



STUDY ON BLUE GROWTH, MARITIME POLICY AND EU STRATEGY FOR THE BALTIC SEA REGION



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0. General overview

Morphological structure of the coastline

- The length of the Polish coastline is 698 km, which is 0,51% of the EU-22 coastal Member States' coastline. Without the coastline of its two lagoons (Vistula and Szczecin) the coastline measures 498 km.
- The Polish coastal zone (within a range of 10 km from the coast) covers 4.449 km², which constitutes 1,07% of the coastal zone of the EU-22 Member States.
- All Polish near sea islands are part of the river deltas. Officially there are 27 islands with their own name but some names encompass small groups of several islands, so the total number can exceed 50. Only 9 islands are inhabited, mainly being parts of Świnoujście and Gdańsk city.

Population and related social conditions for maritime areas

- In 2012 4,03 million inhabitants or 10,48% of the country's population lived in Poland's coastal areas.
- In 2012 coastal NUTS-2 regions¹ employed 1.893,4 thousand persons, which is 12,42% of all employed persons in Poland and 0,98% of the employed population in the EU-22 coastal Member States.
- The unemployment rate in NUTS 2 maritime regions in 2010 was 10,37% (higher than the national average of 9,64%).
- In 2012 the unemployment of the coastal NUTS 2 regions was about 213,8 thousand persons, which is 12,67% of all unemployed persons in Poland and 0,96% of the unemployed population in the EU-22 coastal Member States.

Economic role of maritime areas over the national total

- In 2010, the people in the coastal regions of Poland generated EUR 8.465 in gross domestic product (GDP) per capita, compared to EUR 9.291 at the national level (91,12% of national average).
- In 2010, coastal regions in Poland were responsible for EUR 29,53 billion or 9,45% of the country's gross value added (GVA).

GVA – Details by NACE activities (2010)

Sector	GVA of the coastal regions (billion EUR)	Share in the national GVA for the sector
Agriculture, Aquaculture and Fishing (A)	1,06	9,23
Manufacturing (C)	4,99 ²	8,61 ³
Construction (F)	2,79	11,18
Wholesale and retail trade; transport; accommodation and food service activities; information and communication (G-J)	9,11	9,87

Employment – Details by NACE activities (2010)

Sector	Employment of the coastal regions (thousand)	Share in the national employment for the sector
Agriculture, Aquaculture and Fishing (A)	110	5,40
Manufacturing (C)	274	9,30
Construction (F)	134	10,71
Wholesale and retail trade; transport; accommodation and food service activities; information and communication (G-J)	385	9,83

¹ These are Pomorskie, Warmińsko-Mazurskie and Zachodniopomorskie voivodships

² Estimate based on data from Poland Central Statistical Office (GUS)

³ Estimate based on data from Poland Central Statistical Office (GUS)

1. Marine and maritime economic activities (MEAs)

Table 1 - Overview of relevant sub-functions in Poland at NUTS-0 level

Maritime economic activity	GVA (EUR, billion)	Employment (*1000)	Number of enterprises	Further indicators	Source & reference year	
0. Other sectors						
0.1	Shipbuilding (excl. leisure boats) and ship repair	0,470	18,60	3.236		Eurostat (2010)
0.2	Water projects	0,214	9,59	476	The largest project is a new LNG port in Swinoujscie (worth 3 billion PLN)	Eurostat (2010)
1. Maritime transport						
1.1	Deep-sea shipping	0,022	0,71	18	16% of goods transported by DSS in 2010	Eurostat (2010)
1.2	Short-sea shipping (incl. Ro-Ro)	0,116	3,75	97	84% of goods transported by SSS in 2010	Eurostat (2010)
1.3	Passenger ferry services	0,030	0,81	248		Eurostat (2010)
1.4	Inland waterway transport	0,064	1,77	390		Eurostat (2010)
2. Food, nutrition, health and ecosystem services						
2.1	Fish for human consumption	0,706	32,41	3.306	37% of the GVA for this MEA is fish processing. In 2009 fish processing GVA reached 195,7% of the 2003 GVA. The industry consists of over 250 processing plants and more than 370 firms entitled to make direct sales. In 2010 the Polish fish processing industry produced 360.000-380.000 tonnes of products, resulting in EUR 1,5 billion of income ⁴ .	Eurostat (2010) Number of vessels was utilised as a proxy for the number of enterprises in fishing (no relevant data).
2.2	Fish for animal feeding	0,001	0,06	1		Eurostat (2010)
2.3	Marine aquaculture	0,001	0,06	5		JRC Scientific and Policy Reports, The Economic Performance of the EU Aquaculture Sector – 2012 exercise (STECF-13-03)
2.4	Blue biotechnology	0	0	0	Not significant	
2.5	Agriculture on saline soils	0	0	0	No saline soils present in Poland	
3. Energy and raw materials						
3.1	Offshore oil and gas	0,080	2,06	72	GVA: 0,014; Number of enterprises: 22 ⁵ ; Employees: 0,565 according to PL data on real offshore gas and oil extraction in proportion to inland extraction. Only one	Eurostat (2010)

⁴ Portal „Fish products from Poland” <http://www.poland-fish.com>

⁵ The number of 22 enterprises is the result of methodology applied to sort out offshore and onshore enterprises on the basis of real share of offshore gas and oil in total oil and gas extraction in Poland as an alternative to using the arbitrary coefficients proposed by the study's methodology. In reality in Poland only one enterprise extracts oil and gas in Polish sea areas and one more has just started exploratory drilling in Latvian sea areas. But the value chain comprises more enterprises.

					enterprise extracts oil and gas offshore. The amount of offshore oil extracted in 2012 was 187,7 thousand tons and natural gas 20,9 million Nm ³ .	
3.2	Offshore wind	0	0	0	No offshore wind instalations	
3.3	Ocean renewable energy	0	0	0	Not present in Poland	
3.4	Carbon capture and storage	0	0	0	Not present in Poland	
3.5	Aggregates mining (sand, gravel, etc.)	0,005	0,02	1	Annual extraction of 2 million tonnes.	Eurostat (2010)
3.6	Marine minerals mining	0	0	0	Not present in Poland	
3.7	Securing fresh water supply (desalination)	0	0	0	Not present in Poland	
4. Leisure, working and living						
4.1	Coastal tourism	0,241	18,05	3.541		Eurostat (2010)
4.2	Yachting and marinas	0,078	4,05	381		Eurostat (2010)
4.3	Cruise tourism	0,011	0,29	89		Eurostat (2010)
5. Coastal protection						
5.1 – 5.2	Coastal protection	0,011	-	-	GVA 0.002 according to joint methodology	Maritime Office in Gdynia and data from reports on execution of the national budget (access in 2013) ⁶
5.3	Protection of habitats	0,004	0	3		Maritime Institute in Gdańsk and data from reports on execution of the national budget (access in 2013)
6. Maritime monitoring and surveillance						
6.1	Traceability and security of goods supply chains	0,095	1,95	4		Interviews with public administration and Ministry of Finance, reports on execution of the national budget (access in 2013) ⁷
6.2	Prevent and protect against illegal movement of people and goods	0,032	1,76	1		Interviews with representatives of Maritime Office in Gdynia and Ministry of Finance reports on execution of the national budget (access in 2013) ⁸
6.3	Environmental monitoring	0,003	0,34	8		Interviews with representatives of Maritime Office in Gdynia and Ministry of Finance reports on execution of the national budget (access in 2013) ⁹

Table 2 Overview of relevant sub-functions in Poland at NUTS-0 level

Maritime Economic Activity	Overview	Socio economic indicators	Source & reference year
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⁶ <http://www.mf.gov.pl/ministerstwo-finansow/dzialalnosc/finanse-publiczne/budzet-panstwa/wykonanie-budzetu-panstwa/sprawozdanie-z-wykonania-budzetu-panstwa-roczne>

⁷ <http://www.mf.gov.pl/ministerstwo-finansow/dzialalnosc/finanse-publiczne/budzet-panstwa/wykonanie-budzetu-panstwa/sprawozdanie-z-wykonania-budzetu-panstwa-roczne>

⁸ <http://www.mf.gov.pl/ministerstwo-finansow/dzialalnosc/finanse-publiczne/budzet-panstwa/wykonanie-budzetu-panstwa/sprawozdanie-z-wykonania-budzetu-panstwa-roczne>

⁹ <http://www.mf.gov.pl/ministerstwo-finansow/dzialalnosc/finanse-publiczne/budzet-panstwa/wykonanie-budzetu-panstwa/sprawozdanie-z-wykonania-budzetu-panstwa-roczne>

0. Other sectors				
0.1	Shipbuilding (excl. leisure boats) and ship repair	Conventional ship building yards are in retreat and trying to find their niche in the offshore and specialised floating equipment industries, whereas ship repair yards have a full portfolio of orders.	Mature sector, declining in importance (GVA, employment, number of enterprises)	Maritime Institute in Gdansk (2012), in particular report "Polskie Drogi polityki morskiej. Od wizji do działania", Gdańsk 2011
0.2	Water projects	The LNG port in Swinoujscie will be ready by the end of 2014. Also the ports in Gdynia and Gdańsk are investing in new terminals and terrestrial infrastructure. New container terminal, DCT Gdańsk, was opened in 2007. One large water project still under discussion is the direct connection of Vistula Lagoon with the Baltic Sea	Mature sector, stable	Maritime Institute in Gdansk (2012)
1. Maritime transport				
1.1	Deep-sea shipping	The sector has not recovered after structural transformation in the early 90s, although some ship carriers are still strong (e.g. high global market share in dry bulk cargo).	Mature sector, declining	Maritime Institute in Gdansk (2012), in particular report "Polskie Drogi polityki morskiej. Od wizji do działania", Gdańsk 2011
1.2	Short-sea shipping (incl. Ro-Ro)	Development of BSR trade relations contributes to a firm position of short sea shipping, but the ships are old (dominance of ships 26 years old and older).	Mature sector, stable	Maritime Institute in Gdansk (2012) in particular report "Polskie Drogi polityki morskiej. Od wizji do działania", Gdańsk 2011
1.3	Passenger ferry services	Mainly links between Poland and Sweden, growing thanks to improvement of road infrastructure in Poland	Growing sector	Maritime Institute in Gdansk (2012) in particular report "Polskie Drogi polityki morskiej. Od wizji do działania", Gdańsk 2011
1.4	Inland waterway transport	Underdeveloped mode of transport handling less than half a percent of national cargo due to a lack of suitable inland waterways (except Odra river)	Mature sector, stable	Maritime Institute in Gdansk (2012)
2. Food, nutrition, health and ecosystem services				
2.1	Fish for human consumption	Well-organised sector of fish catching fuelled by EU policy and financial support but of relatively low economic importance. Very well developed fish processing industry. The Polish fish processing industry is among the most modern in Europe. Over 59% of production is exported to Germany, Great Britain, France and Denmark among other EU and non-EU countries. Fish for processing comes mainly from import from Norway, China, Vietnam, Denmark and Island. Baltic fish forms only a tiny part of Polish production.	Mature sector, stable	"Fish products from Poland" (2012) ¹⁰
2.2	Fish for animal feeding		Mature sector, stable/declining	
2.3	Marine aquaculture	Almost non-existent sector. Aquaculture of freshwater fish is much more developed.	Residual importance, stable	BSR Programme SUBMARINER Project (2012)
2.4	Blue biotechnology	Almost non-existent. Only few enterprises interested in the topic and testing some marine substances.	Residual importance, stable	BSR Programme SUBMARINER project (2012)
2.5	Agriculture on saline soils	Non existing in Poland	No saline soils present in Poland	
3. Energy and raw material				
3.1	Offshore oil and	Only one enterprise, Petrobaltic (part of	Mature sector, residual	Maritime Institute in

¹⁰ <http://www.poland-fish.com>

	gas	the state owned holding Lotos Group), extracts oil and gas offshore. One more conducts exploratory drilling. However, due to expectation about the presence of the shale gas under the Polish Baltic Sea bottom, the situation may change in the future. There are important policy expectations about shale gas, which can ensure energetic self-dependency of the country. However, it seems that first the shale gas will be searched for inland.		Gdansk (2012) and reports of Lotos (access in 2013) ¹¹
3.2	Offshore wind	No offshore wind farms have been built in Polish sea areas yet but the licensing process has just started.	Non-existent in Poland	Maritime Institute in Gdansk (2012) and interviews with representatives of Maritime Office in Gdynia (2013)
3.3	Ocean renewable energy	Non-existent in Poland	Non-existent in Poland	
3.4	Carbon capture and storage	Non-existent in Poland	Non-existent in Poland	
3.5	Aggregates mining (sand, gravel, etc.)	Only one large-scale extraction is taking place nowadays at the Middle Bank, but a few other licences have been issued though they are not currently being utilised. The predicted period of exploitation of the Middle Bank deposit is 25 years.	Residual, one company, matured	Maritime Institute in Gdansk (2012), in particular 2012 publication on Middle bank ¹² and interviews with representatives of Maritime Office in Gdynia (2013)
3.6	Marine minerals mining	Non-existent in Poland	Non-existent in Poland	
3.7	Securing fresh water supply (desalination)	Non-existent in Poland	Non-existent in Poland	
4. Leisure, working and living				
4.1	Coastal tourism	High intensity of tourist and recreational use of the Polish coast, close to saturation point with respect to present tourist facilities during the summer season, high environmental pressure coupled with short duration of season.	Mature sector, stable	Maritime Institute in Gdansk (2012) and information from Central Statistical Office of Poland Local data Bank (access in 2013) ¹³
4.2	Yachting and marinas	Growing sector in which Poland, achieving an important competitive position, in particular in building of leisure boats exported mainly abroad.	Mature sector, stable	Maritime Institute in Gdansk (2012) and information from POLBOAT - The Polish Chamber of Marine Industry and Water Sports (access in 2013) ¹⁴
4.3	Cruise tourism	Growing sector but mainly powered by enterprises from outside Poland. The port benefiting most is Gdynia although tourist excursions from the cruisers target mainly Gdańsk.	Growing sector	Maritime Institute in Gdansk (2012) and information from Port Authority in Gdynia (access in 2013) ¹⁵
5. Coastal protection				
5.1 – 5.2	Coastal protection	Important policy concern. Poland has invested a stable amount of public funds in coastal defence in recent years but still less per km of coast than other countries. There is ongoing policy debate about the extent to which the coast should remain under protection and under which circumstances. Sector depends on public money.	Stable	Maritime Institute in Gdansk (2012), interviews with representatives of Maritime Office in Gdynia (2013), and Ministry of Finance reports on execution of the national budget (access in 2013) ¹⁶
5.3	Protection of	Sector is at the very beginning of its	Stable, residual	Maritime Institute in

¹¹ <http://raportroczny.lotos.pl/do-pobrania>

¹² <http://www.baltseaplan.eu/index.php/Middle-Bank;833/1>

¹³ http://www.stat.gov.pl/bdlen/app/strona.html?p_name=indeks

¹⁴ <http://www.polboat.eu/en/images/stories/polski%20przemys%20jachtowy%20-%20raport%202010.pdf> POLBOAT Yacht

¹⁵ <http://www.port.gdynia.pl/pl/wydarzenia/wycieczkowce/129-wycieczkowce2011>

¹⁶ <http://www.mf.gov.pl/ministerstwo-finansow/dzialalnosc/finanse-publiczne/budzet-panstwa/wykonanie-budzetu-panstwa/sprawozdanie-z-wykonania-budzetu-panstwa-roczne>

	habitats	development but receiving important support from EU policies and due to HELCOM BSAP. Sector depends on public money.		Gdansk (2012) in particular report "Polskie Drogi polityki morskiej. Od wizji do działania", Gdańsk 2011
6. Maritime monitoring and surveillance				
6.1	Traceability and security of goods supply chains	Actions mainly financed by public money in Poland with no spill-over effects so far (in comparison to other EU countries).	Stable	Maritime Institute in Gdansk (2012) interviews with representatives of Maritime Office in Gdynia (2013), Ministry of Finance reports on execution of the national budget (access in 2013) ¹⁷ Data from central Statistical Office, Yearbook of Maritime Economy of 2012 (access in 2013) ¹⁸
6.2	Prevent and protect against illegal movement of people and goods	Mainly financed by public money; lack of real threats or acute developmental pressures in comparison to other parts of EU.	Mature sector, stable	Ministry of Finance reports on execution of the national budget (access in 2013) ¹⁹
6.3	Environmental monitoring	Mainly financed by public money, which might hamper its growth.	Mature sector, stable, residual	Maritime Institute in Gdansk (2012) in particular report "Polskie Drogi polityki morskiej. Od wizji do działania", Gdańsk 2011

2. Breakdown of maritime economic activities at regional level (NUTS 2) and selection of most relevant regions for the study

According to the methodology used to score the maritime role of the coastal NUTS-2 regions in Poland based on water transport, coastal tourism, fishing and aquaculture sectors, the region of Pomorskie is the highest ranked and is analysed below (See Annex Poland all coastal NUTS-2 regions' rankings).

Table 3 - Overview of relevant maritime economic activities in Poland at NUTS-2 level for the region of Pomorskie

Maritime economic activity		GVA (EUR, billion)	Employment (*1000)	Number of enterprises	Further indicators	Source & reference year
0. Other sectors						
0.1	Shipbuilding (excl. leisure boats) and ship repair	0,301	11,929	2.076		Polish office of Census (Central Statistical Office) (2008-2010)
0.2	Water projects	0,003	0,112	6		Polish office of Census (Central Statistical Office) (2008-2010)
1. Maritime transport						
1.1	Deep-sea shipping	0,008	0,261	7		Polish office of Census (Central Statistical Office) (2008-2010)

¹⁷ <http://www.mf.gov.pl/ministerstwo-finansow/dzialalnosc/finanse-publiczne/budzet-panstwa/wykonanie-budzetu-panstwa/sprawozdanie-z-wykonania-budzetu-panstwa-roczne>

¹⁸ http://www.stat.gov.pl/gus/5840_3792_PLK_HTML.htm

¹⁹ <http://www.mf.gov.pl/ministerstwo-finansow/dzialalnosc/finanse-publiczne/budzet-panstwa/wykonanie-budzetu-panstwa/sprawozdanie-z-wykonania-budzetu-panstwa-roczne>

1.2	Short-sea shipping (incl. Ro-Ro)	0,042	1,369	35		Polish office of Census (Central Statistical Office) (2008-2010)
1.3	Passenger ferry services	0,011	0,297	91		Polish office of Census (Central Statistical Office) (2008-2010)
1.4	Inland waterway transport	0,002	0,046	10		Polish office of Census (Central Statistical Office) (2008-2010)
2. Food, nutrition, health and ecosystem services						
2.1	Fish for human consumption	0,276	12,647	1.290		Polish office of Census (Central Statistical Office) (2008-2010)
2.2	Fish for animal feeding	0	0,025	1		Polish office of Census (Central Statistical Office) (2008-2010)
2.3	Marine aquaculture	0,001	0,023	2		Polish office of Census (Central Statistical Office) (2008-2010)
2.4	Blue biotechnology	0	0	0		N/A
2.5	Agriculture on saline soils	0	0	0		N/A
3. Energy and raw material						
3.1	Offshore oil and gas	0,014	0,565	22		Polish office of Census (Central Statistical Office) (2008-2010)
3.2	Offshore wind	0	0	0		N/A
3.3	Ocean renewable energy	0	0	0		N/A
3.4	Carbon capture and storage	0	0	0		N/A
3.5	Aggregates mining (sand, gravel, etc.)	0,005	0,023	1		Polish office of Census (Central Statistical Office) (2008-2010)
3.6	Marine minerals mining	0	0	0		N/A
3.7	Securing fresh water supply (desalination)	0	0	0		N/A
4. Leisure, working and living						
4.1	Coastal tourism	0,101	7,554	1.482		Polish office of Census (Central Statistical Office) (2008-2010)
4.2	Yachting and marinas	0,031	1,624	153		Polish office of Census (Central Statistical Office) (2008-2010)
4.3	Cruise tourism	0,011	0,292	89		Polish office of Census (Central Statistical Office) (2008-2010)
5. Coastal protection						
5.1 – 5.2	Coastal protection	0,007	0	2		Maritime Office in Gdynia (Interviews in 2013)
5.3	Protection of habitats	0,001	0	1		Maritime Institute in Gdansk interviews in 2013
6. Maritime monitoring and surveillance						
6.1	Traceability and security of goods supply chains	0,047	0,975	2		Interviews with representatives of Maritime Office in Gdynia (Interviews in 2013) and Ministry of Finance reports on execution of the national budget (access in 2013) ²⁰
6.2	Prevent and protect against illegal movement of people and goods	0,032	0,586	1		Interviews with representatives of Maritime Office in Gdynia (Interviews in 2013) and Ministry of Finance reports on

²⁰ <http://www.mf.gov.pl/ministerstwo-finansow/dzialalnosc/finanse-publiczne/budzet-panstwa/wykonanie-budzetu-panstwa/sprawozdanie-z-wykonania-budzetu-panstwa-roczne>

						execution of the national budget (access in 2013) ²¹
6.3	Environmental monitoring	0,002	0,168	4		Interviews with representatives of Maritime Office in Gdynia (Interviews in 2013) and Ministry of Finance reports on execution of the national budget (access in 2013) ²²

Table 4 - Overview of relevant maritime economic activities at NUTS-2 level for the region of Pomorskie

Maritime economic activity		Overview	Socio economic indicators	Source & reference year
0. Other sectors				
0.1	Shipbuilding (excl. leisure boats) and ship repair	Conventional shipbuilding yards are in decline and trying to find their niche in the offshore and specialised floating equipment industries, whereas ship repair yards face more promising prospects. The Gdańsk Repair shipyard group is regarded as the third shipyard in Europe with regard to service capacity.	Mature sector, declining in importance	Maritime Institute in Gdansk (2012), in particular report "Polskie Drogi polityki morskiej. Od wizji do działania", Gdańsk 2011
0.2	Water projects	New investments in Gdynia and Gdańsk harbours.	Mature sector, stable	Maritime Institute in Gdansk (2012)
1. Maritime transport				
1.1	Deep-sea shipping	Gdynia based ship carrier PLO has not managed to regain markets after suffering from structural transformation in 90s.	Mature sector, declining	Maritime Institute in Gdansk (2012), in particular report "Polskie Drogi polityki morskiej. Od wizji do działania", Gdańsk 2011
1.2	Short-sea shipping (incl. Ro-Ro)	Development of BSR trade relations contributes to a firm position for short sea shipping but the ships are old (dominance of ships 26 years and older).	Mature sector, stable	Maritime Institute in Gdansk (2012), in particular report "Polskie Drogi polityki morskiej. Od wizji do działania", Gdańsk 2011
1.3	Passenger ferry services	Mainly links between Gdynia/Gdańsk and Sweden, growing thanks to improvement of road infrastructure in Poland (highway A1 to South of Poland, S7 to Warsaw).	Growing	Maritime Institute in Gdansk (2012), in particular report "Polskie Drogi polityki morskiej. Od wizji do działania", Gdańsk 2011
1.4	Inland waterway transport	Underdeveloped mode of transport in the territory.	Mature sector, stable	Maritime Institute in Gdansk (2012)
2. Food, nutrition, health and ecosystem services				
2.1	Fish for human consumption	Well-organised sector fuelled by EU policy and financial support. Very well developed fish processing industry.	Mature sector, stable	"Fish products from Poland" (2012) ²³
2.2	Fish for animal feeding		Mature sector, stable	
2.3	Marine aquaculture	Almost non-existent sector but some pilot projects are taking place in the Gulf of Gdańsk (Puck Bay).	Residual importance, stable	BSR Programme SUBMARINER Project (2012)
2.4	Blue biotechnology	Almost non-existent. Few enterprises interested in the topic and testing some marine substances.	No data available, some research projects carried out	BSR Programme SUBMARINER Project (2012)
2.5	Agriculture on saline soils	Non-existent in Pomorskie.	No saline soils present in Poland	
3. Energy and raw materials				
3.1	Offshore oil and gas	The exploration of oil and gas offshore is done by PETROBALTIC based in Gdańsk.	Mature, residual, offshore production	Maritime Institute in Gdansk (2012) and

²¹ <http://www.mf.gov.pl/ministerstwo-finansow/dzialalnosc/finanse-publiczne/budzet-panstwa/wykonanie-budzetu-panstwa/sprawozdanie-z-wykonania-budzetu-panstwa-roczne>

²² <http://www.mf.gov.pl/ministerstwo-finansow/dzialalnosc/finanse-publiczne/budzet-panstwa/wykonanie-budzetu-panstwa/sprawozdanie-z-wykonania-budzetu-panstwa-roczne>

²³ <http://www.poland-fish.com> (2012)

				reports of Lotos (access in 2013) ²⁴
3.2	Offshore wind	No offshore wind farms built in Polish sea areas yet but licensing process has just started.		Maritime Institute in Gdansk (2012) and interviews with representatives of Maritime Office in Gdynia (2013)
3.3	Ocean renewable energy	Non-existent in Pomorskie.		
3.4	Carbon capture and storage	Non-existent in Pomorskie.		
3.5	Aggregates mining (sand, gravel, etc.)	Only one large-scale extraction is taking place nowadays in the Middle Bank. A few other licences have been issued but are not currently utilised. The Middle Bank can be attributed to both provinces but rather to the Pomorskie Region.	Residual, one company, matured	Maritime Institute in Gdansk (2012) in particular publication of 2012 on Middle Bank ²⁵ and interviews with representatives of Maritime Office in Gdynia (2013)
3.6	Marine minerals mining	Non-existent in Pomorskie.		
3.7	Securing fresh water supply (desalination)	Non-existent in Pomorskie.		
4. Leisure, working and living				
4.1	Coastal tourism	High intensity of tourism and recreation use of the Polish coast, close to saturation point with respect to current tourist facilities, during summer season, high environmental pressure coupled with short season.	Mature, stable	Maritime Institute in Gdansk (2012) and information from Central Statistical Office of Poland Local data Bank (access in 2013) ²⁶
4.2	Yachting and marinas	Development of marinas network around Gdańsk Bay. Province is one of the key centres of production of boats in Poland.	Mature, stable	Maritime Institute in Gdansk (2012) and information from POLBOAT - The Polish Chamber of Marine Industry and Water Sports (access in 2013) ²⁷
4.3	Cruise tourism	Almost all cruises calling in Poland go to Gdynia.	Growing, Gdynia as a hub	Maritime Institute in Gdansk (2012) and information from Port Authority in Gdynia (access in 2013) ²⁸
5. Coastal protection				
5.1 – 5.2	Coastal protection	Important policy concern. Poland has invested a stable amount of public funds in coastal protection in recent years.	Stable	Maritime Office in Gdynia (Interviews in 2013)
5.3	Protection of habitats	Sector at the very beginning of its development but receiving important support from EU policies and due to HELCOM BSAP.	Stable, introduced in 2009	Maritime Institute in Gdansk interviews in 2013
6. Maritime monitoring and surveillance				
6.1	Traceability and security of goods supply chains	Actions mainly financed by public money in Poland with no spill-over effects so far (in comparison to other EU countries).	Mature sector, stable	Interviews with representatives of Maritime Office in Gdynia (interviews in 2013) and Ministry of Finance reports on execution of the national budget (access in 2013) ²⁹
6.2	Prevent and protect against illegal movement of people and goods	Mainly financed by public money and due to lack of real threats without acute developmental pressure (border crossing with Russia on the Vistula Spit is to be built only in the future).	Mature sector, stable	Interviews with representatives of Maritime Office in Gdynia (Interviews in 2013) and Ministry of

²⁴ <http://raportroczny.lotos.pl/do-pobrania>

²⁵ <http://www.baltseaplan.eu/index.php/Middle-Bank;833/1>

²⁶ http://www.stat.gov.pl/bdlen/app/strona.html?p_name=indeks

²⁷ <http://www.polboat.eu/en/images/stories/polski%20przemys%20jachtowy%20-%20raport%202010.pdf> POLBOAT Yacht

²⁸ <http://www.port.gdynia.pl/pl/wydarzenia/wycieczkowce/129-wycieczkowce2011>

²⁹ <http://www.mf.gov.pl/ministerstwo-finansow/dzialalnosc/finanse-publiczne/budzet-panstwa/wykonanie-budzetu-panstwa/sprawozdanie-z-wykonania-budzetu-panstwa-roczne>

				Finance reports on execution of the national budget (access in 2013) ³⁰
6.3	Environmental monitoring	Mainly financed by public money and therefore with limited growth potential.	Mature sector, stable	Interviews with representatives of Maritime Office in Gdynia (Interviews in 2013) and Ministry of Finance reports on execution of the national budget (access in 2013) ³¹

3. List of the 7 largest, fastest growing and with most future potential marine and maritime economic activities

3.1 Ranking order of the 7 largest marine and maritime economic activities

The seven largest MEAs, listed in Table 5, were chosen based on a score calculated on the basis of the GVA and the number of persons employed by the sector, using 2010 data (for all MEA scores see Annex Poland).

Table 5 - Ranking order of the 7 largest maritime economic activities in Poland at NUTS-0 level

Rank	Maritime economic activity	GVA (billion EUR)	Employment (*1000)	Score
1	Fish for human consumption	0,71	32,41	19,73
2	Shipbuilding (excl. leisure boats) and ship repair	0,47	18,60	11,65
3	Coastal tourism	0,24	18,05	10,23
4	Water projects	0,21	9,59	5,87
5	Short-sea shipping (incl. Ro-Ro)	0,12	3,75	2,46
6	Yachting and marinas	0,08	4,05	2,42
7	Traceability and security of goods supply chains	0,09	1,95	1,45

Only five of the seven MEAs listed above possess real economic importance in the Polish economy. The biggest sectors are the traditional ones. They have a limited degree of innovativeness and competitiveness, with the exception of the ship repair and fish processing industries (that belongs to the MEA “fish for human consumption”). A positive news is the presence among them of some promising sectors such as yachting and marinas (in particular construction of leisure boats) due to existing in-country expertise, high added value and high level of innovativeness. Traceability and security of goods supply chains scores surprisingly high (seventh in Poland) but in fact its economic importance is negligible and high scoring is mainly due to relatively weaker performance of other sectors. Traceability and security of goods supply chains captures public expenditure from the maritime administration, which is responsible for safety of navigation plus allocations to public rescue services and the spending there is stable.

3.2 Ranking order of the 7 fastest growing marine and maritime economic activities

The seven fastest growing MEAs, listed in Table 6, were chosen on the basis of scores calculated using the compound annual growth rate for GVA and number of persons employed over the period 2008-2010 (for all MEA scores see Annex Poland).

³⁰ <http://www.mf.gov.pl/ministerstwo-finansow/dzialalnosc/finanse-publiczne/budzet-panstwa/wykonanie-budzetu-panstwa/sprawozdanie-z-wykonania-budzetu-panstwa-roczne>

³¹ <http://www.mf.gov.pl/ministerstwo-finansow/dzialalnosc/finanse-publiczne/budzet-panstwa/wykonanie-budzetu-panstwa/sprawozdanie-z-wykonania-budzetu-panstwa-roczne>

Table 6 - Ranking order of the 7 fastest growing maritime economic activities in Poland at NUTS-0 level

Rank	Maritime economic activity	GVA (CAGR)	Employment (CAGR)	Score
1	Passenger ferry services	76,53	34,59	55,56
2	Offshore oil and gas	24,79	36,52	30,65
3	Cruise tourism	27,62	-2,70	12,46
4	Environmental monitoring	11,81	4,12	7,97
5	Marine aquaculture	14,02	0,00	7,01
6	Yachting and marinas	-0,95	1,07	0,06
7	Fish for human consumption	1,17	-2,06	-0,45

The fastest growing MEAs are of very heterogeneous nature. Some of them are really promising, such as marine aquaculture, due to increased environmental concerns. Others have limited growth perspectives, such as Fish for human consumption (for which the aspect of catching fish faces natural constraints in terms of available fish stock and the processing industry faces increasing dependence on imported raw fish from abroad). In some cases, huge questions and a high level of uncertainty exist, e.g. shale gas deposits (the legal concerns and the lack of reliable reserve estimates).

All seven of the above listed MEAs (except Fish for human consumption) offer only a limited contribution to the national GVA, so their development has a limited impact on the national economy. In fact, a low base effect concerns at least three of these sectors: marine aquaculture, cruise tourism and offshore oil and gas. Moreover, some of the sectors are public money dependent (Environmental monitoring, Offshore oil and gas) so they did not suffer so much during the recent economic crisis (they grew while other more business oriented sectors experienced shrinkage).

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

The MEAs with most future potential, listed in Table 7, are based on scores assigned to each MEA by expert views for the six following indicators: innovativeness, competitiveness, employment, policy relevance, spill-over effects and sustainability (for all MEA scores see Annex Poland).

Table 7 - Ranking order of the maritime economic activities with most future potential in Poland at NUTS-0 level

Rank	Maritime economic activity	Score
1-2	Offshore wind	+++++
1-2	Yachting and marinas (leisure boat building)	+++++
3-5	Offshore oil and gas	++++
3-5	Marine aquaculture	++++
3-5	Environmental monitoring	++++
6-9	Shipbuilding (excl. leisure boats) and ship repair	++++
6-9	Blue biotechnology	++++
6-9	Coastal tourism	++++
6-9	Protection of habitats	++++

The majority of the maritime economic activities listed above (with the exception of coastal tourism, shipbuilding and ship repair and leisure boat building) are either almost non-existent in Poland or are at a starting phase (e.g. preparation of NATURA 2000 management plans for sea areas). In some cases they are dependent on public money, which could lower their development ability unless public money provides a leverage effect. With regard to offshore oil and gas, the already indicated high level of uncertainty might

hinder development. In some cases, it is assumed that new technologies will be applied under some MEAS that would increase their innovativeness, competitiveness and intensify spill-over effects. This is true mainly for marine aquaculture and protection of habitats (e.g. through innovative methods of nutrient extraction) but also for environmental monitoring (modern sensing equipment). Also for coastal tourism, the assumption is about structural changes and organisational innovations.

Five of the nine MEAs were selected on the basis of their real or potential (shale gas) economic impact in the medium term (i.e. until 2020) and two other MEAs were combined (i.e. protection of habitats and aquatic projects) in order to address growing environmental concerns. Blue biotechnology and environmental monitoring are promising, the foundation for them should be established in Poland but one cannot expect that they will rapidly change their residual status in coming years, as this is a long-term process.

4. Growth scenarios for 6 of the most relevant and promising marine and maritime economic activities

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 most future potential
Fish for human consumption	Passenger ferry services	Offshore wind
Shipbuilding (excl. leisure boats) and ship repair	Offshore oil and gas	Yachting and marinas (leisure boat building)
Coastal tourism	Cruise tourism	Offshore oil and gas
Water projects	Environmental monitoring	Marine aquaculture
Short-sea shipping (incl. Ro-Ro)	Marine aquaculture	Environmental monitoring
Yachting and marinas	Fish for human consumption	Shipbuilding (excl. leisure boats) and ship repair
Traceability and security of goods supply chains	Yachting and marinas	Blue biotechnology
		Coastal tourism
		Protection of habitats

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

6 most relevant and promising maritime economic activities
Offshore wind
Shipbuilding (excl. leisure boats) and ship repair
Coastal tourism
Offshore oil and gas
Yachting and marinas (leisure boat building)
Protection of habitats/ Marine aquaculture/ Environmental monitoring

The following criteria were applied for selection of the 6 most promising MEAs:

- Sectors with the highest innovative potential and which are knowledge intensive (direct relation to smart growth of EU2020): on that basis yachting and marinas (leisure boat construction to be precise) was selected.
- Sectors expected to provide a high contribution to the national economy in the future due to important spill-over effects: on that basis shipbuilding, coastal tourism, offshore oil and gas and offshore wind were selected and to some extent also leisure boat construction.
- Sectors with positive external effects in terms of social and ecological benefits (direct relations to EU 2020 green targets): on that basis offshore wind was selected and protection of habitats coupled with marine aquaculture.
- Sectors in which Poland has unquestionable long-term competitive advantage: on that basis ship repair and leisure boat construction were selected.

All of the selected maritime economic activities chosen offer positive contributions towards sustainability:

- Offshore wind offers green energy, lowering CO₂ emissions and contributes to a very positive energy balance in comparison to other green energy sources.
- Shipbuilding (ship repair) will make the shipping industry more environmental friendly, if focused on the introduction of green innovations.
- Coastal tourism will lessen today's very high environmental pressures if transformed from mass tourism (3S tourism: sand, sea, sun) into high quality coastal tourism, e.g. bird watching, diving, health tourism in the off-season, etc.
- Offshore gas extraction will lower the country's dependence on carbon as a main source of energy and will give better chances for development of the wind mill sector requiring "idle" capacities of gas or hydro power plants.
- Yachting and marinas are a relatively clean maritime economic activity and a more environmental friendly type of tourism in comparison to 3xS tourism.
- Protection of habitats via use of aquaculture will help in addressing pressure from non point source pollution and in lowering levels of Baltic Sea nitrification.

4.1 Description of the nature of each of the 6 maritime economic activities and value chains

Offshore wind

There is no single offshore wind farm yet but the licensing process that was started in 2012 has so far resulted in 22 permits for using the sea space for offshore energy production. Also some of the Polish shipyards have already engaged themselves in supplying this industry with necessary installations and equipment. In 2008 the first three offshore vessels were produced. Important spill-over effects are thus foreseen. The public debate on development of offshore wind energy is active in the country and includes potential developers, NGOs and relevant authorities.

The value chain is composed of wind farm developers and operators, their contractors (e.g. former fisherman), the transport and construction sector, shipyards, the energy industry (including owners and operators of the transmission grid), energy intensive industries, industries sharing the space with offshore-wind farms (e.g. mariculture), sensing industries and the general public using electricity.

Shipbuilding (excl. leisure boats) and ship repair

This is the second most important maritime industry in Poland in terms of GVA and the most important in terms of employment. The industry came through a severe process of structural change after accession of Poland to the EU. The key problem was gradual wiping out of profits and a growing persistent deficit of the entire industry. The number and gross tonnage of ships produced in Polish shipyards decreased dramatically in recent years (from 34 to 24 vessels and from 616 thousand GGT to 38,6 thousand GGT in 2000 and in 2010 respectively). The situation improved only in 2011. Some flagship Polish shipyards (building new ships) bankrupted or were sold for symbolic amounts to private investors. This in turn resulted in shrinkage of the downstream sectors, i.e. industries producing ship accessories and components. In recent years, an increasingly important role in the shipbuilding sector is being played by relatively smaller new entities such as Crist, Damen Shipyards Gdynia, Marine Projects, Maritime Shipyard, Navikon SRY, Finomar, Alu International and some others.

During the same time, repair shipyards enjoyed an upward movement. Between 2009 and 2011 the number of repairs increased from 347 to 624 and their value from EUR 161.875 million to EUR 286.062 million (i.e. 77% increase). Currently, the Polish ship repair yards have maintained rather favourable competitive positions enjoying an excess of orders in relation to their capacities. Their global position remains firm and stable. Among the repair shipyards the key player continues to be Gdańsk Repair Shipyard Capital Group (Remontowa Grupa S.A.), who is a leader on the European market in ship repair services and one of the main providers worldwide. The group is composed of the Remontowa repair yard and 26 other companies. Every year over 200 vessels and offshore units from all over the world are repaired or converted at Remontowa.

The value chain is composed of shipyards, supply industries, the research and sea transport sectors (ship owners) as well as offshore wind farm developers and operators (creating demand for offshore ships and offshore parks constructions).

Coastal tourism

Coastal tourism in Poland plays a significant economic role. The main players come from the private sector (small and medium size enterprises) and from the public sector (coastal municipalities). So far the sector is traditional but with some signs of development of new branches like diving and observation of underwater cultural heritage (which might be very promising in Poland), deep-sea angling, ice boating or spas coupled with year-round health treatment. Wind surfing and kite surfing tourism are flourishing in some areas but there is still untapped potential for their development in some areas (e.g. lagoons). Traditional coastal tourism however is dominating.

In 2011 in the coastal NUTS-3 regions of Poland, excluding the Trójmiejskie and Szczecin city NUTS-3 regions (where business tourism tends to dominate), there existed around 1,5 thousand tourist facilities, i.e. more than 20% of those available in all of Poland. In terms of overnights, those regions accounted for over 13 million in 2011, 23% of the national total. Coastal tourism is a sector of top importance for many peripheral areas of Poland as the only tangible alternative to fishery. For instance, in the Szczecińskie rural NUTS-3 region, the density of bed places per 1.000 inhabitants reached 97,8 in 2012 and 99,5 in the Koszalińskie region, whereas national average was 17,53. The number of tourists staying overnight in 2012 per 1.000 inhabitants (1,545 and 1,464 accordingly) was almost three times higher than the national average of 587.

The value chain is composed of the providers of tourist services (accommodation, restaurants, catering, leisure activities – e.g. discos, cinemas, fishermen, health treatment, retail sector, providers of transport services, lifeguards), intermediaries (local and regional tourist offices, travel agencies) and producers of the leisure equipment (e.g. wind-surfing or kite-surfing equipment, ice boats, angling equipment, diving equipment, beach cosmetics, etc.).

Offshore oil and gas

Extraction of traditional gas and oil at sea under the jurisdiction of Polish authorities plays a marginal role in the Polish economy as well as for ensuring security of the energy supply at the country level. Extraction of natural gas and oil at sea under jurisdiction of Polish authorities has oscillated in recent years between 265,5 thousand tons of oil and 29,9 millions Nm³ of gas in 2006 and 175,4 thousand tons and 19,5 millions Nm³ in 2009.

The new issue is the discovery of shale gas reserves in Poland. Polish shale gas reserves are among the largest in Europe, although their scale is still being determined. Initially Poland was expected to possess reserves of about 22,45 trillion cubic meters (tcm) of shale gas, with an estimated 5,3 tcm of technically recoverable shale gas reserves potentially covering up to 300 years of domestic supply. However, this was subsequently revised downwards (by the Polish Geological Institute) to about a tenth of that figure, i.e. to 346-768 billion cubic metres, covering 35-65 years of domestic supply. According to the Polish Ministry of Environment, investments in Polish shale gas up to April 2012 reached almost EUR 500 million. About 40 test wells are in operation (43 exploratory drillings as of April 2013), although none is expected to start producing gas before 2015. None of them is located offshore.

The value chain is composed of extraction companies, transmission infrastructure owners and operators, energy intensive industries, sensing industries and the general public using gas.

Yachting and marinas (leisure boat building)

Poland is one of the global leaders in the production of motor yachts. In the construction of boats up to 10 meters long, Poland is ranked second in the world after U.S. manufacturers. Production capacity is 22,5 thousand boats annually. Polish shipyards produce both small standard boats worth a few thousand Polish zlotys as well as luxury ones with prices ranging from several hundred thousand to several million Polish zlotys. The domestic market for sea boats is still small. The reason is insufficient infrastructure, geographical conditions not favourable for sailing along Polish coasts (lack of islands, archipelagos, gulfs and bights, etc.) and a relatively lower level of economic well-being of Polish society, resulting in a low amount of leisure spending. Thus, ca. 95% of Polish yachts are sold to customers abroad. The most important markets are France, Germany, Spain and Scandinavian countries.

In recent years the production of boats fluctuated between 22,5 and 10 thousand annually. The industry recovered rapidly after the market shrinkage of 2009 (when production decreased by more than 66% in comparison to 2007). In 2011 the industry regained the production level of 2008 but was still below production capacity. Although deep reductions in jobs were necessary, there has been no bankruptcy in the sector, which is evidence of its robustness and stability. Some companies switched to a different type of business. The market leaders are located in Gdańsk, Ostróda and Augustów: Galeon, Delphia Yachts, Sunreef Yacht Ostróda, Balt Yacht, Ślepsk and Model Art/Parker.

Although the number of large yards is below ten, the number of all companies associated with the industry – smaller manufacturers, component suppliers, owners, marinas, etc. – is close to nine hundred. The value chain is composed of the research sector, designer companies, producers of leisure boat equipment, producers of composites, laminates and other materials necessary for boats manufacturing and to some extent the retail sector (upstream).

Protection of habitats/Marine aquaculture/Environmental monitoring

Eutrophication is among the most important threats to the Baltic Sea environment. Poland is the smallest contributor to this process in per capita terms but due to the large population size, the absolute load of nutrients from Poland is among the largest in the region (ca. 30% of total phosphorus and 24% of total nitrogen loads of the region). In 2000 Poland was responsible for pollution loads that amounted 12,650 tons of phosphorus and 191,170 tonnes of nitrogen. Within the Baltic Sea action Plan of HELCOM, Poland declared reduction targets of 8,760 tonnes of phosphorous (i.e. 69,25% of loads) and 62,400 tonnes of nitrogen (i.e. 32,64% of loads) by 2021. This would be impossible through conventional approaches only, such as construction of wastewater treatment plants, diminishing agriculture intensity, establishment of buffer zones around rivers, etc. New innovative technologies for removal of nutrients related to marine

aquatic production can help in meeting the policy targets. Such technologies in Poland (e.g. such as mussel farming or reed cultivation) are only in initial pilot phases, whereas others (e.g. sea bottom plant cultivation for nutrients removal) did not even reach conceptual debate. However, it is clear that the nutrient removal industry faces very promising perspectives in light of the existing policy goals and commitments.

The value chain is composed of the public sector responsible for environment protection, the research sector, former fishermen (switching to aquaculture) and the final recipients of the aquaculture products such as agriculture (animal food, fertilisers), chemical, pharmaceutical and cosmetic industries, the energy sector (using sea biomass) and the construction industry (e.g. using reed).

4.2 Description of the economic and infrastructural scenario

Offshore wind

This is a sector with a high ability to change the trajectories of development of the coastal regions by attracting energy intensive industries (new job places, strong agglomeration effects) and stimulating offshore development, i.e. activities requiring energy and sharing space with the wind mills parks. According to Ernst and Young, development of the offshore wind sector will result in 31,8 thousand new job places in Poland in the years 2012-2025, including 5 thousand in shipyards, seaports and the sea transport sector.

The development of offshore wind is an important part of the national strategy of diversification of the energy supply, diminishing territorial imbalances in energy production and meeting EU targets on renewable energy shares in total energy production. Offshore energy production requires support from public sources due to high positive externalities and higher costs of renewable energy production in comparison to energy from fossil fuels. However, wind energy fiercely competes with other types of renewable energy such as biomass and even nuclear power for the funds and attention of potential investors. Moreover, support conditions offered in Poland for offshore wind seem less favourable than in some other countries. So the ultimate result in terms of future development pace for this sector in Poland is still not clear.

Offshore wind scores high in terms of innovativeness, competitiveness, employment, policy relevance, spill-over effects and sustainability. It offers both clean energy and new job places in the declining shipbuilding industry, so it adds both to ecological and socioeconomic sustainability. Its main advantage is a strong spill-over effect in the coastal regions. However, competitiveness of the entire industry depends on public support, although in terms of energy balance offshore wind is among most competitive ways of energy production. The main driving forces are developers, the EU Commission with its policy supporting the production of energy from renewable sources and the national government setting the legal framework. The key hindrance is the lack of a stable and predictable legislative base ensuring stability of commercial operations and severe bottlenecks in the existing transmission infrastructure.

Shipbuilding (excl. leisure boats) and ship repair

The main driving force is the competitive position of repair shipyards in Poland (tacit knowledge, relative low labour costs, convenient location) and the improving productivity and ability to handle complex orders from the construction shipyards. This creates promising perspectives also for the future. However development of the sector is export driven so it depends on the global economic situation.

Ship repair scores high in terms of innovativeness, competitiveness, employment, policy relevance and spill-over effects. It is not the most sustainable type of economic activity but it is in line with the recycling imperative. Due to important competition from abroad, Polish yards have to move towards more complicated and knowledge intensive tasks. One of the most promising directions is a focus on eco-innovation for greening sea transport. This will induce even closer cooperation with the research sector. The competitive position of Polish repair yards is tied to their location in the heart of Europe (shorter out-of-business ship times), their high quality and relatively cheap labour force and modern equipment, as well as their close working contacts with the ship equipment suppliers. Those comparative advantages will be maintained in the future, offering important positive pecuniary and non-pecuniary externalities.

The key message concerning this MEA is that repair shipyards are experiencing significant prosperity in the current circumstances and there is a need to transform the remaining shipyards that still construct ships

towards more specialised and green products and towards the production of equipment for offshore wind farms. The EU can assist in this task by supporting green ships manufacturing.

Coastal tourism

The main driving forces for the development of this MEA are geographic characteristics of the Polish coast (nice sandy beaches) coupled with the entrepreneurship of Polish businessmen and local governments. Coastal tourism scores high in terms of competitiveness, employment and policy relevance. The spill-over effects are not so spectacular as in the case of offshore wind or ship repair but they are positive. However, the sector is about to reach its saturation point and requires a structural transformation. Its innovativeness is currently low and should be improved. The solution lies in the development of new types of tourist businesses such as those listed in the Section 4.1. (year-round tourism) and the combination of coastal tourism with high quality inland tourism (e.g. biking, horse riding, canoeing, etc.). This is the most desirable direction for development of the MEA in the future, making tourism more environment friendly and lowering pressure on the coastal environment. But even in the current shape the assessment of the sector's sustainability is still positive. The key problem is with sustainability. On one hand, the sector in its current form creates pressures on the natural environment and leads to the degradation of important cultural landscapes. On the other hand, it offers development opportunities for peripheral areas of the country that are lagging behind, contributing to the social aspects of sustainability. Therefore, setting the proper policy for management of those risks and benefits is critical for the future development of the sector.

Offshore oil and gas

There are no expectations that extraction of oil and natural gas will increase drastically in the future. However, the largest Polish enterprise, refinery giant PKN Orlen, along with its partner Kuwait Energy Company Netherlands Cooperatief have already started exploratory drilling on the Latvian sea shelf in order to estimate possible reserves of oil and natural gas there.

Much more attention has been given and will be given to discussing the pros and cons related to shale gas industry development. The debate has reached the level of the EU parliament and in parallel some preparatory actions have been conducted by developers. The whole debate is driven by the notion of Polish energetic self-dependency, which is nowadays jeopardised by EU constraints on the use of the fossil fuels including coal, which is still the main energetic resource of the country.

Commercial extraction of shale gas would change the economic situation of the country substantially. It would improve the security of supply and would lower dependency on the import of gas from abroad. It would also allow Poland to diminish greenhouse gas emissions, facilitating replacement of coal as the main fuel. Thus it contributes positively to environmental sustainability. If extracted offshore or on the territory of the maritime regions, the availability of energy would attract energy intensive industries, contributing to regional development, creation of new jobs and strengthening agglomeration effects. However, it can also put forward new environmental risks that need to be evaluated.

Extraction of shale gas scores high in terms of policy relevance. It is also expected to contribute to the competitiveness of the country, inducing development of new sectors (spill-over effect) and creation of new jobs. Offshore drilling would require new technologies so the sector would contribute to the creation of both product and organisational innovations. The weakest point is in its sustainability, since the environmental damage tied to the extraction of shale gas is among the key controversies associated with the sector's growth. However, shale gas as a fuel creates less negative externalities than other fossil fuels, making it difficult to precisely assess its overall environmental impact in the current shape.

The main players are public authorities at the national level and potential investors, both national and international, such as PGNiG, the U.S. oil firm Marathon Oil, ExxonMobil and Chevron. However, Exxon Mobil, Canada's Talisman Energy and Marathon, recently quit their Polish shale gas operations due to discouraging results of drilling operations and high uncertainty about the regulatory environment in Poland. So the future trends are uncertain, although the MEA seems very promising.

Yachting and marinas (leisure boat building)

The main driving force for this MEA is the competitive position of yacht shipyards in Poland (tacit knowledge, relative low labour costs, flexibility, high level of resilience to global crisis) and the improving productivity. The strength of Polish shipyards lies in their very high performance and excellent boat quality (top materials, contemporary design from top world designers). All these factors create promising perspectives also for the future. However, development of the sector is export driven so it depends on the global economic situation. Current projections assume that the increase in the number of contracts that took place in 2010 and 2011 is to be continued in coming years, though less vigorously than in 2011. A key issue is the development of the domestic market, which will grow in line with the increased economic well-being of Polish society. But infrastructure investments in ports are also necessary in order to increase demand in Poland.

The yachting and marinas sector scores high in terms of innovativeness, competitiveness, employment, policy relevance, spill-over effects and sustainability. It is knowledge-intensive, promotes use of top and modern materials, increases demand for them on the domestic market and creates job places in peripheral and disadvantaged parts of Polish maritime regions, contributing to socioeconomic sustainability. It also offers ecologically-friendly alternatives for transformation for the entire tourism sector (provided sailing culture was improved). The weakest of the aforementioned benefits is the policy relevance of the sector. Yacht building doesn't score high on the political agenda at national level although regional governments have taken notice of it (e.g. recently agreed as a part of regional development strategy, the smart specialization profile of the Warmia Mazury region). But as one of the outspoken examples of Polish success of small and medium size enterprises, the sector has recently started to attract more attention from policy makers.

Protection of habitats/ Marine aquaculture/ Environmental monitoring

An idea of using aquaculture for protection of the marine environment is still in the initial stages of development in Poland - discussed within a close circle of visionary researchers, NGOs and policy makers. There is no clear picture with regard to which would be the most suitable aquaculture for cultivation. Reed has been harvested in Poland for several years but it grows only occasionally in few places, mainly lagoons and river estuaries. The amount of reed is not sufficient for its more sophisticated further processing e.g. as a biofuel, so it can be used for local needs only. Pilot mussel farming is taking place in Puck Bay but the results have not been publicly announced yet. However, some experience in this field exists already in Sweden and Germany. The main problem is in the shortage of suitable places for mussels farming in Poland. The co-location of mussel farming with offshore wind farms, however, might provide a solution to this problem. The BSR Programme Project Submariner's Roadmap considered also the cultivation of microalgae as a promising direction for innovative use of sea resources in Poland. Microalgae can be used for nutrient removal and might provide several important substances for chemical, pharmaceutical and cosmetic industries in the process of bio-refinery. However, this requires further research and testing.

The combination of habitat protection with cultivation of aquaculture and environmental monitoring is the most promising maritime sector in Poland in terms of sustainable development. Its policy relevance due to the already described commitment to reducing nutrient loads into the Baltic Sea is also unquestionable. In terms of job creation, the sector offers new employment opportunities for fishermen constantly losing their economic base. However, the economic scale of this new employment is uncertain. The sector also scores high in terms of innovativeness since it is based on interdisciplinary research combining ecology, oceanography, different technologies for processing organic materials, etc. It might induce development of other sectors (energy, agriculture, tourism) offering important spill-over effects. The Baltic Sea has a unique opportunity to become model region in the use of aquaculture for environmental protection and monitoring. This means building a competitive position of the region in this field. Poland is expected to become an important player with this regard.

The main sector driving forces are researchers (Maritime Institute in Gdansk, University of Gdańsk, Polish Academy of Science), national and regional public authorities, the EU Commission with its policy (maritime policy, ESIF programmes) and directives (e.g. MSFD) supporting environmental protection (also under the EU Strategy for the Baltic Sea) and the Helsinki Commission with its Baltic Sea Action Plan.

4.3 Regulatory environment of the maritime economic activities

Offshore wind

This sector scores high in terms of policy relevance. The regulatory environment is among the key preconditions for the sector development. It is extensively covered by the Maritime Policy of Poland. Due to large initial investments necessary to start the business, potential developers require stable demand conditions. Currently, the green certificates do not play such a stabilising role due to a severe drop in their prices. The scope of public support for offshore energy production has not yet been specified in detail. The parliamentary bill regulating this issue is still under preparation.

Shipbuilding (excl. leisure boats) and ship repair

The shipbuilding sector is regulated by general regulations and provisions guiding industry activities in Poland. There are no specific regulations tied to this sector. It is not covered by the draft Polish Maritime Policy. Since the sector is sensitive to public support, a key role in its functioning is played by EU regulations concerning single market and competition law. Many scholars consider this regulatory framework as insufficient and call for more comprehensive policy support for the sector both at EU and national levels, in particular in the development of green and clean shipping policy, more active support for fostering innovations in the sector (in particular eco-innovations), establishment of the EU guarantee fund for the sector combined with export loans and insurance schemes in line with OECD and WTO standards.

Coastal tourism

High quality coastal tourism scores high in terms of policy relevance. It is extensively covered in the Maritime Policy of Poland. The measures foreseen cover inter alia the creation of new tourist products in cooperation with neighbour countries, modernisation and development of small ports, protection and use of underwater heritage for tourist purposes and development of tourist infrastructure.

However, for further development of the coastal tourism proper management is a must. This includes integrated management of the coastal zone including the tourism industry in order to maintain the existing natural capital in the long term and to limit existing pressures on it. This would mean a combination of measures restricting tourism development in some areas coupled with development of high quality tourist and transport infrastructure in others. Maritime spatial planning is also important for development of diving activities. Poland's Spatial Development Concept foresees some important measures in this direction.

Offshore oil and gas

The sector scores high in terms of policy relevance. It is extensively covered in the Maritime Policy of Poland. Poland is struggling now at the EU level against the need for EU-level regulation of shale gas production, preferring regulation to be compiled by the government of the country where the shale gas is extracted. The new Geological and Mining Act is under preparation in order to facilitate shale gas extraction.

Under the new Act, concessions for the exploration and extraction of hydrocarbons will be awarded through a tender procedure, which ensures greater legal certainty. The burden of red tape procedures will be reduced. The aim is to decrease the waiting time for granting new drilling concessions from the current 1.205 days to 250 days. The Act has no any specific part dealing with extracting shale gas offshore.

The most discussed policy proposal nowadays is the new tax on the production of shale gas, levies to total about 40% of profits. According to the Minister for Finance the law on taxation of shale gas will go into effect in 2015, but the government will not levy the tax until 2020 in order to attract companies.

Yachting and marinas (leisure boat building)

There is no specific regulatory framework covering leisure boat building. Industry growth is market driven and the main threat is the repetition of the recession cumulative spiral experienced in the recent years. However, in the long run lowering the export dependency of the industry would require development of the

domestic boat market. This in turn would call for a specific focus on boat tourism in regional strategies and in the national tourism strategy as the most relevant policy documents.

Protection of habitats/ Marine aquaculture/ Environmental monitoring

The sector scores high in terms of policy relevance. It is extensively covered in the Maritime Policy of Poland. The legal environment supporting this MEA is non-existent, which is among the key hindrances for development of the concept of the using aquaculture for nutrient removal. In Polish circumstances, mariculture production can reach brake even point only if all ecosystem benefits provided are internalised in the final price of the aquaculture. This would require a legal environment supportive of the integration of different policies (e.g. energy policy and nature conservation or food policy and nature conservation). New policies should refrain from taking a sectoral/compartmental approach, allowing for comparison and free choice between different techniques for nutrient reduction offering similar or identical results in terms of achieving good environmental status. This would require new frameworks at EU, HELCOM and national levels. Promising signs can be found in the draft HELCOM Ministerial Declaration of the October 2013 Conference, in which nutrient removal from the sea was acknowledged as a justified approach towards reduction of nutrients loads alongside with other more traditional measures (wastewater treatment plants, etc.).

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

Table 10 - Strengths and weaknesses analysis of most promising maritime economic activities

Offshore wind

(Benchmark instance: Denmark)

Compared to the benchmark case of Denmark, offshore wind is only an emerging sector in Poland and no single wind farm is yet in operation in Poland today. It is a sector of potential importance due to EU climate Policy and public support (Poland needs offshore wind energy to fulfill EU targets). The sector is also important due to the expected new job creation rate and spillover effects. There is no stable regulatory environment in Poland for support of offshore wind energy development.

	Drivers for Growth		Barriers for Growth	
	from SWOT analysis	from Benchmark analysis	from SWOT analysis	from Benchmark analysis
Maritime research	High potential for research on offshore wind. Several projects devoted to this issue			Polish knowledge institutes do not rank high internationally in terms of the publication record on offshore wind
Development and innovation	High capacity for absorption of innovations and turning them into new products. Ongoing research on wind industry		Low investment into R&D by private companies	Innovations are needed to adjust the vessels for operation in deep waters. There is a lack of official Polish national competence and innovation centres for the Polish offshore industry
Access to finance	Financial support for preparatory actions available from the EU		System of green certificates subject to political and economical changes	Lack of long-term feed-in tariff, guaranteeing a fixed price in terms of local retail prices. Poor system of green certificates. Lack of legislation allowing pension funds to invest in renewable energy (including wind energies and turbines). Resources mobilization (availability of

				financial resources of competencies and expertise) is moderate: increased levels of investments will be necessary for new wind farms and incentives for technology development (through R&D and demonstration), grid improvements and integration
Smart infrastructure	Polish shipyard sector offers necessary skills and production capacity to construct offshore wind turbine poles and support structures	Development of smart Grid / Intelligent energy system	Polish ports have limited capacity to serve offshore wind construction, operation and maintenance. Bottlenecks in harbour infrastructure may limit capacities to export large infrastructure elements. Insufficient energy transmission infrastructure servicing sea areas. Insufficient energy transmission infrastructure on land to accept power from offshore wind farms. Lack of decisions on offshore power transmission systems.	Lack of sufficient cross border connections
Maritime clusters		Existence of offshore wind energy association		Development of clusters around the ports should be necessary
Education, needs in training and skills	Ability and high potential to train necessary experts and specialists. High ability of Polish people to acquire new skills (training by doing, lifelong learning)			Poland is not a world leader in academic and polytechnic training programs, relevant for offshore wind field. Education on offshore renewables is less developed comparing to the benchmark case of Denmark. Market formation processes are very weak, almost non-existent in Poland. Polish specialists might have too little practical experience, since there is no single offshore wind farm in Poland so far. Offshore wind is a only potential field of future well-paid jobs
Maritime spatial planning	Responsibility for planning of sea uses is well-defined in Polish legislation	Maritime spatial planning in Poland attaches sufficient attention to wind energy offshore	Maritime Spatial Planning in Poland is still in a conceptual phase (pilot projects) and offshore wind development takes place outside the maritime spatial planning frame	
Integrated local development	Ongoing work (conceptual phase only) on promotion of coexistence of sea uses	Municipalities play a key role in planning and public engagement		No cooperatives have emerged to take an important place in the generation of offshore wind
Public engagement			Tension between municipalities and offshore wind energy developers. Lack of clear guidelines from the national level regarding which type of renewable energy should play key role in Poland in	

			future. Lack of clearly specified comprehensive policy (long term vision) for support of offshore wind energy in Poland (the policy is only under development)	
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Shipbuilding (excl. leisure boats) and ship repair

(Benchmark instance: Germany)

Shipbuilding and ship repair are a key maritime sector in terms of GVA and employment in Poland. Repair yards offer a promising direction for development of the sector. The country has a leading position in ship repair in the EU (as the most notable difference in comparison to Germany as the benchmark). Repair shipyards in Poland have suffered less than the rest of the sector during global crisis. There has been a transformation of the shipyard sector forced by global competition, which has resulted in reduction of shipyards' capacity, a decrease in employment in the sector and a reduction in the number of vessels built since its heyday. The cyclical nature of the shipbuilding business in Poland makes it prone to the global fluctuations in the shipping market.

	Drivers for Growth		Barriers for Growth	
	from SWOT analysis	from Benchmark analysis	from SWOT analysis	from Benchmark analysis
Maritime research		Extensive involvement and experience in maritime research.	Problems with commercialization of the research results.	
Development and innovation	Openness and high potential to absorb innovations. Looking toward continuous technical innovations and new ship designs in building high quality ships for the future.	Innovative SMEs and strong position of marine equipment industry.	Absorption rather than development of new green technologies in shipbuilding and ship repair.	Not so high level of R&D and innovation in comparison to the benchmark
Access to finance		Solid banking system	Conservative banks and high interest rates. Exchange rate risk. Global competition leading to insolvency and bankruptcy of some shipyards.	Less easy access to finance in comparison to benchmark case of Germany.
Smart infrastructure	Good general infrastructures in cities (e.g. airports, ports, public transport, IT access, water, sanitation etc)		Deficiencies of the transport (rail and road) infrastructure in the coastal regions.	But less excellent general infrastructures in comparison to the benchmark case of Germany in general.
Maritime clusters	Emergence of new small yards replacing the liquidated ones.	Existence of maritime clusters.	Lack of signs of sector consolidation with exception of repair shipyards.	
Education, needs in training and skills		Very good standard of schooling. Long tradition of high level specialized training. Skilled and experienced personnel.	Collapse of the system of vocational schools. Decrease in the labour force pool with expertise in ship repair and shipbuilding (lack of perspective for young people).	Mean age of shipbuilding workforce is rising.
Maritime spatial planning		New areas for development (e.g. offshore technologies)	Lack of sufficient progress in development of maritime spatial plans so far.	
Integrated local development		Close ties between yards and local community. Environmental issues raised by local communities less important as a barrier to development of the sector.		
Public engagement	Government support		Unsuccessful support and intervention from public authorities challenged by the EU. Too much focus on financial allocations with limited efforts on the policy-	Fragmented direct government responses.

			making environment, lobbying at global level, challenging the subsidies of Asian countries, etc. Lack of purchases by the military sector.	
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Coastal tourism

(Benchmark instance: Sardinia)

Coastal tourism is a key maritime sector in terms of employment, powered by a large internal market. It is also a very important sector for development of peripheral areas of Poland suffering from decline of other economic activities. The main obstacles are in (i) the traditional character of the coastal tourism, which causes some environmental problems, (ii) the vulnerability to weather changes (unpredictable weather in fact) and (iii) the vulnerability to the short summer season (much shorter than in the benchmark case of Sardinia). The transformation of the sector forced by global competition is rather slow and not strategically oriented (at least in terms of infrastructure, i.e. dominance of low quality tourism infrastructure, scarcity of generic local products, orientation on mass tourism mainly of domestic origin). The key driving force is the unprecedented level of entrepreneurship in Poland (sector is mainly driven by SMEs driven). The benefits are short-term oriented and in many cases not grasped by the local population but by the people from large cities having easier access to financing and a better ability to develop successful business plans. This explains why the sector cares less about local landscapes and local culture than short-term benefits.

	Drivers for Growth		Barriers for Growth	
	from SWOT analysis	from Benchmark analysis	from SWOT analysis	from Benchmark analysis
Maritime research		No maritime research linked to coastal tourism	Lack of research on new types of tourism	No maritime research linked to coastal tourism
Development and innovation			Random work on new innovative tourism products (lack of strategic insight in this field)	Problems with environmental protection policies and business support policies
Access to finance		Financial public support (including EU)	Exchange rate risk	Difficult access to credit.
Smart infrastructure		Good general infrastructures (energy, sanitation, water supply, network of shops, fast food points, etc.)		Insufficient infrastructure in small ports and insufficient airport system in the coastal area. Insufficient rail and road public transport
Maritime clusters		Emergence of maritime clusters linked to coastal tourism (http://www.tci-network.org/cluster/initiative/3851)		
Education, needs in training and skills		Good standard of schooling. Widespread presence of vocational schools and universities for tourism		
Maritime spatial planning	Sufficient consideration of coastal tourism in MSP. Attention to maritime underwater heritage.		Lack of sufficient progress in development of maritime spatial plans so far	Insufficient ICM practices despite presence of legal basis.
Integrated local development	Coastal areas as among the functional areas listed in Poland's Spatial Development Concept.		Lack of binding urban standards in the coastal zone, weak local spatial plans (or not existing).	High environmental pressure in some areas. Hectic urban development planning.
Public engagement	Very engaged local authorities. Very important role of regional and local tourism organisations (e.g West-Pomeranian Regional Tourist Organisation, Pomeranian Regional Tourist Organisation). International cooperation under EU Strategy for the BSR (flag projects).	Marketing and advertising investments	Lack of capacity and farsighted vision with regard to tourism development of some local authorities	Red tape and cumbersome investment procedures

Offshore oil and gas (shale gas extraction)

(Benchmark instance: Scotland)

Offshore shale gas extraction is only an emerging sector in Poland, in contrast to the benchmark case of Scotland. Today no offshore fracking exists in Poland but the exploitation of shale gas is planned. The estimates of shale gas deposit sizes are still very rough and tentative, in particular in offshore areas. The importance of the sector is due to (i) the EU climate policy (main energetic natural resource in Poland is currently coal) and (ii) the national policy concern of energy self-sufficiency of the country (or limiting existing energy dependency). The importance of the sector is also due to expected new job creation rates and spillover effects. There is no stable regulatory environment in Poland for support shale gas extraction. Another obstacle might be in environmental impacts of shale gas extraction and higher costs of offshore fracking and drilling.

	Drivers for Growth		Barriers for Growth	
	from SWOT analysis	from Benchmark analysis	from SWOT analysis	from Benchmark analysis
Maritime research			Insufficient level of research on offshore shale gas extraction	Low investment in R&D by private companies. Insufficient number of scientific and research institutions researching offshore shale gas extraction. Limited government funding of RD&I
Development and innovation	High capacity for absorption of innovations and turning them into new products			Competition of public funding and skills with new renewable energy RD&I projects. Insufficient cooperation of research institutions and industry. Lower culture of innovation in comparison to the benchmark case of Scotland. Lower ability to use technical breakthroughs to anticipate demand and expand operations
Access to finance	EU financial support to green energy	Sound financial market	Competition with onshore shale gas drilling. Need for large amounts of funds, beyond the scope of many Polish enterprises	High tax rates. Competition of investment with other regions and markets. Restricted public financing possibilities for large enterprises. Limited access to private loans
Smart infrastructure		Lower tax rates		Ineffective port and heliport system. Underdeveloped supply chain (in comparison to the benchmark-Scotland). Lack of data and access to field data. Low number of local suppliers
Maritime clusters				Lack of specialised offshore industry and marine science clusters
Education, needs in training and skills		High range of education opportunities. Excellence in higher education. Well-developed vocational schools and continuing education courses		Public funding is a barrier as is a shortage of skills. Insufficient cooperation of universities and industry to make training more industry specific. Non-existent focus on skills development for extraction of shale gas
Maritime spatial planning	Maritime Spatial Planning aware of importance of preservation of the shale gas deposits	Proper legislation on maritime spatial planning in Poland. Existence of national spatial planning efforts	Lack of sufficient progress in development of maritime spatial plans so far	
Integrated local development				Industry is still non-existent so it is not well-integrated with local communities
Public engagement	Shale gas very high on the political agenda of the	Investment and trade promotion agency of	Lack of clearly specified comprehensive policy	Creates competition with local industries. Strict

	country	Poland	(long-term vision) for support of shale gas offshore extraction in Poland	regulatory systems and controls. Less business friendly licensing procedures in comparison to the benchmark case of Scotland
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Yachting and marinas (leisure boat building)

(Benchmark instance: Italy)

This is an important maritime sector in terms of employment in Poland. Poland has achieved an excellence level and has been able to maintain its global competitive position (in the construction of leisure boats) despite the global crisis. This is a very important sector for the development of some peripheral areas of Poland suffering from decline of other economic activities. The main obstacles are in the export orientation of the sector (very small albeit growing domestic market, a striking difference with the benchmark case of Italy) and the vulnerability to the global fluctuations in economic circumstances. The transformation of the sector forced by global competition has been rapid and successful and the sector demonstrated high level of resistance during the period of global crisis. The key driving force is the unprecedented level of entrepreneurship in Poland, (sector is mainly SME driven), the relatively low labour costs in Poland and the increasing sophistication of the Polish industry. This is a sector with important prospects due to the ongoing process of catching up (in terms of economic well-being) of Central and Eastern European countries, meaning growing demand for leisure boats in the future. To realise those benefits there is a need for further development of the leisure boat infrastructure (marinas) in the country.

	Drivers for Growth		Barriers for Growth	
	from SWOT analysis	from Benchmark analysis	from SWOT analysis	from Benchmark analysis
Maritime research				Insufficient government programs of maritime research linked to yachts and marinas
Development and innovation	High capacity for absorption of innovations and turning them into new products. Preservation of traditional know-how open to application of product and organisational innovations		Low investment into R&D by private companies	Slow growth of new marinas. Lack of Special lines of credit for R&D linked to yachts and marinas
Access to finance		Public financial support (EU)	Exchange rate risk	Difficult access to credit for small companies
Smart infrastructure	Existence of Baltic programmes for the development of a network of marinas			Insufficient government programmes for the development of a network of marinas
Maritime clusters	Emergence of the cluster related to yacht and boat building (http://www.polskiejachty.eu/en/)			Lack of shipbuilding districts that aggregate public and private operators
Education, needs in training and skills	Existence of necessary know-how and skills. Relatively low costs of labour	Several technical nautical institutes. Excellence in design and skilled labor		
Maritime spatial planning	Sufficient attention attached to leisure boat routes under maritime spatial plans in Poland	Many marine protected areas	Lack of sufficient progress in development of maritime spatial plans so far	High environmental pressure in some areas
Integrated local development	Local governments regarding yachting as important development opportunity. Baltic cooperation between local municipalities as important driving force			Inadequate public transport from the marinas to the hinterland. Lack of regional consortia that promote local shipbuilding and yachting
Public engagement	Support of the sector by national government (joint international marketing of Polish yachts supported from EU funds)	Effective system of navigation safety and emergency response		High tax burden for yacht owners (e.g. excise tax)

Protection of habitats / Marine aquaculture / Environmental monitoring

(Benchmark instances: Germany/Greece/Balearic Islands)

This combination of maritime activities is only emerging as such combination in Poland. Its importance is due to (i) the EU ecological policy, (ii) the alarming state of the Baltic environment, (iii) the important role of Poland as a Baltic polluter, and (iv) the growing impact of non-point source of pollution. The importance of the sector is also due to expected new job creation rate in particular for former fishermen. There is no stable regulatory environment in Poland for support of the aforesaid combination of sectors. Another obstacle might be in insufficiently developed technologies. The Polish case is very different to that of Germany (the benchmark case) in relation to habitat protection, although recently similar ideas have been put forward by both countries in the frame of joint projects such as the Baltic Sea Region Programme's Submariner.

	Drivers for Growth		Barriers for Growth	
	from SWOT analysis	from Benchmark analysis	from SWOT analysis	from Benchmark analysis
Maritime research	Poland as a leader of the BSR Programme Submariner project (Sustainable Uses of Baltic Sea Marine Resources)	Emergence of the Centre for Maritime Research. Significant number of research programs focused on the natural environment	Insufficient level of research on aquaculture for environmental protection	Insufficient number of research programs focused on aquaculture and on the environmental impact of the different maritime economic sectors. Research on management tools in offshore protected areas is lagging behind. Maritime research is costly and logistically complex in offshore waters.
Development and innovation	High capacity for absorption of innovations and turning them into new products	Significant amount of applied research in the field of protection of the marine environment		Lack of clear procedures to obtain licences for aquaculture for marine environmental protection. Insufficient amount of applied research in the field of aquaculture. Insufficient involvement of the private sector in pilot projects. Lack of protected areas in the Exclusive Economic Zone. Lack of a comprehensive portal facilitating access to information on protection of the marine environment.
Access to finance	EU funding for environment protection and conservation	Existence of a national agency for investment. Possibility of public funding through the structural and investment funds of the EU. Reasonable costs of protection of the marine environment via use of aquaculture in comparison to other types of public interventions.		Lack of aquatic companies listed in the Warsaw Stock Exchange. Difficult access to private funding for small operators. Red tape for financial public support. Incentives for investors in the field of environmental protection payments. Insufficient attention to the use of aquaculture.
Smart infrastructure	Waste water infrastructure inadequate to address the challenge of non-point sources of pollution.	Access to technologies developed in the Baltic Sea Region. Development at Baltic scale of modern IT and satellite technologies.		Deterioration of the quality of the road network.
Maritime clusters	Existence of formalised maritime cluster in Poland. Existence of networks promoting use of aquaculture for marine environment protection (i.e. Submariner network, Poland participates in).	Several green networks, associations and working groups		No related maritime cluster in this field
Education, needs in training and skills	Ability and high potential to train necessary experts and specialists. High ability of Polish people to acquire new skills (training by doing, lifelong learning). Fishermen looking for new job opportunities.	High basic level of education. Specialised degrees in universities and technological educational institutes		Conservation benefits not properly understood by all members of the public. Present benefits focused often on the short-term priorities, rather than future sustainability. Insufficient development of e-

				education in the field of protection of marine environment. Language barrier for absorption of good practices from other countries. Lack of official open source websites promoting use of aquaculture for environment protection in Poland.
Maritime spatial planning	Maritime Spatial Planning aware of the importance of the use of the aquaculture for environment protection and sea use combination	Existence of Maritime Spatial Planning in Poland		Lack of sufficient progress in development of maritime spatial plans so far
Integrated local development	Many local initiatives aiming at environmental protection and conservation, active green NGO network. Emergence of the concept of combination of aquaculture for environment protection with offshore wind.	Poland is meeting its marine conservation objectives and legal commitments (e.g. 10% protection of its coastal and marine waters, CBD). Protection of the marine environment is likely to bring benefits, increasing the natural capital and goods and services that will benefit local people.	Insufficient marketing and advertising of the work carried out by public authorities in the field of use of aquaculture for environment protection.	Insufficient marketing and advertising of the work carried out by public authorities in the field of protection of the marine environment. Aquaculture for environmental protection not included in integrated local development initiatives. Limited stakeholder participation. Lack of consultation with certain relevant maritime sectors. Economic interests may conflict with conservation goals.
Public engagement	Existence of the Polish Submariner roadmap		Lack of clearly specified comprehensive policy (long term vision) for support of the use of the aquaculture for environmental protection. Lack of necessary regulatory provisions enabling the use of aquaculture for environmental protection.	Benefits of protection of habitats are often long-term. Red tape. Aquaculture for environmental protection not recognised so far as a strategic dimension of development in Poland. Lack of promotion of aquaculture for environment protection.

6. List of existing clusters

According to the European Cluster Observatory (ECO) maritime clusters exist in Poland in two seaside NUTS-2 regions: Pomorskie and Zachodniopomorskie. The Zachodniopomorskie maritime cluster is a relatively small cluster (in terms of employment size, specialisation and focus), with a total employment of 4.139 people. The Pomorskie maritime cluster is a larger cluster, employing 7.305 people. Both clusters are mature but as the employment levels are falling they can actually be qualified as declining. They are specialised in traditional maritime activities: fishing, processing of fish and shipbuilding. There are no very large and specialised clusters present in Poland and no other potential maritime clusters.

It is worth noting, however, that according to ECO in 2011 the maritime sector (more narrowly defined than in the present study) in Poland employed a total of 32.500 people and was represented by 7.952 enterprises. The number of enterprises is increasing while the employment levels are decreasing. The two identified clusters thus account only for roughly 1/3 of the national potential. The result is highly surprising and seems to be biased, which puts the ECO estimation into question.

Table 11 - List and analysis of clusters

	Member State(s)	Maritime Economic Activities covered	Status	Strengths	Weaknesses
Pomorskie	Poland	Marine fishing Processing and preserving of fish	Mature	Pool of knowledge and skills Centuries-long	Shipbuilding industry in decline Outdated fleet

		Manufacture of other tanks, reservoirs and containers of metal Building of pleasure and sporting boats Retail sale of fish		traditions High specialisation level (location quotients) Significant from regional economic perspective	Low quality of infrastructure Underdeveloped market
Zachodniopomorskie	Poland	Marine fishing Processing and preserving of fish Manufacture of other tanks, reservoirs and containers of metal Building of pleasure and sporting boats Retail sale of fish	Mature	Pool of knowledge and skills Long traditions High specialisation level (location quotients) Important from regional economic perspective	Shipbuilding industry in decline Outdated fleet Low quality of infrastructure Underdeveloped market

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

There are a very significant number of national and regional strategies with impact on the marine environment. All of the most relevant and promising MEAs are well supported by a variety of strategies. In terms of links to blue growth objectives, it can be said there is a strong focus on development of the tourism sector as a part of blue growth both at national and regional levels. There are only few links to mineral extraction and blue energy at the regional level due to governance specificity and terrestrial mandates of regional governments in Poland. However, both topics are covered in national documents. There is also very little focus on mariculture (the strategic documents mainly pinpoint the need to research the issue).

Table 12 - Policies/interventions towards maritime economic activities, their objectives and links to the most relevant and promising maritime economic activities (see Table 13 for links between most relevant and promising maritime economic activities and blue growth focus areas and objectives)

Level	Strategies	Objectives	Most relevant and promising maritime economic activities
National	Maritime Policy of Poland	Development of sea ports Competitive sea transport Improving maritime safety and security Development of maritime training, education and research systems Sustainable use of other natural resources of sea and oceans Sustainable development of marine fishery Protection of the marine environment and Poland's coastline Strengthening the national energy security More effective maritime governance	Offshore wind
			Offshore oil and gas
			Yachting and marinas
			Protection of habitats/ Marine aquaculture/ Environmental monitoring
			Coastal tourism
National	National Spatial Development Concept 2030	To improve competitiveness of Poland's major urban centres in the European context through functional integration while preserving the pro-cohesive polycentric settlement structure, To enhance internal cohesion and achieve sustainable territorial development by promoting functional integration, creating conditions for spreading of development factors, multifunctional development of rural areas, and using all territories' internal potentials, To improve Poland's connectivity in different dimensions by developing transport and telecommunications infrastructure To develop spatial structures supporting the achievement and preservation of Poland's high-quality natural environment and landscape, To enhance spatial structure's resistance to natural calamities and loss of energy security, and to develop spatial structures supporting national defence capabilities, To restore and consolidate spatial order.	Yachting and marinas
			Protection of habitats/ Marine aquaculture/ Environmental monitoring
			Coastal tourism
			Offshore oil and gas

National	Polish Energy Policy until 2030	<p>Increasing the share of renewables in final energy consumption at least to the level of 15% in 2020 and a further increase of this indicator in subsequent years</p> <p>Achieve by 2020 a 10% share of biofuels in the transport fuel market, and increased use of second-generation biofuels</p> <p>Protection against over-exploitation of forests in order to obtain biomass and sustainable use of agricultural land for the purpose of renewable energy, including biofuels, in order to prevent competition between energy renewable energy and agriculture and conserve biodiversity</p> <p>Use of electricity production of the existing equipment dams owned by the State</p> <p>Increase the level of diversification of supply sources and create optimal conditions for the development of distributed generation (dispersed generation) based on locally available raw materials</p>	Offshore wind
			Offshore oil and gas
National	Directions for tourism development until 2015	<p>A highly competitive tourist product</p> <p>Development of human resources contributing to tourism development</p> <p>Marketing support</p> <p>Shaping the tourist area</p>	Yachting and marinas (leisure boat construction)
			Coastal tourism
Regional	Draft strategy for socio-economic development of the Warmia-Mazury region until 2025	<p>Increase the competitiveness of the economy</p> <p>Increase in social activity</p> <p>Increase in the number and quality of the networking</p> <p>Development of the modern infrastructure</p>	Yachting and marinas (leisure boat construction)
			Coastal tourism
			Protection of habitats/ Marine aquaculture/ Environmental monitoring
Regional	Strategy for Development of Tourism in Warmia Mazury Voivodship	<p>Development of regional tourist products</p> <p>Effective promotion of tourist products</p> <p>Development of the social and professional human resources and organizational structures</p>	Yachting and marinas (leisure boat construction)
			Coastal tourism
Regional	Regional innovation strategy in the Warmia Mazury Voivodship 2011-2020	<p>Building social capital and a strong culture of innovation</p> <p>Transformation of the economy towards specialized knowledge-based products and services</p> <p>Development of creative human capital</p> <p>Improving institutional innovation system</p>	Yachting and marinas (leisure boat construction)
			Coastal tourism
Regional	Strategy for development of the West Pomerania region	<p>Strengthening innovation and efficiency of economy</p> <p>Strengthening investment attractiveness of the region</p> <p>Strengthening spatial competitiveness of the region</p> <p>Maintenance and protection of ecological values and wise management of resources</p> <p>Development of open and competitive society</p> <p>Strengthening of social cohesion and regional identity</p>	Offshore wind
			Shipbuilding (excl. leisure boats) and ship repair
			Yachting and marinas (leisure boat construction)
			Protection of habitats/ Marine aquaculture/ Environmental monitoring
			Coastal tourism
Regional	Strategy for development of the maritime economy of the West Pomerania Voivodship until 2015	<p>Establishment of Central European Transport Corridor (CETC)</p> <p>Improvement of competitiveness of ports through investments and changes in organizational/legal structure</p> <p>Development of sustainable, accessible and integrated transport system in the West Pomeranian voivodship</p> <p>More dynamic development of small ports</p> <p>Improving competitive position of shipyards</p> <p>Facilitation of sea transport</p>	Shipbuilding (excl. leisure boats) and ship repair
			Offshore oil and gas
			Yachting and marinas (leisure boat construction)
			Protection of habitats/ Marine aquaculture/ Environmental monitoring
			Coastal tourism
Regional	Strategy for development of tourism in the West Pomerania Voivodship until 2015	<p>Development of tourist products</p> <p>Branded Western Pomerania</p> <p>Developing human resources</p> <p>Development of tourist space</p> <p>Marketing and information</p> <p>Institutional support</p>	Yachting and marinas (leisure boat construction)
			Coastal tourism

Regional	Regional innovation strategy in the West Pomerania Voivodship in 2011-2020	Stimulating creativity, entrepreneurship and innovative attitudes in society Empower employees and managerial innovation, improved net migration of staff knowledge-based economy Identification of regional expertise with the greatest potential for growth Creating cooperation, competence and infrastructure around the identified areas of regional specialisation Strengthening the institutions involved in the processes of innovation and technology transfer Strengthening R&D institutions and collaboration of research teams Implementation of pilot projects aimed at innovation uptake Development of cooperation in clusters and other cooperative relations Use of external investment as a vehicle for regional innovation	Offshore wind
			Offshore oil and gas
Regional	Strategy for development of the Pomerania region 2020	Modern economy Active citizens Attractive space	Offshore wind
			Offshore oil and gas
			Yachting and marinas (leisure boat construction)
			Protection of habitats/ Marine aquaculture/ Environmental monitoring
			Coastal tourism
	Regional strategy of development of the energy sector in Pomerania region 2007-2025	Securing uninterrupted production and supply of energy in amounts necessary to meet the heating needs Development and implementation of programs containing measures of thermo-insulation Securing the lowest cost of production, transmission and distribution of power Wise use of thermal power reserves in the municipal district heating systems Ensuring freedom of choice of various types of energy by the users Reducing the environmental impact of energy sources disruptive to the environment Creating conditions to reduce the consumption of conventional fuels Bringing to equilibrium the energy balance of the region	Offshore oil and gas
Regional	Regional innovation strategy in the Pomorskie voivodship	Securing consensus and partnership for the development of the information society and innovation in the region Developing an innovation culture and innovation-oriented education Support the development of areas outside the Tri-City through innovation Support for the development of SMEs in the region through more intensive use of the innovative potential of the Tri city agglomeration	Shipbuilding (excl. leisure boats) and ship repair
			Protection of habitats
International Project	Submariner,	Promoting environmentally friendly as well as economically appealing innovative sea uses Contributing to making the Baltic Sea Region a model region for sustainable sea management.	Protection of habitats/ Marine aquaculture/
International Project	BaltSeaPlan,	Supporting the introduction of Integrated Maritime Spatial Planning to the Baltic Sea Region Supporting preparation of National Maritime Strategies within the Baltic Sea Region Supporting the implementation of the HELCOM recommendation on broad-scale Maritime Spatial Planning and the VASAB Gdańsk Declaration.	Offshore wind
			Offshore oil and gas
			Yachting and marinas
			Protection of habitats/ Marine aquaculture/ Environmental monitoring
International Project	PartiSEApate	Developing a pan-Baltic approach to those topics with a spatial dimension transcending national borders Developing a concept for an MSP institutional framework and governance model which shall provide input to policy decisions. Developing instruments and models for how multi-level governance mechanisms within MSP can be realised in the BSR	Offshore wind
			Offshore oil and gas
			Yachting and marinas
			Protection of habitats/ Marine aquaculture/ Environmental monitoring

Table 13 – Most relevant and promising maritime economic activities and ties to blue growth focus areas (top) / Blue growth focus areas and objectives

Most relevant and promising maritime economic activities	Blue growth focus area
Offshore wind	Blue energy
	Aquaculture
Shipbuilding (excl. leisure boats) and ship repair	Blue energy
Coastal tourism	Maritime, coastal and cruise tourism

Offshore oil and gas	Marine and mineral resources
Yachting and marinas (leisure boat construction)	Maritime, coastal and cruise tourism
Protection of habitats/ Marine aquaculture/ Environmental monitoring	Aquaculture
	Maritime, coastal and cruise tourism
Blue growth objectives	
Blue energy:	Enhance the efficiency of harvesting the European energy resources
	Minimise land-use requirements of the power sector
	Reduce the European greenhouse gas emissions
Aquaculture:	Contribution to an overall improvement in human diet and more quality merchandise
	Diversification of coastal communities activities
	Preservation of fish stock sustainable aquaculture
	Promote aquaculture based on binding strategic guideline, multiannual national strategic plans and the exchange of best practices
Maritime, coastal and cruise tourism:	Healthy environment
	Increase the growth potential of activities
	Increase the attractiveness of coastal areas
Marine and mineral resources:	Advances in technology
	Security of supply
Blue technology:	Provider of mass-market products
	High added value specialised products

Smart Specialisation Strategies

In the maritime regions of Poland the discussion on smart specialisation has just been started. The most advanced in this regard are Warmia-Mazury and Pomorskie provinces, whereas the Zachodniopomorskie province is only at the beginning of the process.

In discussions, the focus lies on mechanisms for supporting the development of “smart sectors or activities” rather than on supporting previously selected branches. The ambition is to make the system flexible and responsive to global and external changes and impulses, so the focus is on system architecture and establishment of proper mechanisms (institutional or financial) leading to smart specialisation.

If the scope of specialisation is at all outlined in the strategic documents it is done in very broad terms, e.g. in the case of Warmia-Mazury province the smart specialisation profile of the province was based on three pillars: economy of water, high quality food and wood and furniture industries as well as several cross cutting horizontal themes such as ICT, financial engineering, logistic, safety and security and finally promotion and marketing. The first of these three pillars, economy of water ties well with the MEAs relating to yacht construction, coastal tourism, aquaculture, protection of water habitats and sea transport.

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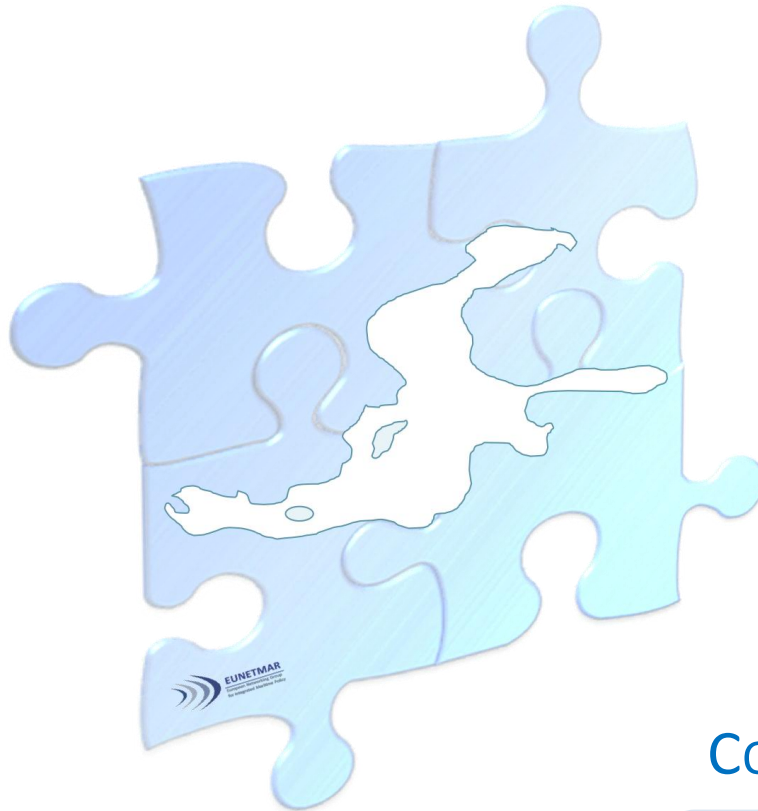
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STUDY ON BLUE GROWTH, MARITIME POLICY AND EU STRATEGY FOR THE BALTIC SEA REGION



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1. Selection of the most important regions

Table 5 - Definition of the maritime economic dimension for coastal NUTS 2

	Water transport (number of persons employed) 1000 persons	Coastal tourism (bed places in coastal NUTS 3) units	Fishing (Gross Tonnage)	Aquaculture (GVA)
Zachodniopomorskie	0.883	106.483	5.647	11.20
Warminsko-Mazurskie	0.160	7.518	0.129	0.60
Pomorskie	1.036	72.912	35.491	18.20
TOTAL for three coastal regions	2.079	114.001	41.267	30.00
TOTAL POLAND	3.324	186.913	41.266	42.60

Table 6 - Ranking order of coastal NUTS 2

	Water transport	Coastal tourism	Fishing	Aquaculture	TOTAL
Pomorskie	3,12	3,90	8,60	4,27	19,89
Zachodniopomorskie	2,66	5,70	1,37	2,63	12,35
Warminsko-Mazurskie	0,48	0,40	0,03	0,14	1,06

Note: Score is assigned dividing each regional value by the national total (also including landlocked regions)
* 10

2. 7 Largest maritime economic activities: indicative size of all activities

Maritime economic activity		GVA (EUR, billion)	Employment (*1000)	Score	Source & reference year
0. Other sectors					
0.1	Shipbuilding (excl. leisure boats) and ship repair	0,470	18,60	11,65	Eurostat (2010)
0.2	Water projects	0,214	9,59	5,87	Eurostat (2010)
1. Maritime transport					
1.1	Deep-sea shipping	0,022	0,71	0,47	Eurostat (2010)
1.2	Short-sea shipping (incl. Ro-Ro)	0,116	3,75	2,46	Eurostat (2010)
1.3	Passenger ferry services	0,030	0,81	0,56	Eurostat (2010)
1.4	Inland waterway transport	0,064	1,77	1,21	Eurostat (2010)
2. Food, nutrition, health and ecosystem services					
2.1	Fish for human consumption	0,706	32,41	19,73	Eurostat (2010) Number of vessels was used as a proxy for the number of enterprises in fishing (no relevant data)
2.2	Fish for animal feeding	0,001	0,06	0,04	Eurostat (2010)
2.3	Marine aquaculture	0,001	0,06	0,04	JRC Scientific and Policy Reports, The Economic Performance of the EU Aquaculture Sector – 2012 exercise (STECF-13-03)
2.4	Blue biotechnology	0	0	0	
2.5	Agriculture on saline soils	0	0	0	No saline soils present in Poland
3. Energy and raw materials					
3.1	Offshore oil and gas	0,080	2,06	1,43	Eurostat (2010)
3.2	Offshore wind	0	0	0	No offshore wind installations
3.3	Ocean renewable energy	0	0	0	Not present in Poland
3.4	Carbon capture and storage	0	0	0	Not present in Poland
3.5	Aggregates mining (sand, gravel, etc.)	0,005	0,02	0,04	Eurostat (2010)
3.6	Marine minerals mining	0	0	0	Not present in Poland
3.7	Securing fresh water supply (desalination)	0	0	0	Not present in Poland
4. Leisure, working and living					
4.1	Coastal tourism	0,241	18,05	10,23	Eurostat (2010)
4.2	Yachting and marinas	0,078	4,05	2,42	Eurostat (2010)
4.3	Cruise tourism	0,011	0,29	0,20	Eurostat (2010)

5. Coastal protection					
5.1 – 5.2	Coastal protection	0,011	0,00	0,06	Maritime Office in Gdynia and data from reports on execution of the national budget (access in 2013) ³²
5.3	Protection of habitats	0,004	0	0,02	Maritime Institute in Gdańsk and data from reports on execution of the national budget (access in 2013) ³³
6. Maritime monitoring and surveillance					
6.1	Traceability and security of goods supply chains	0,095	1,95	1,45	Interviews with public administration and Ministry of Finance reports on execution of the national budget (access in 2013) ³⁴
6.2	Prevent and protect against illegal movement of people and goods	0,032	1,76	1,04	Interviews with representatives of Maritime Office in Gdynia and Ministry of Finance reports on execution of the national budget (access in 2013) ³⁵
6.3	Environmental monitoring	0,003	0,34	0,18	Interviews with representatives of Maritime Office in Gdynia and Ministry of Finance reports on execution of the national budget (access in 2013) ³⁶

3. 7 Fastest growing maritime economic activities: relative growth of all activities

Maritime economic activity		GVA (CAGR, %)	Employment (CAGR, %)	Score	Source & Reference year
0. Other sectors					
0.1	Shipbuilding (excl. leisure boats) and ship repair	-23,37	-23,63	-23,50	Eurostat (2010)
0.2	Water projects	-8,97	-5,22	-7,10	Eurostat (2010)
1. Maritime transport					
1.1	Deep-sea shipping	-25,03	-10,62	-17,83	Eurostat (2010)
1.2	Short-sea shipping (incl. Ro-Ro)	-18,16	-2,42	-10,29	Eurostat (2010)
1.3	Passenger ferry services	76,53	34,59	55,56	Eurostat (2010)
1.4	Inland waterway transport	-0,04	-1,87	-0,96	Eurostat (2010)
2. Food, nutrition, health and ecosystem services					
2.1	Fish for human consumption	1,17	-2,06	-0,45	Eurostat (2010) Number of vessels was used as a proxy for the number of enterprises in fishing (no relevant data)
2.2	Fish for animal feeding	-13,89	-10,34	-12,11	Eurostat (2010)
2.3	Marine aquaculture	14,02	0,00	7,01	JRC Scientific and Policy Reports, The Economic Performance of the EU Aquaculture Sector – 2012 exercise (STECF-13-03)
2.4	Blue biotechnology	-	-	-	Not significant
2.5	Agriculture on saline soils	-	-	-	No saline soils present in Poland
3. Energy and raw materials					
3.1	Offshore oil and gas	24,79	36,52	30,65	Eurostat (2010)
3.2	Offshore wind	-	-	-	No offshore wind installations
3.3	Ocean renewable energy	-	-	-	Not present in Poland

³² <http://www.mf.gov.pl/ministerstwo-finansow/dzialalnosc/finanse-publiczne/budzet-panstwa/wykonanie-budzetu-panstwa/sprawozdanie-z-wykonania-budzetu-panstwa-roczne>

³³ <http://www.mf.gov.pl/ministerstwo-finansow/dzialalnosc/finanse-publiczne/budzet-panstwa/wykonanie-budzetu-panstwa/sprawozdanie-z-wykonania-budzetu-panstwa-roczne>

³⁴ <http://www.mf.gov.pl/ministerstwo-finansow/dzialalnosc/finanse-publiczne/budzet-panstwa/wykonanie-budzetu-panstwa/sprawozdanie-z-wykonania-budzetu-panstwa-roczne>

³⁵ <http://www.mf.gov.pl/ministerstwo-finansow/dzialalnosc/finanse-publiczne/budzet-panstwa/wykonanie-budzetu-panstwa/sprawozdanie-z-wykonania-budzetu-panstwa-roczne>

³⁶ <http://www.mf.gov.pl/ministerstwo-finansow/dzialalnosc/finanse-publiczne/budzet-panstwa/wykonanie-budzetu-panstwa/sprawozdanie-z-wykonania-budzetu-panstwa-roczne>

3.4	Carbon capture and storage	-	-	-	Not present in Poland
3.5	Aggregates mining (sand, gravel, etc.)	0	0	0	Eurostat (2010)
3.6	Marine minerals mining	-	-	-	Not present in Poland
3.7	Securing fresh water supply (desalination)	-	-	-	Not present in Poland
4. Leisure, working and living					
4.1	Coastal tourism	-6,63	-3,81	-5,22	Eurostat (2010)
4.2	Yachting and marinas	-0,95	1,07	0,06	Eurostat (2010)
4.3	Cruise tourism	27,62	-2,70	12,46	Eurostat (2010)
5. Coastal protection					
5.1 – 5.2	Coastal protection	1,12	-	-	Maritime Office in Gdynia and data from reports on execution of the national budget (access in 2013) ³⁷
5.3	Protection of habitats	-	-	-	Maritime Institute in Gdańsk and data from reports on execution of the national budget (access in 2013) ³⁸
6. Maritime monitoring and surveillance					
6.1	Traceability and security of goods supply chains	-5,40	0,73	-2,34	Interviews with public administration and Ministry of Finance reports on execution of the national budget (access in 2013) ³⁹
6.2	Prevent and protect against illegal movement of people and goods	-7,67	-1,20	-4,44	Interviews with representatives of Maritime Office in Gdynia and Ministry of Finance reports on execution of the national budget (access in 2013) ⁴⁰
6.3	Environmental monitoring	11,81	4,12	7,97	Interviews with representatives of Maritime Office in Gdynia and Ministry of Finance reports on execution of the national budget (access in 2013) ⁴¹

4. 7 maritime economic activities with most future potential: indicators for all activities

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 (Environmental)	What impact does the given MEA have on other (including non-maritime) economic activities within the MS?
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	Spill-over effects	Sustainability	Overall score

³⁷ <http://www.mf.gov.pl/ministerstwo-finansow/dzialalnosc/finanse-publiczne/budzet-panstwa/wykonanie-budzetu-panstwa/sprawozdanie-z-wykonania-budzetu-panstwa-roczne>

³⁸ <http://www.mf.gov.pl/ministerstwo-finansow/dzialalnosc/finanse-publiczne/budzet-panstwa/wykonanie-budzetu-panstwa/sprawozdanie-z-wykonania-budzetu-panstwa-roczne>

³⁹ <http://www.mf.gov.pl/ministerstwo-finansow/dzialalnosc/finanse-publiczne/budzet-panstwa/wykonanie-budzetu-panstwa/sprawozdanie-z-wykonania-budzetu-panstwa-roczne>

⁴⁰ <http://www.mf.gov.pl/ministerstwo-finansow/dzialalnosc/finanse-publiczne/budzet-panstwa/wykonanie-budzetu-panstwa/sprawozdanie-z-wykonania-budzetu-panstwa-roczne>

⁴¹ <http://www.mf.gov.pl/ministerstwo-finansow/dzialalnosc/finanse-publiczne/budzet-panstwa/wykonanie-budzetu-panstwa/sprawozdanie-z-wykonania-budzetu-panstwa-roczne>

0. Other sectors	0.1 Shipbuilding (excl. leisure boats) and ship repair	+	+	+	+	+	0	++++
	0.2 Water projects	?	?	+	+	?	+	+++
1. Maritime transport	1.1 Deep-sea shipping	0	0	0	0	0	+	0
	1.2 Short-sea shipping (incl. Ro-Ro)	0	+	+	+	0	+	++
	1.3 Passenger ferry services	0	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	?	++
	2.2 Fish for animal feeding	-	-	-	+	-	-	0
	2.3 Marine aquaculture	+	+	?	+	+	+	++++
	2.4 Blue Biotechnology	+	?	?	+	+	+	++++
	2.5 Agriculture on saline soils	0	0	-	+	0	0	0
3. Energy and raw materials	3.1 Offshore oil and gas	+	+	+	+	+	?	++++
	3.2 Offshore wind	+	+	+	+	+	+	+++++
	3.3 Ocean renewable energy (wave, tidal, OTEC, thermal, biofuels, etc.)	+	0	?	+	?	+	++
	3.4 Carbon capture and storage	+	0	?	+	+	+	+++
	3.5 Aggregates mining (sand, gravel, etc.)	0	+	0	+	0	-	0
	3.6 Marine minerals mining	+	+	0	+	+	0	++
	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	+	+	+	+	+	+	+++++
	4.3 Cruise tourism	+	+	+	0	?	0	+
5. Coastal protection	5.1 – 5.2 Coastal protection	+	+	0	+	?	+	+++
	5.3 Protection of habitats	+	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	?	?	0
	6.3 Environmental monitoring	+	+	+	+	?	+	++++

5. Maritime strategies

Title of the official document	Level	Responsible body	Maritime strategy concerned	Kind of strategy document / Publishing date	URL
The Maritime Policy of Poland until 2020	National	Ministry of Transport, Construction and Maritime Economy	Exploring benefits out of sea resources and coastal location of the country. All maritime sectors are concerned but the key goal is shipping and port development. The policy also covers such sectors as: maritime research and education, fishery, environmental protection and offshore energy, minerals extraction and coastal tourism.	Cross-sectoral policy guiding document expressing key objectives and directions [draft]	http://www.transport.gov.pl/files/0/1795575/MTBiGM-2012STRATEGIAZacznikNr1bdoSIWZzzaz11092012.pdf
Polish Energy Policy until 2030	National	Ministry of Economy (adopted by government)	Improvement of energy efficiency, lowering dependency on energy import, mitigating negative environmental impact of the sector, and promoting transition from fossil fuels to renewable energy sources	Sectoral policy guiding document expressing key objectives and directions [10 Nov 2009]	http://www.mg.gov.pl/files/upload/8134/Polityka%20energetyczna%20ost.pdf
Directions of	National	Ministry of	Development of	Sectoral policy guiding	http://www.google.pl/url?

Tourism Development until 2015		Sport and Tourism (adopted by government)	sustainable and competitive tourism sector in Poland	document expressing key objectives priorities and measures [26 Sept2008]	sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CCwQFjAA&url=http%3A%2F%2Fwww.pot.gov.pl%2Findex.php%3Foption%3Dcom_rubberdoc%26view%3Ddoc%26id%3D1588%26format%3Draw&ei=rO3vUdGCCs35sgbboYFI&usg=AFQjCNGESBVU9r1X1Aw4Vyx1tdumWAhtSQ&sig2=Yfhx_2O06lWRBqpmY4yRA&bv m=bv.49641647,d.Yms
Strategy of Development of Fishery 2007-2013	National	Ministry of Agriculture and Rural Development (adopted by government)	Development and strengthening of the fishery, aquaculture, as well as regions dependent on fishery, establishing balance between protection and utilisation of the living marine resources	Sectoral policy guiding document expressing key objectives and priorities [29 May 2007]	http://www.cie.gov.pl/HL/P%5Cfiles.nsf/0/56B7F386BFBDA1FBC1257421004AB4C0/\$file/Strategia_Rozwoju_Rybolowstwa_2007_2013.pdf
Strategy for Socio-economic Development of Warmia-Mazury Region	Regional	Marshal Office of the President of the Region (adopted by the Regional Assembly)	Socio-economic sustainable development of the Warmia-Mazury Region. Tourism and yachting industry among development vehicles.	Cross-sectoral policy guiding document expressing strategic objectives, areas of strategic interventions and smart specialisation [25 June 2013]	http://strategia2025.warmia.mazury.pl/
Strategy for Development of Tourism in Warmia Mazury Voivodship	Regional	Marshal Office of the President of the Region (adopted by the Regional Assembly)	Development of sustainable and competitive tourism sector in the Warmia-Mazury Region	Sectoral policy guiding document expressing strategic objectives and tasks [28 Sept 2010]	http://www.google.pl/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CCwQFjAA&url=http%3A%2F%2Fzarabiajnaturystyce.pl%2Findex.php%3Foption%3Dcom_rubberdoc%26view%3Ddoc%26id%3D268%26format%3Draw&ei=E-7vUfvsB4KJtQa_yoCwBQ&usg=AFQjCNFurUyx43RQqu7FDQQJZx1FyC8M6g&sig2=xVOp-SB8rDN_z_fwf2xtHg&bv m=bv.49641647,d.Yms
Regional innovation Strategy in Warmia Mazury Voivodship for 2011-2020	Regional	Marshal Office of the President of the Region (adopted by the Regional Assembly)	Transforming economy of the Warmia-Mazury Region into more innovative one (focus on creative industries, human capital and high value added products among others in the tourism sector)	Cross-sectoral policy guiding document expressing strategic and operational objectives [28 Sept 2010]	https://portal.cor.europa.eu/europe2020/Contributions%20SME/3641_RIS_Warmia_Mazury_PL.pdf
Strategy for Development of the West Pomerania Region till 2020	Regional	Marshal Office of the President of the Region (adopted by the Regional Assembly)	Socio-economic sustainable development of the West Pomerania Region	Cross-sectoral policy guiding document expressing strategic and operational objectives and measures [22 June 2010]	http://www.bip.wzp.pl/attachments/25816_Strategia%20Rozwoju%20Woje w%3B3dzta%20Zachodniopomorskiego--1.pdf
Regional innovation Strategy in the West Pomerania Voivodship in the period 2011-2020	Regional	Marshal Office of the President of the Region (adopted by the Regional Assembly)	Transforming economy of the West Pomerania Region into more innovative one (focus on fostering creativity, diffusion and absorption of innovations and better exploitation of endogenous potential)	Cross-sectoral policy guiding document expressing strategic and operational objectives and directions [22 March 2011]	http://www.rsi.org.pl/dane/download/rsi_wersja_ostateczna_2011.pdf

			of the region among other related to renewable energy and tourism)		
Strategy for Development of the Maritime Economy of the West Pomerania Voivodship until 2015	Regional	Marshal Office of the President of the Region (adopted by the Regional Assembly)	Development of the Maritime Economy of the West Pomerania .	Cross-sectoral policy guiding document expressing strategic objectives and tasks [23 Oct 2006, 5 Oct 2007 amended, 6 Dec 2010]	http://www.mea.szczecin.pl/klaster/Strategia%20Rozwoju%20do%202015.pdf
Strategy for Development of Tourism in the West Pomerania Voivodship until 2015	Regional	Marshal Office of the President of the Region (adopted by the Regional Assembly)	Development of sustainable and competitive tourism sector in the West Pomerania Region	Sectoral policy guiding document expressing priority areas, operational goals and measures [14 Sept 2010]	http://www.google.pl/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CC8QFjAA&url=http%3A%2F%2Fwww.zrot.pl%2Fdownload%2Fdownload.php%3Fplik%3Dstrategia2015%2FStartegia_do_2015.pdf&ei=p_vUejLO835sgbboYFI&usq=AFQjCNFy-UFVhZ5e4Hc4Kj2oQxadw3_OSQ&sig2=mixVE2cbXut47dwQkSWOhQ&bv m=bv.49641647,d.Yms
The Strategy for Development of the Pomerania Region 2020	Regional	Marshal Office of the President of the Region (adopted by the Regional Assembly)	Socio-economic sustainable development of the Pomerania Region	Cross-sectoral policy guiding document expressing strategic and operational objectives and directions of intervention [24 Sept 2012]	http://strategia2020.pomorskie.eu/pl/aktualizacja_strategii
Regional Strategy of Development of the energy sector in the Pomerania region 2007-2025	Regional	Marshal Office of the President of the Region (adopted by the Regional Assembly)	Development of the energy sector in the Pomerania Region paying attention to renewable energy and security of energy supply.	Sectoral policy guiding document expressing priorities, strategic and operational objectives and directions for strategic development [23 Oct 2006]	http://www.pomorskie.eu/pl/drg/energetyka/regionalna_strategia_energetyki
Strategy for Development of Tourism in the Pomorskie Voivodship for 2004-2013	Regional	Marshal Office of the President of the Region (adopted by the Regional Assembly)	Development of sustainable and competitive tourism sector in the Pomerania Region .	Sectoral policy guiding document expressing priorities, principles, strategic objectives and tasks [17 May 2004]	http://urzad.pomorskie.eu/pl/dokumenty_strategiczne/strategia_rozwoju_turystyki
Regional Innovation Strategy in the Pomorskie Voivodship	Regional	Marshal Office of the President of the Region (adopted by the Regional Assembly)	Transforming economy of the Pomerania Region into more innovative one. Connection to the Maritime Strategy via list of preferred research topics including shipbuilding, protection of Baltic environment and renewable energy	Cross-sectoral policy guiding document expressing strategic and detailed objectives, priorities and measures [22 Dec. 2004]	http://innopomorze.pomorskie.eu/regionalna-strategia-innowacji/regionalna-strategia-innowacji.html
Baltic Sea Region Programme 2007-2013	Baltic	Investitionsbank Schleswig-Holstein as managing authority	Improving the management of Baltic Sea resources in order to achieve a better environmental state.	EU funding programme [21 Dec 2007]	http://eu.baltic.net/Programme_document.98.html?
South Baltic Co-operation Programme 2007 - 2013	Baltic	Ministry of Regional Development in Poland as managing authority	Promotion of sustainable use and management of the sea resources and environment as well as natural and cultural heritage for regional development, enhancement of renewable energy	EU funding programme [20 Dec 2007]	www.southbaltic.eu

