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## Conference Paper

# Features of the European Maritime Clusters

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## ***Features of the Maritime European Clusters***

Abel SIMÕES, Regina SALVADOR, C. GUEDES SOARES

### **Abstract**

The paper analyses the national and regional European maritime clusters according to the sea basin division proposed by the European Union Integrated Maritime Policy: Atlantic and Arctic oceans; Baltic, Black, Mediterranean and North seas.

In line with Wijnolst, Jensen & Sødal (2003) that propose a maritime sector benchmarking - the "Global Maritime Benchmarking" – which should allow evaluating the maritime clusters evolution and strength - the paper start to estimate nine indicators:

1. structural indicators (no. of clusters, no. of companies, no. of employees, no. of sectors, technological level, location);
2. economic indicators (Gross Added Value, production, productivity, profit and rentability rates);
3. internationalisation (exports and imports, major clients and suppliers, international average prices, EU and third countries markets shares);
4. critical mass (agglomerations and scale economies by maritime sector) and leader firms;
5. level playing-field (free-competition, monopolistic, oligopolistic markets);
6. innovation (major universities and R&D centres, no. patents, regional innovation systems);
7. institutional framework (governance, connection with regional and national governments)and business networks;
8. labour market (unemployment rate, average wages) and education (major schools and courses by different grades, training centres); and
9. Image and communication.

The comparison between sea basins will allow characterizing "Maritime Europe", identifying the location of the main excellence centres and the major beneficiaries of the Integrated Maritime Policy decisions.

The paper also suggest public strategies that would support clusters development – or "cluster enablers" – that include, among others, the definition of an industrial policy, strengthening of demand pull sectors or the promotion of innovation, R&D and leader firms. The needed conditions in order that Europe could organise itself has a "vast continental maritime cluster" are also under scrutiny.

**Keywords:** Maritime Clusters. Maritime Basins. Integrated Maritime Policy.

## 1 Introduction

The sea is an integral part of Europe's identity, with 23 of the 27 Member States having a coast and two thirds of European frontiers being set by the sea. The EU is surrounded by oceans and seas and has some 70,000 km of coastline. Almost half of all EU citizens live within 50 km of the sea and almost 40% of the EU's GDP is generated in the maritime regions. A staggering 90% of the EU's foreign trade is conducted by sea (75% of the EU's external trade and 37% of internal trade in volume is carried on sea routes).

The EU maritime economy alone employs roughly 5.4 million people, generates a gross added value of almost € 500 billion a year and has a high potential for further growth. With more than 20 million sq. km, Europe's maritime zone is the largest on the planet.

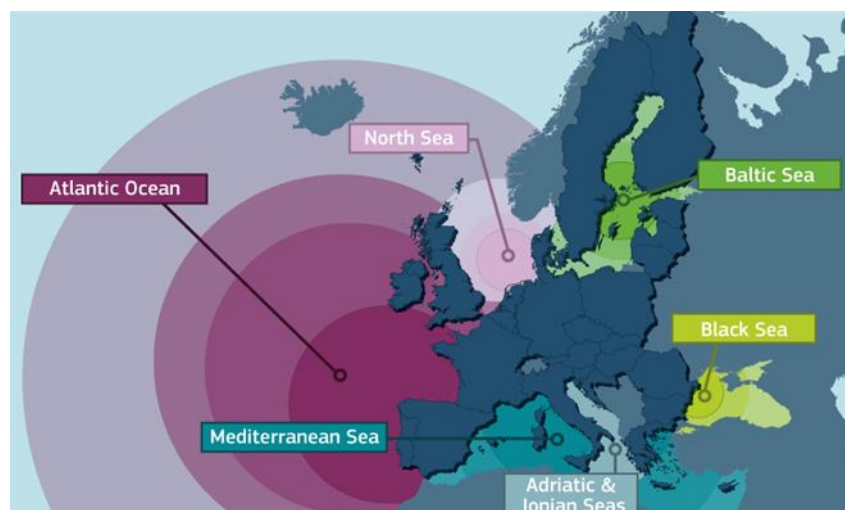


Figure 1 - The Sea Basins in the EU (Source: European Commission)

The EU Integrated Maritime Policy (IMP) proposes that the analysis of the national and regional European maritime clusters be developed according to the following sea basin division: Atlantic and Arctic oceans; Baltic, Black, Mediterranean and North seas, the paper follows this geographical approach. One can define sea basin as a geographical entity made up of one sea or one ocean plus the coastal regions (land basins) or coastal Member States that border this sea or ocean.

Based on the Eurostat definition of "Coastal Region"<sup>1</sup>, 446 EU coastal regions were identified, located in the 23 EU Member States with a coastline: Belgium, Bulgaria, Croatia, Denmark,

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<sup>1</sup> An EU coastal region is a statistical region of the European Union, at NUTS level 3, defined according to one of the following three criteria:

- a) The region has a sea border (382 regions correspond to this criterion)
- b) The region has more than half of its population within 50 km from the sea (63 further regions correspond to this criterion that is based on the GEOSTAT 2006 population grid. Previous to the

Germany, Estonia, Ireland, Greece, Spain, France, Italy, Cyprus, Latvia, Lithuania, Malta, Netherlands, Poland, Portugal, Romania, Slovenia, Finland, Sweden and the United Kingdom. The Czech Republic, Luxembourg, Hungary, Austria and Slovakia are landlocked countries and are not presented, even if in some cases maritime clusters and activities have been identified.

Maritime sectors comprise activities linked to the sea: the link between activities and the sea may be explained by the use of marine resources, maritime areas or by the vicinity of these areas. The relationship between the activities and the sea can be more or less direct and maritime sectors cannot be seen as a single sector activity within the NACE classification but rather as a set of activities.

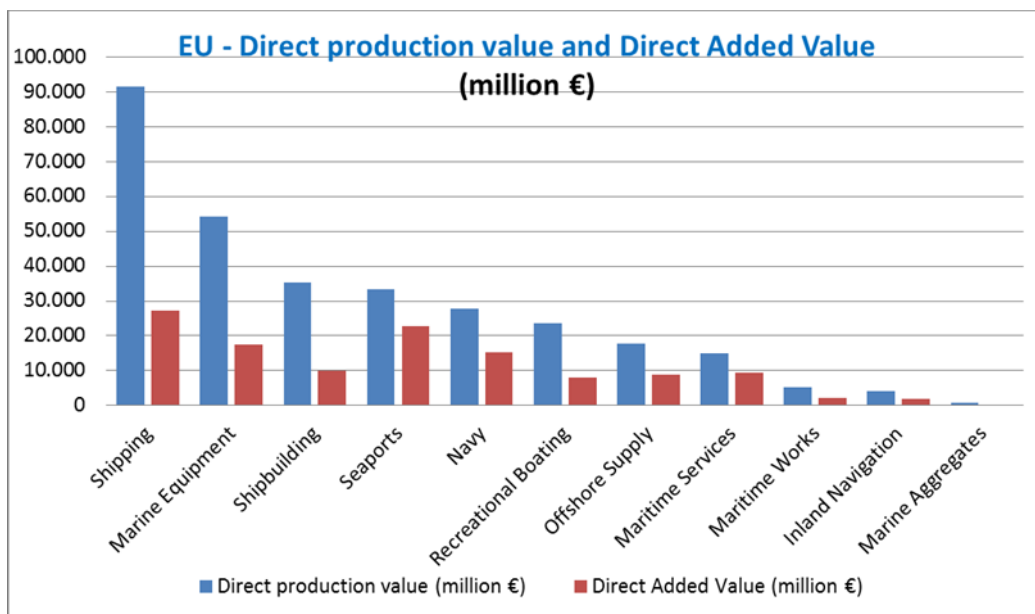


Figure 2 – General production and GVA in the maritime sectors of the EU (2010, Source: PRC)

## 2 The Blue Growth Strategy

Blue Growth is the long term strategy to support sustainable growth in the marine and maritime sectors as a whole. Seas and oceans are drivers for the European economy and have great potential for innovation and growth. It is the maritime contribution to achieving the goals of the Europe 2020 strategy for smart, sustainable and inclusive growth.

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availability of this grid, all coastal regions were defined as a NUTS level 3 region with a sea border).

- c) The region is Hamburg. (The German NUTS3-region of Hamburg does not correspond to the above 2 criteria but has been added to the list of EU coastal regions due to its strong maritime influence).

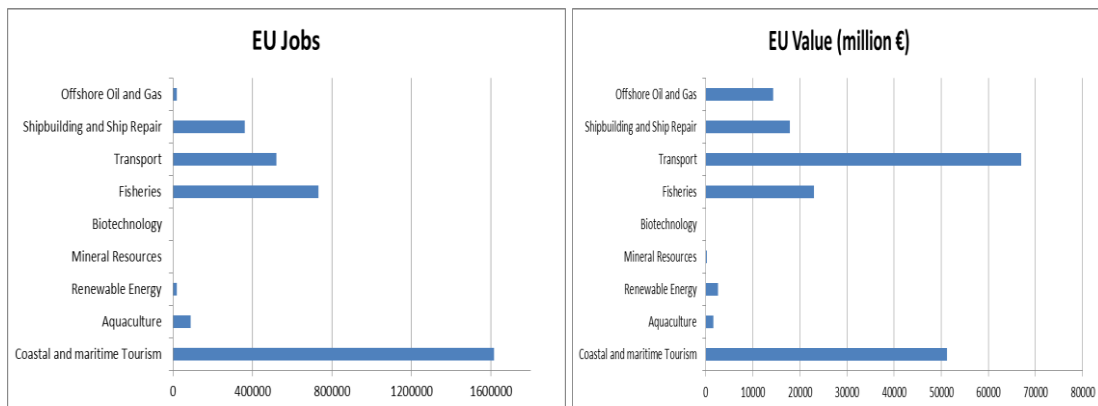
The 'blue' economy represents roughly 5.4 million jobs and generates a gross added value of almost €500 billion a year. However, further growth is possible in a number of areas which are highlighted within the strategy.

The strategy consists of three components:

- i. Develop sectors that have a high potential for sustainable jobs and growth, such as aquaculture (Fisheries website); coastal tourism; marine biotechnology; ocean energy; seabed mining;
- ii. Essential components to provide knowledge, legal certainty and security in the blue economy, such as: marine knowledge to improve access to information about the sea; maritime spatial planning to ensure an efficient and sustainable management of activities at sea; integrated maritime surveillance to give authorities a better picture of what is happening at sea.
- iii. Sea basin strategies to ensure tailor-made measures and to foster cooperation between countries (Adriatic and Ionian Seas; Arctic Ocean; Atlantic Ocean; Baltic Sea; Black Sea; Mediterranean Sea; North Sea)

European Union Maritime Activities	Jobs		Value (million €)	
	Jobs	%	Value	%
Coastal and Maritime Tourism	1,614,968	48,0%	51,234	28,8%
Aquaculture	90,464	2,7%	1,633	0,9%
Renewable Energy	20,465	0,6%	2,640	1,5%
Mineral Resources	2,034	0,1%	228	0,1%
Biotechnology	185	0,0%	9	0,0%
Fisheries	732,239	21,8%	22,978	12,9%
Transport	520,281	15,5%	66,943	37,6%
Shipbuilding and Ship Repair	362,126	10,8%	17,891	10,1%
Offshore Oil and Gas	19,748	0,6%	14,344	8,1%
<b>TOTAL</b>	<b>3362510</b>	<b>100%</b>	<b>177,900</b>	<b>100%</b>

Table 1 – Maritime Activities of the Blue Economy Jobs and Value (Source: DG Maritime Affairs, 2012)



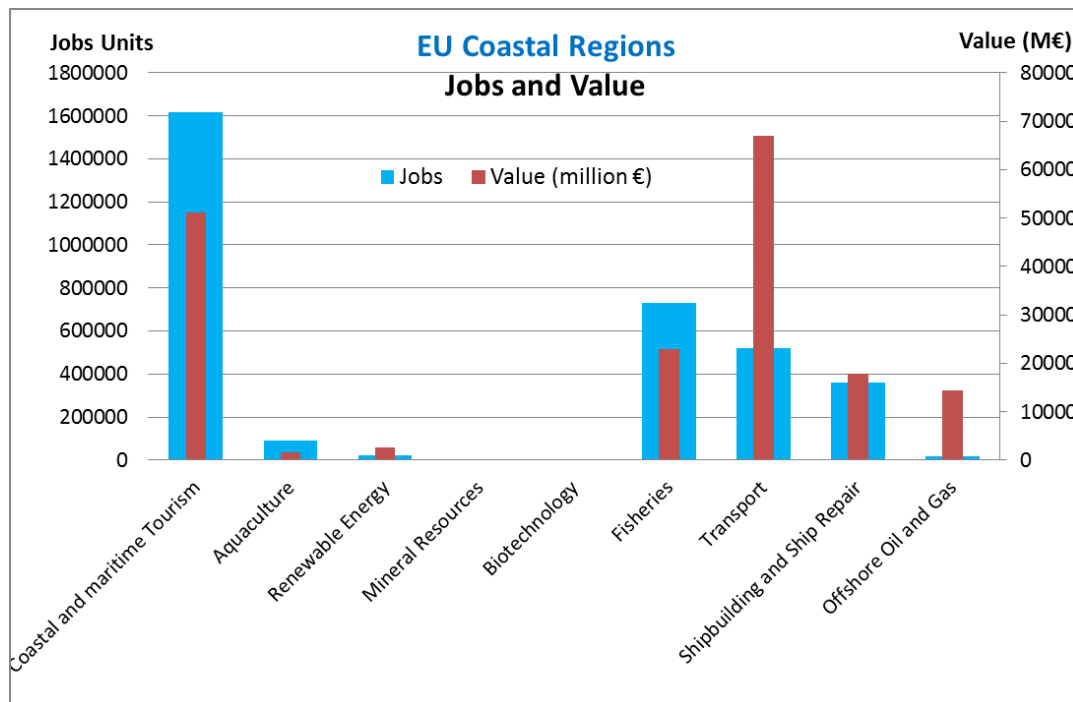


Figure 3 – Blue Economy Jobs and Production (Source: DG Maritime Affairs, 2014)

### 3 The EU Maritime Clusters

The concept of “cluster”, is well-defined by Michael Porter, as a “geographically proximate group of interconnected companies and associated institutions in a particular field, including product producers, service providers, suppliers, universities, and trade associations, from where linkages or externalities among industries result” (Porter, 1998, p.197).

International organisations (World Bank, OECD), national governments, regional development agencies – among many other institutions - have used Porter’s cluster model as a tool to foster competitiveness, innovation and growth.

Michael Porter’s model can be applied to the maritime sector, as Benito, Berger, La Forest & Shum (2003) shows, with the Norwegian maritime cluster presenting the majority of characteristics that one can find in large industrial groups, including strong inter sectorial linkages, economic diversity and competitive rivalry.

Wijnolst (2006) argues that although the EU has many dynamic clusters, they tend to be smaller and less integrated than in the US. As such, research and innovation suffer from fragmentation in the same way as the internal market. Clusters can especially help SME’s and research institutes. In order to ensure cooperation with EU partners it is important for regional clusters to establish contacts with other regional clusters. Networking with clusters and across complementary clusters is an important factor for their successful development.

Because the relevance of the geographical element can present some difficulties, Wijnolst, Jensen & Sødal (2003) argue that Europe should organise itself has a “vast continental maritime cluster”. They present a maritime sector benchmarking - the “Global Maritime Benchmarking” – and to allow evaluating the maritime clusters evolution and strength they

adopted nine indicators: structural indicators; economic indicators; internationalisation; critical mass and leader firms; level playing-field; innovation; institutional framework and business networks; labour market and education; and image and communication. The same authors also suggest public strategies that would support clusters' development – or “cluster enablers” – that include, among others, the definition of an industrial policy, strengthening of demand pull sectors or the promotion of innovation, R&D and leader firms.

## 4 The European Maritime Sea Basins

The Integrated Maritime Policy seeks to provide a more coherent approach to maritime issues, with increased coordination between different policy areas. It focuses on issues that do not fall under a single sector-based policy e.g. "blue growth" (economic growth based on different maritime sectors); Issues that require the coordination of different sectors and actors e.g. marine knowledge. Specifically it covers following policies: blue growth, marine data and knowledge, maritime spatial planning, integrated maritime surveillance, sea basin strategies.

The Integrated Maritime Policy is important to take account of the inter-connectedness of industries and human activities centered on the sea. By encouraging authorities to share data across policy fields and to cooperate rather than working separately on different aspects of the same problem. To build up close cooperation between decision-makers in the different sectors at all levels of government – national maritime authorities, regional and local authorities, and international authorities, both inside and outside Europe.

The maritime policy promotes growth and development strategies that exploit the strengths and address the weaknesses of each large sea region in the EU: from the Arctic's climate change to the Atlantic's renewable energy potential, to problems of sea and ocean pollution, to maritime safety. The Baltic Sea, Black Sea, Mediterranean Sea, North Sea, the Atlantic and the Arctic Ocean – each sea region merits a tailor-made strategy.

### 4.1 The Atlantic Ocean Region

The Atlantic Ocean Region comprises five countries: France, Ireland, Spain, Portugal and the United Kingdom (UK).

EU Atlantic Basin Blue Growth Sectors				
Blue Growth Sectors	Jobs		GVA (M€)	
France	64860	16,4%	2131	23,7%
Ireland	8677	2,2%	549	6,1%
Portugal	46998	11,9%	950	10,6%
Spain	99470	25,2%	2971	33,1%
United Kingdom	174433	44,2%	2385	26,5%
<b>Total</b>	<b>394438</b>	<b>100,0%</b>	<b>8986</b>	<b>100,0%</b>

Table 2 – EU Atlantic Basin Blue Economy Jobs and Value (Source: DG Maritime Affairs, 2012)

Coastal Tourism is the most important maritime sector, generating 33.1% of total maritime GDP. Shipping & Seaports is the second major sector in what GDP is concerned (23.7%), followed by Fishing (10.6%). In the Employment, the two major sectors are – by large - Coastal Tourism (59.5% of the total) and Fisheries (10.3%).

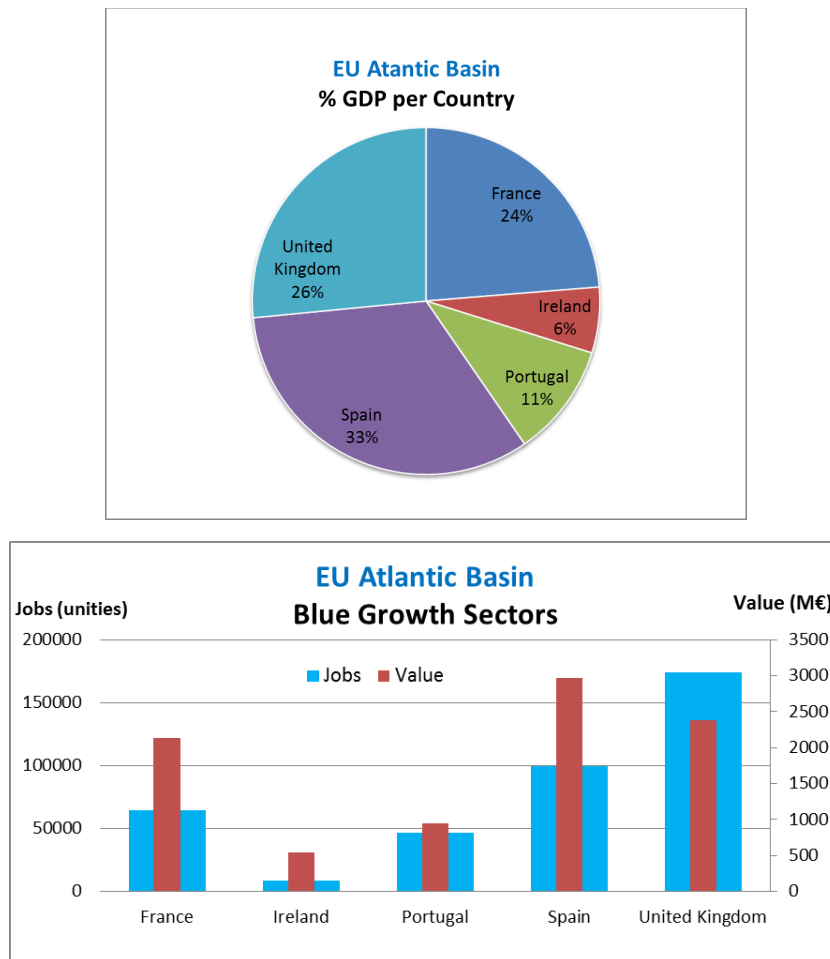


Figure 4 – Atlantic Coastal Regions Blue Growth in jobs and values (M€) (Source: DG Maritime Affairs, 2014)

Shipping & Seaports and Maritime Aggregates are the sectors who exhibit highest productivity levels, with respectively 137.9 and 117.6 thousand € per capita. Cruise Tourism with a productivity of 92.4 thousand € is the third most competitive sector.

The UK is the largest country in what maritime GDP is concerned (35.6%), followed by France (30.6%) and Spain (27.8%).

With almost 900,000 jobs in the maritime economy, Spain is the largest employer followed by the UK (28.6% of total) and France (22.6%).

Coastal Tourism is the most important maritime sector in value terms in Spain, France and Portugal. Both Ireland and UK major sector is Shipping & Seaports.





Figure 5 - The Atlantic Ocean Region

If one just considers “blue growth sectors” (costal tourism, aquaculture and fishing, marine biotechnology, ocean energy and seabed mining) the total of jobs equals 394, 438 (44.2% in the UK and 25.2% in France) and GVA is 8,986 million € (33.1% in Spain, 26.5% in the UK and 23.7% in France).

The most dynamic clusters identified are the following:

Atlantic Ocean Basin		
Cluster Area	Activities involved in the cluster area	Status (mature, growing, early development)
Galway /Western Ireland (IRL)	Cruise and nautical tourism; renewables; windfloat areas; aquaculture; deep sea technologies (synergies)	Growing
Scottish West Coast (UK)	Offshore wind, marine aquatic resources, fisheries, ocean renewable energy, shipbuilding, blue biotech	Growing
Portuguese Coast (P)	Deep and short-sea shipping; coastal, nautical and cruise tourism; offshore gas (south) and oil (north) ( <i>oil noted with question mark</i> ), marine minerals mining	Growing
Bretagne, Brest (F)	Defence, blue biotechnology, shipbuilding, fisheries, ocean renewable energy	Mature
Galician Coast (E)	Coastal tourism, short-sea shipping, fisheries, offshore renewable energy	Growing
South West England (UK)	Marine equipment, yachting, coastal tourism, ocean renewable energy (wave and tidal), fisheries	Growing

Table 3 – Atlantic Ocean Basin most dynamic clusters

The Atlantic Action Plan aims to revitalize the marine and maritime economy in the Atlantic Ocean area. Its actions will focus on growing the tourism market, meeting the increasing demand for offshore installations, improving education and training in traditional and emerging maritime industries, as well as extending cooperation in the field of oceanic research in order to better assess climate change impacts.

The priorities are to: Promote entrepreneurship and innovation; Protect, secure and enhance the marine and coastal environment; Improve accessibility and connectivity; Create a socially inclusive and sustainable model of regional development.

The agreed actions will focus on growing the tourism market, meeting the increasing demand for offshore installations, improving education and training in traditional and emerging maritime industries, as well as extending cooperation in the field of oceanic research in order to better assess climate change impacts.

## 4.2 The Arctic Sea Region

The Arctic Sea Region includes Norway (not an EU member state but part of the European Economic Space) and Greenland, a province of Denmark that left the EU in 1985, for reasons connected to the Fisheries Common Policy. However, Greenland is listed as one of the EU “Overseas Counties and Territories”.



Figure 6 - The Arctic Sea Basin

Marine Equipment & Offshore Supply is the Region main sector (25.9% of GVA) followed by Shipping & Ports (24.7%), Shipbuilding (14.7%) and the Navy (13.4%). On what employment is concerned, the main employers are also Marine Equipment (31.8% of total), Shipbuilding (17.8%) and Shipping & Ports (12.9%).

The most productive sector is the Navy (339 thousand euros/per capita), followed by Shipping & Seaports (174.0 thousand euros/per capita) and Maritime Services (90.2 thousand euros/per capita). The Navy represents 13.4% of total maritime GVA, but only 2.3% of total maritime employment.

The identified clusters are the following:

Arctic - Sea Basin		
Cluster Area	Activities involved in the cluster area	Status (mature, growing, early development)
Greenland (DK)	Marine minerals mining, cruise tourism	Early development
Alesund (N)	Offshore oil & gas; cruise tourism; shipbuilding; fisheries	Growing
Hammerfest (N)	Offshore oil & gas; LNG; fisheries, cruise tourism	Growing

Table 4 – Arctic Sea Basin most dynamic clusters

### 4.3 The Baltic Sea Region

The Baltic Sea region includes six countries: Estonia, Finland, Latvia, Lithuania, Sweden and Poland.



Figure 7 - The Baltic Sea Basin

Shipping & Seaports is the most important maritime sector in the region, generating 44.6% of total GDP. Marine Equipment & Offshore Supply is second (25.1%). All the other maritime sectors present much lower value added.

EU Baltic Basin - Blue Growth Sectors				
Baltic	Jobs		Value (M€)	
Denmark	21455	14,8%	1106	22,5%
Germany	54150	37,4%	1560	31,7%
Estonia	4720	3,3%	134	2,7%
Latvia	5370	3,7%	53	1,1%
Lithuania	341	0,2%	16	0,3%
Poland	22470	15,5%	345	7,0%
Finland	9229	6,4%	300	6,1%
Sweden	27143	18,7%	1404	28,5%
Total	144878	100,0%	4918	100,0%

Table 5 – EU Baltic Sea Basin Blue Economy Jobs and Value (Source: DG Maritime Affairs, 2014)

A similar analysis was drawn in terms of employment. Shipping & Seaports contribute with 41.3% of the total and Marine Equipment & Offshore Supply generates 16.2% of total maritime jobs. Fisheries occupy 11.1 % of total employment and the Navy 5.6%.

Recreational Boating is the maritime sector with higher productivity (45.1 thousand euros per capita) followed by Marine Equipment & Offshore Supply (44.3 thousand € per capita), Maritime Services (32.5 thousand €), Inland Navigation (32.46 thousand €) and Maritime Works (32.8). Even fishing (28.5) and the Navy have similar GDP/Employment ratios. Thus this region maritime economy presents a balanced structure in what productivity levels is concerned.

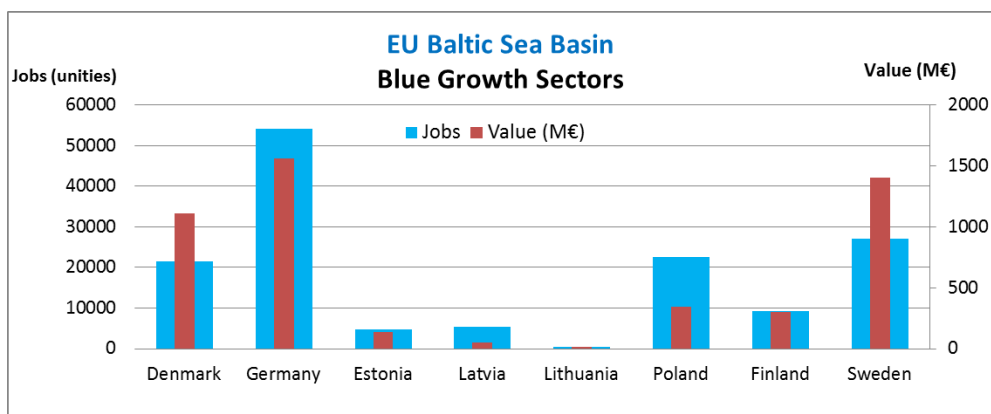


Figure 8 – Baltic Sea (Source: DG Maritime Affairs, 2014)

The Baltic Sea agenda was adopted in May 2014. Sustainability is an integral part of the plan as it can act as a driver for innovation and more jobs, like in the area of clean shipping. It focuses on: Boosting innovation and sustainability; Developing skills and qualifications, cluster development; Using existing cooperation structures and multi-sectorial dialogue; Targeting maritime projects for access to finance.

The principal actions proposes: Consistent approach to innovations, increased sustainability; Innovation streams should cut across the areas, such as maritime technologies, biotechnologies, renewable energy, port reception facilities, maritime and coastal tourism including cruise industry, and aquaculture; Focus on the right skills and qualifications, cluster development; Better targeted funding; multi-sectorial stakeholder dialogue.

The major identified maritime clusters are the following:

Baltic - Sea Basin		
Cluster area	Activities involved in the cluster area	Status (mature, growing, early development)
Kotka-Hamina region (Gulf of Finland) (SF)	cities&ports; blue biotech&algae; wind energy cluster; deep & short-sea shipping	Mature

Western Baltic (DK, D)	coastal tourism; ports; offshore wind; onshore wind; aquaculture; shipbuilding; fisheries; ferries; aggregates	Growing
Copenhagen (DK)	Cruise tourism, ferries, coastal tourism	Mature
Stockholm (N)	Cruise tourism, ferries, coastal tourism, yachting and marinas	Mature
Gdansk/Gdynia (PL)	Short-sea shipping, shipbuilding, cruise tourism	Mature
Helsinki (SF)	cruise tourism, cruise shipbuilding, ferries, coastal tourism,	Mature
Tallinn (EE)	Cruise tourism, short-sea incl. Ferries	Growing/mature
Goteborg (S)	Cruise tourism, ferries, short-sea shipping, coastal tourism/yachting	Mature
Kiel (D)	See under Hamburg/North Sea	Growing/mature

Table 6 – Baltic Sea Basin most dynamic clusters

#### 4.4 The Black Sea Region

The Black Sea is bordered by 6 countries - including EU members Bulgaria and Romania – besides Turkey, Georgia, Russia and Ukraine.

EU Black Sea Basin - Blue Growth Sectors				
	Jobs		Value (M€)	
Bulgaria	113012	70,3%	771	65,7%
Romania	47730	29,7%	402	34,3%
Total	160742	100%	1173	100%

Table 7 – EU Black Sea Basin Blue Economy Jobs and Value (Source: DG Maritime Affairs, 2014)



Figure 9 - The Arctic Sea Basin

Shipping is the major maritime sector (42.5% of total maritime GDP), followed by coastal tourism (21.5% of GDP) and marine equipment (12.6%). On what employment is concerned, the main employers are coastal tourism (49.3%), shipping (15.3%) and marine equipment (10.8%).

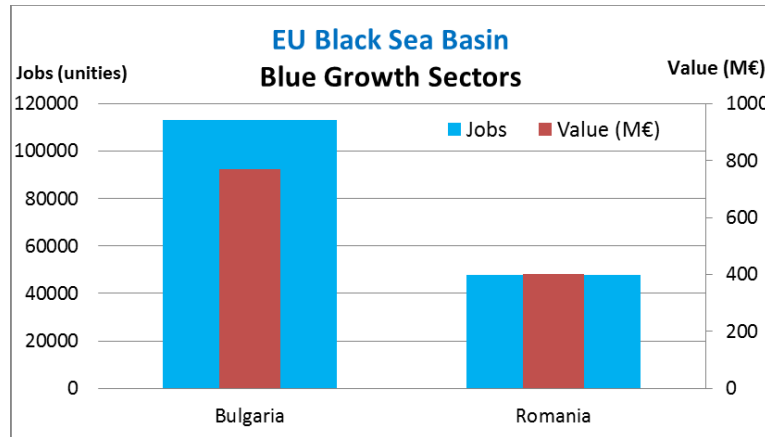


Figure 10 – Black Sea (Source: DG Maritime Affairs, 2014)

Shipping and maritime works are the sectors who exhibit highest productivity levels (19.2 and 15.9 thousand euros, respectively).

If one just considers “blue growth sectors” (costal tourism, aquaculture and fishing, marine biotechnology, ocean energy and seabed mining) the total of jobs equals 160,742 (70.3% in Bulgaria and 29.7% in Romania) and a GVA of 1,173 million € (65.7% in Bulgaria and 34.3% in Bulgaria).

Romania is specialised in shipping and ports, marine equipment, shipbuilding and repair and fishing. Bulgaria has larger sectors in coastal tourism and in the Navy.

The two growing Black Sea maritime clusters identified are centered in the ports and coastal tourism.

Black Sea - Sea Basin		
Cluster area	Activities involved in the cluster area	Status (mature, growing, early development)
Constantza (RO)	Port (deep sea/short-sea hub, largest in Black Sea), coastal tourism (EU), monitoring and surveillance	Growing
Varna (BG)	Port, coastal tourism (EU and Russia) Departure for cruises in the Black Sea	Growing stable though underdeveloped

Table 8 – Black Sea Basin most dynamic clusters

To achieve coherence and better coordination among key blue economic sectors, the European Commission has teamed up with maritime practitioners and entrepreneurs to discuss how they can achieve their maximum potential, and generate sustainable economic and social benefits in the coastal areas.

The program’s three specific objectives are: promoting economic and social development in the border areas; working together to address common challenges; promoting local, people-to-people cooperation.

#### 4.5 The Mediterranean Sea Region

The Mediterranean Sea is bounded by over 20 countries, much of it lies outside national jurisdictions.

EU Mediterranean Sea Basin - Blue Growth Sectors				
	Jobs		Value (M€)	
Greece	101600	11,8%	9160	28,1%
Spain	295056	34,4%	10261	31,5%
France	115774	13,5%	4091	12,6%
Croatia	33782	3,9%	739	2,3%
Italy	210780	24,5%	7320	22,5%
Cyprus	84920	9,9%	642	2,0%
Malta	14698	1,7%	285	0,9%
Slovenia	2180	0,3%	54	0,2%
Total	858790	100,0%	32552	100,0%

Table 9 – EU Mediterranean Sea Basin Blue Economy Jobs and Value (Source: DG Maritime Affairs, 2014)



Figure 11 - The Arctic Sea Basin

Coastal Tourism is the major maritime sector in the region (37.2% of total maritime GDP), followed by Shipping & Seaports (20.9%) and Fishing (11.4%). On what employment is concerned the main employers are – by large – Coastal Tourism (62.4%), followed by Fishing (9.8%).

Shipping & Seaports and Maritime Services are the sectors who exhibit highest productivity levels (48.7 and 33.3 thousand euros, respectively).

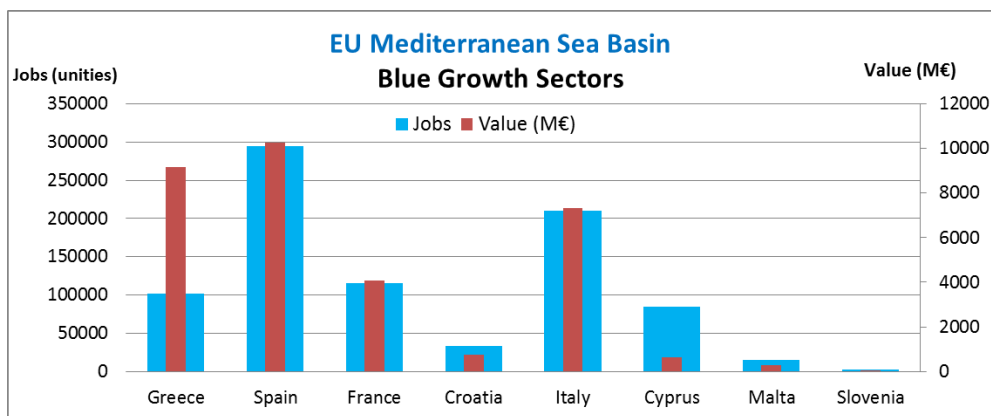


Figure 12 – Mediterranean Sea (Source: DG Maritime Affairs, 2014)

If one just considers “blue growth sectors” (costal tourism, aquaculture and fishing, marine biotechnology, ocean energy and seabed mining) the total of jobs equals 858,790 (34.4% in Spain, 24.5% in Italy and 13.5% in France) and a GVA of 32,552million € (31.5% in Spain, 28.1% in Greece and 34.3% in 22.5% in Italy).

Support activities for the development of maritime clusters in the Mediterranean consist to map existing clusters, identify the strengths and weaknesses of different types of clusters, and examine how feasible it is to develop national clusters and promote cluster cooperation at sub-regional levels. The aim is to assess existing maritime cooperation, highlight the added value of sea-basin/ sub-sea basin cooperation, and identify and propose the most suitable content, geographical scope and process for developing sea basin/ sub-sea basin cooperation further.

Mediterranean - Sea Basin		
Cluster area	Activities involved in the cluster area	Status (mature, growing, early development)
Mediterranean Barcelona (E)	Marine fisheries reserves; Environment monitoring, safety (immigration control), coastal tourism, yachting and marinas; surveillance, ferries	Growing
Valencia (E)	Coastal tourism, ferries, yachting and marinas	Growing
Marseilles (F)	Deep sea shipping, short-sea shipping, ferries, cruise tourism, monitoring and surveillance, defence, blue biotech	Mature
Napoli (I)	Deep sea shipping, short-sea shipping, cruise, coastal tourism	Mature
Bari (I)	Short-sea shipping, cruise, coastal tourism	Mature
Malta (M)	Deep sea/short-sea shipping hub, cruise tourism, coastal tourism	Mature
Venezia/Trieste (I)	Cruise tourism, ferries, short-sea shipping	Mature
Athens (GR)	Ferries, short-sea shipping, yachting and marinas, fisheries	Mature

Table 10 – Mediterranean Sea Basin most dynamic clusters



## 4.6 The North Sea Region

Within the framework of this region we have studied the actual maritime economy and potential growth of four countries: Denmark, Belgium, Germany and the Netherlands.



Figure 13 - The North Sea Basin

The country with the largest maritime GDP is Germany with 41.6% of the North Sea Region, followed by the Netherlands (27.7%) and Denmark (21.0%).

Shipping & Seaports is the most important maritime sector in the region, in what GDP is concerned, with 28.2% of total, followed by Marine Equipment & Offshore Supply (24.6%) and Maritime Services (12.0%).

In the employment, Germany occupies the first place standing for 42.8% of total maritime jobs in the North Sea. It is followed by the Netherlands (28.4%) and Denmark (21.6%).

The sector responsible for a larger number of jobs is Coastal Tourism (27.0%), followed by Marine Equipment & Offshore Supply (22.4% of total employment) and Shipping & Seaports (12.0%).

Shipping, Cruise Tourism and Maritime Works are the three sectors who exhibit highest productivity levels (144.7, 121.9 and 119.2 thousand euros, respectively).

If one just considers “blue growth sectors” (costal tourism, aquaculture and fishing, marine biotechnology, ocean energy and seabed mining) the total of jobs equals 169,268 (57.3% in the Netherlands and 36.1% in Germany) and a GVA of 8,116 million € (60.2% in the Netherlands and 32.7% in Germany).

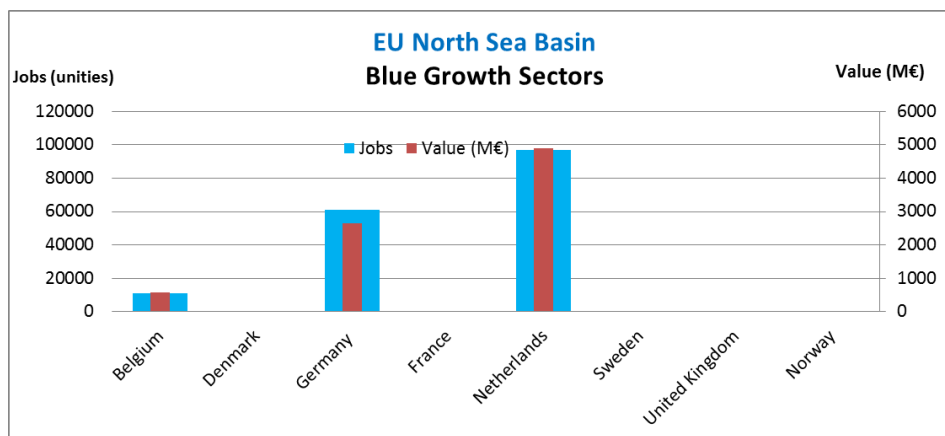


Figure 14 – North Sea Maritime Coastal Regions Blue Growth (Source: DG Maritime Affairs, 2014)

We present below the state of play and growth potential of four countries: Belgium, Germany, the Netherlands and Norway. Furthermore, when examining the development of particular sectors, data on the North Sea-related activities in Sweden, Denmark, the UK and France were also taken into account.

The principal objectives consist of seven challenges: Wind Farm Siting, Marine Protected Areas, Oil spill Platform Leaks, Climate and Coastal Protection, Fisheries, Marine Environment and Rivers.

North Sea - Sea Basin		
Cluster area	Activities involved in the cluster area	Status (mature, growing, early development)
Bergen (N)	Cruise tourism, short-sea shipping, offshore oil & gas	Mature
Stavanger (N)	Offshore oil & gas, short-sea shipping, cruise tourism, aquaculture	Mature
Oslo (N)	Short-sea shipping, cruise tourism, ferries	Mature
Rotterdam (NL)	Deep sea shipping, short-sea shipping, ferries, inland waterways, coastal protection, marine monitoring and surveillance	Mature
Antwerp (B)	Deep sea shipping, short-sea shipping, ferries, inland waterways, oil & gas (refineries), marine monitoring and surveillance	Mature
Oostende (B)	Short-sea shipping, ferries, offshore wind, blue biotech	Mature
Hamburg, Kiel, Bremen (D)	Onshore wind; offshore wind; shipbuilding; maritime technology; ports; coastal tourism; cosmetics; classification; shipping; cruise tourism; equipment and supplies; RES	Growing/mature
Wadden Sea (NL/D/DK)	coastal protection; coastal tourism/yachting, environmental monitoring	Mature
Aberdeen (UK)	Offshore oil & gas, offshore wind	Mature
London Gateway (UK)	Freight port, ferries, cruise tourism	

Solent (UK)	Naval base (Portsmouth); petro chemistry, refineries (Fawley); container & cruise port (Southampton); yachting; coastal tourism; heritage areas; coastal wildlife areas	Matura
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Table 11 – North Sea Basin most dynamic clusters

#### 4.7 The Outermost Sea Region

With the exception of French Guiana, the outlying regions are islands or island groups in mid-ocean. Though small, they give the EU vast tracts of tropical and Sub-tropical Ocean. The Canary Islands, Madeira, the Azores, French Guiana, Guadeloupe, and Martinique are all situated in the central Atlantic, and Reunion in the Indian Ocean.

The outermost regions have few major ports, with the exception of Las Palmas (Canary Islands). But they do support a range of commercial activities, such as fishing and shipping, and are excellent locations for marine research and other innovatory activities.

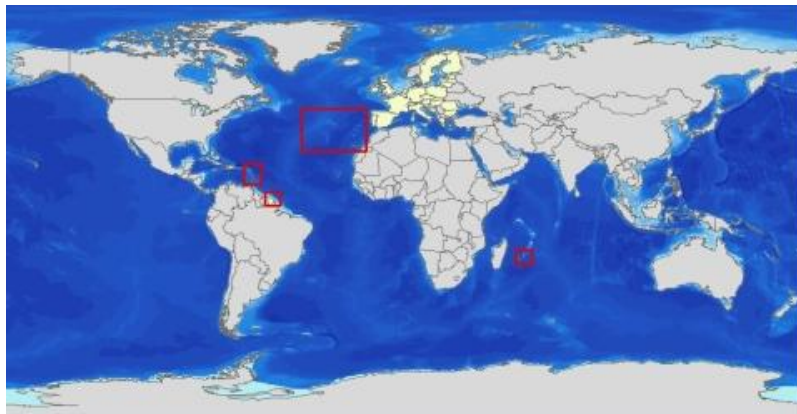


Figure 15 – Outermost Sea Region

Outermost Sea Basin		
Cluster Area	Activities involved in the cluster area	Status (mature, growing, early development)
Canaries, Madeira, Azores	Cruise tourism, short-sea shipping, coastal tourism	Mature

Table 12 – Outermost Sea Basin most dynamic clusters

## 5 Summary and Conclusions

This paper is the first step of a much more comprehensive research on the European maritime clusters in the different basins defined by the Integrated Maritime Policy, following the approach suggested by Wijnolst et al. (2003). In this first research phase one has analysed the data and information provided by Eurostat and by European, national and regional official reports.

In the next phase, one intends to send enquiries to the maritime clusters identified, in order to obtain information on the clusters' main companies, suppliers and clients, connections with universities and R&D centres and type of governance. For the time being, one finishes with the summary of the main findings till now.

Basins	Main Sector (GDP)	Main Sector (Emplm)	Higher Productivity	No. Sectors	No. Clusters	Major Blue Growth Sector	Status of Majority of Clusters
Atlantic Ocean	Costal Tourism (33.2%)	Costal Tourism (59.5%)	Shipping & Seaports (137.9 th.€)	12	6	Coastal Tourism	Growing
Artic Sea	Marine Equipment (25.9%)	Marine Equipment (31.8%)	Navy (339.0 th.€)	9	3	n.d.	Growing
Baltic Sea	Shipping & Seaports (44.6%)	Shipping & Seaports (41.3%)	Recreational Boating (45.1 th.€)	10	9	Transports	Mature
Black Sea	Shipping & Seaports (42.5%)	Coastal Tourism (49.3%)	Shipping & Seaports (19.2 th.€)	8	2	Coastal Tourism	Growing
Mediterranean Sea	Costal Tourism (37.2%)	Costal Tourism (62.4%)	Shipping & Seaports (48.7 th.€)	12	8	Coastal Tourism	Mature
North Sea	Shipping & Seaports (28.2%)	Costal Tourism (27%)	Shipping & Seaports (144.7 th.€)	11	11	Transports	Mature

Table 13 – Summary Sea Basin

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