



## **ESaTDOR**

# **European Seas and Territorial Development, Opportunities and Risks**

ANNEX 1 to the Draft Final 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.

Maps which appear in the Draft Final Report and Annexes (regional sea profiles) have been labelled using the following convention:

**EUx** – Europe-wide map

**ARx, ATx, BAx, BLx, Mx, Nx** – regional sea maps for the Arctic Ocean, Atlantic Ocean, Baltic Sea, Black Sea, Mediterranean or North Seas respectively

**Tx** – additional Europe-wide maps produced under the transport theme.

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

<b>General Context</b>	
<b>1</b>	Sea boundaries
<b>2</b>	Sea depth (m)
<b>3</b>	Large marine ecoregions
<b>4a-c</b>	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
<b>5a-b</b>	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
<b>Economic Use</b>	
<b>6a-b</b>	Employment in fisheries, 2009 ([a] percentage of total employment in NUTS2 region and [b] number of employees in NUTS2 region)
<b>7a-b</b>	Employment in shipbuilding, 2009 ([a] percentage of total employment in NUTS2 region and [b] number of employees in NUTS2 region)
<b>8a-b</b>	Employment in other traditional maritime sectors, 2009 ([a] percentage of total employment in NUTS2 region and [b] number of employees in NUTS2 region)
<b>9a-b</b>	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)
<b>10a-b</b>	Employment in transport, 2009 ([a] percentage of total employment in NUTS2 region and [b] number of employees in NUTS2 region)
<b>11</b>	Tourism intensity: number of establishments, bedrooms and bedplaces/km <sup>2</sup> (2009)
<b>12a-b</b>	Employment in tourism, 2009 ([a] percentage of total employment in NUTS2 region and [b] number of employees in NUTS2 region)

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

<b>Additional Transport/Flows Maps</b>	
<b>T1</b>	<i>Short Sea Shipping activity (NUTSO), 2004-08</i>
<b>T2</b>	<i>Short Sea Shipping activity by direction, 2008</i>
<b>T3</b>	<i>Marine exposure due to port influence, based on port proximity and volume of cargo handled in 2008</i>
<b>T4</b>	<i>Economic influence of container ports, based on port proximity and container volume handled in 2008</i>
<b>T5</b>	<i>Economic influence of cruise ports, based on port proximity and cruise activity in 2008</i>
<b>T6</b>	<i>Marine exposure due to port influence, based on port proximity and volume of liquid energetic products handled in 2008</i>
<b>T7</b>	<i>Cable influence</i>
<b>T8</b>	<i>Volume of liquid bulk goods shipped by port, 2008</i>
<b>T9</b>	<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.

<b>Additional Baltic Sea Maps</b>	
BA1i	ESaTDOR Baltic Sea Boundaries
BA2i	Main Baltic Sea basins and Baltic Sea drainage basin
BA2ii	Baltic Sea sub-basins and bathymetry
BA4i	Population density in Baltic Sea countries, 2009
BA5i	Employment and unemployment in the Baltic Sea area, 2009
BA6i	Total commercial fishery in the Baltic Sea in 2008
BA13i	Average monthly density of ships in the Baltic Sea, 2008
BA21i	Undersea cables and pipelines, Baltic Sea

**Part B: Datasets Provided for the ESPON Database**

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 <sup>2</sup> (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 <sup>2</sup> )	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	

**Composite and Typology Data Sets Created for the ESPON Database**

<b>Dataset Name</b>	<b>Source</b>	<b>Missing Values/Notes</b>
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
Maritime Region Typology Classification	-	Union of the above information

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

**Additional Baltic Sea Data**

<b>Dataset Name</b>	<b>Source</b>	<b>Missing Values/Notes</b>
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	

### **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](http://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. (2012) *Ostsee: Meer, Mensch, Nutzungen*. IOW Seminar Series, 12.10.2011

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

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

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

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

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, 12<sup>th</sup> March 2012

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

### **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](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