-operation in the sector is carried out by shipyards more than in other industries. There exists in shipbuilding important flows of subcontracts amongst the main contractors themselves. Hence, a main contractor, after having obtained an important contract, will entrust to other main contractors part of the work on the contract which his own production capacity cannot meet.

The activity of the sector is in fact characterised by long development phases and long manufacturing cycles (for example 12 – 24 months for merchant vessels, 24 – 36 months for passenger vessels). This means an alteration of periods where the factories operate at full capacity with others where they appear to have, on the contrary, spare capacities. The exchange of subcontracts among shipyards also improves the management of manufacturing personnel in terms of levelling temporary over- or undercapacity.

Vertical Co-operation

The vertical characteristic enables easy demarcation of the boundary between shipyards and major system suppliers (e.g. engine manufacturers) which make up the population of main contractors at the 2nd level and the other parties on the following levels. However, among the other parties, the distinction is not always easy to establish. Especially, the distinction between equipment suppliers (components and systems) and subcontractors is sometimes difficult. If the existence of a technical (existence of a research and development activity) or commercial (capacity to fix breakdowns and repair) responsibility with regard to products or components can be identified in a company it may be better to classify a supplier in the category of component manufacturers rather than in the category of subcontractors.

Equipment manufacturers are therefore characterised by the fact that they develop functions or systems according to their own patents and techniques, and they operate by respecting the

specifications and terms of references defined by the manufacturers for complete functions or subassemblies: separators, propellers, radar, navigational equipment etc. These companies in most cases also work for customers from different industrial sectors.

The equipment manufacturers economic development follows basically the development of the global shipbuilding market. When a reduction in orders occurs, they are equally affected, requiring the setting-up of plans to adapt, a decrease in investment and a reduction in subcontracting. However, equipment manufacturers are globally more independent and flexible than shipbuilders since major shares of their turnover are realised in other shipbuilding markets, i.e. China, Korea and Japan. Further, statistics on turnover and market shares are sometimes difficult to interpret due to an increasing number of Joint Ventures or other kinds of global partnerships.

Discussing the differences between the supply chain structure of the shipbuilding/marine industry with that of other industries, it must be said that the pyramidal significance of the structure shows major differences. A first major difference lies in the number of final producers. Whereas, there are still more than 50 European shipyards with 500+ employees and more than 300 in total, the situation in automotive (~15 manufacturers) and aerospace industry (< 5 manufacturers) is significantly different and much more heterogeneous.

In the area of 1st tier suppliers and subcontractors the situation is comparable. Whereas in automotive and aerospace industry the manufacturers more and more concentrate on “platform suppliers” with less than 500 suppliers on that level (Japan 200) the shipyards still work with a high number of suppliers and subcontractors directly. This leads to 1000 – 2500 names in a typical supplier database depending on company size and ship types. Of course, products and industry specific requirement are different and supply chains for serial products are more deterministic than for shipbuilding.

Finally a word to Marine subcontracting. As said above it exists and is of increasing importance when outsourcing of earlier in-house functions occurs. Marine subcontractors are subdivided in those offering services for “manufacturing and assembly” and those offering services in the areas of “engineering, design and consulting” The latter one’s are statistically covered under “Marine Services in this study”, but the “manufacturing and assembly” services are not covered by the statistical system at all. In an ancillary capacity subcontractor data is normally reported under “equipment codes”.

Appearing as a very heterogeneous industry, it must be stated that there is no formal structure available which classifies marine supply into dedicated categories. All parties which try to find a suitable categorisation find different solutions which serve more or less their own interests. Therefore, all information about marine equipment and materials provided for example by national associations, classification societies trade fairs etc. is structured differently and therefore difficult to compare. Names of products and services are chosen differently, higher aggregated groupings are assembled differently and also the assignment of individual companies may be seen differently by the interested parties.

Geographical Dimension of the Marine Equipment Industry

An earlier study on the marine equipment industry has made an evaluation on the geographical distribution of marine suppliers. This has been done on the basis of the company listings available from the associations and public databases. This analysis has been made on the basis of the telephone area codes. After all the result is not very surprising since the major concentrations of the industry are around the major shipbuilding places in Europe or in the main industrial centres. However, there may be a difference if we would not assign the number of companies, but the size respectively the production values of the companies. Most likely the biggest number of companies will be close to the shipbuilding places, In spite of that the companies with higher turnovers may be located in the industrial centres of the individual Member States. The figure below gives a rough impression on the distribution of the marine equipment industry in Europe.

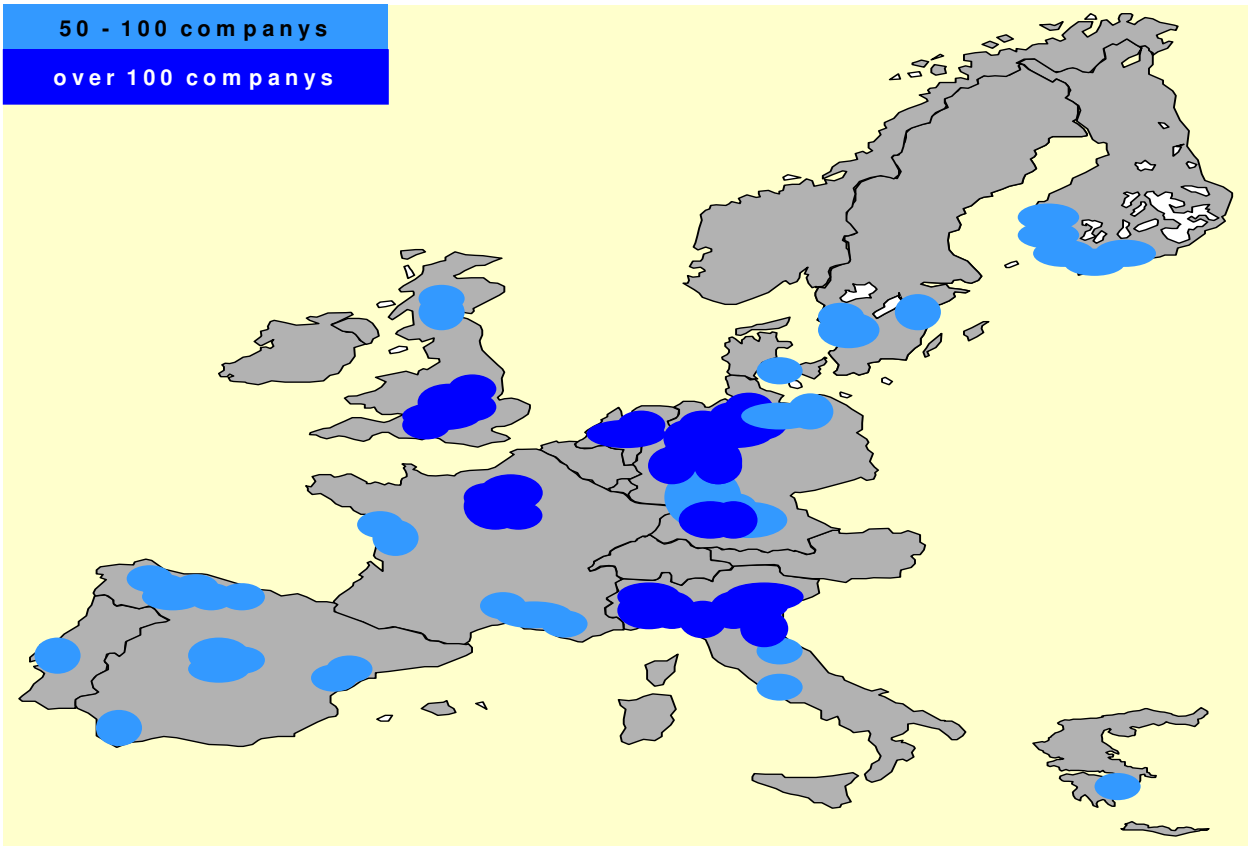


Figure 18: Geographical distribution of the marine equipment industry in Europe

Identification of the Sector in the standard Classification

There is no possibility to directly identify marine equipment in a narrower or wider sense in the existing classification. As described above the sector is very heterogeneous and comprise deliveries to commercial and naval shipbuilding, ship repair and conversion, shipping, the offshore industry and naval supplies basically from all sectors of manufacturing and service industries.

In other words, marine equipment manufacturing has no separate division as a sector in NACE and CPA/PRODCOM classifications. Therefore it is extremely difficult, to retrieve data on the European marine equipment supply industry from the existing classification, as products are scattered all over different categories.

Moreover, just in few cases it is clearly indicated that a certain category refers specifically to marine-type equipment. With regard to most categories, it can only be assumed that marine equipment is also classified there but it is impossible to determine how big its share is (i.e. manufacture of pumps and compressors (NACE 29.11), manufacture of non-domestic cooling and ventilation equipment (NACE 29.23).

Indirect identification of the marine equipment sector is difficult, but some indirect figures can be generated. As a systematic approach an available functional grouping system for ships can be used to basically identify the systems, components and materials used for the building of a vessel. The following figure gives an example for this approach as proposed in an earlier study for the Commission services.

Marine Equipment Group "Systems"		Marine Equipment Subgroup "Component"		Description		NACE Revision 1 4 digits		Description
4	Instrumentation, Control and Navigation Systems 1 - Integrated Bridge Systems 2 - Shipmanagement & Automation Systems 3 - Cargo Control Systems	41	Control and alarm systems	Maneuvre consoles, main consoles		3162	Manufacture of other electrical equipment n.e.c.	Electrical apparatus for sound or visual signalling
				Common automation systems				Signal generators
				Alarm/safety systems components				Indicator panels
				Automation equipment for main and aux. Engines				Electrical machines and apparatus having individual functions
		42	Navigation and measurement systems	Navigation & searching equipment		3320	Manufacture of instruments and appliances for measuring, checking, testing, navigating and other purposes, except industrial process control equipment	Radar apparatus
				Radar plants				Instruments and apparatus for navigation n.e.c.
				Decca, Loran, Omega etc.				Other instruments, appliances and machines for measuring or checking
				Cargo Control				Regulating ...instruments and apparatus, hydraulic or pneumatic
				Gyroplants, Autocompasses				Indstruments and apparatus, regulating or controlling n.e.c.
				Clinometers, Trim Indicators,				
				Hydraulic or pneumatic control and display systems				

Table 46: Marine Equipment Industry Structure (Example)

Consequently following this approach a total of about 50 different 4-digit NACE codes can be identified, which all together, but not necessarily exhaustive, are representing the marine equipment supplies. This is further materialising in about 250 PRODCOM 8-digit codes. The list of the proposed harmonised structure for the marine supply industry including the NACE assignments is in Appendix 2. A similar list, which has been also developed on the basis of the above described approach, has also been communicated to Eurostat at an earlier point in time by the European Marine Equipment Council (EMEC). This list of NACE and CPA/PRODCOM codes provides the basis also for this study.

Non-sustainable statistical Studies

One statistical study has been performed in the past based on a service contract provided by the European Commission DG Enterprise in 1999:

BALance TC: Competitiveness and Benchmarking in the Field of Marine Equipment, Study performed for DG Enterprise, 1999

The marine equipment sector has been covered as part of some other public studies which address the maritime industry as a whole[71]. However, the approach never builds on sustainable statistical data.

Some national trade associations perform statistical analysis on an annual basis. In that respect the German National Association (VDMA) produces statistical reports annually, which are build on questionnaires to their members and extrapolation of feedback received. Although not built on the current classification, their information contains a lot of substantial bottom-up analysis which can be used as reference data to calibrate future more formal statistical approaches. Examples are shown in the figures below (Source: VDMA Statistical Report 2008).

[71] PRC (2000), Douglass Westwood, BALance TC, MC (2005), Ecotec (2006).

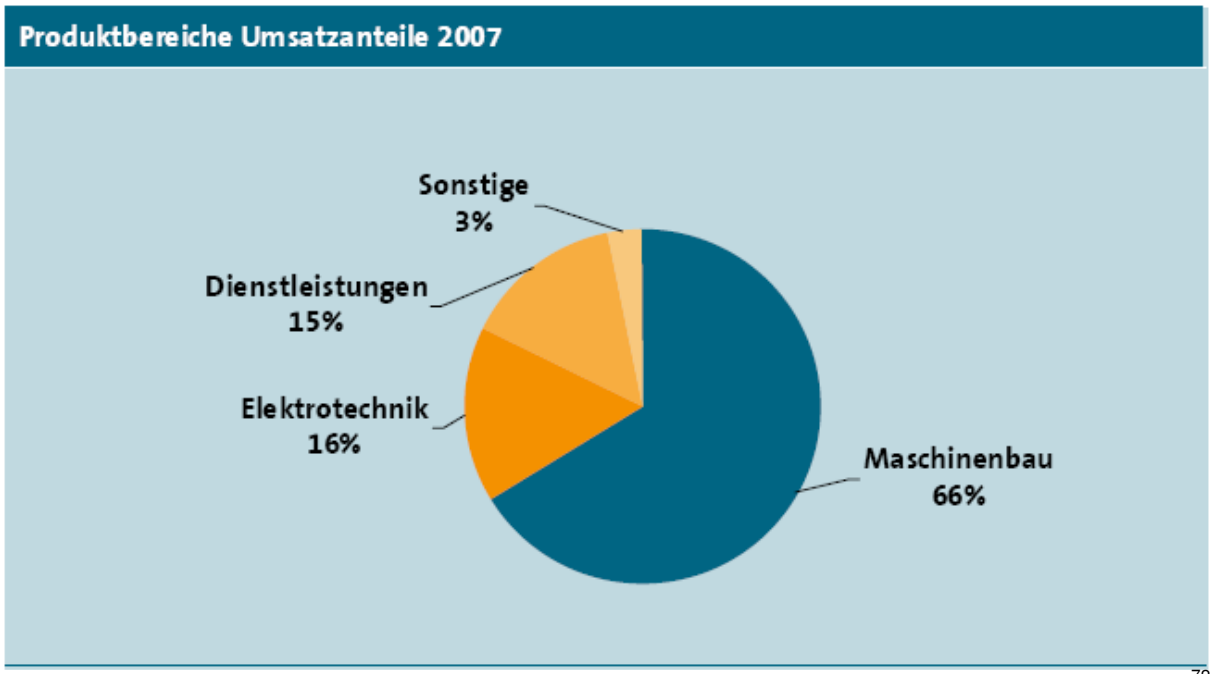


Figure 19: Production Sectors of German Marine Equipment Industry (Basis 11.9 billion euro turnover 2007)[72]

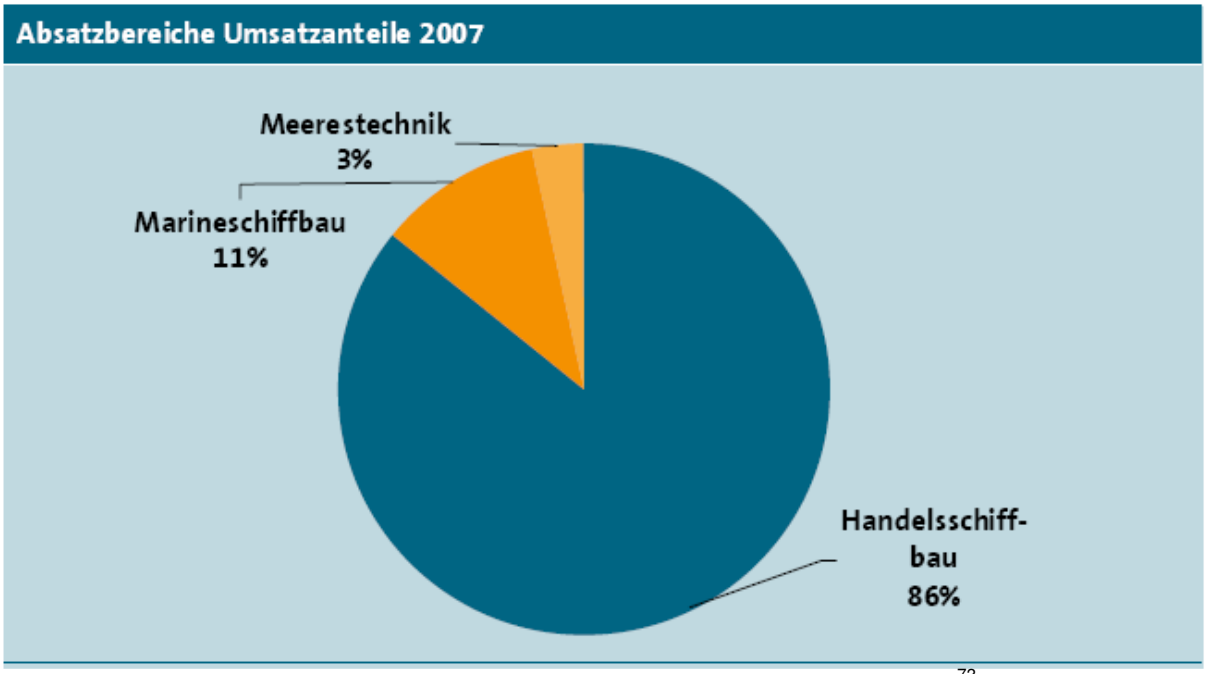


Figure 20: Markets served by German Marine Equipment Industry[73]

[72] VDMA 2008
[73] VDMA 2008

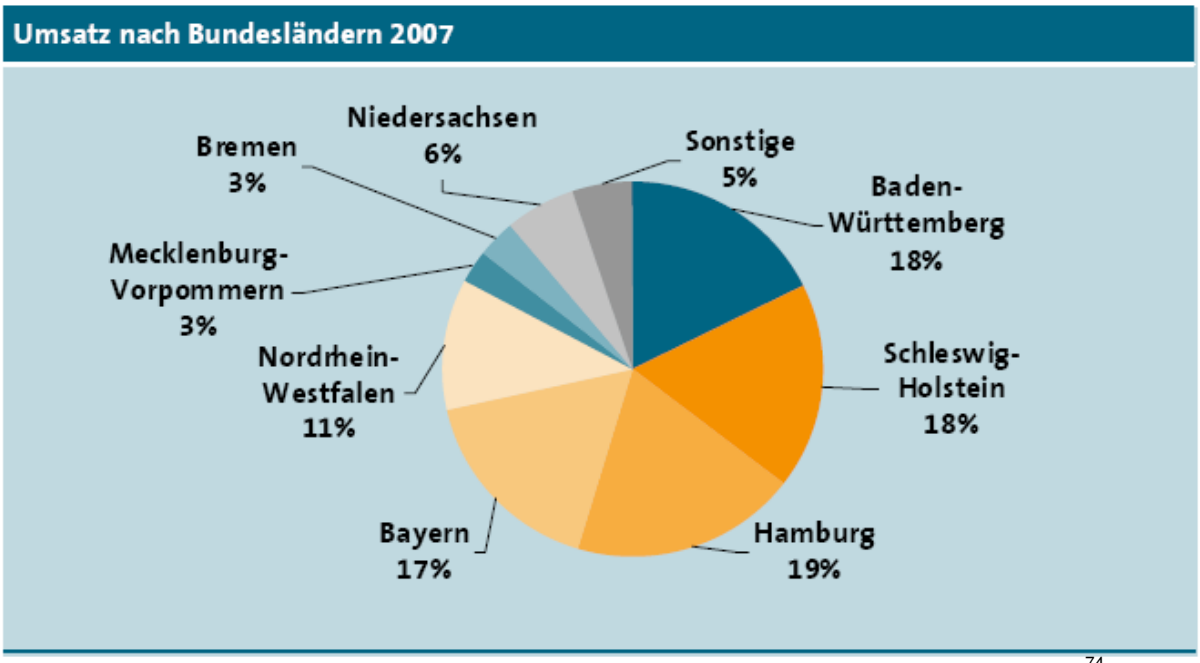


Figure 21: Regional Distribution of German Marine Equipment Industry (Counties, NACE1)[74]

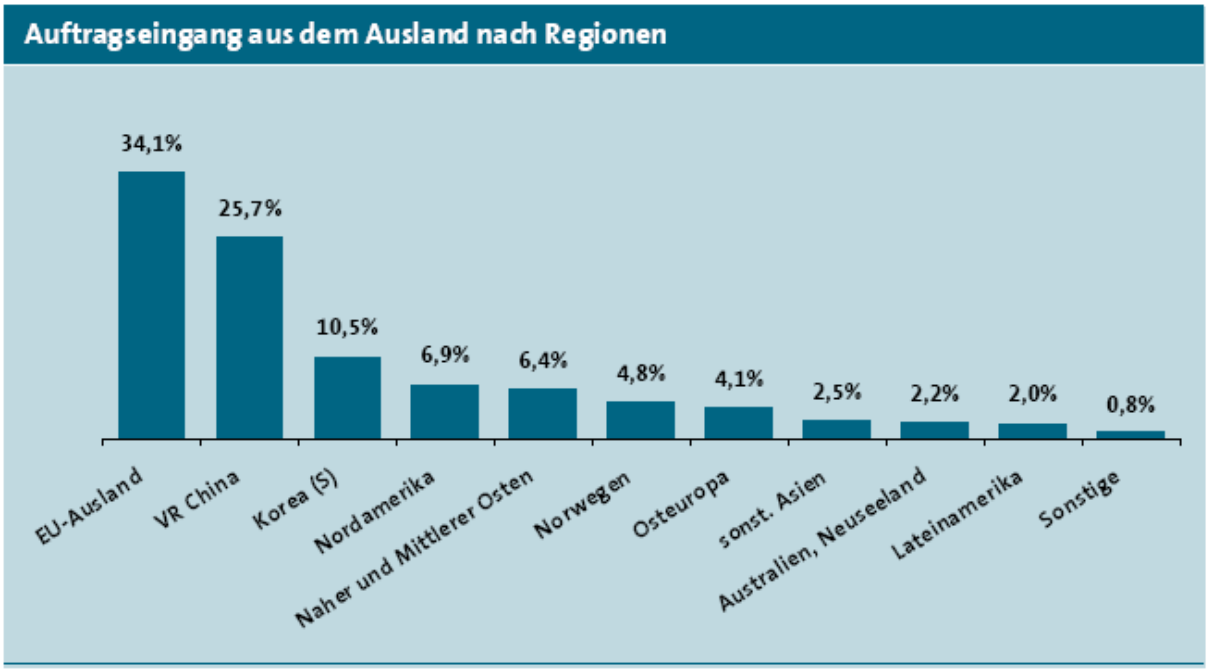


Figure 22: Distribution of Export Contracts of German Marine Equipment Industry[75]

[74] VDMA 2008
[75] VDMA 2008

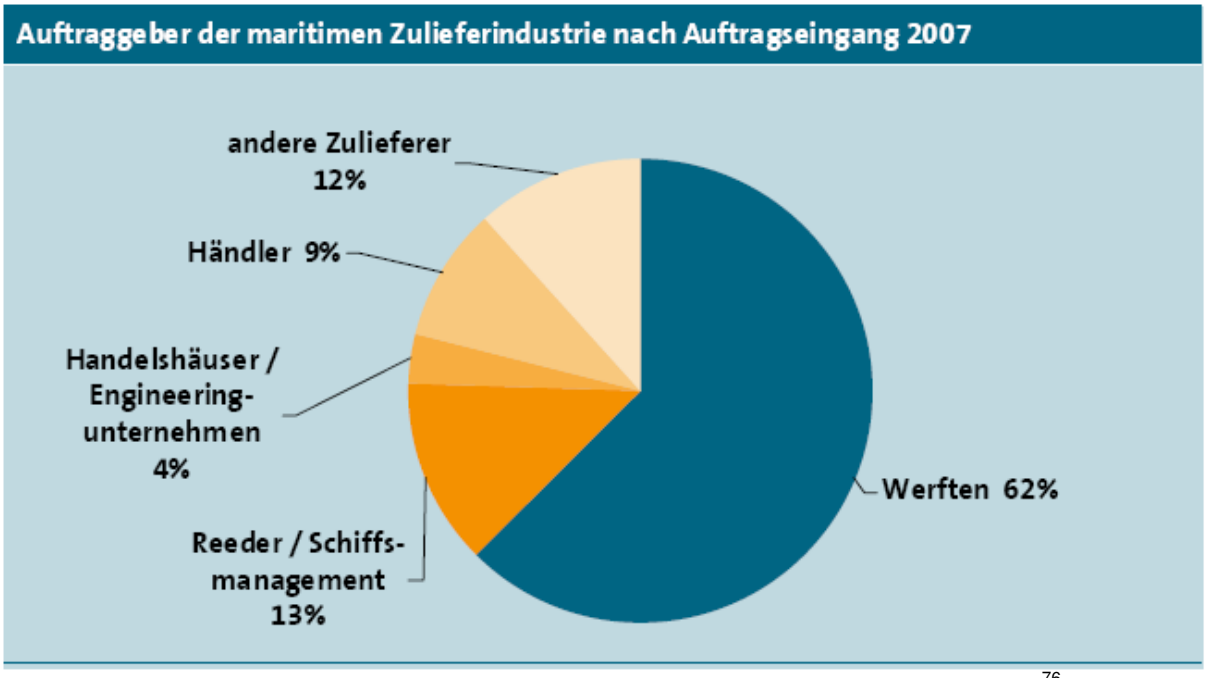


Figure 23: Distribution of Customer Types of German Marine Equipment Industry[76]

Identification of Sector Stakeholders

- EMEC European Marine Equipment Council
- National Trade Associations
- DG Enterprise and Industry

Definition of relevant socio economic Indicators and Key Variables

Beyond the standard indicators as defined also for other the maritime sectors, it is of utmost importance to the sector to get information on inner-EU import/export and on international (outer EU) import/export. Furthermore, regional data on the industry in non-coastal areas, but in the industrial centres of the Member States is important.

Evaluation of the Representation, Data Availability and Quality

Since the marine equipment sector is not directly represented in the statistical system, no data is available. Even further, the statistical regime as is does not allow at all collecting data for the industry directly even if the collection of data based on the given statistical regime would be improved. A fundamental extension of the system would be required for the statistical nomenclature, for an extended data collection and for improved quality in terms of code resolution and regional resolution. Alternatively calibrated data extra- and interpolation functions might be developed to allow at least improved assumptions on the required indicators for the sector. Following that EMEC, as the industry European roof association has strongly commented to the Commission Green Paper to improve and reinforce European Statistics for the sector.

[76] VDMA 2008

2.2.14 Coastal Tourism

Structural Description of the Sector

Definition of coastal tourism

There is no strict and widely accepted definition of coastal tourism. This is reflected in the lack of specific studies on coastal tourism in the EU – except some on tourism in coastal regions[77] – whereas many studies have been published on tourism in the EU[78].

- The most frequent definition is based on a geographical delimitation. For instance, in the Mediterranean Action Plan[79], coastal tourism is defined as located in NUTS 3 areas for the EU. In certain US states (e.g. California), it is defined as located in coastal counties. In this case, the assessment of coastal tourism is similar to that of tourism in general.
- An alternative definition is based on visitor surveys. Tourism is classified as coastal when respondents identify their leisure place as coastal[80]. Coastal tourism consumption can then be directly measured and be considered as coastal tourism turnover. The difficulty is that such definition of coastal tourism in spatial terms is left to respondents' appraisal, which leaves room for different definitions of coastal areas / regions.

These two options show another major difference. The first one views tourism in general and costal tourism in particular as a set of sectors having their geographical and economic features, in particular marked seasonal phases during the year. The second option views tourism as a set of activities generated by visitors' expenditures, in coastal areas in the present case. In other terms, the first option studies tourism specific sectors through standard indicators; the second option focuses on seasonal impacts from visitors on these specific sectors. These two options are acceptable, depending on the definition of coastal tourism which prevails. They can also be combined[81].

The first option has been selected for the design of the IMP database: tourism businesses are classified by NACE codes. Coastal tourism can therefore be identified only through geographical breakdown. The difficulty is then to determine which NUTS units are consistent with a definition of coastal tourism. Based on the IMP database architecture, NUTS 3 was the only option. In the update phases of the database, it will be useful to test the approach to coastal tourism on the basis of Eurostat's definition of coastal regions[82].

Tourism in the EU

Eurostat's periodical "Panorama on Tourism"[83] provides information on the economic significance of EU tourism. The overall figures for tourism expenditures and earnings are both of the order of 250 bn euro in 2006. As a comparison, the GDPs of Denmark and Austria were of this order of magnitude in the same year. This shows tourism as a considerable component of the EU economy.

[77] See, for instance, INSEE-Bretagne (2007).
[78] On tourism in general, see: Eurostat (2008b), Eurostat / Demunter (2008), Eurostat / Spörel (2006, 2007). On coastal tourism, see survey of main reports in: Kalaydjian (Nov 2008).
[79] In the framework of the UNEP United Nation Environment Programme.
[80] E.g. see visitor surveys carried out by the French Tourism Ministry.
[81] They are implicitly combined in certain Tourism Satellite Accounts, e.g. France's TSA.
[82] Cf. § 2.1: Geographical dimension.
[83] Eurostat (2008).

Leading generators of international tourism in EU-27 (tourism expenditures, excl. transport, bn Euro)			*Leading destinations of international tourism in EU-27 (tourism receipts, excl. transport, bn Euro)*		
	2000	2006		2000	2006
Total EU-27 (1)	213	247	Total EU-27	217	254
Germany	57	60	Spain	36	40
UK	42	50	France	33	37
France	19	25	Italy	29	30
Italy	17	18	UK	23	29
Belgium (2)	11	14	Germany	22	26
NL	13	14	Austria	12	13
Spain	6	13	Greece (1)	10	11
Sweden	9	9	NL	8	9
Austria	9	7	Belgium (2)	7	9
DK	5	6	Sweden	5	7

(1) 2006 includes 2005 data for Greece.
(2) 2002 data used for 2000.
Source: Eurostat.

Table 47: Leading generators and Leading destinations of international tourism in EU-27

In terms of value added, the contribution of tourism to EU's overall GDP is over 2% - which is important -, with sizeable differences between Member States. In the EU, several of the most tourism-impacted countries have a Mediterranean or Black Sea shore, or a relatively modest economic size. It is symptomatic that the two most tourism-impacted Member States are two Mediterranean islands, though there is no rule in this respect.

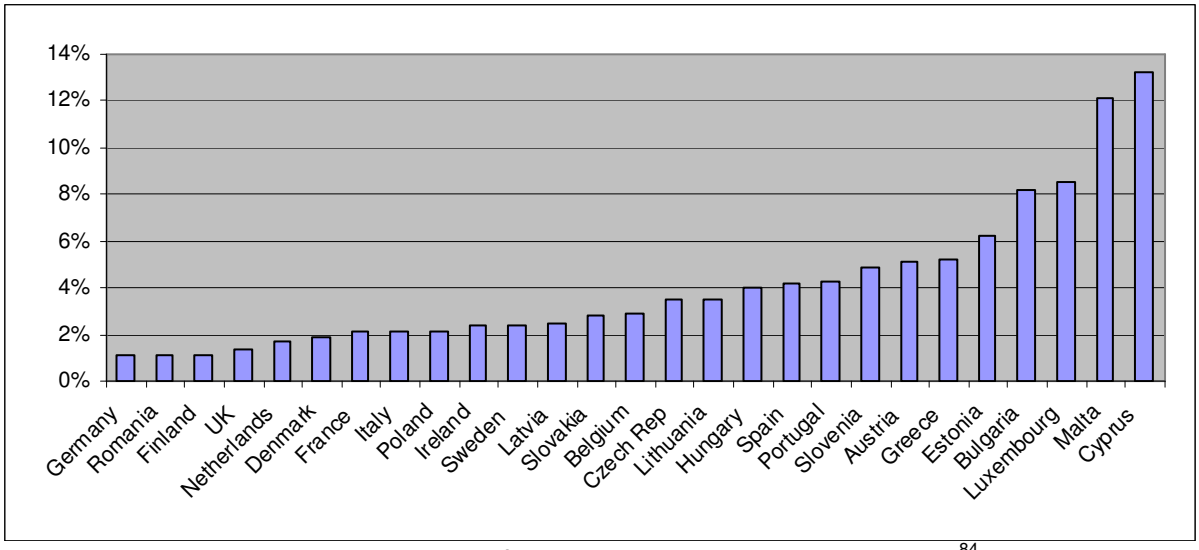


Figure 24: Contribution of tourism to Member States GDPs in 2006[84]

In terms of employment, the workforce in the Hotel and Restaurant sector – the most important job generating sector among tourism businesses – accounts for an important share of the total workforce: about 4% for the EU-27 (source: Eurostat / Demunter, 2008).

[84] Eurostat

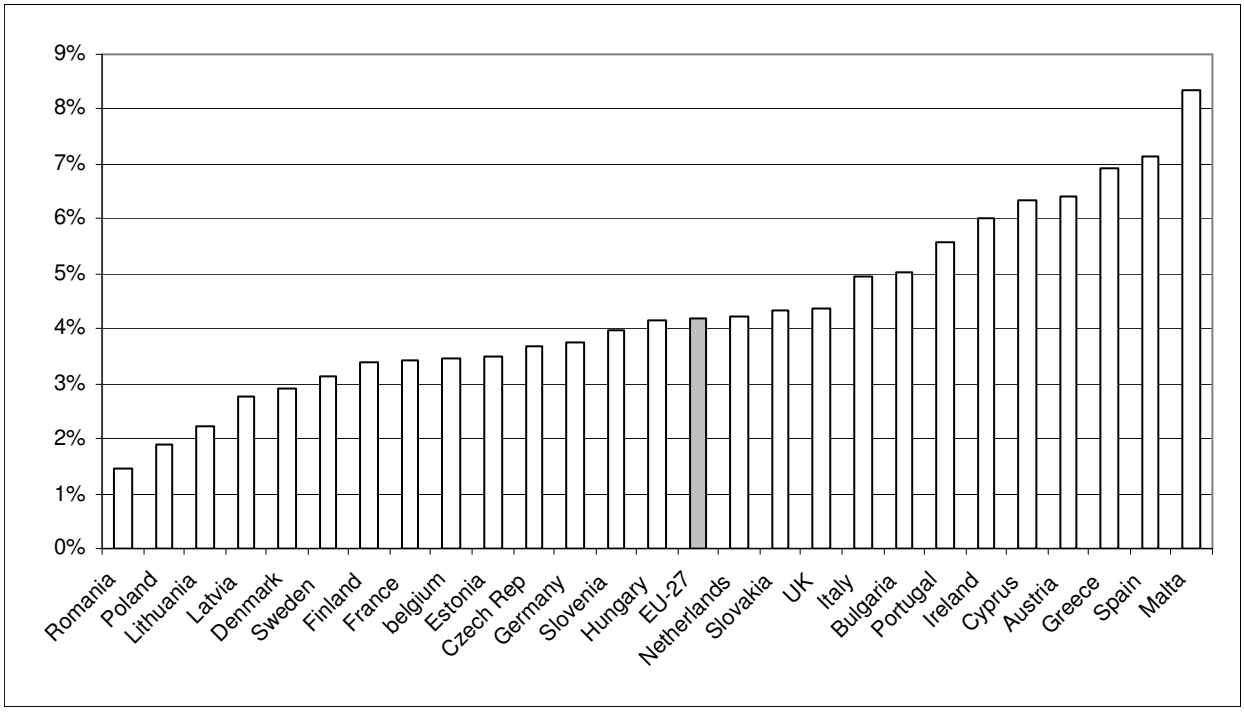


Figure 25: Employment in the Hotel and Restaurant sector as a share of total employment per Member State in 2007[85]

Coastal tourism in the EU

- Like tourism in general, coastal tourism business is made up of a large number of services companies, most of which are of small size (hotels, catering, leisure, sporting activities).
- Coastal tourism is often estimated as a significant share of Maritime Affairs value added and employment, especially in Mediterranean countries. Recent estimations showed that coastal tourism accounted for about 30% of the UK maritime value added in 1999, though much lower in 2005 (7% of the VA and 13% of the workforce), and 43% of the VA for France in 2005; for California, this share was at about 65% in 2000[86].
- In terms of tourism expenditures, some studies show that coastal tourism can account for a very significant share of overall tourism in coastal countries. This share was of
- An analysis of regional tourism in the EU by Eurostat[87] studied accommodation capacity in NUTS 2 regions. It showed that, among the top 20 NUTS 2 regions by number of bed places[88], 16 were coastal in 2004. Among the top 20 NUTS 2 regions by total number of nights[89], 14 were coastal in the same year.
- This major influence of the sea on tourism activities is confirmed by visitor surveys: in the case of France, coastal tourism accounts for 29% of total tourism expenditures and 40% of total overnight stays in 2006.

Identifications of the sector in the standard classification

Under the assumption that coastal tourism is defined by a geographical breakdown of tourism on the basis of the standard statistical classification, coastal tourism activities are described by the

[85] Eurostat

[86] Pugh (2008), Kalaydjian (2006), Kildow, Colgan (2005).

[87] Eurostat / Spörel (2006).

[88] Number of bed places: number of persons who can stay overnight in beds set up in an establishment (dwelling). A double-bed makes 2 bed places. A camping pitch makes 4 bed places.

[89] The assessments were made for NUTS units for which data were available.

NACE/CPA/Prodcom classification in a similar way as tourism activities, though account is taken of certain leisure specificities such as boating and leisure fishing: this leads to select certain NACE 4-digit codes and discard others, but at a marginal degree. The table of NACE codes does not show major differences with what could be done for tourism in general, except a small number of NACE codes of the Rev 2 classification.

Sub-sectors	***NACE Rev.1.1 code***	***NACE Rev. 1.1 Description***	***CPA***	***NACE Rev 2 code***	***NACE Rev 2 Description***
Accommodation	5510	Hotels		5510	Hotels and similar accommodation
	5521	Youth hotels		5520	Holiday and other short-stay accommodation
	5523	Other provision of lodgings n.e.c.		5520	Holiday and other short-stay accommodation
	5522	Camping sites incl. caravan sites		5530	Camping grounds, recreational vehicle parks and trailer parks
	7011	Development and selling of real estate		4110	Development of building projects
	7012	Buying and selling of own real estate		6810	Buying and selling of own real estate
	7020	Letting of own property		6820	Renting and operating of own or leased real estate
	7031	Real estate agencies		6831	Real estate agencies
	7032	Management of real estate on a fee or contract basis		8110	Combined facilities support activities
Restoration	5530	Restaurants		5610	Restaurants and mobile food service activities
	5540	Bars		5630	Beverage serving activities
	5552	Catering		5621	Event catering activities
				5629	Other food service activities
Travel services	6330	Travel agencies and tour operators		7911	Travel agency activities
				7912	Tour operator activities
				7990	Other reservation service and related activities
Misc. leisure	9233	Fair and amusement parks		9321	Activities of amusement parks and theme parks
	9252	Museums and preservation of historical sites and buildings		9102	Museums activities
				9103	Operation of historical sites and buildings and similar visitor attractions
	9253	Botanical and zoological gardens and natural reserves		9104	Botanical and zoological gardens and nature reserves activities

Beaches, boating, yacht rental and training	9262	Other sporting activities		8551	Sports and recreation education
				9311	Operation of sport facilities
				9312	Activities of sport clubs
				9319	Other sport activities (1)
				9329	Other amusement and recreation activities (2)
	9272	Other recreational activities not elsewhere classified			
	7140	Renting of personal and household goods not elsewhere classified		7721	Renting and leasing of recreational and sports goods (3)

(1) Incl. leisure fishing.
(2) Incl. marinas.
(3) Incl. rental of pleasure boats, bicycles and sports equipment.

Table 48: Sector description by NACE codes – Coastal Tourism

CPA 2002 No.	*Description*
55.10	Hotel services
55.21	Youth hostel and mountain refuge services
55.22	Camping site services, including caravan site services
55.23	Other short-stay accommodation services
55.30	Food serving services
55.30.11	Meals serving services with full restaurant service
55.30.12	Meals serving services in railway dining cars and on ships
55.40	Beverage serving services
55.52	Catering services
63.30	Travel agency and tour operator services; tourist assistance services n.e.c.
70.11	Development and selling services of real estate
70.12	Buying and selling of own real estate
70.20	Letting services of own property
70.31	Real estate agency services on a fee or contract basis
70.32	Management services of real estate on a fee or contract basis
71.40	Renting services of personal and household goods n.e.c.
92.33	Fair and amusement park services
92.52	Museums' services and preservation services of historical sites and buildings
92.53	Botanical and zoological garden services and nature reserves services
92.62	Other sporting services
92.72	Other recreational services n.e.c.
92.72.11	Recreation parks and beach services

Table 49: Sector description by CPA codes – Coastal Tourism

Even with the geographical breakdown of tourism as based on this NACE code table, and a reasonable geographical definition of coastal tourism, the direct classification of coastal tourism remains questionable – or, at least, a matter of convention. Even located in coastal regions, certain activities such as:

- renting and leasing activities,
- real estate activities,
- travel agencies,
- certain sporting activities,

could also be considered as related to non coastal leisure and tourism.

The standard key variables used in studies on tourism are:

- Turnover, reported as a counterpart of tourism expenditures;

- Employment / number of staff and FTEs, as the most consistent and easily collected variable to describe small local businesses;
- Gross value added at basic price as a means to assess the contribution of (coastal) tourism to GDP.
- Employment is a relevant variable to monitor for two other reasons:
- it is of interest to local policy makers as some maritime regions may be heavily dependent on tourism;
- it helps to assess the seasonality of tourism businesses. Generally, the notion of seasonality is critical for coastal tourism as the majority of tourism expenditures take place between May and October.

Alternative Descriptions of the Sector

Certain alternative descriptions include both standard and non-standard variables to describe tourism activities.

Council Directive 95/57/EC

Tourism data to be supplied by Member States to Eurostat is regulated by Council Directive 95/57/EC of Nov 1995 and its amendments[90], which provide that:

- collective accommodation capacity (hotels, camp-sites, holiday dwelling and others) shall be reported at NUTS3 level;
- Tourism flows (number of arrivals and nights spent, per resident and non-residents) and use of bed places have to be reported at national or NUTS 3 level; monthly data have to be supplied at national level.
- Tourism spending data is not required.

Recommended TSA

A joint document, published by the EC, the UN, OECD and WTO World Tourism Organization[91], provides recommendations on the basic methodology and concepts to be applied to the design of a TSA Tourism Satellite Account. The recommended TSA has a broad scope, including most of the activities and businesses generated by tourism:

- an analysis of demand, through the definition and classification of visitors, visits, residence and consumption;
- An analysis of supply, through definition of tourism specific products and activities, value added and employment, investment;
- A list of non-monetary indicators (number of night stays, etc.);
- A valuation methodology and a presentation framework of the TSA, including a set of tables for the classification of the economic aggregates.

However, the implementation of the recommended TSA at national level is still limited. Harmonisation is needed between national experiences, inter alia in terms of the measure of tourism value added, and coherence with regional TSA estimates[92].

[90] Council Directive 95/57/EC of 23 Nov 1995 on the collection of statistical information in the field of tourism. OJ L 291, 6/12/1995, p. 32.
[91] EC, UN, OECD, WTO (2001).
[92] On implementation of TSA, see: Dupeyras (2008).

Eurostat's overall assessment of tourism[93] uses non-monetary and monetary indicators:

- night stays of residents and non-residents (i.e. national and foreign tourists), accommodation capacity (number of bed places), seasonal utilization of bed places
- International tourism expenditures from EU countries (generators) and earnings by EU countries (destinations), excluding transport.

Identification of Sector Stakeholders

- OECD[94], WTO World Tourism Organization and the EC/Eurostat are tourism data providers and are involved in the design of tourism satellite accounts;
- NTA National Tour Association is a trade association of tourism businesses involved in the development and promotion of the packaged travel industry;
- National tourism authorities, responsible for national tourism statistics and, possibly, for the national TSA;
- National organisations for the promotion of tourism;
- Regional tourism authorities, carrying out local studies on tourism, sometimes on coastal tourism;
- National and regional businesses and tourism associations, which are generally users of statistics and TSAs.
- Academic and research institutions and commercial consultancies, which are data users and providers.

Non-sustainable descriptions of the Sector

Certain studies infer estimates of coastal tourism value added and employment from turnover as deducted from:

- a geographical breakdown of tourism turnover or of tourism expenditures[95],
- value added and employment rates in sectors involved in tourism expenditures.

Another set of non-sustainable indicators concern the seasonal environmental impacts of tourism:

- the estimated impacts of tourism on water consumption and pollution (wastes and sewage water discharge), based on seasonal observations;
- the cost of beach cleaning in certain LAU 2 zones;
- seasonal impacts on bathing water quality.
- These indicators are collected by municipalities and by specific national organizations or authorities (e.g. health authorities and water supply companies).

Evaluation of the Representation, Data Availability and Quality

At this stage, the representation of coastal tourism lacks harmonization among EU countries. For tourism in general, the recommended Tourism Satellite Account (see above) is not mandatory, and the EU Directive 95/57 has a limited scope.

For coastal tourism at EU level, there is a need for:

- a harmonized definition of coastal tourism by sectors and in spatial terms;

[93] Eurostat (2008b).
[94] OECD / Centre for Entrepreneurship, SMEs and Local Devlopment / Tourism project.
[95] Most economic reports on the maritime economy proceed so, e.g.: Kildow, Colgan (2005), Kalaydjian (misc. years), Pugh (2008); other reports of this category limit coastal tourism to coastal specific activities (e.g. marinas and boating for Australia in Allen, 2004) and thereby limit their use of estimates.

- a classification of sector distinguishing specific (e.g. boating) and non-specific ones (e.g. miscellaneous goods and food consumption);
- harmonized visitor surveys to analyse the overall activity generated by coastal visitors;
- harmonizing the set of indicators to be followed on a yearly basis to describe the sectors involved.

These remarks do not seem to be specific to coastal tourism and may concern tourism as a whole. But there is a need for a systematic and harmonized analysis of tourism by space at EU level: seaside, countryside, urban and mountain tourism.

3 IT Structure of the IMP Database

3.1 Database Design[96]

The database structure is based on the Reference Database (Ref DB). The database maintains a list of objects for each user. The objects treated by the system in case of the Maritime Policy Database (MP DB) are: dictionaries, tables and views. The objects of a user belong to a single name space, with no hierarchical structure.

The term “dataset” is used as a synonym of multidimensional table. A dataset can be based on table or a view.

3.1.1 Database Users

The users represented in the database are:

User name	***Description***
REFSYS	Owner of system tables (metabase) – user delivered with the Ref DB
MPCL	Owner of maritime policy dictionaries (code lists) *user introduced by the project*
MPIN	Owner of the input tables, which are used for updating the datasets *user introduced by the project*
MPTEST	Used by E1 team for testing new objects *user introduced by the project*
MPUSER	Owner of the MP datasets *user introduced by the project*
MPIN_ALT	Owner of the input tables, which are used for updating the datasets containing alternative data from non-sustainable sources *user introduced by the project*
MPUSER_ALT	Owner of the MP datasets with alternative data from non-sustainable sources *user introduced by the project*

All users are created as Oracle users with default role REFROLE and default table space REFTAB.

3.1.2 General Data Model

The database stores multidimensional objects. The multidimensional model is based on the concepts of dimensions, observation values, flags, footnotes and constraints.

A data object, or dataset, is a multidimensional matrix (hyper-cube) defined in terms of its dimensions and its properties. A dataset is defined by its dimensions and properties. A dataset can be a base dataset or a view.

Dimensions

The dimensions of a dataset are the coordinates of the cells of the dataset: if you specify a value for all dimensions then you get a single cell. The dimension values are used as a means of referencing cells in the matrix: each cell of the matrix is identified by a unique combination of the values of its dimensions. A dataset has a defined list of dimensions. For each dimension of the dataset it is possible to specify an optional code list that is a subset of the code list of the corresponding dictionary (unless the dictionary itself has an empty code list). The purpose of defining a code list is to restrict the values that can be assigned to that dimension in the dataset. If the code list is empty then the dataset can accept, for that dimension, all codes belonging to the corresponding dictionary. There is no predefined limit on the number of dimensions.

[96] Based on "Eurobase Database design" - May 2008 - Maurizio Capaccioli

Properties

The properties of a dataset define the elements of information stored in the cells: a single property holds a basic value, like a number or a string of characters, and has an associated data type. It is possible to specify that the property value cannot be null or to provide a default.

3.1.3 Eurobase Datasets

All Eurobase statistical datasets describe an observation, the properties observation value and observation status.

Observation Value (obs_value)

The observation value is a numerical figure in most cases, with the exception of a few datasets that contain strings of characters rather than numbers. The type of the observation value must be specified in the dataset definition:

Type	*Contains*
number	numerical data
string (n)	string of characters with maximum length = n

Observation Status (obs_status)

A string of flags can be associated to an observation value using the "~" separator. This is the list of defined flags:

Flag	*Description*
p	Provisional value
e	Estimated value
s	Eurostat estimate
r	Revised value
f	Forecast
u	Unreliable or uncertain data (see explanatory texts)
c	Confidential
n	Not significant
b	Break in series (see explanatory texts)
i	More information attached in explanatory texts

Observation Unit (obs_unit) – Extension of the Ref DB

A string describing the unit in which an observation value is expressed

This is the list of used units

Unit	*Description*
SQM	square meter
KG	kilogram
P_ST	pieces

3.2 Dimensions included in the Maritime Policy Database

This chapter describes only dimensions which were extended or introduced by the project. The full list of dimensions presented in the MP database can be found the Appendix 3 List of the MP database dimensions (MPCL)

geo – geopolitical Entity (declaring)

This is the standard geographical dimension used by ESTAT in the Ref DB based on the NUTS nomenclature. This dimension has been extended by Maritime Basins which group the coastal NUTS 3 regions[97] by the maritime basin they adjoin. The following codes have been added:

Code	*Description*
BALTIC_SEA	Baltic Sea
BLACK_SEA	Black Sea
MEDITERRANEAN_SEA	Western Mediterranean Sea, Adriatic Sea, Ionian Sea and Central Mediterranean Sea, Aegean-Levantine Sea
NORD_SEA_ATLANTIC	Greater North Sea, incl. Kattegat and English Channel, Celtic Seas, Bay of Biscay, Iberian Coast, Atlantic Ocean and Macaronesian biogeographic region (Azores, Madeira, Canary Islands)

rep_mar – units defined by the Seaports and the Transport Directive

The dimension rep_mar was already included in the Ref DB and is used in the maritime transport statistics (mar_go_... and mar_pa_...), describing the origin of the transports. The definition of this dimension is based on the Seaports and the Transport Directive. The rep_mar dimension has been extended by Maritime Basins (see the list above) which aggregates the data for the particular ports by the maritime basin they adjoin.

nace – classification of economic activities - NACE Rev.1.1

The nace dimension is based on classification of economic activities – NACE Rev 1.1. In the datasets a subset will be used, which includes only activities described in “Sectoral dimension” chapter. Furthermore the dimension has been extended by the 12 sectors which aggregate the values of the assigned NACE sectors.

The following codes have been added:

Code	*Description*
SHIPPING	Merchant shipping & ship management; Short-sea shipping; Chartering-out; Cruise & ferry services; Ocean towage
SHIPBUILDING	Seagoing vessels; Repair & conversion; Naval ships; Inland vessels; Scrapping
BOAT_BUILDING_AND_REPAIR	Yacht construction; Sporting, sailing & rowing boats; Canoes; Inflatable boats; Repair; Floating sections
OFFSHORE_SUPPLY	Seismic research; Construction, installation and conversion of platforms, storage vessels & equipment; Drilling; Offshore-related transport, engineering, communication, consultancy & other support
INLAND_SHIPPING	Inland shipping & ship management; Chartering-out; Inland cruises & ferries; Harbour & river towage; Freighting (Note: no inland terminals)
MARITIME_WORKS	Nautical cable & pipeline works for offshore, telecommunications etc.; Dredging; River works; Construction of dykes, harbours & canals; Support vessels; Sand transport
SEAPORTS_AND_RELATED_SERVICES	Cargo-handling ; Shipping related storage, agency, maritime logistics & expedition; Port authorities; Pilotage
EXTRACTION_AND_MINING	Oil and gas; Aggregates

[97] As described in the chapter 2.1.2 Coastal zone definition

Code	Description
FISHING	Maritime fishing; Professional inland fishing; Shellfish production
MARITIME_SERVICES	R&D & Education; Classification & inspection; Subcontracts & Support services
MARITIME_EQUIPMENT	Manufacturing of & wholesale trade in maritime equipment
TOURISM_AND_LEISURE	Accommodation; Restoration; Travel services; Misc. Leisure; Beaches, boating, yacht rental and training

geo_island – European islands with NUTS 3 and LAU assignment

The geo_island is a new dimension developed during the projects. It includes all identified islands and is based on the NUTS nomenclature as well as on the LAU[98] units nomenclature. The structure of the dimension looks as follows:

Level 0
COUNTRY identified by NUTS 0 code
Level 1
ISLAND identified by name
Level 2
NUTS III regions which the ISLAND covers or the ISLAND is included in – identified by NUTS codes
Level 3
LAU 1 units which the ISLAND covers or the ISLAND is included in – identified by LAU codes
Level 4
LAU 2 units which the ISLAND covers or the ISLAND is included in – identified by LAU codes

The Level 4 can be used instead of Level 3 in the case when the ISLANDs can be clearly identified by LAU2 unit(s) only. Furthermore in some cases there exist no LAU1 codes

[98] Local Administrative Unit

Example:

Level 0 – COUNTRY ->
Level 1 – ISLAND ->
Level 2 – NUTS III ->
Level 3 – LAU 2[99] ->

DE	***Germany***
Helgoland	Helgoland
DEF09	Pinneberg
01056025	Helgoland
Amrum and Föhr	Amrum and Föhr
DEF07	Nordfriesland
5488	Föhr-Amrum
Pellworm	Pellworm
DEF07	Nordfriesland
5459	Pellworm
Wangerooge	Wangerooge
DE94A	Friesland
03455021	Wangerooge, Nordseebad
Spiekeroog	Spiekeroog
DE94H	Wittmund
03462014	Spiekeroog
Langeoog	Langeoog
DE94H	Wittmund
03462007	Langeoog
Baltrum	Baltrum
DE947	Aurich
03452002	Baltrum
Norderney	Norderney
DE947	Aurich
03452020	Norderney, Stadt
Juist	Juist
DE947	Aurich
03452013	Juist
Borkum	Borkum
DE94C	Leer
03457002	Borkum, Stadt

Prodcom – PRODCOM List 2007 extended by codes used in the COMEXT

The Prodcom dimension is a new dimension not represented in the Ref DB. It is based on the PRODCOM List (List of PRODucts of the European COMmunity) 2007 version as well as on the CPA (Statistical Classification of Products by Activity in the European Economic Community, 2002 version) classification. Similar to the nace dimension a subset is used in the datasets, which includes only activities described in “Sectoral dimension” chapter. Furthermore the dimension includes also the 12 sectors mentioned above.

indic_prodcom – indicators used in the PRODCOM statistics

The dimension indic_prodcom is a new dimension and includes 8 indicators used in the PRODCOM statistics available in the COMEXT database which are:

[99] In this case LAU1 code cannot be used because it doesn’t exist.

Code	Description
EXP_QUANTITY	Volume of exports
EXP_VALUE	Value of exports in euro
IMP_QUANTITY	Volume of imports
IMP_VALUE	Value of imports in euro
PROD_QUANTITY	Volume of production in the unit indicated in obs_unit
PROD_VALUE_EUR	Value of production in euro
PROD_VALUE_BASE	Rounding base used if PROD_VALUE is rounded or contains a rounded element
PROD_QUANTITY_BASE	Rounding base used if PROD_QUANTITY is rounded or contains a rounded element

Please note that the observation values for any of the quantity related indicators are additionally described by the obs_unit flag mentioned above.

cn2007 – Combined Nomenclature, 2007

The cn2007 dimension is a new dimension not represented in the Ref DB. It is based on the Combined Nomenclature, 2007 classification. Similar to the nace dimension a subset is used in the datasets, which includes only activities described in “Sectoral dimension” chapter. Furthermore the dimension includes also the 12 sectors mentioned above.

indic_trade – indicators used in the COMEXT database

The indic_trade is a new dimension and includes indicators used in the COMEXT database in annual sold production dataset (PRODCOM ANNUAL SOLD):

trade_flow – direction of the trade (import or export)

The dimension trade_flow is new dimension and is used in the external trade datasets. It includes two items only – import and export – describing the direction of the trade flow.

Code	Description
VALUE_IN_EUROS	Trade value (in 1000 euro)
SUPPLEMENTARY_QUANTITY	Trade quantity in supplementary units (published for some goods according to the Combined Nomenclature)
QUANTITY_IN_100KG	Trade quantity in 100 kg

refdb_table – list of origin datasets

The dimension refdb_table is a new dimension and contains a list of Ref DB datasets with maritime relevant data, which were used in the MP database.

3.3 Rules and Functions

The following table gives an overview of implemented rules and functions

Name	Description	Owner
rule_cn2007	Provides aggregation level for the maritime industry sectors	MPCL
rule_geo	Provides aggregation level for the maritime basins	MPCL
rule_nace	Provides aggregation level for the maritime industry sectors	MPCL
rule_prodcom	Provides aggregation level for the maritime industry sectors	MPCL
rule_rep_mar	Provides aggregation level for the maritime basins	MPCL

Name	Description	Owner
update_mp_nace_all	Updates the mp_nace_all and mp_nace_all_sectors datasets using the country source tables (mp_nace_all_source_**)	MPUSER
update_mp_nace_coast	Updates the mp_nace_all_nuts3_coast datasets with data from country related source tables (mp_nace_all_source_**) as well as updates the aggregates on the maritime basin level according to the rule_nace.	MPUSER
update_rule_cn2007	Updates mp_trade_comext_source using the rule_cn2007 as well as the mp_trade_all_sectors	MPUSER
update_rule_nace	Updates all mp_nace_all_source tables using the rule_nace	MPUSER
update_rule_prodcom	Updates mp_prod_comext_source using the rule_prodcom as well as the mp_prod_all_sectors	MPUSER
update_rule_rep_mar	Updates maritime transport datasets using the rule_rep_mar as well as the datasets mar_go_aa_basins, mar_go_qm_basins, mar_pa_aa_basins, mar_pa_qm_basins and mar_tf_qm_basins	MPUSER

3.4 Datasets included in the Maritime Policy Database

The MP database contains 148 datasets. Some of them were copied from the Ref DB like the fishery or maritime transport statistics. This chapter describes only the 3 main types of datasets developed by the project using the SDDS format. The complete list of all datasets can be taken from Appendix 4 List of datasets included in the MPUSER scheme

Dataset label	Dataset full name
MP_NACE_ALL	Maritime Policy NACE related data for all NUTS units
MP_PROD	Maritime Policy statistics on the Production of Manufactured Goods
MP_TRADE	Maritime Policy external trade statistics

3.4.1 MP_NACE_ALL

MP_NACE_ALL - Maritime Policy NACE related data for all NUTS units based on Structural Business Statistics[100]
Eurostat Metadata in SDDS format: Base Page

Geographical area	European Union (EU27)
Data category	**Structural business statistics (SBS)**
Last update of this document	23.01.2009
Last certification	

Contact

Eurostat, Statistical Office of the European Communities,

Unit E1

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[100] http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/EN/sbs_base.htm

The Data: Coverage, Periodicity and Timeliness	
Coverage (data characteristics)	**Short description** MP_NACE_ALL covers the NACE Rev 1.1 for codes, which are described in the chapter "Sectoral dimension" of this document. Characteristics (variables) of the MP_NACE_ALL data category: - 11110 Number of enterprises - 12110 Turnover or gross premiums written - 12140 Value added at basic prices - 12150 Value added at factor cost - 13110 Purchases of goods and services purchased - 13120 Total purchases of goods and services purchased for resale in the same condition as received - 13310 Personnel costs - 16110 Number of persons employed - 16140 Number of employees in full time equivalent units - 20110 Purchases of energy products (in value) - 92300 Growth rate of value added at factor cost at constant prices - 99110 Turnover at constant prices - 99120 Production value at constant prices SBS characteristics are defined in the COMMISSION REGULATION (EC) No 2700/98 of 17 December 1998 concerning the definitions of characteristics for structural business statistics. SBS data are collected primarily by National Statistical Institutes (NSI). The statistics are published by NUTS-3 country region and detailed on NACE Rev 1.1 4-digits level. Monetary data are expressed in millions of €. See Annex at the bottom of the page for annual average exchange rates vis-à-vis the euro. • Per head values are expressed in thousands of € per head. • Per hours values are expressed in € per hour. • Ratios of monetary variables are expressed in percentages. • Employment variables are expressed in *units* for individual countries, but in *hundreds* for European aggregates **Annual enterprise statistics**: Characteristics collected are published by country and detailed on NACE Rev 1.1 class level (4 digits), though the classes have been aggregated on the sector level described above. **Annual islands statistics**: Characteristics collected are published for all EU member states and detailed on NACE Rev 1.1 class level (4 digits). The geographical resolution is based on the geo_island dimension described above. **Annual coastal NUTS3 statistics**: Characteristics collected are for all EU member states and detailed on NACE Rev 1.1 class level (4 digits). The geographical dimensions include all coastal NUTS 3 region as defined above which are aggregated on the maritime basin level.
	Time coverage The MP_NACE_ALL datasets cover the period 2000 – 2006. However 1995 is the first reference year for SBS implementation. From 1995 till 1998 was a transitional period for SBS implementation. The data set is more complete and comparable starting from reference year 1999. European aggregates are

The Data: Coverage, Periodicity and Timeliness	
	available for most important characteristics and tables from reference year 1999 onwards.
Periodicity	Annual
Timeliness	*Not applicable for the project. To be filled in after establishing at ESTAT.*

Access by the Public	
Advance dissemination of release calendar	*Not applicable for the project. To be filled in after establishing at ESTAT.*
Simultaneous release to all interested parties	*Not applicable for the project. To be filled in after establishing at ESTAT.*

Integrity (transparency of practices and procedures)	
Dissemination of terms and conditions under which official statistics are produced, including those relating to the confidentiality of individually identifiable information	**Rules on statistical compilation** *Not applicable for the project. To be filled in after establishing at ESTAT.*
	Regulation on statistical confidentiality. Council Regulation (CE) No 322/97 of 17 February 1997 (OJ No L 52/1) and Council Regulation (EURATOM, EEC) no 1588/90 of 11 June 1990 on the transmission of the data subject to statistical confidentiality to the Statistical Office of the European Communities (OJ No L 151/ 1) stipulates the detailed rules used for receiving, processing and disseminating the confidential data.
Identification of internal access to data before release	*Not relevant for the project. To be filled in after establishing at ESTAT.*
Identification of commentary on the occasion of statistical releases	*Not relevant for the project. To be filled in after establishing at ESTAT.*
Provision of information about revision and advance notice of major changes in methodology	Definitive data replace preliminary data as soon as they are available. As far as the method used for the production of SBS preliminary data is concerned, most countries use auxiliary sources such as Short Terms Statistics combined with the latest available SBS data. The alternative is to gross up the sample at an early stage of the survey. Definitive data are sometimes revised as well, e.g. further to the implementation of a new (and improved) survey strategy, the latest technique being used to revise old data.

Quality (information the user needs to assess data quality)	
Dissemination of documentation on methodology and types of data sources used in preparing statistics	*Not applicable for the project. To be filled in after establishing at ESTAT.*

Quality (information the user needs to assess data quality)	
Dissemination of component detail, reconciliations with related data, and statistical frameworks that support cross-checks and provide assurance of reasonableness	Non confidential national and EU data are released at the finest possible level of detail. The maritime sectors and maritime basins aggregates are calculated for all included characteristics of the main series broken down by economic activity. Missing data are signalled by a colon. This can be due to confidentiality constraints in which case a flag (c) is added. Whenever those aggregates do not rely on a full coverage, estimates have been published. Structural business statistics can be found in the following related domains: - country related statistics - island related statistics - coastal zone related statistics

Dissemination Formats		
Hardcopy		
	News release	none
	Publications	Only once, at the end of the project
	More information on publications	Eurostat, Statistical Office of the European Communities, UNIT E1
	Other	none
Electronic		
	On-line or database.	none
	Internet address	nonehttp://ec.europa.eu/eurostat
	CD ROM	Included in the hardcopy of the project report.

Links	
Related Metadata	sbs_base - Structural Business Statistics (Industry, Construction, Trade and Services) http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/EN/sbs_base.htm sbs_sm1 - Structural Business Statistics (Industry, Construction, Trade and Services) http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/EN/sbs_sm1.htm
Complementary information (data)	

Annex	
	Recent and detailed information http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/Annexes/sbs_base_an4.htm Rates - http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/Annexes/sbs_base_an6.pdf

3.4.2 MP_PROD

MP_PROD - Maritime Policy statistics on the Production of Manufactured Goods subset of Prodcom: Statistics on the Production of Manufactured Goods[101]
Eurostat Metadata in SDDS format: Base Page

Geographical area	European Union (EU27)
Data category	**Business statistics**
Last update of this document	23.01.2009
Last certification	

Contact

Eurostat, Statistical Office of the European Communities,

Unit E1

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The Data: Coverage, Periodicity and Timeliness	

Coverage (data characteristics)	**Short description**
	MP_PROD contains a subset of statistics on production of manufactured goods. The complete list of included products please see in the Appendix 5 List of the included Prodcom codes
	- The data characteristics described in this documentation refer to the Prodcom production data. For external trade data characteristics, please see documentation for MP_TRADE
	- The Prodcom data includes:
	  o the physical volume of production sold during the survey period
	  o the value of production sold during the survey period
	  o for some products, the volume of total production during the survey period
	- The Prodcom data is obtained from the ComExt database.
	
	The Prodcom survey is based on the Prodcom List, consisting of about 4500 products. The 8-digit codes used in the List are based on the 6-digit CPA headings and hence the 4-digit NACE rev 1.1.
	The Prodcom List is revised every year
	The Prodcom codes normally relate to one or more Combined Nomenclature headings, thus enabling external trade data to be related to production data.
	The Geonomenclature is used to identify reporting countries.

	Time coverage The MP_PROD datasets cover the period 2000 – 2006.
Periodicity	Annual
Timeliness	*Not applicable for the project. To be filled in after establishing at ESTAT.*

Access by the Public	
Advance dissemination of release calendar	None
Simultaneous release to all interested parties	*Not applicable for the project. To be filled in after establishing at ESTAT.*

[101] http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/EN/prom_base.htm

Integrity (transparency of practices and procedures)	
Dissemination of terms and conditions under which official statistics are produced, including those relating to the confidentiality of individually identifiable information	**Rules on statistical compilation** COUNCIL REGULATION (EEC) N° 3924/91 of 19 December 1991 on the establishment of a Community survey of industrial production COMMISSION REGULATION (EC) No 912/2004 of 29 April 2004 implementing Council Regulation (EEC) No 3924/91 on the establishment of a Community survey of industrial production COMMISSION REGULATION (EC) No 347/2003 of 30 December 2002 establishing for 2003 the .Prodcom list. of industrial products provided for by Council Regulation (EEC) No 3924/91 COMMISSION REGULATION (EC) No 210/2004 of 23 December 2003 establishing for 2004 the "Prodcom list" of industrial products provided for by Council Regulation (EEC) No 3924/91 COMMISSION REGULATION (EC) No 317/2006 of 22 December 2005 establishing for 2005 the 'Prodcom list' of industrial products provided for by Council Regulation (EEC) No 3924/91 COMMISSION REGULATION (EC) No 294/2007 of 20 February 2007 establishing for 2006 the 'Prodcom list' of industrial products provided for by Council Regulation (EEC) No 3924/91 COMMISSION REGULATION (EC) No 1165/2007 of 3 September 2007 establishing for 2007 the Prodcom list of industrial products provided for by Council Regulation (EEC) No 3924/91
	Regulation on statistical confidentiality. Council Regulation (CE) No 322/97 of 17 February 1997 (OJ No L 52/1) and Council Regulation (EURATOM, EEC) no 1588/90 of 11 June 1990 on the transmission of the data subject to statistical confidentiality to the Statistical Office of the European Communities (OJ No L 151/ 1) stipulates the detailed rules used for receiving, processing and disseminating the confidential data.
Identification of internal access to data before release	None
Identification of commentary on the occasion of statistical releases	None
Provision of information about revision and advance notice of major changes in methodology	No changes in methodology are foreseen

Quality (information the user needs to assess data quality)	
Dissemination of documentation on methodology and types of data sources used in preparing statistics	*Not applicable for the project. To be filled in after establishing at ESTAT.*

Quality (information the user needs to assess data quality)	
Dissemination of component detail, reconciliations with related data, and statistical frameworks that support cross-checks and provide assurance of reasonableness	The maritime sectors aggregates are calculated for all included monetary characteristics of the main series broken down by goods. Missing data are signalled by a colon. This can be due to confidentiality constraints in which case a flag (c) is added. Whenever those aggregates do not rely on a full coverage, estimates have been published.

Dissemination Formats		
Hardcopy		
	News release	none
	Publications	Only once, at the end of the project
	More information on publications	Eurostat, Statistical Office of the European Communities, UNIT E1
	Other	none
Electronic		
	On-line or database.	none
	Internet address	nonehttp://ec.europa.eu/eurostat
	CD ROM	Included in the hardcopy of the project report.

Links	
Related Metadata	prom_base - Statistics on the production of manufactured goods http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/EN/prom_base.htm prom_sm1 - Statistics on the production of manufactured goods http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/EN/prom_sm1.htm
Complementary information (data)	

Annex	
	Prodcom User Guide http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/Annexes/prom_base_an3.pdf Prodcom Quality Report http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/Annexes/prom_base_an4.pdf

3.4.3 MP_TRADE

MP_TRADE - Maritime Policy external trade statistics subset of External trade statistics[102]
Metadata in SDDS format: Base Page

Geographical area	European Union (EU27)
Data category	**External trade data**
Last update of this document	23.01.2009
Last certification	

Contact
Eurostat, Statistical Office of the European Communities,

Unit E1
L-2920 Luxembourg

[102] http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/EN/ext_base.htm

The Data: Coverage, Periodicity and Timeliness	
Coverage (data characteristics)	**Short description** MP_TRADE contains a subset of external trade statistics. The complete list of included products please see in the Appendix 6 List of the included Combined Nomenclature codes External trade statistics are an important data source for many public and private sector decision-makers at international, European Union and national level. For example, at the European Union level, external trade data are extensively used for multilateral and bilateral negotiations within the framework of the common commercial policy, to define and implement anti-dumping policy, to evaluate the progress of the Single Market and many other policies. Moreover, they constitute an essential source for the compilation of balance of payments statistics and national accounts. External trade statistics cover both extra- and intra-EU trade: Extra-EU trade statistics cover the trading of goods between a Member State and a non-member country. Intra-EU trade statistics cover the trading of goods between Member States. "Goods" means all movable property including electric current. Detailed and aggregated data are published for the euro area, the European Union and for each Member State separately. **Main components**: Data describe the yearly trade between Member States in terms of arrivals and dispatches of goods as well as the yearly trade in terms of imports and exports between Member States and non member countries. However, in publications only the term “exports” for all outward flows and “imports” for all inward flows are applied for both intra-EU trade and extra-EU trade. Extra-EU trade imports and exports are recorded at the frontier country where the goods are placed under the customs procedures. Extra-EU trade statistics do not record exchanges involving goods in transit, placed in a customs warehouse or given temporary admission. **Data sources**: The statistical information contained in the MP_TRADE dataset has been copied from the ComExt database. **Classification systems**: - Product classification: For detailed data, products are disseminated according to the most detailed level of the Combined Nomenclature (CN8) - Country classification: The Geonomenclature is used for classifying reporting countries and trading partners. Nomenclatures and correspondence tables are available at the Eurostat’s classification server RAMON. The following basic information is provided by MP_TRADE: - reporting country, - reference period, - trade flow, - product, - trading partner Data are available according to the Combined Nomenclature- CN8 levels for the following indicators: - trade value (in 1000 euro), - trade quantity in 100 kg, - trade quantity in supplementary units (published for some goods according to the Combined Nomenclature).

The Data: Coverage, Periodicity and Timeliness	
	Time coverage The MP_PROD datasets cover the period 2000 – 2007.
Periodicity	Annual
Timeliness	*Not applicable for the project. To be filled in after establishing at ESTAT.*

Access by the Public	
Advance dissemination of release calendar	*Not applicable for the project. To be filled in after establishing at ESTAT.*
Simultaneous release to all interested parties	*Not applicable for the project. To be filled in after establishing at ESTAT.*

Integrity (transparency of practices and procedures)	
Dissemination of terms and conditions under which official statistics are produced, including those relating to the confidentiality of individually identifiable information	**Rules on statistical compilation** **Extra-EU trade legislation:** Statistics relating to the trading of goods by the Community and its Member States with non-member countries are based on Council Regulation N° 1172/95 and Commission Regulation (EC) No 1917/2000. **Intra-EU trade legislation:** Statistics relating to the trading of goods between Members States are based on Regulation (EC) No 638/2004 of the European Parliament and of the Council, and Commission Regulation (EC) No 1982/2004. A complete pool of texts regarding Community legislation in the field of external trade statistics is published by Eurostat and all legal texts of the Community are accessible on Eur-Lex.
	Regulation on statistical confidentiality. Council Regulation (CE) No 322/97 of 17 February 1997 (OJ No L 52/1) and Council Regulation (EURATOM, EEC) no 1588/90 of 11 June 1990 on the transmission of the data subject to statistical confidentiality to the Statistical Office of the European Communities (OJ No L 151/ 1) stipulates the detailed rules used for receiving, processing and disseminating the confidential data.
Identification of internal access to data before release	*Not relevant for the project. To be filled in after establishing at ESTAT.*
Identification of commentary on the occasion of statistical releases	*Not relevant for the project. To be filled in after establishing at ESTAT.*
Provision of information about revision and advance notice of major changes in methodology	Data are revised frequently according to national needs and practices. They become final from six months up to possibly three years after the reference period (depending on the Member State). Major methodological changes imply changes in respective community regulations and are published in the Official Journal of the European Communities.

Quality (information the user needs to assess data quality)	
Dissemination of documentation on methodology and types of data sources used in preparing statistics	*Not applicable for the project. To be filled in after establishing at ESTAT.*

Quality (information the user needs to assess data quality)	
Dissemination of component detail, reconciliations with related data, and statistical frameworks that support cross-checks and provide assurance of reasonableness	The maritime sectors aggregates are calculated for all included monetary characteristics of the main series broken down by codes of goods. Missing data are signalled by a colon. This can be due to confidentiality constraints in which case a flag (c) is added. Whenever those aggregates do not rely on a full coverage, estimates have been published.

Dissemination Formats		
Hardcopy		
	News release	none
	Publications	Only once, at the end of the project
	More information on publications	Eurostat, Statistical Office of the European Communities, UNIT E1
	Other	none
Electronic		
	On-line or database.	none
	Internet address	nonehttp://ec.europa.eu/eurostat
	CD ROM	Included in the hardcopy of the project report.

Links	
Related Metadata	ext_base - External trade statistics http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/EN/ext_base.htm ext_sm1 - External trade aggregated data http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/EN/ext_sm1.htm
Complementary information (data)	

Annex	

3.5 Integration of the Data and Installation of the Database

3.5.1 Data Integration Procedure during the Project

Each project partner was responsible for a number of countries the data should be collected from. In the first step the partners contacted the national statistical offices (NSO) and explained the idea of the project. The target of the first contact was to find the right person, which should be able to answer the questions and deliver the data. In most cases the member states were visited by the partners to discuss the aims of the project locally.

After the clarification of the project idea the partners distributed the templates based on the dataset definitions and designed by BALance. The question asked to the NSOs was, if they were able to provide the data described in the template. In the best case the project team received the data in format of the template. In any other cases the partners were responsible for conversion of the received data into the template format.

As soon as the data were collected by the partners and sent to BALance the Excel files were converted into the tab separated values (tsv)[103].

[103] A format for tabular data exchange

Using the MDT software BALance created for each input file a corresponding input table. Then the data stored in the input tables were used for updating of the source tables, which contain the most complete data for each country.

The picture below gives an overview of the whole procedure:

Step 1 – distribution of the dataset templates in Excel format
Step 2 – collection of the data by the partners and conversion to the right format (if necessary)
Step 3 – transmission of the well-structured data to BALance
Step 4 – conversion of the Excel files to the TSV format
Step 5 – execution of the MDT scripts creating the input tables and filling in them with data
Step 6 – update of the source tables using the input tables
Step 7 – creation of derived datasets (views) for all member states

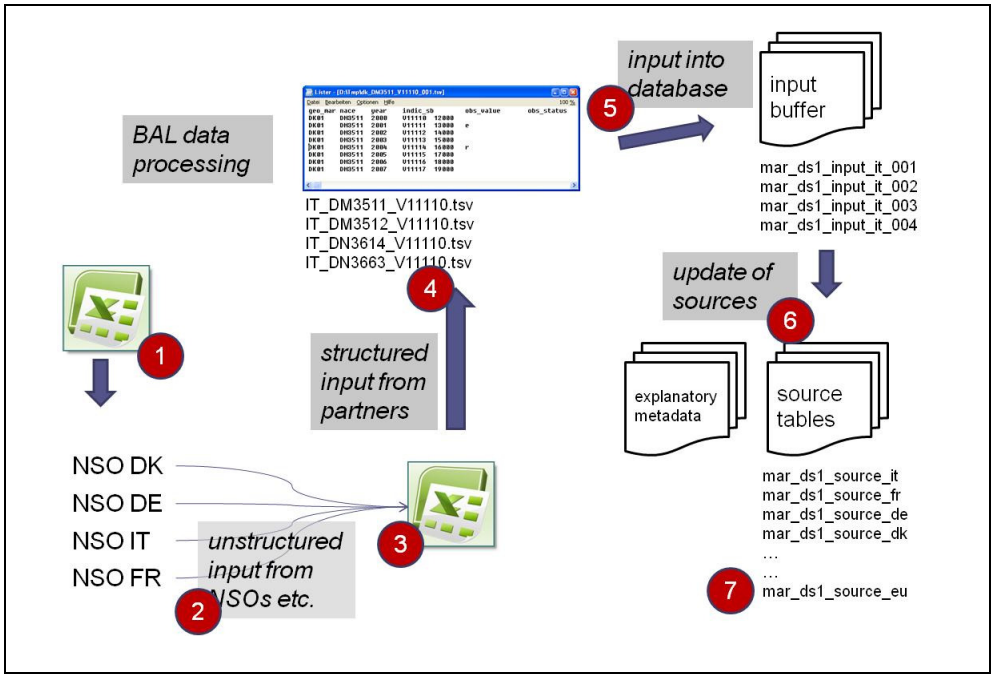


Figure 26: Data Integration procedure

3.5.2 Installation of the Maritime Policy Database

Requirements

The Maritime Policy Database will be installed in a test database prepared for unit E1. The test database will include 6 additional Oracle users:

User name	*Description*
MPCL	Owner of maritime policy dictionaries (code lists) *user introduced by the project*
MPIN	Owner of the input tables, which are used for updating the datasets *user introduced by the project*
MPTEST	Used by E1 team for testing new objects *user introduced by the project*
MPUSER	Owner of the MP datasets *user introduced by the project*
MPIN_ALT	Owner of the input tables, which are used for updating the datasets containing alternative data from non-sustainable sources *user introduced by the project*
MPUSER_ALT	Owner of the MP datasets with alternative data from non-sustainable sources *user introduced by the project*

Table 50: additional ORACLE Users

Furthermore the mentioned users will be already included in the REFSYS.mdt_profiles table in order to ensure the communication with the MDT software. The MDT software will be installed on a PC at unit E1.

Installation

Project team will provide 6 files with MDT scripts, one for each user. The scripts will contain any commands needed for creation of classifications, tables, rules and functions as well as commands used for importing of data. The data which will be saved in the tables will be provided in separate files, for each table one file.

In the first step the Eurostat responsible person should log in MDT software as the MPCL user. Then using the “Language Interactive” interface the content of the script foreseen for the MPCL user should be executed. In the second step the same should be done for the MPIN, MPUSER, MPTEST, MPIN_ALT an MPUSER_ALT respectively.

Afterwards the database should contain a number of classifications selected by the project as well as number of tables containing the data.

4 Data Collection from Member States and Related Evaluations

4.1 General Remarks

Data collection constituted Part B of the study. Contacts were taken with all Member States' NSOs National Statistical Offices, and the Introductory Letter from Eurostat has been sent to all. Basis for the contact were tables on selected NACE codes and a limited number of variables. These tables have been pre-filled with data available and taken from the Eurostat Reference Database. The questions to the NSO have been limited on the gaps in the data tables and mainly focussing also on a data availability with a higher geographical resolution down to NUTS 3. Most NSOs were slow at responding to the project team's requests, but some of them refused to co-operate or remained passive after initial answers. Few NSOs proved actively co-operative and provided data, even at a charge; most of them referred the team to their national NSO websites, respectively to data which they deliver to Eurostat frequently (which was not available in the Eurostat reference database). Some NSOs accepted visits of the project team for detailed discussions, but some also never reacted to such a request or offer. An overview and classification on the feedback received is presented in the table below.

Member States NSO - National Statistical Office	No answer or not willing to contribute	Refer to Data sent to Eurostat or is online available or refer to regional offices	Principle discussions ongoing or passive after initial answers	Specific Data available, but to be generated/paid	Co-operation to the limits of availability
Austria		■		■	
Belgium		■			
Bulgaria		■			
Cyprus		■			■
Czech Republic		■			■
Denmark		■		■	
Estonia		■			■
Finland					■
France		■		■	■
Germany		■	■		
Greece		■			■
Hungary		■			
Ireland			■		
Italy		■		■	■
Latvia		■			■
Lithuania		■			■
Luxembourg		■			
Malta	■				
Netherlands		■			
Poland			■		
Portugal			■		
Romania		■			
Slovakia					■
Slovenia		■			■
Spain		■			
Sweden		■			■
United Kingdom		■		■	■

Figure 27: Responsiveness of Member States on data collection

The generally slow feedback from NSOs, if any, showed at best that the EC's IMP database project was not high on their 2008 agenda. However there is some suggestion that some good practice cases can be proposed, based on real differences in NSOs' working methods.

Work phase	*Good practice case*	*Country examples*
Contact phase, presentation of project team's objectives	On the spot meeting with project team representatives	EE, LT, LV, IE
Feedback: online data collection	Reference to NSO website. Good knowledge of available data (the case was not so frequent, especially for NUTS 3 data)	UK, FR
Feedback: NUTS data	NUTS 3 data available online or provided	NL, ES (1), SK, LT
Feedback: data purchase	NUTS 3 data can be acquired from NSOs at a fee	DK, AT, UK, FR, PL
Feedback: employment data	NUTS 3 / NACE 4-digit employment data available	UK, FR

(1) Spain's regional statistical offices

Table 51: NSO working methods

Files providing a description of the results of data collection as it was carried out through contacts with NSOs and, for some Member States, with other statistical bodies, are presented in Appendix 7.

These so called “Member States Portfolios” are giving information all following the same structure, including:

- Contact Details
- Comment on general data availability
- Overview of Availability of data related to variables
- Overview of Availability of data related to selected NACE codes
- Eventual comments and additional information

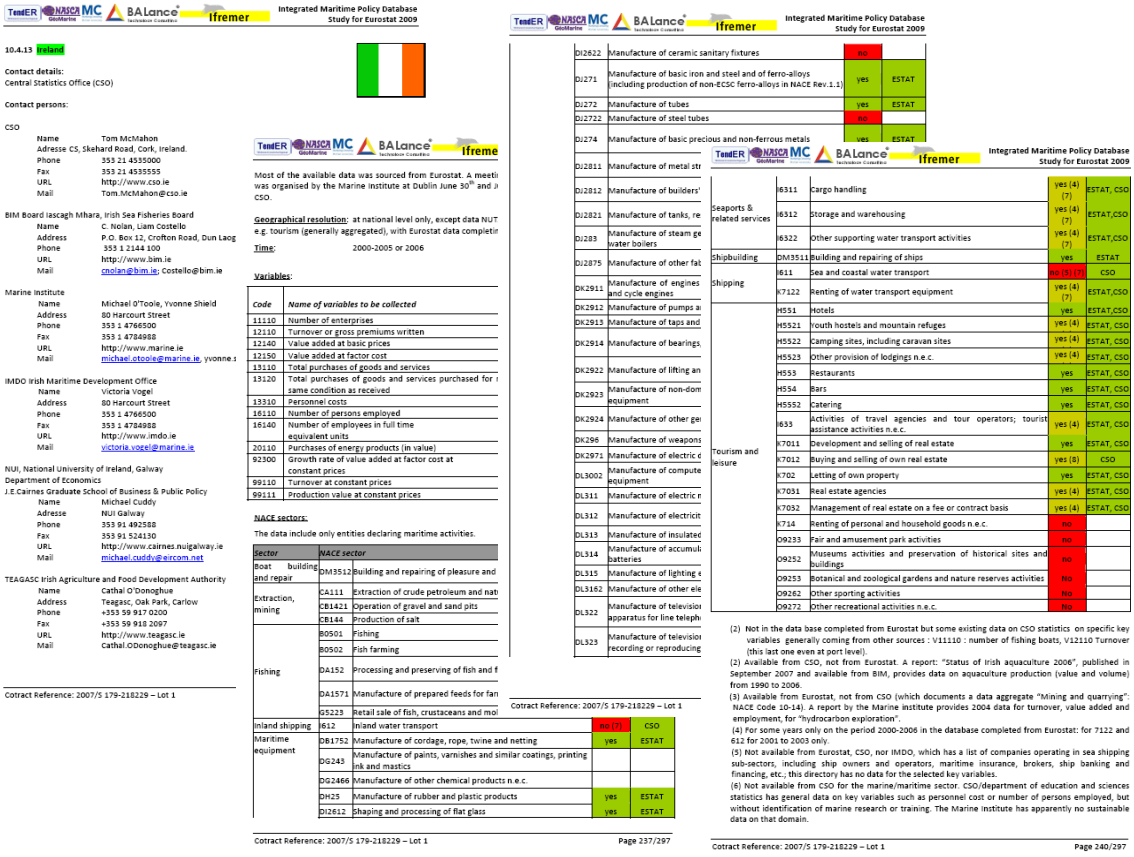


Figure 28: MP Database Member States Portfolios

The following remarks, some of which are not specific to maritime affairs, draw lessons from the data collection phase.

4.1.1 Collecting Data

a) **Data sources and gaps**. The project team used datasets as extracted from Eurostat New Cronos data. These datasets were related to each Member States' maritime affairs, according to all NUTS units of the Member State, and to maritime sectors and key indicators as identified by the project team. The objective of data collection was then principally to complete these datasets and fill data gaps through direct contacts with NSOs, in particular as far as NUTS 3 units are concerned, for which very few data were available from Eurostat's datasets.

b) **NACE Rev 1.1** was used to collect sector related data, rather than NACE Rev 2. This is because data had to be collected for the 2000-2007 period whereas Rev 2 has been implemented since early 2008. For certain sectors, some changes from Rev 1.1 to Rev 2 are worth mentioning, but they had no impacts on data collection.

c) **Quality requirements**. In line with ESS data quality standards[104], the objective was also to collect data with a satisfactory quality level[105]. The option privileged by the project team was to limit itself to collecting data originating from NSOs and periodically updated, available either from Eurostat or from national databases. The project team excluded collecting or working out estimates, which could be suspected of quality failure or of low quality level. The collected data are therefore related to the NACE sectors which include maritime subsets and not to their maritime subsets specifically.

[104] Eurostat (2007b).

[105] ESS quality criteria: relevance, accuracy, timeliness and punctuality, accessibility and clarity, comparability, and coherence.

d) **Discrepancies**. The project team remarked discrepancies between data as forwarded by NSOs to Eurostat and the same data as downloaded from NSOs' websites (same sectors, indicators, geographical units, and years). Sometimes, these discrepancies are sizeable. Sometimes, data may be unavailable in Eurostat's database as sourced from NSOs, and available from NSOs' websites. A detailed inventory of these differences has not been made by the project team; they were just noted occasionally in the course of the exercise.

e) **Sector vs. branch data collection**. The data available from Member States, i.e. from Eurostat's and NSO's data, are sector-related rather than branch-related data in most cases. In a sector-related dataset, a given enterprise is categorized into the sector of its "principal" activity (i.e. the sector sustaining the largest share of its turnover). In a branch-related dataset, the enterprise's turnover is broken down per activity related to its yearly business. Branch-related data would be more accurate and relevant, but are less easily available owing to confidentiality constraints. Except for a small number of cases, the project team has not made a systematic categorization of maritime affairs data into these two categories.

f) **FTEs vs. number of jobs.** This also a general and not maritime affairs-specific question. In terms of employment data at NUTS 3 level, full time equivalent employment is more accurate and relevant than the number of jobs, owing to the modest economic size of maritime affairs and the number of part time and seasonal jobs. However the former data were less often available than the latter in most NUTS 3 units.

g) **External trade data**. The difficulty with external trade data was that they were available only on a CPA / Prodcom basis for custom practice reasons. For the same reasons, they were available only at country to country level, which could not meet the Tender Specifications requirements in terms of data on trade between EU maritime regions. The failure is considerable in this respect.

4.1.2 Drawing Lessons

h) **NUTS 3 accuracy problem**. There is no simple correspondence between business turnover and local employment for small geographical zones: the smaller these zones, the fewer enterprises head offices are located in them; small geographical zones may have production units which contribute to a consolidated turnover – and a value added – which is registered in other geographical zones, the latter being possibly deprived of any production units in the sectors in question. Consequently, employment is often a more reliable indicator for NUTS 3 zones rather than value added, but only in cases where employment is available per local production unit.

i) **Sector vs. Geographical Resolution trade-off**. This difficulty, concerning data availability and accessibility, is not specific to maritime-related data, but is all the more important for a small economic sector such as maritime affairs. Generally, there is a trade-off between sector and geographical resolution:

- Sector data are available at a satisfactory level of NACE resolution only at NUTS0/1 level, probably for confidentiality reasons.
- Conversely, NUTS3 data can be obtained only for a low NACE resolution, the confidentiality constraint being mitigated when the number of enterprises increases.

This issue has obvious consequences on the construction of the IMP database, and on the analysis of missing maritime data.

j) **Coverage vs. Quality trade-off** A trade-off between relevance[106] and accuracy[107] has been noted. For certain NACE codes, accuracy requirements have led to exclude estimates e.g. of value added and employment. However, when data are not available for certain NACE 4-digits sectors, but available for larger sectors including those, it may be a realistic and relevant second best to use estimates based on what we know of the larger sectors. The database has then limited the coverage for quality reasons.

[106] Relevance: degree to which statistics meet users' current and potential needs.
[107] Accuracy: closeness of estimates to unknown true values.

4.2 Evaluation of Data Collection from NSOs and of Maritime Sector Representation in the Statistical Regime

The IMP database has been populated exclusively on the basis of NSO sourced data during the working phase of the project, whether coming through Eurostat New Cronos or directly collected online from NSO websites or purchased from NSOs. These data only refer to the standard NACE and NUTS classes. Aside from availability and confidentiality issues, it follows that the IMP database, as it stands now, has an insufficient coverage of maritime affairs, notably in terms of maritime sectors.

Theoretically the IMP database represents a total of more than 36 dimensions and 150 datasets. This all together add up to a theoretical storage of 4,3 bn data for the given time period. However, actual coverage of collected data for the NACE dimension only is about 27% on NUTS 0 (Member States) level and <1% on NUTS 3 level.

4.2.1 Maritime Sector Coverage

For the evaluation of data collected, the maritime sectors in question have been classified into three different groups. Class 1 represents those maritime sectors, where direct identification of the maritime sector is basically possible, Class 2 represents those sectors where the sector is partly directly represented, but partly also only indirectly. This leads to inconsistencies in the overall evaluation. Class 3 finally represents those maritime sectors, which are only indirectly identifiable in the statistical regime and available data as such does not represent the maritime sectors at all. Further discussions, assumptions or bridging calculations are required in order to interpolate or extrapolate maritime data out of the total statistical figures given.

The tables below give an overview on data availability per class and maritime sector per Member State. A more detailed description of the individual maritime sectors by means of the NACE codes selected, the direct or indirect assignment to the maritime sectors concerned and the coverage per country is attached in Appendix 8.

Classification	Sector	at	be	bg	cy	cz	dk	ee	fi	fr	de	gr	hu	ie	it
1	Shipbuilding	1	1	1	1	0	1	1	1	1	1	1	1	1	1
1	Boat building and repair	1	1	1	1	0	1	1	1	1	1	1	1	1	1
1	Inland shipping	1	0	1	0	1	1	1	1	1	1	1	1	1	1
1	Shipping	1	0,5	0,5	0,5	0,5	0,5	0,5	1	1	1	0,5	0,5	1	1
2	Fishing	0,6	0,6	0,6	0,4	0,2	1	1	0,6	1	0,6	0,6	0,6	1	1
2	Seaports & related services	1	1	0	1	0	0	0	1	1	1	0	0	1	1
3	Maritime works	1	1	1	1	0	1	1	1	1	1	1	1	0,67	1
3	Maritime equipment	1	0,71	1	0,71	0,38	0,98	0,98	1	0,98	1	1	0,98	0,81	1
3	Extraction, mining	1	0,67	0,67	0,33	0,67	1	1	0,33	1	1	0,67	0,67	0,33	1
3	Offshore supply	1	0,33	0	0,33	1	1	1	0,33	1	1	0,67	0,67	0,67	1
3	Tourism and leisure	0,74	0,42	0,11	0,42	0,16	0,26	0,32	0,84	1	0,74	0,11	0,11	0,68	0,68
3	Maritime services	0,43	0,35	0,13	0,3	0,26	0,35	0,48	0,7	0,74	0,39	0,3	0,13	0,43	0,35

Classification	Sector	lv	lt	lu	mt	nl	pl	pt	ro	sk	si	es	se	uk	Ø
1	Shipbuilding	1	1	0	1	1	1	1	1	1	1	1	1	1	**0,93**
1	Boat building and repair	1	1	0	1	1	1	1	1	0	1	1	1	1	**0,89**
1	Inland shipping	1	1	1	0	1	1	1	1	1	1	1	1	1	**0,89**
1	Shipping	1	1	0,5	0,5	0,5	0,5	0,5	0,5	0	0,5	0,5	1	0,5	**0,65**
2	Fishing	1	1	0,2	0,6	0,6	0,6	1	0,6	0,4	0,6	1	1	1	**0,72**
2	Seaports & related services	1	1	1	0	0	0	0	0	0	0	0	1	1	**0,48**
3	Maritime works	1	1	1	1	1	1	1	1	1	1	1	1	1	**0,95**
3	Maritime equipment	1	1	0,76	0,55	0,95	0,98	1	1	1	0,98	0,98	1	0,95	**0,91**
3	Extraction, mining	1	1	0	0,33	1	1	0,67	1	1	0,67	1	0,67	1	**0,77**
3	Offshore supply	1	1	0,33	0,33	0,67	1	0,33	1	0,67	0,67	0,67	1	1	**0,73**
3	Tourism and leisure	1	0,95	0,47	0,11	0,16	0,11	0,21	0,11	0,11	0,11	0,21	0,89	0,16	**0,41**
3	Maritime services	1	0,78	0,26	0,22	0,17	0,26	0,22	0,26	0,26	0,26	0,3	0,78	0,3	**0,39**

LEGEND
1 100 %
0,5 equal or more than 50 %
0,3 less than 50 %
0 0%

Figure 29: Coverage per Maritime Sector and Country on NUTS 0 level

Sectors which are fully identifiable in the statistical regime

For those maritime sectors in Class 1, i.e. Shipbuilding, Boatbuilding, Shipping, Inland Shipping the data availability in general is very good. This is basically also true for the sector shipping, but for some countries one of the NACE code considered is not served. The red spots in the table (no data) basically are for sectors and countries, where this particular maritime sector is not in existence. As a general observation it can be said that for the sectors in Class 1 annual statistics can be generated without major problems. However, data quality aspects and timely availability and other aspects as discussed below may relativise this evaluation.

Sectors which are partly identifiable in the statistical regime

For those maritime sectors in Class 2, i.e. Fishing and Seaports and related services, the data availability in general is very good. This is basically true for fishing as such, but due to the comprehensive definition of fishing, including also aquaculture, processing and retailing businesses, which are not available in all countries, the portfolio is showing some yellow spots. The surprising result is seaports and related services for which data seems to be unavailable for countries with major ports. This may need a more in depth analysis, which could not be performed in the course of the study. Therefore some of the red spots in the table (no data) may turn into green, but some others for landlocked countries may remain red for obvious reasons. However, the more general code for cargo storage and warehousing, which does not distinguish different transport modes creates the biggest

problem for direct identification of the sector. Suitable bridge calculations may be considered for deriving and assigning the shares of cargo storage and warehousing to the different transport modes, i.e. trucks, trains, air and maritime.

Sectors which are only indirectly identifiable in the statistical regime

For those maritime sectors in Class 3, i.e. Marine Equipment, Maritime Works, Offshore Supply, Maritime Services and Extraction and Mining the data availability in general is very good. However, the available data do not represent directly the maritime content. Therefore all statistics generated for the chosen NACE codes need additional discussion on the relative value which is related to maritime businesses. Practically this represents the delivery of goods and services to the different maritime markets, which are served in the same way than other markets like aerospace, automotive etc.

The good news basically is that for the major sectors in this group, i.e. marine equipment and maritime works, the data availability for the indirect applicable NACE codes is good. However, bridging calculations in order to generate and assign maritime data seems to be difficult and must be subject of extensive analysis for future qualification of the approach. Specific approaches for the different maritime sectors seem to be unavoidable. The situation is even more difficult the sectors Tourism and Leisure and maritime Services. As you can see from the figure above, the data coverage is extremely poor or even in no existence. The only chance to generate statistical results is to work on bottom-up studies. The tourism sector is more elaborated in the next paragraph.

Special Sector Maritime Tourism

Coastal tourism raises specific coverage issues:

- Like tourism in general, the activity includes, inter alia, a large number of small size businesses of local scope; but it also includes companies operating on national and international markets.
- These businesses are classified in a broad range of services of different nature, e.g. hotel and catering, but also travel agencies and leisure related businesses, including sporting activities, the boating chain, etc.
- The activity, especially through its small size businesses, has strong links with the local economy: some sectors of coastal tourism can be identified through a geographical criterion (depending on the definition of coastal regions), but some other sectors cannot (e.g. travel agencies). However, the question of a harmonised definition of coastal tourism in geographical terms for all EU countries, remains.

Owing to its nature as a set of services with a strong geographical specificity, the coverage of coastal tourism is limited in the IMP database:

- As shown in the table (above) on coverage by sectors, many services (e.g. also maritime services) are not satisfactorily covered in the database; tourism services are no exception.
- The identification of coastal tourism businesses would require an analysis at NUTS 3 level; but many NUTS 3 areas are not satisfactorily reported in the database.

The need for collecting detailed information on coastal tourism in a harmonized way is partly dealt with by the EU legislation: tourism data collection, compilation, processing by Member States, and their dissemination, are required and harmonized under Directive 95/57/EC of 1995 and its subsequent amendments[108]. As provided by the Directive, data collection includes detailed information on accommodation capacity and overnight stays. Under the Directive, Member States also carry out visitor surveys. However their level of details, and the amount of information they provide, vary among Member States. Moreover, pending new amendments to the Directive, no breakdown methodology of tourism by “space” (urban, mountain, coastal, countryside) has been foreseen so far at EU level,

[108] Council Directive 95/57/EC of 23 Nov 1995 on the collection of statistical information in the field of tourism. OJ L 291, 6.12.1995, p. 32.

which may explain the lack of harmonization in the assessment of coastal tourism, especially in terms of visitor spending. In this context, a common definition of coastal regions, such as that proposed by Eurostat, would be a relevant option for harmonizing the geographical definition of coastal tourism.

4.2.2 Data Availability by Indicators/Variables

Another aspect to evaluate the collected and available data is the availability of chosen indicators/variables for the different selected NACE codes. Basically 9 out of 13 indicators are generally available. Only the following four indicators are not available in the majority of Member States and therefore, should be re-discussed for the future Maritime Policy Database.

- Value added at basic prices
- Growth rate of value added at factor cost at constant prices
- Turnover at constant prices
- Production value at constant prices

The general coverage of the remaining nine indicators at least on NUTS 0 level is quite good. However, data quality aspects and timely availability and aspects related to other NUTS levels may relativise this evaluation. The following table gives an overview on the situation.

Code	Name of variables to be collected	at	be	bg	cy	cz	dk	ee	fi	fr	de	gr	hu	ie	it
11110	Number of enterprises														
12110	Turnover or gross premiums written														
12140	Value added at basic prices														
12150	Value added at factor cost														
13110	Purchases of goods and services purchased														
13120	Total purchases of goods and services purchased for resale in the same condition as received														
13310	Personnel costs														
16110	Number of persons employed														
16140	Number of employees in full time equivalent units														
20110	Purchases of energy products (in value)														
92300	Growth rate of value added at factor cost at constant prices														
99110	Turnover at constant prices														
99120	Production value at constant prices														

Code	Name of variables to be collected	lv	lt	lu	mt	nl	pl	pt	ro	sk	si	es	se	uk
11110	Number of enterprises													
12110	Turnover or gross premiums written													
12140	Value added at basic prices													
12150	Value added at factor cost													
13110	Purchases of goods and services purchased													
13120	Total purchases of goods and services purchased for resale in the same condition as received				ces only		ces only							
13310	Personnel costs													
16110	Number of persons employed													
16140	Number of employees in full time equivalent units													
20110	Purchases of energy products (in value)				?									
92300	Growth rate of value added at factor cost at constant prices													
99110	Turnover at constant prices				nt		nt	nt						
99120	Production value at constant prices				nt		nt	nt						

LEGEND: yes / No

Figure 30: Coverage per Indicator and Country

4.2.3 Data Availability in Member States

The diagram below shows the basic availability of data per NUTS level and Member State. As major parts of the data now included in the MP database are coming from the Eurostat Reference Database we can say that coverage of NUTS 0 is basically given through this without consultation of the member States. As already said above the willingness of the Member States to co-operate on making further data available was quite limited. Most additional data had to be extracted from NSOs national online databases or has been purchased as long as standard products were concerned. For some countries the NSOs offered the generation of specific datasets on demand, but the supply charge widely varied among NSOs, and has limited the amount of purchased data for certain countries. This has to be postponed to a future exercise. However, availability of data on NUTS 3 level or with even higher resolution into LAU 1 and LAU 2 is a general problem as can be seen in the diagram. Even in the few cases where data is available on that level it is unlikely that this can be made available for the MP database. A major concern here is that available data in many allows the direct identification of single companies, which classifies the data automatically as “confidential”. Here is a general problem to be solved between Eurostat and the NSOs in order to allow the usage of this data at least in an aggregated form, e.g. when data for coastal zones consisting of a number of NUTS 3 regions can be combined.

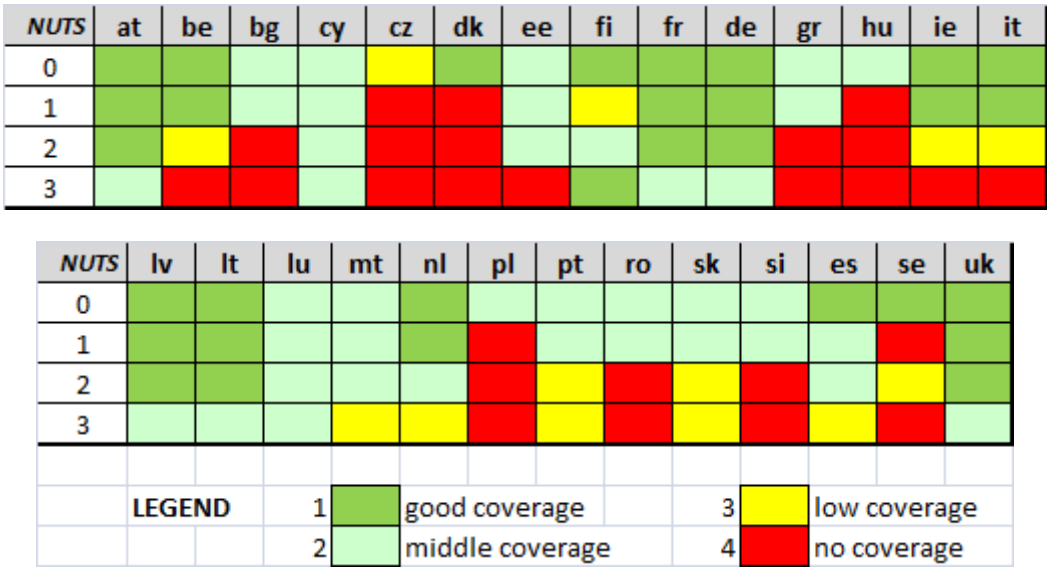


Figure 31: Coverage per NUTS Level and Member State

Some special aspects of geographical coverage for specific Member States are discussed as follows:

NUTS and NACE Dependency

As it was mentioned above most of the data are only available for the whole countries (NUTS0) in combination with NACE classes (4-digits). In most of countries there are no regional maritime data available for NUTS3. Regional statistical data are almost always only available up to NACE 2 digits (or partly only for some NACE 2 digit groups) which is not suitable for the requirements for MP study objectives.

As declared by the contacted national statistical offices it is not possible to publish more detailed regional data because this would lead to a great number of confidentiality treatments. The picture below shows the dependency of the geographical and sector resolution.

Only in some cases (Finland[109], Germany, France or UK) NACE class related data could be available for NUTS3 regions and only for some requested variables. However even if the data are theoretically available on the NUTS 3 level and NACE 4 – digits level very often they cannot be published from confidentiality reasons. For example the Statistics Estonia managed to quantify the resulting quota: At minimum 83% of all data cells of the template that the National Statistical Office was asked for cells kept empty or confidential (83%). And some of the remaining cells could be also confidential because of the secondary confidentiality rule.

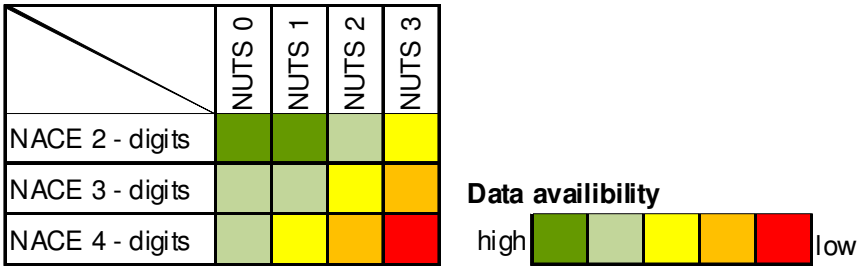


Figure 32: Coverage per NUTS Level and Member State

[109] Statistics Finland has announced a detailed verification of all available regional data with regard to the concrete NACE codes and the relevant variables within the month of January.

4.2.4 Special Aspect of Spatial Resolution

The problem of spatial resolution in the MP database is raised in general terms, and for specific uses. In general terms:

- As shown in the table of section 1.3 on data availability in Member States, NUTS 3 coverage is modest on average, and widely varies among Member States. Spatial resolution remains a major difficulty in the development of the IMP database.
- As described above, the coverage of the database shows a trade-off between NUTS and NACE resolutions. A high resolution level for both classifications substantially decreases the number of enterprises targeted in NSOs' business inquiries. To avoid reaching the confidentiality threshold, a high NUTS resolution must often be offset by a low NACE resolution. This difficulty is not specific to Maritime Affairs, but takes up a major importance in this category of activities which is of modest size.
- The confidentiality issue being set aside, the accuracy and consistency of our economic indicators (turnover, value added) becomes doubtful at a high resolution level: these economic indicators are reported for business head offices and not for establishments (production units) as business accounts are not deconsolidated by establishments. Therefore, the NUTS 3 areas where the latter – and the jobs – are located can be undervalued from an economic point of view, and some others overvalued. In many cases, the best option to deal with this difficulty is to limit data collection to employment by establishment when it is possible. Certain NSOs do it.

Some aspects of the IMP need a specific spatial resolution:

- Coastal zone management needs detail information on the state of the shoreline, coastal resources, sites impacted by polluting emissions, sites and population at risk from sea level rise and pollution. We will address this issue later in the report[110]. At this stage, it is necessary to underscore coastal managers' need for a much higher resolution than NUTS 3, which goes far beyond the scope of the IMP database.
- Coastal areas being of modest size, a fine analysis of maritime employment would require:
  a) information on job location, which can be provided by the IMP database, as a rule;
  b) information on employees' living place, so as to map labour flows, especially with regards to seasonal activities such as tourism; but this information is not in the database.

4.2.5 Data Quality

The data available in the MP database, which is basically coming from Eurostat or the Member States directly, often triggers criticism from industry about the timely availability and the quality in general. The criticism on data quality means that the maritime sectors representatives do regard the given data for the sector from the public statistical services as not representative for their business and very often compare it with data, which they have created by themselves in frequent or one-off targeted analysis. Indeed, some discrepancies can be observed when comparing the same statistic from different sources, e.g. Member States and Eurostat and then probably compare it with sources like OECD. It might be worth a separate exercise to investigate this further, probably in a concerted action between Eurostat, NSOs and industry stakeholders. Some of the problems seem to be created through incorrect or deviating assignments of NACE sectors to their own businesses. There is of course a problem, when companies produce products which can be assigned to different and manifold NACE sectors, but they report only less than one code. This may lead to major distortions in the statistics in relation to the sector statistics as created by the industry stakeholders. Having said this, it seems that QA measures applied by the NSOs when collecting data need some improvements.

[110] See „Geospatial tools" section below.

5 Improving the Maritime Policy Database

The future development of the MP Database must be seen from a technical standpoint (i.e. the need for collecting missing data, notably as far as high resolution data is concerned) and from a maritime policy standpoint (i.e. an adaptation of the database structure to policy needs).

This section addresses these technical and policy approaches in turn. The technical approach (section 5.1.) discusses how to go about getting a higher resolution at sector and geographical levels, but also the costs associated to it. The policy approach (sections 5.2 to 5.4.) analyses additional relevant indicators, related to sustainable development and to a maritime basin approach; it also analyses the role that geospatial data can play to inform the future IMP and complement the Database.

5.1 Filling the Gaps: the Problem of a feasible Method and estimated Cost

The ways to collect missing data involve the EU structural business statistics (SBS) system as it stands and as it is regulated[111].

Amending the SBS supposes both a methodological change and, if the technical aspects of the proposed change require, amending the current regulation. In addition, it is impossible to consider any change in the SBS in ignoring the costs and benefits which result from it. Improvement costs have thus to be estimated; benefits must be addressed too, and will be described in a qualitative way in chapter 6: they largely derive from a full exploitation of the database potential as described in that chapter.

The methodological change is technical and primarily focuses on improving the NACE coverage of the database for most activities, and its NUTS coverage. A better NUTS coverage, in addition to its general spatial coverage purpose, would be of specific interest for reporting coastal tourism, the latter being spatially defined. In terms of NACE, the maritime nature of the database critically depends on having a direct report on each maritime activity as defined in chapter 2. For the numerous indirectly reported activities, few options are available:

- Option 1: carry out new business inquiries specific to the maritime subset of each NACE code. For instance, reporting maritime navigation system manufacturing would require identifying the subset of companies of NACE (Rev2) 26.51 (navigation system manufacturing) having maritime markets, this subset being considered as a specific NACE code, say 26.51A, and subject to a business inquiry comparable that of NACE 26.51.
- Option 2: add more questions in each questionnaire related to a NACE 4-digit code which would include a maritime subset. To take the same example, the questions would aim at measuring, for instance, the navigation system makers' turnover on the shipbuilding and boat building markets. Assigning a value added and a workload to that turnover would certainly be more difficult and would depend on companies' organisation.
- Option 3: use the CPA for having more accurate additional questions for option 2. For instance, a CPA code would identify maritime navigation system products.

Coastal tourism related activities raise issues of a slightly different nature. More specifically, they have to be subdivided into local purpose activities, e.g. hotels, catering, sporting clubs and other local leisure businesses; and general purpose activities, e.g. general services such as travel agencies.

- Option 4: local purpose activities would be more properly reported on the basis of the definition of coastal regions as discussed in chapter 2. Coastal tourism being spatially delimitated, local purpose businesses would be reported depending on their geographical location. The objective would then be to report at least employment data – if not turnover and value added – provided it

[111] Reg. 295/2008 of the EP and of the Council of 11 March 2008 concerning structural business statistics, OJ L 97, 9.4.2008, p. 13.

is available at NUTS 3 but also LAU levels, with a view to reporting activities on subsets of NUTS 3 units, as supposed by the definition of coastal areas put forward by Eurostat.

- For general purpose activities, there is no alternative to options 1 and 2 above. However, even in the latter case, the difficulty is to identify a specifically maritime related component of travel agencies' business. Is it not certain that such approach would be sensible for all businesses of this class: this should be discussed with the industry in any case.

Whatever the option considered by NSOs and Eurostat, it will raise cost/benefit and regulatory issues.

5.1.1 Cost/Benefit Aspects of the Improvement of the MP Database

The Tender Specifications provided that "alternative ways to collect the missing data needed by the European Maritime Policy have to be examined through sound cost/benefit analysis". Such requirement is justified by Eurostat's need to discuss with NSOs the amount of budget and workload to be dedicated to the improvement of the MP Database, but also by its need to discuss with industry stakeholders – who will assume part of the cost burden by dedicating time to responding to inquiries – the overall benefits resulting from having a more complete database.

The benefits are qualitative. They are described in detail in chapter 6: this description refers to the possibility opened by the development of a database as designed in the way considered earlier in this report. In this sense, chapter 6 refers to the potential benefits from having a complete database; the improvement discussed in the present chapter is a way of getting closer to this potential.

Costing data collection and processing is complex. It was addressed by the project team through discussions with NSOs. A standard letter was sent to each of them, asking for information:

- on the cost of business inquiries (as a reference to option 1 above)
- on the cost of extending a business inquiry by adding more questions (as a reference to option 2 above),
- on the cost of generating NUTS 3 data on the basis of existing business inquiries (which would suppose to have a more complete sample for business inquiries, in cases where there is no local data),
- on whether there exists employment data relevant to the MP Database (so as to be able to document employment at NUTS 3 or LAU level).

Little feedback has been received from NSOs. Few of them (Belgium, Estonia, Finland and France) provided quantitative information, and the latter was too fragmented to be used as a basis for general data collection cost estimates.

5.1.1.1 Orders of Magnitude of Data collection and processing Costs

Based on the quantitative information that could be collected, this section estimates some orders of magnitude for the cost of improving the MP Database. In the following examples, priority is given to sectors which are indirectly documented in the database.

A) Sector Breakdown

Let us assume that the objective is to have a direct documentation, based on business inquiries covering the maritime subsets of the sectors in question. This would exclude coastal tourism related NACE codes (those having to be documented through a NUTS 3 breakdown).

	Value / Quantity	***Source / Comments***
Running costs per business inquiry per respondent		
	20 to 50 euro (1)	Belgium NSO

	Value / Quantity	*Source / Comments*
	20 to 40 euro (1)	Lithuania NSO, A
	8 euro (1)	France NSO
EU average	10 to 20 euro	A
Example of maritime navigation system manufacturing		
Number of NACE 26.51 enterprises	21,096 in 2006	Eurostat
Number of potential respondents for a BI on maritime navigation system makers	20,000	A, UB
Resulting running costs for a BI on maritime navigation system makers	200 to 400,000 euro	OM, UB
Extrapolation at the scale of the database		
Number of NACE codes of the MP Database indirectly documented, excluding public health and education services (for which several NSOs make no business inquiry), and excluding coastal tourism related NACE codes	70	MP Database
Overall running costs for the EU: 14m to 28m euro (order of magnitude), for 70 codes	**14m to 28m euro**	OM

Legend:
A: assumption, OM: order of magnitude, UB: upper bound
(1) There is no evidence that these estimated costs cover exactly the same operations.

Table 52: Database improvement cost estimation – Sector breakdown

Remarks:

- The figures presented in Table 1 are related to business inquiries at NUTS 0 level (based on estimates given by NSOs).
- To make a business inquiry, an NSO incurs investment costs (50,000 euros according to Belgium NSO) and annual fixed costs (50,000 euros/year according to the same source). It is unclear how much of these costs would be actually incurred for additional business surveys, as those would be based on subsets of already surveyed business populations.
- Though it is not very sensible to extrapolate, investments costs could be assumed as of the order of 1m euros, and annual fixed costs of the order of 1m euros/year for the EU as a whole.

B) Geographical Breakdown

Let us assume that the objective would be to have NUTS 3 data for coastal tourism related NACE codes (18 codes to be reported for coastal regions, and excluding travel agencies). The improvement would concern countries which do not report NUTS 3 data for these codes (see appendix 7, volume 2 of this report): Belgium, Bulgaria, Cyprus (for only 10 codes), Denmark, Estonia, Greece, Ireland, Italy, Lithuania, Malta, Netherlands, Poland, Portugal, Romania, Slovenia, Spain, Sweden. These countries include 252 “coastal” NUTS 3 units, in the sense of Eurostat (2008a) as mentioned in chapter 2 above.

	Value / Quantity	*Source / Comments*
Running cost per business inquiry per respondent at NUTS 0 level	10 to 20 euro	Table 1
Number of enterprises for hotels, restaurants, real estate and renting businesses	1,200,000 in 2006	Eurostat
Number of potential respondents for hotels, restaurants, real estate and renting businesses in coastal regions	500,000	A, OM, from the above figure
Running cost for the EU at NUTS 0 level	C = 0.5 to 1m euro	Inferred from above

	Value / Quantity	*Source / Comments*
Running cost per BI at NUTS 3 level	2*C*N/3, where N is the number of NUTS 3 units concerned	Belgium NSO, extrapolation at EU level (1)
Number of NUTS 3 units concerned in the listed member states	252	Eurostat
Overall running costs for the EU	**100 to 200m euro**	OM, inferred from above

Legend:
A: assumption, OM: order of magnitude.
(1) The relation between NUTS 0 costs and NUTS 3 costs depends on the statistical environment of each NSO. For instance, the business inquiry by the UK NSO does not sample based on the NUTS. The extrapolation is therefore fragile.

Table 53: Database improvement cost estimation - Geographical breakdown, focus on coastal tourism

The resulting order of magnitude in the Table 2 is substantially higher (by a factor of 10) than for NUTS 0 data as estimated in Table 1.

However, the quantitative assumptions presented in this section are very fragile. They indicate, none the less, that it would be possible to infer reasonable estimates of the costs at stake in the improvement of the MP Database, if based on more accurate information provided by NSOs.

5.1.1.2 Qualitative Complements

Some essential qualitative indications can also be drawn from NSOs comments.

- NSOs' statistical environment is integrated, and their databases used for different purposes. Datasets often result from the combination of different sources; assigning a cost to the combination of several multipurpose components is largely theoretical.

- Each NSO has its own specific statistical environment (the existence of specific multipurpose datasets, and of specific sampling and processing methods) which offers different possibilities, e.g. in terms of the acquisition of NUTS 3 data. Any kind of improvement of the MP Database would thus involve a specific additional work for the NSO, so that improvement costs would critically depend on this specific statistical environment.
- Improving the database through additional business inquiries would create an additional cost burden for respondents: the "political" cost of improving the database in this way would be high. Some NSOs have a specific budget to cover respondents' cost burden. Though this element of cost has not been assessed in detail by the project team, it would be a critical component of the overall improvement cost.
- Some NSOs preferred option 1 to option 2: as questionnaires have to be limited in length, adding more questions to any of them systematically means removing some other question, at the cost of interrupting or disrupting certain time series and damaging their relevance. Changing questions cannot then be done without preliminary evaluation of its cost in terms of statistics sustainability. This is why NSOs may hold it for preferable to have a new business inquiry rather than to extend the questionnaire of a given inquiry.

5.1.2 Regulatory Aspects of the Improvement of the MP Database

Several NSOs expressed reluctance to undertake business surveys outside a regulatory framework: non mandatory inquiries have a low response rates, which creates data quality and historical reliability problems, and consequently increases investment costs. This would be a strong incentive to discuss amending the current regulation with NSOs.

From a regulatory standpoint, the improvement of the MP Database could be amenable to provisions similar to those defined for the different "modules" in Regulation 295/2008, for specific areas. A "maritime module" would be framed by its scope (NACE coverage), include the list of NACE codes concerned and the list of key variables to be reported at different NUTS levels. The specificity of the

maritime module would reside in a combination of elements from several other modules (industry, trade, construction, etc.).

At this stage, it is useless to go further in detail in this area of discussion. However, the gaps and the lack of consistency in data collection cost information as reported by NSOs strongly suggests the need for regulating a reporting procedure in this matter at EU level.

5.2 Additional Relevant Indicators

As required by the TS, this section details two additional categories of indicators to complement the IMP database. The first category is related to Sustainable Development; the second one consists in developing a Maritime Basin Approach.

5.2.1 Sustainable Development Indicators

Objective

Sustainable Development (SD), as the hardcore of the Gothenburg strategy, is not a side aspect of the IMP. It is one of its essential objectives, appearing in many of its headings: spatial planning, climate change effects, shipping pollution[112]. Chapters 4 to 7 show that the IMP database, as it stands, remains of limited help to document the sustainable development of EU maritime affairs, despite the importance of the topic for the IMP. It was then necessary to look into documentation and sources and to select valuable SD indicators that can be incorporated in an additional dimension of the database

Content

Two sources have been used to select a group of SD indicators:

- the Deduce project[113] whose main objective was to propose a list of SD indicators for coastal zones;
- the EEA European Environment Agency, which has developed a core set of environment topics / indicators, not necessarily specific to coastal areas, but which can be of interest to the IMP database.

The present selection of SD indicators was motivated by four types of concern:

- To avoid redundancies with the information that geospatial tools can bring[114], the latter and the IMP database having to complement each other; several of Deduce and EEA topics / indicators – not selected below – overlap information usually provided by geospatial tools;
- To select workable and practicable indicators, most of which having to be updated on a periodical basis;
- To select indicators of general interest for the EU, i.e. related to activities and topics which concern most of the EU maritime regions.
- SD has a strong link with environment, but employment and working conditions are just as important in terms of sustainable development from a social point of view.

The table below has been therefore sourced from Deduce and EEA. If necessary, information sourced from Deduce has been simplified.

Indicators	***Measurements*** [(1)]	***Source***	***Data Sources***
Pressure for road	Average number of vehicles per day on	Deduce	National Transport

[112] EC (2007a), passim.

[113] DEDUCE (Développement durable des côtes européennes): Interreg IIIC South project, involving nine partners, and co-ordinated by the Department of Environment and Housing of Catalonya. http://www.deduce.eu/index.html The starting point of DEDUCE is the set of 27 indicators and 45 measurements for sustainaible development in coastal zones.

[114] See section 6.4: Geospatial tools.

Indicators	*Measurements* [1]	*Source*	*Data Sources*
travel near the coast	major roads per MR [2], per country, per year		authorities
Pressure for coastal and marine leisure	Number of berths and moorings and dry-stack storage capacity for boating per MR per year	Deduce	Regions, national Tourism authorities
Coastal zone protection	% of the protected coastal areas [3] per MR, as a proportion of the protected EU coastal area	Deduce	EEA, Natura 2000, nat Environment authorities
Patterns of coastal employment	Seasonality of employment, as a ratio of number of jobs / number of FTEs [4] per maritime sector.	Deduce	NSOs
Coastal tourism intensity	Annual number of overnight stays in tourist accommodations by residents and non-residents [5]	Deduce	Eurostat, local authorities
Tourism intensity vs. demography	Annual ratio of overnight stays to number of residents	Deduce	Eurostat, local authorities
Water consumption	Annual volume of water consumption and seasonality [6] per maritime region	Deduce	Water supply companies, local authorities
Quality of bathing water	Percentage of bathing waters compliant with the European Bathing Water Directive [7], per maritime region	Deduce	EEA, Health national authorities
Fish stock assessment	% of the number of over-fished stocks per fishing area [8]	Deduce	ICES
State of shellfish waters	% of shellfish waters compliant with quality standards [9]	EEA	EC, Health authorities
State of coastal waters	% of coastal waters compliant with concentration standards of polluting emissions [10]	EEA	EC, Health authorities

Table 54: List of potential indicators according Deduce and EEA

(1) Geographical units, when stated in the table, are indicative. Future harmonisation should encourage a high enough resolution level (subdivisions of NUTS 3 if possible). Indicators related to offshore and coastal seas require defining the parcel of sea related to the coastal region considered.
(2) MR "Maritime region" : NUTS 3 unit as selected on the basis of Eurostat definition (see Chapter 2).
(3) All protection status, but status to be listed, e.g. national park, regional park.
(4) For maritime sectors where both number of jobs and FTEs data are available.
(5) The extension of the indicator to non-market accommodation is necessary; it must be examined on the basis of available data per Member State.
(6) "Seasonality" as measured by the ratio: highest monthly consumption/lowest monthly consumption.
(7) Council Directive 76/160/EEC of 8 December 1975 concerning the quality of bathing water. Official Journal L 031, 05/02/1976 P. 0001 – 0007. Article 1 provides a definition of bathing waters.
(8) "Over-fished" commercial stocks as defined by ICES. Fishing areas as defined by ICES areas.
(9) Pursuant to Directives 79/923/EC of 30 Oct 1979, establishing a list of standards and parameters for water quality and shellfish waters, and 91/492/EC of 15 July 1991 laying down the health conditions for the production and trade of live bivalve molluscs. Percentages of monitored spots per Member State.
(10) Pursuant to Council Directive 91/676/EC of 12.12.91 on the protection of waters against pollution caused by nitrates from agricultural sources, and to Council Directive 2006/11/EC of 15.2.06 on pollution by dangerous substances into aquatic environment. Percentages of monitored spots per Member State.

Source: Deduce, Eurostat

Quality and Feasibility

In terms of relevance, the above set of indicators has been defined in relation to what is required from Member States through the existing EU regulation. However, the coverage and scope of this set of indicators is purposefully limited up to an acceptable list of SD indicators, which can be extended in the future.

The feasibility of developing the above set of indicators, as well as their quality (principally: accuracy, timeliness and periodicity), are determined by the quality of Member States' reporting to the EC, in compliance the existing regulation.

5.2.2 Maritime Basin Approach

Objective

Sea regions, or Maritime Basins, as considered in the Marine Strategy Framework Directive:

- Baltic Sea,
- Mediterranean Sea,
- Black Sea,
- North Sea,
- Atlantic Ocean.

They are critical zones for EU's economic growth in terms of traffic, demographic flows, passengers, freight and tourism flows, resource extraction and coastal industries. They interlink Member States' administrative regions through common trade interests, history, neighbourhood, and geographical features (e.g. Baltic regions and populations). The objective is to put together a set of indicators to describe the significance and trends of sea-regional economic growth.

The objective of the Maritime Basin approach is to appraise the wealth yielded by sets of activities related to these basins, with a benchmarking purpose. The way of proceeding is to gather existing indicators related to the Maritime Basins. Either these indicators are already included in the IMP database or they are readily available from Eurostat or Member States.

Content

a) Non-monetary indicators per Maritime Basin

Objective	*Indicator definition*	*Source*
Port traffic	Freight (tonnage) and passenger traffic (nb of passengers) by port by sea region. Subsets: sea-regional and external traffic	Eurostat
Tourism visits	Yearly beach visits + yearly cruise visitors	Local authorities
Tourism visits	Number of marinas, number of moored pleasure boats	Local authorities, regions
Aggregate extraction	Yearly volume of extracted aggregates	Aggregate extraction industry associations
Fishing	Yearly fishing tonnage	ICES
Fishing	Yearly fish landings	Agriculture and seafood ministries

Table 55: Non-monetary indicators per Maritime Basin

b) Monetary and social indicators per Maritime Basin

Objective	*Indicator definition*	*Source*
Tourism industry	Amount of visitors' expenditures	Visitor surveys
Production of coastal specific businesses	List of value added from the following sectors: fishing, aquaculture, shipbuilding, maritime works, offshore supply, seaports, tourism	IMP database
Direct employment in coastal specific businesses	List of number of jobs in the same sectors as above	IMP database

Table 56: Monetary and social indicators per Maritime Basin

Quality and Feasibility

The above list of indicators is limited. It could be extended in the future if needed, the objective remaining that the indicators should be readily available from standard sources. Their interest lies in the characterization and the possible benchmarking of the sea regions.

5.3 The Role of Geospatial Tools for the future IMP

The last task to be carried out in the project was to analyse the role of geospatial tools in integrating statistical, administrative and environmental data.

Geospatial tools are not a second range means to complement the IMP database; they are an essential extension of it at marine and local levels, for at least two connected reasons.

- They show that coastal zones are very diverse and complex to apprehend in their specificities, unless detailed spatial data are available. They also show that coastal units have local, physical, demographical and management specificities that have to be analysed on the basis of specific types of criteria which go beyond the administrative and statistical classifications used for the IMP database.
- Given the strengths and weaknesses of the IMP database, geospatial tools must be seen as essential components of an EU-wide information system to inform the IMP and regional maritime policies: firstly because the Inspire Directive will promote the interoperability of geospatial data; if this objective is fulfilled, the data will constitute a useful instrument for policy makers; secondly because it will be expensive to provide the IMP database with a local resolution (above NUTS 3), whereas regional authorities detain a range of operational geospatial data that meet many of EEA's and Deduce's requirements in terms of coastal environment.

The lesson to be drawn from the following sections is that geospatial tools, far from being technical instruments only, have a major policy dimension. If appropriately managed by regional authorities, they can constitute a relevant extension of the IMP database, provided effort is made in this direction.

The following sections provide: general remarks on geospatial data and the role of the Inspire Directive; detailed information on Germany; information on the South-East France region of Provence-Alpes-Côte d'Azur (PACA). The reason of this choice is that:

- North Germany is generally considered as an advanced stage of what can be done and pursued in terms of geospatial data on coastal areas.
- The PACA region has implemented an efficient geospatial data exchange system which also serves as an example of what can be done in many respects.

5.3.1 General Remarks on geospatial Data

There is an increasing interest in the European countries to build Geographic Information Systems (GIS) and to map different kinds of data in a suitable form in order to make certain data patterns visible, either on a regional level or on more global aggregated levels. However, shortcomings for a European harmonised approach are still lacking definitions and metadata. Several initiatives have been launched in the last years which for instance result in the European GISCO and ESPON projects. It seems that actually the European INSPIRE initiative, administered by the JRC (Joint Research Centre) is making the pace.

INSPIRE "Infrastructure for Spatial Information in Europe" has materialised in a Directive of the European Parliament and the Council[115], aiming to assist policy-making in relation to policies and activities that may have a direct or indirect impact on the environment. INSPIRE is based on the infrastructures for spatial information (SDI) that are created by the Member States and that are made compatible with common implementing rules, supplemented with measures at Community level. Before continuing explaining the context of INSPIRE (as taken to a large extent from official sources) the direct/indirect meaning for the marine world, it needs to be said that no examples could be found, where the defined geospatial data is connected to socio economic data for the time being. However, some data of economic relevance with respect to commercial usage of the continental shelf are available.

[115] See Chapter 1: "Maritime Policy context". INSPIRE Directive: 2007/2/EC of 14/03/2007, OJ L 108/1 of 25/04/2007.

Inspire will improve the accessibility and interoperability of spatial data by laying down general rules applying to data and services held by or on behalf of public authorities and by private operators who choose to make their data available through the INSPIRE infrastructure. Spatial data and services will be accompanied by "metadata" making it easier to search them and assess their quality and potential use. Detailed technical rules are under development for a wide range for spatial data themes in order to make it easier for different data sets to be combined. This involves standardisation of formats and nomenclatures so that the data sets can be combined seamlessly and without manual intervention, which greatly increases the range of uses that can be made of the data. Subject to certain exceptions, public authorities participating in the infrastructure will have to make their data publicly available and share it with other authorities.

The motivation for INSPIRE has been generated by the general situation on spatial information in Europe. This is one of fragmentation of datasets and sources, gaps in availability, lack of harmonisation between datasets at different geographical scales and duplication of information collection. These problems make it difficult to identify access and use data that is available. Fortunately, awareness is growing at national and at EU level about the need for quality geo-referenced information to support understanding of the complexity and interactions between human activities and environmental pressures and impacts The INSPIRE initiative is therefore timely and relevant but also a major challenge given the general situation outlined above and the many stakeholder interests to be addressed. INSPIRE intends to trigger the creation of a European spatial information infrastructure that delivers to the users integrated spatial information services. These services should allow the users to identify and access spatial or geographical information from a wide range of sources, from the local level to the global level, in an inter-operable way for a variety of uses. The target users of INSPIRE include policy-makers, planners and managers at European, national and local level and the citizens and their organisations. Possible services are the visualisation of information layers, overlay of information from different sources, spatial and temporal analysis, etc.

The information accessible on the INSPIRE website[116] has been provided by Spatial Data Interest Communities (SDICs) and Legally Mandated Organisation (LMOs). The following list gives an overview on organisations which likely are supporting maritime interests:

- Bundesamt für Seeschifffahrt und Hydrographie (BSH), Federal Maritime and Hydrographic Agency, Germany
- Bundesanstalt für Gewässerkunde, Germany
- Coastal & Marine Resources Centre, Ireland
- EurOcean, Portugal
- Marine Institute, Ireland
- Ministero dell'Ambiente e Tutela del Territorio e del Mare, Italy
- Ministry of Environment and Water, Hungary
- National Water Management Authority, Poland
- SHOM (Service Hydrographique et Océanographique de la Marine), France
- Swedish Maritime Administration, Sweden
- The National Board of Fisheries, Sweden
- United Kingdom Hydrographic Office, United Kingdom

Additionally, a number of projects are proposed and performed, which follow different geospatial interest. Two projects have been identified which likely follow maritime interest (especially the second one listed below.

[116] http://inspire.jrc.ec.europa.eu/ir/list_registered_lmos.cfm

- **The VORF Project** – Joining up land and marine data, United Kingdom Hydrographic Office
  Anyone accustomed to handling spatial data will be familiar with the problems of different coordinate systems and data. However, many users might be forgiven for regarding the problem – in the United Kingdom at least – as a "done deal". If a user is trying to integrate digital map data based on the National Grid with data sets acquired through GPS in WGS84, then most would be familiar with the software tools that the Ordnance Survey has introduced to make simple transformations between the different data. Until, that is, we leave the land and look to the sea.

- **Common Data Index (CDI)** - Metadata Format and full description XML schema, Sea-Search: pan-European network for oceanographic and marine data and information management (www.sea-search.net)
  The Common Data Index (CDI) is a new development, initiated by Sea-Search partners. It must enable users to get highly detailed insight in the availability and geographical spreading of marine data across the different Sea-Search partners and possibly beyond. It must cover all types of marine environmental datasets. The CDI thus provides an index (metadatabase) to individual datasets, held at partner databases. For comparison: the present European Directory of Marine Environmental Datasets (EDMED) gives an overview of datasets at a high metalevel. Each EDMED dataset can contain a broad set of individual measurement data. The CDI gives individual references to these individual measurement data, giving more detailed insight in available datasets and paving the way to direct online data access or direct online requests for data access. The CDI principle is that each participating data centre produces at regular intervals up-to-date CDI metarecords, giving an index overview of the content and coverage of its databases. These partner contributions are centrally collated in a central Sea-Search CDI metadatabase, which is equipped with a CDI user interface to serve users. For purposes of standardization and international exchange it was decided to adopt the ISO19115 metadata standard and to prepare the CDI metadata as a dedicated subset of this standard to make it ISO compliant. Therefore the CDI metadata format has been translated into a CDI XML format, because this supports the interoperability with other systems and networks. The ISO19115 schema provides the basis and is used as reference model. This document first gives a logical description of the CDI format. This is followed by a description of the CDI XML format, which is ISO 19115 compliant. This includes all XML tags, syntax and semantics, to be used for preparing CDI XML records. In the description of the schema references are included to chapter 3, which gives extra details and guidance for specific parts of the CDI XML format, and how to fill these. Chapter 4 gives an explanation how to apply the CDI documentation to generate CDI XML files by data holding centres, that want to join the CDI scheme. It also describes a Java Tool software that has been developed in the Sea-Search framework and is available to CDI partners free of charge to support manual and automatic generation of CDI XML files from partners' databases. Chapter 5 describes the planned communication between CDI partners and central CDI manager for transferring CDI updates and controlling a consistent operation. In the documentation references are made to controlled lists of codes or libraries that are used for standardised filling of a number of CDI fields. Annex 1 gives an overview of these libraries, which are managed and online available. Annex 2 refers to the XML ISO19115 schema, which is to be used for validating (parsing) generated CDI XML files. The actual schema is not included, but again available online. Annex 3 describes an example of a CDI XML file, which is also online available. Annex 4 describes the functionality of the CDI User Interface for querying and browsing the CDI metadatabase. Management and maintenance of the various CDI components is a joint effort by a number of Sea-Search partners and components might be posted on different web servers of partners. But for convenience of CDI partners and data holding centres, interested in becoming a CDI partner, all references and links to all relevant documentation, libraries and software tools can be found online from the webpage: http://www.sea-search.net/cdi_documentationement

For the representation of the results INSPIRE maintains a so called Geoportal. To view spatial data, the INSPIRE Geoportal provides a simple map client facility. The map client provides a number of functionalities to add spatial data provided by distributed map servers (currently OGC Web Map Services (WMS)) and visualize this data on the map canvas of the client.

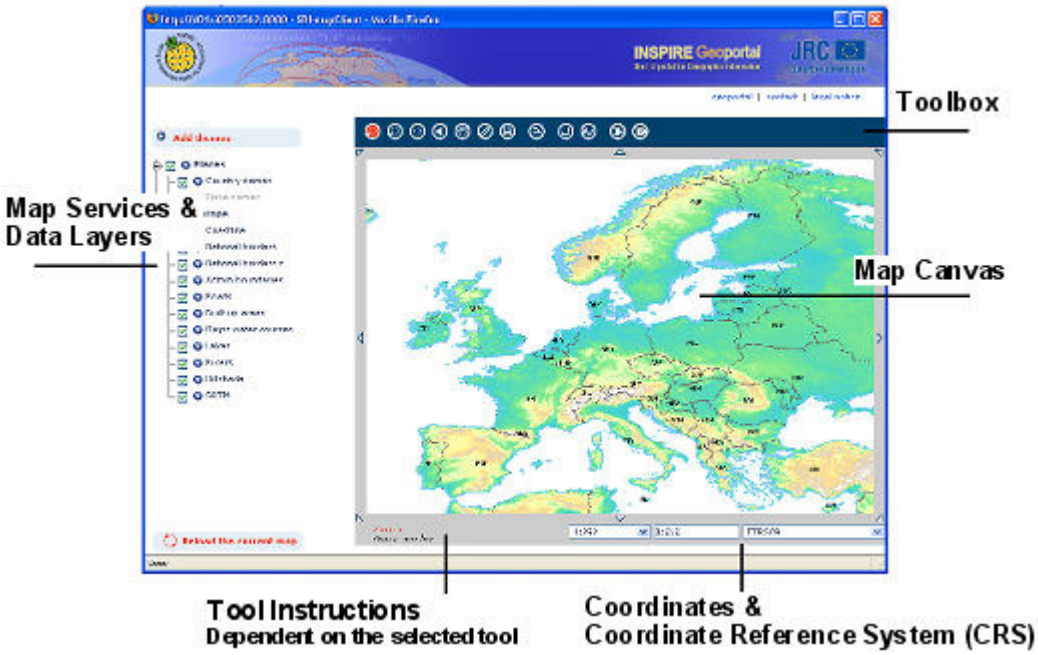


Figure 33: INSPIRE Geoportal

INSPIRE is following a long term schedule for adoption by the Member States and Implementation. The provisions of the Directive shall be brought into force at Member State Level in the mid of 2009. For the implementation it is the intention to establish and run a geo-portal at Community level at the end of 2010 and the full operational system by 2019. If suitable the approach should be verified also for the use of mapping of maritime socio-economic data.

5.3.2 National Example for Marine Application: Germany

As an example for the instantiation of the system, respectively for a Member State contribution with a maritime focus, we introduce the German approach as applied by the BSH, the German Hydrographic Institute. BSH is actually developing a central geodata infrastructure (GDI-BSH), which will be used in the future to offer all basic and expert data of BSH in conformity with public conventions. With GDI-BSH, which will be realised in steps until mid 2009, BSH makes an initial contribution to the German national geodata basis (NGDB) and with that a contribution to the federal geodata infrastructure[117]. Through this link all data as provided by GDI-BSH will also be available to INSPIRE "Infrastructure for Spatial Information in Europe".

A shown on the map below, maritime data is provided by GDI-BSH today, which is accessible through a link to an interactive map[118].

[117] http://geoportal.bkg.bund.de/DE/Home/homepage__node.html
[118] http://gdi.bsh.de/arcexplorer/arcexplorer.jsp?origid=&isDefault=true

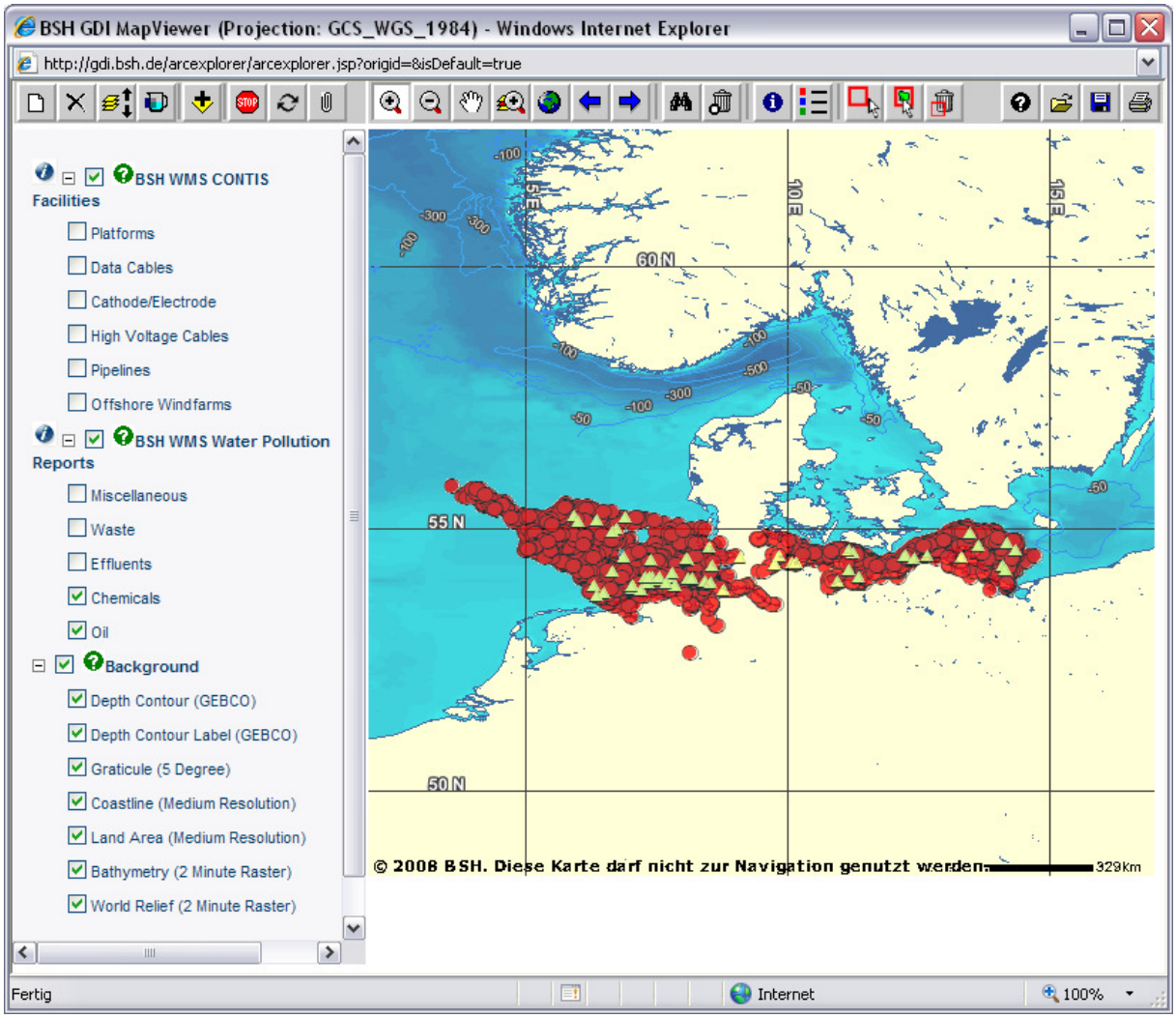
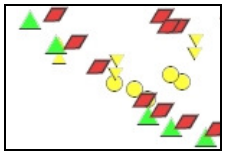


Figure 34: BSH GDI Map Viewer - Screen example

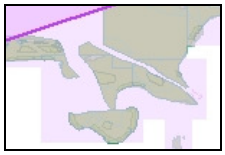
The system, for the time being, is offering the following information:

The Nautical-hydrographic Information System (Nauthis) is a database and information system which integrates without redundance all nautical hydrographic data which are collected by BSH from different sources. NAUTHIS is an important tool for the production of printed sea charts, electronic sea charts as used in ECDIS (Electronic Chart Display and Information System), for charts used by recreational boating and nautical almanacs.

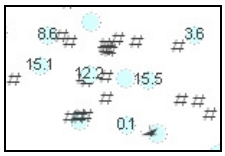
:Nauthis-Skin of the Earth (Display of Water and Land Areals)



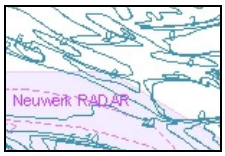
Nauthis-Navigational Aids (Display of fixed and floating sea marks



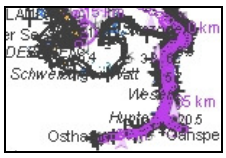
Nauthis-Seawards Limits (Display of sea frontiers)



Nauthis-Rocks Wrecks Obstructions (Display of Rocks and Wrecks)



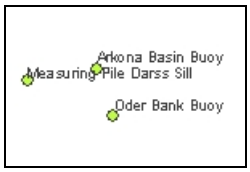
Nauthis-Hydrographie (Display of Data for the usage for navigation and of the natural environments)



Nauthis-Topographie (Display of sea based topography)

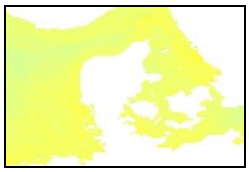
Pollution of the Sea (GVU)

Display of Data and position of discovered pollutions of the sea in the German exclusive economic zone. The data is used for persecution of infringements of IMO MARPOL 1973/78 and other legislation.



Marine Environmental Monitoring Network (MARNET)

MARNET is displaying environmentally relevant data, which are automatically gathered on the German continental shelf of the North Sea and the Baltic Sea. This includes for example water temperature, salt content, currents, air temperature, air pressure, humidity, wind speed and direction.



Sea Surface Temperature

Display of sea surface temperatures and ice coverage through real time reception and immediate processing of satellite data (US weather satellites NOAA series).

For marine economic evaluations the Continental Shelf Information System (CONTIS) is of higher importance. CONTIS is a novel ocean data base developed by the BSH which shows at a glance the wide range of present and future uses of the marine environment. The CONTIS geodata, e.g. on shipping, exploitation of resources, planned offshore wind farms or environmentally sensitive areas, are available as digital maps providing concentrated information. The system visualizes, inter alia, the areal extent of individual uses and interfaces with other users as well as sea areas which are still free

of any uses. CONTIS thus is an optimal tool allowing early identification of possible conflicts of interest among different uses. The Continental Shelf Information System CONTIS focuses on the German continental shelf and Exclusive Economic Zone in the North Sea and the Baltic Sea.

The following maps show results, which can also be generated by the GDI-BSH system:

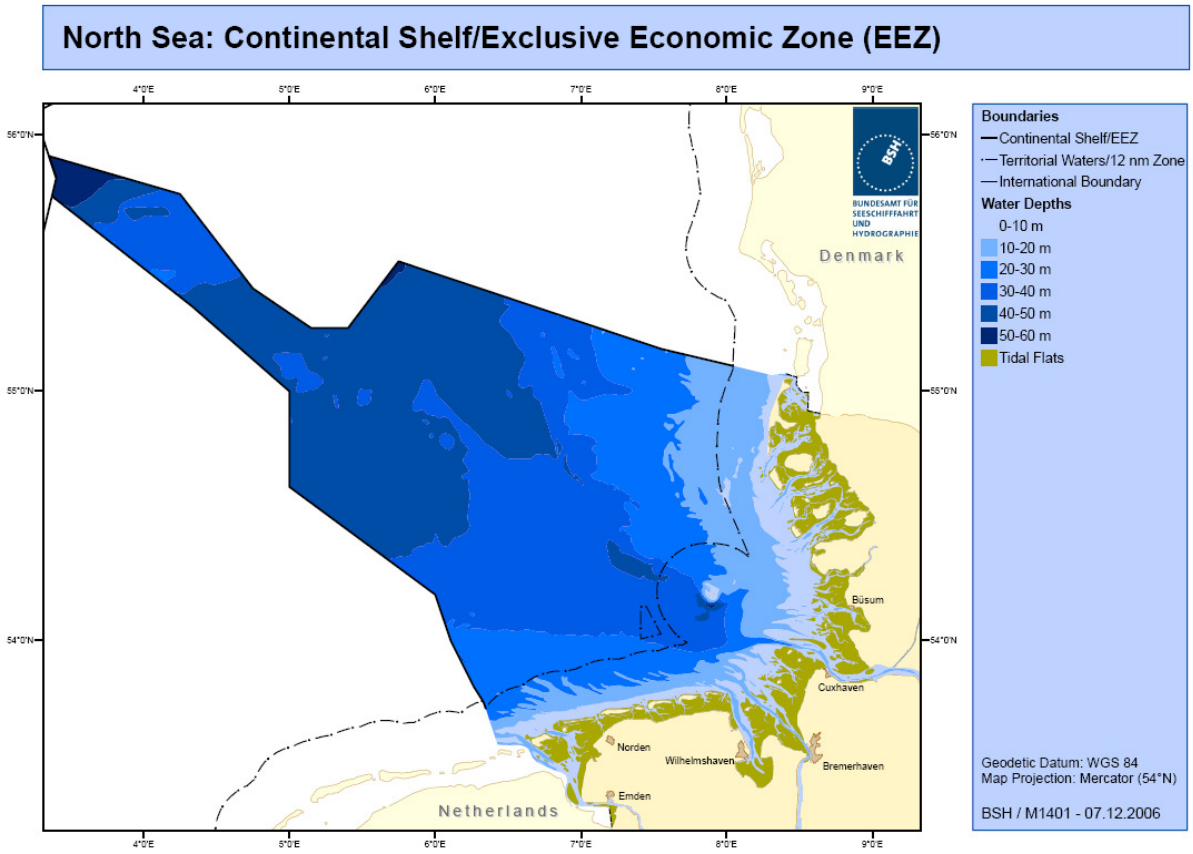


Figure 35: GDI – BSH: EEZ Germany

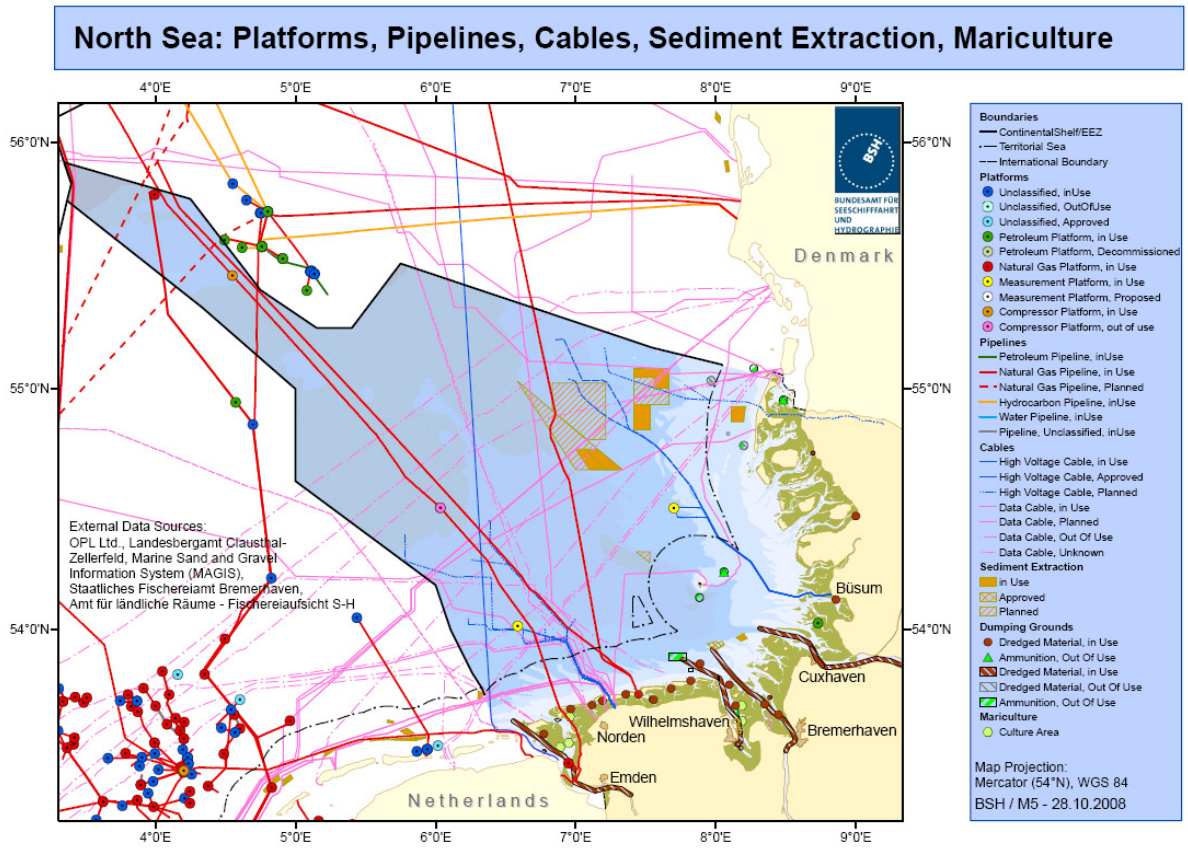


Figure 36: Pipelines, Cables, Extraction, Dumping North Sea / Baltic Sea

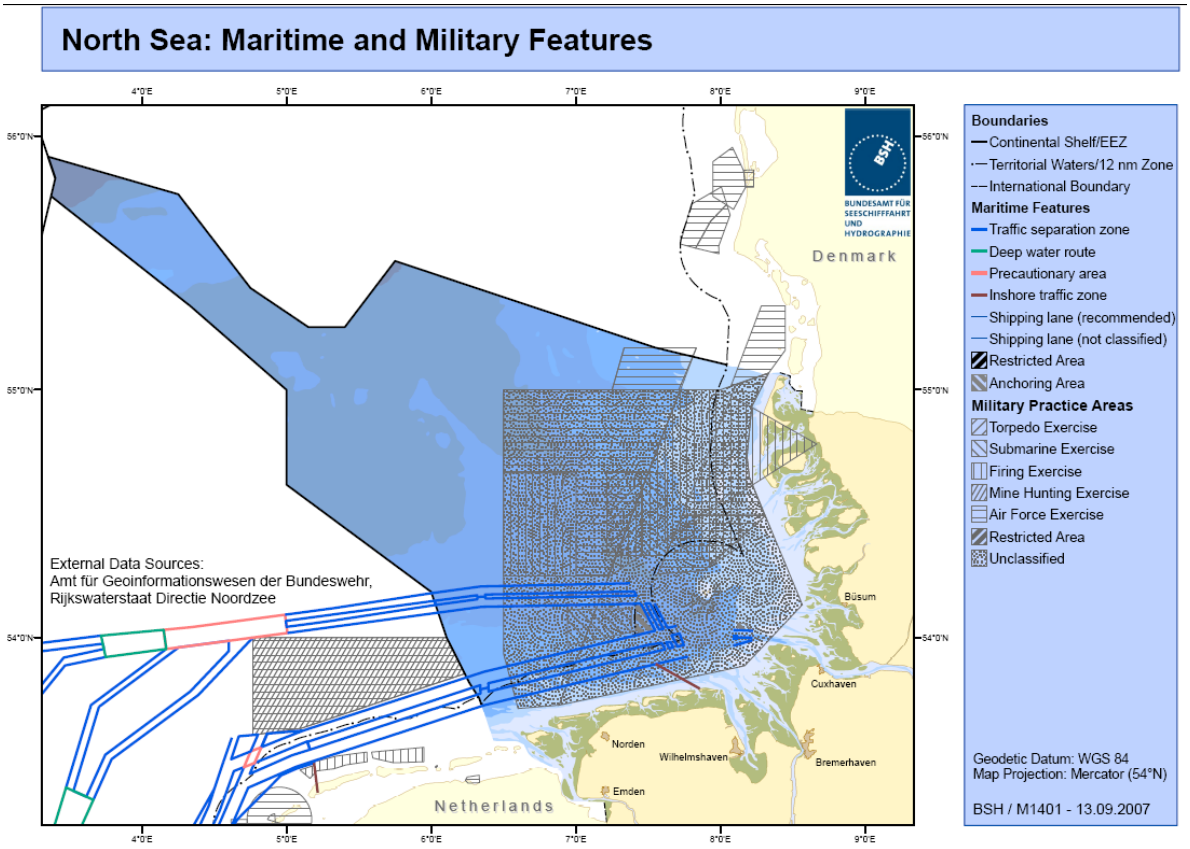


Figure 37: Maritime Features and Defense North Sea / Baltic Sea

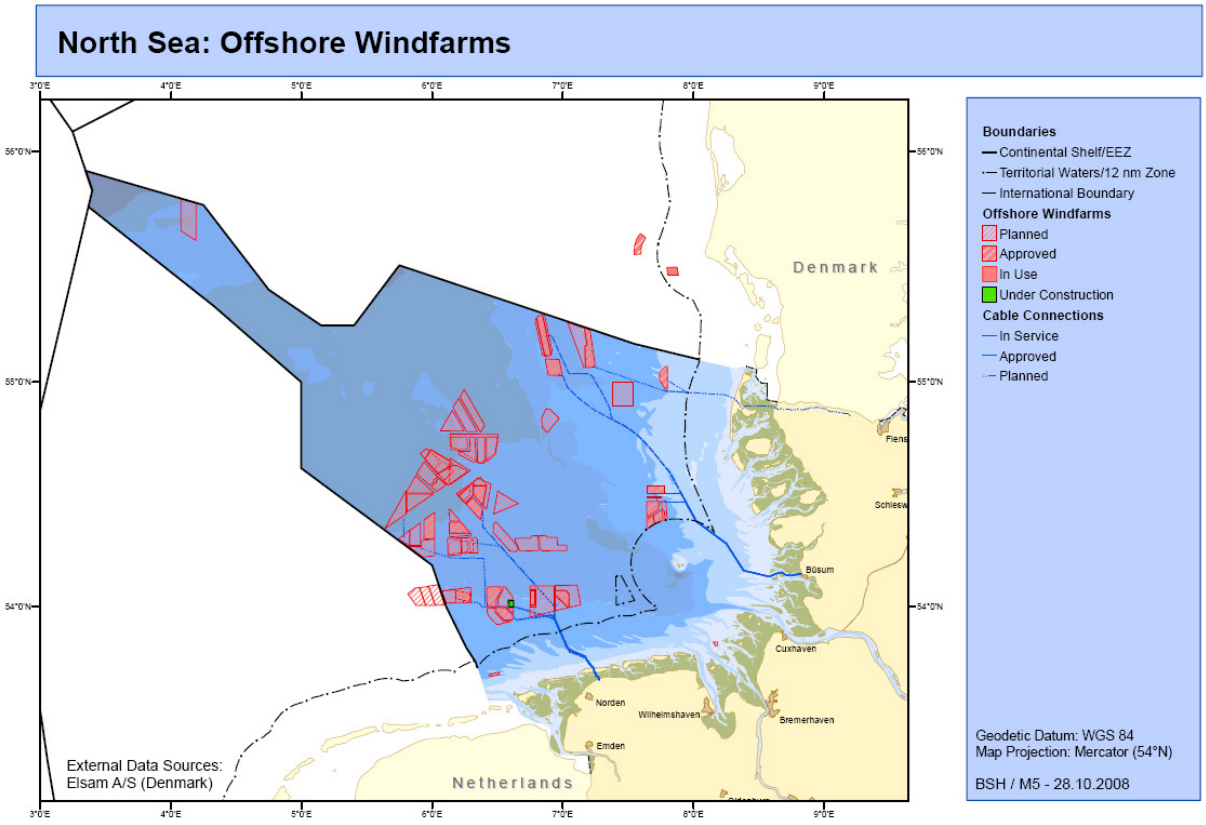


Figure 38: Offshore Wind Farms (Pilot Phases) North Sea / Baltic Sea

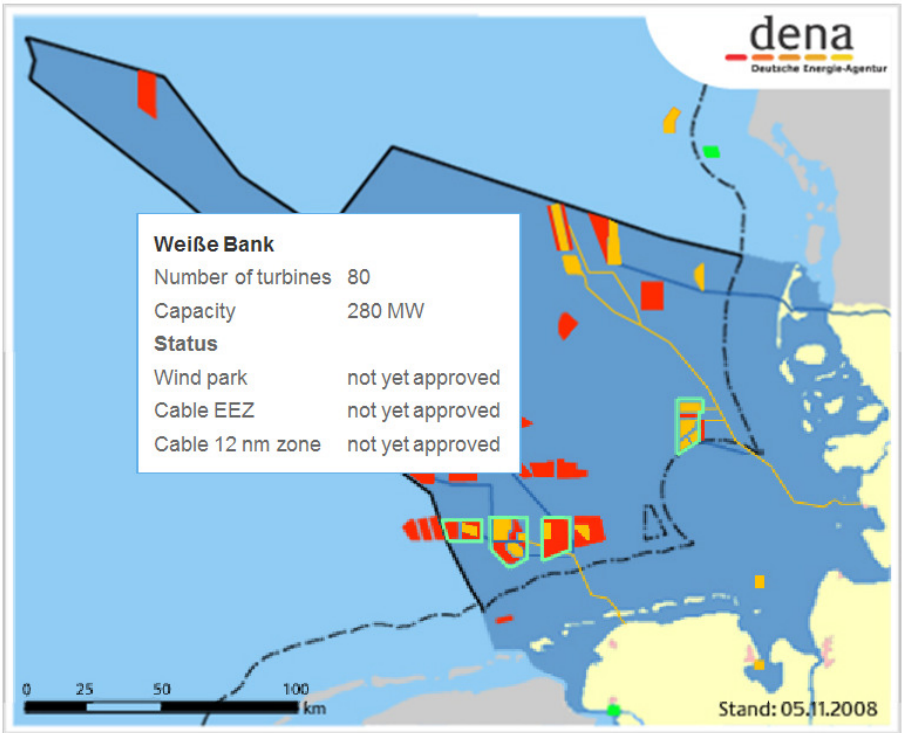


Figure 39: Additional Interactive Map DENA (Deutsche Energie-Agentur) including additional information on field features.

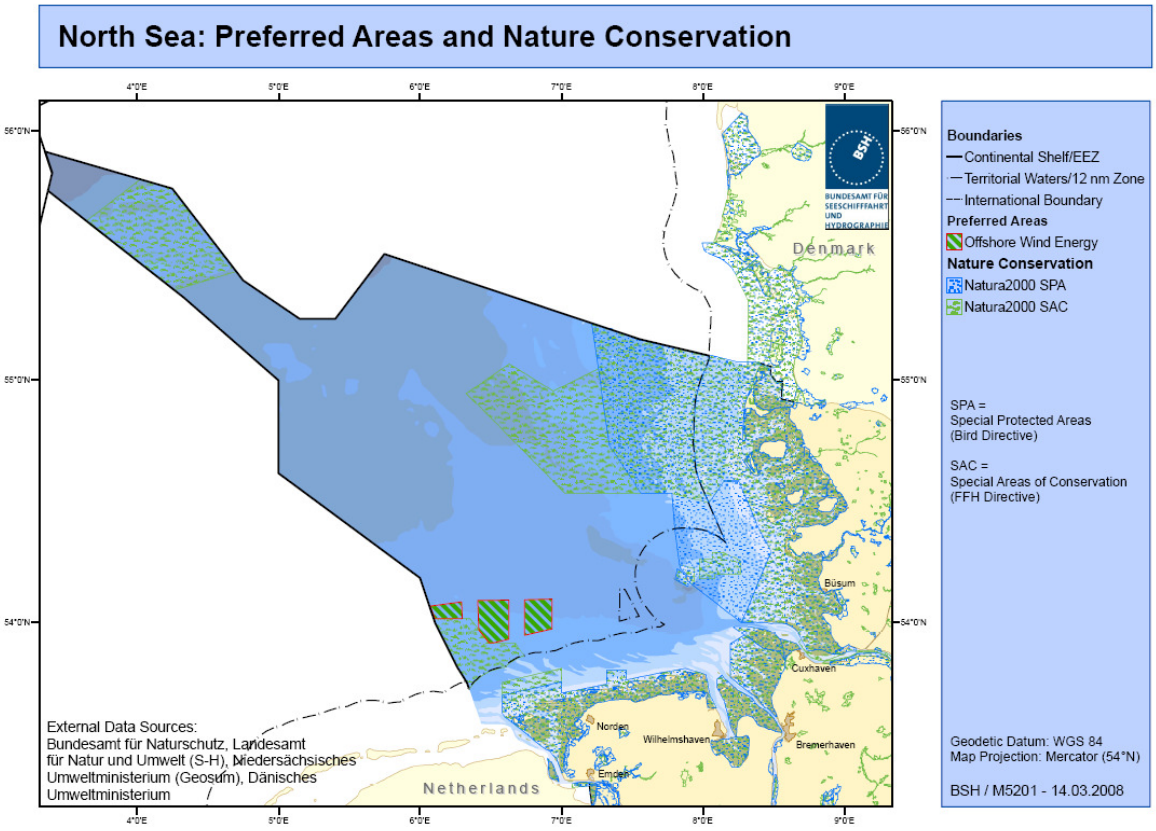


Figure 40: Suitable Areas and Nature Conservation North Sea / Baltic Sea

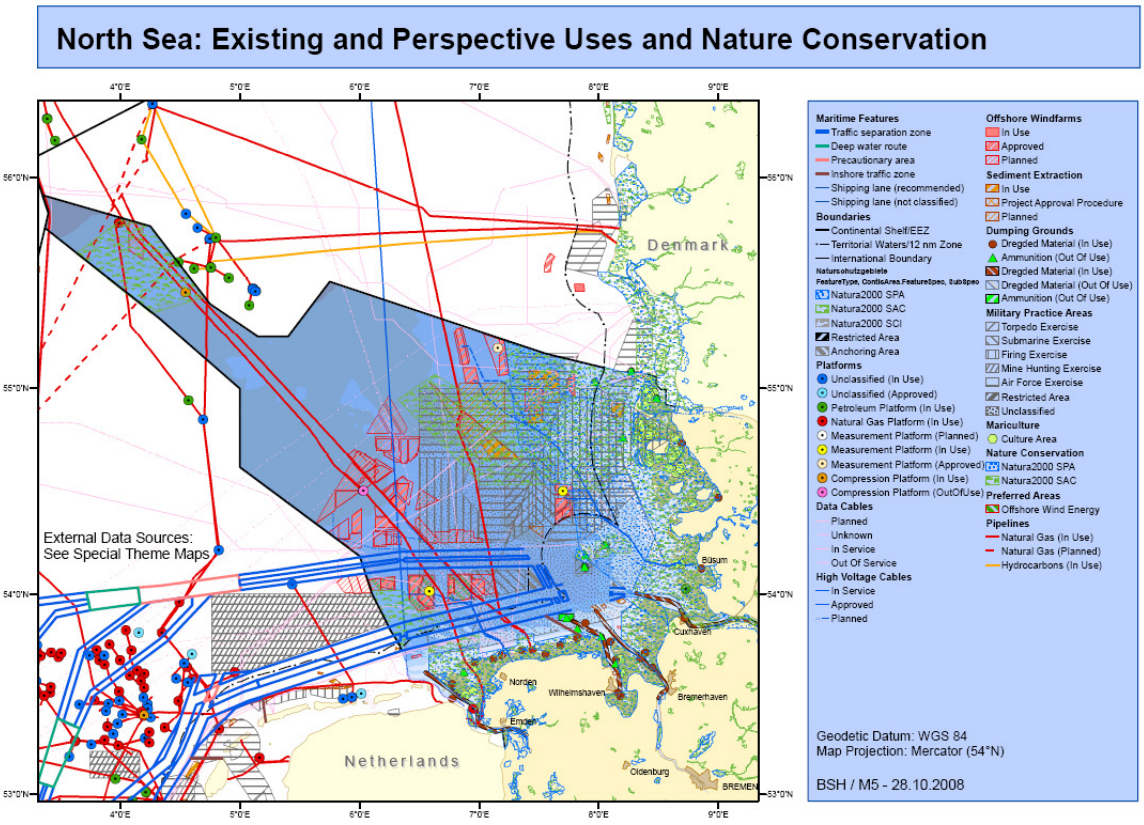


Figure 41: Complete Uses and Nature Conservation North Sea / Baltic Sea

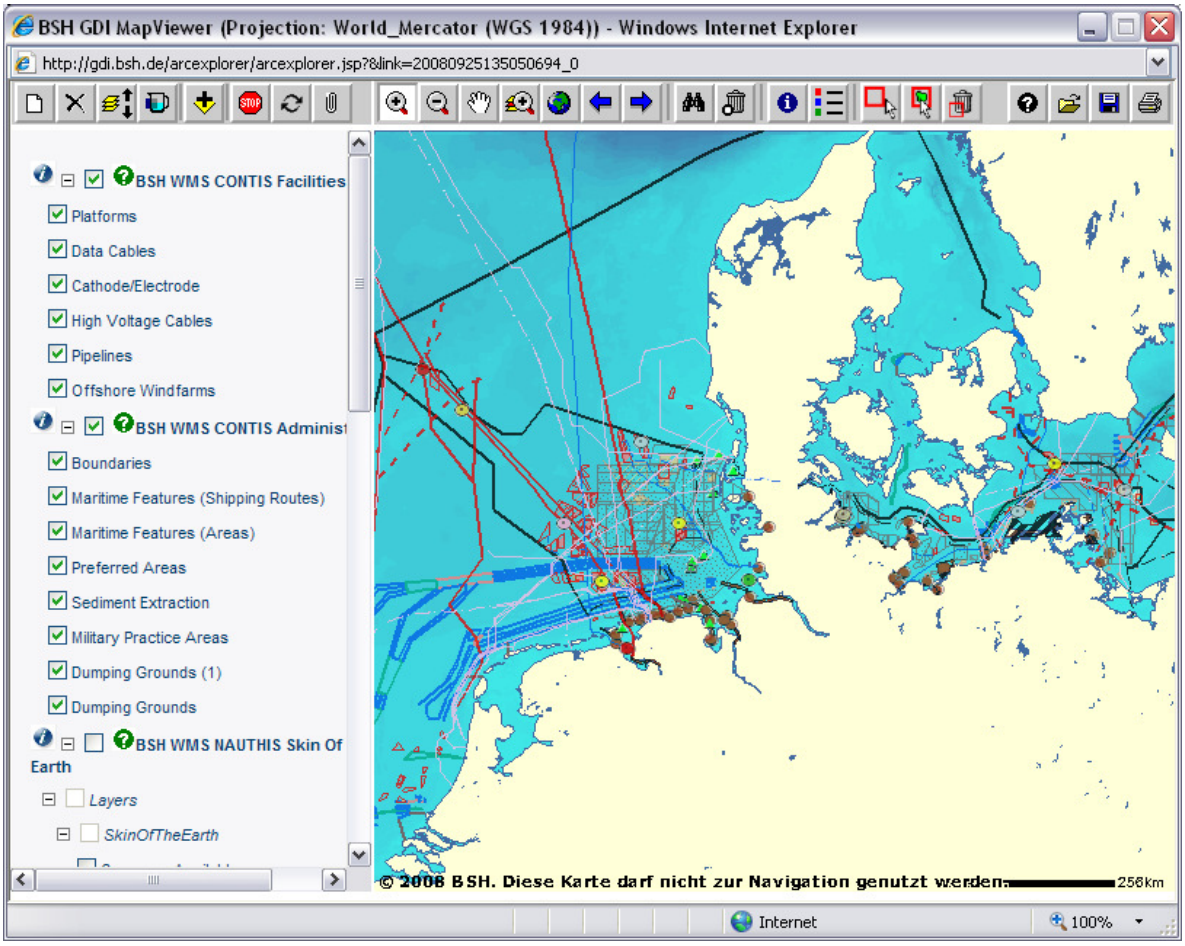


Figure 42: BSH GDI Example

In addition BSH is offering other geo-spatial services which are based for example on MUDAB Database (Sea-Environmental-Data) and which is accessible through the following 1' by 1' raster for the North Sea and Baltic Sea.

Deutsches Ozeanographisches Datenzentrum

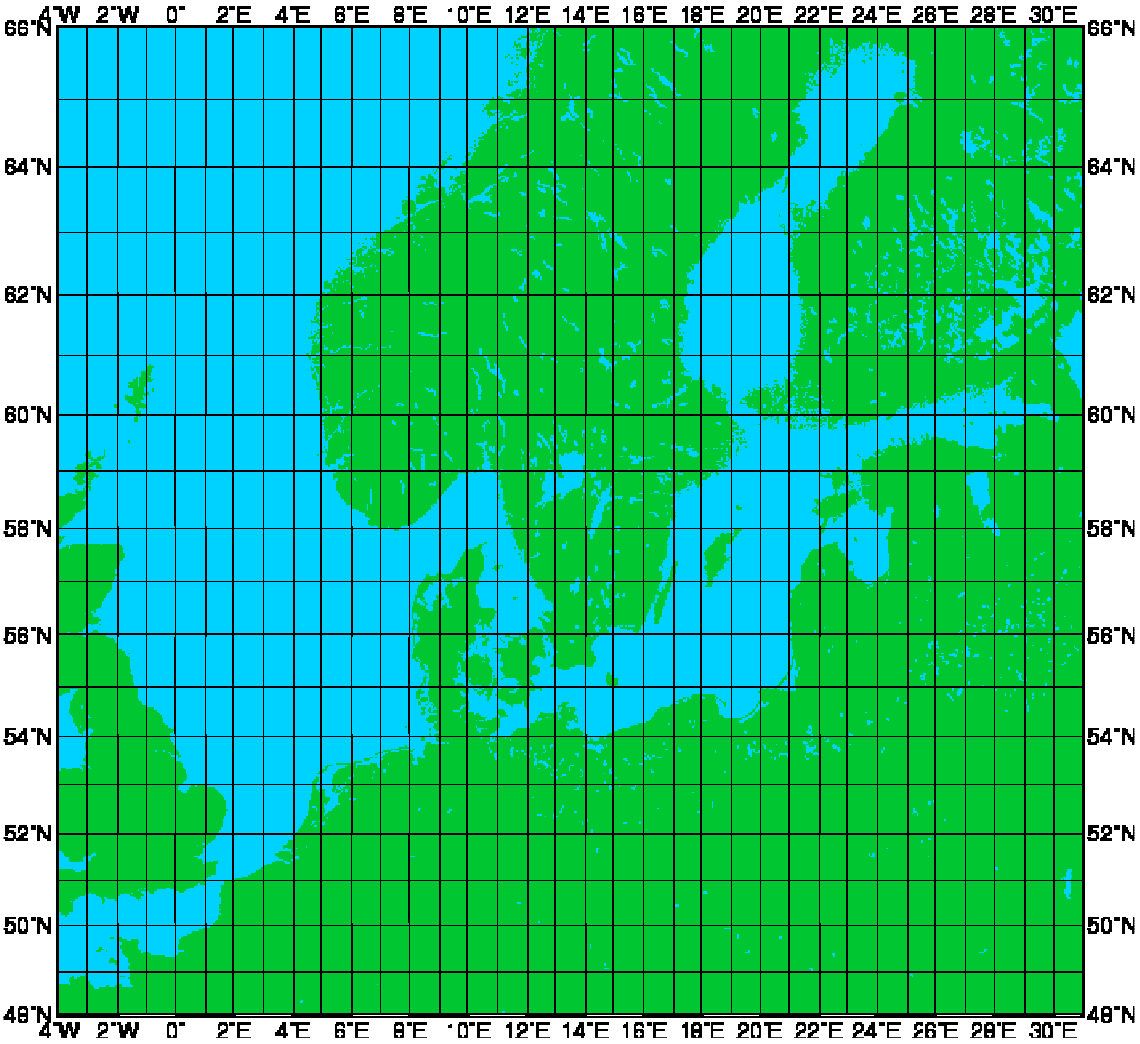
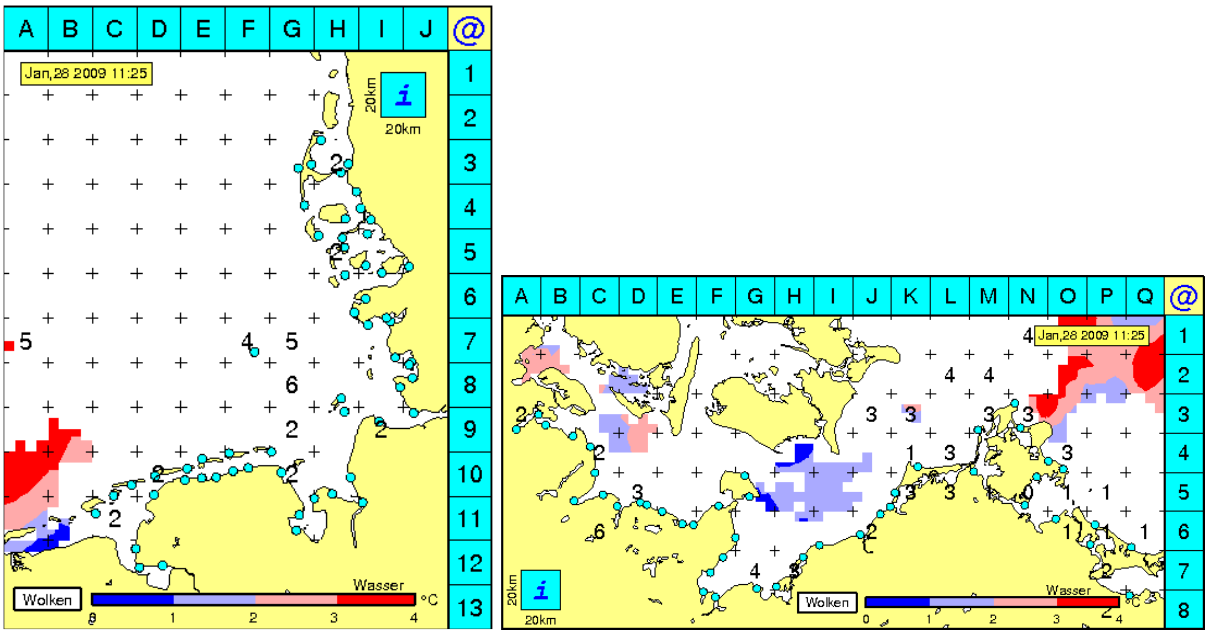


Figure 43: MUDAB Database (Sea-Environmental-Data) North Sea and Baltic Sea in 1' by 1' raster

http://www.bsh.de/de/Meeresdaten/Beobachtungen/DOD-Datenzentrum/Inventuren/1838.jsp

Another popular example gives information on Water and Air Temperatures, Water Levels, Wind and Waves, Sun and Moon Rise and Set and Moon phases for the Beaches of the North Sea and the Western Baltic.

(http://www.bsh.de/aktdat/bm/Baden&Meer.htm).



Warnemünde

BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE

water level prediction, water level, water temperature, wind, waves, air temperatur, sunrise, sunset, moonrise, moonset , moon phases, full moon, new moon

Water Level

Observed	Forecast	
Value	08.12. 9 a.m. - 6 p.m.	08.12. 6 p.m. - 09.12. 9 a.m.
3 cm	-5 to 25 cm	15 to -15 cm

Deviations from mean water level

	Observed value	Forecast for today Monday, 08.12.				Forecast for tomorrow			
		01 a.m.	07 a.m.	01 p.m.	07 p.m.	01 a.m.	07 a.m.	01 p.m.	07 p.m.
Water temperature °C	5.9				5	5	5	5	5
Wind									
from direction	SW				SW	SW	SW	WSW	
Speed Bft.	4				5-6	5-6	4-5	3-4	
Waves									
from direction	WNW								
height m	0.4								
Air temperature °C	5.1								
Sun		Rise 08:18a.m.		Set 03:49p.m.		Rise 08:20a.m.		Set 03:49p.m.	
Moon		Set 02:34a.m.		Rise 00:57p.m.		Set 04:02a.m.		Rise 01:13p.m.	

Fr 12.12. 05:36 p.m. Fr 19.12. 11:28 a.m. Sa 27.12. 01:21 p.m. So 04.01. 00:55 p.m.

Figure 44: Water and Air Temperatures, Water Levels, Wind and Waves, Sun and Moon Rise and Set and Moon phases for the Beaches of the North Sea and the Western Baltic.

5.3.3 Data Exchange System and Regional Maritime Policy in the PACA Region

5.3.3.1 The Portal

The PACA Provence-Alpes-Côte d'Azur Region is a coastal (NUTS2) region on the Mediterranean. The Region authority has established the "Regional Centre for Geographic Information" – CRIGE-PACA – which is developing a portal for geospatial information. The project is co-funded by PACA Region and the State. The portal became operational in 2003.

This portal is briefly described in this sub-section as a example of practice to be possibly extended. Such extension was recommended in a report on the situation of the collection and management of geospatial data for coastal zones in France, commissioned by the French "national authority for land management"[119]. The objective of the portal is:

- to make geospatial data available to public services of local authorities,
- to develop an online service for local mapping,
- to provide an information exchange service to local authorities.

The working of the portal is based on the following approach:

- The development of geospatial tools at local level, in the PACA region, is left to subsidiarity (the NUTS 3 subdivisions of the Region and various administrative services have their own geospatial tools), but there is a need for co-ordinating local initiatives through benchmarking as permitted by information exchange.
- As a sharing of data decreases acquisition costs. This was an important incentive for the establishment of the CRIGE.
- The portal is to give access to the geospatial mapping of the Region, including local mapping and sources from major geospatial providers such as Corine Land Cover.
- A range of maps result from compliance with national regulation, e.g. regulation of the mapping of flood risk zones.
- The portal is to apply metadata rules as provided in the INSPIRE Directive.

The products supplied by the portal, with regard to coastal zones, include:

- The natural characteristics of the coast and hinterland (e.g. mapping of river basins, of marine flora, etc.);
- The mapping of land use near the coast and offshore based on data, inter alia data possibly not included in Corine Land Cover; e.g. farming zones, fishing zones, pleasure boat mooring zones, marinas; location of public establishments – e.g. education – related to Maritime Affairs and services;
- The zoning of natural damages: e.g. floods, seismic zones, forest fires in coastal zones, coastal erosion, sea level rise;
- The zoning of human-made risks, e.g. Seveso sites, dam disruptions; and of coastal (and non-coastal) sites exposed to pollution risks, e.g. nitrates from agriculture, oil spills in coastal waters;
- The mapping of zones subject to specific regulations and treatment: e.g. protected zones such as Natura 2000 sites and natural parks, ports and coastal zones subject to management schemes, to the Seveso Directive[120], sewage water treatment, marine protected areas.

[119] Bersani (Oct 2006).

[120] Council Directive 2003/105/EC of the EP and the Council of 16 Dec 2003 on the control of major-accident hazards involving dangerous substances, OJ L 345, 31.12.2003, p. 97 (amending Council Directive 96/82/EC of 9 Dec 1996).

As permitted by inter-operability, it is possible to cross maps of land use with maps of natural features of given zones or maps of zones subject to certain regulations, whatever the origins of the maps, so as to better analyse the legal and environmental conditions of these coastal uses.

Another important value added of map crossing is to combine the observation of the sea part and the inland side of coastal zones: the use and management of the inland side determine the conditions of access to any part of the shoreline, which may be critical for protection in cases of damage, e.g. from water pollution.

The specificity of the CRIGE initiative resides in the use of the geospatial data rather than in the very nature of these data. The harmonization and exchange of information in line with the EU orientations is the key objective.

5.3.3.2 Future development and cross-boarder harmonisation

In the short term, the IT characteristics of the site are to be revised; this revision will be an opportunity to make the catalogue more in line with INSPIRE standards.

In the mid-term, harmonization with neighbour regional geospatial systems is to be reinforced. The PACA Region and certain Italian regions (Liguria, Tuscany) share some natural characteristics, the latter having an advanced use of geospatial tools. The objective to reinforce harmonization between these regions is considered critical by the PACA regional authority, especially for an extended assessment of the environmental impacts of coastal uses and pollution risks.

5.3.3.3 Need for guidelines

If the INSPIRE Directive sets rules for the design of the metadata, certain regional authorities would need guidelines from the EC as to how European regions should secure inter-operability at EU scale with the aim of coastal geospatial data exchange. Guidelines would mainly concern organization rules (e.g. concerning data exchange) rather than technical methods.

5.3.3.4 Need for subsidiarity

NUTS 2 regions seem to be both sufficiently large to propose a co-ordination of local initiatives, and of sufficiently limited size to observe and analyse local issues related to coastal zone uses and management. They seem to have the relevant size and to be able to gather sufficient skills for the analysis of data at a higher resolution level than NUTS 2.

In this respect, NUTS 2 regions can bring essential complements to the initiatives taken at EU level in terms of data collection.

It is therefore suggested that, in terms of data related to the use of coastal zones at local (LAU) level, much can be left to subsidiarity, provided that co-ordination guidelines are provided by the EC to co-operating regions.

The charts below show examples of mapping based on geospatial data in the PACA Region.

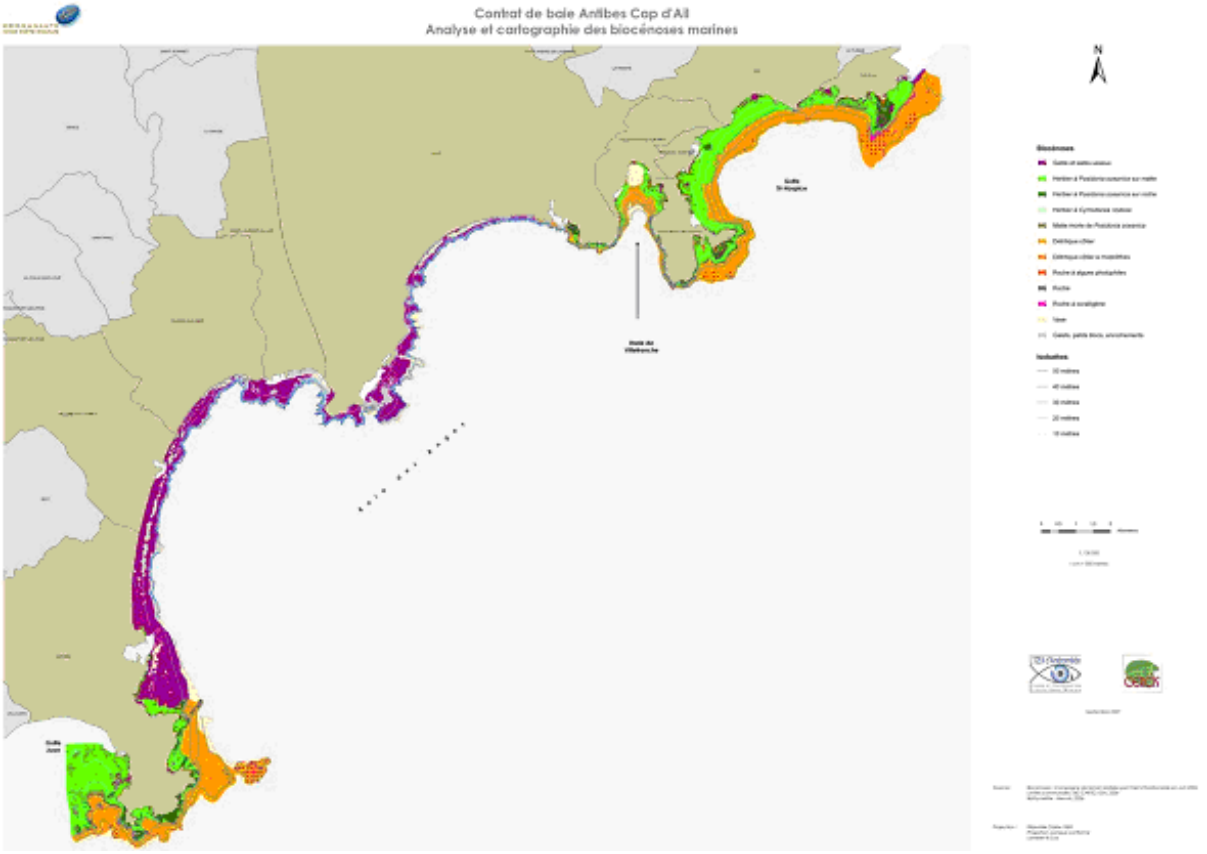


Figure 45: Location of biocenosis in the bay of Antibes and on the coast of cape of Ail, Mediterranean coast
Source: CRIGE-PACA

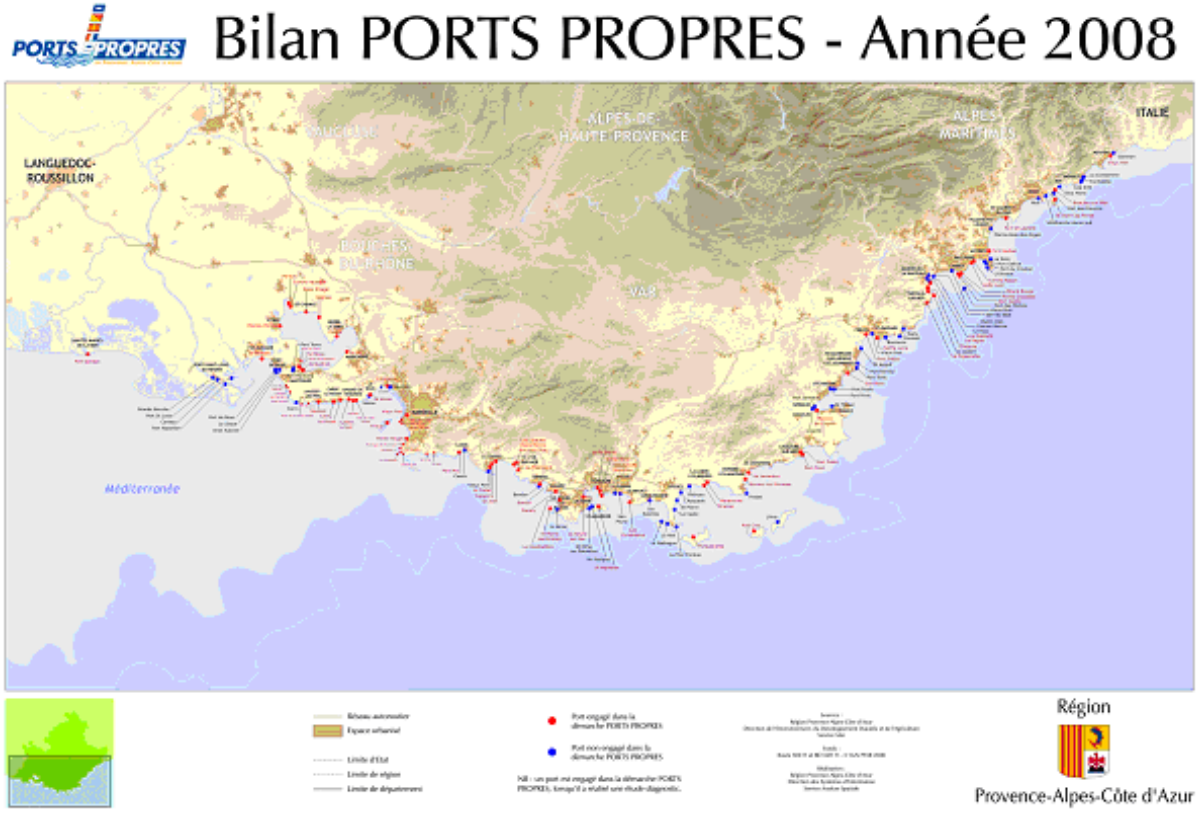


Figure 46: Map of PACA Region seaports having adopted a cleaning scheme
Source: CRIGE-PACA

6 General Evaluation and Relevance of the IMP Database Approach

The objective of this chapter is to assess whether and how the IMP database, as it is structured, can play a role in formulating and monitoring an appropriate social and economic policy for maritime regions. Current difficulties in collecting data being set aside, the chapter assesses the structure of the database, and confronts it to the information required for the objectives of the IMP. Given the flexibility of the IT design of the database, it is easily adaptable to present and future policy needs.

To summarize the previous chapters, the architecture of the IMP database is based on three major dimensions.

- **Geographical breakdown:** for the maritime activities observed, the aim is to delimit coastal areas, oceans and seas including islands:
  - Coastal areas are defined as including NUTS3 units overlapping the 50 km strip of the EU shoreline.
  - Islands can be defined by the NUTS3 units or LAUs to which they pertain.
- **Sector breakdown** is intended to identify and define the different maritime sectors of activity, producing economic and non-economic value from the use of marine resources. These are classified into two groups:
  - Group 1 includes most of the maritime industries except tourism; namely seaborne and inland shipping, ship and boat building and repair, offshore supply, maritime works, seaports and related services, maritime services, maritime equipment, miscellaneous sectors of resource extraction and processing;
  - Group 2 includes tourism-related services.
- **Key variables** are defined to characterize maritime activities and coastal areas in terms of their ability of generating value, income and employment. They include:
  - Structure variables, i.e. basic variables describing the overall situation of activities: value added, employment, income distributed and external trade;
  - Development variables, i.e. variables describing activities' development: growth rate, price evolution, seasonal pattern;
  - Maritime Affairs variables: analysis of interdependencies among maritime economies and with national and EC economies, trade flows between maritime regions and with other EU regions.

In terms of content, time series will cover the 2000 to 2006/2007 period for each of these variables. They will be collected at NUTS0/1 level (the country), and, if they are accessible, at coastal area level. The set of islands geographical units will serve as another filter to identify accessible data at that level of breakdown.

Specific IMP indicators will come in addition:

- "Sustainability indicators" as related to environment impacts of maritime activities;
- "Maritime basin" indicators, related to the set of coastal regions located on a common sea (e.g. Baltic, Mediterranean, North Sea, Channel, and Black Sea), would include trade flows, port traffic, and key maritime activities such as shipping, fishing, and offshore material extraction.

6.1 Relevance of the IMP Database to Policy Needs

The IMP is intended as a comprehensive framework including national and regional maritime policies that the EC aims at encouraging. It has consequently many information needs on the diverse economic and social field on which it applies. The database is designed to meet these requirements;

its scope must be seen in the long term, beyond short term limitations related to data collection problems. It includes:

- The analysis of maritime activities in their economic and social nature, and at national and local levels;
- The economic and social analysis of maritime regions;
- The value of coastal regions and the environmental impacts of maritime affairs.

6.1.1 The Economic and Social Analysis of Maritime Activities

Three types of policy needs must emphasized, which are related to the use that can be made of the database:

- It is essential for EU, national and regional maritime policies to have detailed information on the economic significance of the different maritime activities; this permits to have a benchmarking approach and to set policy priorities. The economic analysis of maritime activities requires information on the present situation and recent development of maritime businesses. As pointed out in the Action Plan, certain data are of particular interest, for instance: employment in public services and in other important sectors, maritime labour market, turnover, profit, the development of emerging marine sectors (e.g. biotechnology)[121].
- It is also essential for policy makers to have a clear understanding that the priority order may be much different for two different decision making levels. A given maritime activity may be of modest significance at national level, and be a major activity at local level.
- Clusters are local concentrations of multi-sectoral industry and R&D units, co-operating in innovative projects, and are a cornerstone of EU competitiveness. Maritime clusters are considered by the Blue Book as having to be encouraged and an EU network of clusters to be promoted[122]. So there is a need for a complete identification of EU maritime clusters and of their R&D scope.

The database meets these requirements in several ways.

- It is fitted out to provide economic information by sector and by geographical unit, to permit to assess the performance of maritime affairs, their market values, and the importance of production and income flows, generated by European seas through maritime activities and marine resources. Key variables are standard ones (value added, turnover, income, trade, growth), extracted from national accounts, which has the merit of facilitating data collection. A wide benchmarking can be made: industries can see themselves in the context of sectors they are part of, and compare their sectors' performances to those of similar sectors of EU countries and regions; policy makers can appraise the correlation between the state of businesses and their regulation at EU scale.
- The database can also clarify debates about the national and local significance of maritime sectors through objective measures of the local and national economic impacts.
- The local concentration of industries, sector per sector, and of R&D units can be identified for each NUTS unit, so permitting further in-depth studies on their performance.

6.1.2 The Analysis of Maritime Regions

Again, some policy issues, related to maritime regions, can be highlighted by the database.

- Information on maritime clusters, again, is a critical element to assess regional competitiveness.
- In addition, it is useful for policy makers to know how maritime and non-maritime regions contribute to maritime affairs. The assessment of the local concentration of maritime industry-

[121] Action Plan, § 6.5.
[122] Blue Book (EC, 2007a), § 4.1.

R&D-education networks in coastal or non-coastal areas, helps analyse the local and international role of maritime regions, and the concentration of specific activities in certain areas, cities and countries.

- The complex issue of peripheral – including a number of islands – and outermost maritime regions also needs to be highlighted. The question of their dependence on tourism and on extraction industries requires information on the local significance of the latter. Growth estimates – combined with data on demography trends – can help to foresee, for instance, islands' energy requirements in the future.

The database will put together consistent information on the location of these industries, and on their local significance. In particular, this will show that certain maritime sectors can be disconnected from maritime regions and that other sectors – not only maritime ones – may be really dependent on their proximity to shore or to ports, etc., e.g. for transport cost reasons inter alia. This will also help to analyse the economic situation of islands and the autonomy of their growth.

6.1.3 Specific social Aspects of maritime Activities and Regions

Employment is a key figure for policy makers, both at national and local levels. The Blue Book sets out to reassess certain aspects of EU labour legislation[123]. The database provides employment figures per activity and per maritime region. It so permits to estimate how sensitive sector and regions are to maritime labour regulation, and also highlights two interesting aspects of maritime employment:

- - In using both number of jobs and number of full time equivalent workforce as key variables, and permitting comparisons, the database gives indications on the nature of employment per sector and regions, through the shares of permanent vs temporary staff.
- - The database can also illustrate the notion of "maritime employment basin", i.e. the local concentration of maritime employment, as a whole and for each maritime sector, per maritime region.

6.1.4 Integrating different Value Categories of maritime Affairs

Implementing a policy assumes that some files are given priority against other files. To rank files by priority order, policy makers need indications on their economic and social value.

In this respect, the database offers to clarify the value of EU maritime affairs. It permits to measure different types of value[124]:

- Market value generated by maritime sectors, measured by production, value added, income and prices;
- Regional economic value generated by maritime activities in delimited coastal areas;
- Value of European seas, potentially assessed through flows of raw material extracted including hydrocarbon, aggregates and fisheries, and through maritime traffic; this is the value of wealth flows generated by seas as a natural asset, i.e. as a capital stock;
- Value of coastal zones including islands as generated by tourism spending; this is the commercial value attributable to remarkable coastal and marine assets;
- Social value of maritime regions as assessed by employment and income generated by local activities; this is also an assessment of regions' social dependence on maritime affairs.

The integrated nature of the database notably stems from the possibility to confront these different types of value in real terms, between sectors, or between regions for a given sector. In this sense, the database is instrumental to the IMP: it gives indications on the relative weights of the different components of maritime affairs, with the aim of adjusting policies.

[123] Blue Book (EC, 2007a), § 4.1.
[124] Similar issue is dealt with in the case of the US in: Kildow, Kite-Powell, Colgan and Bruce (Jan 2000).

6.1.5 Metadata and compliance with ESS Standards

The knowledge base supposes adapted tools. The IMP database, including the metadata directory, will be in line with Eurostat database standards. The objective is here coherence, and the possibility to exploit the IMP database simultaneously to other Eurostat databases.

6.2 Limitations of the Scope of the Database

The scope of the database has its limitations and will not cover all of the policy and stakeholders' needs. Furthermore, if the database had to cover all policy needs, it would certainly be impracticable. This section is a review of the different types of limitations of the database scope.

The social dimension of the IMP primarily includes working conditions, labour quality and maritime employment by sector and by region, with a special focus on shipping and fishing. However competitiveness, safety and security, and labour regulation are also part of the social dimension.

6.2.1 Limitations of the standard statistical Classifications

As noted above, the difficulties linked to statistical classifications are essential.

- The aim of the geographical breakdown of the IMP database is to define criteria which make sense to delimit coastal areas. However, the only geographical breakdown available through EC statistics is based on the NUTS[125] and therefore on national administrative subdivisions under which national data are collected.
  The definition of NUTS units is not based on any maritime criterion. This is why, in practical terms, it is necessary to define coastal areas as aggregates of NUTS units and LAUs[126], these aggregates being in turn defined on the basis of specific criteria (e.g. maximum distance to the sea) with the need for re-defining a specific set of maritime-related data.
- The sector breakdown, as noted above, is also a problem, as the only breakdown available for EU statistics is the NACE[127]: this classification of economic activities does not include any maritime-related criterion. If some maritime activities are defined as such (fisheries, shipping, shipbuilding), a number of others pertain to larger categories (seaport services, mining and extraction, banking, maritime equipment, tourism industries) and cannot be readily assessed through available statistics.

These problems have a number of consequences, in particular:

- A number of stakeholders participated in the consultation process before and after the publication of the Green Paper, and their contributions expressed contrasted view points on the IMP and very different needs for data and information. Most of these viewpoints focus on specific topics, sectors, products, services and local matters; they may lead to data requirements which are difficult to meet at reasonable cost in the short term. But, in order to base the IMP on stakeholder participation as stated in the Blue Book, it will be essential to take these needs on board in the future. They will serve as guidelines for future improvements of the database.
- Coastal zone management at local scale. Fine-tuning coastal zone management at local level is left to subsidiarity by the Blue Book itself. The scope of the database will not extend to LAU 2 information and fine geographical observations, and will not be of direct help to manage coastal sites.

6.2.2 Lack of Knowledge on population Movements

“Population movement” is a dimension which is absent from the structure of the database, though it is an essential aspect of the development of coastal areas. Population movements include:

[125] Nomenclature d'unités territoriales statistiques.
[126] LAU: local administrative unit.
[127] Nomenclature statistique des activités économiques dans la Communauté européenne.

- daily movement of employees from home to working places: such information would document the factors playing a role on fuel consumption and on demographic pressure on coastal zones;
- seasonal movements of coastal visitors during and outside leisure periods. This would document similar facts as in the previous case, but with a different time units and for different consumption purposes.

This dimension would be worth considering with a view of future developments in the database structure.

6.2.3 The Concept of "Integration" Issue

At this stage, it must be acknowledged that the database has limited means to serve the objective of "integration". Integration is one of the most essential concepts of the European IMP: maritime affairs are viewed as interlinked through interactions between local and national maritime policies, economic and social interactions between maritime sectors, between maritime regions and their trade flows, and through various industries' and stakeholders' cross-interests, both productionwise and locationwise (e.g. education, R&D and industry). There is then a need for assessing these links in qualitative and quantitative terms.

However, the scope of the database is very limited concerning activities' and regions' interactions. This is explained not only by the lack but also by the lack of criteria to collect information. For instance, cross-border exchange statistics are based on customs registration per product, regardless of the region and sector origin of products. Interactions between industries can only be based on input-output tables, whose limitations result from what was said above, regarding the lack of maritime criteria in the NACE.

Certain aspects, clearly linked to interactions, also raise a problem.

- Networking power of maritime affairs. The database will be able to identify local concentrations of R&D, education establishments and staff, industries, especially industry production and employment near maritime ports. On the basis of these data, it would be possible to assume, for example, the presence of clusters. However, information on exchange between R&D units and industries is generally not documented on the basis of periodical statistics; the same is true for the origin of inland flows of ports' goods and passenger traffic. Therefore the database will not be able to assess the efficiency of clusters nor the attraction of a port and of its logistics platforms. In other words, the networking power of maritime clusters and ports is impossible to assess by the database. In particular, no information can be provided on innovative information exchange between entities of a same network.
- Maritime motivated activities. There is no strict delimitation between maritime and non-maritime activities from an economic point of view. For instance, road and railway transport can be motivated by waterborne freight purposes (between industry production sites and maritime or inland ports) or by visitors' seaside stays. However, it is impossible to identify which part of road transport is really maritime-motivated, and it was decided to exclude road and railway transport from the IMP database. A number of services, including R&D projects and studies, are also in this case: the scope of the database does not include detailed indications on the motivation of these services.

6.2.4 Limitations related to a fine Knowledge of the Cost and Value of coastal Assets

- By definition, the database will not encompass the whole range of possible values relevant for maritime policies. For instance, it will not incorporate indicators on labour quality and safety; in addition, sustainability and environmental indicators are numerous: several of them may raise collection difficulties and the database should be selective.
- Coastal natural assets have a value for users (from leisure activities and from enjoying natural sea- and landscapes) which is not based on market prices and is not fully reflected by tourism expenditures. The use of coastal zones when no direct payment is made in counterpart is subject

to debates among specialists. Some assessment methods have been devised, which estimate coastal users' willingness to pay for the use of these assets and for having them protected. These methods are themselves debated. However non-market values are outside of the scope of the database, which limits itself to economic and social values based on standard indicators.

The lesson to be drawn is that delimiting maritime-related activities is necessarily a matter of convention, which may lack a solid economic justification. But it is a way of working, and the convention may evolve gradually, with increasing experience gained from the management of the IMP database in the future.

7 Future Development, Recommendations for Improvements and Roadmap

The MP database, as it has been developed during this one-year project, must be seen as the first step of a long-term action: during this first step, EU Maritime Affairs have been analysed using statistical classifications and economic indicators defined without any maritime criterion. If certain well known activities are fully maritime (shipping, shipbuilding), many others have only occasional links with maritime affairs.

As a result, the MP database appears as a compromise.

It is a compromise between the holistic and multi-sector approach of the Blue Book, and the need for detailed data both at activity and at local levels as an attempt to inform regional maritime policies.

But it is also a compromise from a statistical point of view, as the MP database is confronted with two trade-offs:

- a trade-off between accuracy and coverage: at this stage, the sectors with only part of their activity related to maritime affairs (marine equipment, education, transport, a number of services) can only be assessed through estimates which are unlikely to fulfil the ESS quality standards[128]. On the other hand, compliance with quality standards – this was the option taken in developing the database – limits the knowledge on maritime activities.
- A trade-off between sector and geographical resolution: as noted earlier, a high resolution level for both the NACE and NUTS classifications is difficult to obtain, first because very few data of this kind could be successfully collected, mainly for confidentiality reasons, except employment data in few member states; secondly because economic (accounting) data can less accurately reflect the economic situation of small geographical units.

We must then accept that the database, as it stands after its first phase of development, cannot be used for all of the issues raised by the IMP. Future improvements are addressed in the following sections, and involve:

- a co-operation with stakeholders to identify their needs in terms of knowledge on Maritime Affairs,
- a co-operation with NSOs and with industry associations to address new methodologies for the collection of missing data,
- an analysis of local needs for coastal zone management, and of the role that geospatial data can have in this respect. As noted earlier, this requires EU-wide guidelines in terms of comparability and exchange of information between EU regions.

7.1 Recommendations for improving Sector Definitions

Maritime sectors are not comparably represented in the actual statistical regime. Some sectors are represented directly by definition in the NACE codes, some others are identifiable only by a combination of directly applicable NACE codes with others also integrating data going beyond maritime markets. A third group of (important) maritime sectors cannot be identified in the statistical system at all, but their socio-economic data is integral part of more general NACE codes, not distinguishing the markets their industries are serving. To overcome this situation three principle solutions are possible:

- The sector definitions need to be improved by continuous discussions between Eurostat and the maritime sector stakeholders. Especially for those sectors where a direct sector identification in the statistical system is almost impossible, more sustainable definitions are required in order to provide

[128] Eurostat (Dec. 2007).

a better basis for statistical evaluation. Suitable mechanisms to establish closer consultations between stakeholders are proposed below.

- The second option is to discuss and analyse jointly with maritime industry stakeholders a likely share of production which can be assigned to maritime markets. On this basis standard indicators may be created to bridge and translate collected standard NACE data into relative data related to maritime sectors. However, the calibration of this approach is essential and a time consuming lengthy exercise need to be launched in order to generate sustainable results. Intensive discussions with stakeholders and continuous consultations need to be established in order to bring this approach to work. The mirror database approach as described in chapter 7.4 provides a suitable procedure.
- To fine-tune data gathering at Member States level by collecting data on selected NACE codes (those identified as relevant for maritime sectors) including identification of shares of markets served. Practically, there are two main solutions, as discussed in chapter 5. A solution is to identify the maritime subsets of the MP Database NACE sectors, and to undertake specific business inquiries for these particular subsets. An alternative would be to amend the business inquiry questionnaires sent to companies. For instance company which is related to one particular NACE code can be asked to give additional information about the markets they are serving, i.e. asking for relative shares of delivery to maritime markets, automotive industry aerospace industry etc. This method may create difficulties in two cases: a) in activities or for companies where maritime markets are marginal: in such cases, it might be unfeasible for companies to trace any of their maritime-related businesses; b) when the producers are delivering their goods to wholesaling companies and agents without exactly knowing to which markets goods are delivered. In favourable cases, this exercise could also be extended through questions on different export markets served, i.e. which parts of the production is delivered to national markets, which part to EU markets and which parts to international markets, maybe distinguished by continents. However, this exercise may face the same problems with wholesaling companies as said before. Effectively this approach would be comparable to an extended and more frequent input/output analysis, for which however some additional codes need to be defined in order to address maritime sectors which are not covered by the statistical regime. For the case of marine equipment and services for example, the shipbuilding sector (NACE 3511) and the boatbuilding sector (NACE 3512) together can be used to evaluate the input value from other NACE sectors. However, no figures from NACE 4-digit sectors but some figures for NACE 3-digit sectors are available in existing input/output statistics. See the example of German national statistics from 2002 below. This in the end provides an indication on the marine equipment market at least created by the ship- and boatbuilding sectors in that particular country. Similar approaches applied to other maritime sectors (also markets for marine equipment and services), e.g. shipping, offshore industry, navy etc. may in the end sum up to a close to reality figure for the marine equipment and services sector.
- To select relevant solutions, it is critical for Eurostat to discuss data collection and processing costs with NSOs, these cost being assumed both by NSOs and by respondents. As reported in chapter 5, it has been impossible to make an accurate assessment in this domain, owing to the lack of quantitative information provided by NSOs to the project team. This highlights the need for having a regulation of cost reporting by NSOs on a harmonised basis.

3511 Schiffbau (ohne Boots- und Yachtbau)

I. Bezogene Rohstoffe und sonstige fremdbezogene Vorprodukte sowie Hilfsstoffe (einschl. Handelsware jedoch ohne Anlageinvestitionen)

271	Roheisen und Stahl, Ferrolegierungen (EGKS)	297 416	12,2
272	Rohre	48 583	2,0
273	And.Erzeugn.a. Eisen od. Stahl,Ferroleg.(n. EGKS)	13 318	0,5
274	NE-Metalle und Halbzeug daraus	14 670	0,6
275	Erzeugnisse d.Gießereien	17 322	0,7
28	Metallerzeugnisse	315 168	12,9
291	Masch. für d. Erzeug. u. Nutzung v. mech. Energie	502 959	20,6
292	Sonst. Maschinen für unspezifische Verwendung	118 877	4,9
297	Haushaltsgeräte, a.n.g.	29 446	1,2
31	Geräte d. Elektrizitätserzeugung u. -verteilung	291 262	11,9
32	Nachrichtentechnik, elektron. Bauelemente	95 825	3,9
332	Meß-, Kontroll- u.ä. Instrum. u.Einrichtungen	207 202	8,5
20	Holz-, Korb-, Flecht-, Korkwaren (ohne Möbel)	60 775	2,5
24	Chemische Erzeugnisse	113 704	4,7
252	Kunststoffwaren	26 937	1,1
351	Schiffe, Boote u.Jachten	59 862	2,4
361	Möbel	108 934	4,5
*17	Textilien	1 867	0,1
*18	Bekleidung	.	.
*21	Papier	.	.
*22	Verlags- und Druckerzeugn.,besp. Datenträger	.	.
*23	Kokereierzeugnisse, Mineralölerzeugnisse, usw.	.	.
*25	Gummi u. Kunststoffwaren	.	.
*26	Glas, Keramik, bearbeitete Steine und Erden	12 307	0,5
*29	Maschinen	.	.
*30	Büromasch.,Datenverarb.-geräte u. -einrichtungen	897	0,0
*33	Medizinische u. optische Erzeugnisse, Uhren	1 482	0,1
*34	Kraftwagen und Kraftwagenteile	.	.
*35	Sonstige Fahrzeuge	.	.
*36	Möbel, Schmuck und sonstige Erzeugnisse	.	.
900	Übrige Material- und Wareneingänge	16 632	0,7
910	Summe der bezogenen Rohstoffe	2 385 953	97,0

II. Bezogene Betriebsstoffe (einschl. Verpackungsmaterial und Küchen- u. Kantinenwaren jedoch ohne Brenn- u.Treibstoffe)

921	Betriebsstoffe (ohne Verpackungsmaterial)	28 197	1,2
922	Verpackungsmaterial z.B. aus Holz, Papier, Pappe	.	.
923	Waren für eigene Küchen und Kantinen	.	.
920	Bezogene Betriebsstoffe (ohne Brenn- u.Treibst.)	30 658	1,3

III. Bezogene Brenn- und Treibstoffe sowie Energie

931	Feste Brennstoffe	.	.
932	Flüssige Brenn- und Treibstoffe	4 908	0,2
933	Gas, z.B. Erdgas, Flüssiggas	13 660	0,6
934	Elektrischer Strom	22 966	0,9
935	Fernwärme (Dampf) und Preßluft	.	.
930	Summe d.bezogenen Brenn- u.Treibstoffe, Energie	43 348	1,8

IV. Gesamter Material- und Wareneingang

990	Gesamter Material- und Wareneingang	2 439 960	100,0

Figure 47: Input Analysis NACE 3511 Germany 2002

7.2 Recommendation for improving spatial Coverage and Data Quality in the Member States

Apart from the need to overcome the shortcomings of the maritime sector definitions and representations in the statistical regime, the availability and quality of data in the Member States need to be improved. This is in particular true for the availability of data for geographically small regions, i.e. NUTS 3 regions or even smaller LAU 1 and LAU 2. The approach proposed in this section mainly concerns the co-operation between Eurostat and NSOs, but may also involve other stakeholders, e.g. maritime cluster organisations. It is largely based on modifications in business inquiry questionnaires.

The following steps can be proposed:

- General improvement of availability of NUTS 2/NUTS 3 data. Encourage collection of data on higher resolution. As suggested earlier in the report, it must be analysed for which indicators high resolution is compatible with sufficient data accuracy. Employment can be a relevant indicator.
- Improvement of availability of NUTS 0/NUTS 1 data for specific maritime sectors, i.e. maritime tourism and leisure and maritime services
- General improvement of data quality by applied QA measures to ensure correct assignment of companies to NACE codes.
- In case of applicability of more than one NACE code, allow assignment of more than one NACE code and ask for relative production shares per NACE code.
- For certain sectors, more detailed analyses of maritime sectors requires collecting more detailed data on their different markets, including maritime sectors, even if those are not identified in the NACE: the sectors where the approach is feasible should be identified, which supposes discussions between Eurostat and the NSOs.

- More detailed analyses of maritime sectors would require collecting more detailed data (NACE 4) on sourcing (purchasing) of goods from other manufacturing sectors (input analysis) so as to improve knowledge on interactions between maritime activities.

The proposed measures will require some time to be fully implemented, and require substantial efforts to fulfil these additional requests. It is likely that the willingness of the Member States to follow this approach will be very limited for obvious reasons. It is the policy stakeholders to decide what is really necessary to support the maritime policy. Given the comments received from the European Parliament and some Member States in the course of the Green Book discussions, there seems to be at least a certain interest to improve situation around availability of data.

The proposed measures will also require a budget. According to the preliminary cost estimates presented earlier in this report, it seems that a good spatial coverage (at least at NUTS 3 level) is relatively much more costly as compared to sector coverage. This would be an additional reason for having a step by step procedure.

This approach would also require guidelines from the European Commission to NSOs on the objectives and the method for improving information details obtained from business inquiries. In case a comprehensive MP Database should not only be built, but also be maintained over time, it may be useful to consider a more demanding form of guidelines, including a legislative instrument such a directive, as is the case for transport statistics and for tourism data collection.

7.3 Recommendations for improving the future Content and Structure of the Database (additional Indicators, geographical Dimension)

The IMP Database as developed in this study represents in its structure all available definitions of maritime sectors, geospatial models and a number of selected socio-economic indicators. Physically implemented, the IMP database actually represents a total of 36 dimensions and 150 datasets. This all together add up to a theoretical content of 4,3 bn data. To that extent the IMP database as delivered to Eurostat is tested and ready to use. Access is possible through the Eurostat standard instruments through websites. Access need to be granted through Eurostat.

However, with regard to the required definite definition of the maritime sectors, the possible selection of additional indicators and the possible extension and refinement of geospatial coverage a future revision and improvement of the IMP database as it is delivered today is unavoidable.

To cope with these potential future requirements, the IMP database shows very high degree of flexibility regarding the extension of the structure. The following upgrading options can easily be realised:

- Add to the database new dimensions in terms of new classifications or new indicators. For instance the sustainable development indicators can be added to the database as soon as they have been verified by the Eurostat.
- Add LAU1 and LAU2 regional resolution (extend the geo dimension) amending the existing implemented structure down to NUTS 3
- Add new or modify the existing dimensions. For instance a dimension describing the source of the data. An interesting recommendation in this context would be a kind of benchmark datasets, where the data from different sources (e.g. also non-sustainable industrial sources) could be presented simultaneously. This could be done whether by creating derived datasets (views) referring to the datasets to be compared or by creating a new dataset with an update function.
- Create links between dimensions as it is the case for the geo_islands dimension and the geo dimension. This allows comparing data with different resolutions. However the compatibility of the dimensions must be given. It means that this can be only implemented if some levels of the different classifications have the same meaning. For instance if we take the geo_islands and geo dimensions then it is given that the NUTS 3 level of the geo_islands has the same meaning as the

NUTS 3 level of the geo. Another example in this context is the hierarchical compatibility of NACE, CPA and Prodcom codes. Any further going mapping e.g. between Prodcom and CN create difficulties, because the correspondence between the codes is not 1 to 1.

The open question in the context of improvements of the database structure is the georeferencing aspect. It is certain that the Reference database, as it stands, cannot be directly linked to geospatial data and does not cover any cartographic methods. However, in the objective of facilitating geospatial data exchange, the INSPIRE Directive has foreseen metadata standards. It would then be relevant to discuss whether and how the MP database could include simple links to geospatial metadata, in the objective of referring MP data users to additional information of a quite different shape, for sectors and geographical units where geospatial information would be especially useful.

7.4 Recommendations for Co-operation with Stakeholders

The actual study has delivered an integrated maritime policy (IMP) database representing the actual status of existing definitions for the chosen maritime sectors, mapping the available geospatial definitions and including all available data provided by Eurostat and Member States (see figure below). For a list of sources used see Appendix 9. However, this status only represents the status of discussions between the authors and relevant stakeholders in the course of the study. To improve the situation, it will be necessary to trigger a continuous discussion between Eurostat on the one hand and Member States respectively stakeholders representing the maritime sectors on the other hand. Additional stakeholders like NGOs to cover for example environmental aspects are coming on top.

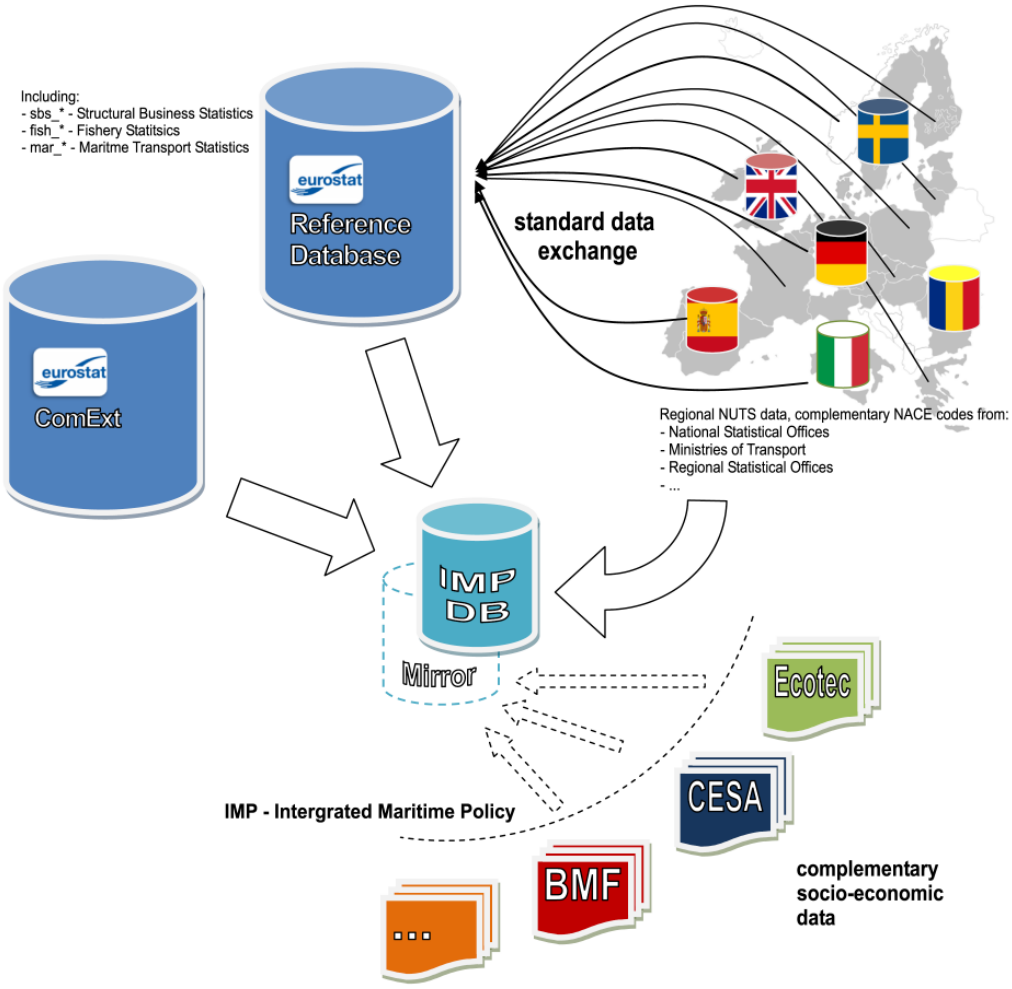


Figure 48: The IMP Database Approach

As a basis for the discussion between Eurostat and the maritime sector stakeholders the authors propose to implement the IMP database twice. One for usage by Eurostat and to be filled with data collected from Member States. The other database is foreseen to be filled with data as generated through one-off studies or frequent statistical analysis performed by the maritime sector stakeholders. Following that all data included in the two databases can be subject to continuous benchmarking and consequently subject to discussions between Eurostat and the stakeholders in order to improve the statistical availability and accuracy in the long term. The IMP database as implemented has provisions to accommodate data also from other sources, i.e. to realise the Mirror IMP database. The following figures show as an example for employment data for shipbuilding from different sources.

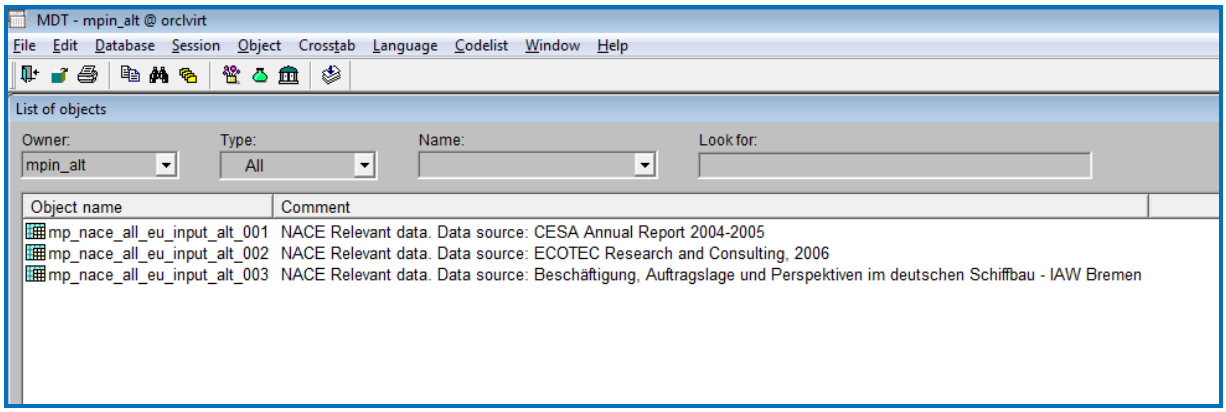


Figure 49: Example Mirror database – List of input datasets derived from alternative sources

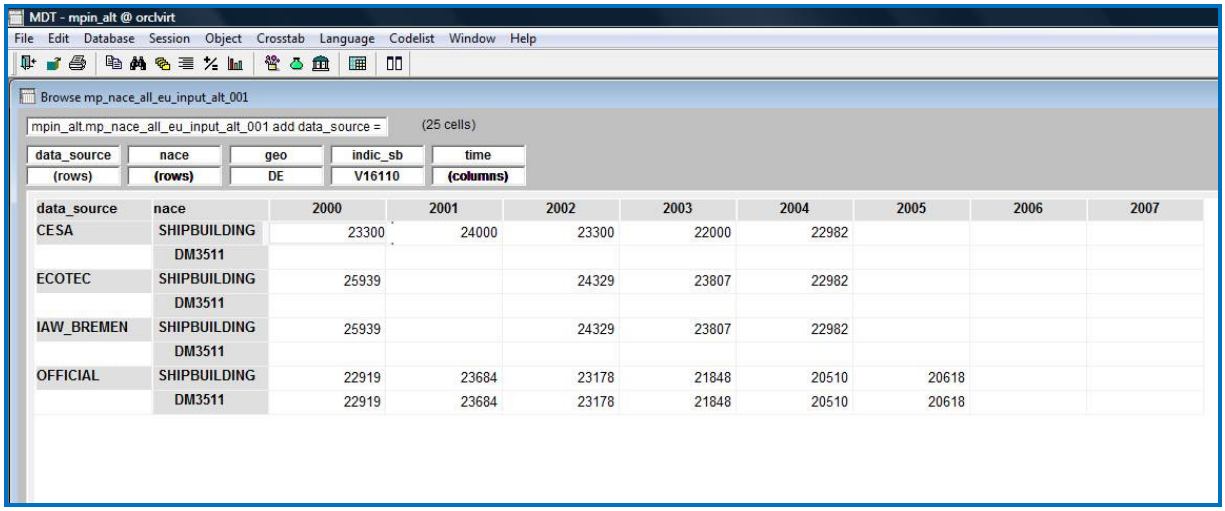


Figure 50: Example Mirror database – Employment data for shipbuilding from different sources

In order to improve the consultation process between Eurostat and the maritime sector stakeholders, the authors recommend to the European Maritime Industries Forum (MIF) as supported by DG Enterprise to establish a Maritime Statistics Working Group in order to evaluate and eventually improve the sector definitions from this study. Eurostat and/or DG MARE may launch a new Service Contract in order to collect all existing and suitable studies and to transfer those into the mirror database. On this basis Eurostat and maritime sector stakeholders may enter into continuous consultations for a certain period of time in order to lay new grounds for a future maritime statistical basis. The figure below illustrates this proposal:

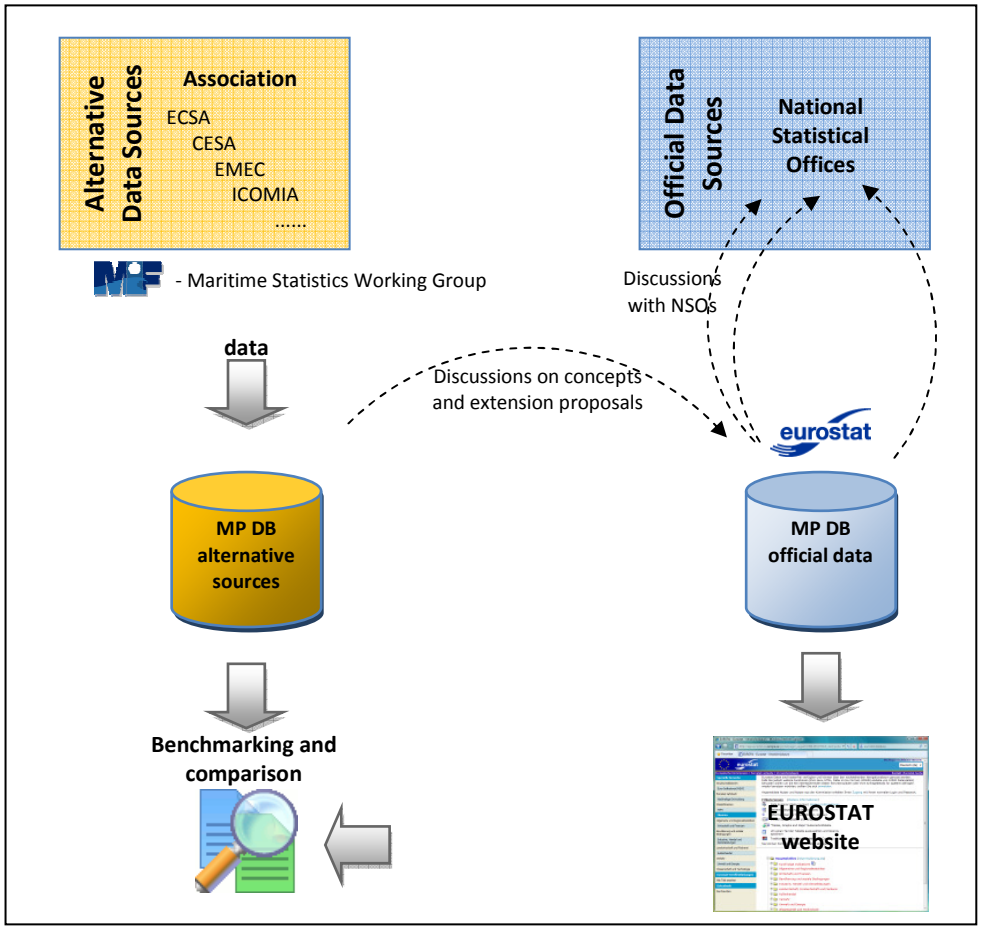


Figure 51: IMP Database and Mirror Database – Related consultation and benchmarking mechanisms

7.5 A Road Map for future Progress in the IMP Database

The proposals made in this chapter and previous chapters concern:

1. improvement in the analysis of maritime sectors through finer questionnaires for business inquiries; a better knowledge on maritime markets is at stake here;
2. improvement in the spatial coverage of the IMP database through more systematic disseminations of questionnaires to companies of relevant sectors;
3. improvement in the content of the database and possible additional dimension, which is feasible thanks to the flexibility of the database design;
4. improvement concerning the list of relevant indicators, to be extended to:
   - a Maritime Basin approach, consisting in an appropriate gathering of already existing data sets related to the specific production yielded by each sea region, in terms of energy, non-energy and living resources, industries and services, including tourism;
   - sustainable development indicators, to be selected as additional to the data more efficiently provided by geospatial tools.

In order to make the database better workable and useful for maritime policy support, proposal 1 should be given priority. This is, because at this stage, the IMP database includes too many non-direct-maritime data; which means that it cannot underpin related maritime policy measures unless it has been better focused for the maritime activities concerned.

Then, proposal 2 on spatial coverage is a key issue, as it permits to have a really workable database in the different areas of EU-wide and regional maritime policies.

Proposal 3 and 4 come then together as they are associated in practice: introducing new indicators would require creating additional dimension in the database and use the flexibility of the architecture.

At this stage, it is difficult to propose a timing for the implementation of these proposals. The IMP database is a new statistical which requires gradually gaining in experience.

Finally, the authors would like to comment on the economic viability of the proposals given above. It is needless to say that the proposed actions require substantial efforts to be spent by all stakeholders, i.e. Eurostat, other European and Member States administration and sector stakeholders. Actions should be launched by the EC to build qualified guidance for the process. Parallel consultation processes should be also launched, with Member States on improving and extending data collection, and with industry stakeholders in order to define missing indicators, improve the sector representation in the statistical system, and to better analyse sectors which are not accurately enough described in the system. This report provides the basis for the actions to be taken. It is expected that this process will need at least one more year of intense consultations of the stakeholders before the basis is layed and data collection can be started on a revised sustainable basis with full coverage of regions and sectors. This does not take into account possible legislative initiatives to support the process.

It is difficult to estimate the efforts to be spent, because so many stakeholders need to be involved. An impact of this exercise need to be evaluated for the different maritime sectors, but it seems to be essential for the support of an integrated maritime policy to start at least an exercise for those maritime sectors which are only indirectly represented in the statistical system and therefore are difficult to evaluate. This basically concerns marine equipment and a range of services, including marine services and coastal tourism. Furthermore, earlier comments received by DG MARE on the need for a better statistical basis to gain profound understanding of the economic impact of maritime sectors, e.g. from the European Parliament, some Member States, regional representatives and other NGOs support starting appropriate actions.

It needs to be understood that the proposed actions prepare the ground for a gradual and long term improvement of the situation and will not help to give answers to immediate questions in the context of the integrated policy approach. In the absence of adequate official statistics for certain sectors in the moment, it is unavoidable to work with ad-hoc studies and statistical analysis in order to address imminent questions. After improvement of the basic situation, it may take much time until new data gathered this way will show improved statistics to support the Maritime Policy Approach. Therefore it must be discussed with all stakeholders to what extend these measures should be taken and whether or not a long term strategy to improve the situation on availability of statistical data for all maritime sectors should be implemented.

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