



Studies to support the development of sea basin cooperation in the Mediterranean, Adriatic and Ionian, and Black Sea



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0. General overview

Morphological structure of the coastline

Malta is essentially a pure maritime nation. It has a total land area of only 315,6 km², with a total coastline length of 259 km. There are three main landmasses, Malta (248,6 km² and 196,8 km of coastline), Gozo (67 km² and 56 km of coastline) and Comino (3,5 km²). Malta and Gozo & Comino make up the two NUTS 3 level areas. For the purpose of this study the Maltese archipelago (hereafter called Malta) is considered entirely coastal. Malta's territorial seas extend to 12 nautical miles (nm) offshore, and their exclusive fishing zone 25 nm. This fishing zone has an area of 2.384 km².

The terrestrial part of Malta mainly consists of low, rocky, flat to dissected plains with many coastal cliffs. The highest point Ta'Dmejrek near Dingli is 253 m above the Mediterranean Sea. Arable land makes up around 28% of the total land area. Malta Island is particularly well developed, with much of the SE and SW heavily urbanised.

Population and related social condition for maritime areas

Malta – one of the smallest economy in the euro zone - produces only about 20% of its food needs, has limited fresh water supplies, and has few domestic energy sources. Malta's geographic position between Europe and North Africa also makes it a target for irregular migration, which has strained Malta's political and economic resources.

Malta's population in 2010 was 414.372 persons, with a compounded annual growth rate of 0,63%. Malta's fertility rate is below the EU average (the number of person <15 years of age as dropped by nearly 2% annually since 2002), and population growth in recent years has largely been from immigration, putting increasing pressure on the pension system (the proportion of those over 65 years of age has grown by nearly 3% annually, a pattern similar across both Malta and Gozo & Comino). The number of people of working age (16-64 was 266.735 in Malta and 21.803 in Gozo & Comino in 2010. This has grown slightly in Malta (0,29% annually) but markedly declined (1,1% per annum) in Gozo & Comino. Unemployment has increased by around 2% annually over 2007 – 2010 and in 2011 stood at 11.6 thousand persons. This represents an unemployment rate of around 4%, much lower than the EU-27 level of around 36%.

Economic role of maritime areas over the national total

NACE Sector	GVA (mio EUR)	Employment (in 1000 persons)
Malta island		
Agriculture, forestry and fishing	82	3,4
Industry (except construction)	806	24,3
Wholesale and retail trade; transport; accommodation and food service activities; information and communication	1.373	55,5
Public administration and defence	----	48,3
Other	2.944	34,0
Sub-total	5.205	165,5
Gozo & Comino		
Agriculture, forestry and fishing	14	0,6
Industry (except construction)	32	1,3
Wholesale and retail trade; transport; accommodation and food service activities; information and communication	75	3,4
Public administration and defence	----	3,1
Other	170	2,0
Sub-total	291	10,4
Total NACE for all Malta	5.496	176

Malta's economy is dependent on foreign trade, manufacturing, and tourism. Malta's financial services industry has grown in recent years and it has avoided contagion from the European financial crisis. The country reduced its deficit below 3% of GDP, leading the EU to dismiss its official excessive deficit procedure against Malta in 2012.

In broad terms, primary industries (e.g., agriculture, fishing and forestry) account for around 2% of GVA and employment on Malta, but primary industries are considerably more important (5% GVA and 6% employment) on Gozo and Comino. Wholesale/retail trade, transport, accommodation and food service (all aggregated in Malta's EUROSTAT entries) area equally important in each NUTS area, accounting for around 1/3 of employment. Public administration and defence is also a major employer, accounting for around 30% of employment.

As mentioned above, all of Malta can be considered as a maritime area. The total GVA for both Malta Island and Gozo & Comino are shown in the table above. The importance of whole/retail trade, transport, accommodation and food service shows the importance of tourism to Malta, both in terms of GVA and employment terms. Primary industries like agriculture, forestry and fishing are relatively minor in both economic and livelihood terms. The public sector, including defence, is also a major employer but obviously does not contribute in terms of GVA.

1. Marine and maritime activities

In this section a snapshot of preliminary overview of the main socio-economic aspects related to maritime activities of the country is provided. More in detail, **each of the 29 marine and maritime activities at NUTS 0 level** are analysed and described, as listed in the Blue Growth study and updated according to the NACE rev. 2 classification.

Table 1 - Indicators of relevant marine and maritime activities in Malta

Function/activity	GVA (EUR, billion)	Employment (*1000)	Number of enterprises	Further indicators	Source & Reference year	
0. Other sectors						
0.1	Shipbuilding and ship repair	0,080	1,319	n.a.	----	NSO (2010)
0.2	Water projects	----	----	n.a.	----	----
1. Maritime transport						
1.1	Deep-sea shipping	0,013	0,047	n.a.	25% of goods	NSO (2010)
1.2	Short-sea shipping (incl. Ro-Ro)	0,040	0,492	n.a.	75% of goods	NSO (2010)
1.3	Passenger ferry services	0,150	3,523	n.a.	----	NSO (2010)
1.4	Inland waterway transport	0,000	0,000	0	----	n.a.
2. Food, nutrition, health and eco-system services						
2.1	Fishing for human consumption	0,008	0,771	553	----	NSO (2013) Poseidon (2012)
2.2	Fishing for animal feeding	0,000	0,000	0	n.a.	n.a.
2.3	Marine aquaculture	0,012	0,173	14	----	STECF (2010)
2.4	Blue biotechnology	0,000	0,000	0	n.a.	n.a.
2.5	Agriculture on saline soils	0,000	0,000	0	n.a.	n.a.
3. Energy and raw materials						
3.1	Offshore oil and gas	0,000	0,000	0	n.a.	n.a.
3.2	Offshore wind	0,000	0,000	0	n.a.	n.a.
3.3	Ocean renewable energy	0,000	0,000	0	n.a.	n.a.
3.4	Carbon capture and storage	0,000	0,000	0	n.a.	n.a.
3.5	Aggregates mining (sand, gravel, etc.)	0,000	0,000	0	----	n.a.
3.6	Marine minerals mining	0,000	0,000	0	n.a.	n.a.
3.7	Securing fresh water supply (desalination)	0,053	0,900	1	----	WSC (2010)
4. Leisure, working and living						
4.1	Coastal tourism	0,273	14,025	2.484	----	NSO (2010)
4.2	Yachting and marinas	n.a.	0.5	6	----	----
4.3	Cruise tourism	See 4.1	See 4.1	----	----	----
5. Coastal protection						
5.1	Protection against flooding and erosion	0,001	0,070	1	----	COFOG (2010)
5.2	Preventing salt water intrusion	----	0,016	1	----	MEPA (2010)
5.3	Protection of habitats	0,016	0,115	1	----	EUROSTAT (2010)
6. Maritime monitoring and surveillance						
6.1	Traceability and security of goods supply chains	0,008	1,764	1	Armed forces of Malta	NSO (2010)
6.2	Prevent and protect against illegal movement of people and goods	0,014	0,399	1	Customs	NSO (2010)
6.3	Environmental monitoring	0,001	0,095	1	----	MEPA (2010)

The section overleaf adds qualitative information to provide a snapshot of each sub-function and trends over the past few years. More in detail, it is an overview based on data (gathered in previous step) and is presented as per the table overleaf.

Table 2 - Overview of relevant marine and maritime activities in Malta

Function/activity		Activity overview	Socio economic indicators	Source & Reference year
0. Other sectors				
0.1	Shipbuilding and ship repair	A major industry (mainly repairs rather than building) supporting a large Malta-flagged fleet	No official data as is confidential, but over 1.300 persons (static).	NSO (2010)
0.2	Water projects	None of significance	n.a.	n.a.
1. Maritime transport				
1.1	Deep-sea shipping	Historical maritime heritage, benefiting from a free port, bunkering and a cruise terminal.	No official data as is confidential. Estimated to employ 47 persons, so a minor employer (static).	NSO (2013)
1.2	Short-sea shipping (inc. Ro-Ro)	Inter-island and regional freight services within Malta and to Italy.	Employs around 500 persons (increasing).	NSO (2013)
1.3	Passenger ferry services	Major activity, with routes Malta to Gozo and Malta to Sicily.	Employs around 3.500 persons (increasing).	NSO (2013)
1.4	Inland waterway transport	None undertaken in Malta	n.a.	n.a.
2. Food, nutrition, health and eco-system services				
2.1	Fishing for human consumption	Dominated by tuna and swordfish landings. Mainly artisanal, with little industrial activity. Virtually no processing.	Small-scale fishers. Around 771 FTE (462 F/T & 739 P/T), 95% men and 83% on Malta island. 2/3 self-employed (static).	NSO (2012); Poseidon & EMCS (2012)
2.2	Fishing for animal feeding	No fishing for animal feed is undertaken in Malta. Maltese fish processing is limited and small-scale, focusing on penned tuna products and aquaculture output.	n.a. Of the 7 processors, 6 employ <11 persons, 95% male.	2008 (STECF, 2010)
2.3	Marine aquaculture	Mainly based on sea bass and sea bream farming, but also includes significant tuna penning operations	Employs 161 (FTE) persons (152 men and 9 women).	2010 (JRC)
2.4	Blue biotechnology	None undertaken in Malta	n.a.	n.a.
2.5	Agriculture on saline soils	None undertaken in Malta	n.a.	n.a.
3. Energy and raw materials				
3.1	Offshore oil and gas	None undertaken in Malta	n.a.	n.a.
3.2	Offshore wind	None undertaken in Malta	n.a.	n.a.
3.3	Ocean renewable energy	None undertaken in Malta	n.a.	n.a.
3.4	Carbon capture and storage	None undertaken in Malta	n.a.	n.a.
3.5	Aggregates mining (sand, gravel, etc.)	No marine aggregates, only inland coastal (28 hard limestone quarries yielded 2 million tonnes of crushed aggregates; 66 soft stone quarries produce 300.000 tonnes of building blocks for domestic construction)	No marine aggregates mining	Entec (2003) NSO (2013)
3.6	Marine minerals mining	None undertaken in Malta	n.a.	n.a.
3.7	Securing fresh water supply (desalination)	3 reverse osmosis plants in Lapsi (25%), Cirkewwa (15%) and Pembroke (60%) producing 16.9 m ³ per annum	Operated by the public Water Services Commission (WSC), employing 900 persons	WSC (2007) WSC (2012) NSO (2013)
4. Leisure, working and living				
4.1	Coastal tourism	All tourism is considered as 'coastal' in Malta. 1,44 million tourist departures in 2012 and 12,6 million nights. 47% from UK, 15% Germany and 13% from France. Major competitor is Spain.	Major, seasonal employer, with base level 14.000 jobs rising to 40.000 in peak season. Generated €1,34 billion in 2012.	MTA (2013)a
4.2	Yachting and marinas	6 marinas mainly clustered around Valletta (5), as well as Mgarr (1) in Gozo. Provides 2.213 moorings (mostly 18-22 m, but some up to 100m length).	Direct employment estimated to be around 500 FTE but has considerable multiplier effect.	
4.3	Cruise tourism	Malta accounted for 1% of EU cruise turnover. 562.812 transit (92%) / landed (8%) passengers over 2012.	No estimates are available of FTE, but will be included in 'coastal tourism' above.	Giordimaina (2008)
5. Coastal protection				
5.1	Protection against flooding and erosion	Erosion not a major issue, as only 2,5% of coast is sandy. Flood risk mainly from flash floods in urbanised coastal towns. MEPA working on EU funded National Storm Water Project.	€71 million set aside for preparation and infrastructural works of the Storm Water Management Project (€56 from EU).	EU (2009)

Function/activity		Activity overview	Socio economic indicators	Source & Reference year
5.2	Preventing salt water intrusion	Saline intrusion is a major issue in Malta, with potential impact on Maltese agriculture. Is being approached through improved irrigation techniques and water pricing. Water supply supplemented through desalination (see 3.7)	No indicators are available.	----
5.3	Protection of habitats	Habitat protection is under the aegis of MEPA. Includes various Interreg & EAFRD projects. Mainly via EU funding.	MEPA employ 420 personnel	MEPA website (www.mepa.org.mt)
6. Maritime monitoring and surveillance				
6.1	Traceability and security of goods supply chains	Armed Forces of Malta (AFM) Maritime Squadron responsible for maritime surveillance, maritime law enforcement, and also responsible to execute search and rescue operations at sea. Sea-borne assets include 1 x 54m Offshore Patrol Vessel, 2 x 26m Coastal Patrol Boats, 4 x 21m Inshore Patrol Boats (referred to in the study), 2 x Search and Rescue Launches and 6 Fast Response Craft.	AFM have a staff of 1.764 FTE with a staffing cost of €33 million, an operational expenditure of €46 million and a capital expenditure of €13,5 million. No breakdown of maritime vs non-maritime allocations is available.	NSO (2013)
6.2	Prevent and protect against illegal movement of people and goods	AFM and Malta Customs Department (Director Enforcement).	Malta Customs have a staff of 399 FTE with a staffing cost of €8 million, an operational expenditure of €1 million and a capital expenditure of €8,5 million. No breakdown of maritime vs non-maritime allocations is available.	NSO (2013)
6.3	Environmental monitoring	Environmental monitoring is under the aegis of MEPA. Includes various Interreg & EAFRD projects. Mainly via EU funding.	€4,9 million project focuses on improving environmental monitoring capacity in air, water, radiation, noise and soil, co-financed by the European Regional Development Fund, MEPA and the national government. No breakdown of maritime vs non-maritime allocations is available.	MEPA website (www.mepa.org.mt)

2. Breakdown of marine and maritime activities at regional level (NUTS 2) and selection of most relevant regions

As Malta Island and the smaller Gozo & Comino Islands are considered the same at NUTS 1 and 2 levels, no further regional analysis has been considered e.g., at NUTS 3 level (where (i) Malta Island, and (ii) Gozo & Comino are considered separately). This study therefore assesses blue growth potential for all of the Maltese islands (Malta, Gozo and Comino) as a single unit, reflecting their aggregation at NUTS 1 and 2 levels.

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

The following sections are developed in line with the methodology of the Blue Growth study, as requested by DG MARE. A list in ranking order of the 7 largest, 7 fastest growing and 7 with most future potential marine and maritime activities at NUTS 0 level is provided.

3.1 Ranking order of the 7 largest marine and maritime activities

The largest maritime activities have been ranked according to their combined GVA and employment levels. As with the Blue Growth Study, greater emphasis is given to the employment levels (Table 3). The detailed scores for all 29 indicators are provided in the Annex.

Table 3 - Ranking order of the 7 largest marine and maritime activities in Malta

Rank	Marine and maritime activities	GVA (billion EUR)	Employment (*1000)	Score
1	Coastal tourism	0,273	14,025	8,378
2	Passenger ferry services	0,150	3,523	2,512
3	Shipbuilding and ship repair	0,080	1,319	1,060
4	Traceability and security of good supply chains	0,008	1,764	0,922
5	Securing fresh water supply (desalination)	0,053	0,9	0,715
6	Short-sea shipping (incl. Ro-Ro)	0,040	0,492	0,446
7	Fishing for human consumption	0,008	0,771	0,426

Note: ranking based upon 2010 data

Coastal tourism

Tourism (which is essentially all coastal in Malta's case) is a key sector of the country's economy, contributing to about 15% of the nation's gross domestic product (GDP). With an estimated GVA of € 0,273 billion and employing around 14 thousand persons, it is by far the largest maritime-related economic sector in the country. Over a 5-year span (2007-2012) tourist departures registered an average annual growth rate of 3,3%. €1,34 billion worth of expenditure was generated by tourism activity in 2012. This represents an increase of 9% or €111 million over year 2011.

Passenger ferry services

Malta's economic growth has both benefited from – and indeed stimulated the growth of – passenger services both within the Maltese island group and with its nearest neighbour to the north, Sicily (and then the Italian mainland). Passenger ferry services are second-ranked as the largest maritime economic activity after coastal tourism. With an estimated GVA of €0,150 billion, passenger ferry services employs around 3 500 persons. This has both eased labour mobility as well as provided an affordable and reliable transport link for both holidaying Maltese, as well as foreign visitors travelling to, from and within Malta. As with short-sea shipping, such mobility has supported both wide blue growth, as well as stimulating growth elsewhere in the economy.

Shipbuilding and ship repair

Malta has historically been an important merchant and naval defence hub in the central Mediterranean, and as a result has developed a service capacity that is way beyond its physical size. As a result it is the fourth largest employer in the maritime sector with around 1 300 jobs and has the third largest GVA contribution of around €0,08 billion.

Traceability and security of good supply chains

With Malta joining the EU in 2004, the dynamics of Maltese – and indeed southern European - maritime security have been fundamentally changed. Malta has responded to this with the active participation of the Armed Forces of Malta (AFM) in combating illegal smuggling activities, as well as a strong IT sector that has developed efficient and cost-effective maritime surveillance mechanisms that have increased good traceability and supply chain security. As a result, maritime surveillance accounts for the third largest level of employment in the maritime sector of around 1 764 jobs (mostly in the AFM) and accounts for the sixth largest GVA at about €0,008 billion.

Securing fresh water supply (desalination)

Malta's groundwater resources are being over-exploited due to widespread unauthorised abstraction, with resultant sea water intrusion. Malta therefore relies heavily on the desalination of sea water for its freshwater supply, despite the high financial and environmental cost due to the imported fossil fuels used to run the desalination plants (in 2007 water production utilised five per cent of the total electricity produced). Desalinated water made up 55 % of water production in 2008. As a result, this MEA accounts for the fifth largest level of employment in the maritime sector of around 900 jobs and accounts for the fourth largest GVA at about €0,053 billion.

Short-sea shipping (incl. Ro-Ro)

As a small island nation, that is highly dependent on short-sea shipping, both within the Maltese island group and with its nearest neighbour to the north, Sicily (and then the Italian mainland). The latter link is particularly important as it is the main trade route to and from the rest of the EU. As a result, this MEA accounts for the seventh largest level of employment in the maritime sector of around 500 jobs and accounts for the fifth largest GVA at about €0,04 billion.

Fishing for human consumption

Sea fishing is the traditional and cultural backbone of coastal communities in Malta. Again with accession to the EU the industry has undergone a number of reforms to ensure it complied with the EU Common Fisheries Policy, but despite the declining stock status of many of Malta's key commercial species (bluefin tuna, swordfish and dolphin fish) the industry has modernised and continues to adapt, albeit slowly, to meet new opportunities afforded by demand for high quality fish products from Maltese residents and visitors alike. It therefore remains the sixth largest level of employment in the maritime sector of around 500 jobs and accounts for the sixth largest GVA at about €0,008 billion.

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

The second ranking approach looks at the fastest growth across GVA and employment (equally weighted). Whilst marine aquaculture and flood protection activities have expanded over the reference period (2008 – 2010), most other functions have grown slowly or in many cases declined. This may be a result of the economic downturn suffered by the EU and elsewhere over 2008 – 2010, which might be expected to have impacted many maritime services. As a result, it is expected that they will recover rapidly as more normal growth is attained as Europe moves out of the recession period.

The overall ranking of fastest growing marine and maritime activities is provided in the table below. A more detailed analysis can be found in the Annex.

Table 4 - Ranking order of the 7 fastest growing marine and maritime activities in Malta

Rank	Marine and maritime activities	GVA (CAGR)	Employment (CAGR)	Score
1	Marine aquaculture	360,86%	-7,23%	176,82
2	Protection against flooding and erosion	216,86%	32,29%	124,57
3	Short-sea shipping (incl. Ro-Ro)	6,69%	2,09%	4,39
4	Shipbuilding and ship repair	0,00%	0,00%	0,00
4	Protection of habitats	0,00%	0,00%	0,00
4	Environmental monitoring	0,00%	0,00%	0,00
7	Fishing for human consumption	-5,33%	5,10%	-0,12

Marine aquaculture

Marine aquaculture in Malta is driven partially by strong demand for high quality fresh fish products, as well as the adoptions of established marine cage farming technologies in Malta's benign coastal waters. The high price of sashimi-grade bluefin tuna has also driven tuna penning operations, although recent quota restrictions have constrained this expansion. The three-fold growth in GVA has not, however, been reflected in employment in this sector as operations have become increasingly automated and efficient, mainly in an effort to compete with the larger-scale aquaculture operations in their northern EU neighbours. Given this consolidation, the signs of improvement in bluefin tuna stocks and the resilience of Malta's tourism industry, marine aquaculture is likely to continue to grow, albeit constrained by spatial restrictions (see next sections).

Protection against flooding and erosion

Like marine aquaculture, expenditure on publically-funded flood protection projects has also risen rapidly, this mainly being the result of the implementation of the EU funded 'National Storm Water Project'. Without this, expenditure would be considerably less. However with the rapid urbanisation of Malta, especially in the SW and SE corners, flood risks are likely to increase unless there is a similar increase in drainage capacity. This situation could also be exacerbated over the longer term by increased heavy rain events caused by climate change. So, whilst it is recognised that growth on GVA over recent years has been driven by one-off Government capital projects, it is likely that there will be the need for future work to alleviate flooding problems in Malta.

Short-sea shipping (incl. Ro-Ro)

As a small island nation, that is highly dependent on short-sea shipping, both within the Maltese island group and with its nearest neighbour to the north, Sicily (and then the Italian mainland). The latter link is particularly important as it is the main trade route to and from the rest of the EU. As such it is a key driver – and potential constraint – to the expansion of many allied blue growth opportunities such as fisheries and aquaculture, and will dictate the pace of economic growth in general given the dependence of goods flows between Italy and the rest of the EU. Compounded annual growth in GVA over the reference period has been a modest 6,69%, with employment rising at a slower 2,09 % per annum.

Shipbuilding and ship repair

Malta has historically been an important merchant and naval hub in the central Mediterranean, and as a result has developed a service capacity that is way beyond its physical size. The Government of Malta is currently working towards establishing a maritime hub in Malta, transforming around 175,000 m² of waterside land into a 'state of the art' maritime hub. This is designed to foster a spectrum of the maritime sector with the participation of various market players and may include a marina including quays and piers; yachting facilities including ship chandelling, conversion and maintenance of yachts; maintenance and operations related to the maritime industry; and innovation facilities to foster marine research and development. This suggests that the static growth over the reference period is unusual, reflecting the poor economic conditions at the time, and that future growth is likely to be more impressive.

Protection of habitats

Malta has long recognised both the special nature of its natural environment and the necessity for its preservation in ensuring the long-term value of its tourism industry. However joining the EU has been a major stimulant in habitat protection, both in strategic and financial terms. Malta has worked rapidly to meet its commitments under the various EU environmental directives, including the Habitats and Birds Directives. This has been matched by spending to establish protected areas and to address waste management issues.

Environmental monitoring

Allied to the protection of habitats, activities and spending on environmental monitoring have been boosted through joining the EU and the meeting of EU requirements for environmental monitoring and enforcement.

Fishing for human consumption

Sea fishing is the traditional and cultural backbone of coastal communities in Malta. However the GVA contributions have actually dropped over the reference period, probably due to rationalisation of the sector in order to conform with the Common Fisheries Policy (CFP), although employment has had a reasonable 5 % growth over the same time. With the reform of the CFP, and the likely recovery of the blue fin tuna stocks, there is some cautious optimism for this sector, although growth is likely to be at a relatively slow rate compared to the other MEAs under consideration here.

3.3 Ranking order of the 9 marine and maritime activities with most future potential

This final third set of ranking is intended to identify the sub-functions which have the most prospective and promising growth potential, where the future investments and projects could focus (Table 5 **Error! Reference source not found.**). According to the Blue Growth study's methodology, a **number of (qualitative) indicators** needs to be used to assess the future potential of activities. These are **combined with a number of key external drivers** which will determine their importance in a long term period:

- **Innovativeness**, (relevance of R&D and innovations);
- Potential for **competitiveness of EU industry**, in comparison to the global industry in the respective segments;
- **Employment creation**;
- Relevance for **EU-based policy initiatives** in that specific activity;
- **Spill-over effects** and **synergies** with other activities;
- **Sustainability and environmental** aspects.

For each activities, scores have been given based on expert views derived from the function and activity analyses conducted within this study.

N.B. The reason we selected nine rather than the standard seven economic activities with the most future potential is that 2 maritime activities were ranked 1st and a further 7 activities 3rd. On this basis, we felt we should include all 1st and 3rd ranked activities in this final analysis. A full ranking of all the maritime activities is given in the Annex.

Table 5 - Ranking order of the 7 marine and maritime activities with most future potential in Malta

Rank	Marine and maritime activities	Score
1	Marine aquaculture	+++++
2	Blue biotechnology	+++++
3	Water projects	++++
4	Fishing for human consumption	++++
5	Offshore wind	++++
6	Ocean renewable energy	++++
7	Coastal tourism	++++
8	Protection of habitats	++++
9	Protection against illegal movements of peoples and goods	++++

Marine aquaculture

- **Innovativeness:** New species and non-food products. **Score assigned: +**
- **Competitiveness:** Not as large-scale as Greece / Italy, but it has niche value / position **Score assigned: 0**
- **Employment:** Potential direct employment in non-urban areas & downstream areas. **Score assigned: +**
- **Policy relevance:** Strong Blue Growth and national policy relevance. **Score assigned: +**
- **Spill-over effects:** Can provide biotechnology materials, and contribute to marine tourism. **Score assigned: +**
- **Sustainability:** Conservation of wild species e.g., BFT, but depends on good EIA regime. **Score assigned: +**

Blue biotechnology

- **Innovativeness:** New technology and products, highly dependent upon R&D. **Score assigned: +**
- **Competitiveness:** No significant competitive advantages or disadvantages. **Score assigned: 0**
- **Employment:** Potential direct employment and downstream employment (R&D, markets, etc.). **Score assigned: +**
- **Policy relevance:** Strong Blue Growth, as well as policy support for innovative industries. **Score assigned: +**
- **Spill-over effects:** New industries e.g., pharmaceuticals, beauty products, etc. **Score assigned: +**
- **Sustainability:** Alternative to traditional raw material extractive industries. **Score assigned: +**

Water projects

- **Innovativeness:** May involve new technology and particular solutions to Malta's geographical conditions. **Score assigned: +**
- **Competitiveness:** No significant competitive advantages or disadvantages. **Score assigned: 0**
- **Employment:** it has high employment multipliers over construction period. **Score assigned: +**
- **Policy relevance:** Strong policy coherence with recycling and resource self-sufficiency. **Score assigned: +**
- **Spill-over effects:** Short-term, so limited new opportunities. But will sustain other industries e.g., tourism. **Score assigned: 0**
- **Sustainability:** Will improve water conservation and reduce inefficiencies. **Score assigned: +**

Fishing for human consumption

- **Innovativeness:** Although new fishing techniques may be introduced, will still be dependent upon traditional static gears. **Score assigned: 0**
- **Competitiveness:** Although may struggle with cheap imported fish e.g., Pangasius, has a strong local market (dolphin fish, swordfish and bluefin tuna). **Score assigned: +**
- **Employment:** A good local rural employer, but unlikely to expand significantly. **Score assigned: 0**
- **Policy relevance:** Traditional rural industry with increasing links to tourism. **Score assigned: +**
- **Spill-over effects:** the activity can boost eco-tourism, marine conservation and support food security. **Score assigned: +**
- **Sustainability:** Use of static and other low impact gears. EMFF will encourage smart, green fisheries. **Score assigned: +**

Offshore wind

- **Innovativeness:** New offshore engineering technologies and introduction of new turbine technologies to Malta. **Score assigned: +**
- **Competitiveness:** May compete with traditional carbon-based fuels, esp. over the longer-term. **Score assigned: +**
- **Employment:** May employ people over construction phase, but otherwise marginal in the long-term. **Score assigned: 0**
- **Policy relevance:** Strong policy coherence with energy policy and reducing dependence on fossil fuels. **Score assigned: +**
- **Spill-over effects:** May provide some new offshore engineering skills, but little significant spill-over into other industries. **Score assigned: 0**
- **Sustainability:** Will reduce dependence on fossil fuels, lower emissions and CO2 production. **Score assigned: +**

Ocean renewable energy

- **Innovativeness:** New offshore engineering and power production technologies. **Score assigned: +**
- **Competitiveness:** May compete with traditional carbon-based fuels, esp. over the longer-term. **Score assigned: +**
- **Employment:** May employ people over construction phase, but otherwise marginal in the long-term. **Score assigned: 0**
- **Policy relevance:** Strong policy coherence with energy policy and reducing dependence on fossil fuels. **Score assigned: +**
- **Spill-over effects:** May provide some new offshore engineering skills, but little significant spill-over into other industries. **Score assigned: 0**
- **Sustainability:** Will reduce dependence on fossil fuels, lower emissions and CO2 production. **Score assigned: +**

Coastal tourism

- **Innovativeness:** No major opportunities for innovation, except new niche, high-end tourism products. **Score assigned: 0**
- **Competitiveness:** English-speaking, friendly with a good southern climate & many cultural attractions. **Score assigned: +**
- **Employment:** Major employer through-out Malta with strong multiplier potential. **Score assigned: +**
- **Policy relevance:** Tourism is a major industry advocated by Maltese Government policy. **Score assigned: +**
- **Spill-over effects:** Will support may downstream and upstream businesses. But can be strongly seasonal. **Score assigned: +**

- **Sustainability:** May occupy finite coastal land, increase energy and other resource consumption. **Score assigned: 0**

Protection of habitats

- **Innovativeness:** Opportunities for innovative conservation approaches. **Score assigned: +**
- **Competitiveness:** No significantly different conservation features to other parts of the Mediterranean. **Score assigned: 0**
- **Employment:** Does not have major incremental employment potential. **Score assigned: 0**
- **Policy relevance:** Environmental conservation is strongly supported by the Maltese Government. **Score assigned: +**
- **Spill-over effects:** Can have strong advantages for tourism, as well as general well-being. **Score assigned: +**
- **Sustainability:** Will increase biodiversity and restrict extractive industries. **Score assigned: +**

Protection against illegal movement of people & goods

- **Innovativeness:** Opportunities for technological solutions to surveillance. **Score assigned: +**
- **Competitiveness:** Malta has a strong IT industry and could specialise in surveillance platforms. **Score assigned: +**
- **Employment:** Does not have major incremental employment potential. **Score assigned: 0**
- **Policy relevance:** IT and maritime security both strongly supported by the Maltese Government. **Score assigned: +**
- **Spill-over effects:** Benefits for the IT sector, as well as private maritime surveillance opportunities. **Score assigned: +**
- **Sustainability:** No significant resource conservation benefits. **Score assigned: 0**

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

Based on assessments developed in previous task (7 largest, 7 fastest growing and 9 activities with most future potential) a final selection of most relevant and promising maritime activities have been determined in order to prepare an overview of growth scenarios.

The following table shows these top activities:

Table 6 - Sets of top-7 activities ranking in order of size/growth/future potential

Top-7 current size	Top-7 recent growth	Top-9 future potential
Coastal tourism	Marine aquaculture	Marine aquaculture
Passenger ferry services	Protection against flooding and erosion	Blue biotechnology
Shipbuilding and ship repair	Short-sea shipping (incl. Ro-Ro)	Water projects
Traceability and security of goods supply chains	Shipbuilding and ship repair	Fishing for human consumption
Securing fresh water supply (desalination)	Protection of habitats	Offshore wind
Short-sea shipping (incl. Ro-Ro)	Environmental monitoring	Ocean renewable energy
Fishing for human consumption	Fishing for human consumption	Coastal tourism
----	----	Protection of habitats
----	----	Protect against illegal movement of people & goods

Based on previous lists of 7-7-9 selected activities and on data sets provided for sub-tasks 1 and 2, the most relevant and promising maritime activities at NUTS-0 level have been determined. As per the common methodology, the activities with the most future potential have been given more emphasis than the largest or those exhibiting the most recent growth. On this basis, we have selected the following four activities for further investigation:

4 most relevant and promising marine and maritime activities
Marine aquaculture
Offshore wind
Coastal tourism
Maritime monitoring and surveillance

Following an internal assessment, only 4 of the 9 most promising maritime activities have been included for the following reasons:

1. The chosen activities (marine aquaculture, offshore wind, coastal tourism & maritime surveillance) showed the most existing and potential growth.
2. Some other key growth areas e.g., water projects, flood prevention & habitat protection were considered mainly public sector activities, and therefore discounted as economic growth opportunities.
3. Others e.g., short-sea shipping, ship building and fishing have shown recent growth, but appeared to be reaching capacity or more limited growth.
4. We have nested biotechnology with marine aquaculture (we consider non-human aquatic products to be of key growth potential in Malta).

4.1 Overview of the 4 most relevant and promising marine and maritime activities

Marine aquaculture

Both aquaculture and blue biotechnology were ranked top (1st) as the activities with most future potential. Aquaculture is also growing very fast, but spatial restrictions suggest that combining intensive aquaculture with high value marine biological products is an optimal compromise.

Offshore wind

Malta has no domestic resource of fossil fuels, no gas distribution network and depends entirely on imported oil. Gross consumption has increased by 53% in 1990-2004.

Coastal tourism

Coastal tourism is the mainstay of the Maltese economy, but still has considerable potential to diversify and expand.

Maritime monitoring and surveillance

Malta is the southernmost country in the EU and is a strategic barrier against immigration from Africa. Without security, marine growth in Malta is vulnerable to external factors.

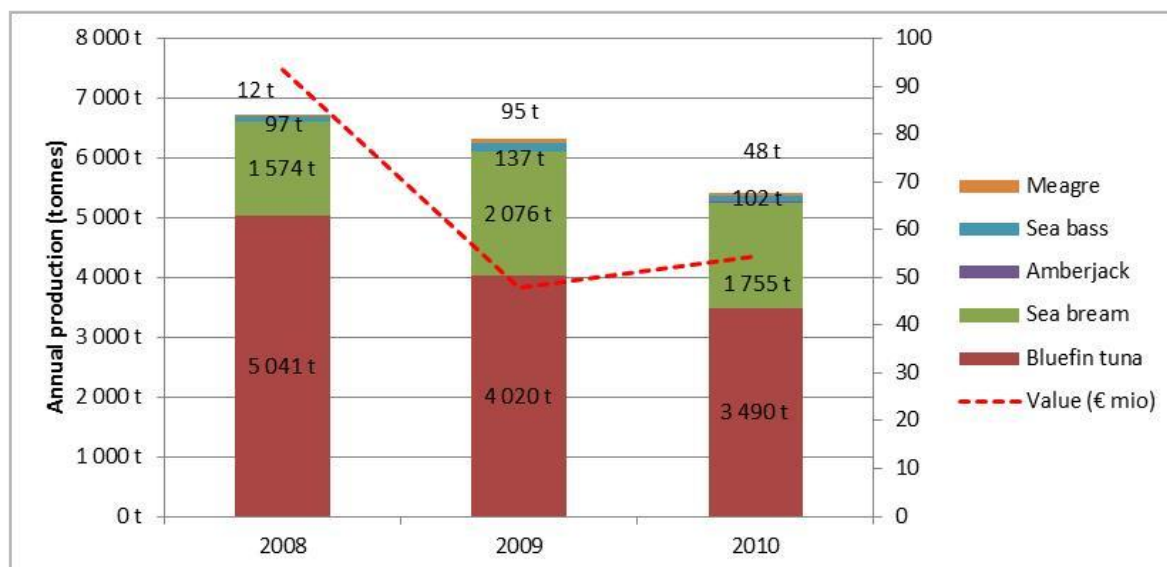
4.2 Description of the nature of each of the 4 marine and maritime activities and their value chains

Marine aquaculture

The aquaculture industry in Malta started in the late 1980s, with culture of marine finfish in offshore cages. Production built up to a maximum of about 2 000 t/year in the late 1990s, but fell to about 1.000 t/year by 2000, with most farms switching to tuna penning operations. In 2010 Malta produced around 3.490 t of bluefin tuna worth some €46 million. Production of sea bream has increased steadily over the last five years and at 955 t in 2010 (worth around €3.8 million) is the mainstay of Maltese farmed fish production. Other species such as sea bass (72 t), amberjack (20 t) and meagre (48 t) are also produced. Maltese aquaculture produce is almost entirely exported to European and Asian markets.

One potential area of aquaculture development is algal culture for high value pharmaceutical products which could feed into a potential 'blue biotechnology' industry in Malta.

Figure 1- Maltese aquaculture production and value (2008 - 2010)



Source: DCF

The value chain differs between closed cycle species (e.g., sea bream, sea bass, amberjack and meagre) and bluefin tuna. With the closed cycle species, fingerlings are purchased from France or elsewhere (Malta does not have a commercial marine hatchery at present) and grown out in sea cages. The harvested produce is then mainly sent to the Italian mainland via Sicily, although there are emerging markets in the rest of the EU and northern Africa. Maltese finfish aquaculture is small-scale compared to Greece, Italy and France. However Malta has established a niche product, with secure domestic and regional markets.

The blue fin tuna penning operation differs. Mature fish are captured at sea using purse seiners before being stocked into cages in Maltese waters for feeding over a six month period. Once ready for market, they are harvested by specialised reefer vessels for deep freezing and sea-transport for the main market in Japan. Malta benefits from ready access to the main blue fin fishing grounds towards Libya, as well as favourable sea water temperatures and good water quality.

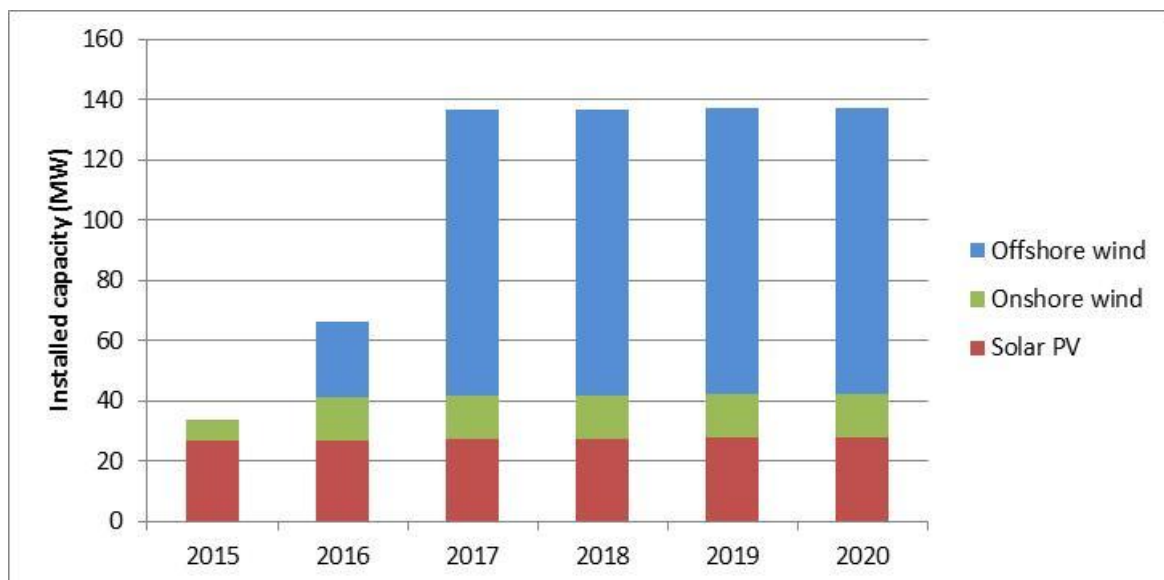
Offshore wind

At present there are no large scale wind farms in Malta, onshore or offshore. However there are a number of strong drivers including:

- According to the European Union Renewables Directive 2009/28/EC (the 20-20-20 Targets for the EU), the binding national overall target for the share of energy from renewable sources in gross final consumption in 2020 for Malta is 10%¹;
- The small land area (316 km²) and the extremely high population density (1.350 people per km²) of the Maltese Islands suggests offshore rather than onshore development;
- A favourable physical and climatic environment for the development of offshore wind farms.

To date, the Maltese Government has planned the development of two small *onshore* wind farms in the 2013-2015 period: the Wied Rini project (10.2 MW) and the Hal Far project (4.2 MW). A large offshore floating wind farm at Sikkal-Bajda, 1.5 km off the coast from L-Ahrax tal-Mellieha (95 MW) has also been proposed which is expected to generate 40% of the Maltese 2020 renewable energy share (MEPA, 2013) but is unlikely to be pursued in the immediate term.

Figure 2 - Estimation of installed capacity (MW) from solar and wind energy (2015 - 2020)



Source: MRRA (2011)

Malta has the ideal basic factors for wind power e.g., a rapidly increasing energy demand and limitations on traditional hydrocarbon –based power generation, good average wind speeds, restricted space on-land for wind power generation and consistency and a favourable policy environment. In addition the policy and

¹ The only renewable energy currently harvested in Malta is photo-voltaic from solar arrays c. 0.01 GW

regulatory instruments e.g., priority for deep offshore wind technologies in depths exceeding 65-70m, including floating wind technologies which may be used in very deep waters exceeding 100m, whilst in their formative stage look positive. However parts of the value chain are missing, such as local expertise in offshore wind farm design and construction, local manufacturing capability and the inter-connector infrastructure. However this is well developed elsewhere in the EU and represents an opportunity for Malta to develop its own capacity. Indeed, should Malta develop a national expertise in offshore wind power delivery, there is potential for exporting both services and expertise to neighbouring North Africa in due course.

Coastal tourism

Tourism in Malta is an important sector of the country's economy, contributing to about 15% of the nation's gross domestic product (GDP). It is overseen by the Malta Tourism Authority, which in turn falls under the responsibility of the Minister for Tourism. Malta features a number of tourism attractions encompassing elements of the island's rich history and medical tourism, as well as aquatic activities associated with the Mediterranean Sea.

Tourism in Malta began to grow beginning in the mid-1960s. During the 1970s, Maltese tourism grew significantly, with numbers growing from 170.800 in 1970 to 705.500 in 1981. From 1981, the figures dropped to approximately 500.000 visitors per year until the late 1980s, when an upward trend began again. In the mid-1990s, figures were as high as 1,2 million tourists per year. The current feature of Malta tourism is shown in the table below and a recent trends analysis is provided in the next section.

Table 7 - Key features of Malta's tourism industry

Feature	Year 2011	Year 2012	Absolute Change 12/11	Percentage change 12/11
Total tourists (incl. overnight cruise pax)	1.425.411	1.454.400	+28.990	+2,0%
Tourist departures	1.414.503	1.443.973	+29.471	+2,1%
Nights spent	11.702.616	12.618.372	+915.755	+7,8%
Average length of stay	8,3 nights	8,7 nights	+0,4 of a night	+4,8%
Expenditure (€000s)	1.233.851	1.344.963	+111.112	+9,0%
Expenditure per capita (€)	872	931	+59	+6,8%

MTA, 2013

The volatility of the Maltese tourism market in the past has been largely due to trends in the preferences of tourists from the United Kingdom, who comprise Malta's largest tourism market. Although Malta's uniform use of English, its traditional ties to the United Kingdom and low-cost travel options have made it an attractive option to British tourists, changing preferences of these tourists can impact Malta's tourism income quite significantly. For example, the increasing preference of British tourists for Spanish destinations during the 1980s was reflected in a drop in Malta's tourism numbers during that period.

Like many Mediterranean islands, Malta has the basic factors to attract tourists – a clear and clean sea, an attractive rugged coastline, a favourable southern climate, an impressive built environmental heritage and is reasonably close to most EU countries. It is especially attractive to UK visitors, who represent 47% of all airport arrivals (MTA, 2013) as English is widely spoken. Transport systems are also good, with a heritage of good urban and transport planning.

Tourism is focused around the world heritage sites of Valletta and Mdina, with around 62% of tourists also travelling to Gozo in the north. In year 2012, 90,5% of total visitors stayed in collective accommodation - 82% staying in hotels while 8,5% utilising 'other collective accommodation'. The majority stayed in 4-star hotels. Around 9% of tourists stayed in private accommodation including self-catering apartments, farmhouses, host families, with friends and relatives or in own private residence.

Visitors mostly book package holidays (52%), with 47% making their own arrangements. Around half of total bookings were done with a tour operator or travel agency. Around 65% of tourists book their trip to Malta or part of their trip online. Online bookings were mostly made for 'non package' type of trips.

Cultural activities were popular with tourists particularly the visiting of historical sites, churches and museums. Other activities engaged in included dining, shopping, walking/hiking and swimming (MTA, 2013).

Maritime monitoring and surveillance

Malta lies at the southernmost border of the EU and is thus in the frontline for regulating the influx of people and goods from North Africa. In 2011, more than 90% of unauthorised border crossings took place at the external borders of only four Member States, namely Spain, Malta, Italy and Greece. Over 9.000 people have landed in Malta over the past five years – this represents 2,5% of Malta's population over just over 400.000. Most asylum seekers who end up in Malta on boats from Libya are trying to go farther north to Italy, where they believe there are job opportunities and where some hope to be granted asylum. Many are hoping to avoid detention and slip over the border toward northern Europe.

Malta is a key participant in a 'European border surveillance system' EUROSUR, a pan-European border surveillance system with three main objectives:

- (i) to reduce the number of irregular migrants entering the EU undetected;
- (ii) to reduce the number of deaths of irregular migrants by saving more lives at sea, and –
- (iii) to increase the internal security of the EU as a whole by contributing to the prevention of cross-border crime.

Malta's position on the southern border of the EU, relatively close to the Tunisian and Libyan border, puts it in the forefront of the battle against illegal immigration. This is exacerbated by basic factors such as Malta's role as a maritime transport hub. Malta has a small, but active and well equipped security capacity through the Armed Forces of Malta. The AFM conducts a wide range of operations in the maritime domain. These include:

- Protection of Malta's maritime claims such as territorial seas and Fisheries Conservation and Management Zone;
- Surveillance and protection of Malta's maritime borders;
- Suppression of illegal activities at sea such as smuggling and trafficking;
- General maritime law enforcement;
- Maritime Safety missions including Search and Rescue (SAR), general boating safety and provision of safety and security information to commercial shipping;
- Port security and protection of sensitive vessels and infrastructure;
- Fisheries protection;

The resources available to the AFM for the conduct of maritime operations include the patrol vessels and small boats operated by Maritime Squadron, the fixed-wing aircraft and helicopters operated by the Air Wing and the Command, Control and Communications facilities operated from the AFM Operations Centre at Luqa. The latter include the Coast Radio Station, the Coastal Vessel Traffic System and the AFM's Integrated Communications System.

In total, some 500 personnel operate in support of the AFM's maritime missions. Supporting national assets are the two AB212 SAR helicopters operated by the Missione Italiana di Collaborazione nel Campo della Difesa (MICCD) and jointly crewed by AFM and Italian Air force personnel.

Malta has a small but progressive IT industry that has growing expertise in the development and supply of marine monitoring and surveillance programmes. For instance, the vessel monitoring system (VMS) used by the Department of Fisheries and Aquaculture was all developed by Loqus Malta.

4.3 Description of economic and infrastructural scenario

The following analysis looks at the economic and infrastructure scenario. This examines the trends over the last five years (2008- 2012) where possible, and potential growth scenarios over the next 10 years.

Marine aquaculture

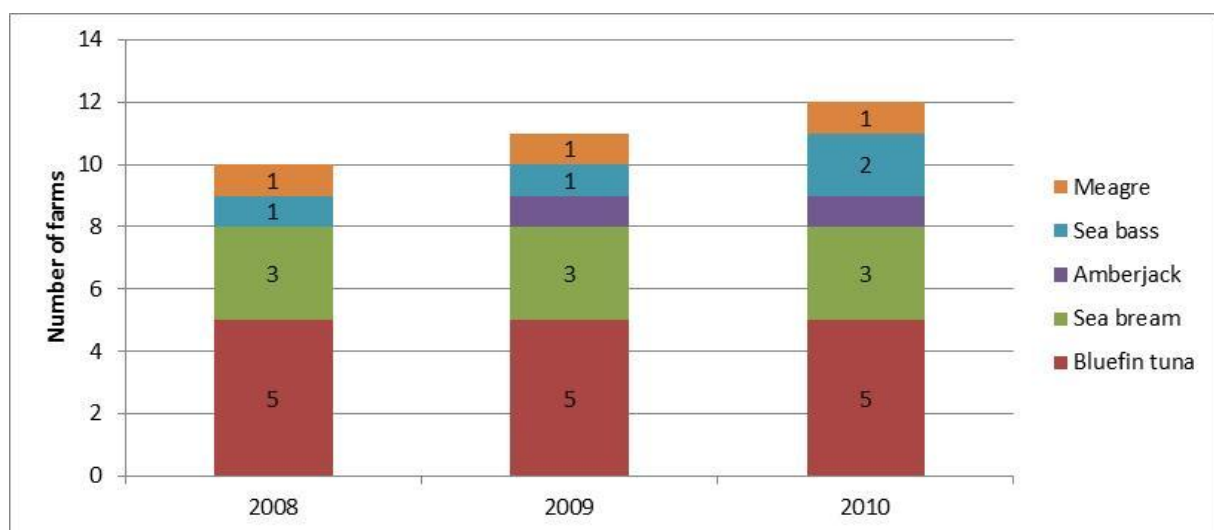
The Maltese aquaculture industry has two sectors: tuna penning, which relies on captured wild fish, and farming of closed cycle species such as sea bream and sea bass, which are cultured from the egg. Production from tuna penning reached a peak of 7.000t in 2007, but fell to less than 1.000t in 2011 due to quota restrictions and reductions in the fishing fleet. At the industry peak, Malta was the largest producer in the Mediterranean, aided by its favourable position on tuna migratory routes and expertise in offshore aquaculture.

In contrast, Malta is only a minor producer of closed cycle species, with production reaching 2.077t in 2009, compared with a regional production of around 250.000t. This sector is dominated by major industries in Greece, Turkey and Spain and is highly cyclical in nature and prone to overproduction (Stirling Aquaculture, 2012).

According to a recent strategy document (Stirling University, 2012). Various potential production capacity forecasts were made, with the most ambitious considering the production of 19.500 t of tuna and 15.000 t of closed cycle species being potentially possible by 2025. Whilst market demand is likely to continue to grow for farmed fish, the main limiting factor for aquaculture in Malta is the availability of sites. Therefore a movement to deeper-water offshore sites is a likely trend.

At present there are only 12 farm sites producing fish in Malta. There are five tuna penning sites, although it is likely that not all will currently be operational due to the limited quota available.

Figure 3 - Number of fish farms in Malta (2008 - 2010)



Source: DCF data

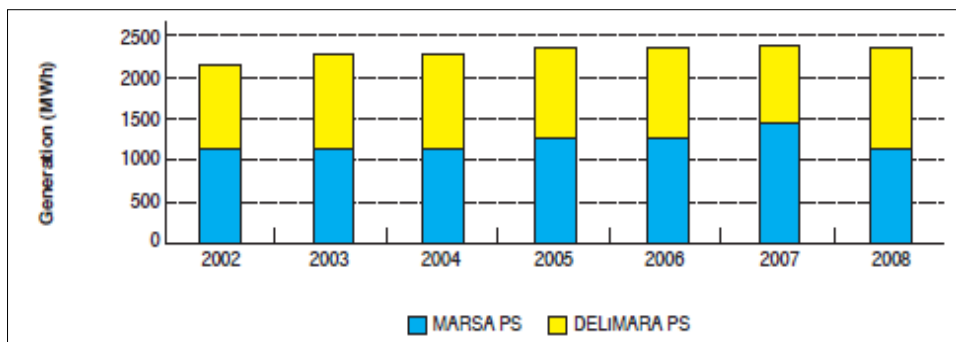
In the past, marine-based cage farming of finfish has been blamed for localised water pollution and eutrophication. This has been recognised by MEPA, who have required more stringent environmental impact assessments and follow-up monitoring since the mid 2000's. Aquaculture has a number of potential environmental benefits, when compared to traditional wild fisheries, including less benthic habitat impacts (compared to bottom trawling), as well as not relying on a finite wild resource.

Although Malta is close to its main market of Italy, it is constrained by lack of sites, lack of vertical integration and poor economies of scale. Competition with other industries will remain intense and limit expansion to what can be achieved through product differentiation. Development of new species is less constrained by immediate competition, but potentially by available resources to develop the market. Other

potential constraints include apparent restrictions on sites for processing and packing plants, and only limited facilities for R&D.

Offshore wind

Figure 4 - Annual electricity generation in Malta



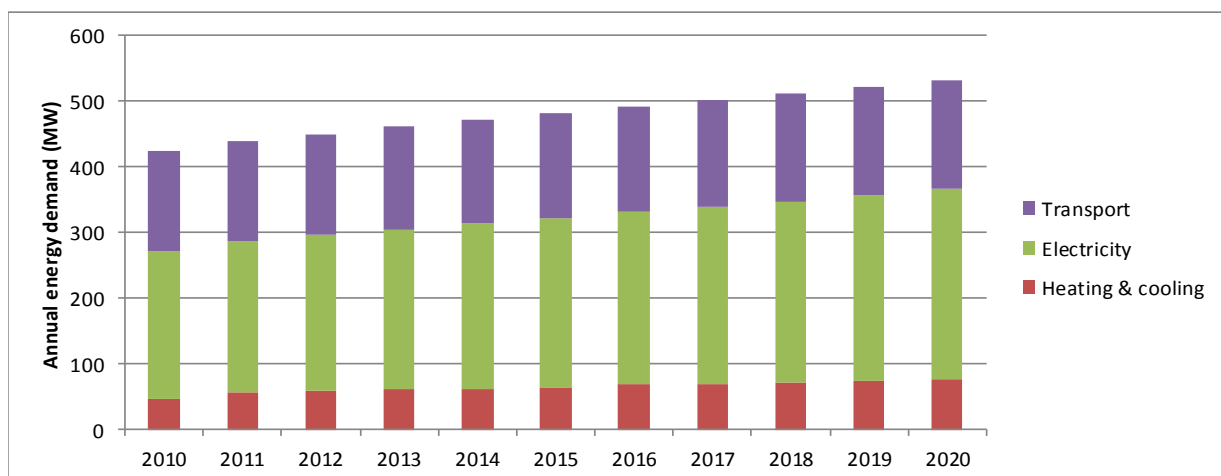
Source: MRR, 2009

Malta’s two electricity plants have a total capacity of 571 MW. This is sufficient for the current energy demand, but with this increasing at 2% p.a. (see figure below) there is an urgent need for additional generating capacity to ensure energy security and allow for future economic growth. It should be noted that in terms of current onshore generating capacity, (i) the older plant (Marsa Power Station) is expected to be closed down when the 220 MW HVAC electricity interconnection with Sicily is completed by Autumn 2014, (ii) Malta intends to implement a connection to the trans-European Natural Gas Network to deliver Natural Gas (NG) to the Maltese final consumer for domestic, commercial and industrial purposes including its potential use for the generation of electrical power; and (iii) Malta is committed to a plan to switch from heavy fuel to natural gas for the generation of electricity at the Delimara Power Station in the shortest possible term. This plan will involve investment by the private sector in a new 200MW Combined Cycle Gas Turbine unit which will be gas-fired. Existing diesel engines at Delimara will also be converted to gas.

The National Renewable Energy Action Plan (NREAP) for Malta was produced in July 2010. Whilst there is a strong policy-driven shift from oil-based power generation to more efficient and less polluting gas turbines, there will still be a reliance on imported fuels, thus conflicting with other aspects of policy.

Figure 5 - Malta’s energy demand forecasts (2010 - 2020)

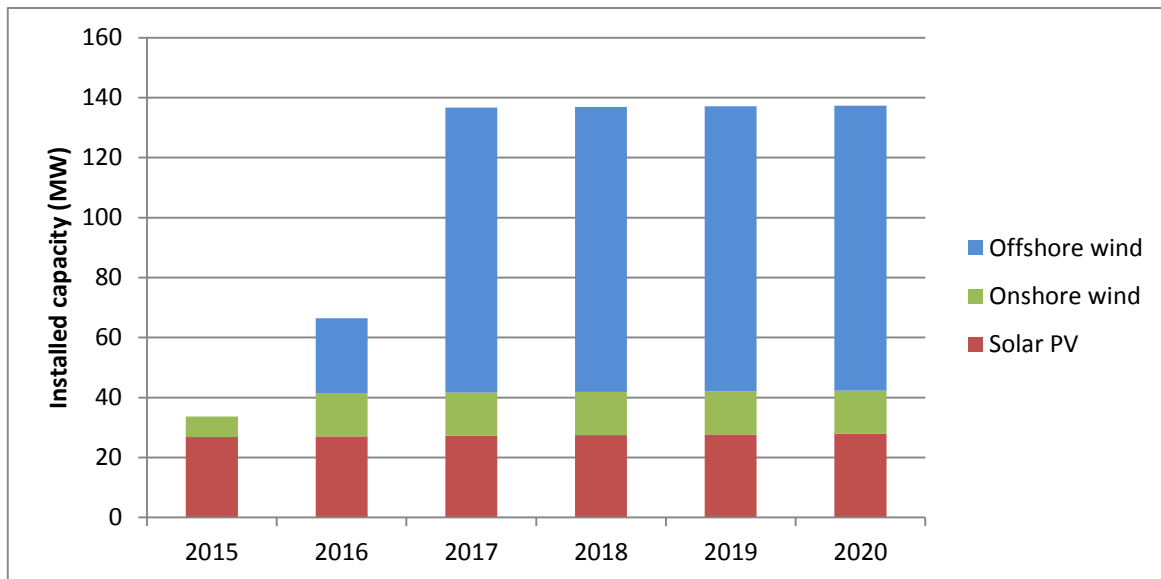
Demand type	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	CAGR
Heating & cooling	46	56	58	60	63	65	68	70	72	74	76	5%
Electricity	226	231	238	245	251	258	264	270	276	283	290	3%
Transport	152	153	154	156	157	159	160	162	163	164	165	1%
Gross energy consumption	424	440	450	461	471	482	492	502	511	521	531	2%



Source: MRR (2011)

According to the national plan, gross electricity generation derived from offshore wind power will increase to 0,3 TWh or 22 ktoe (thousand tonnes oil equivalent) by 2020, with an installed capacity of 95 MW (see below figure).

Figure 6 - Contribution of renewable energy sources to Maltese power generation up to 2020



Source: MRRRA (2011)

Set up in 1977, Enemalta Corporation remains the main provider of energy generation and distribution in the Maltese Islands, incorporating the importation and distribution of petroleum products and the generation and distribution of electricity. In 2005 the Maltese Resources Authority (MRA) carried out various studies on the offshore wind energy potential in order to identify sites at a depth of below 20 m with potential to host large-scale offshore wind farms. The sites that were investigated and examined in detail included: Is-Sikka l-Bajda, Ras il-Griebe, Il-Ponta tal-Qawra, Ghallis Rocks, Marku Shoal, Madliena Shoals, St. George's Shoals, Sikka l-Munxar, Benghajsa Patch and Lamrija Bank (MRA, 2005; Mott Macdonald, 2005). In addition Government also directed the Authority to study a relatively deep water site located north east of Sikka l-Bajda. Extensive consultation with Government departments, entities and authorities was carried out and a review of the impacts identified and reported to Government. In April 2009 the then Ministry for Resources and Rural Affairs (MRRRA) produced a detailed project description statement for an offshore wind farm at Is-Sikka L-Bajda (MRRRA, 2009).

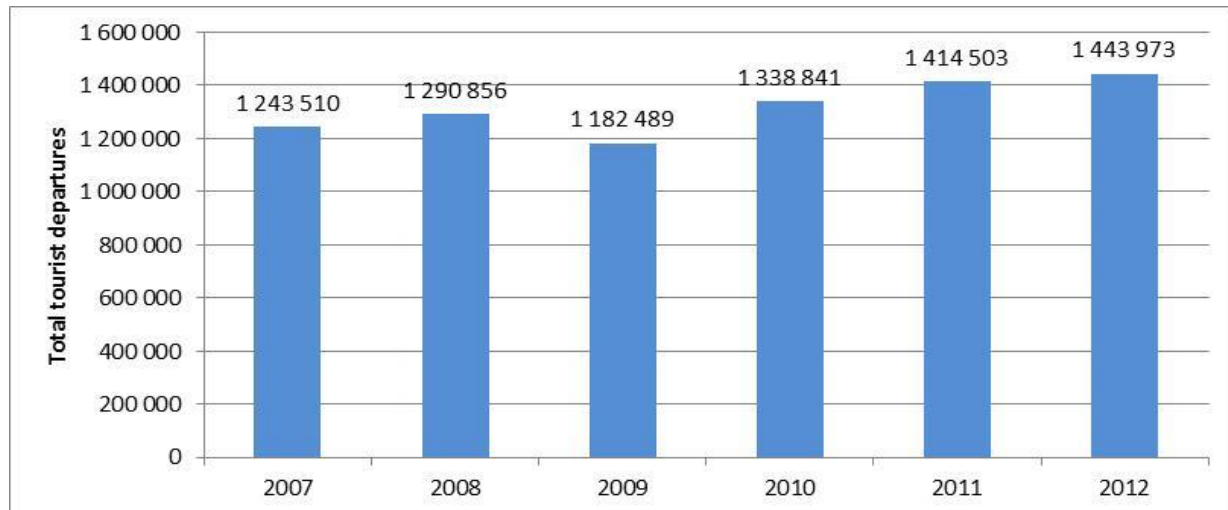
Offshore wind power has considerable 'green credentials', including reducing the consumption of fuel oils on which Malta currently relies, lower CO₂ emissions per kilowatt generated and none of the transport-related costs, emissions and risks associated with importing large quantities of oil. This said, strict EIAs will be required to ensure that turbines construction and positioning does not significantly alter seabed habitats, and that they do not impede the annual migration of birds to and from Africa, nor cause significant bird mortalities due to blade collisions.

Coastal tourism

Over a 5-year span (2007-2012) tourist departures registered an average annual growth rate of 3,3%. €1,34 billion worth of expenditure was generated by tourism activity in 2012. This represents an increase of 9% or €111 million over year 2011.

The bed capacity has remained more or less constant since 1999 at around 45.000, although the proportion of hotel beds has slightly increased at the expense of complexes (see figure below and more detailed figures in the Annex).

Figure 7 - Total tourist departures (2007 - 2012)



MTA, 2013

The current tourism policy is to consolidate tourism activity in the summer months and increase off-peak tourism to Malta. The emerging economies of the so called BRIC countries (Brazil, Russia, India and China) also present a challenging opportunity for growth. Malta has direct connections with Russia, and the market share of Russian tourists is relatively low and the potential exists for establishing Russia as a secondary market. Other key areas for growth include cruise tourism (Malta has just added a second cruise terminal) and eco-tourism opportunities, especially on Gozo.

The current policy for tourism development focuses on the Maltese islands' potential for diving, marine recreation, cruise tourism and inter-island and inter-harbour ferry links. In particular, beach management and the presence of Blue Flag beaches in Malta and Gozo, diving, marine protected areas, yachting, excellent bathing water quality in Malta, the attractiveness of the Grand Harbour all add to the attractiveness of Malta and will allow for country's blue growth in tourism.

At an institutional level, the Malta Tourism Authority (MTA) is the main body involved. The overall number of accommodation establishments has remained fairly constant since 1999, growing only by 0,2% p.a. There has been a general trend towards self-catering accommodation at the expense of complexes and hotels. The number of hostels has increased from 3 in 1999 to 19 in 2012.

Coastal tourism has considerable potential to both harm – and to enhance – the maritime environment. Increased recreational vessel use increases emissions, although the adoption of fuel efficient 4 stroke engines by small craft can counter this. Extending the built environment e.g., hotels, restaurants and marinas has also the potential to cause environmental damage, but is / appropriate assessments for construction in sensitive areas, as well as considered spatial planning can mitigate these. The future focus on higher-end, smaller-footprint tourism also provides opportunities for eco-friendly coastal tourism, which can be supported by independent certification and other market-led green tools.

Employment in the tourist sector has remained fairly static since 2007. Looking at the figures (see table below) in more detail, full-time employment at accommodation establishments has fallen slightly over time, although part-time employment has increased slightly. In comparison, employment in the food service sector has increased substantially for both full-time and part-time positions.

Maritime monitoring and surveillance

In Europe, the largest relative increase in annual asylum levels occurred in the eight Southern European countries which received 66.800 asylum requests during 2011, an 87 per cent increase compared to 2010. This increase is due mainly to boat arrivals in Italy and Malta and to the registration of greater numbers of individual requests for international protection in Turkey (+74%). Malta is only beginning to address immigration and asylum. 2007 and 2008 saw more people arriving on the island than leaving. Most newcomers (65% in 2009) fleeing Somalia, Eritrea and Sudan successfully applied for asylum, although are often called illegal migrants in fierce public debates. Between 2007 and 2011 the two Mediterranean

islands of Malta (and Cyprus) received, on average, the highest number of asylum-seekers compared to their national population: 20.1 and 17.1 applicants per 1.000 inhabitants, respectively. However since March 2009, hardly any even reach Malta—or the continent—following Italy's controversial 'pushback' policy with Libya. More are also leaving as Malta seeks to resettle or relocate them elsewhere. Those who stay are seeing limited integration programmes, often EU funded.

No growth scenarios for maritime surveillance needs in Malta have been made available to the consultants. However, given the deteriorating security situation in much of northern Africa and the Middle East, it is likely that maritime surveillance needs will increase substantially over the foreseeable period.

The lead entity for maritime surveillance in Malta is the Armed Forces of Malta (AFM). The AFM National Coordination Centre (NCC) is co-located with AFM Operations Centre and Malta Rescue Co-ordination Centre (RCC). Maritime Squadron, AFM provides the maritime element of the AFM and operates from HayWharf Base in Floriana. The Squadron has a general responsibility to meet defence and contingent requirements such as maritime surveillance, maritime law enforcement, and also responsible to execute search and rescue operations at sea.

Data inputs for maritime surveillance are also received from (i) military surveillance data, both local and from Mil-Mil exchanges, (ii) Vessel Traffic System (VTS) in support of Transport Malta and the Vessel Management System (VMS) of the Department of Fisheries and Aquaculture.

Maritime surveillance has the potential to improve both environmental monitoring as well as maritime risk management. Remote sensing tools and other manned and unmanned surveillance techniques can be deployed for water quality monitoring and pollution detection. Similarly, maritime surveillance can be used to reduce risk at sea, including vessel collisions, vessel damage from fixed structures and other maritime risks.

4.4 Regulatory environment

Marine aquaculture

Until the election in March 2013, aquaculture fell under the jurisdiction of MRA. Institutional reorganisation has resulted in the formation of a new body, the Department of Fisheries and Aquaculture (DFA). In addition research comes under the Malta Aquaculture Research Centre (MAR). An aquaculture strategy has recently been drafted (Stirling Aquaculture, 2012), and is currently being subjected to a Strategic Environmental Assessment (SEA). Aquaculture is regulated by the Fisheries Conservation and Management Act CAP 425. Aquaculture projects are subject to environmental assessment - the EU EIA Directive was introduced in 1985 and was amended in 1997. It outlines which project categories shall be made subject to an EIA, which procedure shall be followed and the content of the assessment. The EIA Directive is transposed into Maltese national legislation via Legal Notice 114 of 2007: Environmental Impact Assessment Regulations, 2007 Arrangement of Regulations. The Malta Environment and Planning Authority (MEPA) is responsible for reviewing and monitoring EIAs and subsequent environmental performance.

Offshore wind

After obtaining the necessary environmental permits from (MEPA), a developer needs to apply through the energy regulator, the Malta Resources Authority (MRA), for a licence to generate and supply energy. MRA issues authorisations, certificates and licenses and is a member of MEDREG (Mediterranean Regulators). The Florence School of Regulation, which is a subcontractor of MEDREG, provides frequent training in this sector, with staff from MRA participating on several occasions (EU, 2011).

Coastal tourism

The Malta Tourism Authority (MTA) is, stated by Art. 40 of the Malta Travel and Services Act (Chapter 409) responsible for monitoring and reviewing all tourism operations to make sure they are in compliance of this act. This includes accommodation, catering, diving, guiding, timeshare, host families, holiday premises and travel agencies.

Maritime monitoring and surveillance

The Armed Forces of Malta (AFM) are mandated with ensuring the security of Malta. AFM is Malta's military organisation tasked with primary defence functions and safeguarding national sovereignty and interests, both in peacetime and in crises. Malta's military instrument, in the form of the operational capabilities delivered by the AFM, is a major component of the Maltese Island's national defence and security architecture.

The AFM was formed upon Malta becoming a republic in 1974, when 1 Regiment Royal Malta Artillery was renamed as 1 Regiment, AFM. This initially continued the artillery role, with 2 Regiment formed as an engineer's unit. In 1980, 1 Regiment became a mixed unit, with infantry, aircraft and maritime responsibilities, the artillery element being transferred to 2 Regiment. In 1992, there was a major re-organisation, which led to the formation of 3 Regiment and the current structure. The maritime squadron has a wide range of duties, including coast guard, customs, marine police, fisheries protection and search and rescue.

Malta has identified the AFM Operations Centre as the single National Coordination Centre (NCC) which should, amongst others:

- a) provide situational awareness, ensure adequate reaction capability at national level and coordinate all external border control surveillance activities;
- b) establish and update the national situational picture;
- c) Share the national situational picture with neighbouring Member State NCCs and Frontex.

5. Growth drivers and barriers to growth for the 4 most promising marine and maritime activities

Tables below provide an overview of growth drivers and barriers to growth summarising both benchmark and SWOT analysis.

Table 8 - Growth drivers and barriers to growth for Marine aquaculture

MARINE AQUACULTURE	Growth drivers	Barriers to growth
Maritime research	Good R&D facilities on Malta, with well-established and innovative research into new species and systems	----
Development and innovation	Favourable climate 9 months a year, providing excellent water quality and temperatures	High labour opportunity costs and limited flexibility
Access to finance	Current operators not over-burdened by debt	Limited financing opportunities Culture of new species may be considered risky and restricts the access to finance.
Smart infrastructure	----	----
Maritime clusters	----	All feed is currently imported; Most large volume markets are in other EU countries;
Education, training and skills	----	Limited specialised training in aquaculture
Maritime spatial planning	Use of established aquaculture zones to reduce conflict with other sea users	Strong competition for both sea space (grow-out) and coastal land (e.g., hatcheries and processing)
Integrated local development	Good technical knowledge by operators and regulators	----
Public engagement	Established regulatory system	----

Table 9 - Growth drivers and barriers to growth for Offshore wind

OFFSHORE WIND	Growth drivers	Barriers to growth
Maritime research	Suitable marine & physical conditions	Limited local R&D capacity
Development and innovation	Feed in tariff for solar power already exists; Malta's IT sector will assist power management solutions; Malta's maritime engineering capacity concentrated in a small area	Limited wind power and offshore engineering development and innovation
Access to finance	----	----
Smart infrastructure	Willingness to reduce fossil fuel consumption	----
Maritime clusters	----	----
Education, training and skills	----	Limited training and skills in offshore engineering
Maritime spatial planning	----	Busy marine space, conflicts with fishing (esp. lampuki FAD fishing), bunkering and tourism
Integrated local development	----	----
Public engagement	Strong government support	----

Table 10 - Growth drivers and barriers to growth for Coastal tourism

COASTAL TOURISM	Growth drivers	Barriers to growth
Maritime research	Natural attractors, land and seascapes; Benign southern climate;	----
Development and innovation	Strong cultural heritage;	Limited number of sandy beaches
Access to finance	Effective, progressive tourism agency that encourages diversification and investment; Strong banking sector, supportive of Maltese tourism;	----
Smart infrastructure	Good air and road infrastructure;	Malta island is crowded, with limited wilderness and coastal space for expansion; Roads congested, especially in the 3 cities area;
Maritime clusters	----	----
Education, training and skills	Well educated and experienced operators; Well educated, English speaking operators	Limited labour pool, esp. in peak months
Maritime spatial planning	----	----
Integrated local development	Short distance from most EU counties; Coastal tourism central part of local development plans;	Spatial restrictions to expansion of mass tourism; Insufficient shopping experiences; Competition from EU and emerging North Africa states with more beaches and wilderness; Poor urban planning, leading to greater congestion and poorer utility services.
Public engagement	----	----

Table 11 - Growth drivers and barriers to growth for Maritime monitoring and surveillance

MARITIME MONITORING AND SURVEILLANCE	Growth drivers	Barriers to growth
Maritime research	----	Difficult to transfer scientific results to commercialised, operational use
Development and innovation	Malta's strategic location in the Mediterranean on the southern EU border	----
Access to finance	----	----
Smart infrastructure	Potent air and maritime means; platform development	Whilst Malta's IT capacity is considerable, it lacks the sheer size compared to the benchmark case
Maritime clusters	----	Lack of specific clusters for maritime surveillance.
Education, training and skills	Strong expertise in surveillance operations, highly qualified staff, esp. in AFM; Maltese government encourages IT-based innovation and Malta is a recognised centre for training & skills development; Existing IT capability for marine surveillance; Malta a recognised centre for training & skills development.	----
Maritime spatial planning	----	----
Integrated local development	Surveillance products are more in demand due to global rise in maritime security threats	Limited number of organisations and businesses involved in maritime surveillance management.
Public engagement	----	----

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

Whilst not ‘smart specialisation strategies’ *per se*, key relevant policies and strategies relevant to blue growth in Malta are provided in the Annex.

The four key strategies to the most promising blue growth areas in Malta are as follows:

- An aquaculture strategy for Malta (2012)
- Tourism Policy for the Maltese Islands 2012 – 2016 (2011)
- Strategy for Renewable Electricity Exploitation in Malta (2005) & NREAP 2011
- EUROSUR European Border Surveillance System (2008)

The figures at the following pages provide cross check tables linking these four key strategies with the four identified activities and the recognised Blue Growth objectives (Table 12) and the ‘Smart Specialisation Strategies’ (Table 13). A similar exercise is conducted for all the different policies and strategies identified in the Annex. This is provided in the Annex.

These diagrams indicate there is generally good correlation between the current strategies, identified sub-functions and ‘Blue Growth’ objectives. There is a specific strategy for **Maltese aquaculture** that echoes the blue growth objectives of supplementing the human diet, value-adding, reducing dependence on wild stocks and utilising strategic plans. It also correlates across to the blue technology elements of high-added value specialised products, as it has a strong emphasis on non-human cultured products that might provide a basis for blue biotechnology development. Aquaculture connects with virtually all the smart specialisation strategy elements, although lacks a digital agenda and financial engineering instruments.

The current (2012 – 2016) six year **tourism policy** is also strongly correlated with maritime and coastal tourism. There is a strong emphasis on sustainable practises, and developing the attractiveness of coastal areas, especially in Gozo. In terms of the smart specialisation strategies, it addresses most of these, with the possible exception of technology-focused, R&D related activities. In particular, the contribution of tourism to Malta’s financial security and the mechanisms to enable this are highlighted.

The 2005 Strategy for **Renewable Electricity Exploitation** in Malta is more focused on energy efficiency and security as well as technological development. There will be a number of spin-off benefits, such as reduced coastal pollution and the addition of offshore engineering to Malta’s maritime quiver of expertise. These respond to two key Blue Growth objectives of (i) advances in technology and (ii) security of supply. There will also be allied demands for increased research, development and innovation, IT development and inevitably innovative financial public procurement to pay the large capital costs involved. This strategy was supplemented by the **National Renewable Energy Action Plan (NREAP)** in 2011 which was based on six key elements of (i) improving energy efficiency, (ii) reducing reliance on imported fuels, (iii) stability in energy supply, (iv) reducing the emissions from the energy sector, (v) delivering energy efficiently and effectively and (v) ensuring that the energy sector can deliver.

The EUROSUR **European Border Surveillance System** (2008) is a less obvious candidate for this section, but we consider this acts as a proxy strategy and regional harmonisation approach to maritime surveillance. Again technological research, innovation and development are key smart specialisation strategies. It’s response to Blue Growth objectives are less obvious, but what is clear is that a humanitarian yet robust marine surveillance approach will underpin the success of many of the other Blue Growth functions, such as coastal tourism as well as the wider public good.

It should be mentioned that the Government of Malta is currently seeking expressions of interest for developing, operating and managing approximately 175,000 square metres of waterside land as a state of the art ‘Maritime Hub’. The Maritime Hub is designed to foster a spectrum of the maritime sector with the participation of various market players and may include a marina including quays and piers; yachting facilities including ship chandelling, conversion and maintenance of yachts; Maintenance and Operations related to the Maritime Industry; Innovation facilities to foster marine research and development.

Table 12 - Policies/interventions towards most promising marine and maritime activities and the Blue Growth objectives

Level	Strategies (see full URLs in 'Sources & References')	Objectives	Most relevant and promising maritime economic activities	Links to BG Objectives	
National	Aquaculture Strategy for Malta	<ul style="list-style-type: none"> Structured pathway for sustainable aquaculture Identification of the domains essential for profitable and sustainable aquaculture 	Marine aquaculture	<ul style="list-style-type: none"> Contribute to human diets Diversification of coastal community activities Conservation of wild fish resources Promote aquaculture based on good practise 	Aquaculture, Blue biotechnology & Maritime surveillance
			Coastal tourism	<ul style="list-style-type: none"> Growth potential via eco-tourism & farm tours 	
			Maritime surveillance	<ul style="list-style-type: none"> Advances in technology e.g., water quality monitoring 	
			Blue biotechnology	<ul style="list-style-type: none"> High-added value specialised products 	
			Fishing for animal feed	<ul style="list-style-type: none"> Raw material for aquaculture feeds 	
			Offshore renewable energy	<ul style="list-style-type: none"> Harvesting energy via combined farms / wave absorption structures 	
National	Tourism Policy for the Maltese Islands (2012 – 2016)	<ul style="list-style-type: none"> Sustain year-round jobs Increase foreign income & value addition Deliver economic growth Complement environmental goals Improve urban quality of life 	Coastal tourism	<ul style="list-style-type: none"> Healthy natural environment Increased growth potential of activities Increased attractiveness of coastal areas 	Maritime, coastal and cruise tourism
			Fishing for human consumption	<ul style="list-style-type: none"> Increased attractiveness of coastal area form active small-scale fisheries 	
			Marine aquaculture	<ul style="list-style-type: none"> Eco-tourism and farm tour opportunities 	
			Protection of habitats	<ul style="list-style-type: none"> Eco-tourism, via marine protected areas, proving employment growth opportunities 	
			Water projects	<ul style="list-style-type: none"> Recycling and capture of freshwater to serve tourism growth 	
			Passenger ferry services	<ul style="list-style-type: none"> Energy-efficient mass transit between islands and neighbouring countries 	
National	Strategy for Renewable Electricity Exploitation in Malta & NREAP	<ul style="list-style-type: none"> Produce specific RES targets Roadmap for RES development Reduced reliance on imported fossil fuels 	Shipbuilding	<ul style="list-style-type: none"> Supply of vessels to support offshore engineering development 	Blue Energy
			Offshore wind	<ul style="list-style-type: none"> Enhance the efficiency of harvesting the European emery resources Minimise land-use requirements of the power sector 	
			Offshore renewable energy	<ul style="list-style-type: none"> Enhance the efficiency of harvesting the European emery resources 	
			Coastal tourism	<ul style="list-style-type: none"> Minimise land-use requirements of the power sector 	
Regional	European border surveillance system EUROSUR	<ul style="list-style-type: none"> Reduce the number of irregular migrants entering undetected; Reduce the number of deaths of irregular migrants- 	Traceability and security of good supply chains	<ul style="list-style-type: none"> Advances in technology Security of supply 	Maritime surveillance
			Prevention and protection against illegal movement of people & goods	<ul style="list-style-type: none"> Advances in technology Security of supply 	

Table 13 - Policies/interventions towards most promising marine and maritime activities and the Smart Specialisation Strategies²

Level	Strategies	Objectives	Most relevant and promising maritime economic activities	Links to Smart Specialisation Strategies
National	Aquaculture Strategy for Malta	<ul style="list-style-type: none"> Structured pathway for sustainable aquaculture Identification of the domains essential for profitable and sustainable aquaculture 	<ul style="list-style-type: none"> Marine aquaculture Coastal tourism Maritime surveillance Blue biotechnology Fishing for animal feed Offshore renewable energy 	<ul style="list-style-type: none"> Clusters Research infrastructures, centres of competence and science parks Universities-enterprise cooperation Key enabling technologies Innovative public procurement
National	Tourism Policy for the Maltese Islands (2012 – 2016)	<ul style="list-style-type: none"> Sustain year-round jobs Increase foreign income & value addition Deliver economic growth Complement environmental goals Improve urban quality of life 	<ul style="list-style-type: none"> Coastal tourism Fishing of human consumption Marine aquaculture Protection of habitats Water projects Passenger ferry services 	<ul style="list-style-type: none"> Clusters Innovation-friendly business environments for SMEs Digital agenda Cultural and creative industries Internationalisation Financial engineering instruments
National	Strategy for Renewable Electricity Exploitation in Malta & NREAP	<ul style="list-style-type: none"> Produce specific RES targets Roadmap for RES development Reduced reliance on imported fossil fuels 	<ul style="list-style-type: none"> Shipbuilding Offshore wind Offshore renewable energy Coastal tourism 	<ul style="list-style-type: none"> Clusters Research infrastructures, centres of competence and science parks Universities-enterprise cooperation
Regional	European border surveillance system EUROSUR	<ul style="list-style-type: none"> Reduce the number of irregular migrants entering undetected; Reduce the number of deaths of irregular migrants- Increase the internal security . 	<ul style="list-style-type: none"> Traceability and security of good supply chains Prevention and protection against illegal movement of people & goods 	<ul style="list-style-type: none"> Research infrastructures, centres of competence and science parks Universities-enterprise cooperation Digital agenda Key enabling technologies Internationalisation Social innovation

² Smart Specialisation Strategies (S3) used for this logical analysis have been defined on the basis of the S3 horizontal approaches (or RIS horizontal priorities), as defined in the Guide to Research and Innovation Strategies for Smart Specialisation, available at http://s3platform.jrc.ec.europa.eu/en/c/document_library/get_file?uuid=e50397e3-f2b1-4086-8608-7b86e69e8553. See the Country fiche guide for more details at <http://www.cogeaspa.it/blue-growth-study/country-fiches/?lang=en>.

Sources and references

This Country fiche has been compiled according to a common methodology adopted in the framework of this Study and more specifically in Task 2.

A “Country fiche Guide” and a detailed methodology (“*Methodology for identifying and estimating Maritime Economic Activities using NACE and other data*”) are available at <http://www.cogeaspa.it/blue-growth-study/country-fiches/?lang=en>

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