



STUDY ON BLUE GROWTH AND MARITIME POLICY WITHIN THE EU NORTH SEA REGION AND THE ENGLISH CHANNEL

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0. General overview

Morphological structure of the coastline

- Germany has two coastal regions¹: the North Sea region (north-west coastline) and the Baltic Sea region (north-east coastline).
- Germany's coastline has a total length of 3.204 km, representing 2,35% of the total coastline length of the EU-22 coastal Member States. Approximately 2.200 km (1,6% of the total coastline length of the EU-22 coastal Member States) is allotted to Germany's Baltic Sea coastline and about 1.000 km to Germany's North Sea coastline.
- The country's coastal zone (within a range of 10 km from the coast) covers 13,727 km², which represents 3,30% of the corresponding EU-22 coastal area².
- Germany has 20 inhabited islands, 14 – including "Helgoland" as Germany's only deep-sea island – belonging to the North Sea and the remaining six – including "Usedom" which is divided between Germany (84% of the island's area) and Poland – to the Baltic Sea.

Population and related social condition for maritime areas

- In 2011³, 3,83 million people or 4,69% of the country's population lived in Germany's coastal regions⁴. 2,29 million people (2,80%) lived in the Baltic Sea region while 1,55 million people (1,89%) called the North Sea region their home. The total population in Germany's coastal regions corresponds to 0,82% of the total population living in all the EU-22 coastal Member States.
- In 2010, 1,74 million people or 4,28% of the country's labour force was located in Germany's coastal regions. 1,06 million employed persons (2,62%) worked in the Baltic Sea region and 0,68 million (1,67%) in the North Sea region of Germany. The total labour force in Germany's coastal regions corresponds to 0,85% of the employed labour force in all the EU-22 coastal Member States.
- In 2010, 0,19 million people or 5,84% of Germany's unemployed persons were located in coastal regions. 0,12 million unemployed persons (3,83%) were allotted to the Baltic Sea region and 0,06 million unemployed persons (2,01%) to the North Sea region. The total number of unemployed persons in Germany's coastal regions is 0,94% of the unemployed persons in all EU-22 coastal Member States⁵.

Economic role of maritime areas over the national total

- In 2010, the people in coastal regions of Germany generated almost EUR 24.600 gross domestic product (GDP) per capita. This is 19,37% lower compared to the country's average GDP per capita. The people in the Baltic Sea region produced about EUR 23.750 GDP per capita (22,15% lower than national average), while people in the North Sea region generated almost EUR 25.850 GDP per capita (15,25% lower than the national average)
- In 2010, coastal regions in Germany were responsible for EUR 83,85 billion or 3,78% of the country's gross value added (GVA). The Baltic Sea region accounts for EUR 48. 32 billion GVA (2,18%) and the North Sea region for EUR 35,53 billion GVA (1,60%).

¹ Coastal regions are defined as NUTS-3 regions directly located on the coast.

² Due to the different geomorphology of Germany's North and Baltic Sea coastline it is not possible to calculate the values for each region.

³ Due to a territorial reform in Mecklenburg-Vorpommern no appropriate data are available for 2012.

⁴ Coastal regions are defined as NUTS 3 regions on the coast. Hamburg and Bremen are not included in this definition although they are major centers of the maritime industries in Germany. Even if not included in the definition of the EU coastal zone, Hamburg and Bremen are taken into account when referring to maritime-related activities in the following chapters.

⁵ Source: German NUTS-3: Federal Employment Agency: Labour market statistics; EU-22 coastal: EUROSTAT.

GVA – Details by NACE activities (2010)

Sector	Coastal regions		North Sea		Baltic Sea	
	abs.*	rel.**	abs.*	rel.**	abs.*	rel.**
Agriculture, Aquaculture and Fishing (A)	1,71	9,17	0,82	4,39	0,89	4,78
Manufacturing (C)	10,50	2,27	5,78	1,25	4,72	1,02
Construction (F)	4,09	4,25	1,91	1,99	2,18	2,26
Wholesale and retail trade; transport; accommodation and food service activities; information and communication (G-J)	18,69	4,40	7,94	1,87	10,75	2,53

* GVA (billion EUR)

** Percent share in the national GVA in sector

Employment – Details by NACE activities (2010)

Sector	Coastal regions		North Sea		Baltic Sea	
	abs.*	rel.**	abs.*	rel.**	abs.*	rel.**
Agriculture, Aquaculture and Fishing (A)	51,90	8,01	27,50	4,24	24,40	3,77
Manufacturing (C)	183,90	2,63	85,20	1,22	98,70	1,41
Construction (F)	110,80	4,65	47,80	2,01	63,00	2,64
Wholesale and retail trade; transport; accommodation and food service activities; information and communication (G-J)	479,90	4,53	195,40	1,85	284,50	2,69

* Employment (1.000 persons)

** Percent share in the national labour force in sector

1. Marine and maritime economic activities

Table 1 - Overview of relevant maritime economic activities at NUTS-0 and sea basin level (Germany TOTAL, NORTH and BALTIC Sea region)⁶

Maritime Economic Activity		GVA (EUR, billion)			Employment (*1000)			Number of enterprises		
		TOTAL	NORTH	BALTIC	TOTAL	NORTH	BALTIC	TOTAL	NORTH	BALTIC
0. Other sectors										
0.1	Shipbuilding and ship repair	1,00	0,54	0,46	20,00	10,84	9,17	580	314	266
0.2	Water projects	0,12	0,08	0,04	2,80	1,82	0,98	65	42	23
1. Maritime transport										
1.1	Deep-sea shipping	3,96	3,15	0,80	24,71	19,69	5,02	1.382	1.101	281
1.2	Short-sea shipping (incl. Ro-Ro)	5,70	4,02	1,68	35,56	25,10	10,46	1.988	1.403	585
1.3	Passenger ferry services	0,11	0,04	0,07	1,87	0,69	1,18	55	21	35
1.4	Inland waterway transport	1,20	1,20	0	8,96	8,96	0	1.041	1.041	0
2. Food, nutrition, health and ecosystem services										
2.1	Fish for human consumption	3,14	1,88	1,27	85,11	50,82	34,29	5.545	3.311	2.234
2.2	Fish for animal feeding	0	0	0	0	0	0	0	0	0
2.3	Marine aquaculture	0,003	0,003	0	0,01	0,01	0	8	8	0
2.4	Blue biotechnology	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2.5	Agriculture on saline soils	0,001	0,001	0	0,026	0,03	0	11	11	0
3. Energy and raw materials										
3.1	Offshore oil and gas	0,62	0,62	0	2,98	2,98	0	18	18	0

⁶ For source and reference year of data (GVA, Employment, Enterprises) and “Key to allocate between sea basins” (regional shares) see Annex Table D.

Maritime Economic Activity		GVA (EUR, billion)			Employment (*1000)			Number of enterprises		
		TOTAL	NORTH	BALTIC	TOTAL	NORTH	BALTIC	TOTAL	NORTH	BALTIC
3.2	Offshore wind	0,75	0,63	0,12	8,60	7,24	1,36	200	168	32
3.3	Ocean renewable energy	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3.4	Carbon capture and storage	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3.5	Aggregates mining	0,02	0,02	0	0,27	0,27	0	24	24	0
3.6	Marine minerals mining	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3.7	Securing fresh water supply	0	0	0	0	0	0	0	0	0
4. Leisure, working and living										
4.1	Coastal tourism	1,89	0,88	1,01	89,62	41,76	47,85	8.091	3.770	4.320
4.2	Yachting and marinas	0,50	0,23	0,26	5,10	2,38	2,72	297	138	159
4.3	Cruise tourism	0,28	0,11	0,17	3,75	1,53	2,22	38	15	23
5. Coastal protection										
5.1	Coastal protection, protection of habitat	0,17	0,11	0,06	1,68	1,13	0,55	N/A	N/A	N/A
5.2										
6. Maritime monitoring and surveillance										
6.1	Traceability and security of goods supply chains, Prevent and protect against illegal movement of people and goods	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6.2										
6.3	Environmental monitoring	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Qualitative overview of maritime economic activities in Germany at NUTS-0 level⁷

Other sectors

Shipbuilding (excl. leisure boats) and ship repair in Germany

Due to growing competition from the Far East, Germany's shipbuilding industry has been in decline for decades. It is now focusing on technologically sophisticated niche markets to survive.

GVA (-15%) and employment (-10%) declined from 2008 to 2010 annually. In 2012 Germany's (big) shipyards delivered 26 ships with a gross tonnage of almost 450 thousand tonnes, mainly yachts, passenger ships, RoRo ships and offshore installation ships. Employment in these shipyards is nearly split half and half between the North and Baltic Sea.

Construction of water projects in Germany

This MEA includes activities in the construction of dams and dykes, harbour, river and offshore installations and waterways and is therefore of increasing importance due to population and economic growth.

GVA and employment have grown about 5-8% annually from 2008 to 2010 and it is anticipated that this trend will continue in the next years.

Maritime transport

Deep-sea shipping (DSS) in Germany

The economic crisis led to a huge slump in global shipping markets. In view of the interdependence of global trade and maritime transport, a recovery is expected in the medium-term.

⁷ Includes further indicators tied to Table 1; a distinction between sea basins is given if possible; for source and reference year see Annex Table D.

In Germany freight volume in DSS declined from over 120 million tonnes in 2008 to 99 million tonnes in 2009 (-20%) but recovered to almost 119 million tonnes in 2011.

Germany's merchant fleet is the third largest in the world and a world leader in the container shipping segment (with 4,8 Mio. TEU = one third of global capacity). Furthermore, Germany has two ports among the top 20 EU cargo ports (gross weight) and container ports (TEU)⁸.

Due to better accessibility, deep-sea-shipping is concentrated on the North Sea ports (Hamburg, Bremerhaven, Wilhelmshaven) while short-sea shipping is most relevant to Germany's Baltic Sea region.

Short-sea shipping (SSS) in Germany

Due to increasing trade relationships between Germany and the new eastern EU Member States and other eastern European states (especially Russia), a continuous growth is expected, from which especially the ports in Germany's Baltic Sea region would like to profit.

But the economic crisis hit the SSS market hard, too. The SSS freight volume in Germany declined from 190 million tonnes in 2008 to 156 million tonnes in 2009 (-18%) and recovered slower than DSS to only 168 million tonnes in 2011.

Passenger ferry services in Germany

Regarding GVA and employment, the MEA "Passenger ferry services" is one of the smallest under the mature MEAs.

The economic crisis did not have any effect on this MEA when referring to passenger volumes only, which were constant at about 20 million passengers from 2004 to 2011 (12,5 million in Germany's North Sea ports). Otherwise there was a heavy decline of about 30% annually from 2008 to 2010 in GVA and employment of NACE Code H55.10: "Sea and coastal passenger water transport" (which also includes cruise passenger transport, but this MEA has been growing for years).

Inland waterway transport in Germany

In comparison with the competition (especially road and rail freight transport), freight transport on inland waterways in Germany is smaller (accounted only for 5,6% of total inland transport modes in 2012) and growing less.

The economic crisis has had an impact on this MEA, too. Freight volume in Germany declined from 246 million tonnes in 2008 to 204 million tonnes in 2009 (-23%) but recovered to 223 million tonnes in 2012 (which is, by the way, higher than the freight volumes of DSS and SSS, due to the extensive intra-national transport of bulk cargo). Furthermore, the MEA is totally allocated to Germany's North Sea region.

Food, nutrition, health and ecosystem services

Fish for human consumption in Germany

According to this study's methodology for calculation of this MEA, Fish for human consumption is the second largest employer of all MEAs. But this derives from the complete inclusion of NACE Code G 46.38 "Wholesale of other food, including fish, crustaceans and molluscs" (about 20% would be realistic). This NACE Code accounts for approximately 55% of the MEA's GVA and employment. Fish processing against that accounts for about 10% and fishing itself only for fewer than 2% of the MEA's GVA and employment. The strong growth of the MEA (+14% GVA and +19% employment annually from 2008 to 2010) also derives from the strong increase of NACE Code G 46.38, which was about +23% GVA and +29% employment annually from 2008 to 2010.

Landings were about 97 thousand tonnes, representing a value of EUR 155 million in 2011. Weight and

⁸ Accounts for whole "Maritime transport" function. A subdivision by MEA is not possible at these indicators.

value of landings decreased annually by 6% and 2% respectively since 2008.

Marine aquaculture in Germany

Marine aquaculture (business) in Germany is almost limited to the production of blue mussels in the North Sea only. However, there is growing scientific research on marine fish aquaculture (especially in Recirculating Aquaculture Systems). In 2009 the national competence center in research on marine aquaculture was launched at BÜSUM (Schleswig-Holstein) to foster the industry.

21 thousand tonnes of marine aquaculture products, mostly blue mussels, were produced in the North Sea in 2011.

In contrast, freshwater aquaculture presents the strongest aquaculture segment in Germany with a share of some 11.8% of the EU freshwater finfish aquaculture by value and around 13% by volume. In 2010 the segment accounted for over 1,7 thousand employees and officially estimated 22,5 thousand mostly small non-commercial entities.

Blue biotechnology in Germany

The German Blue Biotechnology industry is still nascent and very much focused on research and development.. Some important research institutions with special expertise in different fields of Blue Biotechnology were identified in Germany (e.g. GEOMAR Helmholtz Centre for Oceanic Research; The Kiel Center for Marine Natural Products at GEOMAR; Fraunhofer Research Institution for Marine Biotechnology).

Aquaculture in saline soils in Germany

This MEA is not of relevance in Germany. In coastal regions the share of saline soils is under 0,5% of the total agricultural area. Furthermore, all saline soils are located in the North Sea region.

Energy and raw materials

Offshore oil and gas in Germany

Despite low domestic activities, German companies are important suppliers on the global market (e.g. pump, drilling, compressor technologies and components; but no systems integrators).

With the exception of the offshore oil platform "Mittelplate" in the North Sea (1,3 million tonnes or 53% of the country's total oil production in 2011) Germany's oil and gas production takes place onshore.

Offshore wind in Germany

Due to environmental protection of the Tidelands National Park in the North Sea, offshore wind farms have to be built in the Exclusive Economic Zone (EEZ). Difficult oceanographic and climatic conditions in the EEZ require powerful turbines (5-6 MW) to run the wind farms profitable. German companies are therefore market leader and systems integrators in this technologically sophisticated sub-segment.

Due to Germany's nuclear power phase-out and climate protection targets, the extension of offshore wind energy is a main concern of the Federal Government. In March 2013 were 320 Megawatt (MW) in operation (50 MW in the Baltic Sea), another 1.600 MW under construction and 10.000 MW approved, most in the North Sea. Therefore, the rapid growth of the last years (+27% turnover and +25% employment from 2010 to 2011) is anticipated to continue. Manufacturing of turbines, supplies and large components (e.g. foundations, tower, gondola, rotor blades) accounts for about 75% of the employment followed by construction and grid connection with both approximately 10%⁹.

⁹ See: PWC (2012).

Ocean renewable energy in Germany

Except for offshore wind energy the other offshore renewable energy technologies are still at an early stage of development in Germany.

Due to the hydrographic and oceanographic conditions in the German North Sea and especially the Baltic Sea, there is scarcely any potential for a domestic commercial exploitation.

Carbon Capture and storage in Germany

In Germany, carbon capture and storage technologies / industry are still nascent and very much focused on research and development.

Carbon capture and storage is part of Germany's plan of action according to the National Masterplan for Maritime Technologies (NMMT).

Aggregates mining in Germany

Aggregates mining only takes place in the German North Sea.

In 2010, 9 million of 535 million tonnes or 1,7% of the national aggregates production were covered by offshore mining.

Marine minerals mining in Germany

Marine minerals mining is still at an early stage of development. Some research and development activities are taking place in research institutions.

Leisure and tourism

Coastal tourism in Germany

Coastal tourism is a very important industry for the somewhat structurally weak coastal regions in Germany.

This MEA is the largest employer of all MEAs in Germany and, furthermore, has been growing strong for years (+4% GVE and +11% employment from 2008 to 2010 annually). Moreover, overnights in German Coastal NUTS 3 regions increased by 2,3% from 2008 to 2010. Germany's Baltic Sea region accounted for almost 31 million overnights (corresponds to 62% of the total overnights in the coastal regions) in 2010.

Yachting and marinas in Germany

Increasing wealth led this MEA to expand over the last decades. The economic crisis did not have any effect on this MEA regarding the development of GVA and employment. GVA increased by 1,3% while employment slightly shrunk by -1,4% from 2008 to 2010 annually. An alternative estimate (ICOMIA) points to larger numbers of employees (20,000), including boatbuilders, equipment producers and trade & service providers.

Cruise tourism in Germany

Worldwide, as well as in Europe and Germany, the cruise market saw a rapid growth over the last decade.

The European Cruise Council indicates that employment, in German cruise lines only, was about 3,8 thousand persons in 2010 and increased by 12% from 2008 to 2010 annually. The total employment impact of the industry is quantified at 36 thousand persons. Moreover, in 2011 ports in Germany generated 375 thousand passenger embarkations. The major embarkation ports were Kiel and Hamburg, with Kiel as the second important embarkation port in the Baltic Sea region (behind Copenhagen).

Coastal protection

Coastal protection (protection against flooding and erosion, preventing salt water intrusion, protection of habitats) in Germany

The five coastal federal states of Bremen, Hamburg, Mecklenburg-Vorpommern, Niedersachsen and Schleswig-Holstein are responsible for the protection of their coasts. Capital coastal protection measures are open to co-financing of up to 70% by the national government, whereas the maintenance of existing structures is financed 100% by the respective state.

In 2010 public expenditure on coastal protection in Germany amounted to EUR 0,19 billion. 82% derived from the Joint Task for the Improvement of Agricultural Structures and Coastal Protection (financed by national state and federal states), 9% from EU funding and another 9% from local and regional authorities. Although due to sea level rising this MEA is of growing importance, it depends on public expenditure and is therefore not comparable with the MEAs of the private sector.

Maritime monitoring and surveillance

Maritime monitoring and surveillance (traceability and security of goods supply chains, prevention and protection against illegal movement of people and goods, environmental monitoring) in Germany

The coast guard in Germany is the responsibility of four institutions (some with other priorities than coast guarding) that have vessels: the Federal Police, the Customs Authority, the Federal Water and Shipping Administration and the Federal Agency for Agriculture and Food.

2. List of the 7 largest, fastest growing and most promising marine and maritime economic activities

2.1 Ranking order of the 7 largest marine and maritime economic activities in Germany

Table 2 - Ranking order of the 7 largest maritime economic activities in **Germany's Baltic Sea region**

Rank	Maritime economic activity	GVA (billion EUR)	Employment (*1000)	Score
1	Coastal tourism	1,01	47,85	28,97
2	Fish for human consumption	1,27	34,29	23,48
3	Short-sea shipping (incl. Ro-Ro)	1,68	10,46	13,61
4	Shipbuilding and ship repair	0,46	9,17	6,87
5	Deep-sea shipping	0,80	5,02	6,53
6	Yachting and marinas	0,26	2,72	2,68
7	Cruise tourism	0,17	2,22	1,94

Table 3 - Ranking order of the 7 largest maritime economic activities in **Germany's North Sea region**

Rank	Maritime economic activity	GVA (billion EUR)	Employment (*1000)	Score
1	Fish for human consumption	1,88	50,82	34,79
2	Short-sea shipping (incl. Ro-Ro)	4,02	25,10	32,66
3	Deep-sea shipping	3,15	19,69	25,62
4	Coastal tourism	0,88	41,76	25,28
5	Inland waterway transport	1,20	8,96	10,49
6	Shipbuilding and ship repair	0,54	10,84	8,12
7	Offshore wind	0,63	7,24	6,77

- The high employment figures (in both tables) for "Fish for human consumption" derive mainly from completely including NACE Code G 46.38 "Wholesale of other food, including fish, crustaceans and

molluscs”, which largely overestimates the importance of the MEA (see also above: Qualitative overview of maritime economic activities in Germany at NUTS-0 level).

2.2 Ranking order of the 7 fastest growing marine and maritime economic activities over the 3 past years

Table 4 - Ranking order of the 7 fastest growing maritime economic activities in Germany¹⁰ (NUTS-0 level)

Rank	Maritime economic activity	GVA (CAGR)	Employment (CAGR)	Score
1	Offshore wind	27,12	24,64	25,88
2	Fish for human consumption	14,33	18,52	16,43
3	Cruise tourism	11,80	11,80	11,80
4	Coastal protection	11,20	11,20	11,20
5	Coastal tourism	4,02	11,45	7,74
6	Water projects	8,75	4,60	6,68
7	Protection of habitats	6,64	6,64	6,64

- “Coastal protection” and “Protection of habitats” both depend on public expenditure and are therefore not comparable with the MEAs of the private sector. Furthermore, the employment and its CAGR are derived from a ballpark figure of EUR 100.000 expenditure/employee (CAGRs for expenditure and employment are identical). This maybe overestimates the employment CAGR.
- The CAGR of “Cruise tourism” is derived from the number of persons employed in cruise lines (ECC) and a ballpark figure is calculated from the ratio GVA/EMP from the EUROSTAT database for Cruise Tourism (CAGRs for employment and GVA are identical).
- The high CAGRs for “Fish for human consumption” derive mainly from including NACE Code G 46.38 “Wholesale of other food, including fish, crustaceans and molluscs” (see also above: Qualitative overview of maritime economic activities in Germany at NUTS-0 level).

2.3 Ranking order of the 7 marine and maritime economic activities with most future potential

Table 5 - Ranking order of the 7 maritime activities with most future potential in Germany’s Baltic Sea region

Rank	Maritime economic activity	Score
1.	Offshore wind	+++++
2-4	Coastal tourism	++++
2-4	Short-sea shipping (incl. Ro-Ro)	++++
2-4	Cruise tourism	++++
5-7	Shipbuilding (excl. leisure boats) and ship repair	+++
5-7	Blue biotechnology	+++
5-7	Marine aquaculture	+++

Table 6 - Ranking order of the 7 maritime activities with most future potential in Germany’s North Sea region

Rank	Maritime economic activity	Score
1.	Offshore wind	+++++
2-5	Coastal tourism	++++
2-5	Deep-sea shipping	++++
2-5	Short-sea shipping (incl. Ro-Ro)	++++
2-5	Cruise tourism	++++
6-7	Shipbuilding (excl. leisure boats) and ship repair	+++
6-7	Marine aquaculture	+++

¹⁰ These calculations are based on whole country (NUTS-0) level data; 7 fastest growing MEAs are therefore identical in Germany’s North and Baltic Sea region.

3. Growth scenarios for 6 of the most relevant and promising marine and maritime economic activities in **Germany's Baltic Sea region**

As Germany borders on the North Sea and the Baltic Sea, the following outlines (**selection** and **growth scenarios** for 6 of the most relevant and promising marine and maritime economic activities) will focus on marine and maritime activities in the Baltic Sea region, thus Mecklenburg-Vorpommern and Schleswig-Holstein (only the eastern part).

Table 8 - Sets of top 7 maritime economic activities ranking in order of size/growth/scores

Top-7 current size	Top-7 recent growth	Top-7 most future potential
Coastal tourism	Offshore wind	Offshore wind
Fish for human consumption	Fish for human consumption	Coastal tourism
Short-sea shipping (incl. Ro-Ro)	Cruise tourism	Short-sea shipping (incl. Ro-Ro)
Shipbuilding and ship repair	Coastal protection	Cruise tourism
Deep-sea shipping	Coastal tourism	Shipbuilding and ship repair
Yachting and marinas	Water projects	Blue biotechnology
Coastal tourism	Protection of habitats	Marine aquaculture

Table 9 - 6 most relevant and promising marine and maritime economic activities

6 most relevant and promising maritime economic activities
Offshore wind
Coastal tourism & Yachting / Marinas ¹¹
Short-sea shipping (incl. Ro-Ro)
Cruise tourism
Shipbuilding (excl. Leisure boats) and ship repair
Blue biotechnology

The six most promising marine and maritime economic activities selected are as follows:

- Offshore wind: this MEA is growing and very promising; although the majority of Germany's offshore wind capacity will be installed in the North Sea, the MEA is also of great relevance for Germany's Baltic Sea region.
- Coastal tourism: this MEA is (and will be) an economic cornerstone in the somewhat structurally weak coastal regions in Germany. Overnights in both coastal regions have been increasing continually for years.
- Short-sea shipping (incl. Ro-Ro): this MEA is of great importance, especially for Germany's Baltic Sea region, due to the increasing trade relations between Germany and the new eastern EU Member States and other eastern European states (especially Russia).
- Cruise tourism: this MEA has seen a rapid growth in the last decade. AIDA Cruises (brand of Carnival Corporation & plc) is a large player located in Germany's Baltic Sea region (Rostock).
- Shipbuilding (excl. leisure boats) and ship repair: Germany's shipbuilding industry has seen a decline for decades and was hit hard by the economic crisis. But more and more shipyards are now focusing on technologically sophisticated niche markets with the chance to stop the decline and start growing again.
- Blue biotechnology: this MEA is still nascent and very much focused on research and development. But the numerous application possibilities make this MEA very promising. Some important R&D institutions, especially in Germany's Baltic Sea region (e.g. GEOMAR - Helmholtz Centre for Ocean Research Kiel; Kieler Wirkstoff-Zentrum at the GEOMAR; BioCon Valley Mecklenburg-Vorpommern e.V.; University of Rostock) are active in the field.

¹¹ MEAs „Coastal tourism“ and „Yachting and marinas“ had to be merged.

3.1 Description of the nature of each of the 6 marine and maritime economic activities and value chain

Offshore wind

Offshore wind energy refers to the development and construction of wind farms in marine waters and the conversion of wind energy into electricity. The advantage of constructing wind farms offshore is that the wind speeds are higher and the more uniform wind speeds mean less wear and tear for the turbines. On the other hand, the offshore environment and climate are harsher than on land due to the high wind speeds, waves and salty environment. Especially in Germany's North Sea where the wind farms have to be built in the exclusive economic zones due to nature conservation in the Wadden Sea (Tidelands National Park) this increases the relative risks for set-up, as well as the costs of exploring and developing the necessary technology. So far, offshore wind is the cheapest and most mature of the offshore renewable energy technologies but it is still an industry in its infancy.

The value chain of this MEA contains:

- Research, development and demonstration
- Feasibility and impact assessment
- Project planning
- Project design
- Manufacture
- Installation
- Operation
- Decommission

Coastal tourism & Yachting and marinas

The related maritime economic activities of Coastal tourism & Yachting and marinas include beach-based recreation and tourism (e.g. swimming, surfing, sun bathing), non-beach related tourism in the coastal area (all other tourism and recreation activities that take place in the coastal area for which the proximity of the sea is a condition) and nautical boating (including marinas).

The value chain in this MEA is comparatively simple, although the real value added behind such a chain consists of a rather complex ecosystem involving many different actors. The economic activities that are part of the tourism industry vary considerably. Tourism is an activity involving a wide variety of stakeholders, but also policy measures at various levels. It is a broad industry, as it contains:

- Tour operators (= wholesalers)
- Travel agencies (= retailers)
- Transports to the destination (e.g. airlines, bus transfers)
- Suppliers of basic tourism services at the destination (e.g. hotels, restaurants, bars)
- Local tourist offices; regional tourism organisations

Short-sea shipping (incl. Ro-Ro) (SSS)

Shipping itself is a service to many other functions, often linking various stages of a production process that take place in different physical locations or provide part of the distribution chain of finished goods. The SSS value chain consists of:

- Shipbuilding and marine equipment – delivering the transport equipment
- Operation of ships – shipping freight
- Port services and logistics – operating terminals, handling cargos, storage, VAL, port management
- Other maritime services (bunkering, ship repair, pilotage, etc.)
- Maritime works – constructing ports, maintaining access channels

Cruise tourism

The MEA Cruise tourism is defined as all activities associated to cruise holidays, including the ships used and the facilitations at destination ports. Cruise tourism is a form of tourism in which people travel (cruise) on a ship. It is a relatively luxurious form of travel.

For the value chain of cruise tourism it is necessary to make a distinction between the demand side and the suppliers of products and services necessary for cruise tourism. This supply side of the cruise tourism consists of:

- Shipbuilding (Cruise vessels) and marine equipment
- Operation of ships (Cruise lines)
- Port services and logistics – operating cruise terminals, port management
- Other maritime services (e.g. bunkering, ship repair, pilotage)
- Maritime works – constructing ports, maintaining access channels

Shipbuilding (excl. Leisure boats) and ship repair

This MEA refers to the development, construction and repair of ships and floating vessels (excl. leisure boats).

The value chain of this MEA contains:

- Research, development and demonstration / testing
- Shipyards
- Component supplying industries

Service providers (e.g. classification societies, engineering office)

Blue biotechnology

Blue Biotechnology is the application of science and technology to living marine organisms, as well as arts, products and models thereof, to alter living or non-living materials for the production of knowledge, goods and services to provide solutions, thereby benefiting society.

Marine organisms used for blue biotechnology can be both microorganisms, such as bacteria, fungi and microalgae, or macroorganisms, such as macroalgae and mussels. They are directly used as biomass or producers of valuable ingredients such as active biological compounds, pigments, antioxidants, vitamins, fatty acids, enzymes, polymers or other biomaterials.

In marine biotechnology a wide range of products are made for areas of use as diverse as health, food, cosmetics, aquaculture, industrial processes, energy as well as environmental remediation, biomaterials, environmental monitoring and research tools. The value chains are based on a generic product development cycle, transformation raw materials or (molecular) mechanisms through bio-prospecting, bio-discovery, biotechnology toolboxes, uptake and upscaling of research products and commercialisation.

The value chain consists of:

- Research and development – search for active agents and production strains, optimisation
- Provision and preparation of raw material – harvesting/cultivation of marine organism biomass
- Production - processing of raw material into product
- Testing, incl. clinical tests
- Manufacturing and upscaling

3.2 Description of economic and infrastructural scenario

Offshore wind

Due to Germany's nuclear power phase-out and climate protection targets, the extension of offshore wind energy is a main concern of the Federal Government. By the year 2030 wind parks with a capacity of 25 thousand MW are expected to be built. In 2012 only 280 megawatts (MW) capacity was in operation, which represents only about 6% of the total installations in the EU¹². But an additional 1,6 thousand MW are under construction and another 10 thousand MW are approved. Most wind farms will be built in the exclusive economic zone of Germany's North Sea but the growing industry is important for the Baltic Sea region as well, where currently 50 MW are installed, 1,2 thousand approved and another 11 wind farms with up to 450 turbines in approval procedures¹³.

Official figures for 2011 by the German Federal Ministry of the Environment, Nature Conservation and Reactor Safety (BMU) attribute the industry a total employment of about 8,6 thousand people and a turnover of EUR 0,75 billion (including exports)¹⁴. For the Baltic Sea region this would mean an estimated employment of about 1,4 thousand people and a turnover of EUR 120 million. The figures by the Ministry also show a very dynamic development of the offshore wind industry. From 2010 to 2011 employment and turnover increased rapidly. Employment rose from 6,9 thousand people in 2010 to 8,6 thousand in 2011 which means a growth rate of about 25%. Turnover increased by nearly 28%¹⁵. Due to the ambitious expansion targets of the Federal Government and export prospects a gigantic growth is expected.

Main players by segment

- Research, development and demonstration (<http://www.cewind.de/de/mitglieder>)
- Feasibility and impact assessment
- Project planning
- Project design
- Manufacture
- Installation
- Operation (<http://www.rostock-business.com/technologiezentrum-rostock/offshore-windenergie/unternehmen.php>;
http://www.windcomm.de/Seiten/de/windcomm_verein/mitgliederliste.php)

Coastal tourism & Yachting and marinas

Tourism as a global growth industry is one of the economic pillars of Germany's coastal regions and especially the Baltic Sea region. In 2010 Germany's coastal regions recorded nearly 59 million overnights representing over 15% of the country's total. With about 31 million overnights (9,47% of the country) the Baltic Sea region is the most popular maritime travel destination in Germany.

Coastal tourism (incl. Yachting and marinas) is the largest employer of all MEAs. In 2010, nearly 95 thousand people were employed in tourism in both coastal regions, accounting for 5,45% of the total employment in these regions. Almost 51 thousand employees worked in 4,5 thousand mostly small and medium-sized enterprises located in the Baltic Sea region. Furthermore, coastal tourism was responsible for EUR 2,38 billion or 5,65% of both regions' GVA. The Baltic Sea region accounts for EUR 1,27 billion GVA.

Despite - or perhaps due to¹⁶ - the economic crisis, overnights, employment and GVA in coastal tourism continually increased for years. Since 2000 the overnights in Germany's Baltic Sea region rose by 27,29% on the whole or 2,44% yearly and are expected to continue growing.

Main players by segment

Regional tourism organisations/institutes:

- Ministry of Economics, Building and Tourism of Mecklenburg-Vorpommern, Schwerin

¹² EWEA (2013).

¹³ IWR (2013).

¹⁴ BMU (2013).

¹⁵ *ibid.*

¹⁶ It is possible that foreign holidays were considered as too expensive by this time, fostering national tourism.

- Tourism Association Mecklenburg-Vorpommern e.V., Rostock
- Baltic Institute of Marketing, Transport and Tourism at the University of Rostock, Rostock
- Ministry for Economy, Labour, Transport and Technology of Schleswig-Holstein
- Tourism-Agency Schleswig-Holstein GmbH, Kiel
- Tourism Association Schleswig-Holstein e.V., Kiel
- Baltic Sea-Holstein-Tourism e.V., Scharbeutz

Hotels:

- Travel Charme Kurhaus Binz, Ostseebad Binz
- Seetel Hotel GmbH & Co. Betriebs KG, Seebad Heringsdorf
- Arkona AG, Rostock
- Grand Hotel Heiligendamm, Heiligendamm

Marinas:

- Marina Verbund Ostsee e.V. (<http://www.marinaverbund-ostsee.de/mitgliedshaefen.html>)

Short-sea shipping (incl. Ro-Ro)

Short sea shipping in the main ports of Germany amounted to 169 million tonnes of cargo in 2011, accounting for almost 10% of the total SSS in the EU-27 countries. 91 million tonnes or 54% of the German SSS cargo (whole country not only Baltic Sea region) came from or went to ports in the Baltic Sea, followed by North Sea ports with 54 million tonnes or 32%¹⁷. On the other hand, the total loaded and unloaded cargo (SSS + Deep Sea Shipping) in the German Baltic Sea NUTS-2 regions of Schleswig-Holstein and Mecklenburg-Vorpommern in 2011 was about 60 million tonnes¹⁸ or 20% of Germany's freight volume with a total of about 290 million tonnes¹⁹.

In 2010 SSS²⁰ in Germany employed almost 36 thousand people in nearly two thousand companies and generated a GVA of about EUR 5,7 billion. Therefore SSS is the largest in GVA and third largest in employment of all maritime economic activities in the country. Weighted by the share of the freight volume, the German Baltic NUTS-2 regions (50 million tonnes in SSS) are therefore responsible for an employment of more than ten thousand people and a value added of EUR 1,7 billion²¹.

Although due to the economic crisis there was a decline of about 18% from 2008 to 2009, the freight volume has started rising again since then and is expected to continue growing due to increasing trade relations between Germany and the new eastern EU Member States and other eastern European states (especially Russia)²².

Main players by segment

Water transport²³:

- Reederei Erwin Strahlmann e.K., Brunsbüttel, 55 ships
- Reederei F. Laeisz GmbH, Rostock, 49 ships
- Oldendorff Carriers GmbH & Co. KG, Lübeck, 33 ships
- Ernst Jacob GmbH & Co KG, Flensburg, 14 ships
- John-Peter Wulff GmbH & Co. KG, Glückstadt, 12 ships
- Scandlines GmbH (Ro-Ro and ferry), Rostock, 9 ships

Port Services²⁴:

¹⁷ EUROSTAT: mar_sg_am_cws.

¹⁸ Due to the geographical location and the focus of the ports it will be assumed that most of this cargo (50 million tonnes) depends on SSS.

¹⁹ EUROSTAT: tran_r_mago_nm.

²⁰ Including shares of total water transport, port services and related industries, see: Methodology for estimating GVA and Number of persons employed for the 27 marine and maritime activities.

²¹ EUROSTAT: sbs_na_1a_se_r2.

²² EUROSTAT: mar_sg_am_cw.

²³ Seehafen Verlag (2010).

- Lübecker Hafen-Gesellschaft mbH, Lübeck, 642 employees
- Seehafen Rostock Umschlagsgesellschaft mbH, Rostock, 240 employees
- Seehafen Wismar GmbH, Wismar, 192 employees
- Seehafen Kiel GmbH & Co. KG, 100 employees
- Fährhafen Sassnitz GmbH, 100 employees

Cruise tourism

Cruise tourism is a relatively small but fast growing sector of the tourism industry. In the last decades, worldwide as well as in Europe, the cruise market has seen a rapid growth. Furthermore, the European shipbuilding industry is dominant in the construction of these types of ships. The number of passengers embarking in Europe increased to 5,6 million passengers in 2011. Although Germany as country of embarkation is of minor importance (375 thousand embarked passengers or 6,7% in 2011), the cruise industry is of major and growing importance for the economy due to some large cruise lines and job creation in travel agencies and other related industries in the country. Total direct expenditures of Germany's cruise industry in 2012 were about EUR 2,52 billion with nearly 40 thousand employees in the whole industry²⁵.

In 2010, 3,75 thousand people were directly employed in the cruise lines, which generated an estimated GVA of EUR 281 million. Weighted by passenger (dis-) embarking in the main cruise ports and the location of the big cruise lines, Germany's Baltic Sea region accounts for an employment of 2,22 thousand people and EUR 167 million in GVA.

The numbers of passengers, employment and GVA in cruise tourism have steadily increased for years. From 2008 to 2010, embarkation in German ports rose distinctly by 17% annually. During the same period, furthermore employment in cruise lines increased by 12% yearly and all projections are showing strong growth in the future.

Main players by segment

Cruise lines:

- AIDA Cruises - German Branch of Costa Crociere S.p.A., Rostock; ships: 10; capacity: 19 thousand; passengers (2012): 633 thousand; employees (2012): 7 thousand (6 thousand on board); turnover (2009): EUR 722 million
- Reederei Peter Deilmann GmbH, Neustadt in Holstein; ships: 1; capacity: 520; employees (2012): 320

Cruise ports:

- Kiel Cruise Center (Seehafen Kiel GmbH & Co. KG), Kiel; 350 thousand passengers, 150 ship arrivals
- Warnemünde Cruise Center (Hafen-Entwicklungsgesellschaft Rostock mbH), Rostock/ Warnemünde; 300 thousand passengers, 180 ship arrivals
- Cruise Center Ostpreussenkai (Lübecker Hafen-Gesellschaft mbH), Lübeck / Travemünde; 20 thousand passengers, 35 ship arrivals

Cruise shipyards:

- Nordic Yards GmbH – Nordic Cruise & Ferries, Wismar/Warnemünde; 1,1 thousand employees
- Neptun Werft GmbH – river cruise vessels; 500 employees

Shipbuilding (excl. Leisure boats) and ship repair

The European shipbuilding industry dominated the global market for a long time. But due to growing competition from the Far East the European and German industry have been in decline for decades,

²⁴ NORD/LB: database of companies in marine and maritime industries in Germany.

²⁵ ECC (2012a; 2012b).

especially in the production of more labour intensive containerships. Therefore, the German shipbuilding industry began focusing on technologically sophisticated niche markets to survive.

After a heavy decline for decades, employment stabilised from 1999 to 2008 before the economic crisis hit the industry hard. From 2008 to 2010 employment decreased by about -10% annually (GVA -15% annually). But meanwhile many shipyards realised their specialisation strategy and now focus on building technologically sophisticated ships and vessels, mainly yachts, passenger ships, RoRo ships, and offshore installation ships. If the industry succeeds with this, it will be able to stop the decline and start growing again.

Main players by segment

Shipbuilding²⁶:

- ThyssenKrupp Marine Systems GmbH (formerly Howaldtswerke-Deutsche Werft GmbH), Kiel; 2.250 employees
- P+S WERFTEN GmbH, Wolgast & Stralsund; together 2.036 employees
- Nordic Yards Wismar GmbH, Wismar & Warnemünde; together 909 employees
- Flensburger Schiffbau-Gesellschaft mbH & Co. KG, Flensburg; 733 employees
- NOBISKRUG GmbH, Rendsburg; 463 employees
- Neptun Werft GmbH, Rostock; 441 employees
- Kröger Werft GmbH & Co. KG, Schacht-Audorf; 315 employees

Blue Biotechnology

The recently published Masterplan for Marine Biotechnology foresees that with the use of marine biotechnology, Schleswig-Holstein could achieve “the same level of value creation as conventional agriculture by 2030”. Currently the sector is still mainly research driven and very small both in terms of employment and turnover generated by the private industry.

A critical mass of more than 20 scientific and research institutions and numerous networks can be found in the coastal regions of Schleswig-Holstein and Mecklenburg-Vorpommern with high levels of expertise as well as research facilities and infrastructure. Apart from the research institutions, several companies are already active: 26 companies were identified within the Masterplan on Marine Biotechnology in Schleswig-Holstein with activities related to marine biotechnology. With the exception of “DuPont” (s.a.), all of them are SMEs with fewer than 50 employees and an even smaller number actually working on marine biotechnology. Many of them have just recently been created but all of them expect growth both in number of employees as well as turnover in the coming future to be stimulated both by expected growth in expenditures for blue biotech from public R&D programmes (Germany is part of the recent ERA-Net created on marine biotechnology), but also from investments by the cosmetic, pharmaceutical, food and chemical industries.

Main players by segment

Research, development and demonstration²⁷:

- EMB – Fraunhofer Research Institution for Marine Biotechnology, Lübeck
- GMA – Gesellschaft für Marine Aquakultur mbH, Büsum
- Flensburg University of Applied Sciences, Flensburg
- GEOMAR Helmholtz Centre for Ocean Research Kiel
- University of Mainz
- BioMarin Pharma Ltd (Mainz)
- Christian-Albrechts-Universität zu Kiel, Kiel
- Coastal Research & Management GbR (CRM) / oceanBASIS GmbH, Kiel

²⁶ VSM (2012); IAW (2011).

²⁷ *ibid.*

- University of Greifswald (with Enviomedicals)

3.3 Regulatory environment of the marine and maritime economic activity

Offshore wind

Due to Germany's nuclear power phase-out and climate protection targets, the extension of offshore wind energy is a main concern in Germany. Therefore the Federal Government determines concrete extension targets of about 20-25 thousand Megawatt (MW) by 2030. To reach these targets, a regulatory framework was established, containing²⁸:

- The German Renewable Energies Act (Erneuerbare-Energien-Gesetz (EEG²⁹)), which gives a guaranteed feed-in remuneration for electricity produced by renewable energies in general and especially for the offshore wind energy.
- The German Infrastructure Acceleration Act (Gesetz zur Beschleunigung von Planungsverfahren für Infrastrukturvorhaben (InfraStrPlanVBeschlG³⁰)) and the German Energy Act (Energiewirtschaftsgesetz (EnWG³¹)), both of which regulate the grid connection of the offshore wind farms.
- The German "Seeaufgabengesetz" (SeeAufgG³²) and the German "Seeanlagenverordnung" (SeeAnIV³³) as basis for the installation of offshore wind farms in the exclusive economic zones, where most of the German capacity will be installed.
- The German National Act on Nature Conservation (Bundesnaturschutzgesetz (BNatSchG³⁴)).

Responsible ministries and authorities / agencies:

- Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)
- Federal Ministry of Economics and Technology (BMWi)
- Federal Ministry for Transport, Building and Urban Development (BMVBS)
- Federal Maritime and Hydrographic Agency (BSH)
- Federal Network Agency (BNetzA)
- Federal Environment Office (UBA)

Coastal tourism & Yachting and marinas

There is no specific regulatory framework covering "Coastal tourism & Yachting and marinas". The central contact point for tourism in Germany is the "German National Tourist Board" (Deutsche Zentrale für Tourismus e.V.³⁵ (DZT)), which is responsible for marketing Germany as a holiday destination. It is supported by the Federal Ministry of Economics and Technology (BMWi)³⁶ and 66 members and 12 sponsors, e.g. big tourism enterprises, regional marketing agencies and branch associations. The BMWi provides a practice guide for enterprises, local/regional authorities and associations engaged in maritime tourism (BMWi (2013): Wassertourismus in Deutschland Praxisleitfaden für wassertouristische Unternehmen, Kommunen und Vereine³⁷).

- Important branch associations: Deutscher Tourismusverband e.V. (DTV)³⁸

²⁸ For detailed information (English) see: <http://www.offshore-windenergie.net/en/politics?cat=&nachricht=>

²⁹ http://www.erneuerbare-energien.de/fileadmin/ee-import/files/pdfs/allgemein/application/pdf/eeg_2012_bf.pdf

³⁰ <http://www.buzer.de/s1.htm?g=Gesetz+zur+Beschleunigung+von+Planungsverfahren+f%C3%BCr+Infrastrukturvorhaben&f=1>

³¹ http://www.gesetze-im-internet.de/bundesrecht/enwg_2005/gesamt.pdf

³² <http://www.gesetze-im-internet.de/bseeschg/index.html>

³³ <http://www.bsh.de/de/Meeresnutzung/Wirtschaft/Windparks/Grundlagen/SeeAnIV.pdf>

³⁴ http://www.gesetze-im-internet.de/bundesrecht/bnatschg_2009/gesamt.pdf

³⁵ <http://www.germany.travel/en/index.html>

³⁶ <http://www.bmwi.de/DE/Themen/Tourismus/tourismuspolitik.html>

³⁷ <http://www.bmwi.de/BMWi/Redaktion/PDF/Publikationen/wassertourismus-in-deutschland,property=pdf,bereich=bmwi2012,sprache=de,rwb=true.pdf>

³⁸ <http://www.deutschertourismusverband.de>

Short-sea shipping (incl. Ro-Ro) (SSS)

For maritime shipping, international regulations are to be followed, as defined by IMO. The main task of IMO has been to develop and maintain a comprehensive regulatory framework for shipping including safety, environmental concerns like Nox emissions, legal matters, technical cooperation, maritime security and efficiency of shipping³⁹. Some regulatory framework and framework setting actors at national level are:

- Federal Maritime and Hydrographic Agency (Bundesamt für Seeschifffahrt und Hydrographie (BSH))⁴⁰:
 - National rules for shipping (list with various national and international rules for shipping, see LINK in footnote)
 - Central point of contact for the maritime transport sector
- Education and training office for the maritime transport sector (Berufsbildungsstelle Seeschifffahrt e.V. (BBS) (2002): Satzung der Berufsbildungsstelle Seeschifffahrt e.V.⁴¹); main duties:
 - Consultation of apprenticing enterprises
 - Regulation and supervision of the professional education
 - Information about training opportunities in the maritime transport sector
- National concept for the sea and river ports (BMVBS (2009): Nationales Hafenkonzert für die See- und Binnenhäfen⁴²); main objectives:
 - Development of relevant transport infrastructure in the ports and removal of capacity bottlenecks
 - Improvement of the competitiveness of German ports
 - Improvement of the availability of training and strengthening employment
 - Advancement of environment and climate protection
 - Traceability and security of goods supply chains
- Important branch associations:
 - Shipping: Verband Deutscher Reeder (VDR) e.V.⁴³
 - Ports: Zentralverband der deutschen Seehafenbetriebe e.V.⁴⁴

Cruise tourism

There is no specific regulatory framework covering “Cruise tourism”. It is part of maritime shipping in general, see regulatory environment of the MEA “Short-sea shipping” (see above) for further information.

Shipbuilding (excl. Leisure boats) and ship repair

There is no specific regulatory framework covering “Shipbuilding and ship repair”, it is regulated by general regulations and provisions concerning general industry activities. On the other hand, all regulations and provisions concerning “green shipping” also affect the shipbuilding industry as provider of efficient ships and green propulsion technologies.

- Important branch associations:
 - Shipbuilding: Verband für Schiffbau und Meerestechnik e.V.⁴⁵

Marine equipment manufacturers: Verband Deutscher Schiffsausrüster e.V.⁴⁶

³⁹ See also: Blue Growth study: Maritime Sub-Function Profile Report Short Sea Shipping (1.2)

⁴⁰ http://www.bsh.de/de/Schifffahrt/Sportschifffahrt/Berichtigungsservice_Nfs/Schifffahrtsvorschriften/Nationale_Schifffahrtsvorschriften/index.js

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⁴¹ <http://www.berufsbildung-see.de/download/Satzung.pdf>

⁴² <http://www.bmvbs.de/cae/servlet/contentblob/31316/publicationFile/522/nationales-hafenkonzert-fuer-die-see-und-binnenhaefen.pdf>

⁴³ <http://www.reederverband.de/>

⁴⁴ <http://www.zds-seehaefen.de>

⁴⁵ <http://www.vsm.de/>

⁴⁶ <http://www.shipsuppliers.de/>

Blue Biotechnology

The process from research and development to marketing of a product from marine resources involves many single steps that are strongly linked to protection of the environment, intellectual property rights (IPR) for all collaborators and consumer safety of the marine product.

Products derived from marine resources in high seas have the potential to lead to a conflict regarding ownership and IPR, as UNCLOS states that “no state shall claim overall sovereignty over any part of the area or its resources”. Blue biotechnology based on marine resources from the Baltic Sea has an advantage not only because expedition costs are substantially lower but also because IPR questions are easier to solve in case of use of indigenous organisms.

4. Breakdown of maritime activities at regional level (NUTS-1) and selection of most relevant regions for the study

Table 10 - Overview of GVA (in billion EUR) per maritime economic activity per region in Germany (Sea basin & NUTS-1 regions⁴⁷)

Maritime Economic Activity		BALTIC (total)	SH Baltic (DEF)	MV (DE8)	NORTH (total)	SH North (DEF)	HH (DE6)	NDS (DE9)	HB (DE5)
0. Other sectors									
0.1	Shipbuilding and ship repair	0,46	0,24	0,21	0,54	0,01	0,13	0,28	0,11
0.2	Water projects	0,04	0,01	0,03	0,08	0,01	0,02	0,04	0,004
1. Maritime transport									
1.1	Deep-sea shipping	0,80	0,47	0,33	3,15	0	1,57	0,64	0,95
1.2	Short-sea shipping (incl. Ro-Ro)	1,68	1,01	0,67	4,02	0	2,00	0,81	1,21
1.3	Passenger ferry services	0,07	0,06	0,01	0,04	0,006	0,0004	0,04	0,0004
1.4	Inland waterway transport	0	0	0	1,20	0,30	0,36	0,42	0,12
2. Food, nutrition, health and ecosystem services									
2.1	Fish for human consumption	1,27	0,54	0,72	1,88	0,39	0	0,60	0,89
2.2	Fish for animal feeding	0	0	0	0	0	0	0	0
2.3	Marine aquaculture	0	0	0	0,003	0,001	0	0,001	0
2.4	Blue biotechnology	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2.5	Agriculture on saline soils	0	0	0	0,0007	0,0005	0	0,0002	0
3. Energy and raw materials									
3.1	Offshore oil and gas	0	0	0	0,62	0,62	0	0	0
3.2	Offshore wind	0,12	0	0,12	0,63	0,16	0,07	0,28	0,12
3.3	Ocean renewable energy	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3.4	Carbon capture and storage	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3.5	Aggregates mining	0	0	0	0,02	0,02	0	0	0
3.6	Marine minerals mining	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3.7	Securing fresh water supply	0	0	0	0	0	0	0	0
4. Leisure, working and living									
4.1	Coastal tourism	1,01	0,40	0,61	0,88	0,23	0,26	0,38	0,01
4.2	Yachting and marinas	0,26	0,10	0,16	0,23	0,06	0,07	0,10	0,003

⁴⁷ For source and reference year of GVA and “Key to allocate between sea basins, NUTS-1 regions and Schleswig-Holstein North and Baltic Sea” (NUTS 1 Code: DEF; borders both sea basins) see Annex Table D.

4.3	Cruise tourism	0,17	0,09	0,07	0,11	0	0,10	0	0,02
5. Coastal protection									
5.1 - 5.3	Coastal protection, protection of habitats	0,06	0,024	0,03	0,11	0,024	0,02	0,06	0,01
6. Maritime monitoring and surveillance									
6.1 - 6.2	Traceability and Prevent and protect against illegal movement of people and goods security of goods supply chains,	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6.3	Environmental monitoring	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 11 - Overview of employment (in thousand persons) per maritime economic activity per region in Germany (Sea basin & NUTS-1 regions⁴⁸)

Maritime Economic Activity		BALTIC (total)	SH Baltic (DEF)	MV (DE8)	NORTH (total)	SH North (DEF)	HH (DE6)	NDS (DE9)	HB (DE5)
0. Other sectors									
0.1	Shipbuilding and ship repair	9,17	4,90	4,26	10,84	0,23	2,71	5,62	2,27
0.2	Water projects	0,98	0,27	0,71	1,82	0,27	0,49	0,98	0,09
1. Maritime transport									
1.1	Deep-sea shipping	5,02	2,93	2,09	19,69	0,00	9,81	3,97	5,90
1.2	Short-sea shipping (incl. Ro-Ro)	10,46	6,28	4,18	25,10	0,00	12,51	5,06	7,52
1.3	Passenger ferry services	1,18	0,94	0,24	0,69	0,11	0,01	0,57	0,01
1.4	Inland waterway transport	0	0	0	8,96	2,24	2,69	3,13	0,90
2. Food, nutrition, health and ecosystem services									
2.1	Fish for human consumption	34,29	14,70	19,59	50,82	10,57	0	16,17	24,07
2.2	Fish for animal feeding	0	0	0	0	0	0	0	0
2.3	Marine aquaculture	0	0	0	0,01	0,01	0	0,01	0
2.4	Blue biotechnology	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2.5	Agriculture on saline soils	0	0	0	0,03	0,02	0	0,01	0
3. Energy and raw materials									
3.1	Offshore oil and gas	0	0	0	2,98	2,98	0	0	0
3.2	Offshore wind	1,36	0,00	1,36	7,24	1,88	0,76	3,26	1,34
3.3	Ocean renewable energy	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3.4	Carbon capture and storage	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3.5	Aggregates mining	0	0	0	0,27	0,27	0	0	0
3.6	Marine minerals mining	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3.7	Securing fresh water supply	0	0	0	0	0	0	0	0
4. Leisure, working and living									
4.1	Coastal tourism	47,85	18,96	28,89	41,76	10,78	12,26	18,22	0,51
4.2	Yachting and marinas	2,72	1,08	1,64	2,38	0,61	0,70	1,04	0,03
4.3	Cruise tourism	2,22	1,24	0,98	1,53	0	1,29	0	0,24
5. Coastal protection									
5.1 - 5.3	Coastal protection, Protection of habitats	0,55	0,20	0,35	1,13	0,20	0,23	0,61	0,091

⁴⁸ For source and reference year of employment and "Key to allocate between sea basins, NUTS-1 regions and Schleswig-Holstein North and Baltic Sea" (NUTS-1 Code: DEF; borders both sea basins) see Annex Table D.

6. Maritime monitoring and surveillance									
6.1	Traceability and security of goods supply chains, Prevent and protect against illegal movement of people and goods	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6.2		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6.3	Environmental monitoring	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

5. Growth drivers and barriers to growth for the 6 most promising marine and maritime economic activities

Table 12 - Strengths and weaknesses analysis of most promising maritime economic activities

Offshore wind

(Benchmark instance: Denmark)

	Drivers for Growth		Barriers for Growth	
	from SWOT analysis	from Benchmark analysis	from SWOT analysis	from Benchmark analysis
Maritime research	Very extensive public and private research activities ⁴⁹ . Federal research ⁵⁰ programmes: alpha ventus; RAVE; FINO 1-3. Research centres ⁵¹ : Fraunhofer IWES; ForWind; CEwind; DEWI	German research institutes rank very high internationally in terms of the number of publications on offshore wind		
Development and innovation	High level of continuous research, development and innovation activities / projects.		Little experience in near- and offshore applications	
Access to finance	Guaranteed feed-in remuneration		Caution of investors and the banks in financing of offshore wind farms due to delays in onshore grid expansion	
Smart infrastructure	Infrastructure Acceleration Act and Energy Act for regulation of the grid connection of the offshore wind farms	Smart Grid (Intelligent energy system in development)	Delays in onshore grid expansion	
Maritime clusters	Maritime Cluster Northern Germany ⁵² ; OWIA ⁵³ ; WAB ⁵⁴ ; windcomm ⁵⁵ ; EEHH ⁵⁶ ; WEN ⁵⁷			
Education, needs in training and skills	High level of skilled workers in the industry. Related courses in the major universities of Northern Germany ⁵⁸			
Maritime spatial planning	National strategy for Integrated Coastal Zone Management (ICZM) adopted in 2006 including offshore wind. Designation of especially suitable areas for offshore wind farms			

⁴⁹ See: <http://www.offshore-windenergie.net/en/research>

⁵⁰ See: <http://www.offshore-windenergie.net/en/research/federal-research-programme>

⁵¹ See: <http://www.offshore-windenergie.net/en/research/research-centres>

⁵² See: <http://www.maritimes-cluster.de/en/topics-projects/current-topics-and-projects/innovation/#c2803>

⁵³ Alliance of the following four regional networks / cluster; see: <http://www.owia.de/>

⁵⁴ See: http://www.wab.net/index.php?option=com_content&view=article&id=327&Itemid=27&lang=en

⁵⁵ See: <http://www.windcomm.de/Seiten/en/home/home.php>

⁵⁶ See: <http://en.erneuerbare-energien-hamburg.de/wind-energy.html>

⁵⁷ See: <http://www.wind-energy-network.de/en/index.html>

⁵⁸ See: <http://www.offshore-windenergie.net/en/economy/experts-apprenticeship>

Integrated local development	Shipping, ports, shipbuilding, coastal tourism, offshore wind and much more integrated in local and regional development strategies (ICZMs of the Länder)			
Public engagement	Strategy of the German Government on the use of offshore wind energy ⁵⁹ . See also: "Access to finance"			

Coastal tourism

(Benchmark instance: Sardinia)

	Drivers for Growth		Barriers for Growth	
	from SWOT analysis	from Benchmark analysis	from SWOT analysis	from Benchmark analysis
Maritime research	Institute for Maritime Tourism ⁶⁰			
Development and innovation		Environmental protection policies; business support policies		
Access to finance	Good	Financial public support		
Smart infrastructure	Well-developed road- and railway network	Effective port and airport system. Good general infrastructures (energy, TLC, etc.)		
Maritime clusters	Tourism associations (e.g. Tourismusverband Mecklenburg-Vorpommern e.V. ⁶¹)	No maritime clusters linked to coastal tourism		No maritime clusters linked to coastal tourism
Education, needs in training and skills		Good standard of schooling. Widespread presence of vocational schools and universities for tourism		
Maritime spatial planning	National strategy for Integrated Coastal Zone Management (ICZM) adopted in 2006 including Shipping, ports, shipbuilding, coastal tourism, offshore wind and much more			
Integrated local development	Shipping, ports, shipbuilding, coastal tourism, offshore wind and much more integrated in local and regional development strategies (ICZMs of the Länder). Masterplans for successful tourism development in some regions (in development) ⁶²			
Public engagement	Strong engagement of local authorities. Very important role of regional and local tourism organizations	Marketing and advertising investments		

⁵⁹ See: http://www.erneuerbare-energien.de/fileadmin/ee-import/files/pdfs/allgemein/application/pdf/windenergie_strategie_br_020100.pdf

⁶⁰ See: <http://www.imt.hs-bremerhaven.de/index.php?lang=en>

⁶¹ See: <http://www.tmv.de> and <http://www.auf-nach-mv.de/index.php?lang=2>

⁶² See: http://www.mw.niedersachsen.de/portal/live.php?navigation_id=5568&article_id=15017&psmand=18

	See also: "Access to finance"		
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Short-sea shipping / Deep-sea shipping⁶³
(Benchmark instances: The Netherlands/Greece)

	Drivers for Growth		Barriers for Growth	
	from SWOT analysis	from Benchmark analysis	from SWOT analysis	from Benchmark analysis
Maritime research	Funding programme "Next-Generation Maritime Technologies" (for continuous research and development in shipbuilding, shipping and marine technologies). Funding programme "Innovative shipbuilding protects competitive jobs"	Extensive involvement and experience in maritime research; many Universities and R&D institutions involved in maritime research		
Development and innovation	Close cooperation between shipping companies, shipyards and shipbuilding suppliers during the project planning in new building of ships	Innovation is promoted through a multitude of means	Low level of continuous innovation projects by shipping companies due to focus on daily business	Strong competition from the Far East
Access to finance		Better than in other member countries of the EU	Caution of the banks in financing of ships due to the economic crises and overcapacity of global ship tonnage (concerning shipping companies as well as shipyards)	
Smart infrastructure		First class general infrastructures (energy, TLC, etc.), modern operating environment		
Maritime clusters	Cluster management venture "Maritime Cluster Northern Germany"	First class maritime cluster alliance with five integrated sub-clusters providing high quality products and services	Länder Bremen and Mecklenburg-Vorpommern not yet involved in cluster management venture	
Education, needs in training and skills	High level of sea and land personnel's professional training and qualifications	Very high level Good professional training at all levels	Low number of total graduates due to low attractiveness of maritime careers (on the sea)	Problems in attracting sufficient numbers of entrants
Maritime spatial planning	National strategy for Integrated Coastal Zone Management (ICZM) adopted in 2006 including Shipping, ports, shipbuilding, coastal tourism, offshore wind and much more	The European integrated maritime policy concept has been incorporated in policy		
Integrated local development	Shipping, ports, shipbuilding, coastal tourism, offshore wind and much more integrated in local and regional development strategies (ICZMs of the Länder)		Long period of low cooperation and coordination between the Länder	
Public engagement	See "Maritime Research" (public funding programmes). „Tonnagegewinnermittlung“ introduced in 1998 to decrease the German taxation level to international level			

⁶³ SSS and DSS both belong to most promising MEAs in Germany; SSS is of greater relevance for Germany's Baltic Sea region; a separate analysis is not adequate but both benchmark instances were taken into account.

Cruise tourism⁶⁴

(Benchmark instance: Italy)

	Drivers for Growth		Barriers for Growth	
	from SWOT analysis	from Benchmark analysis	from SWOT analysis	from Benchmark analysis
Maritime research	Institute for Maritime Tourism ⁶⁵	Shipbuilding research with emphasis to the performance and efficiency of cruise ships		
Development and innovation	Indirectly included by shipbuilding of cruise ships, cruise terminals and cruise shipping			
Access to finance	Indirectly included by shipbuilding of cruise ships, cruise terminals and cruise shipping	Legislative regime to support shipbuilding activity		
Smart infrastructure	Modern cruise terminals	Integrated management systems. Application of green technology (PV). Passenger's applications		
Maritime clusters	Indirectly included by shipbuilding of cruise ships, cruise terminals and cruise shipping	Existence of national maritime cluster	Not directly included in maritime clusters initiatives / managements	
Education, needs in training and skills	Bachelor of Arts in Cruise Tourism Management ⁶⁶	Adequate number of Universities and Polytechnic Universities		Limited dedicated cruise programs at higher level of education
Maritime spatial planning	Indirectly included by shipbuilding of cruise ships, cruise terminals and cruise shipping			
Integrated local development	Indirectly included by shipbuilding of cruise ships, cruise terminals and cruise shipping			
Public engagement	Indirectly included by shipbuilding of cruise ships, cruise terminals and cruise shipping			

Shipbuilding and ship repair⁶⁷

	Drivers for Growth		Barriers for Growth	
	from SWOT analysis	from Benchmark analysis	from SWOT analysis	from Benchmark analysis
Maritime research	Funding programme "Next-Generation Maritime Technologies" (for continuous research and development in shipbuilding, shipping and marine technologies. Funding programme "Innovative shipbuilding protects competitive jobs")	Extensive involvement and experience in maritime research		
Development and innovation	High level of continuous research, development and innovation activities / projects by shipyards	High level of R & D and innovation. Innovative SMEs and strong position of marine equipment industry		
Access to finance		Sufficient access to finance (solid banking system)	Caution of the banks in financing of ships due to the economic crises and overcapacity of global ship tonnage (concerning shipping companies as well	

⁶⁴ For all issues concerning shipbuilding of cruise ships and cruise shipping see also tables for shipbuilding and short-sea shipping / deep-sea shipping in this chapter.

⁶⁵ See: <http://www.imt.hs-bremerhaven.de/index.php?lang=en>

⁶⁶ <http://www.ctm.hs-bremerhaven.de/>

⁶⁷ Germany is benchmark instance for shipbuilding and ship repair.

Smart infrastructure		Excellent general infrastructures	as shipyards)	
Maritime clusters	First class maritime cluster alliance with five integrated sub-clusters providing high quality products and services. Cluster management venture "Maritime Cluster Northern Germany"	Well organized maritime clusters.	Länder Bremen and Mecklenburg-Vorpommern not yet involved in cluster management venture.	
Education, needs in training and skills	High level of skilled workers in shipyards. Strong demand of specialised training programmes for shipyard workers	Very good standard of schooling. Long tradition of high level specialized training. Skilled and experienced personnel	Lack of availability of shipbuilding engineers is rising with demographic change	Mean age of shipbuilding workforce is rising.
Maritime spatial planning	National strategy for Integrated Coastal Zone Management (ICZM) adopted in 2006 including Shipping, ports, shipbuilding, coastal tourism, offshore wind and much more	New areas for development (e.g offshore technologies)		
Integrated local development	Shipping, ports, shipbuilding, coastal tourism, offshore wind and much more integrated in local and regional development strategies (ICZMs of the Länder)	Close ties between yards and local community		Environmental issues raised by the local communities
Public engagement	See "Maritime Research" (public funding programmes)	Strong state support through its political influence in European and international organisations and/or instruments		Fragmented direct government responses

Blue biotechnology⁶⁸

(Benchmark instance: Schleswig-Holstein Region, Germany)

	Drivers for Growth		Barriers for Growth	
	from SWOT analysis	from Benchmark analysis	from SWOT analysis	from Benchmark analysis
Maritime research		Several research centers and universities involved in projects related to blue biotechnologies		Research institutes focus on either biotechnologies or marine sciences; blue biotechnologies are generally not identified as a research field on its own
Development and innovation		Significant number of relevant plans and programs at EU and federal level		Poorly identified in the different programs, which tend to focus on green, red and white biotechnologies, or on other maritime sectors
Access to finance		Blue biotechnologies fall under various funding programs		As above: poorly identified in the programs. Economic risks and innovation costs are higher than for other technologies
Smart infrastructure	First class general infrastructures (energy, TLC, etc.); Modern operating environment	Not relevant		Not relevant
Maritime clusters		Two important clusters involved in blue biotechnologies: Norgenta and "The Future Ocean"		Neither cluster is specialised in blue biotechnologies
Education, needs in training and skills		Standard level of education Related courses in the major universities of the region		Standard level of education No specialised degree Lack of specialised technical and commercial

⁶⁸ Germany (in particular Schleswig-Holstein) is benchmark instance for blue biotechnology.

				training (non-academic)
Maritime spatial planning	National strategy for Integrated Coastal Zone Management (ICZM) adopted in 2006 including Shipping, ports, shipbuilding, coastal tourism, offshore wind and much more	The "Future strategies for aquaculture- Bay of Kiel" takes into account marine biotechnologies		
Integrated local development	The "Future strategies for aquaculture- Bay of Kiel" takes into account marine biotechnologies			
Public engagement		Blue biotechnologies are recognised as a strategic sector; New masterplan for the development of marine biotechnologies lays out an action plan dedicated to the sector		

6. List of existing clusters

"The maritime economy in Germany is concentrated in the coastal regions and can be described as a cluster alliance with five integrated sub-clusters"⁶⁹. The cluster accounts for almost 160 thousand employees in 4 thousand enterprises. The five regional sub-clusters are (from west to east):

- Ems-Axis⁷⁰: region in the north-west of Germany along the river Ems (quite unknown but many shipping companies; important shipyards and fast growing offshore wind industry)
- Metropolitan Region Bremen-Oldenburg⁷¹: region between and surrounding Bremen and Oldenburg
- Metropolitan Region Hamburg⁷²: Hamburg and its hinterland (most important sub-cluster including Hamburg and the surrounding NUTS-3 regions of Schleswig-Holstein and Lower-Saxony)
- Schleswig-Holstein: NUTS-3 regions of Schleswig-Holstein not included in Metropolitan Region Hamburg, almost belonging to Germany's Baltic Sea region
- Mecklenburg-Vorpommern (NUTS-2 region in the north east)

This cluster structure has been shown by various cluster analyses, studies and expert reports⁷³ based on extensive primary surveys carried out by the "NORD/LB⁷⁴ Regionalwirtschaft" from 2007 to 2010. Within that framework almost one thousand enterprises and research institutions, active in the different maritime industries, provided inter alia information about their cooperation relationships as a basis for an extensive network analysis of the maritime economy in Germany. The special quality of the maritime cluster alliance is the existence of several regional nuclei (sub-clusters) and the various collaboration relationships within and between these nuclei. The maritime industry should therefore be strategically viewed as a whole.

To heed those findings, three of the five North German federal states (Hamburg, Lower Saxony and Schleswig-Holstein) have launched a maritime cluster management venture, which is initially running as an

⁶⁹ Brandt, A.; Dickow, M.C.; Drangmeister, C. (2010): Entwicklungspotenziale und Netzwerkbeziehungen maritimer Cluster in Deutschland. In: Zeitschrift für Wirtschaftsgeographie. Maritime Wirtschaft. Strukturwandel und Entwicklungsperspektiven. Jg. 54 (2010), Heft 3-4, S. 238-253

⁷⁰ For exact spatial delineation (NUTS 3 regions) see: <http://www.emsachse.de/52.html>; see also "Working group integrated maritime operations": <http://www.emsachse.de/135.html> and "Maritime Cluster Ems-Axis": <http://www.mariko-leer.de/projects/>

⁷¹ For exact spatial delineation (NUTS 3 regions) see: <http://www.frischkoepe.de/>; due to parallel membership the district Cuxhaven (DE932) was added to Metropolitan Region Hamburg

⁷² For exact spatial delineation (NUTS 3 regions) see: <http://metropolregion.hamburg.de/>

⁷³ See, for instance:

- NORD/LB et al. (2009a)
- NORD/LB et al. (2009b)
- NORD/LB (2010)
- VDI|VDE|IT et al. (2010)

⁷⁴ Norddeutsche Landesbank is a German Landesbank and one of the largest commercial banks in Germany. It is a public corporation owned by the federal states of Lower Saxony and Saxony-Anhalt.

inter-state project for three years (starting in January 2011). The goals, tasks, focal points, structures, cost and financing arrangements were laid down in a trilateral agreement. The project is geared to the maritime economy of Northern Germany with its shipbuilding, ship supply, offshore and marine engineering industries and with its links to the shipping industry, shipping companies and the port economy. The Cluster's main task is to initiate inter-state collaboration projects, expand the existing networks and strengthen regional competencies⁷⁵.

Taking into account that the maritime economy in Germany should be viewed as one whole cluster the following table summarizes the specific competencies and main emphasis of each of the five regional sub-clusters.

Table 13 - List and analysis of clusters

Cluster	MS	Maritime economic activities covered	Status	Strengths	Weaknesses
Ems-Axis	GER	Shipbuilding	Mature	<p>GER: Highly specialised in technologically sophisticated niche markets (cruise ships, offshore vessels, military ships, lifeboats). High export rate and international demand. High percentage of formal skilled workers in shipyards.</p> <p>Ems-Axis: Building of luxury cruise liners (MEYER WERFT GmbH); Ship repairs, maintenance, conversion, modernisation</p>	<p>GER: Low crisis susceptibility especially in container ship segment. Low order volume by domestic shipping companies. Looming shortage of skilled workers</p>
		Maritime Transport	Growing with recovery of the global economy	<p>GER: Third largest merchant fleet in the world (GER total). Modern fleet (large container ships, project vessels, heavy lift carriers, multipurpose ships. High level of sea and land personnel professional training and qualifications standards.</p> <p>Ems-Axis: Second largest region in Germany regarding shipping companies and number of ships. Maritime centre of excellence established in 2009⁷⁶.</p>	<p>GER: Regulatory environment, especially "crew regulation" (Schiffsbesatzungsverordnung).</p> <p>Ems-Axis: Predominantly small and medium-sized companies, only few major companies. Lack of liner shipping companies</p>
		Offshore Wind	Strong growth	<p>GER: Almost the entire value chain is covered. Technology leader for big wind turbines (5 MW and more). Big / growing domestic market and furthermore high export rate. Public funding (German Renewable Energies Act).</p> <p>Ems-Axis: Various key players located in region (e.g. Bard Engineering GmbH; SIAG Nordseewerke GmbH). Offshore Wind Port Emden. Geographical location of the region near the planned offshore wind farms.</p>	<p>GER: Stagnant investments due to lack of needed expansion of onshore high-voltage electricity grid. Low practical experience in offshore logistics and construction and little offshore service sector. Difficult oceanographic and climatic conditions on domestic market (German EEZ).</p>
		Coastal tourism	Slight growth	<p>GER: Strong and growing domestic demand.</p>	<p>GER: Low foreign demand.</p>
MR Bremen-Oldenburg	GER	Shipbuilding	Mature	<p>GER: see above.</p> <p>MR Bremen-Oldenburg: Building of navy, coastguard and offshore vessels and mega-yachts; Ship repairs, maintenance, conversion, modernisation.</p>	<p>GER: see above.</p>
		Maritime	Growing	<p>GER: see above.</p>	<p>GER: see above.</p>

⁷⁵ See: <http://www.maritimes-cluster.de/en/>

⁷⁶ See: <http://www.mariko-leer.de/language/en/>

Cluster	MS	Maritime economic activities covered	Status	Strengths	Weaknesses
		Transport	with recovery of the global economy	MR Bremen-Oldenburg: Third largest region in Germany regarding shipping companies and number of ships. Important port sector: Second largest sea freight centre.	
		Offshore Wind	Strong growth	GER: see above MR Bremen-Oldenburg: Various key players located in region (e.g. AREVA Wind GmbH; REpower Systems SE; PowerBlades GmbH; WeserWind GmbH; PowerWind GmbH; Deutsche WindGuard Engineering GmbH). Offshore Wind Port Bremerhaven. Geographical location of the region near the planned offshore wind farms.	GER: see above.
		Coastal tourism	Slight growth	GER: see above.	GER: see above.
		Oceanography/ Environmental monitoring (measurement and environment engineering)	Nascent	GER: High technological level and research intensity. High percentage of formal skilled workers. MR Bremen-Oldenburg: Some important public research institutions located in the region (e.g. MARUM - Zentrum für Marine Umweltwissenschaften; Alfred-Wegener-Institut Helmholtz-Zentrum für Polar- und Meeresforschung).	GER: Predominantly small and medium-sized companies > low financial resources. Mainly domestic demand and focus on needs of public sector and national research institutions.
		Maritime process control and safety technology	Nascent	GER: High degree of system compatibility of some big enterprises active in the field of civil security. High technological level and research intensity. High percentage of formal skilled workers. MR Bremen-Oldenburg: Some key players located in the region (e.g. EADS Astrium GmbH; Rheinmetall Defence Electronics GmbH; ATLAS maritime Security GmbH).	GER: Fragmentation of national responsibilities in maritime security and safety hinders system integration. Lack of international standards in maritime security and safety.
MR Hamburg	GER	Shipbuilding	Mature	GER: see above MR Hamburg: Building of navy vessels and submarines and offshore, ro/ro, heavylift vessels and chemical tankers; Ship repairs, maintenance, conversion, modernisation	GER: see above.
		Maritime Transport (main deep sea shipping port and short-sea shipping hub)	Growing with recovery of the global economy	GER: see above MR Hamburg: By far the largest region in Germany regarding shipping companies and number of ships. Important port sector: By far largest sea freight centre. Many important key players located in the region (e.g. Federal Maritime and Hydrographic Agency as central agency for maritime transport; Germanischer Lloyd SE as central classification society; Hapag-Lloyd AG).	GER: see above.
		Marine aquaculture	Nascent	Strong R&D activities (especially Recirculating Aquaculture Systems) in public research institutions (GMA - Gesellschaft für Marine Aquakultur mbH in Büsum).	Low private sector activities so far.

Cluster	MS	Maritime economic activities covered	Status	Strengths	Weaknesses
		Offshore wind	Strong growth	GER: see above. MR Hamburg: Some key players located in the region, especially in Husum and Hamburg (e.g. Vestas Deutschland GmbH; REpower Systems AG; Federal Maritime and Hydrographic Agency as central licensing authority)	GER: see above.
		Maritime process control and safety technology	Nascent	GER: see above. MR Hamburg: Some key players located in the region (e.g. Germanischer Lloyd SE; Hamburgische Schiffbau-Versuchsanstalt GmbH; INTERSCHALT maritime systems AG)	GER: see above.
Schleswig-Holstein (North)	GER	Shipbuilding	Mature	GER: see above. Schleswig-Holstein: Building of navy vessels and submarines and passenger ship, special cargo and offshore vessels; Ship repairs, maintenance, conversion, modernisation.	GER: see above
		Maritime Transport (especially short sea shipping and inland waterway transport)	Growing with recovery of the global economy	GER: see above Schleswig-Holstein: Kiel Canal, which links the North Sea and the Baltic Sea.	GER: see above
		Blue biotechnology	Nascent	Strong R&D activities in public research institutions (EMB – Fraunhofer Research Institution for Marine Biotechnology in Lübeck; GEOMAR Helmholtz Centre for Ocean Research in Kiel; Christian-Albrechts-Universität in Kiel).	Low private sector activities so far.
		Coastal tourism	Slight growth	GER: see above.	GER: see above.
		Oceanography/ Environmental monitoring (measurement and environment engineering)	Nascent	GER: see above. Schleswig-Holstein: Some important public research institutions located in region (e.g. GEOMAR Helmholtz Centre for Ocean Research in Kiel).	GER: see above.
Mecklenburg-Vorpommern	GER	Shipbuilding	Mature	GER: see above Mecklenburg-Vorpommern: Building of offshore, passenger and cruise vessels; Ship repairs, maintenance, conversion, modernisation	GER: see above.
		Blue biotechnology	Nascent	Strong R&D activities in public research institutions (Ernst-Moritz-Arndt-University in Greifswald).	Low private sector activities so far.
		Offshore wind	Strong growth	GER: see above Mecklenburg-Vorpommern: Some key players located in the region (e.g. Nordex Energy GmbH; Industrial Services Bilfinger Maintenance Nord GmbH).	GER: see above Mecklenburg-Vorpommern: Low capacity is planned for installation in Germany's Baltic Sea.

Cluster	MS	Maritime economic activities covered	Status	Strengths	Weaknesses
		Coastal tourism	Slight growth	GER: see above	GER: see above
		Oceanography/ Environmental monitoring (measurement and environment engineering)	Nascent	GER: see above Mecklenburg-Vorpommern: Some important public research institutions located in the region (e.g. Leibniz Institute for Baltic Sea Research in Warnemünde; Ernst-Moritz-Arndt-University in Greifswald).	GER: see above

7. Analysis of maritime strategies at regional and national level, as well as those under preparation and their links with Smart Specialisation Strategies

Maritime Strategies

A number of national and regional level policies were found to have an impact on the maritime economic activities in Germany. These are summarised in tables 14 and 15.

The "Maritime Development Plan - Strategy for a German integrated maritime policy" is the overall framework for a comprehensive maritime policy in Germany, with its main emphasis on 1) strengthening maritime / marine science and research and technological innovation, 2) sustainable use of the seas, 3) improving safety of the shipping routes and protection of the coastal zones and, 4) increasing the quality of life in the coastal zones. These objectives touch upon nearly every MEA (existing in Germany) including the selected six most promising MEAs for Germany's Baltic Sea region. Due to its integrated character, the Maritime Development Plan furthermore bundles the already existing maritime strategies and policies and sets guideline targets.

The National Masterplan for Maritime Technologies (NMMT) is primarily aimed at maritime technologies, e.g. offshore wind from the six most promising MEAs in Germany's Baltic Sea region and furthermore broad sections of the defined maritime functions "Energy and raw materials", "Coastal Protection" and "Maritime monitoring and surveillance".

Table 14 – Assessment of maritime policies⁷⁷

Policy	Objectives	Priorities	Consequences for maritime activities	Impacts on sustainable growth	Investment and funding
Maritime Development Plan - Strategy for a German integrated maritime policy	Overall framework for a comprehensive maritime policy in Germany	Strengthening the competitiveness of the German maritime economy and exploiting the employment potential	Achieving a good ecological status in the North and Baltic Sea until 2020 and making them to the most cleanest and safest seas	Bearing share of the responsibility for global ecological development and supporting efforts against climate change	
National Masterplan Maritime Technologies (NMMT)	Strengthening Germany as high-tech location in maritime technologies	Increasing the competitiveness and the global market share of the related industries Bundling, strategic orientation and linking of driving forces	Identification of future potentials	Improving links between industry and research	Coordination of current and future funding programmes

⁷⁷ Please see the country fiche guidelines for the methodology

Policy	Objectives	Priorities	Consequences for maritime activities	Impacts on sustainable growth	Investment and funding
		Improving public perceptions of the maritime technologies			
National strategy for sustainable use of the seas and conservation of marine ecosystems	Achieving a good ecological status for the North and Baltic Sea until 2020 and making them to the most cleanest and safest seas	Maintaining biodiversity Reducing eutrophication Introduction of energy, including underwater noise, does not adversely affect the marine environment			
National strategy for integrated coastal region management	Formulation of guiding principles for all planning and decision-planning levels Making a contribution to the development and preservation of coastal zones - exclusive	Identification of potential development and conflict as well as resolving conflicts in a non-bureaucratic manner	economic zone (EEZ), coastal sea (12 sm zone) and coastal areas onshore - as an ecologically intact and economically prospering habitat for humankind	Supporting sustainable development of coastal zones through good integration, coordination, communication and participation	
National concept for the sea and river ports	Strengthening the competitiveness of German ports Development of relevant transport infrastructure, superstructure and elimination of capacity bottlenecks in German ports	Securing and strengthening education, training and employment Optimizing traceability and security of goods supply chains		Sustainable support of environmental and climate protection	
LeaderSHIP Germany - The national shipbuilding future concept	Increasing the competitiveness and the global market share of Germany's shipbuilding industry Improving financing and guaranty concepts	Increasing investment in research, development and innovation Development of a worldwide level playing field Improving protection of intellectual property rights	Securing access to a high-quality labour force		
Maritime Action Plan of the Free Hanseatic City of Bremen	Create a profile for Bremen as a regional centre of excellence and European model region for maritime best practice	Integrative use of the economic potential and scientific competencies of the maritime economy in the Region, with a focus on climate change and protection of the marine environment		Regionally accentuated implementation of the IMP/EU 2020 goals of: 'Optimal and sustainable development of maritime activities' and 'Maritime Development Plan' of the Federal Government	
Maritime Action Plan Schleswig-Holstein (by initiative "Sea - our Future")	Further developing targets for maritime policy and strategic instruments	Promoting key maritime technologies Tapping the full potential of marine and	Conducting maritime research	Making responsible use of the seas and sustainable protection for the marine environment	

Policy	Objectives	Priorities	Consequences for maritime activities	Impacts on sustainable growth	Investment and funding
	Protecting people and coastal areas	maritime career and job opportunities	Builds on the old "Masterplan for Maritime Technologies Schleswig Holstein"		
Port development plan to 2025	Value creation in the Port of Hamburg will be consistently increased Increasing trade with other growth regions (in addition to asia)	Development of bespoke, reliable infrastructure at the quay wall, in the port and hinterland as well as intermodal, optimised transport chains		Pursuing ambitious environmental and climate objectives and actively promoting and applying innovative technologies and ideas	
Action Plan for climate protection Mecklenburg-Vorpommern 2010	Expansion target of about 7 gigawatts of installed capacity in offshore wind farms in 2020 in Germany's / Mecklenburg-Vorpommern's Baltic Sea				
State spatial planning programme Mecklenburg-Vorpommern/ Schleswig-Holstein 2010	Usage and sustainable development of potentials of the coastal sea (12 sm zone) and coastal areas onshore	Early avoidance and minimization of sea- and land-use conflicts Supporting good integration, coordination, communication and participation			

Table 15 – Assessment of a broader range of policies

Policy	Objectives	Priorities	Consequences for maritime activities	Impacts on sustainable growth	Investment and funding
National Strategy on Biological Diversity	Achieving a good ecological and chemical status for all waters in the coastal zones until 2015 To avoid the entrainment of intensive non-native species and continue the practice of only releasing and commercially using transgenic organisms considered safe for marine and coastal ecosystems, with due regard for the particular conditions of	Application of the ecosystem approach (HELCOM, OSPAR) while observing the precautionary and polluter pays principles	Implementation of the Integrated Coastal Zone Management based on the "National strategy for integrated coastal region management" from 2006 (see below)	Sustainable and ecosystem-friendly development of fishery	

Policy	Objectives	Priorities	Consequences for maritime activities	Impacts on sustainable growth	Investment and funding
	these ecosystems				
The Federal Government's Integrated Energy and Climate Programme (IEKP)	Increasing the proportion of renewable energies in electricity supply to 25-30 percent in the year 2020 with further continuous increases in the years thereafter		Including sea shipping in emissions trading Further development of the limit values in sea transport Developing a spatial plan for the German Exclusive Economic Zone with definitions for usage of sea areas, especially for offshore wind energy (priority areas)		
High-Tech Strategy for Germany	Expanding Germany into a viable high-tech location for maritime technologies	Strengthening the leading world market position of Germany's shipbuilding industry in the segment of technologically sophisticated and highly complex special ships			
Action plan for reorientation of tourism in Schleswig-Holstein	Definition of a unequivocal and differential image of Schleswig-Holstein	Focusing on high-quality tourism Modernising the tourist offers, especially concerning infrastructure Improving visitor satisfaction			

Smart Specialisation Strategies

In Germany there exist various links between the Smart Specialisation Strategies (SSS) and the maritime strategies and policies listed in the tables 14 and 15, although none of them can explicitly be seen as a SSS nor any German coastal region is engaged in the official Smart Specialisation Platform. For example, the "National Masterplan Maritime Technologies (NMMT)" - as one of these strategies - has strong links to Smart Specialisation Strategies as some of the main objectives already show:

- Increasing the competitiveness and the global market share of the related industries
- Improving links between industry and research
- Bundling, strategic orientation and linking of driving forces
- Identification of future potentials



Moreover in 2011 the Federal States of Hamburg, Lower Saxony and Schleswig-Holstein launched a maritime cluster management venture to promote the shipyard and supplier sectors, offshore technology and ocean engineering, as well as the link-up with shipping, shipping companies and port management. Beside the cluster management itself as a Smart Specialisation Strategy, the "Maritime Cluster Northern Germany" has strong links to other SSS as some of its goals show:

- Strengthening the competitiveness of our businesses in regional and international markets
- Promoting the transfer of technology between the academic and business communities
- Developing innovative projects

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Annex

Table A - Overview of relevant maritime economic activities in Germany at NUTS-0 and sea basin level⁷⁸

Maritime Economic Activity		MEA overview	Socio economic indicators
0. Other sectors			
0.1	Shipbuilding (excl. Leisure boats) and ship repair	Due to growing competition from the Far East, Germany's shipbuilding industry has been in decline for decades and is now focusing on technologically sophisticated niche markets to survive.	GVA (-15%) and employment (-10%) declined from 2008 to 2010 annually. In 2012 Germany's (big) shipyards delivered 26 ships with a gross tonnage of almost 450 thousand tonnes, mainly yachts, passenger ships, RoRo ships and offshore installation ships. Employment in these shipyards is nearly split half and half between North and Baltic Sea.
0.2	Water projects	This MEA includes activities in the construction of dams and dykes, harbour, river and offshore installations and waterways and is therefore of increasing importance due to population and economic growth.	GVA and employment grew about 5-8% annually from 2008 to 2010 and it is anticipated that this trend will continue in the next years.
1. Maritime transport			
1.1	Deep-sea shipping	The economic crisis led to a huge slump in the global shipping markets. In view of the interdependence of global trade and maritime transport, a rallying is expected in the medium-term.	In Germany freight volume in DSS declined from over 120 million tonnes in 2008 to 99 million tonnes in 2009 (-20%) but recovered to almost 119 million tonnes in 2011. Germany's merchant fleet is the third largest in the world and a world leader in the container shipping segment (with 4.8 Mio. TEU = one third of global capacity). Furthermore, Germany has two ports among the top 20 EU cargo ports (gross weight) and container ports (TEU). Due to better accessibility, deep-sea-shipping is concentrated on the North Sea ports (Hamburg, Bremerhaven, Wilhelmshaven) while short-sea-shipping is most relevant to Germany's Baltic Sea region.
1.2	Short-sea shipping (incl. Ro-Ro)	Due to the increasing trade relationships between Germany and the new eastern EU Member States and other eastern European states (especially Russia) continuous growth is expected, from which especially the ports in Germany's Baltic Sea region would like to profit.	The economic crises hit the SSS market hard, too. The SSS freight volume in Germany declined from 190 million tonnes in 2008 to 156 million tonnes in 2009 (-18%) and recovered slower than DSS to only 168 million tonnes in 2011.
1.3	Passenger ferry services	Regarding GVA and employment, passenger ferry services is one of the smallest under the mature MEAs.	The economic crisis did not have any effect on this MEA when referring to passenger volumes only, which were constant at about 20 million passengers from 2004 to 2011 (12,5 million in Germany's North Sea ports). Otherwise there was a heavy decline of about 30% annually from 2008 to 2010 in GVA and employment of NACE Code H55.10: "Sea and coastal passenger water transport" (which also includes cruise passenger transport, but this MEA has been growing for years).
1.4	Inland waterway transport	In comparison with the competition (especially road and rail freight transport) freight transport on inland waterways in Germany is smaller (accounted only for 5,6% of total inland transport modes in 2012) and growing less.	The economic crisis had an impact on this MEA, too. The freight volume in Germany declined from 246 million tonnes in 2008 to 204 million tonnes in 2009 (-23%) but recovered to 223 million tonnes in 2012 (which is by the way higher than the freight volumes of DSS and SSS, due to the extensive intra-national transport of bulk cargo). Furthermore, the MEA can be totally allocated to Germany's North Sea region.
2. Food, nutrition, health and ecosystem services			
2.1	Fish for human consumption	According to this study's methodology for calculation of this MEA, Fish for human consumption is the second largest employer of all MEAs. But this derives from the complete inclusion of NACE Code G 46.38 "Wholesale of other food, including fish, crustaceans and molluscs" (about 20% would be realistic). This NACE Code accounts for approximately 55%	Landings were about 97 thousand tonnes, representing a value of EUR 155 million in 2011. Weight and value of landings decreased by 6% and 2% annually since 2008.

⁷⁸ Includes further indicators tied to Table 1; a distinction between sea basins is given if possible; for source and reference year see Table D in this Annex.

		of the MEA's GVA and employment. Fish processing against that accounts for about 10% and fishing itself only for fewer than 2% of the MEA's GVA and employment. The strong growth of the MEA (+14% GVA and +19% employment annually from 2008 to 2010) also derives from the strong increase of NACE Code G 46.38, which was about +23% GVA and +29% employment annually from 2008 to 2010.	
2.2	Fish for animal feeding	Fish for animal feeding is not of relevance in Germany.	
2.3	Marine aquaculture	Marine aquaculture (business) in Germany is almost limited to the production of blue mussels in the North Sea only. However, there is growing scientific research on marine fish aquaculture (especially Recirculating Aquaculture Systems). In 2009 the national competence center in research on marine aquaculture was launched at Büsum (Schleswig-Holstein) to foster the industry.	21 thousand tonnes of marine aquaculture products, mostly blue mussels, were produced in the North Sea in 2011.
2.4	Blue biotechnology	The German Blue Biotechnology industry is still nascent and very much focused on research and development.	Some important research institutions with special expertise in different fields of Blue Biotechnology were identified in Germany (e.g. GEOMAR Helmholtz Centre for Oceanic Research; The Kiel Center for Marine Natural Products at GEOMAR; Fraunhofer Research Institution for Marine Biotechnology).
2.5	Agriculture on saline soils	MEA is not of relevance in Germany. In coastal regions the share of saline soils is under 0,5% of the total agricultural area. Furthermore, all saline soils are located in the North Sea region.	
3. Energy and raw materials			
3.1	Offshore oil and gas	Despite low domestic activities, German companies are important suppliers on the global market (e.g. pump, drilling, compressor technologies and components; but no systems integrators).	With the exception of the offshore oil platform "Mittelplate" in the North Sea (1,3 million tonnes or 53% of the country's total oil production in 2011) Germany's oil and gas production takes place onshore.
3.2	Offshore wind	Due to environmental protection of the Tidelands National Park in the North Sea, offshore wind farms have to be built in the Exclusive Economic Zone (EEZ). Difficult oceanographic and climatic conditions in the EEZ require powerful turbines (5-6 MW) to make the wind farms profitable. German companies are therefore market leaders and systems integrators in this technologically sophisticated sub-segment.	Due to Germany's nuclear power phase-out and climate protection targets, the extension of offshore wind energy is a main concern of the Federal Government. In March 2013 there were 320 Megawatt (MW) in operation (50 MW in the Baltic Sea), another 1.600 MW under construction and 10.000 MW approved, most in the North Sea. The rapid growth of the last years (+27% turnover and +25% employment from 2010 to 2011) is anticipated to continue. Manufacturing of turbines, supplies and large components (e.g. foundations, tower, gondola, rotor blades) accounts for about 75% of the employment followed by construction and grid connection with both approximately 10%.
3.3	Ocean renewable energy	Except for offshore wind energy, the other offshore renewable energy technologies are still at an early stage of development in Germany.	Due to the hydrographic and oceanographic conditions in the German North Sea and especially the Baltic Sea, there is scarcely any potential for domestic commercial exploitation.
3.4	Carbon capture and storage	In Germany, carbon capture and storage technologies / industry are still nascent and very much focused on research and development.	Carbon capture and storage is part of Germany's plan of action in the National Masterplan for Maritime Technologies (NMMT).
3.5	Aggregates mining (sand, gravel, etc.)	Aggregates mining only takes place in the German North Sea.	In 2010, 9 million of 535 million tonnes or 1,7% of the national aggregates production were covered by offshore mining.
3.6	Marine minerals mining	Marine minerals mining is still at an early stage of development.	Some research and development activities in research institutions.
3.7	Securing fresh water supply (desalination)	Securing fresh water supply plays no role for Germany's drinking water supply.	Some German companies are suppliers of components for the global market.
4. Leisure, working and living			
4.1	Coastal tourism	Coastal tourism is a very important industry for the somewhat structurally weak coastal regions in Germany.	The MEA is the largest employer of all MEAs in Germany and has been growing strong for years (+4% GVE and +11% employment from 2008-2010 annually). Moreover, overnights in German Coastal NUTS-3 regions increased by 2,3% from 2008 to 2010. Germany's Baltic Sea region accounted for almost 31 million overnights (corresponding to 62% of the total overnights in the coastal regions) in 2010.

4.2	Yachting and marinas	Increasing wealth led this MEA to expand over the last decades.	The economic crisis did not have any effect on this MEA, regarding the development of GVA and employment. GVA increased by 1,3% while employment was a little shrinking by -1,4% from 2008 to 2010 annually.
4.3	Cruise tourism	Worldwide, as well as in Europe and Germany, in the last decade the cruise market has seen a rapid growth.	The European Cruise Council indicates that employment, in German cruise lines only was about 3,8 thousand persons in 2010 and increased by 12% from 2008 to 2010 annually. The total employment impact of the industry is quantified with 36 thousand persons. Moreover, in 2011, ports in Germany generated 375 thousand passenger embarkations. The major embarkation ports were Kiel and Hamburg, with Kiel as the second important embarkation port in the Baltic Sea region (behind Copenhagen).
4.4	Working	Not applicable.	Not applicable.
4.5	Living	Not applicable.	Not applicable.
5. Coastal protection			
5.1 – 5.2	Coastal protection	The five coastal federal states Bremen, Hamburg, Mecklenburg-Vorpommern, Niedersachsen and Schleswig-Holstein are responsible for the protection of their coasts. Capital coastal protection measures are open to co-financing of up to 70% by the national government, whereas the maintenance of existing structures is financed 100% by the respective state.	In 2010, public expenditure on coastal protection in Germany amounted to EUR 0,19 billion. 82% derived from the Joint Task for the Improvement of Agricultural Structures and Coastal Protection (financed from national state and federal states), 9% from EU funding and another 9% from local and regional authorities. Although due to sea level rising there is growing importance in this MEA, it depends on public expenditure and is therefore not comparable with the MEAs of the private sector.
5.3	Protection of habitats		
6. Maritime monitoring and surveillance			
6.1	Traceability and security of goods supply chains	The coast guard in Germany is the responsibility of four institutions (some with other priorities than coast guarding) that have vessels: the Federal Police, the Customs Authority, the Federal Water and Shipping Administration and the Federal Agency for Agriculture and Food.	
6.2	Prevent and protect against illegal movement of people and goods		
6.3	Environmental monitoring		

Table B - Selection of the most important regions: Definition of the maritime economic dimension for coastal NUTS 2 – Germany Baltic Sea

NUTS 2 region	Water transport (number of persons employed, 1.000 persons)	Coastal tourism (bed places in coastal NUTS-3)	Fishing (gross tonnage)	Aquaculture (GVA, EUR million)
Schleswig-Holstein	2,3	223.348	11.285	1,1
Mecklenburg-Vorpommern	2,8	209.823	23.616	0,4
Total Germany	36,4	560.450	64.392	65,4

Table C - Selection of the most important regions: Ranking order of coastal NUTS 2 – Germany Baltic Sea

NUTS 2 region	Water transport	Coastal tourism	Fishing	Aquaculture	Total
Schleswig-Holstein	0,6	4,0	1,8	0,2	6,5
Mecklenburg-Vorpommern	0,8	3,7	3,7	0,1	8,2

Table D - Sources & Reference year

Maritime Economic Activity		Source and reference year
0. Other sectors		
0.1	Shipbuilding (excl. Leisure boats) and ship repair	GVA; Employment; Enterprises: Eurostat database (2013); Data 2008-2010 Ships delivered: VSM (Verband für Schiffbau und Meerestechnik e.V.) (2012): VSM-Jahresbericht 2012 Regional share: Employment in (big) shipyards by NUTS-3 regions in 2011; Source: IAW (Institut für Arbeit und Wirtschaft) (2012): Beschäftigung, Auftragslage und Perspektiven im deutschen Schiffbau
0.2	Water projects	GVA; Employment; Enterprises: Eurostat database (2013); Data 2008-2010 Regional share: Enterprises in construction of water projects by NUTS-2 regions in 2008; Source: NORD/LB et al. (2009): Gutachten zur Stärkung und Weiterentwicklung der Maritimen Wirtschaft in Niedersachsen und zum Aufbau maritimer Cluster; share SH Baltic Sea region: 50%, own estimation.

1. Maritime transport		
1.1	Deep-sea shipping	GVA; Employment; Enterprises: Eurostat database (2013); Data 2008-2010; share in total shipping based on freight volumes Freight volumes: Eurostat database (2013); tran_r_mago_nm; Data 2008-2010 Regional share: Maritime transport of freight by NUTS-2 regions; Source: Eurostat database (2013); tran_r_mago_nm; Data 2010; share SH Baltic Sea region: 100%, all main freight ports located in Baltic Sea region Recent / further development: BMWi (2013): Branchenfokus: Maritime Wirtschaft (http://www.bmw.de/DE/Themen/Wirtschaft/branchenfokus,did=196298.html)
1.2	Short-sea shipping (incl. Ro-Ro)	GVA; Employment; Enterprises: Eurostat database (2013); Data 2008-2010; share in total shipping based on freight volumes Freight volumes: Eurostat database (2013); tran_r_mago_nm; Data 2008-2010 Regional share: Maritime transport of freight by NUTS-2 regions; Source: Eurostat database (2013); tran_r_mago_nm; Data 2010; share SH Baltic Sea region: 100%, all main freight ports located in Baltic Sea region Recent / further development: BMWi (2013): Branchenfokus: Maritime Wirtschaft (http://www.bmw.de/DE/Themen/Wirtschaft/branchenfokus,did=196298.html)
1.3	Passenger ferry services	GVA; Employment; Enterprises: Eurostat database (2013); Data 2008-2010; share in total passenger water transport based on passenger volumes Passenger volumes: Eurostat database (2013); tran_r_mapa_nm; Data 2008-2010 Regional share: Maritime transport of passengers by NUTS-2 regions; Source: Eurostat database (2013); Data 2010; share SH Baltic Sea region: 90%, most passenger ferry ports located in Baltic Sea region
1.4	Inland waterway transport	GVA; Employment; Enterprises: Eurostat database (2013); Data 2008-2010 Freight volume: Eurostat database (2013); Data 2010-2012 (iww_go_atygo) Share of total inland transport modes: BDB (Bundesverband der Deutschen Binnenschifffahrt e.V.) (2013): Geschäftsbericht 2012/2013; Data 2012 Regional share: "For Germany, 1.4 will be totally allocated to the North-sea"; Source: methodology provided by COGEA; share by NUTS-2 regions: own estimation
2. Food, nutrition, health and ecosystem services		
2.1	Fish for human consumption	GVA; Employment; Enterprises: Eurostat database (2013), Data 2008-2010 & JRC Scientific and technical reports (2010; 2011; 2012): The 2010; 2011; 2012 Annual Economic Report on the EU Fishing Fleet, Data 2008-2010 Landings: JRC Scientific and technical reports (2010; 2011; 2012): The 2010; 2011; 2012 Annual Economic Report on the EU Fishing Fleet, Data 2008-2011 Regional share: Landings by NUTS-2 regions in 2011; Source: BLE (Bundesanstalt für Landwirtschaft und Ernährung) (2012): Die Hochsee- und Küstenfischerei in der Bundesrepublik Deutschland im Jahre 2011; share SH Baltic Sea region by landings by sea basin: 58%; Source: Ministry of Energy Turnaround, Agriculture, Environment and Rural Development of Schleswig-Holstein (2013): http://www.schleswig-holstein.de/UmweltLandwirtschaft/DE/LandFischRaum/04_AgrarberichtStatistik/11_Fischerei/ein_node.html
2.2	Fish for animal feeding	
2.3	Marine aquaculture	GVA; Employment; Enterprises: JRC Scientific and policy reports (2013): The Economic Performance of the EU Aquaculture Sector – 2012 exercise (STECF-13-03); Data 2008-2010 Regional share: Production of marine aquaculture by NUTS-2 regions in 2011; Source: destatis (Statistisches Bundesamt) (2012): Land- und Forstwirtschaft, Fischerei; Erzeugung in Aquakulturbetrieben; Fachserie 3 Reihe 4.6; share SH Baltic Sea region: 0%; MEA in Germany is limited to the production of blue mussels in the North Sea, Source: JRC Scientific and policy reports (2013): The Economic Performance of the EU Aquaculture Sector – 2012 exercise (STECF-13-03) Recent / further development: NMMT - Nationaler Masterplan Maritime Technologien - Anwendungsfeld G - Marikultur (2013); http://www.nmmt.de Freshwater Aquaculture: JRC Technical reports (2012): An Approach Towards European Aquaculture Performance Indicators - Indicators for Sustainable Aquaculture in the European Union (Report EUR 25557 EN); Data 2010
2.4	Blue biotechnology	GVA; Employment; Enterprises: N/A Recent / further development: Norgenta; dsn (2012): Masterplan Marine Biotechnologie Schleswig-Holstein – eine regionale Entwicklungsstrategie
2.5	Agriculture on saline soils	GVA: Eurostat database (2013); Data 2007 & 2010; Employment; Enterprises: share of coastal NUTS 2 regions in total coastal NUTS 1 regions based on corresponding GVA shares Share saline soils: JRC (2009): Saline and Sodic Soils Map & Corine Land Cover dataset (2006) Regional share: Saline agriculture area by NUTS-2 regions in 2006; Source: JRC (2009): Saline and Sodic Soils Map; Corine Land Cover dataset (2006); share SH Baltic Sea region: 0%; no saline soils in Germany's Baltic Sea region, Source: JRC (2009): Saline and Sodic Soils Map; Corine Land Cover dataset (2006)
3. Energy and raw materials		
3.1	Offshore oil and gas	GVA; Employment; Enterprises: Eurostat database (2013); Data 2008-2010 Offshore oil production: WEG (Wirtschaftsverband Erdöl- und Erdgasgewinnung e.V.) (2012): Jahresbericht Zahlen & Fakten 2011 Regional share: Spatial distribution of offshore oil and gas platforms in 2011 (only one platform in North Sea which is operated from Schleswig-Holstein); Source: WEG (Wirtschaftsverband Erdöl- und Erdgasgewinnung e.V.) (2012): Jahresbericht Zahlen & Fakten 2011 Recent / further development: NMMT - Nationaler Masterplan Maritime Technologien - Anwendungsfeld A: Offshore Öl und Gas (2013)

3.2	Offshore wind	Turnover; Employment; Enterprises: BMU (2011 & 2012): Bruttobeschäftigung durch erneuerbare Energien in Deutschland im Jahr 2012 - eine erste Abschätzung; Data 2010-2011 Megawatt (MW) in operation / under construction / approved: Offshore-Windenergie.net - Location of offshore wind farms (http://www.offshore-windenergie.net/en/wind-farms); Data March 2013 Regional share: Spatial distribution of Megawatt capacity in operation in offshore wind farms 2013 by sea basin; Source: Offshore-Windenergie.net (2013): http://www.offshore-windenergie.net/en/wind-farms ; Spatial distribution of enterprises / employees with activities in MEA by NUTS-2 regions; Source: VDI/VDE et al. (2010): Stärkung der deutschen meeres-technischen Wirtschaft im internationalen Wettbewerb und Vorbereitung des Nationalen Masterplans Maritime Technologien. Studie im Auftrag des Bundesministeriums für Wirtschaft und Technologie; share SH Baltic Sea region: 0%, offshore wind industry is almost located in the North Sea region of Schleswig-Holstein (Husum) Recent / further development: NMMT - Nationaler Masterplan Maritime Technologien - Anwendungsfeld B - Offshore-Windenergie (2013); http://www.nmmt.de
3.3	Ocean renewable energy	GVA; Employment; Enterprises: N/A Recent / further development: NMMT - Nationaler Masterplan Maritime Technologien - Anwendungsfeld I - Meeresenergien (2013); http://www.nmmt.de
3.4	Carbon capture and storage	GVA; Employment; Enterprises: N/A Recent / further development: NMMT - Nationaler Masterplan Maritime Technologien - Anwendungsfeld A: Offshore Öl und Gas (2013); http://www.nmmt.de
3.5	Aggregates mining (sand, gravel, etc.)	GVA; Employment; Enterprises: Eurostat database (2013); Data 2008-2010 Absolute & share offshore aggregates production: UEPG 2013; Data 2008-2010 Regional share: Spatial distribution of sand and gravel mining fields by sea basin in 2009 and their spatial proximity to NUTS 2 regions; Source: Marggraf et al. (2012): Umsetzung der Meeresstrategie-Rahmenrichtlinie in Deutschland - Untersuchung der ökonomischen Anfangsbewertung
3.6	Marine minerals mining	GVA; Employment; Enterprises: N/A Recent / further development: NMMT - Nationaler Masterplan Maritime Technologien - Anwendungsfeld J - Marine Minerale Rohstoffe (2013); http://www.nmmt.de
3.7	Securing fresh water supply (desalination)	GVA; Employment; Enterprises: GWI (Global Water Intelligence) (2011): Global Water Market 2011, Volume 2: Europe and Africa Recent / further development: DME (Deutsche MeerwasserEntsorgung e.V.) (2013); http://www.dme-ev.de/
4. Leisure, working and living		
4.1	Coastal tourism	GVA; Employment; Enterprises: Eurostat database (2013); Data 2008-2010; share in total tourism based on overnights in coastal NUTS 3 Overnights in coastal NUTS 3: Eurostat database (2013); calculated from tour_cap_nuts3 & tour_occ_nin2; Data 2008-2010 Regional share: Overnights by NUTS 3 regions in 2010; Source: Eurostat database (2013); tour_cap_nuts3 & tour_occ_nin2; Data 2010
4.2	Yachting and marinas	GVA; Employment; Enterprises: Eurostat database (2013); Data 2008-2010 Regional share: Overnights by NUTS-3 regions in 2010; Source: Eurostat database (2013); tour_cap_nuts3 & tour_occ_nin2; Data 2010
4.3	Cruise tourism	Employment: ECC (European Cruise Council) (2009, 2010, 2011): The Cruise Industry. Data 2008-2010; GVA: Calculated from number of persons employed and a ballpark figure derived from the ratio GVA/EMP from EUROSTAT database for Cruise Tourism; share in total passenger water transport based on passenger volumes Regional share: Passenger volumes in (big) cruise ports by NUTS-3 regions in 2011; Source: NORD/LB (2012): Shipping Monitor - Ausgabe 02/2012
5. Coastal protection		
5.1 - 5.2	Coastal protection	Expenditure: Eurostat database (2013); Data 2008-2010 (COFOG gov_a_exp) & European Commission (2009): The economics of climate change adaptation in EU coastal areas – Summary report; Employment: Calculated from expenditure and a ballpark figure of EUR 100.000 Expenditure/EMP. Regional share: Expenditure on coastal protection by federal states in 2008-2010; Source: BMELV (2009, 2010, 2011): Berichterstattung über den Vollzug der GAK - Tabelle 15a Küstenschutz; share SH Baltic Sea region: 50%, own estimation
5.3	Protection of habitats	Expenditure: Eurostat database (2013); Data 2008-2010 (COFOG gov_a_exp) & EEA: Common Database on Designated Areas; Natura 2000; Employment: Calculated from expenditure and a ballpark figure of EUR 100.000 Expenditure/EMP. Regional share: Environmental protection expenditure on protection of biodiversity and landscapes by federal states; Source: EEA: Common Database on Designated Areas; Natura 2000; share SH Baltic Sea region: 50%, own estimation
6. Maritime monitoring and surveillance		
6.1	Traceability and security of goods supply chains	GVA; Employment; Enterprises: N/A Recent / further development: WSV (Wasser- und Schifffahrtsverwaltung des Bundes): Sicherheitskonzept Deutsche Küste
6.2	Prevent and protect against illegal movement of people and goods	
6.3	Environmental monitoring	

Table E - 7 largest maritime MEAs in Germany's Baltic Sea region: indicative size of all maritime economic activities⁷⁹

Maritime Economic Activity		GVA (EUR, billion)	Employment (*1000)	Score
0. Other sectors				
0.1	Shipbuilding (excl. Leisure boats) and ship repair	0,46	9,17	6,87
0.2	Water projects	0,04	0,98	0,70
1. Maritime transport				
1.1	Deep-sea shipping	0,80	5,02	6,53
1.2	Short-sea shipping (incl. Ro-Ro)	1,68	10,46	13,61
1.3	Passenger ferry services	0,07	1,18	0,95
1.4	Inland waterway transport	0	0	0,00
2. Food, nutrition, health and ecosystem services				
2.1	Fish for human consumption	1,27	34,29	23,48
2.2	Fish for animal feeding	0	0	0
2.3	Marine aquaculture	0	0	0
2.4	Blue biotechnology	N/A	N/A	N/A
2.5	Agriculture on saline soils	0	0	0
3. Energy and raw materials				
3.1	Offshore oil and gas	0	0	0
3.2	Offshore wind	0,12	1,36	1,28
3.3	Ocean renewable energy	N/A	N/A	N/A
3.4	Carbon capture and storage	N/A	N/A	N/A
3.5	Aggregates mining (sand, gravel, etc.)	0	0	0
3.6	Marine minerals mining	N/A	N/A	N/A
3.7	Securing fresh water supply (desalination)	0	0	0
4. Leisure, working and living				
4.1	Coastal tourism	1,01	47,85	28,97
4.2	Yachting and marinas	0,26	2,72	2,68
4.3	Cruise tourism	0,17	2,22	1,94
4.4	Working	N/A	N/A	N/A
4.5	Living	N/A	N/A	N/A
5. Coastal protection				
5.1	Coastal protection	0,03	0,29	0,29
5.2				
5.3	Protection of habitats	0,03	0,26	0,26
6. Maritime monitoring and surveillance				
6.1	Traceability and security of goods supply chains	N/A	N/A	N/A
6.2	Prevent and protect against illegal movement of people and goods	N/A	N/A	N/A
6.3	Environmental monitoring	N/A	N/A	N/A

⁷⁹ For source and reference year of data (GVA, employment) and “Key to allocate between sea basins” (regional shares) see Table D in this Annex.

Table F - 7 largest maritime MEAs in Germany's North Sea region: indicative size of all maritime economic activities⁸⁰

Maritime Economic Activity		GVA (EUR, billion)	Employment (*1000)	Score
0. Other sectors				
0.1	Shipbuilding (excl. Leisure boats) and ship repair	0,54	10,84	8,12
0.2	Water projects	0,08	1,82	1,30
1. Maritime transport				
1.1	Deep-sea shipping	3,15	19,69	25,62
1.2	Short-sea shipping (incl. Ro-Ro)	4,02	25,10	32,66
1.3	Passenger ferry services	0,04	0,69	0,56
1.4	Inland waterway transport	1,20	8,96	10,49
2. Food, nutrition, health and ecosystem services				
2.1	Fish for human consumption	1,88	50,82	34,79
2.2	Fish for animal feeding	0	0	0
2.3	Marine aquaculture	0,003	0,01	0,02
2.4	Blue biotechnology	N/A	N/A	N/A
2.5	Agriculture on saline soils	0,001	0,03	0,02
3. Energy and raw materials				
3.1	Offshore oil and gas	0,62	2,98	4,59
3.2	Offshore wind	0,63	7,24	6,77
3.3	Ocean renewable energy	N/A	N/A	N/A
3.4	Carbon capture and storage	N/A	N/A	N/A
3.5	Aggregates mining (sand, gravel, etc.)	0,02	0,27	0,23
3.6	Marine minerals mining	N/A	N/A	N/A
3.7	Securing fresh water supply (desalination)	0	0	0
4. Leisure, working and living				
4.1	Coastal tourism	0,88	41,76	25,28
4.2	Yachting and marinas	0,23	2,38	2,34
4.3	Cruise tourism	0,11	1,53	1,34
5. Coastal protection				
5.1 - 5.2	Coastal protection	0,10	1,03	1,03
5.3	Protection of habitats	0,01	0,10	0,10
6. Maritime monitoring and surveillance				
6.1	Traceability and security of goods supply chains	N/A	N/A	N/A
6.2	Prevent and protect against illegal movement of people and goods	N/A	N/A	N/A
6.3	Environmental monitoring	N/A	N/A	N/A

⁸⁰ For source and reference year of data (GVA, employment) and "Key to allocate between sea basins" (regional shares) see Table D in this Annex.

Table G - 7 fastest growing MEAs in Germany⁸¹: relative growth of all MEAs

Maritime Economic Activity		GVA (CAGR)	Employment (CAGR)	Score
0. Other sectors				
0.1	Shipbuilding (excl. Leisure boats) and ship repair	-15,14	-9,88	-12,51
0.2	Water projects	8,75	4,60	6,68
1. Maritime transport				
1.1	Deep-sea shipping	1,87	5,34	3,60
1.2	Short-sea shipping (incl. Ro-Ro)	-1,67	1,68	0,003
1.3	Passenger ferry services	-33,67	-27,12	-30,40
1.4	Inland waterway transport	-11,82	-7,22	-9,52
2. Food, nutrition, health and ecosystem services				
2.1	Fish for human consumption	14,33	18,52	16,43
2.2	Fish for animal feeding	0	0	0
2.3	Marine aquaculture	-38,45	9,54	-14,45
2.4	Blue biotechnology	2,50	2,50	2,50
2.5	Agriculture on saline soils	-0,13	-3,92	-2,03
3. Energy and raw materials				
3.1	Offshore oil and gas	-14,18	-3,24	-8,71
3.2	Offshore wind	27,12	24,64	25,88
3.3	Ocean renewable energy	2,50	2,50	2,50
3.4	Carbon capture and storage	2,50	2,50	2,50
3.5	Aggregates mining (sand, gravel, etc.)	-13,40	-9,05	-11,22
3.6	Marine minerals mining	2,50	2,50	2,50
3.7	Securing fresh water supply (desalination)	0	0	0
4. Leisure, working and living				
4.1	Coastal tourism	4,02	11,45	7,74
4.2	Yachting and marinas	1,34	-1,41	-0,04
4.3	Cruise tourism	11,80	11,80	11,80
5. Coastal protection				
5.1	Coastal protection	11,20	11,20	11,20
5.2				
5.3	Protection of habitats	6,64	6,64	6,64
6. Maritime monitoring and surveillance				
6.1	Traceability and security of goods supply chains	2,50	2,50	2,50
6.2	Prevent and protect against illegal movement of people and goods	2,50	2,50	2,50
6.3	Environmental monitoring	2,50	2,50	2,50

⁸¹ CAGRs are based on NUTS-0 level data and are therefore identical for Germany's North and Baltic Sea region; for source and reference year of data (GVA, employment) see Table D in this Annex.

Table H - Future potential scores for all maritime economic activities in Germany's Baltic Sea region

INDICATOR	DEFINITION / GUIDING QUESTIONS
Innovativeness	To what extent is the given MEA driven by constant improvements and innovation? Are there significant investments currently or foreseen in the near future in R&D for this MEA in the MS?
Competitiveness	This indicator assesses the position of a given MEA of a MS in the EU/international market. Furthermore, competitiveness is assessed also by comparing the activity of a given country to the same activities of other countries in the same area/sea basin.
Employment	Will the given MEA generate new jobs in the near future? Is the given MEA labour or technology intensive? Does it generate qualified jobs and/or attractive, long-term employment for the given regional labour force?
Policy relevance	Is the given MEA addressed by current or upcoming policy initiatives or regulatory activities in the given MS, especially taking into account EU 2020 ambitions? To what extent is the given MEA influenced by these developments?
Spill-over effects	What impact does the given MEA have on other (including non-maritime) economic activities within the MS?
(Environmental) Sustainability	To what extent is the given MEA in the respective MS influenced by current or upcoming environmental regulation or depends on a good status of the environment? Does the sector have the necessary adaptive capacity?

Maritime Economic Activity		Innovativeness	Competitiveness	Employment	Policy relevance	Spillover effects	Sustainability	Overall score
0.1	Shipbuilding (excl. Leisure boats) and ship repair	+	?	-	+	+	+	+++
0.2	Water projects	+	0	0	+	+	?	+
1. Maritime transport								
1.1	Deep-sea shipping	+	0	0	+	0	+	0
1.2	Short-sea shipping (incl. Ro-Ro)	+	+	+	+	0	+	++++
1.3	Passenger ferry services	0	0	-	+	0	+	0
1.4	Inland waterway transport	0	0	0	0	0	0	0
2. Food, nutrition, health and ecosystem services								
2.1	Fish for human consumption	0	-	+	+	0	-	0
2.2	Fish for animal feeding	0	0	0	0	0	0	0
2.3	Marine aquaculture	+	?	0	+	+	+	+++
2.4	Blue biotechnology	+	?	0	+	+	+	+++
2.5	Agriculture on saline soils	0	0	0	0	0	0	0
3. Energy and raw materials								
3.1	Offshore oil and gas	0	0	0	0	0	0	0
3.2	Offshore wind	+	+	+	+	+	+	+++++
3.3	Ocean renewable energy	+	-	-	+	+	+	++
3.4	Carbon capture and storage	+	-	-	+	+	?	+
3.5	Aggregates mining (sand, gravel, etc.)	0	0	0	0	0	0	0
3.6	Marine minerals mining	+	-	-	+	+	?	+
3.7	Securing fresh water supply (desalination)	0	0	0	0	0	0	0
4. Leisure, working and living								
4.1	Coastal tourism	0	+	+	+	+	+	++++
4.2	Yachting and marinas	+	+	+	0	+	?	++
4.3	Cruise tourism	+	+	+	0	+	+	++++
5. Coastal protection								
5.1 – 5.2	Coastal protection	+	0	0	+	+	+	++
5.3	Protection of habitats	+	0	0	+	+	+	++
6. Maritime monitoring and surveillance								
6.1	Traceability and security of goods supply chains	+	0	0	+	+	+	++

6.2	Prevent and protect against illegal movement of people and goods	+	0	0	+	+	+	++
6.3	Environmental monitoring	+	0	0	+	+	+	++

Table I - Future potential scores for all maritime economic activities in Germany's North Sea region

Maritime Economic Activity		Innovati-veness	Competiti-veness	Employ-ment	Policy relevance	Spillover effects	Sustaina-bility	Overall score
0. Other sectors								
0.1	Shipbuilding (excl. Leisure boats) and ship repair	+	?	-	+	+	+	+++
0.2	Water projects	+	0	0	+	+	?	+
1. Maritime transport								
1.1	Deep-sea shipping	+	+	+	+	0	+	++++
1.2	Short-sea shipping (incl. Ro-Ro)	+	+	+	+	0	+	++++
1.3	Passenger ferry services	0	0	-	+	0	+	0
1.4	Inland waterway transport	0	0	0	+	+	+	0
2. Food, nutrition, health and ecosystem services								
2.1	Fish for human consumption	0	-	+	+	0	-	0
2.2	Fish for animal feeding	0	0	0	0	0	0	0
2.3	Marine aquaculture	+	?	0	+	+	+	+++
2.4	Blue biotechnology	+	0	0	+	+	+	++
2.5	Agriculture on saline soils	0	0	0	0	0	0	0
3. Energy and raw materials								
3.1	Offshore oil and gas	+	0	+	+	+	0	++
3.2	Offshore wind	+	+	+	+	+	+	+++++
3.3	Ocean renewable energy	+	-	-	+	+	+	++
3.4	Carbon capture and storage	+	-	-	+	+	?	+
3.5	Aggregates mining (sand, gravel, etc.)	0	+	0	+	+	-	0
3.6	Marine minerals mining	+	-	-	+	+	?	+
3.7	Securing fresh water supply (desalination)	0	0	0	0	0	0	0
4. Leisure, working and living								
4.1	Coastal tourism	0	+	+	+	+	+	++++
4.2	Yachting and marinas	+	+	+	0	+	?	++
4.3	Cruise tourism	+	+	+	0	+	+	++++
5. Coastal protection								
5.1	Coastal protection	+	0	0	+	+	+	++
5.2								
5.3	Protection of habitats	+	0	0	+	+	+	++
6. Maritime monitoring and surveillance								
6.1	Traceability and security of goods supply chains	+	0	0	+	+	+	++
6.2	Prevent and protect against illegal movement of people and goods	+	0	0	+	+	+	++
6.3	Environmental monitoring	+	0	0	+	+	+	++

Table J - Maritime strategies

Title of the official document	Level (regional, national, cross-national, EU level)	Responsible body (official name)	Responsible body (English name)	Maritime Strategy concerned	Kind of Strategy document and publishing date	URL
Entwicklungsplan Meer - Strategie für eine integrierte deutsche Meerespolitik (Maritime Development Plan - Strategy for a German integrated maritime policy)	National	BMVBS (Bundesministerium für Verkehr, Bau und Stadtentwicklung)	Federal Ministry for Transport, Building and Urban Development		2011	http://www.bmwf.de/pubRD/Entwicklungsplan_Meer.pdf
Nationaler Masterplan Maritime Technologien (NMMT) - Deutschland, Hochtechnologie-Standort für maritime Technologien zur nachhaltigen Nutzung der Meere (National Masterplan Maritime Technologies (NMMT))	National	BMWi (Bundesministerium für Wirtschaft und Technologie)	Federal Ministry of Economics and Technology		2011	http://www.bmwi.de/BMWi/Redaktion/PDF/Publikationen/nationaler-masterplan-maritime-technologien,property=pdf,bereich=bmwi2012,sprache=de,rwb=true.pdf
Nationale Strategie für die nachhaltige Nutzung und den Schutz der Meere (National strategy for sustainable use of the seas and conservation of marine ecosystems)	National	BMU (Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit)	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety		2008	http://www.bmwi.de/BMWi/Redaktion/PDF/M-O/meeresschutz-nationale-strategie
Nationale Strategie zur biologischen Vielfalt (National Strategy on Biological Diversity)	National	BMU (Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit)	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety		2007	http://www.bmwi.de/BMWi/Redaktion/PDF/M-O/meeresschutz-nationale-strategie
Integriertes Küstenzonenmanagement in Deutschland - Nationale Strategie für ein integriertes Küstenzonenmanagement (National strategy for integrated coastal region management)	National	BMU (Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit)	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety		2006	http://www.bmu.de/fileadmin/bmu-import/files/pdfs/allgemein/application/pdf/kuestenzonenmanagement.pdf
Nationales Hafenkonzept für die See- und Binnenhäfen (National concept for the sea and river ports)	National	BMVBS (Bundesministerium für Verkehr, Bau und Stadtentwicklung)	Federal Ministry for Transport, Building and Urban Development		2009	http://www.bmvbs.de/cae/servelet/contentblob/31316/publicationFile/522/nationales-hafenkonzept-fuer-die-see-und-binnenhaefen.pdf
Bericht zur Umsetzung der in der Kabinettsklausur am 23./24.08.2007 in Meseberg beschlossenen Eckpunkte für ein Integriertes Energie- und Klimaprogramm (The Federal Government's Integrated Energy and Climate Programme (IEKP))	National	BMWi (Bundesministerium für Wirtschaft und Technologie) & BMU (Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit)	Federal Ministry of Economics and Technology & Federal Ministry for the Environment, Nature Conservation and Nuclear Safety		2007	http://www.bmu.de/fileadmin/bmu-import/files/pdfs/allgemein/application/pdf/gesamtbericht_iekp.pdf

		heit)				
Strategie der Bundesregierung zur Windenergienutzung auf See im Rahmen der Nachhaltigkeitsstrategie der Bundesregierung (Strategy of the German Government on the use of offshore wind energy)	National	BMU (Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit)	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety		2002	http://www.erneuerbare-energien.de/fileadmin/ee-import/files/pdfs/allgemein/application/pdf/windenergie_strategie_br_020100.pdf
Die Hightech-Strategie für Deutschland (High-Tech Strategy for Germany)	National	BMBF (Bundesministerium für Bildung und Forschung)	Federal Ministry of Education and Research		2006	http://www.fona.de/pdf/publikationen/die_hightech_strategie_fuer_deutschland.pdf
LeaderSHIP Deutschland - Das nationale Schiffbau-Zukunftskonzept (LeaderSHIP Germany - The national shipbuilding future concept)	National	BMWi (Bundesministerium für Wirtschaft und Technologie)	Federal Ministry of Economics and Technology		2008	http://www.bmw.de/BMWi/Redaktion/PDF/Publikationen/leadership-deutschland,property=pdf,bereich=bmwi2012,sprache=de,rwb=true.pdf
Maritime Cluster Northern Germany	Regional					http://www.maritimes-cluster.de/fileadmin/user_upload/MC/PDF/Infomaterial/110714-WTSH_4037_MCN_Handzettel_e.pdf
Hafenkonzept Unterelbe (Port concept "Unterelbe")	Regional	Behörde für Wirtschaft und Arbeit der Freien und Hansestadt Hamburg	Ministry of Economic and Labour Affairs of the Free and Hanseatic City of Hamburg		2009	http://www.schleswig-holstein.de/ArchivSH/PI/MWV/PDF/2009/090821hafenkonzept__blob=publicationFile.pdf
Maritimer Aktionsplan der Freien Hansestadt Bremen (Maritime Action Plan of the Free Hanseatic City of Bremen)	Regional	Behörde für Wirtschaft und Arbeit der Freien und Hansestadt Hamburg	Ministry of Economic and Labour Affairs of the Free and Hanseatic City of Hamburg		2011	http://www.wirtschaft.bremen.de/sixcms/media.php/13/Maritimer_Aktionsplan_FINAL.pdf
Clusterstrategie 2020 für nachhaltiges Wachstum und Beschäftigung Integrierte Landesstrategie zur Entwicklung der Innovationscluster Luft- und Raumfahrt, Windenergie und Maritime Wirtschaft/Logistik (Cluster strategy for sustainable growth and employment in the Free Hanseatic City of Bremen)	Regional	Behörde für Wirtschaft und Arbeit der Freien und Hansestadt Hamburg	Ministry of Economic and Labour Affairs of the Free and Hanseatic City of Hamburg		2010	http://www.innovation.bremen.de/sixcms/media.php/13/Clusterstrategie2020%20FINAL.pdf
Maritimer Aktionsplan Schleswig-Holstein (Maritime Action Plan Schleswig-Holstein (by initiative "Sea our Future"))	Regional	Ministerium für Wirtschaft, Arbeit, Verkehr und Technologie des Landes Schleswig-Holstein	Ministry for Economy, Labour, Transport and Technology of Schleswig-Holstein		2012	http://www.schleswig-holstein.de/MWAVT/DE/Technologie/LandesinitiativeZukunftMeer/Thememen/MaritimAkSH__blob=publicationFile.pdf
Masterplan Maritime Technologien	Regional	Ministerium für	Ministry for		2007	http://www.ihk

in Schleswig-Holstein (Masterplan Maritime Technologies in Schleswig-Holstein)		Wirtschaft, Arbeit, Verkehr und Technologie des Landes Schleswig-Holstein	Economy, Labour, Transport and Technology of Schleswig-Holstein			-schleswig-holstein.de/lin kableblob/740 818/.5./data/ Masterplan_M aritime_Techn ologien- data.pdf
Handlungskonzept für die Neuausrichtung des Tourismus in Schleswig-Holstein - Kurzfassung. Studie im Auftrag des Ministeriums für Wissenschaft, Wirtschaft und Verkehr des Landes Schleswig-Holstein (Action plan for reorientation of tourism in Schleswig-Holstein)	Regional	Ministerium für Wirtschaft, Arbeit, Verkehr und Technologie des Landes Schleswig-Holstein	Ministry for Economy, Labour, Transport and Technology of Schleswig-Holstein		2006	http://www.kiel-marketing.de/fileadmin/medien/Dateien/pdf/Roland_Berger_Kurzgutachten_zum_Tourismus_in_Schleswig-Holstein_2006.pdf
Masterplan Marine Biotechnologie Schleswig-Holstein - Eine regionale Entwicklungsstrategie (Masterplan Marine Biotechnology Schleswig-Holstein)	Regional	Ministerium für Wirtschaft, Arbeit, Verkehr und Technologie des Landes Schleswig-Holstein	Ministry for Economy, Labour, Transport and Technology of Schleswig-Holstein		2012	http://www.life-science-nord.net/fileadmin/lsn/veranstaltungen/regional/Masterplan_Marine_Biotechnologie_PDF_Version_mit_Submariner_2013-05-02.pdf
Hafenkonzept Niedersachsen (Port concept Lower Saxony)	Regional	Niedersächsisches Ministerium für Wirtschaft, Arbeit und Verkehr	Ministry for Economy, Labour and Transport of Niedersachsen		2007	http://www.mw.niedersachsen.de/download/10110/Hafenkonzept_Niedersachsen_-_Vollstaendige_Fassung.pdf
Raumordnungskonzept für das niedersächsische Küstenmeer (Spatial planning for Lower Saxony's coastal area (ROKK))	Regional	Niedersächsisches Ministerium für den ländlichen Raum, Ernährung, Landwirtschaft und Verbraucherschutz	Ministry of Regional Development, Food, Agriculture and Consumer Protection		2005	http://www.mieniedersachsen.de/download/34269/ROKK.pdf
Landesentwicklungsplan Schleswig-Holstein 2010 (Regional development plan of Schleswig-Holstein 2010)	Regional	Innenministerium des Landes Schleswig-Holstein	Ministry of the Interior of Schleswig-Holstein		2010	http://www.schleswig-holstein.de/STK/DE/Service/Broschuere/nLaPla/Plaene/Brosch_LEP__blob=publicationFile.pdf
Integriertes Küstenzonenmanagement in Schleswig-Holstein (Integrated Coastal Zone Management in Schleswig-Holstein)	Regional	Innenministerium des Landes Schleswig-Holstein	Ministry of the Interior of Schleswig-Holstein		2003	http://www.schleswig-holstein.de/STK/DE/Service/Broschuere/nLaPla/IKZM-Rahmenkonzept__blob=publicationFile.pdf
Landesraumentwicklungsprogramm Mecklenburg-Vorpommern (State spatial planning programme)	Regional	Ministerium für Arbeit, Bau und	Ministry of Labour, Building and		2005	http://service.mvnet.de/_php/download.p

Mecklenburg-Vorpommern)		Landesentwicklung Mecklenburg-Vorpommern	Development of Mecklenburg-Vorpommern			hp?datei_id=3151
Aktionsplan Klimaschutz Mecklenburg-Vorpommern 2010 (Action Plan for climate protection Mecklenburg-Vorpommern 2010)	Regional	Ministerium für Wirtschaft, Arbeit und Tourismus Mecklenburg-Vorpommern	Ministry of Economy, Labour and Tourism of Mecklenburg-Vorpommern		2010	http://service.mvnet.de/_php/download.php?datei_id=36302
Der Hafenentwicklungsplan bis 2025 (Port development plan to 2025)	Regional	Behörde für Wirtschaft und Arbeit der Freien und Hansestadt Hamburg	Ministry of Economic and Labour Affairs of the Free and Hanseatic City of Hamburg		2012	http://www.hafen-hamburg.de/sites/default/files/hep2025_englisch.pdf