
Chapter 3

Data quality

Data quality definition

The indicators presented in the publication were selected according to their relevance and timeliness with the studied topic and the European maritime policy but also according to their geographical coverage and availability. All aspects relating to data quality were analysed such as :

- "Relevance" shall refer to the degree to which statistics meet current and potential needs of the users. This refers to whether all statistics that are needed are produced and to the extent to which concepts used (definitions, classifications etc.) reflect user needs;
- "Accuracy" shall refer to the closeness of computations or estimates to the exact or true values;
- "Timeliness" shall refer to the length of time between the availability of the information and the event or phenomenon it describes;
- "Punctuality" shall refer to the time lag between the date of the release of the data and the target date when it should have been delivered;
- "Accessibility" shall refer to the physical conditions in which users can obtain data such as the modalities to access the data, the delivery time, the possible pricing policy and marketing conditions, the availability of micro or macro data, the available formats;
- "Clarity" shall refer to the information environment of the data, including in particular appropriate meta-data, illustrations such as graphs and maps, information on the quality of the data, possible additional assistance;
- "Comparability" shall refer to the measurement of the impact of differences in applied statistical concepts and measurement tools and procedures when statistics are compared between geographical areas, sectoral domains or over time;
- "Coherence" shall refer to the adequacy to be reliably combined in different ways and for various uses.

Quality of data presented in this publication

The main difficulties in the selection of the indicators to be presented were the geographical and sector breakdown.

Coastal areas have to be delimited according to define criteria which make sense. The only geographical breakdown available through EC statistics is based on the NUTS Nomenclature d'unités territoriales statistiques". The definition of NUTS unites is not based on any maritime criterion. This is why, it is necessary to define coastal areas as aggregates of NUTS units, 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 identification of the EU coastlines retained by Eurostat combines three regional concepts: the first one is the NUTS 3 as the basic territorial unit along the coast correspond to a stretch of land which extends approximately 50 km inland, the second one is the fishing regions to identify boundaries of marine regions and the third one is a matching territories to sea regions.

The sector breakdown as noted above, is also a problem, as the only breakdown available for the EU statistics is the NACE "Nomenclature statistique des activités économiques dans la Communauté européenne". This classification of economic activities does not include any maritime-related criterion. If 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 can not be readily assessed through available statistics.

Another difficulty concerns data collection itself, in terms of availability and accessibility of data. Statistics collected at EU level are available at satisfactory level of NACE resolution only at NUTS 0/1 level. Conversely, NUTS 3 related data are difficult to obtain, and only for a low NACE resolution.

In addition to these difficulties, the indicators themselves present some strengths and weaknesses for the analysis of the maritime activities in the EU. To assess and present the strengths and weaknesses, a SWOT analysis was carried out.

SWOT Analysis – Introduction and definition

SWOT Analysis is a strategic planning method used to evaluate the Strengths, Weaknesses, Opportunities, and Threats involved in a project. It involves specifying the objective of the project and identifying the internal and external factors that are favourable and unfavourable to achieving that objective. If SWOT analysis does not start with defining a desired end state or objective, it runs the risk of being useless. Identification of SWOTs is essential because subsequent steps in the process of planning for achievement of the selected objective may be derived from the SWOTs.

SWOT Analysis – Evaluation of the indicators and sources presented in the publication

The SWOT analysis was carried out for each indicator presented in the publication. This analysis was completed by the reasons why the other data or external sources identified were not used.

- **Analysis of indicators selected for the publication**

See the 3 following tables

	Strengths	Weaknesses	Opportunities	Threats
Total area	Accurate data	Includes all types of territories, potentially not homogeneous	Useful for density indicators	Different shapes of coastal regions
Length of coasts and 10 km coastal zone area	Clear definition	Do not take into account local characteristics for settle on the strip's width	Collect other data for a 10 km coastal strip	Difficult analysis of results
Population	Data availability at detailed geographical level	Some differences in methodology (date, data collect method)	Useful for indicators per inhabitants	Inclusion of population not economically active
Population density	Possibility to make comparisons among regions	Same value can be result of dissimilar situations	Extension to other densities, like migration density	Disregarding short internal migrations
Crude birth rate and crude death rate	Evolution and synthetic data on population	Highly influenced by the age structure of the population	Add the dispersion within coastal regions	Not an appropriate indicator for analysis of fertility and mortality
Old-age dependency ratio	Good measurement of population ageing	Subjective identification of age threshold and influenced by previous baby boom	Forecast with good precision for next decades	Does not follow evolution of life expectancy and/or active life duration
GDP at current market prices per inhabitant	Economic dimension of the territory	Bias of different purchase powers	Extension to sub-sectors	Consider this indicator without other economic aspects
Gross value added at basic prices, total and by sector	Individuation of contribution of each sector	Not presented per capita	More information for the service sector	More and more difficult to determine where the value added is produced
Employment	Quality control of LSF data	Official statistics may underestimate employment	Extension to activity and age combinations	Difficulty to determinate impact of delocalisation
Unemployment by age class and sex	Quality control of LSF data	Link on persons not actively seeking work (excluded)	Addition of breakdown by educational level	Carefully analysis evolution of results because of migrations

	Strengths	Weaknesses	Opportunities	Threats
Population with tertiary education level	Improvement of comparability with ISCED classification	Persons with same duration of education may keep significant differences	Addition of detailed breakdown on educational field	Potential changes in educational systems
Utilised agricultural area	More appropriate than total agricultural area	To be analysed with productivity values	Addition of details on land use	Potential decrease of importance of agricultural sector
Proportion of arable land	Take into account crops under rotation	Not available every year	Addition of details on land use	Potential decrease of importance of agricultural sector
Livestock density per holding	Weighted by nutritional factors	Details not available for NUTS3 regions at LSU usual level	Adapt weights for more detailed data	Evolution of size of holding may impact time series of livestock density
Standard gross margin per holding and per annual work unit	Determination of economic size of farms and productivity per employee	Differences in national legislations on minimum annual work hours	Addition of details on land use	Changes on average annual worked hours
Number of hotels	Follows a clear classification on collective tourist accommodation establishments	Only partially covering of tourism and different size of hotels	Focus on number and visitors of coastal attractions	Disregarding the role of renting of private tourist dwellings
Apparent labour productivity	Presented per persons employed	May cumulate inaccuracies on value added and persons employed	Introduction of statistics at economic cluster level	More and more difficult to determine where the value added is produced
Number of enterprises	Long time series	To be analysed preferably with enterprise size	Improve data availability on enterprise birth rate and survival rate	Difficulty to determinate impact of delocalisation
Number of persons employed	Not influenced by aggregation and split of companies	Data may be affected by unofficial work	Add the dimension on year of experience on maritime sector	Difficulty to attribute persons to a unique specific sector
Turnover or gross premiums written	Long time series	Instability of values	Extension to other maritime activities	Potential changes in NACE classification

	Strengths	Weaknesses	Opportunities	Threats
Labour cost per employee FTE	Computed for employee full time equivalent	Influenced by work position, skills and experience	Extension to other maritime activities	Potential changes in NACE classification
Imports and exports by sea	Data available in value, quantity and share of EU-22	Mirror flows may differ	Description of multimodal flows	Growing importance of not physical exchanges
Catches by fishing area	Very important for some national/regional economies	Not presented per capita	More detailed fishing area	Risk of incompatibility with biological limit of the sea
Employment in the fishery sector	Split by deep and coastal sea	Detail by sea regions not available	Extension to fish food industry	Analysis of evolution disregarding aquaculture fishing
Patent applications to the EPO	Important measurement of innovation in industry	Unclear inclusion in ship equipment patents	Extension to other maritime activities	Wrong interpretation if analysed as coastal regions data
Number and percentage of sea bathing areas according to water quality	Consistent parameters and classification	Changes may be variable depending on the period of survey	Increase number of sampling	Do not focus on causes (e.g. oil spills, sewage water, natural aspects)
Protected marine area	List of areas registered and clearly identified	Without specification of relative measurements	Other environmental friendly indicators like marine renewable energies	Focus in excess on quantity (area) and not enough on quality (biodiversity)
Maritime transport – Number of passengers	Detailed by flow	Without breakdown by distance	To be completed with analysis of port infrastructures	Disregarding the duration of travel and turnover
Maritime goods transports in weight between MCA by direction	Detailed by flow	Without specification of relative measurements	To be completed with analysis of port infrastructures	Growing importance of not physical exchanges

- **Data sources for maritime and coastal aspects identified but not presented in the publication**

	Weaknesses
Rural Development	<ul style="list-style-type: none"> • Different national sources and methodologies • Reduced data availability • Sampling based to small number of observation for some indicators • Data at regional level not always available
EEA	<ul style="list-style-type: none"> • Different national sources and methodologies • Data presented with other geographical breakdown • Largest part of indicators presented on map (scale values)

- **Proposal of new indicators for future developments**

Among the weaknesses, the missing data or indicators describing important fields of maritime activities could be mentioned. A proposal of relevant indicators for the future development is listed below. They allow analysing other important aspects of the maritime activities for which current data collected can not allow a relevant analysis.

- Economic indicators for a 50km area strip
- Enterprise birth rate and survival rate for companies directly linked to sea matters
- Marine renewable energies (number of installation, power and electricity generated)
- Migration from/to coastal zones (national and international)
- Number of persons having certificate on maritime studies
- Investment in research and development for sea transport (ships and equipments)
- Comparison of healthy life years at 60 for inland and coastal regions
- Evolution of maritime clusters, economy and infrastructures
- Density of private tourist dwellings
- Number and visitors of coastal attractions (cultural and natural)
- Multimodal transport (goods and passengers) including a sea segment

- **List of consulted websites and publications**

As mentioned above, the indicators presented in the publication were selected according to the relevance with the Maritime Policy Action Plan. In order to performed this exercise and ensure the quality of the data used and comments written, the following companies and/or institutions were consulted. This information allowed validating the data coherence of selected indicators and bringing added value in the comments.

Entity	Website Link	Main topics
EC - DG Environment	http://ec.europa.eu/environment/water/index_en.htm	Water
EC - DG Environment	http://ec.europa.eu/water/water-bathing/index_en.html	Coastal water quality
EC - Maritime Affaires	http://ec.europa.eu/maritimeaffairs/index_en.html	Cross-cutting
EEA - European Environment Agency	http://www.eea.europa.eu/themes/coast_sea/maps-and-graphs	Cross-cutting
WTTC - World travel & Tourism Council	http://www.wtfc.travel/	Tourism
FAO - Fisheries & Aquaculture Dept	http://www.fao.org/fishery/	Fisheries & Aquaculture
FAO - Fishery Statistics	http://www.fao.org/fishery/statistics	Fisheries & Aquaculture
FAO - FishStat Plus	http://www.fao.org/fishery/statistics/software	Fishery statistical softwares
UN - Oceans	http://www.oceansatlas.org/	cross-cutting ocean issues
IMO - Information resources	http://www.imo.org/	cross-cutting maritime issues
ICES - StatLand (catch statistics)	http://www.ices.dk/fish/statlant.asp	Fisheries & Aquaculture
Irish Marine Institute	http://www.marine.ie/home/services/surveys/fisheries/	Fisheries surveys
EC - DG Fisheries	http://ec.europa.eu/fisheries/publications_en.htm	Fishery
EC - DG Fisheries	http://ec.europa.eu/fisheries/fleetstatistics/index.cfm?lng=en	Fishing fleet
EC - DG Maritime affairs - Documentation Center	http://ec.europa.eu/maritimeaffairs/info_mat_en.html	Cross-cutting
EFSA - DATEX	http://efsa.europa.eu/EFSA/ScientificPanels/efsa_locale-1178620753812_DATEX.htm	Health & consumer protection
DG EMPL	http://ec.europa.eu/employment_social/key_en.html#1	Employment
EC - Maritime Affaires	http://ec.europa.eu/maritimeaffairs/study_employment_en.html	Employment
EC - DG Environment	http://ec.europa.eu/environment/iczr/home.htm	Coastal zone policy

Entity	Website Link	Main topics
ECOPORTS	http://www.ecoports.com/login.aspx?returnurl=page.oci?pageid=163	Database for registered users
ELME project - EU 6th Framework Programme	http://www.elme-eu.org/Public/Results2.aspx	European Lifestyles and Marine Ecosystems
ESPO	http://www.espo.be/EU_Ports_\$26\$_Facts/ESPO-ITMMA_Market_Report.aspx	Sea Ports
EEA - Network	http://cdr.eionet.europa.eu/	Datasets collection by country
EMSA - European Maritime Safety Agency	http://www.emsa.europa.eu/	Maritime Safety
ITOPF	http://www.itopf.com/information%2Dservices/data%2Dand%2Dstatistics/	Maritime Safety/ Pollution
OECD	http://www.oecd.org/topicstatsportal/0,3398,en_2825_494504_1_1_1_1_1,00.html	Agriculture and Fisheries
OECD	http://www.oecd.org/topicstatsportal/0,3398,en_2825_495628_1_1_1_1_1,00.html	Environment
OECD	http://www.oecd.org/topicstatsportal/0,3398,en_2825_497139_1_1_1_1_1,00.html#522439	Transport
CPMR - Conference of Peripheral Maritime Regions	http://www.cprm.org/index.php	Regions
ESPON - European Spatial Planning Observation Network	http://www.espon.eu/	Regional policy

Source – Publications Title	Website Link	Main topic
ESPO - European Sea Ports Organisation: Annual Report 2006 - 2007	http://www.espo.be/downloads/archive/02beddc2-b876-4644-8f22-b03d5b1349aa.pdf	Maritime transport
UNCTAD - Review of Maritime Transport, 2007	http://www.unctad.org/en/docs/rmt2007_en.pdf	Maritime transport
ECSA - Annual Report 2006-2007	http://www.ecsa.be/annualreport2007.asp	Maritime transport
DG TREN - ENERGY & TRANSPORT IN FIGURES, Part 3 : Transport, 2006	http://ec.europa.eu/dgs/energy_transport/figures/pocketbook/doc/2006/2006_transport_en.xls	Maritime transport
IMO - International shipping and world trade	http://www.imo.org/includes/blastDataOnly.asp/data_id%3D20166/InternationalShip ping2007.pdf	Maritime transport, Shipping
EurOcean_RV: Infobase	http://euroceanrv.addition.pt/charts/index.jsp?chartId=17	Research and innovation: Operating European Research Vessels by Class, Country, Age
DG TREN - Overview of FP6 projects	http://ec.europa.eu/dgs/energy_transport/rtd/fp6/doc/fp6_project_overview_en.pdf	Research and innovation: Projects in Ocean Energy and in Waterborne Transport.
DG Research - Scientific support to policies	http://ec.europa.eu/research/fp6/ssp/themes_en.htm	Research and innovation ; Fisheries
DG FISH - Farmed fish and welfare	http://ec.europa.eu/fisheries/publications/farmedfish_en.pdf	Research and innovation ; Fisheries
DG FISH - Dissemination of the results of biological studies 1997-2000 (2004)	http://ec.europa.eu/fisheries/publications/studies/biological2004.pdf	Research and innovation ; Fisheries
DG FISH - Classification and analysis of the scientific domains covered by the biological studies 1997-2000 in support of the CFP (2004)	http://ec.europa.eu/fisheries/publications/studies/research2004_en.pdf	Research and innovation ; Fisheries
DG FISH - Synopsis of selected R & D projects in the field of fisheries and aqua-culture (2004)	http://ec.europa.eu/fisheries/publications/studies/synopsis_04_en.pdf	Research and innovation ; Fisheries

Source – Publications Title	Website Link	Main topic
DG FISH - FAIR Report (final) - Analysis of impact variables resulting from research projects in the fisheries and aquaculture domain of the European Commission's FAIR Programme (1994-1998) (2003)	http://ec.europa.eu/fisheries/publications/reports/fair_en.pdf	Research and innovation ; Fisheries
DG FISH - Analysis of specific scientific domains covering key action 5 of QoL (5FP) in the fields of fisheries and aquaculture (1998 - 2002) (2002)	http://ec.europa.eu/fisheries/publications/reports/analysis2003_en.pdf	Research and innovation ; Fisheries
DG FISH - Synopsis of selected R & D projects in the field of fisheries and aquaculture (2001)	http://ec.europa.eu/fisheries/publications/research/synopsis_2001_en.htm	Research and innovation ; Fisheries
DG FISH - Dissemination of the results of 153 biological studies - with automated selection by keyword, February 2001	http://ec.europa.eu/fisheries/publications/studies_reports/results_biological_studies_2001/full_report_en.htm	Research and innovation ; Fisheries
DG FISH - Fisheries research organisations and research programmes in the European Union, Iceland, Israel and Norway	http://ec.europa.eu/fisheries/publications/orgres.pdf	Research and innovation ; Fisheries
Eurostat Fisheries Yearbook Data 1990 - 2005	http://ec.europa.eu/fisheries/publications/fishyearbook2007.pdf	Fishery statistics: Landings, Catches, Foreign trade, Fishing fleet, Employment, Per capita food supply
State of World Fisheries and Aquaculture (SOFIA)	http://www.fao.org/fishery/publications/sofia	Fisheries and aquaculture
DG FISH - Detailed list of imports of fishery products into the EU from outside the European Union (2004)	http://ec.europa.eu/fisheries/stat_import/statistics_imports_en.pdf	Fishery statistics: Imports
OECD - Fisheries Management Systems in OECD countries	http://www.oecd.org/document/15/0,3343,en_2649_33901_34427151_1_1_1_1_1,00.html	Fishery management systems
DG FISH - Facts and figures on the CFP	http://ec.europa.eu/fisheries/publications/facts/facts_pcp06_en.pdf	Fisheries
Fisheries and aquaculture in Europe magazine	http://ec.europa.eu/fisheries/publications/magazine_en.htm	Research and innovation ; Fisheries

Source – Publications Title	Website Link	Main topic
Fisheries and aquaculture in Europe magazine	http://ec.europa.eu/fisheries/publications/magazine_en.htm	Research and innovation ; Fisheries
FAO - Yearbooks of Fishery Statistics	http://www.fao.org/fishery/publications/yearbooks	Aquaculture, commodities and captures
DG Fisheries and Maritime Affairs - 'An exhaustive analysis of employment trends in all sectors related to sea or using sea resources': Final report for the European Commission	http://ec.europa.eu/maritimeaffairs/studies/employment/main_report.pdf	Employment
DG FISH - Employment in the fisheries sector: current situation (2006)	http://ec.europa.eu/fisheries/publications/studies/employment_study_2006.pdf	Employment in the fisheries sector
ESPON - Coastal region in Europe , 2007	http://www.espon.eu/mmp/online/website/functions/home/maps/1402/index_EN.html	Coastal area
IIASA - Study on the cost-effectiveness of controlling emissions from ships (2007)	http://www.iiasa.ac.at/rains/reports/IR06-107_Ships.pdf	Environment
Water quality in the European Union	http://ec.europa.eu/water/cgi-bin/bw.pl	Environment: Bathing water quality
EEA - Europe's environment : The fourth assessment Chapter 5, Marine and coastal environment	http://reports.eea.europa.eu/state_of_environment_report_2007_1/en	Environment: sea and coastal area
OECD - Key Environmental Indicators, 2007	http://www.oecd.org/dataoecd/20/40/37551205.pdf	Environmental Indicators
DG Fisheries and Maritime Affairs - Facts and figures on maritime Europe	http://ec.europa.eu/maritimeaffairs/facts_figures_en.html	Cross-cutting
ECSCA - Annual Report 2006-2007	http://www.ecsa.be/ar/Rapport%202006-2007.pdf	Cross-cutting

