



ESaTDOR

European Seas and Territorial Development, Opportunities and Risks

ANNEX 1 to the Scientific Report:

Lists of Maps, Data and Additional Outputs by the TPG

ESPON Applied Research 2013/1/5

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Part A: List of Maps

The following table lists all the maps that have been produced as part of the ESaTDOR project. For each dataset used, maps may have been produced at a Europe-wide level, regional sea level or both.

Italics denote that the map has only been produced at European level.

Please note that this list follows the general order of the Scientific Report and Regional Sea Profile annexes, but the numbers used here do not correspond to those used elsewhere.

Table 1 General Context and Economic Use maps

General Context	
1	Sea boundaries
2	Sea depth (m)
3	Large marine ecoregions
4	Population density (a) Average population density within sea catchment (b) Population density at NUTS2 within sea catchments, 2008 (c) Population density in coastal (NUTS2) regions, 2008
5	Gross Domestic Product (a) GDP in coastal (NUTS2) regions compared to national averages, 2008 (b) GDP in coastal (NUTS2) regions compared to ESPON European Seas average, 2008
Economic Use	
6	Employment in fisheries, 2009 ([a] percentage of total employment in NUTS2 region and [b] number of employees in NUTS2 region)
7	Employment in shipbuilding, 2009 ([a] percentage of total employment in NUTS2 region and [b] number of employees in NUTS2 region)
8	Employment in other traditional maritime sectors, 2009 ([a] percentage of total employment in NUTS2 region and [b] number of employees in NUTS2 region)
9	Employment in other sectors associated with the maritime cluster, 2009 ([a] percentage of total employment in NUTS2 region and [b] number of employees in NUTS2 region)
10	Employment in transport, 2009 ([a] percentage of total employment in NUTS2 region and [b] number of employees in NUTS2 region)
11	Tourism intensity: number of establishments, bedrooms and bedplaces/km ² (2009)
12	Employment in tourism, 2009 ([a] percentage of total employment in NUTS2 region and [b] number of employees in NUTS2 region)

Table 2 Transport, Energy, Cables and Pipelines and Environment maps produced

Transport	
13	Shipping lanes
14	Shipping (a) Total shipping at ports (total tonnes), 2008 (b) Total shipping at ports by direction, 2008 (c) Total shipping: average annual traffic increase 2004-08
15	Container shipping (a) Container shipping at ports, 2008 (TEU) (b) Container shipping at ports by direction (2008) (c) Container shipping: average annual traffic increase, 2004-08
16a-b	Ferry passengers (a) Ferry passengers at ports, 2008 (b) Ferry passengers: annual average traffic increase of passengers, 2004-08
17a-c	Cruise activity (a) Cruise activity at ports 2008 (b) Cruise activity at ports by passenger type, 2008 (c) Average annual passenger increase of cruise passengers, 2004-08
Energy, Cables and Pipelines	
18a	Location of oil and gas platforms
18b-c	Employment in oil and gas, 2009 ([a] percentage of total employment in NUTS2 region and [b] number of employees in NUTS2 region)
19	Existing wind farm capacity (W/m ²)
20	Wave power potential (KW/m)
21a-b	Undersea telecommunications cables (a) Length of cable per 10km grid square (b) Capacity of cable (Gb/s) per 10km grid square
Environment	
22	Protected areas: Natura 2000 and CAFF sites , 2008
23	Number of invasive species by shipping (per 10km grid square)
24	Organic inputs (kg of pesticides per year),
25	Status of bathing waters, 2008
26	Increase in sea surface temperature, 1981-2011

Table 3 Additional transport maps

Additional Transport/Flows Maps	
T1	<i>Short Sea Shipping activity (NUTS0), 2004-08</i>
T2	<i>Short Sea Shipping activity by direction, 2008</i>
T3	<i>Marine exposure due to port influence, based on port proximity and volume of cargo handled in 2008</i>
T4	<i>Economic influence of container ports, based on port proximity and container volume handled in 2008</i>
T5	<i>Economic influence of cruise ports, based on port proximity and cruise activity in 2008</i>
T6	<i>Marine exposure due to port influence, based on port proximity and volume of liquid energetic products handled in 2008</i>
T7	<i>Cable influence</i>
T8	<i>Volume of liquid bulk goods shipped by port, 2008</i>
T9	<i>Cost to reach closest port with container traffic from each NUTS3 region, by cheapest intermodal route</i>

A number of supplementary maps have been produced for the Baltic Sea profile, making use of data that is only available on a regional sea basis, e.g. from HELCOM.

Table 4 Additional Baltic Sea region maps

Additional Baltic Sea Maps
ESaTDOR Baltic Sea Boundaries
Main Baltic Sea basins and Baltic Sea drainage basin
Baltic Sea sub-basins and bathymetry
Population density in Baltic Sea countries, 2009
Employment and unemployment in the Baltic Sea area, 2009
Total commercial fishery in the Baltic Sea in 2008
Average monthly density of ships in the Baltic Sea, 2008
Undersea cables and pipelines, Baltic Sea

Part B: Datasets Used**Table 5** Datasets used for the ESaTDOR project

Dataset Name	Source	Missing Values/Notes
1. ESaTDOR Sea boundaries		Shapefile created for ESaTDOR project
2. Sea depth	GEBCO	
3. Large Marine Ecoregions	UNEP-WCMC	
4. Water catchment areas and population density: a. Average population density within sea catchments, 2008 b. Population density at NUTS2 within sea catchments, 2008 c. Population density in coastal (NUTS2) regions, 2008	UNEP (catchment boundaries) Eurostat (Population figures)	Catchment shapefile and population density statistics cover EU27 and some neighbouring countries only; therefore some density/catchment figures do not take into account populations such as those of Russia (Arctic, Baltic, Black Seas) or North African countries (e.g. Mediterranean)
5. GDP in coastal regions a. Compared to national average, 2009 b. Compared to ESPON European seas average, 2009	Eurostat and Statistics Norway	
6. Employment in Fisheries (2009, coastal NUTS2 regions)	European Cluster Observatory	Missing values for the following NUTS2 regions: DE93, DE94, DK01, DK02, DK03, DK04, DK05, ES63, ES64, FI20, HR03, IE01, IE02, PL42, PL62, PL63
7. Employment in Shipbuilding (2009, coastal NUTS2 regions)	European Cluster Observatory	Missing values for the following NUTS2 regions: DE93, DE94, DK01, DK02, DK03, DK04, DK05, ES63, ES64, FI20, GR12, GR14, GR21, GR22, GR24, GR41, HR03, IE01, IE02, PL42, PL62, PL63, UKD1
8. Employment in other traditional maritime industries (2009, coastal NUTS2 regions)	European Cluster Observatory	Missing values for the following NUTS2 regions: DE93, DE94, DK01, DK02, DK03, DK04, DK05, ES63, ES64, FI20, HR03, IE01, IE02, PL42, PL62, PL63
9. Employment in other sectors associated with the maritime cluster (2009, coastal NUTS2 regions)	European Cluster Observatory	Missing values for the following NUTS2 regions: DE93, DE94, DK01, DK02, DK03, DK04, DK05, ES63, ES64, FI20, HR03, IE01, IE02, PL42, PL62, PL63

Dataset Name	Source	Missing Values/Notes
10. Employment in Transport (2009, coastal NUTS2 regions)	European Cluster Observatory	Missing values for the following NUTS2 regions: DE93, DE94, DK01, DK02, DK03, DK04, DK05, ES63, ES64, FI20, HR03, IE01, IE02, MT00, PL42, PL62, PL63
11. Tourism intensity: Number of establishments, bedrooms and bed places per Km ² (2009, average)	Eurostat	No data for Turkey
12. Employment in Tourism (2009, coastal NUTS2 regions)	European Cluster Observatory	Missing values for the following NUTS2 regions: DE93, DE94, DK01, DK02, DK03, DK04, DK05, ES63, ES64, FI20, HR03, IE01, IE02, MT00, PL42, PL62, PL63
13. Shipping lanes	NCEAS	
14. Shipping, total goods a. Total freight transport at port (total tonnes), 2008 b. Freight transport by direction, 2008 c. Freight transport per port, 2004-2008	Eurostat (freight values) GISCO (port locations)	2008 data for Iceland not available – 2006 data used.
15. Container transport a. Container transport per port in TEU, 2008 b. Container transport by direction, 2008 c. Container transport per port in TEU, 2004-08	Eurostat and Freeport Malta (for Marsaxxlok)	-
16. Ferry (passenger) transport a. Ferry passengers per port and ferry routes b. Ferry passengers annual traffic increase 2004-08	Eurostat and TRANS-TOOLS for ferry routes	-
17. Cruise traffic a. Cruise activity at ports (2008) b. Cruise activity by passenger type (2008) c. Cruise average passenger increase, 2004-08	Eurostat and GISCO	-

Dataset Name	Source	Missing Values/Notes
18. (a) Location of Oil and gas platforms	NCEAS, HELCOM and Lotos Petrobaltic	-
(b) Employment in the Oil and Gas Sector 2009 (coastal regions, NUTS2)	European Cluster Observatory	No data for Belgium, Germany, Denmark (DK00 only), ES53, ES63, ES64, Finland, FR22, FR23, FR51, FR52, FR53, FR81, GR12, GR14, GR21, GR22, GR23, GR24, GR25, GR30, GR41, GR42, GR43, IE01, IE02, Iceland, Latvia, Poland, Malta, PT11, PT15, PT16, PT18, PT20, SE11, SE21, SE22, SE23, SE31, SE32, SE33, Slovenia, UKC1, UKC2, UKD1, UKD2, UKD4, UKD5, UKE1, UKE2, UKF3, UKH3, UKJ2, UKJ3, UKJ4, UKK1, UKK2, UKK3, UKK4, UKL1, UKL2, UKM3, UKNO.
19. Existing wind farm capacity (W/m ²)	Compiled from 4c Offshore and LORC Knowledge databases	Compiled February 2012. Other offshore wind farms may have become operational since this date.
20. Wave power potential	Fugro Oceanor/ ORECCA Project	
21. Telecommunications cables a. Undersea cables (length/10km grid square) b. Undersea cables (capacity, Gb/s per grid square)	Greg's Cable Maps www.cablemap.info	Telecommunications (data) cables only. Routes are approximate.
22. Protected Areas: Natura 2000/CAFF sites (% coverage per 10km grid square)	EEA and PAME Arctic Council	
23. Invasive species through shipping	NCEAS	None
24. Organic inputs (kg pesticides per year)	NCEAS	None
25. Bathing Sites - status of water 2008	European Commission (2010)	No data for Turkey, Norway, Iceland, Greenland (not covered by Bathing Water Directive)
26. Increase in Sea Surface Temperature (1981-2011)	NOAA Optimum Interpolation	

Table 6 Composite and Typology Data Sets Created for the ESPON Database

Dataset Name	Source	Missing Values/Notes
Economic Use	Economic Use Data	Original data reclassified and modified
Flows	Transport Datasets	Original data reclassified and modified
Environmental Pressures	Environment Dataset	Original data reclassified and modified
“Cold Spots” of land-sea interactions		Based on a union of Economic Use, Environmental Pressures and Flows data sorted for low/high values
“Hot Spots” of land-sea interactions		
Maritime Region Typology Classification		Union of the above information

NB. See Annex 14 of the Scientific Report for constituent datasets of the composite maps (economic use, flows, environmental pressures) and production of the typology maps.

Table 7 Additional Baltic Sea Data

Dataset Name	Source	Missing Values/Notes
Sub basins and bathymetry	HELCOM	
Sub basins and drainage basin	HELCOM	
Sea boundaries	IOW	
Population density in countries	Eurostat	
Undersea cables and pipelines	HELCOM	
Total commercial fishery	HELCOM	
Employment & unemployment	Eurostat	
Average monthly density of ships	HELCOM	

Additional note on missing values:

Employment data provided by the European Cluster Observatory comprises of employment in 2009 (or more most recently available figures for the time). Two significant data gaps are with regards to Poland and the Niedersachsen area of Germany. Reasons for these gaps are:

1. In the case of Poland, the European Cluster Observatory did not providedata for the period after 2001;
2. The Niedersachsen (Lower Saxony) region is made up of four NUTS2 units – Hannover, Braunschweig, Weser-Ems and Lüneberg. Since approximately 2008 some German Länder stopped providing data using NUTS 2 subdivisions and only provide the data on the whole Land (which corresponds to NUTS 1 regions). Unfortunately this includes Niedersachsen as the largest such region, others are Brandenburg and Rheinland-Pfalz.

Part C: Use of Results from Other Projects Outside the ESPON 2013 Programme

The **FP7 ORECCA** project has produced comprehensive data on the potential for marine renewable energy in European seas. This has been incorporated into our assessment of the potential for the offshore renewable energy industry to develop. In particular this data is used in Map EU20 for wave power potential in European Seas.

www.orecca.eu

The work of the **National Center for Ecological Analysis and Synthesis** has been used as the basis for key environmental indicators. This has provided data used in the environment report and in the environmental composite maps, in particular for shipping lanes, invasive species, organic and nutrient inputs and sea surface temperature increase.

<http://www.nceas.ucsb.edu/globalmarine/impacts>

Part D: Additional Outputs by TPG members resulting from the ESaTDOR Project

Publications - Books and Journal Articles

Erbguth, W., Grünewald, C., Hülsmann, W., Janßen, H., Kannen, A., Lamp, J., Nolte, N, Schubert, M., Wenk, R. (in print): *Maritime Raumordnung – Interessenlage, Rechtslage, Praxis, Fortentwicklung*, ARL, Hannover

Farinós, J. and Cortés, M.C. (forthcoming). 'Planificación y gobernanza del espacio litoral valenciano. Todavía lejos de una verdadera GIZC' ("Planning and Governance in Valencian Autonomous Region Coastal Area. Still so far away from IZCM"). Cuadernos de Geografía nº 88, pp. 121 - 150. ISSN 0210-086 X.

Janßen, H., and Kidd, S. (in prep.) "A spatial typology for the sea: Hypotheses tested" in the Baltic Journal of Marine Policy

Kidd, S. and Shaw, D. (forthcoming), 'Reconceptualising Territoriality and Spatial Planning: Insights from the Sea', *Planning Theory and Practice*

Other publications

ETC-SIA, University of Malaga (2012) "Lessons learned to prepare SOER 2015: Land and connections", Internal Report prepared for submission to the European Environmental Agency

Conference Presentations

Janßen, H., Hiller, A., Hinrichsen, H-H (2013) "New ideas for a marine spatial management", PartiSEApate workshop, Graal-Mueritz, 16th January 2013

Janßen, H. (2012), "Towards a spatial typology", Fifth HELCOM-VASAB MSP meeting, Helsinki, Finland 14th September 2012

Janßen, H. (2012) "European Territorial Development and the Seas: the ESaTDOR Project", presentation for the IMP-MED Programme 4th Technical Regional Workshop, Hamburg, Germany, 10-11 October 2012

Janßen, H. (2012), "Marine spatial management and aquaculture - A new regulatory framework to come up?", AQUAFIMA workshop on Aquaculture and Spatial Planning, Tallinn, 4th December 2012

Janßen, H., Hiller, A. (2012) "Transnational mapping: Towards a maritime spatial typology", International Conference Littoral 2012: Coasts of Tomorrow. VLIZ, Oostende, 27th November 2012

Jay, S.A. and McGowan, L. (2012) "ESaTDOR: Typology and Scenarios for European Seas" presentation given at the European Maritime Day Conference, Gothenburg, Sweden. 22nd May 2012

Kidd, S., Jay, S., McGowan, L. and Shaw, D. (2012) "Can a typology of maritime regions assist European Territorial Cohesion?", UK-Ireland Planning Research Conference, Brighton, 11-13 April 2012

Langeland, O. (2012) *“ESPON: European Seas and Territorial Development, Opportunities and Risks”* presentation given at seminar of Norwegian INTERREG experts, Ministry of Local Government and Regional Development, Norway, 12th March 2012

Shaw, D.P. (2012) *“ESPON ESaTDOR –European Seas and Territorial Development, Opportunities and Risks. The Case of the Baltic Sea”*, presentation for the Maritime and coastal zone planning from ESPON perspective: The case of Latvia and Baltics ESPON NORBA student seminar, Riga, 30th November 2012

Janßen, H. (2011) *Ostsee: Meer, Mensch, Nutzungen*. IOW Seminar Series, 12.10.2011

Janßen, H. (2011) *Maritime Spatial Planning and Territorial Development – An issue of regional interest*, European Maritime Day, Gdansk, Poland, 20.05.2011

Janßen, H., Barbosa, A., McGowan, L., Kidd, S., Littkopf, A., Milego, R., Shaw, D. (2011) *European Seas and Territorial Development Opportunities and Risks*, 57th VASAB CSDP/BSR Meeting, Berlin, 11.10.2011

Janßen, H. & R. Thamm (2011) *“Innovative marine mapping for the Wadden Sea Region”*, Wadden Sea Forum, Den Helder, The Netherlands, 17.05.2011

Kidd, S and Shaw, D (2011) *“Reconceptualising Territoriality and Spatial Planning: Insights from the Sea”*, UK/Ireland Planning Research Conference University of Birmingham September 2011

Shaw, D.P. and Kidd, S. (2011) *“Stepping into the Sea: a new role for planning and planners”*, Association of Collegiate Schools of Planning Annual Conference, Salt Lake City, USA, 13-16 October 2011

In addition the Lead Partners (University of Liverpool) have participated in the following ESPON Seminars:

“Evidence and Knowledge Needs for the Territorial Agenda 2020 and Cohesion Policy”, 21-22 June 2011, Gödöllő, Hungary

“Evidence Based Cohesion Policy: Territorial Dimensions”, 29-30 November 2011, Kraków, Poland

“European Territorial Evidence for EU Cohesion Policy and Programming”, 12-13 June 2012, Aalborg, Denmark

“Territorial Development Opportunities in Europe and its Neighbourhood - Fostering Global Competitiveness”, 5-6 December 2012, Paphos, Cyprus

Online Resources

- Project Brief included on TPG Partner website of the University of Malaga, http://www.etcisia.uma.es/index.php?option=com_content&view=article&id=75&Itemid=134&lang=en
- Project Brief included on TPG Partner website of the University of Thessaly, <http://www.prd.uth.gr/sites/espl/index.php/en/research-list/research-activity/article/40-espon-project-european-seas-and-territorial-development-opportunities-and-risks-esatdor.html>

Other Publicity

Kidd, S and McGowan L. Inclusion of ESaTDOR project summary in delegate pack for the inaugural conference of the Irish Sea Maritime Forum, Belfast, June 2012