

# STUDY ON DEEPENING UNDERSTANDING OF POTENTIAL BLUE GROWTH IN THE EU MEMBER STATES ON EUROPE'S ATLANTIC ARC

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## 0. Preface

This country paper forms part of the Atlantic Arc sea basin study. Parallel sea-basin studies are being carried out on the North-Sea and the English Channel and the Mediterranean, Adriatic and Ionian and Black Sea and the Baltic Sea. The data definitions and template are adapted in such a way that exchange between the different sea-basins is made possible.

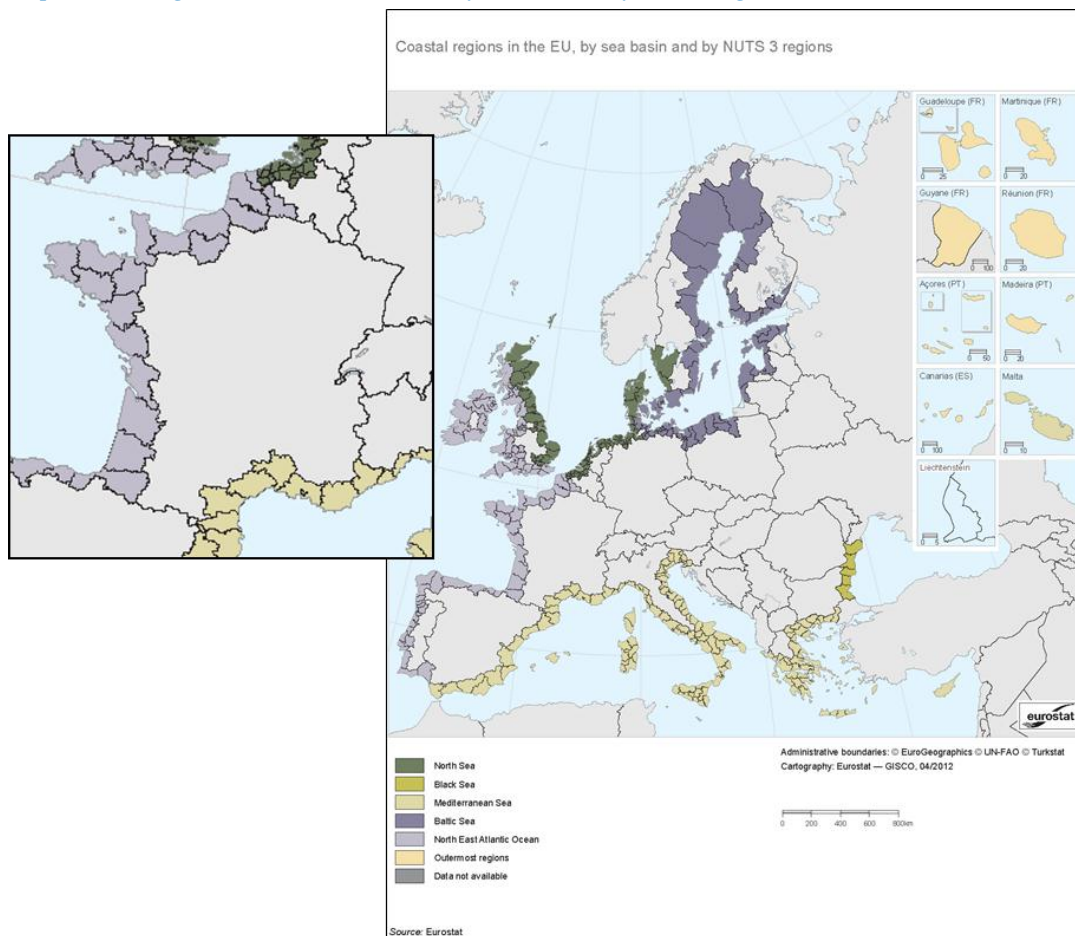
Brussels, February 2014



# 1. General overview

France has a population of almost 66 million inhabitants and scored Europe's 2<sup>nd</sup> largest national economy by GDP (Eurostat, 2012). GDP per capita is €31100 (Eurostat, 2012). France's economy entered a recession in the late 2000s and since then annual GDP growth has fluctuated considerably: -0.1% in 2009, -3.1% in 2009 and 1.7% in 2010. The unemployment rate increased from 7.4% in 2008 and has remained above 9% per year since then. Lower-than-expected growth and increased unemployment have strained France's public finances.

Figure 1.1 Map 1: Coastal regions in the EU and in France, by sea basin and by NUTS 3 regions -



Source: Eurostat

France has 8 411 km of coastline<sup>1</sup>. When the overseas territories are included its exclusive economic zone extends 11 million square kilometres, 400 000 square kilometres of which is continental shelf (3.6%)<sup>2</sup>. Thanks to its overseas departments and territories, France has the second largest Exclusive Economic Zone in the world<sup>3</sup>.

<sup>1</sup> Coastline length and people living in coastal regions, source: European Commission, DG Fisheries and Maritime Affairs, 'Studies aiming at improving national maritime and coastal statistics', Sogeti, Eurostat, 2008: Description of the coastal and sea areas in the European Union. Chapter 2. P. 98. In this study, the coastline length (km) is calculated from the Corine land cover database. Figures may vary from national statistics owing to the inclusion or exclusion of coastal features, such as estuaries, islands and spits. Sogeti study available here: <https://webgate.ec.europa.eu/maritimeforum/content/498>

<sup>2</sup> Le Cluster Maritime Français, 2009-2010, French Maritime Industries, p. 2. More information available here: [http://www.cluster-maritime.fr/pdf/Brochure\\_CMF\\_EN\\_2009.pdf](http://www.cluster-maritime.fr/pdf/Brochure_CMF_EN_2009.pdf)

<sup>3</sup> Le Cluster Maritime Français. <http://www.cluster-maritime.fr/article.php?id=17&lang=Fr>

France is linked to three sea-basins. The major French socio-economic regions are presented at NUTS 1 level and linked to sea-basins: Nord Pas-de-Calais is allocated to the North Sea/English Channel, whereas the regions Bassin Parisien, Ouest and Sud-Ouest are located on the Atlantic Sea Basin coast. As for the NUTS-1 Region Méditerranée, it is allocated to the Mediterranean sea basin. Within these larger NUTS-1 regions, NUTS 2 level regions can be discerned which correspond to the French administrative regions (see section 1.2 for more detail). The regions in the overseas territories are excluded from this study. Finally, French administrative departments (*départements français*) correspond to NUTS 3 regions.

Over one tenth<sup>4</sup> of the country's population is living in coastal regions<sup>5</sup>. Landscan reports that 11.8% of France's population, i.e. 7.5 m people, are living within 10 km from the sea.<sup>6</sup>

Major economic activities are related to the proximity of the water, including fishing, shipbuilding, coastal tourism and port or shipping activities. A 2007 study indicated that, of these, coastal tourism was the most important, representing 40% of the maritime economy<sup>7</sup>.

When characterizing the different coastal regions by sea basins the following picture can be sketched<sup>8</sup>:

The **Channel - North Sea** is important for jobs related to port activities (shipping, stevedoring, sea and river port services) focusing on the main port areas: Le Havre, Rouen, Dunkerque, Calais. The fish industry is also quite important, as well as naval shipbuilding.

The **Atlantic coast** is characterized by a strong presence of fishing, fish farming / aquaculture, construction of civilian ships and boats. These areas of shipbuilding focus respectively in Loire-Atlantique and Vendée, as well as in Brest and Lorient. Obviously also coastal tourism is an important sector in this regions especially further to the south.

Finally, apart from its major position in tourism the **Mediterranean coast** focuses an important part of its employment in the production of salt (Camargue), the construction of naval ships, ship repair and marine and coastal transport.

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<sup>4</sup> The share of coastal population in national total is 11.8%. Source: Landscan, 2006. \_

<sup>5</sup> When referring to coastal regions, we refer to regions with the definition given by Eurostat, which describes coastal regions as regions with a sea border, regions with more than half of its population within 50 km of the sea. This definition is also used in the Sogeti study mentioned before. See Eurostat GISCO database and Appendix 1 of the Sogeti study.

<sup>6</sup> LandScan™ Global Population Database, 2006. % share of coastal population based on 2006 data. To calculate the total number of coastal population, we assume that the share of inhabitants living within 10 km from the coast remained equal from 2006 to 2012 and apply the 2006 % share to the 2012 population data of 63,556,191 (France metropolitan, 2012 figures, based on Eurostat).

<sup>7</sup> Ifremer (2007) Study in the field of maritime policy, available here:

[https://webgate.ec.europa.eu/maritimeforum/system/files/Eurostat\\_MP\\_Study\\_Final%20Report\\_R1\\_Volume\\_1\\_MainPart.pdf](https://webgate.ec.europa.eu/maritimeforum/system/files/Eurostat_MP_Study_Final%20Report_R1_Volume_1_MainPart.pdf)

<sup>8</sup> Based on [http://www.onml.fr/onml\\_f/Emploi-salarie-dans-les-trois-principaux-secteurs-de-leconomie-maritime-hors-tourisme](http://www.onml.fr/onml_f/Emploi-salarie-dans-les-trois-principaux-secteurs-de-leconomie-maritime-hors-tourisme)



## 2. Maritime economic activities

### 2.1. Overview of relevant maritime economic activities in France

This section provides an overview of the main maritime activities and their related socio-economic impacts in **France**<sup>9</sup>. These economic activities are analysed, described and updated according to the NACE rev. 2 classifications.

The analysis is carried out in two steps:

- The first step focuses on the collection of **quantitative data** on the maritime economic activities. As far as possible data are based on Eurostat and official national statistics, where relevant (or necessary) complemented with alternative secondary sources. The aim is to use the same basic method for all countries;
- The second step provides a **qualitative review** of the maritime activities and their status. The information presented builds on the data collected, supplemented with specific inputs and analysis by the country editors.

#### 2.1.1. Quantitative overview of maritime economic activities

More detailed information from all relevant sources is provided in **Annex I**. A separate Methodology Annex provides further explanation on the methodological assumptions and the underlying definitions that have been used.

In total, maritime activities in France generate direct employment for at least 300 000 people, representing a gross value added of minimally € 14.5 bn.

Table 2.1 Overview of relevant maritime economic activities – France

Maritime economic activity		Private/ public driven <sup>a</sup>	GVA (€, m)	Employment	Source and Reference Year	Number of enterprises	Source & Reference year
<b>0. Shipbuilding</b>							
0.a	Shipbuilding and repair	Pr/pu (naval)	1 473	26 631	<i>Eurostat, 2010 data</i>	101 <sup>10</sup>	<i>Amadeus database</i>
0.b	Construction of water projects	Pu	687	4 980	<i>Eurostat, 2010 data</i>	292	<i>Insee.fr, 2010 data</i>
<b>1. Maritime transport</b>							
1.a	Deep-sea shipping <sup>11</sup>	Pr	1 460	14 641	<i>Eurostat, 2010 data</i>	506	<i>National statistics NACE 2 2010 data, supported by Eurostat 2010 data</i>
1.b	Short-sea shipping <sup>12</sup>	Pr	3 049	30 572	<i>Eurostat, 2010 data</i>	1 058	<i>National statistics NACE 2 2010 data, supported by Eurostat</i>

<sup>9</sup> The geographical coverage of data retrieved from official national statistics (INSEE) reported in this section are limited to metropolitan France and hence exclude all French overseas territories. As for Eurostat data, the Eurostat Structural Business Statistics Methodology clarifies that, for France, all regions are covered, including the French Overseas Departments and Territories. For more information : [http://ec.europa.eu/eurostat/ramon/nat\\_methods/SBS/SBS\\_Meth\\_FR.pdf](http://ec.europa.eu/eurostat/ramon/nat_methods/SBS/SBS_Meth_FR.pdf)

<sup>10</sup> This figure excludes the construction of leisure boats.

<sup>11</sup> The definition adopted in the present study might lead to higher figures compared to national ones. For more information, see the methodological session.

<sup>12</sup> The definition adopted in the present study might lead to higher figures compared to national ones. For more information, see the methodological session.

Maritime economic activity		Private/ public driven <sup>a</sup>	GVA (€, m)	Employment	Source and Reference Year	Number of enterprises	Source & Reference year
							2010 data
1.c	Passenger ferry services	Pr	978	13 931	<i>Eurostat, 2010 data</i>	844	<i>National statistics NACE 2 2010 data, supported by Eurostat 2010 data</i>
1.d	Inland waterway transport	Pr	288	4 298	<i>Eurostat, 2010 data</i>	900	<i>National statistics NACE 2 2010 data, supported by Eurostat 2010 data</i>
<b>2. Food, nutrition and health</b>							
2.a	Fisheries for human consumption <sup>13</sup>	Pr	2 759	56 196	<i>Eurostat, 2010 data</i>	3 532	<i>Le Cluster Maritime Français, 2010</i>
2.b	Fisheries for animal feeding	Pr	minimal	minimal	<i>JRC, PRODCOM, 2010</i>	n/a	
2.c	Marine aquaculture	Pr	258	15 336	<i>JRC, 2010 data</i>	3 757	<i>French Ministry of Sustainable Development, 2010</i>
2.d	Blue biotechnology	Pr	n/a	n/a		n/a	
2.e	Agriculture on saline soils	Pr	476	16 852	<i>Eurostat, 2010 data</i>	n/a	
<b>3. Energy and seabed materials</b>							
3.a	Offshore oil and gas	Pr	Confidential	From 27 000 (a) to 30 000 (b) <sup>14</sup>	(a) <i>Le Cluster Maritime Français, 2010;</i> (b) <i>L'Institut Français de la Mer<sup>15</sup></i>	52	<i>Amadeus database<sup>16</sup></i>
3.b	Offshore wind	Pr	minimal	minimal	<i>www.windustry.fr</i>	n/a	
3.c	Ocean renewable energy	Pr	minimal <sup>17</sup>	minimal		n/a	<i>Ecorys estimate</i>
3.d	Carbon capture and storage	Pr	n/a	n/a		n/a	
3.e	Mining (sand, gravel, etc.)	Pr	29	323	<i>Eurostat, 2010 data</i>	12	<i>Ifremer, 2009</i>
3.f	Marine minerals mining	Pr	n/a	n/a		n/a	
3.g	Desalination	Pu	minimal	minimal	<i>Actu-environnement, 2012</i>	3 marine water plants	<i>Actu-environnement, 2012</i>
<b>4. Leisure and tourism</b>							
4.a	Coastal tourism (accommodation)	Pr	2890.	65 569	<i>Eurostat, 2010 data</i>	13 920	<i>National statistics NACE 2 2010 data (data for NACE 55.10, 55.20, 55.30, 55.90), support data Eurostat</i>

<sup>13</sup> The present study has adopted a wide definition for the activity 'fisheries for human consumption', which also includes fish processing. For more information, see the methodological session.

<sup>14</sup> According to IFP Energies Nouvelles, around 90% of the sector's turnover comes from export activities.

<sup>15</sup> Statistical data in Eurostat and national statistics on this sector are treated as confidential

<sup>16</sup> Total number of companies in oils and gas (NACE codes 6.10, 6.20, 9.10) times % of offshore oil and gas production in total (in kTOE)

<sup>17</sup> Key GVA and employment are related to the La Rance tidal barrage, apart from employment in more experimental ocean energy pilots.

Maritime economic activity		Private/ public driven <sup>a</sup>	GVA (€, m)	Employment	Source and Reference Year	Number of enterprises	Source & Reference year
							2010
4.b	Yachting and marinas	Pr	818	33 180	<i>ICOMIA statistics, 2011 data</i>	2 074	<i>ICOMIA statistics, 2011</i>
4.c	Cruise tourism	Pr	96	1 366	<i>Eurostat, 2010 data</i>	20	<i>Conseil National du Tourisme, 2010</i>
<b>5. Coastal protection</b>							
5.a	Coastal protection	Pu	12	118	<i>Eurostat COFOG, 2010 and PRC, 2008</i>	157	<i>Insee, 2009</i>
<b>6. Maritime monitoring and surveillance</b>							
6.a/ 6.b	Maritime surveillance	Pu	n/a	n/a		n/a	
6.c	Environmental monitoring	Pu	n/a	n/a		n/a	

Note: a) activity is mainly predominantly triggered by public or private expenditure. Pr = private, pu = public.  
NB this does not mean that the activity is carried out by public companies.

### 2.1.2. Qualitative overview of maritime activities in France

In the following text a brief description of the main characteristics of the maritime economic activities in the country is presented.

#### Shipbuilding and water projects

##### Shipbuilding and repair

##### Commercial and naval shipbuilding

Notwithstanding the decline of European role in global shipbuilding France still has an active position in this sector, partly due to the presence of commercial and naval shipbuilding. International markets are source to 30% of the French naval shipbuilding turnover<sup>18</sup>. The French naval shipbuilding industry is the third largest in the world and the first in Europe. According to the Cluster Maritime Français, French shipyards have developed specific expertise in the construction of more complex units, which are characterised by a higher added value: cruise liners and other passenger ships, frigates, support ships, submarines<sup>19</sup>. Such expertise is also progressively applied to offshore fields, particularly to marine renewables<sup>20</sup>.

Direct employment is registered at some 19 000 (the Cluster Maritime Français counts approximately 16 000 people); with significant additional employment among sub-contractors and suppliers (total employment including backward linkages is estimated at 40 000 according to the Cluster Maritime Français<sup>21</sup>).

Leading French companies in the sector are: DCNS, STX Europe, CMN (Constructions Mécaniques de Normandie), Piriou, Arno Dunkerque, Cegelec, Damen Shiprepair Brest, GICAN.

<sup>18</sup> <http://www.lajauneetlarouge.com/article/la-construction-navale-de-defense-moderne-et-performante>

<sup>19</sup> Le Cluster Maritime Français, 2011. For more information : <http://www.cluster-maritime.fr/article.php?id=14&lang=Fr>

<sup>20</sup> *Ibid.*

<sup>21</sup> <http://www.cluster-maritime.fr/article.php?id=14&lang=Fr>

### **Construction of leisure boats**

The position of France in the construction of leisure boats (such as sailboats, inflatable boats and motor boats) is strong<sup>22</sup>. It is the leading country in this activity in Europe with 63% markets outside France, notably Germany, UK, Spain, Italy and the US. Around 65% of production is sold on foreign markets, mainly Germany, UK, Spain, Italy and the US. The market shows a high level of concentration, with the industrial group Bénéteau representing more than half of the sector's employment and turnover<sup>23</sup>.

### **Construction of water projects<sup>24</sup>**

According to Insee 2010 data, this sector employs an average of 4 700 people<sup>25</sup>. Since 2010, companies have increased their export shares following a decline of the market in the EU. French exports are mostly directed at Northern Africa, Asia and Sub-Saharan Africa<sup>26</sup>.

The main French enterprises in the sector are: Acergy, Atlantique Dragage, Eiffage, Entreprise Tournaud and Saipem.

### **Maritime transport**

#### **Shipping**

French maritime transport of goods has been hit, like most European countries, by the economic crisis. This has resulted in decreased trade flows and corresponding ship movements of goods.

In France, 322 m tonnes of seaborne goods were handled in ports in 2011 (Eurostat). This represents 8.6% of the EU27 total. The main French seaports are: Dunkerque, Le Havre, Rouen, Nantes / Saint-Nazaire, Bordeaux and Marseille. All together, they treat more than 80% of seaborne trade in France. In terms of goods handled, Marseille (85 m tonnes, #4), Le Havre (63 m tonnes, #7) and Dunkerque (41 m tonnes, #20) are among the 20 largest cargo ports in Europe. Le Havre and Marseille are also among the largest container ports of Europe with respectively 2.2 m containers (expressed in TEUs, #9) and 1.1 m containers handled in 2011 (Eurostat).

In 2012, French shipping companies operated some 900 vessels, of which 581 sail under the French flag. The French shipping industry has a relatively young fleet with an average vessel age of 8 years. French shipping companies operate in all sectors: transport of goods, passenger transport, oceanographic research, rolling stock transport, offshore activities and services, assistance and rescue<sup>27</sup>.

Leading French companies in the sector are:

- Warehousing and storage: Logidis Comptoirs Modernes, Kuehne + Nagel, ND Logistics;
- Sea and coastal freight water transport: Bourbon, Compagnie Méridionale de navigation;
- Cargo handling: Manutention Terminal Nord, Dockers de Normandie.

<sup>22</sup> See the analysis of the Cluster Maritime Français, <http://www.cluster-maritime.fr/article.php?lang=Uk&id=21>

<sup>23</sup> CESAAR, 2011, see above.

<sup>24</sup> Construction of water projects includes the construction of: waterways harbour and river work, pleasure ports, locks, dams and dykes. It also includes the dredging of waterways.

<sup>25</sup> Insee figures confirm data provided by Eurostat. For more information see:

[http://www.insee.fr/fr/themes/detail.asp?reg\\_id=0&ref\\_id=esa-construction-2009&page=donnees-detaillees/esa/esa-construction/esa-construction-2009/fiche4291Z.html](http://www.insee.fr/fr/themes/detail.asp?reg_id=0&ref_id=esa-construction-2009&page=donnees-detaillees/esa/esa-construction/esa-construction-2009/fiche4291Z.html)

<sup>26</sup> Ifremer, 2010. For more information: [http://www.ifremer.fr/demf/tpmf\\_fre.html](http://www.ifremer.fr/demf/tpmf_fre.html)

<sup>27</sup> Le Cluster Maritime Français, 2012. More information available here: <http://www.cluster-maritime.fr/article.php?id=3&lang=Fr>.

### *Deep sea shipping*

Deep sea shipping represents approximately one third of maritime transport (both in goods and economic activity). It directly employed almost 15 000 people in 2010<sup>28,29</sup>. However, according to Ifremer which reports INSEE data, the whole shipping sector (short sea shipping and deep sea shipping) employed 14 151 people as of 31 December 2010, corresponding to 12 917 employees full-time equivalent.

### *Short sea shipping*<sup>30</sup>

Short sea shipping is important in France. Similar to the EU as a whole the share of short sea shipping is close to two thirds of seaborne goods transport. According to Eurostat data, 23 m tonnes of mobile self-propelled units and 2 million of mobile non self-propelled units were transported in 2011 through short sea shipping in France<sup>31</sup>. Some differences can be observed for individual ports with Marseille showing a relatively stronger share of short sea shipping in comparison with Le Havre and Dunkerque<sup>32</sup>.

### *Passenger ferry*

Traditionally, passenger ferry transport services in France cover three geographic areas: the English Channel, Corsica and the Mediterranean area. In addition ferry services can be found along the Atlantic coast although at a lower level.

As for Europe, the French passenger ferry sector has been facing a decrease in demand in the last decade, partly due to the economic development but also to the increase of low cost airlines (and for the Channel traffic the construction of the Eurotunnel). For example, according to the French governmental Direction for Maritime Affairs, since 2007 cross-Channel ferries have lost 1.6 million passengers. In 2011, traffic fell by 1.8%, in line with the situation of British and Irish economies. More recent data seems to indicate that demand is still under pressure although it seems to have stabilised recently (see, e.g. DFDS 2012 Annual Report). Four major events have marked the French ferry market as of recent: the bankruptcy of SeaFrance in 2012 (followed by a possible resurgence of its activities under Eurotunnel), the merger between LD Lines and DFDS and the economic difficulties of Brittany Ferries<sup>33</sup>

The decline of ferry transport has a direct impact on the labour market for French sailors as ferries under French flag are the first source of employment for this group.

The Mediterranean market has proved to be more resilient to the effects of the economic crisis than the Channel, although here an incidental cause, the Arab Spring, impacted passenger traffic between Europe and the Maghreb region. Despite the fact that the past year has been

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<sup>28</sup> The definition adopted in the present study might lead to higher figures compared to national ones. For more information, see the methodological session.

<sup>29</sup> Deep-sea shipping is intended as international (freight) transport by sea with large vessels that often sail fixed routes (containers, major bulks) or tramp shipping. Source : [https://webgate.ec.europa.eu/maritimeforum/system/files/Subfunction%201.2%20Short%20Sea%20Shipping\\_Final%20v120813.pdf](https://webgate.ec.europa.eu/maritimeforum/system/files/Subfunction%201.2%20Short%20Sea%20Shipping_Final%20v120813.pdf)

<sup>30</sup> The definition adopted in the present study might lead to higher figures compared to national ones. For more information, see the methodological session. Short sea shipping is here defined as intra-European maritime shipping. Short sea fulfils several functions: it caters to the transport needs of European economies by providing maritime point-to-point transport of all kinds of commodities; it provides the maritime link that connects the European road network across the seas, in the form of Ro-Ro transport; it serves as feeder transport distributing container flows from the major intercontinental hubs to smaller ports, or vice versa. Source : [https://webgate.ec.europa.eu/maritimeforum/system/files/Subfunction%201.2%20Short%20Sea%20Shipping\\_Final%20v120813.pdf](https://webgate.ec.europa.eu/maritimeforum/system/files/Subfunction%201.2%20Short%20Sea%20Shipping_Final%20v120813.pdf)

<sup>31</sup> Eurostat, Short Sea Shipping - Country level - Gross weight of goods transported to/from main ports, by type of cargo, available <http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do>

<sup>32</sup> Eurostat (2010) Data in focus – Short Sea Shipping of Goods - 2008

<sup>33</sup> Ministère du développement durable, 2012. [http://www.developpement-durable.gouv.fr/IMG/pdf/Publi\\_DGITM\\_Analyse\\_conjoncture\\_1\\_sem\\_2012\\_av\\_couverture.pdf](http://www.developpement-durable.gouv.fr/IMG/pdf/Publi_DGITM_Analyse_conjoncture_1_sem_2012_av_couverture.pdf)

characterised by a decline in passenger traffic, within this market Corsica remains one of the few destinations in Mediterranean Europe to display positive results in terms of traffic. Corsica Ferries and SNCM-CMN are the two major companies dominating passenger ferry transport to Corsica<sup>34</sup>.

As for the Atlantic, two French companies offer passenger transport services along the Atlantic coast to Spain: Brittany Ferries and LD Lines.

### **Inland waterway transport**

The French Ministry for Sustainable Development presents inland waterway transport of goods as cheap, clean, reliable and safe. It is referred to as a valuable alternative to road transport on particularly congested corridors<sup>35</sup>.

Some 68 400 tonnes of goods were transported by inland waterways in France, putting the country at the 4<sup>th</sup> place in Europe after Germany, Belgium and the Netherlands (Eurostat). The three most important IWT regions having direct sea access in France that can be discerned in France are: the Rhone/Saone basin, the Nord Pas de Calais basin and the Seine/Oise basin. Of these, the Seine basin (linking Paris to Le Havre) is the waterway with the heaviest traffic, followed by Nord Pas de Calais and the Rhone<sup>36</sup>. Inland waterway passenger transport plays a relatively limited role in IWT.

Inland waterway freight transport in France has undergone significant decline since when, in the early 1970s, it accounted for 110 m tonnes and 14 bn tonne-kilometres<sup>37</sup>. This decline can be explained by at least two structural changes: the decline of traditional heavy industries the growing importance of faster means of transport. The sector lost competitiveness because of an ageing network of vessels, the rigidity of professional practices, an obsolete legislative and regulatory framework and, in general terms, the poor technical integration into modern supply chains.

The modernization of the sector brought recovery since the middle 1990s, with the activity reaching up to 5.8 to 7.9 bn tonne-kilometres in 2005. Such positive development is the result of a number of specific measures within the sector: reduction of overcapacity, a modernised legislative and regulatory framework, a significant effort from the French *Voies Navigables de France*<sup>38</sup> in the maintenance and restoration of the network<sup>39</sup>. The main actors in the sector are: CCES Contargo Container Escaut, CIE Fluviale Transport de Gaz, Coalis, Compagnie Fluviale de Transport, Compagnie Française de navigation Rhenane.

### **Food, nutrition and health**

#### **Fisheries for human consumption**

The fishery sector consists of fishing, fish processing, as well as wholesale and retail<sup>40</sup>. Overall some 56 000 people are employed in fishery. The fishing activity primarily focuses on catching fish for human consumption..

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<sup>34</sup> Ministère du développement durable, 2012, see above.

<sup>35</sup> Ministère du développement durable, 2011. More information are available here: <http://www.developpement-durable.gouv.fr/Le-transport-fluvial-de.html>

<sup>36</sup> See VNF [www.vnf.fr](http://www.vnf.fr)

<sup>37</sup> Ministère du développement durable, 2011, see above.

<sup>38</sup> Voies Navigables de France is the French navigation authority responsible for the management of the majority of France's inland waterways network.

<sup>39</sup> Ministère du développement durable, 2011, see above.

<sup>40</sup> The present study has adopted a wide definition for the activity 'fisheries for human consumption', which also includes fish processing. For more information, see the methodological session..

In total 443 000 tonnes of fish was being caught by the French fleet in 2010 (Eurostat). This represents a share of 9% of the EU27 total. According to the French Ministry of Sustainable Development, in 2010 the French fishing fleet was made of 7 305 vessels, 4 857 registered in metropolitan France and 2 448 in the departments and overseas territories. In the same year, the French fisheries sector employed 22 639 sailors, of which 585 were extra-EU citizens.

According to France Agrimer, the small-scale coastal fisheries<sup>41</sup> employ 45% of the available fishing workforce, followed by small-scale shellfish fisheries (22%), high sea fisheries (15%) and coastal fisheries (12%). Large-scale fisheries employ only 5% of the available workforce. Small-scale fishing can be mainly found in the Mediterranean (73%) and in the overseas territories (87%<sup>42</sup>).

The largest number of jobs in the fish catching sector is to be found in the Bretagne region (28%), followed by Aquitaine Poitou-Charentes (19%), the northern part of Normandy (17%), the Mediterranean (14%) and the overseas departments (11%)<sup>43</sup>.

The fish processing industry in France employs 15 590 people working in 311 companies (JRC 2012). Over the past period this sector has remained relatively stable. The fish processing industry is highly concentrated with the 10 largest companies producing 45% of all turnovers.

#### **Fisheries for animal consumption**

According to JRC and PRODCOM, fishing for animal consumption is negligible in France.

#### **Marine aquaculture**

According to FAO data, France is the largest aquaculture producer in Europe, with 21% of the value of the total EU aquaculture<sup>44</sup>. France aquaculture focuses on bivalve shellfish farming (oysters, clams, scallops, mussels and cockles), which is mainly concentrated in Bretagne, Normandie and Poitou-Charentes. France is the first and almost the only oyster producer in the European Union.

#### **Shellfish farming**

According to the French department of Sustainable Development, in 2010 shellfish farming employed 16 800 people<sup>45</sup>, with 50% seasonal jobs. Most of the shellfish farming takes place on the public maritime domain, which grants professionals the necessary concessions and licences to operate. According to JRC the number of shellfish farms is close to 3 300 showing a decreasing trend over the past years.

#### **Marine fish farming**

As for marine fish farming alone, it is developed by 31 companies that provided a production of 5 700 tons in 2010. The industry is highly concentrated: 8 companies make 80% of sales. After a steady growth until 1995, the French marine fish farming sector has stagnated since. Conditions for its development are hampered by the scarcity of available sites and the competition with other coastal activities to access these sites (including tourism). Marine fish farming, which is mainly

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<sup>41</sup> Small scale fisheries include vessels which remain out of port for less than 24 hours; vessels active in coastal fisheries are believed to be out of port between 24 and 96 hours; offshore fisheries remain out of port for more than 96 hours; high seas fisheries employ vessels of over 1 000 GRT (gross register tonnage) or vessels over 150 GRT and remain out of port for more than 20 days. Source : <http://www.franceagrimer.fr/content/download/3232/17747/file/fishing-booklet-complete.pdf>

<sup>42</sup> France Agrimer, 2010. More information : <http://www.franceagrimer.fr/content/download/3232/17747/file/fishing-booklet-complete.pdf>

<sup>43</sup> France Agrimer, 2010, see above.

<sup>44</sup> JRC STECF (2013), The economic performance of the EU aquaculture sector, p25

<sup>45</sup> France Agrimer, 2013. More information:

<http://www.franceagrimer.fr/content/download/23162/191443/file/broch%20pêche%20A4%20enDEF.pdf>



concentrated around the production of royal seabreams and basses<sup>46</sup> employs 2 800 people (2 200 full-time equivalents) with 80% permanent jobs<sup>47</sup>.

## Algae

Algae production in France is limited. Although France can master both the skills and the techniques for the cultivation of several macro-algae species, only a few algae-farmers are active in Bretagne and Vendée, producing low volumes of algae for high added value markets (food, cosmetics, etc.). Out of the 50 000 tons of algae produced in France every year, only 0.1% come from algae culture. In 2010, there were six farms in Bretagne and Vendée and two hatcheries in Bretagne<sup>48</sup>.

## Blue biotechnology<sup>49</sup>

Blue biotech is an economic activity that is very much in its development stages. Nevertheless, France can be seen as one of the frontrunners in this field in Europe. The use of marine bio resources is an established practice in the field of cosmetics. In France, a network of SMEs is active in the field. In particular, the Pôle Mer in the Bretagne region is supporting several public/private projects, by bringing together public research centres and private companies to develop innovative solutions in the blue biotech sector. For example, the Aquactifs project has brought together companies such as Biocean together with Agrimer, whereas the Ivoligo project involves BioEurope, the Roscoff Biological Station and the Centre for the Study and Promotion of Algae Pleubian<sup>50</sup>.

France is also active in R&D activities for the production of biofuel from microalgae oil.

In food processing, the French company Roquette launched an ambitious 5 years programme (ALGOHUB<sup>51</sup>) of more than €28 m to study the potential of microalgae for the production of new dietary supplements. The study started in 2009 and should come to an end in 2014. Preliminary studies conducted in animals and in humans have shown that Chlorella (a microalga rich in nutritional compounds) has a potential efficacy as dietetic supplement on immunomodulation and detoxification<sup>52</sup>.

Blue biotech is recognized in France as a breeding ground for innovative start-ups (affirmed in the report issued in mid-2009 after the organisation of the 'Grenelle de la Mer'), and ideas are being explored for the establishment of a national system for marine biotechnology start-ups to grow, rather than to have them being 'absorbed' by larger companies.

With several companies developing marine biotechnologies, the presence of three marine clusters (the Pôle Mer Bretagne, the Pôle Mer PACA and Aquimer) and the development of a specialised cluster in Nantes (the Blue Cluster); France has the potential to play a leading role in the blue biotechnologies sector.

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<sup>46</sup> No detailed information was found on fin fish. For more information: [http://www.developpement-durable.gouv.fr/IMG/pdf/Chiffres\\_cle\\_peche.pdf](http://www.developpement-durable.gouv.fr/IMG/pdf/Chiffres_cle_peche.pdf)

<sup>47</sup> Ministère du développement durable, 2011.

<sup>48</sup> [http://www.netalgae.eu/uploadedfiles/Rapport\\_WP1\\_FR\\_1.pdf](http://www.netalgae.eu/uploadedfiles/Rapport_WP1_FR_1.pdf)

<sup>49</sup> We understand blue biotechnology as the use of wild and farmed aquatic living resources as precursors of bio-molecules used for high value products (health, cosmetics, etc.). It is about unravelling the potential of the biodiversity of a specific earth compartment for the benefit of the rest of the economy. Source:

<https://webgate.ec.europa.eu/maritimeforum/system/files/Blue%20Growth%20Final%20Report%2013092012.pdf>

<sup>50</sup> <http://www.cleantechrepublic.com/2009/08/26/biotechnologies-marines-de-belles-perspectives-pour-la-france/>

<sup>51</sup> <http://www.algothub-roquette.com>

<sup>52</sup> <http://www.algothub-roquette.com/>



### **Aquaculture in saline soils**<sup>53</sup>

Based on Eurostat data the number of people employed in agriculture on saline soils is estimated at 16 850. According to JRC saline soils are found at various places along the Atlantic and Mediterranean coast<sup>54</sup> (see map insert<sup>55</sup>).



### **Energy and seabed materials**

#### **Offshore oil and gas**

At present France has not yet started its oil exploitation in mainland offshore areas. However, exploratory projects are currently running in the Bay of Biscay and in the Mediterranean<sup>56</sup>. Exploration should also be started in an area off the Bretagne region. These areas have a depth of around 100-200 m but can reach up to 1000 m in the Bay of Biscay and the Mediterranean.

According to the 'Institut Français de la Mer' around 27 000 individuals are currently employed in the offshore oil and gas sector<sup>57</sup>. As 90% of the sector's turnover comes from export activities<sup>58</sup> and that the level of mainland activity is almost limited to one platform operated by Norwegians employing French support personnel<sup>59</sup>, we can estimate that maximum 1 000 staff out of the 27 000 can be labelled as French mainland offshore activity related employment. The remaining share of French offshore oil and gas activities occur off the coasts of its overseas territories<sup>60</sup>.

In the context of rising oil prices and the launch of new explorations, investments in the hydrocarbon sector are expected to continue. 90 French companies are active in the extraction of crude petroleum and natural gas (echography activities, drilling) and another 37 companies provide support activities for petroleum and natural gas extraction (installations, vessels supply, personnel transport). France is the second largest exporter of support services to oil and gas extraction, with 18% of the world market share<sup>61</sup>.

Among France's major players, we can count Bourbon (third place in the top ten of offshore maritime services), Technip, CGGVeritas and Louis Dreyfus Armateurs.

#### **Offshore wind**

At present, no offshore wind energy has been developed in France. However, the development plan for renewable energy from the 'Grenelle de la Mer'<sup>62</sup> aimed at ensuring that 3% of all energy consumed will be generated from marine energy by the year 2020, most of which would be made possible by the installation of 6 000 MW of mostly offshore wind turbines (around 1 200) off the French coast. At least two opportunities arise for France. On the one side, such project relates to the 'climate and energy package' commitments. On the other side, offshore wind is also seen as an opportunity to create a leading industrial sector with tens of thousands of sustainable jobs.

<sup>53</sup> We have adopted the following definition: development of agriculture on saline soils, through improving existing crops or adapting salt tolerant plants. Source: <https://webgate.ec.europa.eu/maritimeforum/system/files/Blue%20Growth%20Final%20Report%2013092012.pdf>. For more information, see the methodology section in Annex [xx]

<sup>54</sup> Due to limitations in data availability, it is not possible to provide a sector's performance.

<sup>55</sup> <http://eussoils.jrc.ec.europa.eu/library/themes/Salinization/Resources/salinisation.pdf>

<sup>56</sup> [http://www.ifmer.org/assets/documents/files/documents\\_ifm/3--Offshore-en-Mediterranee.pdf](http://www.ifmer.org/assets/documents/files/documents_ifm/3--Offshore-en-Mediterranee.pdf)

<sup>57</sup> [http://www.ifmer.org/assets/documents/files/lu\\_presse/9997JRVallat42009.PDF](http://www.ifmer.org/assets/documents/files/lu_presse/9997JRVallat42009.PDF)

<sup>58</sup> [https://www.ifremer.fr/dcsmm/content/download/53111/753382/version/1/file/AES\\_Activites\\_parapetrolieres\\_GDG\\_V2bis.pdf](https://www.ifremer.fr/dcsmm/content/download/53111/753382/version/1/file/AES_Activites_parapetrolieres_GDG_V2bis.pdf)

<sup>59</sup> <http://www.agr.com/case%20studies/well/09-WE-028%20rev1sm.pdf>

<sup>60</sup> IFP Energies Nouvelles points out to the great potential of France's overseas territory French Guyana for deep offshore activities. For more information : IFP Energies Nouvelles, 2012, 'Offshore Hydrocarbons' in 'Panorama 2012'

<sup>61</sup> Le Cluster Maritime Français, 2010. <http://www.cluster-maritime.fr/article.php?id=13&lang=Fr>

<sup>62</sup> Officially launched on 27 February 2009 and following the 2007 'Grenelle de l'Environnement', the 'Grenelle de la Mer' has brought together members of the Government, local authorities, environmental groups and private companies to push forward a sustainable marine national strategy.

The potential for offshore production in France is estimated at 1 500 MW by 2030<sup>63</sup>, according to a roadmap designed by the association of renewable energies SER. The roadmap takes into account the marine potential to be exploited, the industrial capacity of operators and the cooperation among the different parties involved. This objective is expected to enable the creation of 30 000 jobs in total<sup>64</sup>. However, France must cope with its relative deep water level, which reduces the extent of areas where wind turbines can be installed. In 2011, France launched the first public tender on offshore wind energy. The results have been announced in April 2012: 5 sites were chosen to for the installation of about 3 000 MW. EDF EN consortium has won 3 out of the 4 attributed sites. The fifth one (the so-called Tréport project) has finally been cancelled<sup>65</sup>.

- EDF EN and Dong Energy, in a consortium with Eolien Maritime France, were awarded three of the four sites:
  - Courseulles-sur-Mer (Calvados, a power project of 450 MW);
  - Fécamp (Seine Maritime, power 498 MW);
  - Saint-Nazaire (Loire-Atlantique, capacity of 480 MW).

Alstom will supply these different sites of wind turbines with a unit capacity of 6 MW. The group will build two plants in Saint-Nazaire (generators and carriers).

Marines SAS, involving mainly the Spanish group Iberdrola and Eole-RES wings, is the recipient of the Saint-Brieuc (Côtes d'Armor, 500 MW). Their turbines will be supplied by Areva.

In total, more than twenty projects have been planned on French coastlines. In January 2013, the Ministry in charge of Energy has launched a second call for tenders including an extra 1 000 MW.

### **Ocean renewable energy**

Ocean renewable energy is a relatively new form of renewable energy, possibly with the exception of tidal range installations. France has developed the first and so far only tidal barrage in Europe<sup>66</sup>: built in 1966, the 'La Rance barrage' is a 240 MW tidal range plant situated at an estuary into the Gulf of St. Malo in the Ile-et-Vilaine department<sup>67</sup>. 24 turbines were installed with a capacity of 240 MW. Its annual output is about 600 GWh<sup>68</sup>. Several other initiatives are currently in their R&D stages.

According to the French government, and taking into consideration the characteristics of French territory as well as the development potential of the different technologies, France has a strong growth potential for ocean renewable energy, most of which is to be found in the overseas department and territories<sup>69</sup>:

- ocean thermal energy: a potential of 200 MW. Martinique currently owns the first production site with a total installed capacity of 10 MW;
- tidal (notably in the North-West French coast): 400 MW; a prototype should be installed in French Polynesia for a total capacity of 30 Kw;
- tidal barrage: 500 MW;

<sup>63</sup> <http://renewables.seenews.com/news/french-association-sees-offshore-wind-power-potential-at-15-000-mw-by-2030-362303>

<sup>64</sup> <http://renewables.seenews.com/news/french-association-sees-offshore-wind-power-potential-at-15-000-mw-by-2030-362303>

<sup>65</sup> Area Tréport (Somme) has not been assigned to the consortium led by GDF Suez, the only bidder. The proposed project purchase price of electricity was considered too high. In this area, the "price of a wind power project" (study cost, implementation, operation and decommissioning of the plant) was estimated in the specifications between 115 € and 175 € / MWh.

<sup>66</sup> For more information, see the 2013 'Study in Support of Impact Assessment Work for Ocean Energy' commissioned by DG MARE to a consortium led by Ecorys.

<sup>67</sup> <http://www.wyretidalenergy.com/tidal-barrage/la-rance-barrage>

<sup>68</sup> Study in Support of Impact Assessment Work for Ocean Energy (2013).

<sup>69</sup> In 2007-2008, IFREMER explored the share that each ocean renewable energy could have in the total energy production in France. Further information can be found here:

<http://www.ifremer.fr/dtmsi/colloques/seatech04/mp/article/1.contexte/1.1.ECRIN-OPECST.pdf>

- waves: 200 MW. A first project is being developed in Polynesia and La Réunion.

The main actions foreseen in the 'Grenelle de la Mer', the French national strategy for sustainable marine development<sup>70</sup> to achieve these goals are to increase funding for research, support for testing and sea trials. In parallel, the creation of a marine regional cluster that combines the Atlantic and Mediterranean coasts helps structuring the sector by bringing together researchers, industrial and educational centres. A partnership (the so-called IPANEMA initiative) has also been concluded with stakeholders to promote the development of the marine scientific and industrial, create a network of French actors, develop sea trials sites and facilitate the development of demonstrators<sup>71</sup>.

### **Carbon Capture and storage**

Although most of France's electricity is low-carbon (due to nuclear and hydro), France has showed interest for this emerging technology. Gaz de France has estimated France's storage potential up to several billions of tons: 320-10 000 Gt in saline aquifer, 500-2 000 Gt in depleted gas and oil fields and some Gt in coal seams.

The French Environment Agency and Energy Management (ADEME) has recently announced plans of up to € 45 m to co-finance three experiments. Led by EDF, the C2A2 project aims to test on one of the boilers in the coal plant in Le Havre, a system for capturing carbon dioxide. Using amines (supplied by Dow Chemical) as solvents, this device can retrieve, from 2013, a ton of CO<sub>2</sub> per hour (and not more than 5 000t/year) from gaseous effluents from the plant. Total cost of these four tests: € 22 m, 25% funded by ADEME<sup>72</sup>.

A second project in saline aquifer is led by a consortium of six companies (Air Liquide, EDF, GDF Suez, Lafarge, Total and Vallourec), although the appropriate site still has to be determined. For two years, the subsoils of the Centre, Upper Normandy, Bourgogne, Champagne-Ardenne, Picardie and the Ile-de-France will be explored before a storage site is proposed. In a second step, researchers will find the appropriate industrial sites. Project Cost: € 54 m, 40% paid by ADEME<sup>73</sup>.

### **Mining**

The marine aggregates mining is attracting special attraction in France, notably because of the ever growing difficulties to access onshore fields, in particular alluvial granulates. For this reasons, applications for aggregates mining licenses are becoming numerous especially in the Channel region.

In the aggregate mining sector, direct employment is estimated, according to Ifremer, to about 200 sailors and 100 people on the ground (administrative, commercial and technical). There are a dozen companies using 16 different sand dredgers of different sizes. Some of these companies use the collected materials for their concrete-related operations or for public works<sup>74</sup>.

<sup>70</sup> Officially launched on 27 February 2009 and following the 2007 'Grenelle de l'Environnement', the 'Grenelle de la Mer' has brought together members of the Government, local authorities, environmental groups and private companies to push forward a sustainable marine national strategy. For more information : <http://www.developpement-durable.gouv.fr/Le-Grenelle-de-la-mer-de-2009-a-6309-.html>

<sup>71</sup> <http://www.developpement-durable.gouv.fr/Le-Grenelle-de-la-mer-de-2009-a-6309-.html>

<sup>72</sup> <http://www2.ademe.fr/servlet/getDoc?id=11433&m=3&cid=96>

<sup>73</sup> <http://www2.ademe.fr/servlet/getDoc?id=11433&m=3&cid=96>

<sup>74</sup> Ifremer, 2011. For more information : <http://www.ifremer.fr/drogm/Ressources-minerales/Materiaux-marins/Economie/Donnees-economiques>

### **Marine minerals mining**

France has been a pioneer in marine minerals mining since the 1970s. It possesses a set of scientific expertise and technological skills on marine subsoils and mineral exploitation: Ifremer, BRGM, CNRS and universities, for public institutions; Technip, Areva and Eramet for the private sector. France seems thus to have the potential to carry out scientific research and develop innovative technologies for the future access to mineral resources. Another important advantage is that France has the world's second most extended Exclusive Economic Zone.

In 2009, Ifremer launched a study to analyse the potential of the main deep sea mineral resources, the conditions necessary to their development and the ways to best build appropriate strategic partnerships and programs<sup>75</sup>. The study gathered information on the different French actors involved, their work and business dynamics, and presented proposals for action in particular for the R&D development of four types of mineral resources: sulphides, cobalt & platinum, polymetallic nodules and natural sources of hydrogen<sup>76</sup>.

In the context of the "Wallis and Futuna" program, France launched a first campaign which was held from August 3 to September 23, 2010, resulting from the agreement on an initial exploration of the French EEZ around the islands Wallis and Futuna to search for active and inactive hydrothermal sites and to study its biodiversity. This campaign was made possible through a public/private partnership involving the MEDDTL, AAMP, Ifremer and BRGM for public bodies and Technip, Eramet and Areva for private organizations. Other organizations from academia (CNRS-INSU, IGP, CEA and UBO) have been associated. It revealed a large area of recent volcanism (new backbone, new volcanoes) and several hydrothermal deposits<sup>77</sup>.

### **Desalinisation**

In France, three projects for the desalination of marine water are currently being developed, but are not yet functioning: they are located in Belle-Ile-en-Mer (Morbihan), Ile d'Yeu (Vendée) and around Les Sables d'Olonne (Vendée). However, they are progressing slowly<sup>78</sup>.

With a total estimated amount of € 9 m, the project of Ile d'Yeu is meant to securing the supply of drinking water to the island. However, the project seems on stand by, as the subsidy reserved by the Pays de la Loire region (€ 1.8 m) has not been granted yet. In 2009, the Water department of Vendée stated that the project was not considered as an immediate priority.

The project Sables d'Olonne, carried out by the department of Vendée and the Energy and Equipment department of the Vendee region (SyDEV) is meant to fill a lack of 4 m m3 of water by 2025. It could lead to the construction of a plant with a capacity of 10 to 20 000 m3 of fresh water per day by 2020. Nevertheless, the choice has not yet been finalized and the end of 2011, a technical, legal, financial, environmental and energy feasibility study has been funded for some € 105 000 by the Pays-de-la-Loire and the Agency water Loire-Bretagne. Among the outstanding issues, the energy supply is crucial: the project envisages the use of renewable energy bringing the total bill to several dozens of millions of euros.

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<sup>75</sup> <http://wwz.ifremer.fr/content/download/60853/830810/file/fiche%20ressources%20min%C3%A9rales.pdf>

<sup>76</sup> *Ibid.*

<sup>77</sup> Ifremer, 2011. For more information :

<http://wwz.ifremer.fr/content/download/60853/830810/file/fiche%20ressources%20min%C3%A9rales.pdf>

<sup>78</sup> <http://www.actu-environnement.com/ae/dossiers/nouvelles-ressources-eau/dessalement.php>

## Leisure and tourism

### Coastal tourism (accommodation)

France has a long coastline bordering three sea basins (North Sea/English Channel, Atlantic, Mediterranean) spread over 883 coastal municipalities, 26 departments and 11 regions. Figures on coastal tourism given in this section follow the geographic delineation - based on municipalities - used by the French Ministry of Tourism and Ifremer<sup>79</sup>.

Coastal municipalities are the first tourist destination in terms of overnight stays with 270 m nights for French people and 92 m overnight stays for foreigners (2005 data)<sup>80</sup>.

Compared with the various French tourist areas<sup>81</sup>, the coast remains the main destination for French tourists before the countryside, the mountains and the city. In 2007, coastal tourism accounted for 29% of the domestic tourism, equivalent to € 34 bn and to 32% of all tourist nights spent by residents in 2009<sup>82</sup>. This has remained rather stable over the years.

Coastal tourism is characterized by a strong seasonality, with a peak of activity for the months of July-August-September, with consequences on both overnight stays and jobs. The stays are longer than in other tourist areas (7.7 nights on average for residents)<sup>83</sup>.

Based on Eurostat data, the tourism sector in coastal regions employed around 65 569 people in 2010<sup>84</sup>. This data only include accommodation-related activities<sup>85</sup>. 2008 data published on the Ifremer website point to a total of 332.420 jobs in coastal tourism, which include both restaurant and accommodation sectors<sup>86</sup>. Some two thirds of these jobs are in the restaurant and catering sector, followed by hotel and accommodation sector (21%)<sup>87</sup>. This 21% (corresponding to around 69 800 people employed in the accommodation-related sector in French coastal communities) is in line with the data provided by Eurostat, since it could be assumed that the difference between the two is to be found in lower employment opportunities in the accommodation-related sector between 2008 and 2010, as well as in the inclusion or not of overseas territories<sup>88</sup>. The coastline municipalities guarantee 39% of the overall French accommodation offer (excluding overseas regions and territories)<sup>89</sup>.

### Marinas<sup>90</sup>

Marinas are well developed in France, notably in the Mediterranean coastline. The activity comprises all activities related to marinas, including rental of yachts, equipment supplies, maintenance and yachting related services.

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<sup>79</sup> This seems to be the geographical level used by French public authorities for providing data on coastal areas. As seen in the General Overview section, coastal municipalities are also referred to by the French national institute for statistics (INSEE) concerning the French coastal population. The institute makes reference to the French Coastal Act of 1986, in which coastal municipalities are defined as towns bordering the ocean, lagoons or estuaries at the transverse limit of the sea.

<sup>80</sup> French Ministry of Tourism, 2012, available here:

<http://www.dgcis.gouv.fr/files/files/archive/www.tourisme.gouv.fr/territoires/littoral/littoral.html>

<sup>81</sup> French tourism professionals use a geographical breakdown of municipalities differentiating between countryside, city, mountains and coastal municipalities. According to the French Coastal Act of 1986, coastal municipalities are towns bordering the ocean, lagoons or estuaries at the transverse limit of the sea.

<sup>82</sup> Ifremer, [https://wwz.ifremer.fr/dcsmm/content/download/53191/754354/version/1/file/AES\\_Tourisme\\_littoral\\_MMDN\\_V2.pdf](https://wwz.ifremer.fr/dcsmm/content/download/53191/754354/version/1/file/AES_Tourisme_littoral_MMDN_V2.pdf)

<sup>83</sup> Ifremer, see above.

<sup>84</sup> See methodology Annex for an explanation of the assumptions used in calculating this figures.

<sup>85</sup> Eurostat data include only accommodation-related activities. See chapter I and Annex I of this study.

<sup>86</sup> The reported data has been published by Ifremer together with other relevant statistics as an input to an initial economic assessment required by the Marine Strategy Framework Directive. For more info, see:

[https://wwz.ifremer.fr/dcsmm/content/download/53191/754354/version/1/file/AES\\_Tourisme\\_littoral\\_MMDN\\_V2.pdf](https://wwz.ifremer.fr/dcsmm/content/download/53191/754354/version/1/file/AES_Tourisme_littoral_MMDN_V2.pdf)

<sup>87</sup> Ifremer, see above.

<sup>88</sup> Official French data only include metropolitan France, whereas Eurostat also include data on overseas territories and departments.

<sup>89</sup> Ifremer, see above.

<sup>90</sup> Building of leisure boats (including yachts) is presented under 'Shipbuilding'.

According to the French government some 200 marinas can be found<sup>91</sup> (excluding the outermost regions) offering a total of some 120 000 berthing spaces. The Mediterranean sea basin has the largest share of marinas (55%) followed by the Atlantic coast (44%) and Nord-Pas de Calais on the North Sea/Channel coast (1%)<sup>92</sup>. According to the same source these marinas offer directly some 1 380 permanent jobs and 570 seasonal jobs. ICOMIA<sup>93</sup> report higher figures of some 3 000 people working in marinas. According to this same source major other activities can be found in trade & maintenance (13 800 jobs), equipment supply (3 200) and yachting related services (5 000 jobs).

### **Cruise tourism**

Despite a difficult economic situation, the French cruise tourism market is performing well. In 2011 478 000 cruise passengers started or ended their cruise journey in France, making putting it at the 6<sup>th</sup> place in Europe after Italy, Spain, UK, and Germany (Eurostat). This reflects the demand for cruise tourism coming from France where France holds a 5<sup>th</sup> place in Europe (European Cruise Council 2012). The number of passengers that are visiting French ports is larger as not all of them end or begin their journey in France. The major French ports-of-call had a passenger throughput in 2011 of some 1.7 m passengers in 2011, with the Mediterranean ports (Marseille and ports along the Côte d'Azur) clearly taking a dominant position representing some 85% of the cruise market<sup>94</sup>. On the Atlantic coast Le Havre is the most important destination, creating an entry point to the city of Paris.

On the 20 cruise companies which are present on the European market, five of them welcome 80% of the total passengers: Costa, MSC, Louis Cruises, Cruises and Royal Caribbean France. The first two, Costa and MSC, own the two thirds of the cruise tourism market<sup>95</sup>.

The main French companies involved in the cruise industry are: Bourbon Supply investments, Bretagne Angleterre Irlande, Club Med Marine, Compagnie du Ponant, Compagnie Océane and Corsica Ferries France.

### **Coastal protection**

Coastal protection includes protection against flooding and erosion, preventing salt water intrusion, protection of habitats. Some overlap is expected to exist with the economic activity 0.b "construction of water projects".

The French Coastal Observatory is responsible for coastal protection on behalf of French cities, departments, regions and the French state. It acquires fragile or threatened land and, after protection and restoration works, it entrusts the land management to municipalities, local authorities, associations or public institutions. By 2012, the Observatory provided the management and protection of 152 000 hectares, representing more than 12% of French coastline<sup>96</sup>. According to a recent study, in 2008 France spent € 27.3 m in coastal protection and climate adaptation<sup>97</sup>.

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<sup>91</sup> [http://www.developpement-durable.gouv.fr/IMG/pdf/donnees\\_OPP\\_dec\\_2010\\_resultat\\_enquete.pdf](http://www.developpement-durable.gouv.fr/IMG/pdf/donnees_OPP_dec_2010_resultat_enquete.pdf)

<sup>92</sup> The French ministry for Sustainable Development records 67.215 marinas in the Mediterranean coastline, 51.652 along the Atlantic coast and 1.282 in the North region. More information available here : [http://www.developpement-durable.gouv.fr/IMG/pdf/donnees\\_OPP\\_dec\\_2010\\_resultat\\_enquete.pdf](http://www.developpement-durable.gouv.fr/IMG/pdf/donnees_OPP_dec_2010_resultat_enquete.pdf)

<sup>93</sup> ICOMIA (2011)m Recreational boating statistics

<sup>94</sup> Based on data from Eurostat, Cruise council Europe and Cruise Europe.

<sup>95</sup> Conseil National du Tourisme, 2010, 'Essor prometteur des croisières en France'.

<sup>96</sup> <http://www.conservatoire-du-littoral.fr/front/process/Rubriquee8e8.html?rub=4&rubec=4>

<sup>97</sup> Policy Research Corporation (in association with MRAG), 'The economics of climate change adaptation in EU coastal areas', p. 62. Study carried out for the European Commission Directorate General for Maritime Affairs and Fisheries.



## Maritime surveillance and monitoring

*Maritime surveillance* is related not only to all waters under French jurisdiction, around mainland Europe and outermost territories, but also to the high seas within the framework of the implementation of international conventions signed by France. Maritime surveillance contributes to the implementation of regulations and supervision, to governance/management and collection of information necessary for the safety of persons and property, to the protection of the environment, to the maintenance of public order and to the fight against illicit activities. The aim of Maritime surveillance is also to track changes in environmental and ecological parameters of the ocean .

For France , the Coast Guard Function involves six administrations working closely together (Navy, Customs, Maritime Affairs, Gendarmerie, Border Police, Civil protection) in order to pool their resources for the benefit of maritime surveillance. Effective maritime surveillance serves all maritime activities and thus requires gathering a wide range of information, whether from databases or from a variety of fixed or mobile sensors , in land, sea , air or space.

France has put in place a system for merging and exchanging of information called SPATIONAV, which serves maritime administrations. Moreover, the French administrations which use satellite data for maritime surveillance have set up a system called TRIMARAN in cooperation with the companies and operators in the space sector, which provide such data. TRIMARAN uses data from about fifteen radar and optical satellites and integrated AIS data.

Regarding *environmental monitoring* (other than monitoring pollution) marine research institutes play an important role. A number of major maritime research institutes can be found in France including for example Ifremer, Centre d'Océanologie de Marseille, IUEM (Brest), Laboratoire d'Océanographie de Villefranche-sur-Mer, SHOM, and various marine research stations<sup>98</sup>. In its 2010 study on marine data infrastructure, MRAG reports that France annually spends € 145.9 m on collecting, processing and distributing marine data<sup>99</sup>.

Ifremer plays a significant role in the implementation of national policies for the monitoring of coastal waters and has established various monitoring networks<sup>100</sup>, such as:

- ROCCH, for monitoring chemical contaminants;
- REPHY, for monitoring phytoplankton, physico-chemical parameters in waters and shellfish toxins in shellfish;
- REMI, for microbiological monitoring in shellfish;
- REBENT, for monitoring of wildlife and benthic flora;
- IGA, for specific monitoring of water discharges from nuclear power plants.

Another prominent example of France's efforts is the Previmer Observing System<sup>101</sup>, which has been set up by a consortium of scientific, public and industrial partners. The aim of Previmer is to provide forecasts and observations along French coasts on temperature, salinity, sea level, storm surge, waves and nutrients and plankton concentrations.

<sup>98</sup> See [http://en.wikipedia.org/wiki/List\\_of\\_oceanographic\\_institutions\\_and\\_programs#France](http://en.wikipedia.org/wiki/List_of_oceanographic_institutions_and_programs#France) for an overview of marine research institutes and organisations in France.

<sup>99</sup> MRAG (2010), 'Marine data infrastructure', p. 8. Study carried out for the European Commission Directorate General for Maritime Affairs and Fisheries.

<sup>100</sup> <http://envlit.ifremer.fr/surveillance>

<sup>101</sup> [http://www.previmer.org/en/about\\_previmer](http://www.previmer.org/en/about_previmer)

## 2.2. Breakdown of maritime economic activities at regional level (NUTS 1 or NUTS 2) and allocation to different sea-basins

This section allocates the data from Table 2.1 to **maritime regions in the country**. The results of this analysis are twofold:

- to provide a breakdown of maritime economic activities at regional level and to assess maritime regions; and
- To feed into the overall allocation of the maritime economic activities to different sea-basins via the regional breakdown.

The breakdown of economic activities is done at NUTS 1 or NUTS 2 level, depending on the availability of data. Besides, the level of regional analysis is determined by where maritime policy strategies and funding programmes are decided (please see suggested level highlighted in bold).

**Table 2.2 Breakdown of maritime economic activities at regional level**

EU Member State	NUTS 1	NUTS 2	Geographical allocation to Sea-basin (NUTS 2 regions)
France <sup>102</sup>	Nord - Pas-de-Calais	Nord - Pas-de-Calais	North Sea
	Bassin Parisien	Haute Normandie	Atlantic Arc
		Basse Normandie	Atlantic Arc
		Picardie	Atlantic Arc
	Ouest	Pays de la Loire	Atlantic Arc
		Bretagne	Atlantic Arc
		Poitou-Charentes	Atlantic Arc
	Sud-Ouest	Aquitaine	Atlantic Arc
	Méditerranée	Languedoc-Roussillon	Mediterranean Sea
		Provence-Alpes-Côte d'Azur	Mediterranean Sea
Corse		Mediterranean Sea	

Table 2.3 presents the percentage share of each region in the specific maritime economic activity. This share can be applied both to the GVA figures and the employment figures in Table 2.1. As hardly any data can be found in regionalised statistics, allocation has been done on the basis of other parameters and by using a mix of sources (Eurostat, French Government, ICOMIA, French public bodies). The methodology used is explained in footnotes to the table.

**Table 2.3 Overview of employment and GVA per maritime economic activity per region (%)**

Sea-basin	Atlantic Arc							Mediterranean Sea-basin			North-Sea basin
	Haute Normandie	Basse Normandie	Picardie	Pays de la Loire	Bretagne	Poitou-Charentes	Aquitaine	Languedoc-Roussillon	Provence Alpes Cote d'Azur	Corse	Nord-Pas de Calais
<b>0. Shipbuilding</b>											
0.a	Shipbuilding and repair <sup>103</sup>	12.4		35.7	26	10			15.7		
<b>1. Maritime transport and shipbuilding</b>											
1.a	Deep-sea shipping <sup>104</sup>			54					28		18

<sup>102</sup> Please note that the Départements d'Outre Mer (NUTS 1 level) with the NUTS 2 level regions Martinique, Guadeloupe and Guyane have not been considered. Whilst those are part of France, we understand those do not belong to the Atlantic Arc but rather to the Caribbean.

<sup>103</sup> Regional data on employment in the shipbuilding sector has been extracted from the French national database and aggregated at sea basin level.

<sup>104</sup> Based on Eurostat data on goods handled (tonnes) in France and per major port (2011 data). The ports of Nantes/Rouen/ and Bordeaux have been estimated to have handled 60 mln tonnes of goods in 2011. Based on Eurostat data a share short sea shipping of 70% of all goods has been used for the Mediterranean and a share of 60% for the North Sea and Atlantic region.



Regional percentages (%) apply to Employment and GVA data	Sea-basin	Atlantic Arc							Mediterranean Sea-basin			North-Sea basin
		Haute Normandie	Basse Normandie	Picardie	Pays de la Loire	Bretagne	Poitou-Charentes	Aquitaine	Languedoc-Roussillon	Provence Alpes Cote d'Azur	Corse	Nord-Pas de Calais
1.b	Short-sea shipping	47							38			16
1.c	Passenger ferry services <sup>105</sup>	19							30			51
1.d	Inland waterway transport <sup>106</sup>	5.7 (Seine/Oise basin)							2.1 (Rhône/Saône basin)			92.2 <sup>107</sup>
<b>2. Food, nutrition and health</b>												
2.a	Fisheries for human consumption <sup>108</sup>	5.4	11	5.5 <sup>109</sup>	9	34.8	12.2	11.9	8.6	5.3	1.5	5.5 <sup>110</sup>
2.c	Marine aquaculture <sup>111</sup>	14.9			9.5	26	37	5.7	6.9			
2.e	Agriculture on saline soils <sup>112</sup>	3	4		27	7	21	5	18	8	6	
<b>3. Energy and seabed materials</b>												
3.c	Ocean renewable energy <sup>113</sup>					100						
3.e	Mining (sand, gravel, etc.) <sup>114</sup>	100										
<b>4. Leisure and tourism</b>												
4.a	Coastal tourism (accommodation) <sup>115</sup>	49							43			8
4.b	Marinas <sup>116</sup>	51							37			12
4.c	Cruise tourism <sup>117</sup>	11							89			
<b>5. Coastal Protection</b>												
5.1	Coastal protection <sup>118</sup>											
<b>6 Coastal Protection</b>												
6.1/6.2	Martime surveillance <sup>119</sup>											
6.3	Environmental monitoring <sup>120</sup>											

<sup>105</sup> Based on Eurostat data of seaborne passengers embarked/disembarked per sea basin. North Sea has been assessed based on Eurostat data for the ports of Calais and Dunkerque.

<sup>106</sup> Based on percentage share in tonnekilometers transport per basin (2010). Source: VNF, Transport de marchandises, Activité 2010.

<sup>107</sup> Both IWT in Rhône/Moselle basin (90.9%) and Nord-Pas de Calais basin (1.3%) itself.

<sup>108</sup> Regional split of the number of sailors embarked on French vessels in 2010. The data only includes fishing activities. Source: French Government, 2010. <http://www.franceagrimer.fr/content/download/15860/119148/file/Chiffres-cl%C3%A9s+p%C3%A0che+2012.pdf>

<sup>109</sup> Picardie and Nord-Pas-de-Calais.

<sup>110</sup> Picardie and Nord-Pas-de-Calais.

<sup>111</sup> Percentages have been calculated by extracting the total number of people employed at the regional level in the shellfish sector (preponderant in France) in 2010. Includes both permanent and seasonal jobs. French Government, 2010, <http://agreste.agriculture.gouv.fr/IMG/pdf/gaf12p167-170.pdf>

<sup>112</sup> To assess the allocation of agriculture on saline soils according to sea basins we use the share of the agricultural area on saline soils as shown in <http://eussoils.jrc.ec.europa.eu/library/themes/salinization/data.html>. We calculate the total area for France by summing the available data. We then divide the agricultural area on saline soils (expressed hectares) for each NUTS 2 region by the total to assess their share.

<sup>113</sup> The only functioning plant is the tidal barrage situated in Rance, Bretagne.

<sup>114</sup> According to Ifremer, mining is concentrated on the western facade of the Channel.

<http://www.ifremer.fr/manchemerdunord/Unite-Halieuitique/Halieuitique-Boulogne-sur-Mer/Axes-de-recherche/Autres-usages-energies-marines-granulats/Extraction-de-granulats-marins>

<sup>115</sup> The number of nights spent in the specific NUTS 3 region is based on the same approach as used for the overall estimation of the size of the sector. It is a combination of the available beds in NUTS 3 regions and the number of nights spent in NUTS 3 regions (as available in Eurostat). For the specific approach please check the elaboration:

We collected the number of nights spent in a given NUTS-2 region;

We collected the number of bed-places available for all the NUTS-3 regions within the given NUTS 2 region;

We attribute a number of nights spent at NUTS-3 level to each NUTS-2 region, based on the respective share on beds available;

We aggregated resulting "nights spent at NUTS 3" only for maritime NUTS 3 according to their sea basin location.

<sup>116</sup> Based on the regional split in jobs according to ICOMIA (North-East = North Sea; South Atlantic & Great West = Atlantic; Mediterranean = Mediterranean)

<sup>117</sup> We have used the 2010 data on the number of passengers per cruise port and aggregated it by sea basin. Until 2010, the North sea basin, namely the port of Calais, was not welcoming any cruises. Source : Conseil National du Tourisme, 2010, Essor prometteur des croisières en France.

<sup>118</sup> Regional breakdowns for this maritime economy activity are not available.

<sup>119</sup> Idem

<sup>120</sup> Idem



### 3. Ranking the 7 largest, fastest growing and promising maritime economic activities

The following sections are aligned with the methodology of the Blue Growth study, as requested by DG MARE. A list in ranking order of the 7 largest, 7 fastest growing and 7 most promising prospective maritime economic activities at country level is provided. This part of the study relies on statistical information gathered and supplemented with the insights of the sector editors and the country expert.

#### 3.1. The 7 largest Maritime economic activities

This section identifies the largest maritime economic activities with a ranking order. On the basis of the scores obtained in relation to GVA and persons employed, the 7 largest maritime economic activities have been identified as follows:

Table 3.1 Listing the 7 largest maritime economic activities in France

Rank	Maritime economic activities	GVA (€ m)	Employment	Score
1.	Coastal tourism	2,890	65,569	47.2
2.	Fisheries for human consumption	2,759	56,196	41.9
3.	Short-sea shipping	3,049	30,572	30.5
4.	Yachting and marinas	818	33,180	20.7
5.	Shipbuilding and repair	1,473	26,631	20.7
6.	Deep-sea shipping	1,460	14,641	14.6
7.	Passenger ferry services	978	13,931	11.9

#### 3.2. The 7 fastest growing Maritime economic activities over the 3 past years

This section identifies and selects the 7 fastest growing maritime economic activities as emerged **over the past 3 years**. This part of the analysis is essential for forecasting future trends. The analysis entails the aggregation and assessment of quantitative data for the maritime economic activities, applying the same approach as in the previous task. On statistical information gathered supplemented with the insights of the sector editors and the country editors where applicable.

Table 3.2 Ranking order of the 7 fastest growing maritime economic activities in France<sup>121</sup>

Rank	Maritime economic activities	Growth 2008-2010 (CAGR)	Growth 2000-2012 (CAGR)
1.	Cruise tourism	25.1%	10.9%
2.	Shipbuilding and repair	10.7%	-2.0%
3.	Fisheries for human consumption	2.3%	1.7%
4.	Fisheries for animal feeding	2.3%	1.7%
5.	Passenger ferry services	0.4%	-1.0%
6.	Coastal tourism (accommodation)	0.2%	2.8%
7.	Inland waterway transport	0.0%	-2.0%

<sup>121</sup> In view of the incomplete data sets for employment for the years 2008, 2009 and 2010 (Eurostat), the CAGR is mainly calculated on the basis of other relevant indicators (see Annex II). Please note that not for all maritime economic activities growth rates could be established.

The above maritime economic activities have been ranked according to their growth in the period 2008-2010. In most cases the recent growth shows a similar trend as the longer term development, although figures obviously differ for both periods. A clear exception to this is formed by shipbuilding where the longer term trend shows a decline, but the short term period shows a strong growth. In shipbuilding this may be influenced by the occurrence of a number of larger orders for new ships, hence it is not clear whether this really signifies a reversal of the trend.

All in all the figures indicates that only the top 3 maritime economic activities can be (possibly) characterised as fast growing although for shipbuilding and marine aggregates mining further confirmation needs to be sought, whether this is indeed the case.

Please note, that growth figures could not be established for all maritime economic activities.

### 3.3. Identification of promising maritime economic activities

The selection of maritime economic activities which hold a clear promise towards the future, even if they might be small today, is done on a number of criteria. The most important element aspect is the innovation level of the sector. The innovation level of maritime economic activities is analysed on the basis of a number of innovation criteria. The scoring on innovation is complemented with a set of other criteria, which are qualitatively scored, to arrive at a more comprehensive insight of the potential of a maritime economic activity.

#### 3.3.1. Innovation indicators

The innovation indicators are inspired by the recent communication on innovation indicators which aim to capture the innovation level of a country<sup>122</sup>. The following two indicator sets are included<sup>123</sup>:

Indicator	Explanation	Source
<b>Technological innovation</b>		
1. Scientific publications	Number of scientific publications in a MAE in a Member State in relation to the GVA (€ mln) of that maritime economic activity <sup>124</sup> .	Thomson Reuters (2011) <sup>125</sup>
2. Patents	Number of patents in a MAE in a Member State in relation to the GVA (€ mln) of that maritime economic activity.	Thomson Reuters (2011)
<b>R&amp;D expenditure</b>		
3. R&D expenditure/GVA	R&D expenditure as a percentage of value added <sup>126</sup> (2007 and most recent available year).	OECD, ANBERD database
4. RTD expenditure/turnover	R&D expenditure as a percentage of company turnover. Data are available for UK only.	Amadeus company database

In addition to the above indicators two national studies have been identified that contain information on innovation potential per sector/maritime economic activity. A qualitative assessment of these reports is provided beneath.

122 European Union, 2013: Measuring innovation output in Europe: towards a new indicator. COM(2013)624 final

123 Dependent on data availability

124 For small economic activities a default value of € 1 million has been used. The analysis was performed for 10 MEAs.

125 Analysis carried out in 2011 by Ecorys in the context of the general Blue Growth study. The analysis is based on Thomson Reuters data.

126 This indicator can be calculated for a few sectors only and are in most cases expressed at a higher sector level (e.g. oil & gas as part of the larger sector mining & quarrying). Only for shipbuilding a relatively straightforward match can be reached.

Table 3.3 List of identified national maritime sector analysis

Source	Qualitative assessment regarding innovation potential per maritime economic activity/sector
Invest in Blue, 2012 <sup>127</sup>	<p>In France, the 'Invest in Blue' initiative has brought together the most innovative SMEs in the maritime sector and the partners for their development. 30 SMEs have been selected and presented to investors, coming from the following marine-related sectors:</p> <ul style="list-style-type: none"> <li>• 27% shipbuilding;</li> <li>• 7% Marine biotechnologies;</li> <li>• 23% Marine renewable energy;</li> <li>• 10% Yachting;</li> <li>• 20% Environment/coastal protection.</li> </ul>
The Maritime Clusters of Bretagne and Province-Alpes-Côte d'Azur (Pôles de Compétitivité Bretagne et PACA)	<p>The Maritime Clusters of Brittany and Province-Alpes-Côte d'Azur are marine science and technology clusters located in Brittany and Provence, whose remit is to promote economic competitiveness at a global level. They have a combined membership of over 600 enterprises that includes major companies, SMEs, public and private laboratories, universities and selective institutions, all of which are involved in the maritime field.</p> <p>On the one side, the aim is to exploit innovation in order to meet the growing demands of security and sustainable development, which are believed to have the potential to generate economic activity and jobs. On the other side, the objective is to stimulate and support collaborative projects, involving both companies and research laboratories, in the development of innovative products and services. Five strategic axes have been developed:</p> <ul style="list-style-type: none"> <li>• maritime safety and security;</li> <li>• ships and leisure boats;</li> <li>• marine energy resources;</li> <li>• marine resources;</li> <li>• environment and coastal management.</li> </ul> <p>Since 2005, 350 projects have received the 'Pôle Mer' recognition, 224 projects have received funding more than € 1 billion worth of research has been undertaken<sup>128</sup>.</p>

### 3.3.2. Other indicators

The innovation scores per MAE have been complemented with a number of additional criteria which have been scored in a qualitative manner. These include:

- Potential for competitiveness of EU industry, in comparison to the global industry in the respective segments;
- Future employment creation;
- Relevance for EU-based policy initiatives in that specific economic activity;
- Spill-over effects and synergies with other economic activities;
- Sustainability and environmental aspects.

<sup>127</sup> [http://investinblue.org/uploads/event\\_member/86552/bookafteriibautres.pdf](http://investinblue.org/uploads/event_member/86552/bookafteriibautres.pdf)

<sup>128</sup> <http://www.pole-mer.fr/>

Table 3.4 Future potential of economic activities

Maritime economic activity	Innovation Indicators					Other indicators				
	Publication/GVA	Patents/GVA	R&DVA (2011)	R&D/turnover	Composite score <sup>e</sup>	Competitiveness	Employment	Policy relevance	Spill-over effects	Sustainability
<b>0. Shipbuilding</b>										
Shipbuilding	n/a	n/a	16.4%	n/a	●●●●	+	0	+	+	0
Construction of water projects	n/a	n/a	n/a	n/a	●●	0	+	0	+	+
<b>1. Maritime transport</b>										
Deep-sea shipping	n/a	n/a	0.1% <sup>a</sup>	n/a	●	+	0	0	0	0
Short-sea shipping	n/a	n/a	0.1% <sup>a</sup>	n/a	●	+	+	+	0	+
Passenger ferry services	n/a	n/a	0.1% <sup>a</sup>	n/a	●	0	0	-	0	+
Inland waterway transport	n/a	n/a	0.1% <sup>a</sup>	n/a	●	0	0	0	0	+
<b>2. Food, nutrition and health</b>										
Fisheries for human consumption	n/a	n/a	1.3% <sup>b</sup>	n/a	●	-	0	+	-	-
Fisheries for animal feeding	n/a	n/a	1.3% <sup>b</sup>	n/a	●	-	0	+	-	-
Marine aquaculture	0.8	0.2	n/a	n/a	●	+	+	-	0	-
Blue Biotechnology	326	99	n/a	n/a	●●●●	+	+	+	+	0
Agriculture on saline soils	n/a	n/a	0.1% <sup>b</sup>	n/a	●	0	-	-	0	0
<b>3. Energy and seabed materials</b>										
Offshore oil and gas	226	188	10.3% <sup>c</sup>	n/a	●●●●	+	0	0	+	-
Offshore wind	76	42	n/a	n/a	●●●	0	0	+	+	+
Ocean renewable energy	148	62	n/a	n/a	●●●●	+	+	+	+	+
Carbon capture and storage	n/a	n/a	n/a	n/a	●●●	0	0	0	0	+
Aggregates mining (sand, gravel, etc.)	n/a	n/a	n/a	n/a	●	0	0	0	0	-
Marine minerals mining	125	83	n/a	n/a	●●●●	+	+	+	+	-
Desalination	23	29	n/a	n/a	●●●	0	0	0	0	-
<b>4. Leisure and tourism</b>										
Coastal tourism (accommodation)	n/a	n/a	0%	n/a	●	+	+	+	0	0
Yachting and marinas	n/a	n/a	n/a	n/a	●●	+	+	+	+	0
Cruise tourism	n/a	n/a	n/a	n/a	●●	+	+	0	0	0
<b>5. Coastal protection</b>										
Coastal protection	2.6	1.9	n/a	n/a	●●	0	-	+	+	+
<b>6. Maritime monitoring &amp; surveillance</b>										
Maritime surveillance	23	58	n/a	n/a	●●●	+	0	+	+	0
Environmental monitoring	720	103	n/a	n/a	●●●●	+	0	0	0	0

- a) Transportation & storage
- b) Agriculture/fisheries/forestry
- c) Mining & quarrying
- d) Accommodation & food services
- e) For those maritime economic activities for which no innovation indicators are available this is based on expert judgement

Based on the above indicator score 7 promising activities have been identified. This selection is primarily based on the composite innovation score, followed by the rank on the other indicators.<sup>129</sup>

**Table 3.5**      **The 7 most innovative maritime economic activities in France**

Rank	Maritime economic activities
1.	Ocean Renewable Energy
2.	Blue Biotechnology
3.	Marine minerals Mining.
4.	Shipbuilding
5.	Offshore oil & gas
6.	Environmental monitoring
7.	Maritime surveillance

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<sup>129</sup> The overall rank for the other indicators has been established by adding the + and deducting the -.





## 4. Identification and analysis of maritime clusters

This section identifies the key Blue Growth clusters in France and describes their economic activities. Clusters are one of the most notable concepts within economic geography. However they are not always easily to grasp or to measure as they are not clearly delineated industries or sectors. Clusters can be defined at the level of:

- An end product industry or industries;
- Downstream or channel industries;
- Specialised suppliers;
- Service providers;
- Related industries: those with important shared activities, shared skills, shared technologies, common channels, or common customers;
- Supporting institutions: financial, training and standard setting organisations, research institutions, and trade associations.

In this study, clusters are defined as “a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities (external economies)<sup>130</sup>.”

### 4.1. Maritime clusters in France

Building on the clusters already identified in the Blue growth study<sup>131</sup> and complemented with cluster identified in the EU Cluster Observatory<sup>132</sup>, the following clusters have been identified for France. Clusters in France are located in multiple sea basins: the Atlantic, North Sea and the Mediterranean. Of the below clusters two clusters, Brest and Bordeaux, are further elaborated to show their specific characteristics.

**Table 4.1** Proposed clusters to be analysed in France

Long-list of maritime clusters EU Cluster Observatory	Suggested clusters for in-depth analysis		
	Cluster	Location of the cluster	Maritime economic activities in the cluster
Bretagne	Brest	Atlantic Arc	Defence, blue biotechnology, shipbuilding, fisheries, ocean renewable energy
Marseilles		Mediterranean Sea basin	
Pays de la Loire		Atlantic Arc	
Aquitaine	Bordeaux	Atlantic Arc	Shipbuilding, fishing, yachting and marinas, environmental monitoring
Poitou-Charentes		Atlantic Arc	
Nord - Pas-de-Calais		North Sea and English Channel	
Basse-Normandie		Atlantic Arc	

<sup>130</sup> Prof. Michael E. Porter, 20120213, MOC2012 (HBS course) Session 5 - final

<sup>131</sup> In the previous Blue Growth study, these were: Bretagne, Brest, Marseilles, ES: Galician Coast, Barcelona;

<sup>132</sup> The EU Cluster Observatory denotes maritime clusters and tourism clusters.

## 4.2. Cluster analysis

The cluster analysis builds further on the regional allocation of economic activities as described under section 2.2. It also aims at assessing the maturity of the cluster (mature, growing or early development).

The clusters are analysed according to the following aspects (Table 4.4):

- Maritime economic activities in the cluster and indicate the mixture and composition of the cluster activities in terms of their development stage (mature, growing, early development);
- Assessment of strengths and weaknesses (feeding in to the overall SWOT analysis on the sea-basin level which will be part of the final report).

In addition to that, the identified clusters are intended to be analysed according to the following indicators (Table 4.2):

- Number of students in higher education;
- Number of students in higher education following courses specially designed for employment in the blue economy;
- Unemployment rate in the cluster;
- On-going research in a given cluster, i.e. number of on-going research programmes and projects in the cluster, regionalised patent & publications data (where available at cluster level), R&D test centres located in the cluster etc.

Table 4.2 Description of maritime clusters

Cluster	Maritime economic activities concerned	Unemployment rate at cluster level <sup>133</sup> (NUTS III or II level)	Ongoing research: main research institutes / companies associated to the clusters
Technopôle Brest-Iroise (Brest) <sup>134</sup>	Maritime Science and Technology applied to: <ul style="list-style-type: none"> <li>• Coastal protection</li> <li>• Exploitation of maritime (i.e. fisheries and aquaculture)resources</li> <li>• Ship building</li> <li>• Offshore oil and gas</li> <li>• Ocean renewable energy and offshore wind</li> <li>• Environmental monitoring</li> <li>• Maritime transport</li> </ul>	6 300 people work in the area, whereas 2 600 people work in the 88 companies belonging to the network Unemployment: <ul style="list-style-type: none"> <li>• NUTS 3 (department of Finistère), end of 2012: 9.2<sup>135</sup></li> <li>• NUTS 2 (region of Brittany), end of 2012: 9%<sup>136</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Companies: Thales, Cabasse, Ixsea, CLS, Geensys</li> <li>• Research Institutes: Ifremer, Paul Emile Victor Institute</li> <li>• Universities: University of Western Brittany (UBO): European Institute of Marine Studies and the French Graduate Engineering School of Microbiology and Food Safety ; Télécom Bretagne (Graduate Engineering School of Telecommunications) ; National Graduate Engineering School of Brest.</li> </ul>
Pôle-Mer Bretagne	<ul style="list-style-type: none"> <li>• Maritime safety and security</li> <li>• Shipbuilding and leisure boatbuilding</li> <li>• Marine energy resources</li> </ul>	300 members, 50% of which are SMEs Unemployment: <ul style="list-style-type: none"> <li>• NUTS 3 (department of Finistère), end of 2012: 9.2<sup>137</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Companies Thalès, Véolia, DCN</li> <li>• Research Institutes Le Cluster Maritime Français, Agence Nationale de Recherche, BRGM</li> </ul>

<sup>133</sup> Where available data exists, this should be provided at NUTS 3 level. However, if not available, a NUTS 2 data are gathered. The breakdown on cluster level will be provided and the rationale provided.

<sup>134</sup> Information provided concerning the Brest cluster has been retrieved from the Technopôle Brest-Iroise website (<http://www.tech-brest-iroise.fr/Homepage-625-0-0-0.html>). Where otherwise, alternative sources have been duly referenced

<sup>135</sup> <http://www.bdm.insee.fr/bdm2/affichageSeries.action;jsessionid=07FD6DCDFD43F080D525FB7CBCF4E4D2?recherche=idbank&idbank=001515894&codeGroupe=713>

<sup>136</sup> [http://www.insee.fr/fr/regions/bretagne/default.asp?page=conjoncture/taux\\_chomage.htm](http://www.insee.fr/fr/regions/bretagne/default.asp?page=conjoncture/taux_chomage.htm)

Cluster	Maritime economic	Unemployment rate at	Ongoing research: main
	<ul style="list-style-type: none"> <li>Marine biological resources</li> <li>Coastal and environmental planning and management</li> </ul>	<ul style="list-style-type: none"> <li>NUTS 2 (region of Brittany), end of 2012: 9%<sup>138</sup></li> </ul>	(Bureau de Recherche Géologique et Minières), ENT SB (Ecole Nationale Supérieure de Télécommunications de Bretagne), Ensietia (Ecole Nationale Supérieure de Techniques Avancées de Bretagne)
Bretagne Pôle Naval	<ul style="list-style-type: none"> <li>Naval (shipbuilding, refit and repair, maintenance, yachts and leisure boats)</li> <li>Marine renewable energy (tidal, offshore wind, floating offshore wind, wave energy, ocean thermal energy)</li> <li>Offshore oil and gas</li> </ul>	115 enterprises belong to the Pôle Naval's network, representing around 18.000 jobs Unemployment (region only): <ul style="list-style-type: none"> <li>NUTS 2 (region of Brittany), end of 2012: 9%</li> </ul>	DCNS (shipbuilding and ship repair), CTL (defence shipbuilding), Segula Technologies (Marine and industry engineering), Sofresid (Offshore & Onshore engineering), Piriou (Shipbuilding, repair and marine engineering), SNEF (electrical engineering) <sup>139</sup>
Bordeaux Superyacht Refit	<ul style="list-style-type: none"> <li>Yacht repair ('refit')</li> </ul>	It is foreseen that the cluster would create around 500 employment posts (both direct and indirect) <sup>140</sup>	As no boat has been 'refitted' yet, there aren't any on-going projects

Table 4.3 Education figures of the maritime clusters

Cluster	Number of students in higher education	Number of students in higher education following courses for employment in blue economy
Brittany region (including Technopôle Brest-Iroise, Pôle-Mer Bretagne and Bretagne Pôle Naval)	22 124 <sup>141</sup>	3 000 <sup>142</sup>
Aquitaine region (Bordeaux Superyacht Refit)	20 714 <sup>143</sup>	n/a

Table 4.4 List and strengths and weaknesses of clusters

Cluster	Maritime economic activities concerned	Status (mature, growing, early development)	Strengths	Weaknesses
<b>BREST</b>				
Brest has a long standing maritime tradition. Alongside distinctive maritime economic activities, economic development has also been favoured by the presence of three maritime clusters, which have also enabled a high concentration of research and development activities in maritime areas. The combination of maritime resources and innovation goes beyond the clusters active in Brest. The Bretagne region supports innovative maritime projects throughout its territory and is keen to involve a wide range of research centres, private companies and foreign investors. For instance, it finances projects focusing on marine and maritime technologies <sup>144</sup> .				
Technopôle Brest-Iroise (Brest) <sup>145</sup>	Maritime Science and Technology. The products developed	Mature	•2 100 researchers working on science and technology applied to the	

<sup>137</sup> <http://www.bdm.insee.fr/bdm2/affichageSeries.action;jsessionid=07FD6DCDFD43F080D525FB7CBCF4E4D2?recherche=idbank&idbank=001515894&codeGroupe=713>

<sup>138</sup> [http://www.insee.fr/fr/regions/bretagne/default.asp?page=conjoncture/taux\\_chomage.htm](http://www.insee.fr/fr/regions/bretagne/default.asp?page=conjoncture/taux_chomage.htm)

<sup>139</sup> <http://bretagnepolenaval.org/modules/kameleon/upload/1annuaire-cr-n-bpn2012.pdf>

<sup>140</sup> <http://www.usinenouvelle.com/article/bordeaux-attend-les-super-yachts.N203583>

<sup>141</sup> Number of delivered diplomas in higher education in the whole region of Brittany, 2011. Source : Insee, [tp://www.insee.fr/fr/themes/tableau.asp?reg\\_id=2&ref\\_id=edutc07203](http://www.insee.fr/fr/themes/tableau.asp?reg_id=2&ref_id=edutc07203)

<sup>142</sup> Number of graduates/year in the Brittany region in maritime-related education and training. Source : Pôle Mer Bretagne.

<sup>143</sup> Number of delivered diplomas in higher education in the whole region of Aquitaine, 2011. Source : Insee.

<sup>144</sup> For more information on these projects, see <http://www.invest-in-france.org/Medias/Publications/1105/Brittany-marine-cluster-france-en.pdf>

<sup>145</sup> Technopôle Brest-Iroise was established in 1988. It brings together a network of 200 entities (businesses, research centers, graduate schools and professional bodies) and works towards regional economic development through innovation. According to French literature, the notion of 'technopôle' has appeared in France in the 1970's, following the Japanese and American

Cluster	Maritime economic activities concerned	Status (mature, growing, early development)	Strengths	Weaknesses
	<p>within this cluster find application in different areas:</p> <ul style="list-style-type: none"> <li>• Coastal protection</li> <li>• Exploitation of maritime (i.e. fisheries and aquaculture)resources</li> <li>• Shipbuilding</li> <li>• Offshore oil and gas</li> <li>• Ocean renewable energy and offshore wind</li> <li>• Environmental monitoring</li> <li>• Maritime transport</li> </ul>		<p>sea;</p> <ul style="list-style-type: none"> <li>•Brest is the 1st French harbour for ship repair</li> <li>•Host of Pôle Mer Bretagne (Sea Competitiveness Cluster)</li> <li>•Host of France Energies Marines (French R&amp;D National Institute for marine energies)</li> </ul>	
Pôle-Mer Bretagne <sup>147,148</sup>	<ul style="list-style-type: none"> <li>• Maritime safety and security</li> <li>• Shipbuilding and leisure boatbuilding</li> <li>• Marine energy resources</li> <li>• Marine biological resources</li> <li>• Coastal and environmental planning and management</li> </ul>	Growing	<ul style="list-style-type: none"> <li>• Regional maritime dynamism of the Brittany region, with well developed marine infrastructure and wide-ranging marine resources</li> <li>• Strategic partnership with its 'twin' Pôle Mer PACA</li> <li>• Strong international network, including close collaboration with overseas territories</li> </ul>	<ul style="list-style-type: none"> <li>• The local dimension is somewhat a source of complexity, notably for the relation between the central state and the local communities<sup>149</sup></li> <li>• Weak ex post evaluation of projects<sup>150</sup></li> <li>• Weak integration of the pôle's projects with overall national R&amp;D strategies<sup>151</sup></li> <li>• Financial support to projects is not always adapted to projects life-cycle<sup>152</sup></li> </ul>
Bretagne Pôle Naval <sup>153,154</sup>	<ul style="list-style-type: none"> <li>• Naval (shipbuilding, refit and repair,</li> </ul>	Mature (shipbuilding	<ul style="list-style-type: none"> <li>• Available industrial and port</li> </ul>	<ul style="list-style-type: none"> <li>• The Pôle Naval's website does not</li> </ul>

examples. Among the most famous and developed French technopôles, we can mention Sophia-Antipolis, Rennes Atalante, the Technopole of Villeneuve d'Ascq, the Inovalée in Grenoble, the Toulouse aerospace technopôle.

<sup>146</sup> The French term of 'technopôle' corresponds to what is elsewhere known as 'science park'. As a European Commission study on regional research intensive clusters and science parks points out, « there are a number of types of science parks in Europe and over the world (...). One of the reasons is that in different countries different forms of science parks have been developed. Each country has a different history of science parks and has its own terms. For instance, "Science Park" is used in the United Kingdom, "Technopole" or "Technopolis" is used in France, "Technology Centre" and/or "Technology Park" is used in Germany ». The study highlights the lowest common denominator of such parks as the fact that « such parks gather producers of high technology products and services, and provide the opportunity for a degree of institutional co-operation between university and industry ». In this sense, we could understand French technopôles as the ancestors of today's competitiveness clusters. For more information, see [http://ec.europa.eu/research/regions/documents/publications/sc\\_park.pdf](http://ec.europa.eu/research/regions/documents/publications/sc_park.pdf)

<sup>147</sup> The competitive cluster of Pôle Mer Bretagne was created in 2005 with the support of Technopôle Brest-Iroise and is located within its offices. A representative of the Technopôle sits in the board of management of the Pôle Mer Bretagne. At project level, dynamics between the two entities are fed through joint efforts - collaborative programs and anchor projects. An example is the participation to the Medarmor programme, piloted – among other actors - by the Technopôle Brest-Iroise. The programme aims at helping SMEs of the Pôle Mer Bretagne and Pôle Mer PACA to obtain financial support. A second example is the Merific (Marine Energy in Far Peripheral and Island Communities) programme, which sees both the Technopôle and the Pôle Mer Bretagne as partners.

<sup>148</sup> For an in depth description of France's strategy for competitive clusters, see Table 14.

<sup>149</sup> C. Bernard, H. Ouzzine et al., *Un pôle de compétitivité en plein boom : le pôle-mer Bretagne*, Pôle Mer Bretagne and Université de Technologie de Compiègne.

<sup>150</sup> *Ibid.*

<sup>151</sup> *Ibid.*

<sup>152</sup> *Ibid.*

<sup>153</sup> All the information concerning the Bretagne Pôle naval has been retrieved from the following website : <http://bretagnepolenaval.org/?langue=en>. Where otherwise, alternative sources are reported.

<sup>154</sup> Please note that the Bretagne Pôle Naval network, despite receiving direct financial support from the Brittany region, does not include training and or research and education institutions. It was in fact created in 2007 with the primary objective to federate all the actors of the Breton shipbuilding and ship repair industry. However, connections and collaboration channels are believed to exist between the professional network and the research and education world. Moreover, the Pôle Naval is not a 'centrally driven' competitiveness cluster, but a regional cluster, which in recent years has successfully developed to include the offshore oil and gas as well as the marine renewable energy sectors.

Cluster	Maritime economic activities concerned	Status (mature, growing, early development)	Strengths	Weaknesses
	maintenance, yachts and leisure boats) <ul style="list-style-type: none"> <li>• Marine renewable energy (tidal, offshore wind, floating offshore wind, wave energy, ocean thermal energy)</li> <li>• Offshore oil and gas</li> </ul>	and ship repair), growing (offshore oil and gas), early development (MREs)	infrastructure <sup>155</sup> <ul style="list-style-type: none"> <li>• Shipbuilding is the 4<sup>th</sup> industrial sector in the region</li> <li>• Strong international reputation of Brest for ship repair (1<sup>st</sup> French port for ship repair)</li> <li>• Support and involvement of the region in structuring and federating the position of thousands SMEs active in the MRE sector<sup>156</sup></li> </ul>	specifically mention any research and/or education institutions belonging to the pôle's network. <ul style="list-style-type: none"> <li>• Not part of the 'centrally driven' French policy on competitiveness clusters</li> </ul>
<b>BORDEAUX</b>				
<p>Research has shown that, compared to Bretagne, the city of Bordeaux and its region - Aquitaine- have not yet developed a network of maritime clusters. As confirmed by our research and data collection, a large combination of maritime economic activities can be observed in the region, including – for instance – shipbuilding. However, interlinkages among these and between private and public actors seem to lack. This has been confirmed by the Aquitaine regional development agency, which argued that, despite the strong maritime dimension of the region, maritime economic activities are not organised around any cluster.</p> <p>Currently, the possibility to establish a yacht repair cluster (yacht 'refit') is being considered by the city of Bordeaux. Since 2010, the port of Bordeaux, together with local SMEs, has been promoting this project<sup>157</sup>.</p> <p>Arguments in favour of the yacht 'refit' project include:</p> <ul style="list-style-type: none"> <li>- The overcapacity of the already existing French 'refit' sites;</li> <li>- Available infrastructure in the port of Bordeaux;</li> <li>- The strength of the yachting sector in the region, with two major players.</li> </ul> <p>However, the project is not likely to be finalised soon. Political cleavages, strict environmental constraints as well as the progressive development of a residential area nearby the potential 'refit' site are currently hampering its successful development<sup>158</sup>.</p> <p>A limited list of competitiveness clusters can be distinguished in the region which does not however present a clear maritime dimension. Relevant for Blue Growth is the Aerospace Valley, a world Competitiveness Cluster established in both Aquitaine and Midi-Pyrénées regions specialised in aeronautics, space and embedded systems. In the city of Toulouse (Midi-Pyrénées region), the Aerospace Valley cluster also deals with open seas and coastal oceanography, territorial management, forecasts of atmospheric chemical content and natural risk management .</p>				

List of **specific regional or national cluster strategy** in place

Table 4.5

**Regional or national cluster strategy**

National cluster strategy
Les Pôles de Compétitivité <sup>159</sup>
<b>Brief description of main objectives and features</b>
<p>In order to boost French industrial competitiveness, the 2005 Finance Act creates the concept of 'competitiveness clusters'. The main objective of such national cluster policy was to make the French economy more competitive, fight against relocations, create jobs, and create private-public synergies. After a specific public tender launched between 2004 and 2005, 66 out of 105 projects are retained. The funding comes in various forms including research and development grants and relief on specific tax and social charges.</p> <p>In 2010, one could count 71 clusters divided into three categories: 7 'global' clusters, 11 'global vocation' clusters, and 53 'national' clusters. In total, 9 000 researchers work on around 1000 projects. Since 2005, 889 R&amp;D projects have received €1.7 bn in public-sector financing, of which €1.1 bn was provided by the State. These projects, amounting to some €4.4 bn in R&amp;D expenditure, involved nearly 15 000 researchers. The goal of competitiveness clusters is to build on synergies and innovative, collaborative projects in order to</p>

<sup>155</sup> 12 dry docks, 5 mobile lifts from 70 to 650 tons, one fixed lift of 2000 tons, 4 slipways, workshops and covered shipyards, industrial deep-water quays with platforms for heavy loads and handling equipment.

<sup>156</sup> [http://www.bretagne.fr/internet/upload/docs/application/pdf/2012-07/rapport\\_transversal\\_mer\\_bp\\_2012\\_relecture\\_finale.pdf](http://www.bretagne.fr/internet/upload/docs/application/pdf/2012-07/rapport_transversal_mer_bp_2012_relecture_finale.pdf)

<sup>157</sup> <http://www.usinenouvelle.com/article/bordeaux-attend-les-super-yachts.N203583>

<sup>158</sup> <http://www.sudouest.fr/2013/10/15/feltesse-mise-sur-les-yachts-1199510-2780.php>

<sup>159</sup> [http://competitivite.gouv.fr/documents/commun/Documentation\\_poles/brochures\\_poles/anglais/brochure-ang-internet.pdf](http://competitivite.gouv.fr/documents/commun/Documentation_poles/brochures_poles/anglais/brochure-ang-internet.pdf)

give partner firms the chance to become first in their fields, both in France and abroad.

The role of competitiveness clusters is to boost the competitiveness of the French economy and to help develop growth and jobs in key markets, by :

- accelerating innovation efforts;
- providing support for high-tech and creative activities, primarily industrial, in the various regions of France;
- improving the attractiveness of France via greater international visibility.

Cluster strategy: each cluster draws up a five-year strategic plan based on the shared vision of various participants. This allows the cluster to :

- establish partnerships between participants with recognized, complementary skills;
- set up collaborative R&D projects, as well as structuring projects such as innovation platforms that can benefit from public subsidies;
- promote an overall environment that fosters both innovation and growth among the cluster's members. This is done by providing leadership, exchange and support for members in areas such as private funding for firms, industrial property, forward-looking management of jobs and needs for new skills and qualifications, developing international technological partnerships, regional synergies, etc.

Resulting from local initiatives, competitiveness clusters are currently active in most activity sectors. These include emerging technologies (nanotechnology, biotechnology, eco-technology, etc.) as well as more mature sectors (automotive, aerospace, etc.).

## 5. Analysis of measures, policies and strategies to stimulate growth and good practices in the sea-basin

Table 5.1 Assessment of maritime and generic policies

Policy	Objectives	Priorities	Consequences for maritime activities	Impacts on sustainable growth	Investment and funding
Grenelle de la Mer (National strategy for the Seas and the Oceans) <sup>160</sup>	<ol style="list-style-type: none"> <li>1- Research into and respect for the marine environment;</li> <li>2- Development of a sustainable maritime economy;</li> <li>3- Promotion of the maritime dimension of France's overseas territory</li> <li>4- Affirmation of France's place in Europe and the world at large</li> </ol>	<ul style="list-style-type: none"> <li>• Research and innovation</li> <li>• Protection and development of coastal and marine areas</li> <li>• Protection of marine biodiversity</li> <li>• Transports, ports and naval industry</li> <li>• Marine resources other than fisheries</li> <li>• Tourism, yachting, sport and leisure</li> <li>• Pollution</li> <li>• Training, professions</li> <li>• Public awareness, communication, education</li> <li>• Governing</li> </ul>	<ul style="list-style-type: none"> <li>• More resources for improved coastal management;</li> <li>• Setting up of a network of marine protected areas for 10% of oceans by 2012 and 20% by 2020;</li> <li>• Reduced greenhouse gas emissions from maritime transport by 20% by 2020;</li> <li>• Development of a national ports strategy, reconsider shipbuilding industry;</li> <li>• 3% of all energy consumed to be generated from maritime energy by 2020;</li> <li>• Coastal tourism activities to be placed in a sustainable development perspective;</li> <li>• Strengthen the legal framework on pollution, reduce effluents released into oceans, fight against floating waste, set up specific funding;</li> <li>• Adapt and structure training programmes, strengthen establishments providing training in seafaring occupations and encourage synergies.</li> </ul>	<p>It is not yet possible to assess the impact of the 'Grenelle de la Mer' policy on sustainable growth. The policy has not yet been the object of an overall evaluation. The last publicly available progress report<sup>161</sup> (March 2012) refers to several on-going projects, launching of funding mechanisms, creation of supporting agencies, development of ad hoc strategies. However, their impact on sustainable growth is not yet visible.</p>	<p>Desk research has not revealed the overall budget of the policy. However, investment levels for certain specific policies and initiatives are hereafter reported:</p> <ul style="list-style-type: none"> <li>• Industrial programme 'Navire du futur': 100 m€ ;</li> <li>• Investment fund for maritime ports (2009-2013): 2.4 m€</li> <li>• Marine renewable energy : 100 m€<sup>162</sup></li> </ul>

<sup>160</sup> All information concerning the 'Grenelle de la Mer' has been retrieved from the official website of the policy initiative as well as from the progress reports published by the French Government. If otherwise, alternative sources have been reported. For more information, see : [http://www.developpement-durable.gouv.fr/IMG/pdf/09024\\_HS-Grenelle-Mer\\_Engagements\\_GB\\_23-12-10\\_web.pdf](http://www.developpement-durable.gouv.fr/IMG/pdf/09024_HS-Grenelle-Mer_Engagements_GB_23-12-10_web.pdf) and [http://www.developpement-durable.gouv.fr/IMG/pdf/Grenelle\\_de\\_la\\_mer\\_2eme\\_rapport.pdf](http://www.developpement-durable.gouv.fr/IMG/pdf/Grenelle_de_la_mer_2eme_rapport.pdf)

<sup>161</sup> For more information, see the second and last progress report : [http://www.developpement-durable.gouv.fr/IMG/pdf/Rapport\\_d\\_etape\\_-\\_Grenelle\\_de\\_la\\_mer.pdf](http://www.developpement-durable.gouv.fr/IMG/pdf/Rapport_d_etape_-_Grenelle_de_la_mer.pdf)

<sup>162</sup> <http://www.geo.fr/environnement/les-mots-verts/energies-renouvelables-40381>

Policy	Objectives	Priorities	Consequences for maritime activities	Impacts on sustainable growth	Investment and funding
National Strategy for the sea and coastlines <sup>163</sup>	<ol style="list-style-type: none"> <li>1- Develop the marine economy;</li> <li>2- Enhance training, research and innovation;</li> <li>3- Better protection of the marine environment</li> <li>4- Improvement of seafarers working conditions</li> </ol>	<ul style="list-style-type: none"> <li>• Transports, ports and naval industry</li> <li>• Research and Innovation</li> <li>• Training, professions</li> <li>• Protection and development of coastal and marine areas</li> <li>• Marine energy</li> </ul>	<ul style="list-style-type: none"> <li>• French shipbuilding to be must be strengthened by specializing in high value added sectorial niches;</li> <li>• Implementation of a national ports strategy with three areas: logistics and intermodality, industrial development and spatial planning ;</li> <li>• Maritime education as a priority to enhance professional opportunities in the maritime economy;</li> <li>• Marine research to focus on the sustainable development of the seas;</li> <li>• Development of marine energies;</li> <li>• Finalisation of the ratification of the Maritime Labour Convention</li> </ul>	<p>It is not yet possible to measure the impact of the French National strategy for the sea and coastlines, due to the fact that the Strategy is still under elaboration.</p> <p>However, it can be noticed that the development of such national strategy has been accompanied by a reorganisation of governance structures. A National Council of the sea and coastlines has been established on 18<sup>th</sup> January 2013. to coordinate the consultation with all interest parties, most of all with French regions and departments. Another major aspect is the fact that the strategy is not intended to be implemented uniformly across France. Instead, the principles and general guidelines will be broken down locally, so that their application is adapted to each coastline. Consequently, action plans will be elaborated at sub-region level.</p>	Desk research has not revealed the overall budget allocated to the strategy

<sup>163</sup> Inspired by the European Union Integrated Maritime policy and part of the Grenelle de la Mer process, the French Government is currently developing an integrated French maritime policy <http://www.gouvernement.fr/gouvernement/la-politique-maritime>



## 6. Annex I – Detailed description of the sources on maritime economic activities

The following table refers to section 2.1 “Overview of relevant maritime economic activities” (Table 2.1). It provides an overview of relevant figures sourced from Eurostat, Official national statistical sources or alternative sources (as indicated by the columns of Table 2.1). Appropriate references are supplied.

Table 6.1 Selection table of the most relevant figures and detailed references

Maritime economic activity		Source	GVA (€ m)	employment (abs. nrs)	Comments
<b>0. Other sectors</b>					
0.a	Shipbuilding and repair	Eurostat	<b>1,472 473</b>	<b>26 631</b>	
		National statistics	1 120	19 121	
		Alternative	n/a	16, 000 (excluding suppliers and subcontractors)	Le Cluster Maritime Français, 2011, <a href="http://www.cluster-maritime.fr/article.php?id=14">http://www.cluster-maritime.fr/article.php?id=14</a>
0.b	Construction of water projects	Eurostat	<b>687</b>	<b>4 980</b>	
		National statistics	719	4 362	
		Alternative	n/a	n/a	
<b>1. Maritime transport</b>					
1.a	Deep-sea shipping	Eurostat	<b>1 460</b>	<b>14 641</b>	
		National statistics	1 534	15 207	Combination of National statistics and Eurostat
		Alternative	n/a	n/a	
1.b	Short-sea shipping	Eurostat	<b>3 049</b>	<b>30 572</b>	
		National statistics	3 203	31 753	Combination of National statistics and Eurostat
		Alternative	n/a	n/a	
1.c	Passenger ferry services	Eurostat	<b>978</b>	<b>13 931</b>	
		National statistics	845	11 984	Combination of National statistics and Eurostat
		Alternative	n/a	n/a	
1.d	Inland waterway transport	Eurostat	<b>288</b>	<b>4 298</b>	
		National statistics	302	4 412	Combination of National statistics and Eurostat
		Alternative	n/a	n/a	
<b>2. Food, nutrition and health</b>					
2.a	Fisheries for human consumption	Eurostat	<b>2 759</b>	<b>56 196</b>	JRC (fishing), Eurostat (fish processing, wholesale & retail), PRODCOM (share of human/animal)
		National statistics	2 759	39 131	JRC (fishing), National Statistics (fish processing, wholesale & retail), PRODCOM (share of human/animal)
		Alternative	0	22 639//46900	GVA: Ifremer, 2009; employment: French Government, 2010 (only fishing activities)
2.b	Fisheries for animal consumption	Eurostat	minimal	minimal	JRC (fishing), PRODCOM (share of human/animal) (animal share is zero in 2010 according to JRC)
		National statistics	0	0	JRC (fishing), PRODCOM (share of human/animal) (animal share is zero in 2010 according to JRC)
		Alternative	n/a	n/a	
2.c	Marine aquaculture	Eurostat	<b>258</b>	<b>15 336</b>	JRC, data for 2010
		National statistics	258	15 336	JRC, data for 2010

Maritime economic activity	Source	GVA (€ m)	employment (abs. nrs)	Comments
	Alternative	n/a	20 000	17,200 (shellfish production), 2,800 (fish farming), n/a (algae); French Government, 2010
2.d	Eurostat	<b>n/a</b>	<b>n/a</b>	
	National statistics	n/a	n/a	
	Alternative	No industry yet, R&D Development stage		France Biotech, 2012 <a href="http://www.scribd.com/doc/145896846/Etude-2012-VInteractive-FranceBiotech">http://www.scribd.com/doc/145896846/Etude-2012-VInteractive-FranceBiotech</a>
2.e	Eurostat	<b>476</b>	<b>16 852</b>	
	National statistics	476	16 852	
	Alternative	n/a	n/a	
<b>3. Energy and sea bed materials</b>				
3.a	Eurostat	31	46	Employment data for 2009. No data on NACE 06.10 and 06.20
	National statistics	31	46	Employment data for 2009. No data on NACE 06.10 and 06.20
	Alternative	<b>confidential</b>	<b>From 27 000 (a) to 30 000 (b)</b>	(a) Le Cluster Maritime Français, 2010; (b) L'Institut Français de la Mer; 90% related to export activities
3.b	Eurostat	n/a	n/a	
	National statistics	n/a	n/a	
	Alternative	<b>minimal</b>	<b>minimal</b>	<a href="http://www.windustry.fr">www.windustry.fr</a>
3.c	Eurostat	n/a	n/a	
	National statistics	n/a	n/a	
	Alternative	<b>minimal</b>	<b>minimal</b>	Key GVA and employment are related to the La Rance tidal barrage, apart from employment in more experimental ocean energy pilots.
3.d	Eurostat	n/a	n/a	
	National statistics	n/a	n/a	
	Alternative	<b>n/a</b>	<b>n/a</b>	
3.e	Eurostat	<b>29</b>	<b>323</b>	Offshore share based on UEPG
	National statistics	n/a	n/a	
	Alternative	n/a	300	Ifremer, 2009, <a href="http://wwwz.ifremer.fr/drogm/Ressources-minerales/Materiaux-marins/Economie/Donnees-economiques">http://wwwz.ifremer.fr/drogm/Ressources-minerales/Materiaux-marins/Economie/Donnees-economiques</a>
3.f	Eurostat	n/a	n/a	
	National statistics	n/a	n/a	
	Alternative	<b>n/a</b>	<b>n/a</b>	
3.g	Eurostat	n/a	n/a	
	National statistics	n/a	n/a	
	Alternative	<b>minimal</b>	<b>minimal</b>	Actu-environnement, 2012
<b>4. Leisure and tourism</b>				
4.a	Eurostat	<b>2 890</b>	<b>65 569</b>	data for NACE 55.10, 55.20, 55.30, 55.90
	National statistics	7 503	67 947	data for NACE 55.10, 55.20, 55.30, 55.90, support data Eurostat
	Alternative	11 000	33 200	Ifremer, 2008
4.b	Eurostat	n/a	n/a	
	National statistics	n/a	n/a	
	Alternative	<b>818</b>	<b>33 180</b>	ICOMIA statistics, 2011
4.c	Eurostat	<b>96</b>	<b>1 366</b>	(low estimate)
	National statistics	83	1 175	(low estimate)

Maritime economic activity	Source	GVA (€ m)	employment (abs. nrs)	Comments
	Alternative	n/a	15 000	Croisierenet.com, 2011
<b>5. Coastal protection</b>				
	Eurostat	n/a	n/a	
	National statistics	n/a	n/a	
	Alternative	<b>12</b>	<b>118</b>	Eurostat COFOG; PRC the Economics of Climate change, data for 2008
<b>6. Maritime monitoring and surveillance</b>				
6.a	Maritime surveillance	Eurostat	n/a	n/a
		National statistics	n/a	n/a
		Alternative	<b>n/a</b>	<b>n/a</b>
6.b	Environmental monitoring	Eurostat	n/a	n/a
		National statistics	n/a	n/a
		Alternative	<b>n/a</b>	<b>n/a</b>



## 7. Annex II – Growth rates of the maritime economic activities

Maritime economic activity	Indicator	Source	Availability	CAGR (2008-2010)	CAGR (2000-2012)	Notes
<b>0. Other sectors</b>						
0.a	Shipbuilding and repair	Volume index of production, Gross data	Eurostat	2000 - 2012	10.7%	-1.8%
0.b	Construction of water projects	GVA	Eurostat	2009-2010	-44.7%	n/a
<b>1. Maritime transport</b>						
1.a	Deep-sea shipping	Volume of deep sea cargo shipped, 1000 tons	Eurostat	2000 - 2011	-5.4%	-0.8%
1.b	Short-sea shipping	Volume of short sea cargo shipped, 1000 tons	Eurostat	2000 - 2011	-6.5%	-0.7%
1.c	Passenger ferry services	1000PASF - 1000 passengers (excluding cruise passengers)	Eurostat	2004 - 2011	0.4%	-1.0%
1.d	Inland waterway transport	1000 tonnes transported on inland waterways	Eurostat	2007 - 2012	0.0%	-2.0%
<b>2. Food, nutrition and health</b>						
2.a	Fisheries for human consumption	Volume index of production, Gross data	Eurostat	2000 - 2012	2.3%	1.7%
2.b	Fisheries for animal feeding	Volume index of production, Gross data	Eurostat	2000 - 2012	2.3%	1.7%
2.c	Marine aquaculture	n/a			n/a	n/a
2.d	Blue biotechnology	n/a			n/a	n/a
2.e	Agriculture on saline soils	n/a			n/a	n/a
<b>3. Energy &amp; sea bed minerals</b>						
3.a	Offshore oil and gas	primary production of oil and gas in TOE	Eurostat	2000-2011	-10.6%	-6.4%
3.b	Offshore wind	n/a			n/a	n/a
3.c	Ocean renewable energy	n/a			n/a	n/a
3.d	Carbon capture and storage	n/a			n/a	n/a
3.e	Mining	Marine Aggregates (millions tonnes) - UEPG data	Eurostat	2008 -2010	-7.4%	n/a
3.f	Marine minerals mining	n/a			n/a	n/a
3.g	Desalination	n/a			n/a	n/a
<b>4. Leisure &amp; tourism</b>						
4.a	Coastal tourism (accommodation)	Index turnover, Gross data (all accommodation NACE 55)	Eurostat	2000 - 2012	0.2%	2.8%
4.b	Yachting and marinas	n/a			n/a	n/a

Maritime economic activity	Indicator	Source	Availability	CAGR (2008-2010)	CAGR (2000-2012)	Notes	
4.c	Cruise tourism	1000PASC - 1000 cruise passengers starting and ending a cruise	Eurostat	2004 - 2011	25.1%	10.9%	
<b>5. Coastal protection</b>							
5.a	Coastal protection	n/a			n/a	n/a	
<b>6. Maritime monitoring &amp; surveillance</b>							
6.a	Maritime surveillance	n/a			n/a	n/a	
6.b	Environmental monitoring	n/a			n/a	n/a	