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NUI Galway
OÉ Gaillimh

Ireland's Ocean Economy

REFERENCE YEAR 2012

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SEMURU

The Socio-Economic Marine Research Unit (SEMURU) at NUI Galway has been commissioned under the Beaufort Award to report on the state of Ireland's ocean economy. The focus is not only on continuing to collect reliable and comparable marine socio-economic data across all the marine sectors, but also to satisfy one of the specific core tasks for SEMURU, namely to develop a methodology which will provide reliable estimates of the economic contribution of the marine sector and its growth over time.

This work was funded through the Beaufort Marine Research Award, which is carried out under the Sea Change Strategy and the Strategy for Science Technology and Innovation (2006-2013), with the support of the Marine Institute, funded under the Marine Research Sub-Programme of the National Development Plan 2007-2013.

Photographs courtesy / copyright:
Malcolm McGettigan; Pauhla McGrane; Marine Institute; SEMURU



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Executive Summary

Marine socio-economic data are not readily available in Ireland. However, they are essential in determining the value of Ireland's ocean economy, so as to realise its full potential. SEMRU began the extensive task of data collection and analysis of Ireland's ocean economy in 2009. This resulted in the publication of a series of bi-annual ocean economy reports, to which, this report is the latest addition. The report provides a quantification and realistic monitoring of Ireland's ocean economy over time and presents a complete and comparable sectoral profile across the ocean economy, which allows us to observe progress on the targets set out in the Government's Integrated Marine Plan for Ireland - Harnessing Our Ocean Wealth (2012). The reference year for this report is 2012. The report also includes a set of economic projections that forecast Ireland's ocean economy up to 2014.

This report aims to:

- Provide a profile of Ireland's ocean economy for the 2012 reference year to be compared with the 2010 reference year as well as the 2007 baseline year;
- Provide estimates for turnover, GVA and employment for 2013 and 2014;
- Assist in monitoring progress of a number of targets set out in the Government's Integrated Marine Plan for Ireland - Harnessing Our Ocean Wealth (2012);
- Provides an overview of the policy environment and outlook of the sector where appropriate;
- Revise and update, where necessary, the methodology and data used in the previous 2013 report;

In 2012, Ireland's ocean economy had a turnover of €4.2 billion. The direct economic value was worth €1.3 billion or approximately 0.7% of GDP. Ireland's ocean economy provided employment for 17,425 FTEs. Compared to 2010, 2012 saw a 33% increase in turnover, a 9.2% increase in gross value added (GVA) and a 5% increase in employment.

Irish Ocean Economy key figures and trends, 2010-2012 and 2012-2014 (e)*

	2010**	2012	% Change '10-'12	2014 (e)	% Change '12-'14 (e)
GVA	€1.2 billion	€1.3 billion	9.2%	€1.4 billion	8.2%
% GDP	0.7% GDP	0.7% GDP		0.8% GDP	
Turnover	€3.1 billion	€4.2 billion	33.1%	€4.5 billion	7.6%
Employment	16,614 FTEs	17,425 FTEs	4.9%	18,480 FTEs	6.1%

*Figures for 2013 and 2014 are estimates (e)¹. **Updated since the previous report²

1 See Appendix 1 for details on the methodology.

2 Vega, A., Hynes, S. and Corless, R. Ireland's Ocean Economy: Reference Year 2010, NUI Galway, 2013.



Estimates for the 2012-2014 period suggest an overall increase in turnover of 7.6% to €4.5 billion. In 2014, the direct economic value of Ireland's ocean economy is estimated to be worth €1.4 billion or approximately 0.8% of GDP, which represents a 8.2% increase of GVA on 2012. The sector is estimated to provide employment for 18,480 FTEs in 2014, which represents a 6.1% increase on 2012 levels.

The previous report on Ireland's Ocean Economy published in 2013 represented the period at the lowest point of the economic contraction (2007-2010), with a significant decrease in activity, particularly in the shipping and maritime transport sector and in water-based construction. This report however, represents a period of slow economic recovery.

This report is divided into two broad types of marine industries:

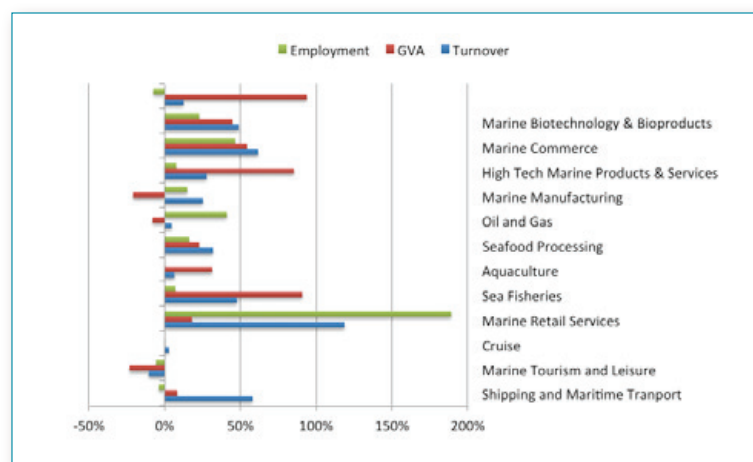
The Established Marine Industries in 2012 had a turnover of €3.96 billion and provided employment to 16,271 FTEs representing 95% of the total turnover and 93% of total employment in Ireland's ocean economy. This sector includes shipping and maritime transport, marine tourism and leisure, international cruise, sea fisheries, marine aquaculture, seafood processing, oil and gas exploration and production, marine manufacturing and marine retail services.

Marine retail services, sea fisheries and seafood processing, all experienced a significant increase in activity, with turnover, GVA and employment increasing across the sector in the period. The aquaculture sector also exhibited increases, albeit of a smaller scale, across all three variables. While the shipping and maritime sector experienced a significant increase in turnover coupled with a smaller increase in GVA during the period, employment fell during the same period. Marine manufacturing also experienced an increase in turnover and employment, accompanied by a fall in GVA. Marine tourism experienced a fall in turnover, GVA and employment during the period. However the year 2012 proved to be a turning point for the marine tourism sector and tourism in general, with positive growth in the sector in succeeding periods, 2013 and 2014.

The Emerging Marine Industries in 2012 had a turnover of €215 million and provided employment to 1,154 FTEs representing 5% of the turnover and 7% of employment in Ireland's ocean economy. Emerging industries refer to those that are still at a relatively early stage of development or growth, and are primarily R&D intensive and/or use the latest cutting edge technology in their pursuit of economic growth. Ireland's ocean economy includes a number of emerging industries with considerable growth potential. It includes high tech marine products and services, marine commerce, marine biotechnology and bio-products and marine renewable energy.

In comparison to the established industries, all of the emerging industries are excelling in terms of growth. High tech marine products and services, marine biotechnology and bio-products and marine commerce all experienced large increases in turnover and GVA. In the case of all three, employment also increased. This increase was largest for marine commerce and at a lower scale for biotechnology and marine ICT. Marine renewable energy experienced a more moderate increase in turnover but a large increase in GVA. In terms of employment, however, the marine renewables sector experienced a slight decrease.

Rates of change (%) in turnover, GVA and employment. Ocean Economy, 2010-2012



The methodology used in compiling this report has built on and progressed from that used in previous reports. To allow for comparability across the periods, figures from earlier reports have been revised and updated using the current methodology, which is detailed in Appendix 1.

The Ocean Economy - Definition

For the purpose of this report, the ocean economy is defined as any economic activity that directly or indirectly uses the sea as an input – sea-specific activity – as well as any economic activity that produces an input or uses an output from a sea-specific activity in their production process.

The coastal economy, on the other hand, represents all economic activity that takes place in the coastal region. For example, agriculture in coastal areas is not part of the ocean economy but it is part of the coastal economy.

Introduction

The first attempt at quantifying the size of Ireland's ocean economy was presented in the publication by the Marine Institute in 2005 of "Ireland's Ocean Economy and Resources"³. That initial briefing document provided a profile of Ireland's ocean economy in 2003, and explained why, and how, Ireland should seek to develop its marine resources. In 2010, a similar exercise was undertaken by the Socio-Economic Marine Research Unit (SEMRU), Teagasc and the Marine Institute using 2007 data, followed by its successor in 2013 using 2010 data. This current report builds on these previous works by profiling and analysing the Irish ocean economy using 2012 data and indicating how it has changed in the intervening periods. To enhance its relevance for policy making, this report presents economic estimates and projections for 2013 and 2014.

The importance of marine socio-economic data collection and analysis has been recognised by the Government in Harnessing Our Ocean Wealth – an Integrated Marine Plan (IMP) for Ireland. Published in 2012, the IMP presents "the Government's vision, high-level goals and integrated actions across policy, governance and business to enable Ireland's marine potential to be realised"⁴.

Box A: Harnessing Our Ocean Wealth Targets (Baseline year for targets: 2007)

Double the value of Ireland's ocean wealth to 2.4% of GDP by 2030

Increase the turnover from Ireland's ocean economy to exceed €6.4bn by 2020

Source: Government of Ireland, Inter-Departmental Marine Coordination Group (MCG), Harnessing Our Ocean Wealth - An Integrated Marine Plan (IMP) for Ireland," July 2012



3 O'Connor, J., O'Leary, J. & Shields, Y., 'Ireland's Ocean Economy and Resources', Marine Institute 2005

4 Government of Ireland, Inter-Departmental Marine Coordination Group (MCG), Harnessing Our Ocean Wealth - An Integrated Marine Plan (IMP) for Ireland," July 2012.

Table 1: Sectoral targets set out in the Integrated Marine Plan

Sector	Ocean Wealth 2020 Target*
Seafood (fisheries, aquaculture, seafood processing)	€1,000 million
Maritime Commerce and Ship Leasing	€2,600 million
Marine and Coastal Tourism and Leisure (including Cruise Tourism)	€1,500 million
Marine ICT and Biotechnology	>€61 million
Ports and Maritime Transport Services, Maritime Manufacturing, Engineering, Offshore Oil and Gas, other marine industries	>€1,200 million

Source: *Harnessing our Ocean Wealth – An Integrated Marine Plan for Ireland*; *Projected Annual Turnover by 2020. Baseline period: 2007

This current report by SEMRU aims to facilitate policy making by providing a profile of Ireland's Ocean Economy for 2012 and sector-by-sector economic projections for 2013 and 2014 against which future marine socio-economic data can be compared. Data is also being provided to support Ireland's implementation of the EU Marine Strategy Framework Directive (MSFD) and Marine Spatial Planning (MSP) in Ireland.



The reference year, the latest year for which data is available, is 2012. This allows for a complete and comparable representation of Ireland's ocean economy across all sectors. There is a two-year time lag in the release of business statistics data from the Central Statistics Office; hence, the most recent data release for 2014/2015 was 2012. The year 2012 represents the start of a recovery for the Irish economy and as such, it generally exhibits increases in activity, although growth rates were nowhere near to pre-recession levels. This iteration of the report series presents economic estimates and projections for 2013 and 2014.

The methodology used in compiling this report on Ireland's ocean economy has built on and progressed from that used in previous reports. To allow for comparability across the periods, some of the estimates from the previous published reports have been updated using the current methodology. Estimates have also been updated with more up to date information on some of the categories of activity that has become available in the intervening period.

Estimates based on economic projections of Ireland's ocean economy in 2014 are the result of a forecasting exercise on the performance of a number of indicators on a sector-by-sector basis. The methodology used combines the latest published economic data from the CSO, government economic forecasts and expert judgement information obtained from interviews with marine-related businesses and relevant government departments and agencies. Details on the methodologies used for the economic projections are presented in Appendix 1.

General trends in the Irish economy are inevitably reflected in the ocean economy. However, figures presented in Table 2 suggest that Ireland's ocean economy is in fact performing on average better than the general economy. While growth in Irish GDP from 2010 to 2012 was approximately 4.75%, the ocean economy grew by 9% in the same period. Estimates suggest that GVA growth rates in Ireland's ocean economy for the 2012-2014 period are approximately 8%, which is again above the recently released growth trends from the CSO⁵ that show an increase of 5% in Ireland's GDP for the same period.

Table 2. The Irish Ocean Economy key figures and trends, 2010-2012 and 2012-2014(e)*

	2010**	2012	% Change 2010-2012	2014 (e)	% Change 2012-2014 (e)
GVA	€1.2 billion	€1.3 billion	9.2%	€1.4 billion	8.2%
% GDP	0.7% GDP	0.7% GDP		0.8% GDP	
Turnover	€3.1 billion	€4.2 billion	33.1%	€4.5 billion	7.6%
Employment	16,614 FTEs	17,425 FTEs	4.9%	18,480 FTEs	6.1%

*Figures for 2013 and 2014 are estimates (e)⁶. **Updated since the previous report⁷

5 Quarterly National Accounts, CSO Statistical release, 12 March 2015, CSO, Dublin.

6 See Appendix 1 for details on the methodology.

7 Vega, A., Hynes, S. and Corless, R. Ireland's Ocean Economy: Reference Year 2010, NUI Galway, 2013.

A Profile of Ireland's Ocean Economy

Ireland's ocean economy had a turnover⁸ of €4.2 billion, of which €1.3 billion was direct gross value added (GVA)⁹. The Irish Marine sector employed approximately 17,425 FTEs. Ireland's total Gross Domestic Product (GDP) in 2012 was approximately €173 billion. The GVA from marine economic activity is approximately 0.7% of national GDP.

The established industries in Ireland's ocean economy account for 95% of total marine turnover. This category is dominated by shipping and maritime transport and marine tourism and leisure (Table 3). Shipping and maritime transport is the largest contributor in terms of turnover and value added in 2012. Marine tourism and leisure is the next largest category overall and is the largest contributor in terms of employment.

Within the emerging marine industries sector, marine commerce and high tech marine products and services make the largest contribution in terms of turnover and value added. The high tech marine products and services category along with the marine biotechnology sector is also an important category in terms of employment.

Table 3: Direct Turnover, GVA and Employment by sector, 2012

2012	Turnover €000's	Direct GVA €000's	Direct Employment (FTEs)
Established Industries			
Shipping & Maritime Transport	2,006,483	436,566	3,978
Marine Tourism and Leisure	644,692	257,877	5,195
Cruise	22,249	-	-
Marine Retail Services	126,194	40,082	728
Sea-Fisheries	241,500	178,200	2,233
Aquaculture	130,300	60,600	956
Seafood Processing	514,566	98,455	1,839
Oil and Gas	131,678	56,266	506
Marine Manufacturing, Engineering and Construction	138,581	34,901	836
Established Industries Sub-Total	3,956,243	1,140,162	16,271
Emerging Industries			
High Tech Marine Products & Services	71,277	38,612	420
Marine Commerce	86,559	49,167	161
Marine Biotechnology and Bio-products	44,510	18,755	373
Marine Renewable Energy	12,949	7,075	200
Emerging Industries Sub-Total	215,295	113,609	1,154
Total	4,171,537	1,276,555	17,425

8 Turnover is the value of sales

9 GVA refers to a sector's turnover (output) minus intermediate consumption (the inputs into the production process). It is measured at basic prices, excluding taxes less subsidies on products.



The overall turnover of Ireland's ocean economy in 2012 was €4.2 billion, an increase of 33% on 2010. GVA in the sector of €1.3 billion and employment at 17,425 FTEs represented increases of 9.2% and 5%, respectively, over 2010.

Table 4 shows the direct turnover, GVA and employment by sector from 2010 to 2014. Estimates for the 2012-2014 period suggest an overall increase in turnover of 8% to €4.5 billion, with an increase in GVA and employment of 8% and 6% respectively in the 2012-2014 period.

Turnover in the traditional, established marine industries rose from €2.98 billion to €3.96 billion in the 2010-2012 period. This represented a 33% increase, which was driven by shipping and maritime transport, sea fisheries, sea fisheries, seafood processing, marine manufacturing, construction and engineering and marine retail services. Employment in the established marine industries category rose from 15,593 in 2010 to 16,271 in 2012, an increase of 4%. Estimates for the established marine industries suggest that in 2014, turnover increased to €4.2 billion, an increase of 7% on 2012. Estimates show an increase of 7% in GVA to €1.2 billion and an increase of nearly 6% in employment to 17,159 in the 2012-2014 period (See Table 4).

Turnover of firms in the emerging marine industries also increased from €151 million to €215 million in the 2010-2012 period, an increase of 42.6%. Employment in the emerging industries category experienced an increase of 13%, while GVA increased by 64%. In Table 4, estimates for the 2012-2014 period suggest that this trend will continue with an estimated increase in turnover, GVA and employment, of 26.7% to €273 million, 18.2% to €134 million and 14.4% to 1,321 respectively.

Figures 1 and 2 show the general trend in direct turnover and employment respectively for established marine industries in the period 2007-2014. Overall the established sectors experienced a fall in activity between 2007 and 2010, reflecting the economic downturn. Between 2010 and 2012, some of these sectors have seen a general increase in activity, which in some cases has been quite significant. Estimates suggest that this trend may continue for 2013 and 2014, albeit at a slower rate.

Figure 1: Direct Turnover, Established Industries, 2007-2014(e)

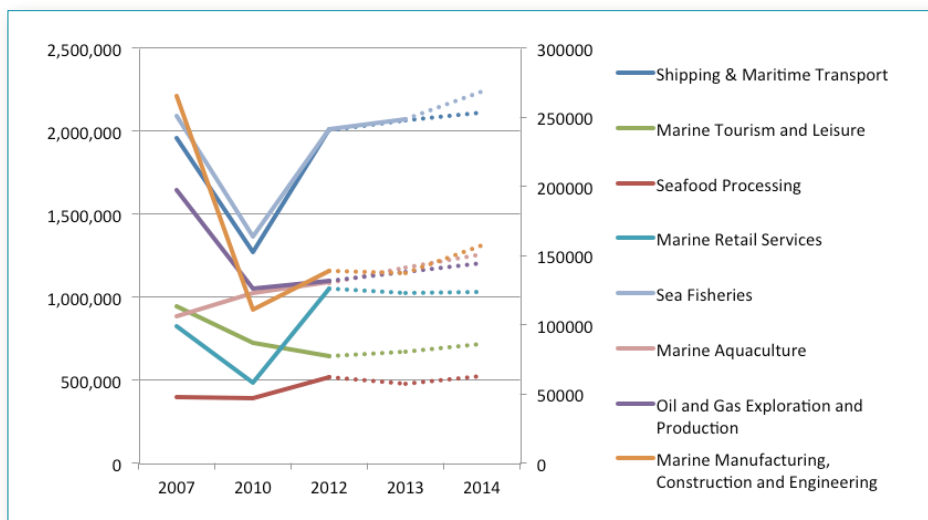


Table 4: Direct Turnover, GVA and Employment by sector, 2010, 2012, 2013, 2014(e)*

	Turnover (€ millions)				% Change		Direct GVA (€ millions)				% Change		Direct Employment (FTEs)				% Change	
	2010**	2012	2013	2014	2010-2012	2012-2014	2010**	2012	2013	2014	2010-2012	2012-2014	2010**	2012	2013	2014	2010-2012	2012-2014
Established Markets																		
Shipping and Maritime Transport	1,270	2,006	2,067	2,108	58%	5%	403.6	436.6	449.7	458.6	8%	-0.1%	4,137	3,978	3,892	3,949	-4%	-1%
Marine Tourism and Leisure	723	645	671	715	-11%	11%	337.4	257.9	288.3	286.1	-24%	11%	5,497	5,195	5,675	5,952	-5%	15%
International Cruise Industry	21.7	22.2	28.9	28.1	3%	26%	-	-	-	-	-	-	-	-	-	-	-	-
Marine Retail Services	57.7	126.2	122.5	123.9	119%	-2%	33.9	40.1	38.9	39.3	18%	-2%	252	728	730	731	189%	0.4%
Sea Fisheries	163.7	241.5	248.7	268.3	48%	11%	93.4	178.2	189.5	204.5	91%	15%	2,084	2,233	2,280	2,328	7%	4%
Aquaculture	122.5	130.3	141.5	150.5	6%	16%	46.2	60.6	65.8	71.4	31%	18%	952	956	960	964	0.4%	1%
Seafood Processing	389.6	514.7	477.9	520.3	32%	1%	80.0	98.5	91.4	99.6	23%	1%	1,566	1,839	1,854	1,869	16%	2%
Oil and Gas Exploration and Production	125.8	131.7	137.9	144.4	5%	10%	61.2	56.3	51.7	47.6	-8%	-15%	359	506	504	512	41%	1%
Marine Manufacturing Construction and Engineering	110.8	138.6	137.5	157.5	25%	14%	44.0	34.9	34.6	39.7	-21%	14%	726	886	859	854	15%	2%
Established Markets Sub-Total	2,984	3,956	4,032	4,216	33%	7%	1,100	1,163	1,190	1,247	6%	7%	15,593	16,271	16,754	17,159	4%	5%
Emerging Markets																		
High Tech Marine Products & Services	55.9	71.3	74	76.99	27%	8%	20.8	38.6	43.5	49.2	86%	27%	391	420	437	454	7%	8%
Marine Commerce	53.6	86.6	108.2	129.8	61%	50%	31.8	49.2	49.9	50.9	55%	4%	110	161	165	168	46%	5%
Marine Biotechnology and Bio-products	29.9	44.5	46.4	48.3	49%	8%	12.99	18.8	19.7	20.7	44%	10%	304	373	406	443	23%	19%
Marine Renewable Energy	11.5	12.9	15.3	17.8	12%	37%	3.6	7.1	9.8	13.5	94%	91%	216	200	226	255	-7%	28%
Emerging Markets Sub-Total	150.9	215.3	243.9	272.9	43%	27%	69.3	113.6	122.9	134.3	64%	18%	1,021	1,154	1,234	1,321	13%	14%
Total	3,135	4,172	4,276	4,489	33%	8%	1,169	1,277	1,313	1,381	9%	8%	16,614	17,425	17,988	18,480	5%	6%

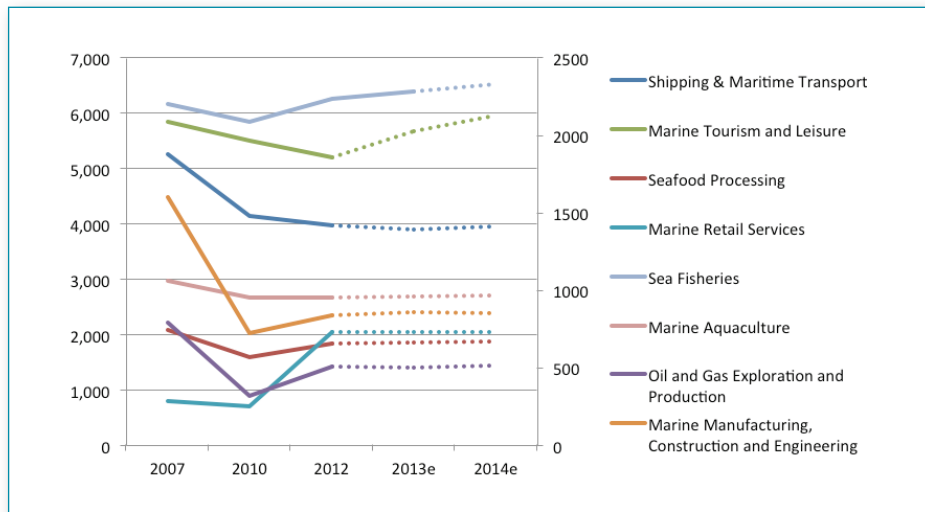
*Figures for 2013 and 2014 are estimates (e)¹⁰. **Updated since the previous report¹¹

10 See Appendix 1 for details on the methodology.

11 Vega, A., Hynes, S. and Corless, R. Ireland's Ocean Economy: Reference Year 2010, NUI Galway, 2013.

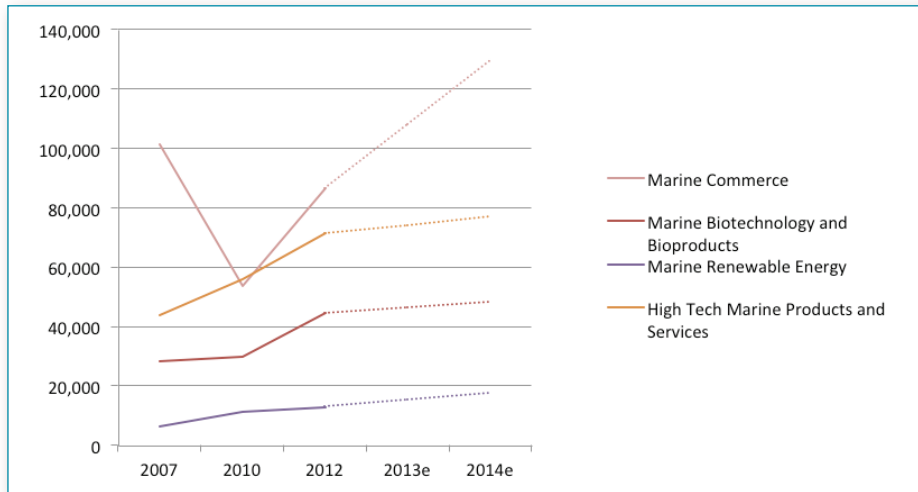


Figure 2: Direct Employment, Established Industries, 2007-2014(e)



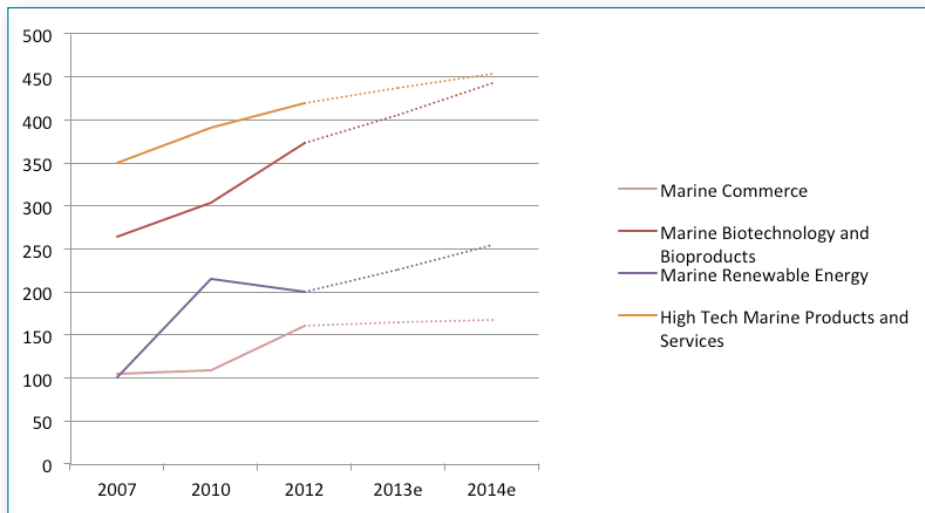
The general trend in direct turnover and employment in emerging industries for the period 2007-2014 is presented in Figures 3 and 4 respectively. Marine commerce experienced a sharp decline in turnover between 2007 and 2010, however this sector is especially influenced by trends in the overall economy and has experienced the greatest rate of growth in the subsequent period. The remainder of the sectors exhibit more resilience to the economic downturn, with relatively steady growth rates in turnover between 2007 and 2014.

Figure 3: Direct Turnover. Emerging Industries, 2007-2014(e)



Employment within the emerging sectors has maintained relatively stable growth from 2007 to 2014, except in the case of marine renewable energy, which experienced a decrease in employment numbers between 2010 and 2012.

Figure 4: Direct Employment. Emerging Industries, 2007-2014(e)



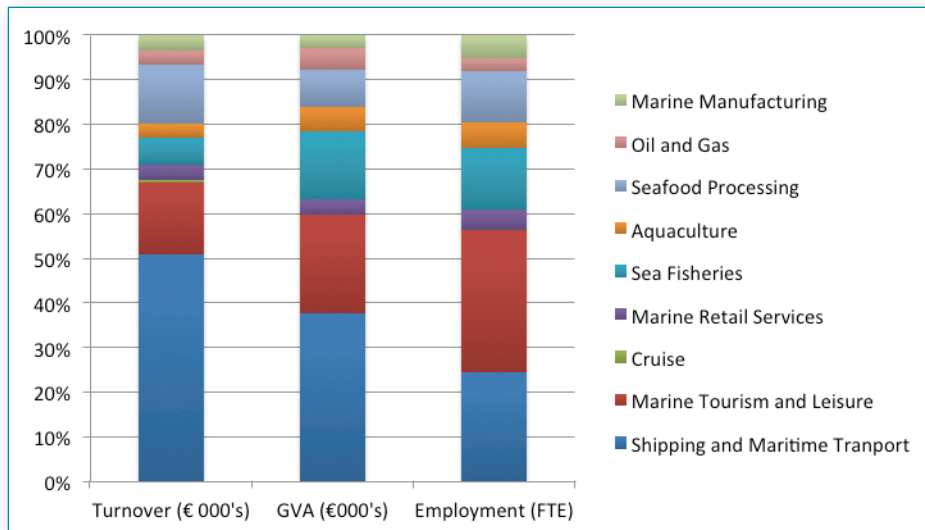
An aerial photograph of a coastal area, likely a bay or fjord, showing several large circular aquaculture pens (fish farms) in the water. A small boat is visible in the middle ground. In the background, there is a large, flat-topped island or headland. The overall scene is captured in a muted, sepia-toned color palette.

Established
Marine
Industries

Established Marine Industries

Established marine industries refer to the traditional sectors that are usually associated with marine activity. Established marine industries had a turnover of €3.96 billion in 2012 and provided employment to 15,792 FTEs, representing 95% of the turnover and 93% of employment in Ireland's ocean economy. These industries include shipping and maritime transport, marine tourism and leisure, international cruise, sea fisheries, marine aquaculture, seafood processing, oil and gas exploration and production, marine manufacturing and marine retail services. The relative contribution of each of these sectors to the overall turnover, employment and GVA of the established marine industries are shown in Figure 5.

Figure 5: Relative contribution (%) of each subsector within the Established Irish Marine Industries to turnover, GVA and employment, 2012



The shipping and maritime sector was the largest contributor in the established industries, in terms of turnover to Ireland's ocean economy in 2012, followed by marine tourism and leisure, seafood processing, sea fisheries, marine manufacturing engineering and construction, oil and gas, aquaculture, marine retail services and cruise tourism, respectively.

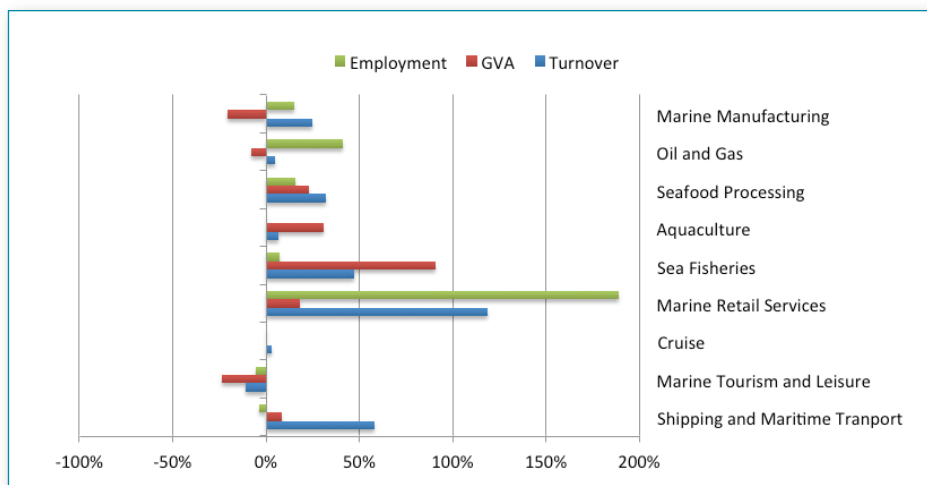
The marine tourism and leisure sector was the largest sector for marine employment in 2012 in the established industries, followed by shipping and maritime transport, sea fisheries, seafood processing, aquaculture, marine retail services, oil and gas and marine manufacturing respectively.

In terms of GVA, again shipping and maritime transport is the largest contributor to Ireland's ocean economy, followed by water based tourism and leisure, sea fisheries, seafood processing, oil and gas, aquaculture, marine retail services and marine manufacturing respectively.



Figure 6 shows the rate of change in turnover, GVA and employment for the established industries in the 2010-2012 period. Marine manufacturing, construction and engineering presents the largest decline in employment and the second largest decline in GVA. Marine tourism and leisure presented an overall decline in activity with falls in turnover, GVA and employment. Marine retail services experienced the largest increase in both turnover and employment, while the sea fisheries sector exhibited that largest increase in GVA. Details on economic trends by sector are presented in the following sections, as well as the economic projections out to 2014, the policy context and the overall economic outlook.

Figure 6: Rates of change (%) in turnover, GVA and employment. Established Industries, 2010-2012



Shipping and Maritime Transport

Sea-based transport accounts for 92% of the total volume and 67% of the total value¹² of the goods traded in Ireland in 2012¹³. The shipping and maritime transport sector comprises Irish sea-based transport operations and services, including those related to ship leasing. The sector acts as an essential part of the strategic infrastructure that allows the Irish economy to connect with the global market place. Table 5 shows the turnover, GVA, and employment for 2007, 2010, 2012, 2013 (estimate) and 2014 (estimate) as well as the % change in each between 2010 and 2012. Figure 7 shows the trends for both turnover and employment over the five periods.

Profile

- Sea and coastal passenger water transport
- Sea and coastal freight water transport
- Services incidental to water transport
- Cargo handling
- Renting and leasing of water transport equipment
- Other transportation support activities

Table 5: Shipping and Maritime Transport turnover, GVA, employment, 2007, 2010, 2012, 2013(e), 2014(e)

Shipping and Maritime Transport	2007	2010	2012	2010-2012 (% change)	2013 (e)	2014 (e)
Turnover €000's	1,952,954	1,269,737	2,006,483	58%	2,066,677	2,108,010
GVA €000's	587,796	403,624	436,566	8%	449,663	458,655
Employment FTEs	5,254	4,137	3,978	-4%	3,892	3,949
Location of activity	The majority of shipping and maritime services activity occurs around the nine commercial ports on the coast of Ireland; Cork, Drogheda, Dublin, Dundalk, Dun Laoghaire, Galway, New Ross, Foynes and Wicklow					

Source: CSO – Annual Services Inquiry 2007, 2010 and 2012 – REV 1: NACE Four-Digit Codes: 61.10, 63.22, 63.11, 63.40, 71.22; REV 2: NACE Four-Digit Codes: 50.10, 50.20, 52.22, 52.24, 52.29, 77.34; IMDO iShip Index, 2013; 2014; 2015; CSO Quarterly National Household Survey 2013, 2014; Figures for 2013 and 2014 are estimates (e)¹⁴

The turnover generated by shipping and maritime transport services in 2012 was €2,006 million, 38% of which was exports. Total GVA generated was €436.5 million. Turnover increased between 2010 and 2012 by 58%, with an 8% increase in GVA in the same period. These figures reflect a significant increase in activity in this sector, which is due to a moderate increase in the volume of international trade, as well as a result of an increase in the level of support activities associated with the sector, including those related to ship financing and leasing. Employment in shipping and maritime services was 3,978 FTEs in 2012, which shows a decrease of 4% with respect to the previous period.

12 40 million tonnes and €88 billion

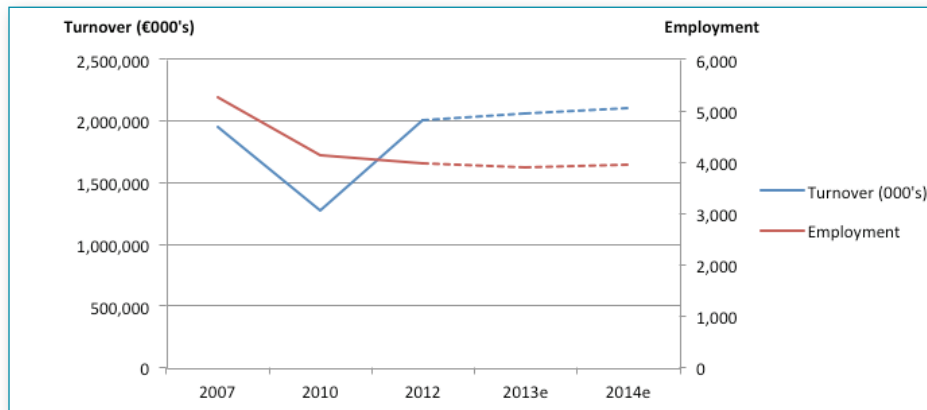
13 CSO Trade Statistics – INTRASTAT, 2013

14 See Appendix 1 for details on the methodology.



Estimates suggest that the turnover generated by the sector in 2014 was €2,108 million, representing an increase in activity of 5% between 2012 and 2014. Total GVA also increased by 5% at €458.6 million in the same period, while employment experienced a small decrease of 1% to 3,949 FTEs.

Figure 7: Shipping and Maritime Transport turnover and employment trends, 2007 – 2014(e)



Source: CSO – Annual Services Inquiry 2007, 2010 and 2012 – REV 1: NACE Four-Digit Codes: 61.10, 63.22, 63.11, 63.40, 71.22; REV 2: NACE Four-Digit Codes: 50.10, 50.20, 52.22, 52.24, 52.29, 77.34; IMDO iShip Index, 2013; 2014; CSO Quarterly National Household Survey 2013, 2014; Figures for 2013 and 2014 are estimates (e)¹⁵

Overview of the Policy Context and Outlook

The National Ports Policy (2013) continues to provide a vision for the future development of the sector by leading the way towards improving port efficiency in line with European transport policy, the Atlantic Strategy (2011) and the Atlantic Action Plan (2013). The latter identifies the importance of accessibility and connectivity as a priority for sustainable growth in Atlantic coastal regions to drive forward the “blue economy”.

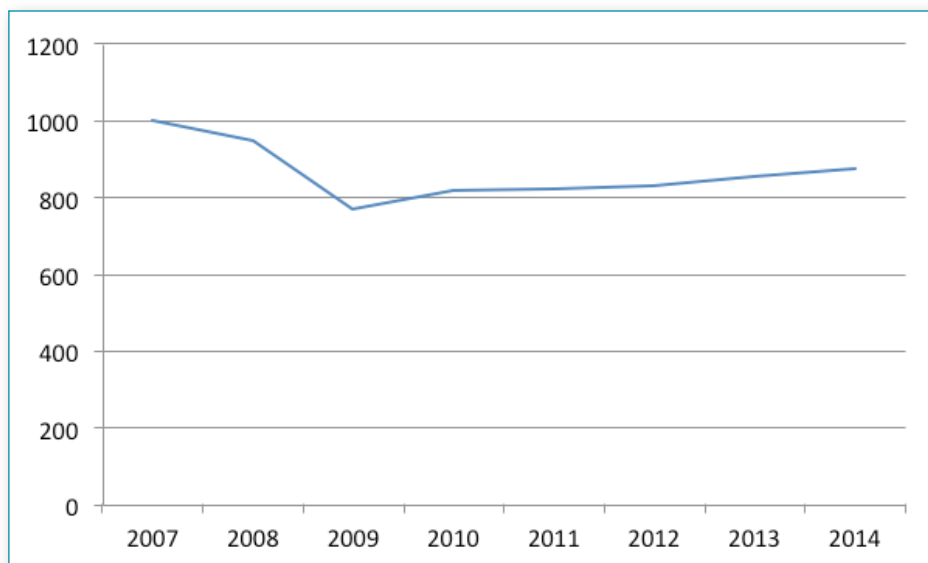
15 See Appendix 1 for details on the methodology.

According to the IMDO, a number of important indicators show that shipping and port volumes are increasing, and there is investment taking place in an industry sector that has often been a reliable bellwether for economic growth¹⁶ (Figure 8). This trend of steady growth continued throughout 2014 with an increase of 7% in Irish shipping and port activity in the last quarter of the year, when compared to the same period in the previous year¹⁷.

In a sector where performance is largely reliant on that of the wider economy, and with predictions from the Irish Economic and Social Research Institute (ESRI) of growth in GNP of approximately 5.3% in 2015¹⁸, the outlook for 2015 remains positive.

Falling oil prices also continue to have an effect on the global shipping industry. This has allowed for savings in terms of maritime transport costs. However such savings may be mitigated by the recent introduction of the new lower sulphur emissions regulation in the North European Emission Control area, which is likely to have an effect on the shipping and maritime transport services industry. These restrictions came into effect on the first of January 2015. Directive 2012/33/ EU requires ships sailing in the English Channel, the North Sea and the Baltic Sea to use bunker oil with a maximum 0.1% sulphur or apply alternative methods in order to achieve the same effect. As a result, fuel prices are expected to increase and so will the costs of shipping. Although these restrictions do not apply to the Irish Sea, they may still have implications for the Irish shipping and maritime transport services.

Figure 8: Annual iShip Index, 2007 - 2014



Source: *The Irish Maritime Transport Economist, Volume 12. IMDO. 2015*

16 The Irish Maritime Transport Economist, Volume 11. IMDO. 2014
 17 IMDO Press Release, March 2015: Irish Shipping Volumes up 7% during Q4 2014
 18 Quarterly Economic Commentary. ESRI. October 2014

Marine Tourism and Leisure

Marine-based tourism and leisure is a large contributor to the Irish ocean economy and has historically been an important sector for the Irish coastal economy. The tourism industry contributed an estimated €5.4 billion in 2012¹⁹ and €5.9 billion in 2013²⁰ to the Irish economy. Fáilte Ireland estimates that marine tourism accounts for 10% of the overall value of the tourism sector in Ireland²¹.

Demand for marine-based tourism and leisure comes from domestic and overseas visitors. Sea-angling companies actively advertise at overseas angling exhibitions generating interest in Ireland. An estimated 118,000 overseas visitors in 2012²² and approximately 127,000 in 2013²³ engaged in angling²⁴ activities in Ireland. Coastal attractions, such as the Cliffs of Moher, also receive high numbers of international visitors. Adventure tourism, which includes marine activities such as surfing, windsurfing, kite surfing, sailing and kayaking, has a strong domestic market. Table 6 shows the turnover, GVA, and employment for 2007, 2010, 2012, 2013 (estimated) and 2014 (estimated) as well as the percentage change in each between 2010 and 2012. Figure 9 shows the trends for both turnover and employment over the five periods.

Profile

- Water-sports
- Seaside/Resort Trips
- Angling
- Sailing at sea
- Swimming in the sea
- Sea angling from boats
- Boating at sea
- Bird watching in coastal areas
- Sea angling from the shore
- Water skiing/Jet skiing
- Whale/dolphin watching
- Surfing, sail boarding
- Visiting coastal natural reserves
- Sea kayaking
- Other trips to the beach seaside and islands Scuba diving/snorkelling
- Scuba diving/snorkelling
- Other sea sports

Table 6: Marine Tourism and Leisure turnover, GVA, employment, 2007, 2010, 2012, 2013(e), 2014(e)

Marine Tourism and Leisure	2007	2010	2012	2010-2012 (% change)	2013(e)	2014(e)
Turnover €000's	944,380	722,511	644,692	-11%	670,767	715,369
GVA €000's	453,310	337,376	257,877	-24%	268,307	286,148
Employment FTEs	5,836	5,497	5,195	-5%	5,675	5,952
Location of activity	Marine based tourism and marine activities are offered all along the coast of Ireland					

Source: ESRI report 2004; Fáilte Ireland Statistics 2012 and 2014; CSO - National Household Survey; Figures for 2013 and 2014 are estimates (e)²⁵

The turnover generated by marine-based tourism and leisure in 2012 was €644 million and the total GVA generated was €257 million. Turnover decreased between 2010 and 2012 by 11%, with a 24% decrease in GVA in the same period. There was a significant reduction in domestic expenditure in the 2010-2012 period. Employment in marine tourism and leisure was 5,195 FTEs in 2012, which shows a decrease of 5% with respect to the previous period.

19 Fáilte Ireland Tourism Facts, 2012

20 Fáilte Ireland Tourism Facts, 2013

21 Fáilte Ireland estimates for marine tourism in Ireland, 2011-2020, using the wide definition of marine tourism, which refers to marine and coastal tourism water based activities as well as the activities and services adjacent to the coastline

22 Fáilte Ireland Tourism Facts, 2012

23 Fáilte Ireland Tourism Facts, 2013

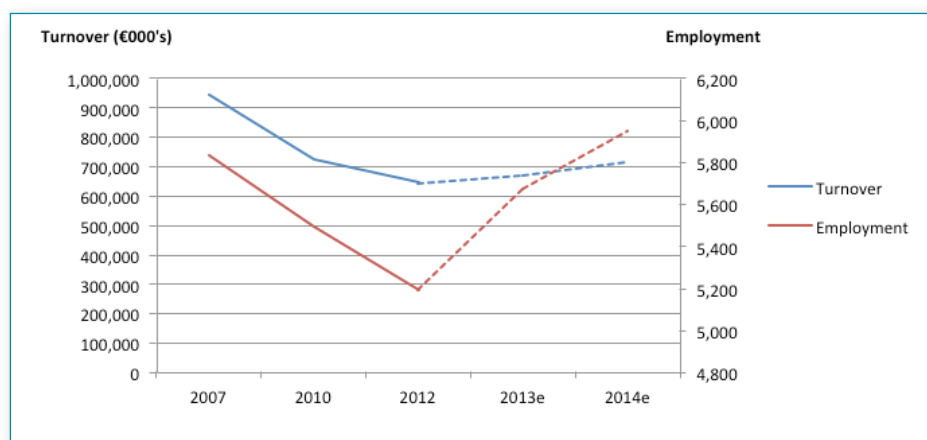
24 This figure refers to all angling in Ireland (not only sea angling)

25 See Appendix 1 for details on the methodology.

Estimates suggest that the turnover generated by the sector in 2014 was €715 million, representing an increase in activity of 11% between 2012 and 2014. Estimated GVA increased to €286 million in the same period, while employment also increased to 5,952 FTEs, an increase of 15%.

Overall, the turnover and employment trends shown in Figure 9 indicate a turning point in marine tourism activity in 2012, with a gradual expected recovery in 2013 and 2014.

Figure 9: Marine Tourism and Leisure turnover and employment trends, 2007 – 2014[e]



Source: ESRI report 2004; Fáilte Ireland Statistics 2012 and 2014; CSO - National Household Survey; Figures for 2013 and 2014 are estimates (e)²⁶

Overview of the Policy Context and Outlook

Tourism Ireland has reported that industry sentiment within Ireland and among overseas trade partners is good and that the early outlook for 2015 is positive²⁷. Last year was an excellent year for growth in overseas visitors to Ireland and according to the CSO, this positive trend has continued into 2015 with an increase of 9.1% in the number of overseas visits between November 2014 and January²⁸. The decline in the value of the Euro, which reduces costs for tourists from outside the Euro area, will have an important positive on tourist numbers and revenue. The CSO Quarterly National Household Survey released in February of 2015 also indicates additional favourable trends in the sector, with an increase of 1,600 (seasonally adjusted) individuals in employment within the accommodation and food services sector²⁹.

One of the major developments in the sector has been the Wild Atlantic Way project, which at 2,500km, is the world's longest defined coastal touring route³⁰. The route stretches from the northernmost point in Donegal to the southernmost point in Cork and aims to achieve greater awareness of the west coast of Ireland amongst overseas tourists.

Due to significant investment in initiatives such as the Wild Atlantic Way, which has a direct impact on marine tourism along Ireland's western coast, further improvement in air access and the increased use of focused marketing both in Ireland and abroad, Fáilte Ireland have projected an increase of 6% in overseas tourists for 2015³¹.

26 See Appendix 1 for details on the methodology.

27 Tourism Ireland, Situation and Outlook Analysis Report, 2015

28 CSO Statistical Release, February 2015: Overseas Travel, November 2014 – January 2015

29 CSO Statistical Release, February 2015: Quarterly National Household Survey, Quarter 4 2014

30 For more information visit <http://www.wildatlanticway.com/>

31 Fáilte Ireland News Library, December 2014: Fáilte Ireland targets sustained growth in tourism revenue, jobs & visitors for 2015 season

International Cruise Industry

In 2012, European cruise industry direct expenditures reached €15.5 billion³², whilst the corresponding figure for 2013 was €16.2 billion³³. Growth of the industry over the past decade has increased demand for additional destinations for cruise line operators, and Ireland has capitalised with its strong tourist product close to its main ports of call. Table 7 shows the turnover, GVA, and employment for 2007, 2010, 2012, 2013 and 2014 as well as the percentage change in each between 2010 and 2012. Figure 10 shows the number of passenger and cruise ship visits to Irish ports from 2009 to 2014.

Profile

The main ports of call for cruise liners include:

- Dublin
- Cork
- Waterford
- Dun Laoghaire

Table 7: International Cruise Industry passengers, calls, expenditure 2007, 2010, 2012, 2013, 2014

International Cruise Industry	2007	2010	2012	2010-2012 (% change)	2013	2014
Average passengers per port call ¹	787	1,525	1,357	-11%	1,469	1,666
Number of calls Irish ports	130	200	229	15%	277	238
Average expenditure per person	Data not comparable	€71	€71	-	€71	€71
Total expenditure by disembarking cruise passengers €000's	Data not comparable	21,655	22,249	3%	28,883	28,143

Source: IMDO - *The Irish Maritime Transport Economist, 2011, 2012, 2013, 2014 and 2015*

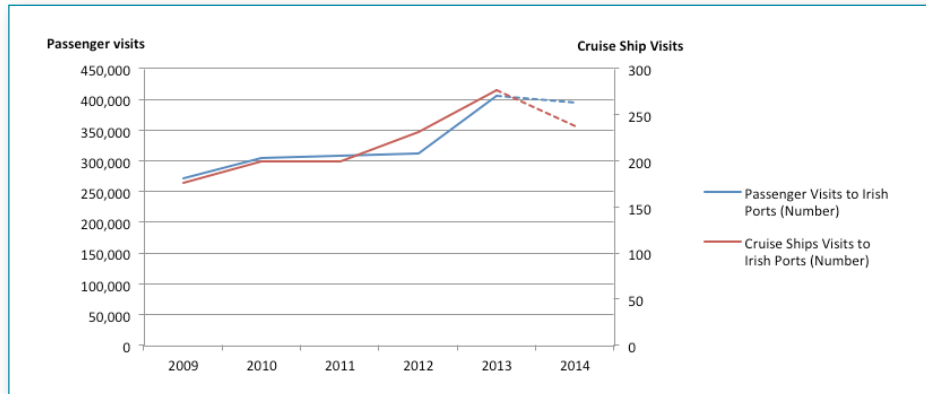
A total of 229 liners docked at Irish ports in 2012, which represents an increase of 15% on 2010 figures. The total expenditure by disembarking cruise passenger was €22 million in 2012, representing a 3% increase with respect to 2010.

According to recent figures published by the IMDO, a total of 238 liners docked at Irish ports in 2014, which represents an increase of 4% on 2012. The total expenditure generated by the sector in 2014 was €28 million, representing an increase in activity of 26% between 2012 and 2014. The average number of passengers per port call in the same period rose to 1,666, an increase of 23%.

32 CLIA, "The Cruise Industry: Contribution of Cruise Tourism to the Economies of Europe", 2013

33 CLIA, "The Cruise Industry: Contribution of Cruise Tourism to the Economies of Europe", 2014

Figure 10: Passenger and Cruise Ship visits to Irish Ports (Number) 2009 – 2014



Source: IMDO - *The Irish Maritime Transport Economist*, 2011, 2012, 2013, 2014 and 2015.

Overview of the Policy Context and Outlook

The international cruise industry is the fastest growing travel sector in the world³⁴ and strong growth is again projected for the global cruise industry in 2015 with a record 23 million passengers expected to set sail this year³⁵. From 2008-2013, the total output of the European cruise industry has increased by 22% to over €39 billion and there is confidence that the European industry can deliver sustainable economic growth for the foreseeable future³⁶.

Irish ports continued to capitalise on this rise in cruise tourism in the last decade and cruise ship calls to Irish ports rose to 277 in 2013³⁷. This trend is expected to continue into 2015 and ports such as Dun Laoghaire and Galway are planning to expand their capacity to handle increased traffic.

Following global trends to accommodate larger cruise liners, the Port of Cork has recently started a €1.5 million upgrade of Cobh Cruise Terminal - Ireland's only dedicated cruise liner berth - to enable larger ships to be berthed³⁸. In line with this development, Dun Laoghaire Harbour Company and Dun Laoghaire Rathdown County Council, intend to fund a €15 million berth facility to accommodate the largest types of cruise liners in Dun Laoghaire Harbour and the initial stages of a planning application have now been completed, with a decision expected later this year³⁹. In addition the Galway Harbour has lodged plans for a €126 million expansion project, which will include facilities to handle large cruise vessels and a final decision is expected later this year⁴⁰. The number of cruise passengers visiting Ireland could quadruple in the next decade if the right facilities are in place⁴¹.

34 International Cruise and Excursions Enterprise, 2015: Overview of the Cruise Industry

35 CLIA Press Release, February 2015: State of the Cruise Industry: 2015 to see robust growth

36 CLIA, "The Cruise Industry: Contribution of Cruise Tourism to the Economies of Europe", 2014

37 *The Irish Maritime Transport Economist*, Volume 11. IMDO. 2014

38 Evening Echo 15th January 2015: Cobh Cruise Liners Terminal to be extended for even larger vessels

39 Irish Independent 27th February 2015: Dun Laoghaire tests the waters as plans advance for first jumbo cruise liner berth

40 Irish Independent 11th January 2014: €126m Galway harbour plan to create 800 jobs - but Europe must give green light

41 Irish Independent 27th February 2015: Dun Laoghaire tests the waters as plans advance for first jumbo cruise liner berth

Marine Retail Services

Marine Retail Services are comprised of small and medium sized enterprises involved in retail activities including boat sales, chandlery, and the retail of seafood in fishmonger shops. Table 8 shows the turnover, GVA, and employment for 2007, 2010, 2012, 2013 (estimated) and 2014 (estimated) as well as the % change in each between 2010 and 2012. Figure 11 shows the trends for both turnover and employment over the five periods.

Profile

- Chandlery
- Boat sales
- Retail of seafood in fishmonger specialised stores

Table 8: Marine Retail Services turnover, GVA, employment, 2007, 2010, 2012, 2013(e), 2014(e)

Marine Retail Services	2007	2010	2012	2010-2012 (% change)	2013(e)	2014(e)
Turnover €000's	98,585	57,688	126,194	119%	122,534	123,882
GVA €000's	51,193	33,908	40,082	18%	38,919	39,348
Employment FTEs	287	252	728	189%	730	731
Location of activity	Marine Retail Services are located throughout Ireland, both along the coast and inland, (the boat sales and seafood retail categories particularly relates to the latter). The majority of the technology-related marine service companies are located within the larger cities, primarily Galway, Cork and Dublin					

Source: SEMRU Company Survey, CSO – Annual Services Inquiry 2007, 2010 and 2012 – REV 1 NACE Four-Digit Code 52.23; REV 2 NACE Four-Digit Code 47.23; CSO – Retail Services Inquiry; CSO – National Household Survey; Figures for turnover and GVA for 2013 and 2014 are estimates (e)⁴²

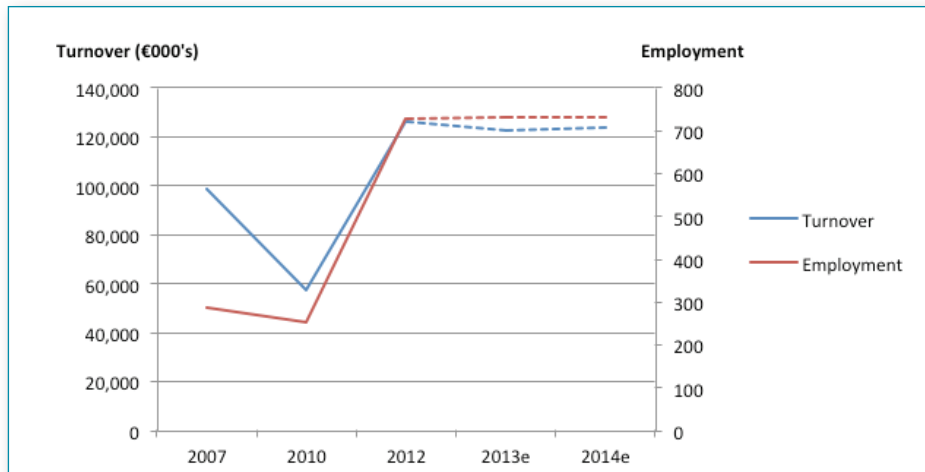
The turnover generated by marine retail services in 2012 was €126 million, 0.9% of which was exports. Total GVA generated was €40 million. Turnover increased between 2010 and 2012 by 119%, with an 18% increase in GVA in the same period. Employment in marine retail services was 728 FTES in 2012, which shows an increase of 189% with respect to the previous period. While the large increase in activity in this sector can be largely explained by NACE code re-classification under NACE 47.23 - Retail of seafood in fishmonger specialised stores – the Irish fish food retail market grew strongly in 2012, mainly driven by an increase in frequency of purchase, which resulted in fish outperforming the total market in 2012 and 2013⁴³.

Estimates suggest that the turnover generated by the sector in 2014 was €123 million, representing a decrease in activity of 2% between 2012 and 2014. Estimated GVA decreased to €39 million in the same period, while employment increased to 731 FTEs.

42 See Appendix 1 for details on the methodology.

43 BIM (2012) Irish Seafood Retail Sales.

Figure 11: Marine Retail Services turnover and employment trends, 2007 – 2014(e)



Source: SEMRU Company Survey, CSO – Annual Services Inquiry 2007, 2010 and 2012 – REV 1 NACE Four-Digit Code 52.23; REV 2 NACE Four-Digit Code 47.23; CSO – Retail Services Inquiry; CSO – National Household Survey; Figures for turnover and GVA for 2013 and 2014 are estimates (e)⁴⁴

Overview of the Policy Context and Outlook

In general the marine retail sector is subject to similar opportunities and challenges as the overall retail sector in Ireland. Following the economic downturn of recent years the retail sector is recovering and this trend is set to continue in the coming year with key indicators pointing to further improvements in the sector and estimated increases in consumer spending and disposable income of 2.7% and 3.5-4% respectively⁴⁵.

With regard to the domestic seafood retail sector, the outlook is positive with a reported increase in spending on fish at the retail level by just over 3% for January 2015 compared to the same period in the previous year⁴⁶.

44 See Appendix 1 for details on the methodology.

45 IBEC Newsroom, February 2015: Indicators point to further retail recovery in 2015

46 BIM – Irish Seafood Retail Sales, January 2015

Sea Fisheries

In 2012 the Irish fishing fleet comprised 2,203 vessels, with a combined gross tonnage of 65 thousand GT, a total power of 198 thousand kW. The number of vessels increased by 2% (or 44 vessels) between 2012 and 2013, while the total engine power was maintained during the same period, due largely to the introduction of smaller vessels into the national fleet. The over 10 metre fishing fleet spent a total of around 56,400 days at sea in 2012⁴⁷. Table 9 shows the turnover, GVA, and employment for 2007, 2010, 2012, 2013 and 2014 (estimated) as well as the % change in each between 2010 and 2012. Figure 12 shows the trends for both turnover and employment over the five periods.

Profile

Fishing Segments

- Pelagic
- Polyvalent
- Beam-trawl
- Specific

Fin Fish

- Mackerel
- Herring
- Horse Mackerel
- Blue Whiting
- Monkfish
- Megrim

Main Target Species

- Haddock
- Whiting
- Cod
- Sole
- Plaice

Shellfish

- Lobster
- Dublin Bay prawns
- Mussels
- Scallops
- Razor Clams

Table 9: Sea Fisheries turnover, GVA, employment, 2007, 2010, 2012, 2013, 2014(e)

Sea Fisheries	2007	2010	2012	2010-2012 (% change)	2013	2014(e)
Turnover €000's	251,000	163,700	241,500	48%	248,700	268,339
GVA €000's	100,307	93,400	178,200	91%	189,500	204,464
Employment FTEs	2,200	2,084	2,233	7%	2,280	2,328
Location of activity	Fishing communities are distributed around the coast of Ireland, centred particularly on the fishing harbours of Killybegs (Co. Donegal), Ros an Mhil (Co. Galway), An Daingean (Co. Kerry), Castletownbere (Co. Cork), Dunmore East (Co. Waterford) and Howth (Co. Dublin).					

Source: Sea Fisheries Protection Authority (SFPA) Annual Report, 2012 and 2013; Bord Iascaigh Mhara (BIM); Scientific, Technical and Economic Committee for Fisheries (STECF) – The Annual Economic Report on the EU Fishing Fleet, 2013 and 2014; Figures for 2014 are estimates (e)⁴⁸

The turnover generated by the sea fisheries sector in 2012 was €242 million. Total GVA generated was €178 million. Turnover increased between 2010 and 2012 by 48%, with a 91% increase in GVA in the same period. There were increases in landed weight from key pelagic species – horse mackerel, boarfish and herring - in 2012, which were accompanied by growing price volatility⁴⁹, which partially explains the large increases in turnover and GVA. Employment in the sea fisheries sector was 2,233 FTEs in 2012, which shows an increase of 7% with respect to the previous period. The introduction of vessels in the small-scale fleet can partially explain this trend. According to the Census of Population of Ireland, a total of 1,506 persons self-declared that their main occupation was in the sea fisheries/aquaculture sector in 2011⁵⁰.

47 The 2013 Annual Economic Report on the EU Fishing Fleet (STECF 13-15)

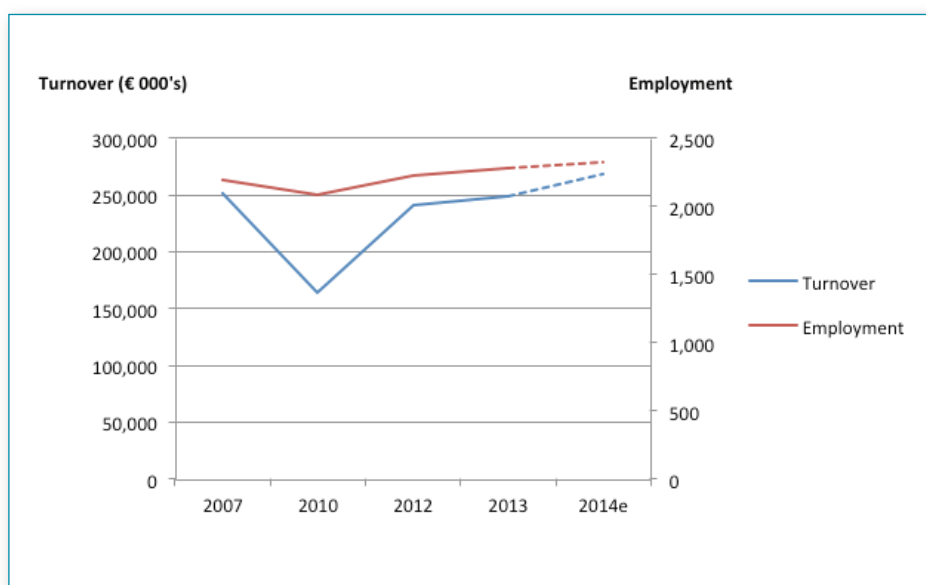
48 See Appendix 1 for details on the methodology.

49 The 2014 Annual Economic Report on the EU Fishing Fleet (STECF 14-16)

50 Census of Population of Ireland, 2011, CSO

Estimates suggest that the turnover generated by the sector in 2014 was €268 million, representing an increase in activity of 11% between 2012 and 2014. Estimated GVA increased by 15% to €204 million in the same period, while employment increased to 2,328 FTEs, an increase of 4% (See Table 4).

Figure 12: Sea Fisheries turnover and employment trends, 2007 – 2014(e)



Source: Sea Fisheries Protection Authority (SFPA) Annual Report, 2012 and 2013; Bord Iascaigh Mhara (BIM); Scientific, Technical and Economic Committee for Fisheries (STECF) – The Annual Economic Report on the EU Fishing Fleet, 2013 and 2014; Figures for 2014 are estimates (e)⁵¹

Overview of the Policy Context and Outlook

In 2014 the Irish fishing fleet consisted of 2,202 registered vessels, a decrease of around 2% on the previous year. However vessel numbers had previously shown consistent growth since 2008 with the fleet increasing from 1,972 to 2,247 up to 2013⁵². Decreases in oil prices have allowed for cost saving and thus increased profitability of the Irish national fleet. This may however be mitigated by reduced quotas for cod and whiting for 2015, which are both of significant economic importance to Irish fishermen⁵³.

Global demand for seafood is growing and is expected to increase by 42 million tonnes over the next decade. To avail of opportunities provided by the growth in the market a target for expansion of raw material supply by 45,000 tonnes has been proposed by BIM⁵⁴. China continues to be a growing market for Irish seafood, with exports to this country increasing by 56% in the first half of 2014 compared to the same period in 2013. To build on this momentum and further increase exports of premium Irish seafood, Bord Bia will concentrate promotional efforts on increasing awareness of new species from Ireland, such as brown crab and Irish prawns⁵⁵.

51 See Appendix 1 for details on the methodology.

52 The 2014 Annual Economic Report on the EU Fishing Fleet (STECF 14-16)

53 Inshore Ireland 5th February 2015: Coveney Delivers €123m for Fishermen but Disappointment for Some Whitefish Stocks.

54 BIM Strategy (2013-2017) Capturing Ireland's Share of the Global Seafood Opportunity

55 The Fish Site 7th November 2014: Huge Growth for Irish Seafood Exports to China



With the introduction of the Common Fisheries Policy (CFP) Reform, which took effect on 1st January 2014, the focus will remain on enhancing environmental sustainability of Irish seafood with stipulations that between 2015 and 2020, catch limits that are sustainable and maintain fish stocks in the long term should be set. The new policy aims to replenish EU fish stocks to Maximum Sustainable Yield through long-term management of stock and reducing and eliminating discards where possible.

Future policy developments include the new Seafood Development Programme (SDP) 2014-2020, currently under public consultation⁵⁶. The SDP is co-funded by the Exchequer and the European Maritime and Fisheries Fund (EMFF, Council Regulation 508/2014). The programme sets out a development strategy that takes into account the specific needs of the seafood and maritime sectors, including those coastal/marine communities with a dependence on these sectors.

Building on Food Harvest 2020⁵⁷, the Government's national strategy for the sustainable development of the food industry, including seafood, the Department of Agriculture, Food and the Marine is currently preparing a national strategy for the agri-food sector up to 2025. This strategy will outline the key actions required to ensure that the sector (including sea fisheries and seafood processing) maximises its contribution to overall economic growth, job creation and environmental sustainability over the coming decade.

56 Consultation on Seafood Development Programme 2014 – 2020, Department of Agriculture, Food and the Marine, April 2015

57 Food Harvest 2010, Department of Agriculture, Food and the Marine, 2010, Dublin.

Marine Aquaculture

Ireland produced 36,200 tonnes of farmed product in total in 2012 and there were 279 operations engaged in the sector during that period, of which the majority is engaged in shellfish aquaculture, producing 22,700 tonnes, whilst other marine species account for 12,400 tonnes of production⁵⁸. Total investment in aquaculture during 2013 amounted to €1,382,539⁵⁹. Table 10 shows the turnover, GVA, and employment for 2007, 2010, 2012, 2013 (estimated) and 2014 (estimated) as well as the % change in each between 2010 and 2012. Figure 13 shows the trends for both turnover and employment over the five periods.

Profile

Fin Fish

- Salmon
- Seawater Trout
- Arctic Char
- Cod

Shell Fish

- Rope Mussels
- Clams
- Bottom Mussels
- Scallops
- Gigas Oysters
- Abalone
- Edulis Oysters
- Sea Urchins

Table 10: Marine Aquaculture turnover, GVA, employment, 2007, 2010, 2012, 2013(e), 2014(e)

Marine Aquaculture	2007	2010	2012	2010-2012 (% change)	2013(e)	2014(e)
Turnover €000's ³	105,700	122,500	130,300	6%	141,459	150,546
GVA €000's	42,280	46,200	60,600	31%	65,790	71,425
Employment FTEs	1,061	952	956	0.4%	960	964
Location of activity	Shellfish aquaculture activities are widely distributed across the coast of Ireland, with particular concentrations in Co. Donegal, Connemara, Co. Galway, West Cork, Co. Waterford, Co. Wexford, and Carlingford Lough, Co. Louth. Finfish aquaculture is mainly restricted to the Western seaboard in counties Donegal, Mayo, Galway, Kerry and Cork.					

Source: EU Scientific, Technical and Economic Committee for Fisheries (STECF) – *The Economic Performance of the EU Aquaculture Sector*; Bord Iascaigh Mhara (BIM); Figures for 2013 and 2014 are estimates (e)⁶⁰

The turnover generated by marine aquaculture in 2012 was €130 million. Total GVA generated was €61 million. Turnover increased between 2010 and 2012 by 6%, with a 31% increase in GVA in the same period. Employment in the aquaculture sector was 956 FTEs in 2012, which shows an increase of 0.4% with respect to the previous period.

Box C: Seafood Exports for Ireland

Due to the interlinked nature of the sea fisheries and marine aquaculture sectors, it is difficult to estimate the individual export value at sector level. We have therefore included here, figures for seafood exports originating from both sea fisheries and marine aquaculture. In 2012, the exports from both sectors amounted to €286.9 million.

Source: *Intrastat*, CSO; *Bord Bia – Export Performance and Prospects 2013*

58 The Economic Performance of the EU Aquaculture Sector (STECF 14-18)

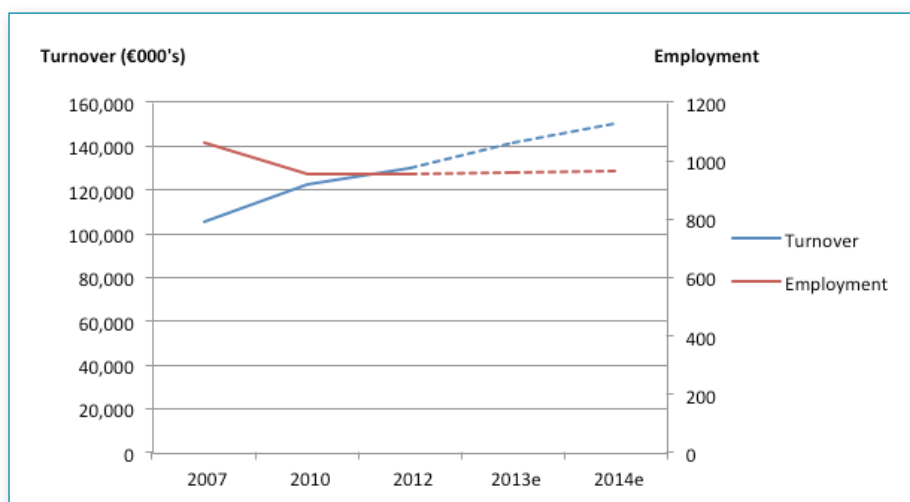
59 BIM Annual Report 2013

60 See Appendix 1 for details on the methodology.



Estimates suggest that the turnover generated by the sector in 2014 was €151 million, representing an increase in activity of 16% between 2012 and 2014. Estimated GVA increased by 18% to €71 million in the same period, while employment increased to 964 FTEs.

Figure 13: Marine Aquaculture turnover and employment trends, 2007 – 2014(e)



Source: EU Scientific, Technical and Economic Committee for Fisheries (STECF) – *The Economic Performance of the EU Aquaculture Sector*; Bord Iascaigh Mhara (BIM); Figures for 2013 and 2014 are estimates (e)⁶¹

Overview of the Policy Context and Outlook

Overall output is not expected to expand in the immediate future due mainly to licensing issues in the aquaculture sector, including limited availability and long delays in application turnaround as well as changing costs and stock shortages. Occurrences of disease and parasite-induced mortalities in juvenile stock also continue to hamper production expansion, although this particular issue is not unique to Ireland. The outlook for value added increases is however positive, with focused marketing products in new high end markets in Asia⁶².

Bottom mussel production is expected to increase from 2015 onwards due to the discovery of seed beds that have been re-laid into licensed ground as of 2014. In addition temporary growth in unit value of rope mussels is expected for 2015 due to shortages in the market last year⁶³.

Again, the development of the new Seafood Development Programme (SDP) 2014-2020, currently under public consultation, will set out a development strategy for Ireland's aquaculture sector in line with the Union Priorities outlined in the European Maritime and Fisheries Fund (EMFF) Regulation (EU) No 1303/2013, including fostering environmentally sustainable, resource-efficient, innovative, competitive and knowledge-based aquaculture.

Food Harvest 2020, the Government's national strategy for the sustainable development of the food industry, made a number of recommendations in relation to the aquaculture sector, particularly in the area of management and research and development (R&D). As part of this strategy, Bord Iascaigh Mhara (BIM) is leading a project to develop three deep sea salmon farms. It is expected that each farm will be capable of producing 15,000 tonnes of Irish Organic Salmon annually, valued at €102 million.

61 See Appendix 1 for details on the methodology.

62 The Economic Performance of the EU Aquaculture Sector (STECF 14-18)

63 The Economic Performance of the EU Aquaculture Sector (STECF 14-18)



Building on Food Harvest 2020, the Department of Agriculture, Food and the Marine is currently preparing a national strategy for the Agri-Food Sector up to 2025. This strategy will outline the key actions required to ensure that the agri-food sector (including aquaculture and seafood processing) maximises its contribution to overall economic growth, job creation and environmental sustainability over the coming decade.

Seafood Processing

Ireland's seafood industry provides an important source of economic activity. Seafood companies produce high value products, which generate substantial export earnings to the sector. The key export markets are France, Great Britain, Spain, Germany, Italy and Nigeria. The Irish seafood processing industry is comprised of mostly small enterprises with less than 10 employees. Only 12% of Irish processing companies had more than 50 employees in 2012 and there are currently 164 companies engaged in the seafood processing sector in Ireland⁶⁴.

The industry is comprised of finfish, shellfish, smoked, pelagic and whitefish operators. Shellfish companies accounted for the largest number of fish processing companies in Ireland. Many companies in Ireland specialise in more than one species. Table 11 shows the turnover, GVA, and employment for 2007, 2010, 2012, 2013 (estimated) and 2014 (estimated) as well as the % change in both indicators between 2010 and 2012. Figure 14 shows the trends for both turnover and employment over the five periods.

Profile

- Preparation and preservation of fish, crustaceans and molluscs
- Production of fish, crustacean and mollusc products
- Production of fishmeal for human consumption or animal feed
- Production of meals and solubles from fish and other aquatic animals unfit for human consumption
- Activities of vessels engaged only in the processing and preserving of fish
- Processing of seaweed

Table 11: Seafood Processing turnover, GVA, employment, 2007, 2010, 2012, 2013(e), 2014(e)

Seafood Processing	2007	2010	2012	2010-2012 (% change)	2013(e)	2014(e)
Turnover €000's	395,593	389,635	514,566	32%	477,948	520,348
GVA €000's	88,204	80,008	98,455	23%	91,449	99,561
Employment FTEs	2,090	1,586	1,839	16%	1,854	1,869
Location of activity	The sector is concentrated in the coastal regions of Donegal, Mayo, Cork, Kerry, Galway and the South East					

Source: CSO – Census of Industrial Production (CIP) 2012 – REV 1: NACE Four-Digit Code: 15.02; REV 2: NACE Four-Digit Code: 10.20; Bord Bia Export Performance and Prospects 2014-2015; Figures for 2013 and 2014 are estimates (e)⁶⁵

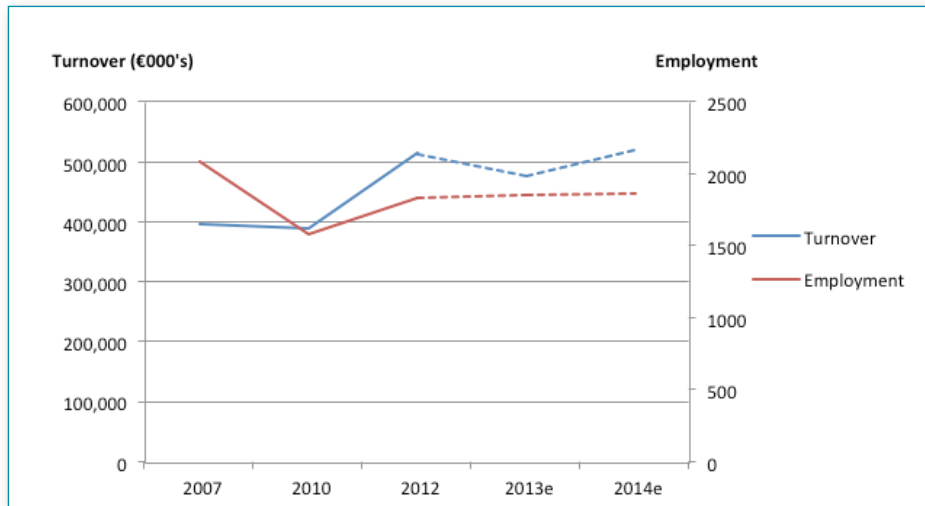
The turnover generated by seafood processing in 2012 was €515 million, of which 50% was exported. Total GVA generated was €98 million. Turnover increased between 2010 and 2012 by 32%, with a 23% increase in GVA in the same period. Employment in the seafood processing sector was 1,839 FTEs in 2012, which shows an increase of 16% with respect to the previous period.

Estimates suggest that the turnover generated by the sector in 2014 was €520 million, representing an increase in activity of 1% between 2012 and 2014. Estimated GVA increased by 1% to €99.5 million in the same period, while employment increased to 1,869 FTEs, an increase of 2% as shown in Table 4.

64 The Economic Performance of the Fish Processing Industry (STECF 14-21)

65 See Appendix 1 for details on the methodology.

Figure 14: Seafood processing turnover and employment trends, 2007 – 2014(e)



Source: CSO – Census of Industrial Production (CIP) 2012 – REV 1: NACE Four-Digit Code: 15.02; REV 2: NACE Four-Digit Code: 10.20; Bord Bia Export Performance and Prospects 2014-2015; Figures for 2013 and 2014 are estimates (e)⁶⁶

Overview of the Policy Context and Outlook

The development of the new Seafood Development Programme (SDP) 2014-2020, currently under public consultation, will set out a development strategy for Ireland’s seafood processing sector in line with the Union Priorities outlined in the European Maritime and Fisheries Fund (EMFF) Regulation (EU) No 1303/2013, which includes fostering marketing and seafood processing activities.

A relevant policy development for Ireland’s seafood sector is Bord Bia’s Origin Green sustainability programme, which encourages food companies to reduce waste and to operate in a more environmentally friendly basis⁶⁷. There is a general movement among the Irish seafood industry towards increasing sustainability by reducing energy inputs, increasing levels of recycling and adopting independent, third party verification of their sustainability credentials.

The Seafood Processing Investment Scheme administered by BIM is targeting the seafood processing sector to boost the value added within the sector. An investment by 18 seafood processing companies of almost €9 million (supported by grants of €2.7 million under an EU co-funded scheme) for 2015 has been announced by the Department of Agriculture, Food and the Marine⁶⁸. The projects are due to deliver an estimated 145 jobs as well as €41 million in additional sales by 2017 and will enable industry participants to continue growing sales internationally⁶⁹.

Irish seafood exports recorded a steady growth of almost 65% in the value of exports over the 2009 – 2012 period⁷⁰. According to Bord Bia, there is potential for modest growth in seafood export values in 2015. Seafood exports recorded an increase of 8% in 2014 to reach an estimated €540 million. While the total volumes exported decreased by 2% on 2013, there was a 10% increase in unit prices, which boosted export values⁷¹.

66 See Appendix 1 for details on the methodology.

67 <http://www.origingreen.ie/>

68 Compared with 21 companies and €15 million investment in 2012

69 Department of Agriculture, Food and the Marine Press Release 2015, ‘Coveney Announces €9 Million Investment Driving the Expansion of the Irish Seafood Processing Industry’

70 Bord Bia, Export Performance & Prospects. Irish Food, Drink and Horticulture, 2013-2014

71 Bord Bia, Export Performance & Prospects. Irish Food, Drink and Horticulture, 2014-2015

Oil and Gas Exploration and Production

The Irish offshore oil and gas sector continues to have significant potential. However, there have only been four commercial discoveries in Ireland to date. All four discoveries were gas, including Kinsale (1971); Ballycotton (1989); Seven Heads (1973) and Corrib (1996)⁷². Over the last 40 years 129 exploration wells have been drilled with limited success making the probability of a commercial discovery in Ireland low⁷³. No commercial oil production in Ireland has been achieved to date. Table 12 shows the turnover, GVA, and employment for 2007, 2010, 2012, 2013 (estimated) and 2014 (estimated) as well as the % change in each between 2010 and 2012. Figure 15 shows the trends for both turnover and employment over the five periods.

Profile

- Extraction of crude petroleum
- Extraction of natural gas
- Support activities and natural gas extraction, including exploration services

Table 12: Oil and Gas Exploration and Production, GVA, employment, 2007, 2010, 2012, 2013(e), 2014(e)

Oil and Gas Exploration and Production	2007	2010	2012	2010-2012 (% change)	2013(e)	2014(e)
Turnover €000's	197,300	125,759	131,678	5%	137,875	144,364
GVA €000's	137,117	61,182	56,266	-8%	51,746	47,589
Employment FTEs	790	359	506	41%	504	512
Location of activity	The sector is concentrated in the coastal regions of Donegal, Mayo, Cork, Kerry, Galway and the South East					

Source: CSO - Census of Industrial Production 2012 – REV 1: NACE Four Digit Codes: 11.10, 11.20; REV 2: NACE Four Digit Codes: 06.10, 06.20, 09.10; SEMRU Company Survey; Figures for 2013 and 2014 are estimates (e)⁷⁴

The turnover generated by the oil and gas exploration and production sector in 2012 was €132 million. Total GVA generated was €33.5 million. Turnover increased between 2010 and 2012 by 5%, with an 8% decrease in GVA in the same period. Employment in the sector was 506 FTEs in 2012, which shows an increase of 41% with respect to the previous period.

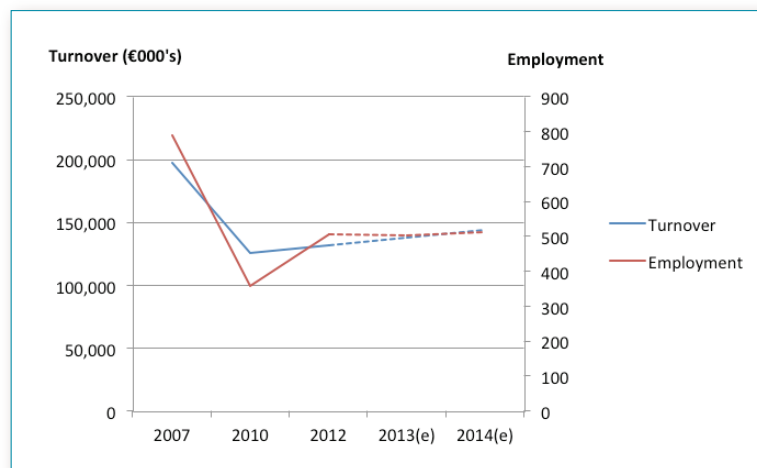
Estimates suggest that the turnover generated by the sector in 2014 was €144 million, representing an increase in activity of 10% between 2012 and 2014. Table 4 shows that estimated GVA decreased by 15% to €47.6 million in the same period, while employment increased to 512 FTEs, an increase of 2%.

72 PwC Report 2013, 'Making the most of our natural resources: Oil and gas exploration in Ireland'

73 Government of Ireland, Inter-Departmental Marine Coordination Group (MCG), "Harnessing Our Ocean Wealth – An Integrated Marine Plan (IMP) for Ireland", July 2012, Briefing Document Part II: Sectoral Briefs

74 See Appendix 1 for details on the methodology.

Figure 15: Oil and Gas Exploration and Production turnover and employment trends, 2007 – 2014(e)



Source: CSO - Census of Industrial Production 2012 – REV 1: NACE Four Digit Codes: 11.10, 11.20; REV 2: NACE Four Digit Codes: 06.10, 06.20, 09.10; SEMRU Company Survey; Figures for 2013 and 2014 are estimates (e)⁷⁵

Overview of the Policy Context and Outlook

The Department of Communications, Energy and Natural Resources (DCENR) and its Petroleum Affairs Division (PAD) have responsibility for the promotion, regulation and monitoring of oil and gas offshore exploration and development in Ireland. Ireland's fiscal terms for the oil and gas industry were reviewed in 2014, which resulted in the publication of the report on Ireland's exploration and licensing system, by international energy consultants Wood Mackenzie. While the report found that there should be no change to the tax terms on existing drilling operations, it suggested the strengthening of the fiscal system to be applied to future licensing rounds, including those to be awarded under the 2015 Atlantic Margin Licensing Round, launched in 2014. The forthcoming licensing round will include all of Ireland's major Atlantic basins: Porcupine, Goban Spur, Slyne, Erris, Donegal and Rockall and the concession on offer will be in the form of a two year Licensing Option. The Atlantic Margin Licensing Round will close on the 16th September 2015.

While Ireland's offshore oil and gas potential has been widely acknowledged by industry and experts, the country continues to be largely under-explored. The levels of drilling in the Irish offshore are at an all-time low, with 4 wells drilled in the past 5 years⁷⁶. Recent events such as the aforementioned changes in licensing terms announced in 2014, the release of new 2D and 3D seismic data including the recently completed DCENR/Eni regional seismic survey and the Corrib gas field coming on stream in 2015 will have implications on the perception of Ireland as an attractive destination for offshore oil and gas investment.

The future direction of Ireland's energy policy will be determined by the development of an anticipated White Paper on Energy Policy, which after an extensive public consultation process is expected to be published in September 2015.

No specific targets were set out for this sector in HOOW, however, an aggregate 2020 target of € 1.2 billion in turnover was set for the combined sectors of ports and maritime transport services, maritime manufacturing, engineering, offshore oil and gas and 'other' marine industries. Depending on the evolution of oil prices over the forthcoming months, with the Corrib Gas project expected to produce its first output later this year and the new Atlantic Margin licensing round, there should be a substantial increase in turnover in this HOOW category over the coming years.

⁷⁵ See Appendix 1 for details on the methodology.

⁷⁶ Shannon (2014). Ireland's Oil and Gas Industry Update, Enterprise Ireland - NOF Energy: UK & Ireland International Oil & Gas supply chain exchange

Marine Manufacturing, Construction and Engineering

The majority of Marine Manufacturing, Construction and Engineering companies are small and medium sized enterprises (SME's). Table 13 shows the turnover, GVA, and employment for 2007, 2010, 2012, 2013 (estimated) and 2014 (estimated) as well as the % change in each between 2010 and 2012. Figure 16 shows the trends for both turnover and employment over the five periods.

Profile

- Boat and Related Equipment Manufacturing
- Boat Manufacturing
- Boat and Ship Repair
- Net manufacturing

Other Marine Manufacturing

- Water Construction
- Marine Industrial Engineering
- Other Marine Manufacturing

Table 13: Marine Manufacturing, Construction and Engineering turnover, GVA, exports, employment, 2007, 2010, 2012, 2013(e), 2014(e)

Marine Manufacturing	2007	2010	2012	2010-2012 (% change)	2013(e)	2014(e)
Turnover €000's	265,227	110,812	138,581	25%	137,484	157,497
GVA €000's	110,429	44,003	34,901	-21%	34,625	39,665
Employment FTEs	1,600	726	836	15%	859	854
Location of activity	Companies involved in marine manufacturing are found throughout Ireland, both along the coast and inland. However there are clusters of particular marine product manufacturing to be found in certain areas, particularly in Co. Donegal (marine industrial engineering), and counties Galway and Cork (boat building). Companies involved in water construction are mainly located in Dublin and Offaly.					

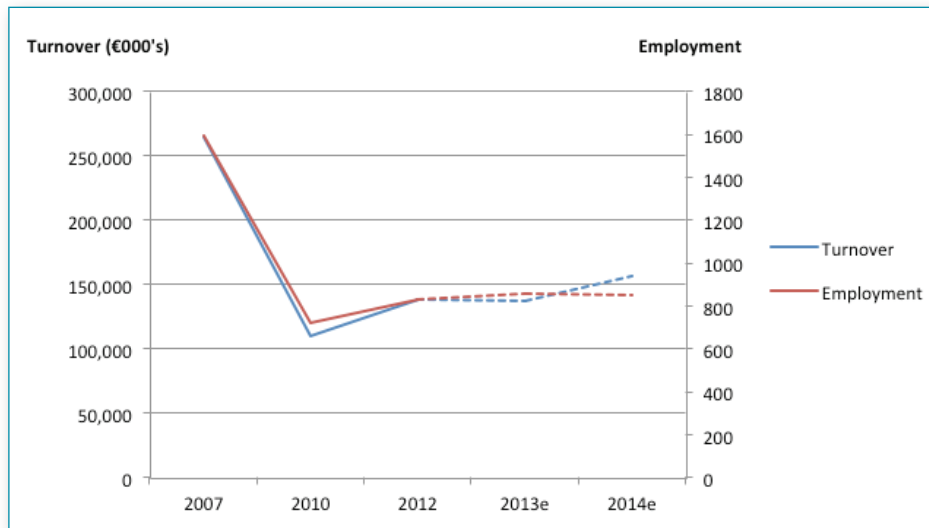
Source: CSO – Census of Industrial Production 2012; CSO – Building and Construction Inquiry 2012 – REV 1: NACE Four-Digit Codes: 35.11, 35.12, 45.24; REV 2: NACE Four-Digit Codes: 30.11, 30.12, 33.15, 42.91; CSO – Industrial Turnover Index; CSO – National Household Survey; SEMRU Company Survey, Company Registrations Office, FAME Database; Figures for 2013 and 2014 are estimates (e)⁷⁷

The turnover generated by marine manufacturing, construction and engineering in 2012 was €139 million, 4.4% of which was exports. Total GVA generated was €35 million. Turnover increased between 2010 and 2012 by 25%, with a 21% decrease in GVA in the same period, which is primarily caused by a drop in GVA in Other Marine Manufacturing and Marine Industrial Engineering. Employment in the sector was 836 FTEs in 2012, which shows an increase of 15% with respect to the previous period.

Estimates in Table 4 suggest that the turnover generated by the sector in 2014 was €158 million, representing an increase in activity of 14% between 2012 and 2014. Estimated GVA increased by 14% to €39.7 million in the same period, while employment increased to 854 FTEs, an increase of 2%.

77 See Appendix 1 for details on the methodology.

Figure 16: Marine Manufacturing, Construction and Engineering turnover and employment trends, 2007 – 2014(e)




Source: CSO – Census of Industrial Production 2012; CSO – Building and Construction Inquiry 2012 – REV 1: NACE Four-Digit Codes: 35.11, 35.12, 45.24; REV 2: NACE Four-Digit Codes: 30.11, 30.12, 33.15, 42.91; CSO – Industrial Turnover Index; CSO – National Household Survey; SEMRU Company Survey, Company Registrations Office, FAME Database; Figures for 2013 and 2014 are estimates (e)⁷⁸

Overview of the Policy Context and Outlook

The outlook for the sector is generally positive for 2015. The sector has experienced some recovery in recent years; however, this has not translated into employment growth yet. Growth in the sector has not returned to pre-recession levels and remains incremental in nature. There does however appear to be increased confidence among consumers and this is driving increased demand for boats. Companies within the sector are hoping to increase marine related activities by approximately 10% in the coming years⁷⁹.

78 See Appendix 1 for details on the methodology.

79 SEMRU Company Survey



Emerging
Marine
Industries

Emerging Marine Industries

The Emerging Marine Industries in 2012 had a turnover of €215 million and provided employment to 1,154 FTEs. It represents 5% of the turnover and 7% of employment in the Ocean Economy. Emerging industries refer to those that are still at a relatively early stage of development or growth, are R&D intensive and/or use the latest cutting edge technology in their pursuit of economic growth. The Irish marine sector consists of a number of emerging industries and industries with currently untapped potential.

The Emerging Marine industries have significant potential for growth and development in the future.

Emerging marine sectors identified and profiled below include:

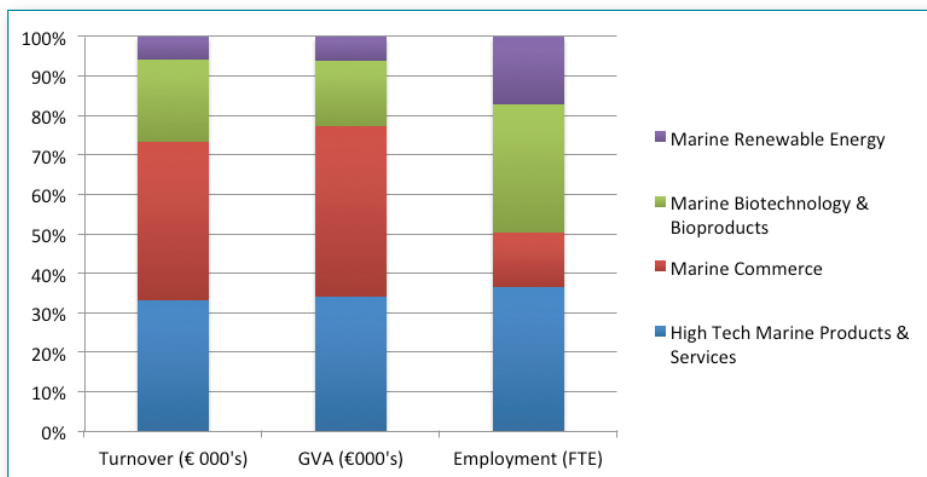
- Marine Commerce
- High Tech Marine Products and Services
- Marine Biotechnology and Bio-products
- Marine Renewable Energy

Figure 17 shows the relative contribution of each of these sub-sectors to the overall turnover, employment and GVA of the Emerging Marine Industries. Amongst the emerging industries, the marine commerce sector was the largest contributor of turnover to the marine economy in 2012, followed by high tech products and services, biotechnology and bio-products and marine renewable energy, respectively.





Figure 17: Relative contribution (%) of each subsector within the Emerging Irish Marine Industries to turnover, GVA and employment, 2012

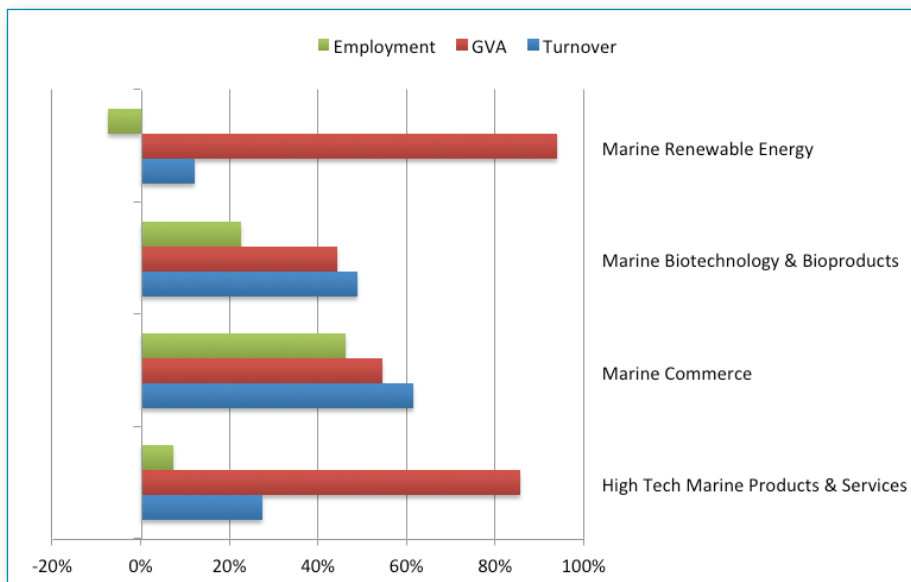


In terms of GVA, marine commerce was once again the largest contributor in 2012 from the emerging industries, followed by the high tech products and services sector, the biotechnology and bio-products sector and the marine renewable energy sector, respectively.

The high tech products and services sector was the largest contributor to employment in the emerging industries for 2012, followed by biotechnology and bio-products, marine renewable energy and marine commerce, respectively.

Figure 18 shows the rate of change in turnover, GVA and employment for the emerging industries in the 2010-2012 period. Marine commerce has the largest % increase in turnover and employment. Marine renewable energy exhibited the largest % increase in GVA, while also being the only emerging industry to show a decline across any of the three measures, with a fall in employment.

Figure 18: Rates of change (%) in turnover, GVA and employment. Emerging Industries, 2010-2012



High Tech Marine Products and Services

The high tech marine products and services sector builds on Ireland's existing marine information and communication technology (ICT), science and engineering base developing new knowledge based products and services for global marine markets. It is an emerging sector consisting of over 50 SMEs and a number of MNCs with core capabilities in diverse areas such as advanced sensing and communications, data management and informatics, marine robotics and artificial intelligence, materials science and marine engineering. These technologies support activity in a number of marine sectors such as oil and gas, transport and shipping, fisheries and aquaculture, coastal tourism and safety, security and surveillance. They also underpin development in emerging sectors such as marine renewable energy, marine environmental monitoring and resource management⁸⁰. Table 14 shows the turnover, GVA, exports and employment in 2007, 2010, 2012, 2013 and 2014 (estimated) as well as the % change in each between 2010 and 2012. Figure 19 shows the trends for both turnover and employment over the five periods.

Profile

- Marine Engineering Consultancy, Products & Services
- Meteorological Consultancy, Products & Services
- Environmental Consultancy, Products & Services
- Hydro-Survey Consultancy, Products & Services
- Project Management Consultancy
- Marine ICT Consultancy, Products & Services
- Aquaculture Technology
- Marine Instrumentation
- Sensors
- Geo-Informatics Services
- Yacht Design

Table 14: High Tech Marine Services turnover, GVA, exports, employment, 2007, 2010, 2012, 2013, 2014(e)

High Tech Marine Services	2007	2010	2012	2010-2012 (% change)	2013	2014(e)
Turnover €000's	43,618	55,924	71,277	27%	74,027	76,988
GVA €000's	27,299	20,807	38,612	86%	43,546	49,207
Exports €000's	10,876	12,307	23,827	94%	26,297	28,927
Employment FTEs	350	391	420	7%	437	454
Location of activity	Technology companies are located across Ireland, both on the coast and inland. However, the majority of companies are located within the larger cities, primarily Galway, Cork and Dublin.					

Source: SEMRU Company Survey, Company Registrations Office, FAME Database; Figures for 2014 are estimates (e)⁸¹

The turnover generated by marine high tech marine products and services in 2012 was €71.3 million, 33.4% of which was exports. Total GVA generated was €38.6 million. Turnover increased between 2010 and 2012 by 27%, with an 86% increase in GVA in the same period. Employment in the sector was 420 FTEs in 2012, which shows an increase of 7% with respect to the previous period.

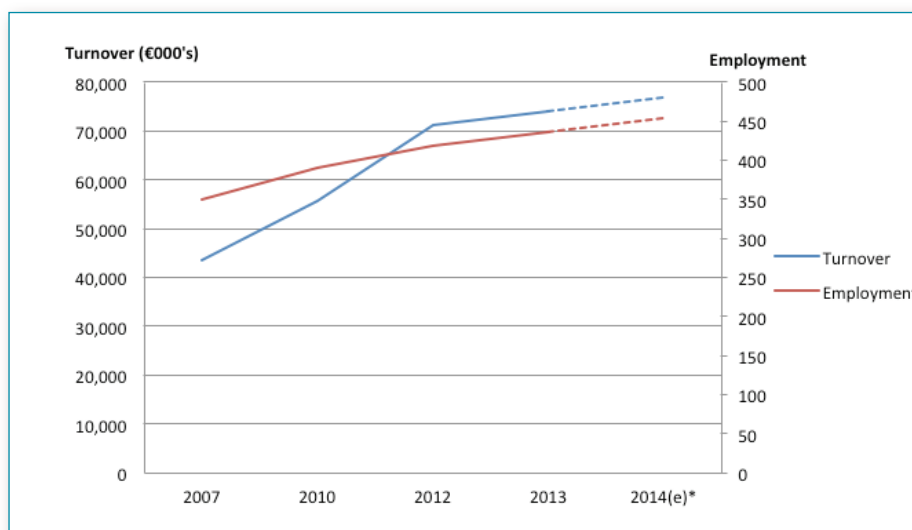
80 Government of Ireland, Inter-Departmental Marine Coordination Group (MCG), "Harnessing Our Ocean Wealth - An Integrated Marine Plan (IMP) for Ireland," July 2012, Briefing Document Part II: Sectoral Briefs

81 See Appendix 1 for details on the methodology.



Estimates in Table 4 suggest that the turnover generated by the sector in 2014 was €77 million, representing an increase in activity of 8% between 2012 and 2014. Estimated GVA increased by 27% to €49 million in the same period, while employment increased to 454 FTEs, an increase of 8%

Figure 19. High Tech Marine Services turnover and employment trends, 2007 – 2014(e)



Source: SEMRU Company Survey, Company Registrations Office, FAME Database; Figures for 2014 are estimates (e)⁸²

Overview of the Policy Context and Outlook

In recent years Ireland has invested in infrastructure to support the development of this sector into the future. This includes national test and demonstration facilities which will see a major upgrade in 2015 with the deployment of a sub-sea ocean observatory in Galway bay. This will further enhance Ireland’s attractiveness as a location for marine technology research and innovation given its geographic location and extensive ocean resource, along with its existing research infrastructure, datasets and ICT and engineering base. The outlook for high tech marine products and services sector remains positive for the coming year.

There are currently over 50 home grown as well as multinational companies based in Ireland engaged in the development and provision of High Tech Marine products and services to the Global Marine Sector.

82 See Appendix 1 for details on the methodology.

Marine Commerce

Marine commerce, as defined here, refers to legal services, financial services, insurance and ship surveying. In this sector companies provide services across a range of marine categories, primarily, maritime transportation, tourism and leisure, fisheries and aquaculture as well as energy. The majority of these companies are large international firms, who have marine-related divisions. Table 15 presents the turnover, GVA and employment for this sector in 2007, 2010, 2012, 2013 and 2014 (estimated) as well as the % change in each between 2010 and 2012. Figure 20 shows the trends for both turnover and employment over the five periods.

Profile

- Marine Financial Services
- Marine Legal Services
- Marine Insurance
- Ship Surveyors

Table 15: Marine Commerce turnover, GVA, employment, 2007, 2010, 2012, 2013, 2014(e)

Marine Commerce	2007	2010	2012	2010-2012 (% change)	2013	2014(e)
Turnover €000's	101,338	53,602	86,559	61%	108,177	129,813
GVA €000's	48,009	31,810	49,167	55%	49,910	50,908
Employment FTEs	105	110	161	46%	165	168
Location of activity	Companies that provide marine commerce services are primarily located in Dublin, Cork and Galway					

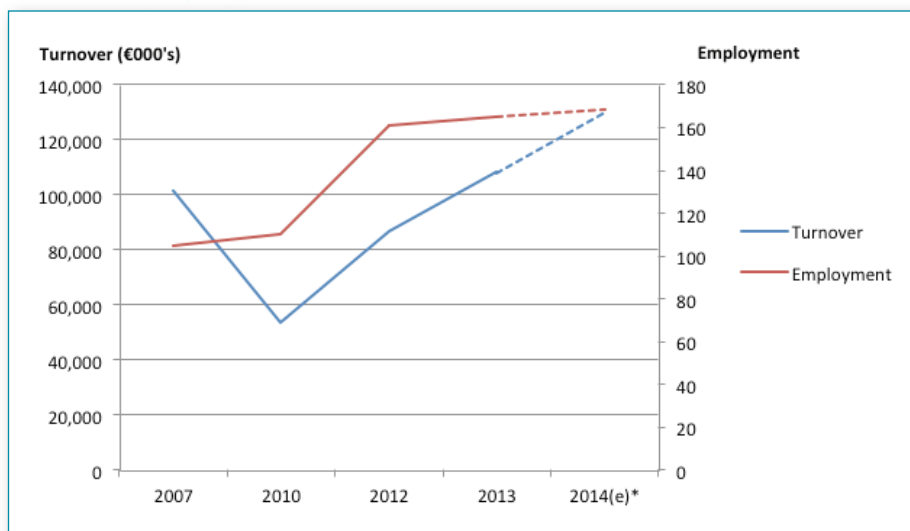
Source: SEMRU Company Survey, Company Registrations Office, FAME Database; Figures for 2014 are estimates (e)⁸³

The turnover generated by the marine commerce sector in 2012 was €86.6 million. Total GVA generated was €49.2 million. Turnover increased between 2010 and 2012 by 61%, with a 55% increase in GVA in the same period. Employment in the sector was 161 FTEs in 2012, which shows an increase of 46% with respect to the previous period.

Estimates suggest that the turnover generated by the sector in 2014 was €129.8 million, representing an increase in activity of 50% between 2012 and 2014. Table 4 shows that estimated GVA increased by 4% to €50.9 million in the same period, while employment increased to 168 FTEs, an increase of 5%.

83 See Appendix 1 for details on the methodology.

Figure 20: Marine Commerce turnover and employment trends, 2007 - 2014(e)



Source: SEMRU Company Survey, Company Registrations Office, FAME Database; Figures for 2014 are estimates (e)⁸⁴

Overview of the Policy Context and Outlook

The general outlook for the marine commerce sector is positive. The insurance sector should remain stable with possible increases in line with any increases in vessel ownership and management. Turnover in the insurance sector is very much driven by how the overall marine sector as well as the shipping and boating industries are performing.

Financial services should continue to grow as certain financial institutions within the sector are now permitted to lend to the Offshore & Logistics sectors after several years of restrictions.

Legal services should maintain its current position with litigation remaining the most important area of business. According to the companies interviewed by SEMRU, the cost of transactional documentation in Ireland could be considered prohibitive compared to other jurisdictions and for that reason British and New York law are expected to remain the most prevalent in the industry.

A future major development within this sector would be the green light to the International Shipping Services Centre (ISSC) project in Dublin's Docklands. Building on the experience from the Irish Financial Services Centre (IFSC) and on Ireland's success in aircraft leasing, the ISSC plan aims at developing a hub for international ship finance in Dublin to establish Ireland as an international maritime centre such as London, Hamburg and Singapore.

84 See Appendix 1 for details on the methodology.

Marine Biotechnology and Bioproducts

Marine biotechnology is the use of biological knowledge and analytical and processing techniques to develop new products from marine biological materials. It exploits the diversity of marine organisms in terms of form, structure, physiology and chemistry⁸⁵. The sector also includes seaweed harvesting. According to FAO estimates, the annual capture production of Ireland in 2012 was 29,500 wet tonnes. The main commercial species harvested in Ireland are *Ascophyllum nodosum*, *Laminaria hyperborea* and miscellaneous red seaweeds.

Ireland's emerging marine biotechnology industry is diverse, spanning different industry sectors such as food, pharmaceuticals, medical devices, aquaculture and seaweed and contributes to an array of novel products and processes. Table 16 shows the turnover, GVA, exports and employment in 2007, 2010, 2012 and 2013 as well as the % change in each between 2010 and 2012. Figure 21 shows the trends for both turnover and employment over the five periods.

Profile

- Seaweed Harvesting
- Whole or unprocessed foods and processed foods for consumption
- Industrial texturants, including foods, toothpaste and paints
- Plant fertilisers in agriculture
- Animal feeds in agriculture and fish feeds in aquaculture
- Bioactives for health, medicine and cosmetics
- Energy and biofuels

Table 16: Marine Biotechnology and Bioproducts turnover, GVA, exports, employment, 2007, 2010, 2012, 2013, 2014(e)

Marine Biotechnology and Bioproducts	2007	2010	2012	2010-2012 (% change)	2013	2014(e)
Turnover €000's	28,251	29,867	44,510	49%	46,398	48,254
GVA €000's	13,759	12,990	18,755	44%	19,668	20,652
Exports €000's	8,455	11,645	14,560	25%	14,824	15,121
Employment FTEs	264	304	373	23%	406	443
Location of activity	Seaweed harvesting takes place around the coast of Ireland, with particular concentrations in Co. Galway, Co. Donegal, Co. Sligo, Co. Kerry and Co. Cork. Other activities in this sector are not confined to coastal counties and have a wide geographical distribution across the country.					

Source: SEMRU Company Survey, Company Registrations Office, FAME Database; Figures for 2014 are estimates (e)⁸⁶

The turnover generated by the marine biotechnology and bio-products sector in 2012 was €44.5 million, 32.7% of which was exports. Total GVA generated was €18.8 million. Turnover increased between 2010 and 2012 by 49%, with a 44% increase in GVA in the same period. Employment in the sector was 373 FTEs in 2012, which shows an increase of 23% with respect to the previous period.

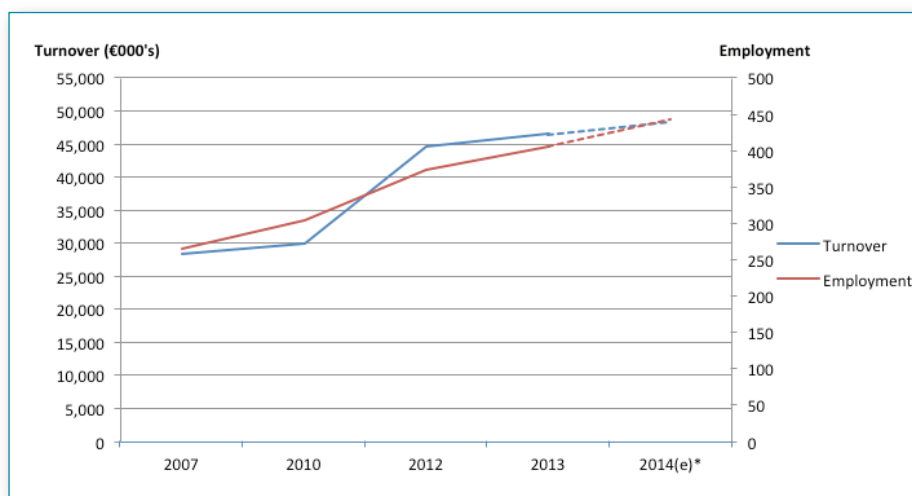
85 Government of Ireland, Inter-Departmental Marine Coordination Group (MCG), "Harnessing Our Ocean Wealth - An Integrated Marine Plan (IMP) for Ireland," July 2012, Briefing Document Part II: Sectoral Briefs

86 See Appendix 1 for details on the methodology.



Estimates suggest that the turnover generated by the sector in 2014 was €48.3 million, representing an increase in activity of 8% between 2012 and 2014. GVA increased by an estimated 10% to €20.7 million in the same period, while employment increased to 443 FTEs, an increase of 19% as shown in Table 4.

Figure 21: Marine Biotechnology and Bioproducts turnover and employment trends, 2007–2014(e)



Source: SEMRU Company Survey, Company Registrations Office, FAME Database; Figures for 2014 are estimates (e)⁸⁷

Overview of the Policy Context and Outlook

While Ireland currently has a low share of the global market for seaweeds, the outlook is positive in the sector. According to the companies interviewed by SEMRU, growth is likely to happen, but it may be hampered by licensing and governance issues as well as a perceived lack of cooperation within the sector. Traditional seaweed harvesters are increasingly concerned about the future introduction of foreshore licensing regulations, in particular after the recent takeover of the seaweed processing factory Arramara⁸⁸. However, these concerns are not shared across the sector as the deal has been described as a partnership that would ensure the future of Arramara, and give maximum economic benefit to its employees, the seaweed harvesters, its suppliers and customers⁸⁹.

Overall, the future potential for the sector lies in higher value added products such as functional ingredients and foods. The transition through the value chain is happening very gradually as the industry in its current state is quite focused on raw materials and products that require minimal processing.

87 See Appendix 1 for details on the methodology.

88 Irish Examiner 16th June 2014: State move on foreshore licenses. Inshore Ireland 27th November 2014: Traditional seaweed harvesters fear introduction of compulsory licensing.

89 Inshore Ireland 9th July 2014: State sell Arramara Teo to Canadian company

Marine Renewable Energy

The marine renewable energy sector in Ireland encompasses the generation of power from offshore wind and the development of technologies and energy devices utilising wave and tidal resources. The wave and tidal sectors are still mainly in the developmental stages globally, while the offshore wind sector is seeing considerable progress taking place at a European and global level⁹⁰. Table 17 presents the turnover, GVA and employment for this sector in 2007, 2010, 2012 and 2013 as well as the % change in each between 2010 and 2012. Figure 22 shows the trends for both turnover and employment over the five periods.

Profile

- Offshore Wind Energy Production and Services
- Wave Energy Production and Services (Pre-Commercial)
- Tidal Energy Production and Services (Pre-Commercial)

Table 17: Marine Renewable Energy turnover, GVA, employment, 2007, 2010, 2012, 2013, 2014(e)

Marine Renewable Energy	2007	2010	2012	2010-2012 (% change)	2013	2014(e)
Turnover €000's	6,218	11,541	12,949	12%	15,342	17,797
GVA €000's	4,425	3,649	7,075	94%	9,775	13,489
Employment FTEs	101	216	200	-7%	226	255
Location of activity	Ireland's location at the western edge of the Atlantic Ocean means that it is ideally located to take advantage of the emerging opportunities to harness power from marine renewable resources.					

Source: SEMRU Company Survey, Company Registrations Office, FAME Database; Figures for 2014 are estimates (e)

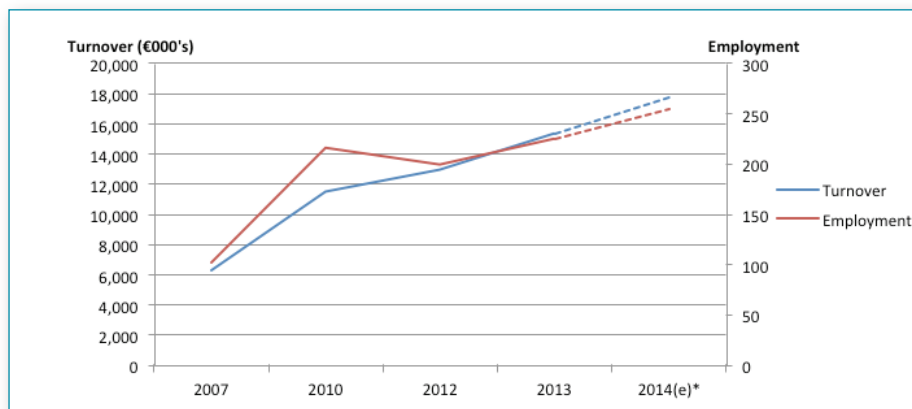
The turnover generated by the marine renewable energy sector in 2012 was €12.9 million. Total GVA generated was €7.1 million. Turnover increased between 2010 and 2012 by 12%, with a 94% increase in GVA in the same period. Employment in the sector was 200 FTEs in 2012, which shows a decrease of 7% with respect to the previous period.

Estimates suggest that the turnover generated by the sector in 2014 was €17.8 million, representing an increase in activity of 37% between 2012 and 2014. GVA increased by an estimated 91% to €13.5 million in the same period, while employment increased to 255 FTEs, an increase of 28% (See Table 4 for details).

90 Government of Ireland, Inter-Departmental Marine Coordination Group (MCG), "Harnessing Our Ocean Wealth - An Integrated Marine Plan (IMP) for Ireland," July 2012, Briefing Document Part II: Sectoral Briefs



Figure 22: Marine Renewable Energy turnover and employment trends, 2007 – 2014(e)



Source: SEMRU Company Survey, Company Registrations Office, FAME Database; Figures for 2014 are estimates (e)

Overview of the Policy Context and Outlook

The outlook for the sector is generally positive. Various companies involved in the offshore wind sector in Ireland have projects at various stages of development. Subject to agreements on export of electricity to the UK and EU markets, experts estimate that these sites will provide over 2600MW of energy. This is expected to require a total investment of over €8 billion between now and 2020.

The sector has been boosted by increased policy commitment and exchequer support with investments in the Smart Bay test site, the development of the Beaufort facility, the ongoing development of the AMETS site and an increase in the SEAI budget for ocean energy projects in the coming year.

Conclusions

This report provides a profile of Ireland's ocean economy for the 2012 reference year against which previously reported marine socio-economic data can be compared. Given the two-year time lag in the release of business statistics data from the Central Statistics Office, the most recent marine socio-economic data available is for 2012. To overcome this limitation, this report includes economic projections that forecast Ireland's ocean economy to 2014. One of the main objectives of the report is to assist in monitoring progress of a number of targets set out in the Government's Integrated Marine Plan for Ireland - Harnessing Our Ocean Wealth (2012). In addition, the report reviews the policy environment and outlook for each marine sector.

In 2012, the direct economic value of the Irish ocean economy is estimated to have been worth €1.3 billion or approximately 0.7% of GDP. The sector had a turnover of €4.2 billion, and provided employment for approximately 17,425 FTEs. Compared to 2010, 2012 saw a 33% increase in turnover, a 5% increase in employment and a 9.2% increase in GVA.

SEMRU estimates on the performance of Ireland's Ocean Economy in 2014 suggest that there has been an overall increase in turnover of 7.6% to €4.5 billion. The direct economic value of the ocean economy is estimated to be worth €1.4 billion or approximately 0.8% of GDP, which is a 8.2% increase on 2012. Employment is estimated to have increased by 6.1% in the 2012-2014 period, to approximately 18,480 FTEs.

The collection of marine socio-economic data is essential for monitoring the marine sector targets set out in Harnessing Our Ocean Wealth – An Integrated Marine Plan for Ireland. However, a marine socio-economic data set is not readily available from any public data source. As marine governance is distributed across numerous agencies and government departments, the collection and analysis of comparable marine socio-economic data is a challenging task. In the series of reports compiled by the Socio-Economic Marine Research Unit (SEMRU), the focus has been on developing a coherent and robust methodology for the collection of marine socio-economic data in Ireland; however, a number of difficulties have been identified over the years. These relate to the NACE code classification system, as some marine sectors are not fully identifiable within the NACE code system and therefore have to be surveyed. Other difficulties relate to the lack of geo-referenced marine socio-economic data, which complicates the process of identifying activities near the sea. This is particularly relevant for marine tourism and water transportation support services.

SEMRU was the lead scientific partner in the MARNET project, an EU transnational co-operation project which contributed to creating a European Atlantic marine socio-economic network and a methodology for the collection of comparable marine socio-economic data across Atlantic regions. The data compiled under MARNET has been used to support marine socio-economic development initiatives along the Atlantic Area. The MARNET project was supported by the ERDF and the EU Interreg Atlantic Area Programme 2007-2013.

The socio-economic marine trends presented in this report are a reflection of the economic recovery that Ireland has experienced in the last few years and the overall indicators echo the general economic trends observed across the main sectors. The positive economic forecasts recently released by the Irish government, the Central Statistics Office, state agencies and national and international economic research institutes have been taken into account to produce a set of estimates of the performance of Ireland's ocean economy in 2014. These estimates suggest a positive outlook for the ocean economy in the forthcoming years. While some policy and regulatory issues remain uncertain, Ireland has again the opportunity to take advantage of its location at the Western edge of the Atlantic Ocean, its extensive ocean resource and the existence of research infrastructure and a research orientated FDI & SME base to position itself at the core of innovation, entrepreneurship and sustainable growth and to drive forward the ocean or "blue" economy while preserving the ecological stability of its marine environment.



Trends

- Shipping and maritime transport experienced a significant increase in activity, both in turnover and GVA. This is due to a moderate increase in the volume of international trade in the 2010-2012 period, as well as a result of an increase in activity for support services associated with the sector, including those related to ship financing and leasing. The levels of activity experienced in 2012 are expected to remain stable in the 2012-2014 period.
- Marine tourism and leisure saw a decline in turnover, employment and GVA in 2012. This year represents a turning point in marine tourism activity, with a gradual expected recovery in 2013 and 2014 in line with the trends in general tourism.
- The Irish international cruise industry experienced an increase of 15% on 2010. Estimates suggest that there has been a large increase in activity in the 2012-2014 period.
- Marine retail has experienced a notable recovery in 2012 and this trend is set to continue in 2013 and 2014.
- Sea Fisheries experienced increases in turnover, GVA and employment in the 2010-2012 period, which are expected to continue in 2013 and 2014. The growth in employment is expected to slow down in 2014.
- The aquaculture sector had an increase in turnover and GVA over the 2010-2012 period of 6% and 31% respectively. While a moderate increase in activity has been estimated for 2014, employment is expected to remain steady for the 2012-2014 period, similar to what has happened since 2010.
- There was a significant increase in activity in the seafood processing sector in the 2010-2012 period, accompanied by an increase in employment. Estimates for 2014 suggest a moderate increase in seafood processing activity in the 2012-2014 period.
- Moderate increases in turnover in the oil and gas sector for the 2010-2012 period are a reflection of increasing Irish oil and gas exploration activities, which are also reflected in the levels of employment growth in the sector. These activities have overcome the gradual decrease in oil and gas production activity as a result of the Kinsale Head Field reaching the end of its production life-cycle and the Corrib Gas Field not coming on stream until 2015.
- Marine manufacturing, construction and engineering is gradually recovering from the downturn it experienced in the previous 2007-2010 reporting period, with an increase of 25% and 15% in turnover and employment respectively in the 2010-2012 period. While GVA is still showing no major signs of recovery, estimates for 2014 suggest a 14% increase in GVA in the 2012-2014 period.
- Emerging industries continue to show very positive trends in the 2010-2012 period. Marine commerce presents the largest increase in turnover and employment, which reflects the overall slow recovery of the Irish economy in this period. The sector was also the largest contributor of turnover to the marine economy in 2012 among the emerging industries, followed by high tech products & services, biotechnology & bio-products and marine renewable energy, respectively.

Appendices

Appendix 1: Methodology and Data Source

Methodology

Definitions of marine-based industries within the ocean economy differ across countries. The general approach taken in this report is to:

1. Revise & update the industries from previous reports that are part of the ocean economy
2. Identify the marine sectors for which there is publically available data
3. Estimate the proportion of economic activity that is marine-based using proxies
4. Record levels of turnover, employment, value-added, exports, etc. for each industry that is in the ocean economy
5. Identify sectors where alternative data collection methods, i.e. a survey, must be developed

Certain sectors are clearly identifiable as fully marine, for example shipping and maritime transport or sea fisheries. Data on other marine activity can be difficult to obtain; for example, marine engineering data cannot be differentiated from general engineering using the data collected by the Central Statistics Office (CSO). Therefore, these sectors require additional work (survey activity/proxies) to ensure that they are represented in the ocean economy.

The general approach adopted in this report for assessing Ireland's ocean economy has been concerned with production activity: net output/turnover, input, value added, and employment. The CSO provides data on turnover, GVA, employment, and where available, exports for each sector within the Irish economy. The data are collected across a number of censuses and surveys. The CSO census and surveys used for the collation of the data on Ireland's ocean economy include;

- The Census of Industrial Production (CIP), 2012
- The Annual Services Inquiry (ASI), 2012
- Building and Construction Inquiry (BCI) , 2012
- Intrastat, 2012

The data relating to marine activity from these censuses and surveys is provided at the NACE four-digit level. The NACE code system is a pan-European classification system that groups enterprises according to their business activities by assigning a unique 2, 3 and 4 digit code to each industry. Where data are not available from CSO datasets, a survey developed by SEMRU is conducted to enterprises in particular marine sectors. This survey is similar to the surveys carried out by the CSO and it contains questions on annual turnover, purchases, employee levels, labour costs, and investment among others.

The companies surveyed were compiled using an updated listing of the Marine Institutes MIDI (Marine Industry Data Inventory) company database. A total of 347 surveys were carried out. The marine sectors reviewed in this report correspond to those outlined in the previous report 'Ireland's Ocean Economy. Reference Year: 2010'. The sectors defined are also consistent with those used in similar analyses in other countries. The differences in data collection methods between this report and previous reports are detailed below.



Methodology by Sector

The reference year for this report is 2012. The methodology used in the current analysis follows the methodology presented in the previous report, which has been updated since the 2007 report to include additional NACE codes that had not been previously included and to allow for comparability across periods.

Estimates based on economic projections for the performance of the ocean economy in 2013 and 2014 are also presented in this report. These estimates are the result of a forecasting exercise of the future turnover, GVA and employment in Ireland's ocean economy on a sector-by-sector basis. This methodology is based on published socio-economic data from the CSO, government economic forecasts and information obtained from interviews with marine-related enterprises and relevant government departments and agencies.

Shipping & Maritime Transport

Shipping is one of the EU maritime sectors that can be directly identified in the standard NACE classification. The data for the Shipping and Maritime Transport sector is obtained entirely from the CSO, Annual Services Enquiry. The NACE codes under this sector include some activities that are not fully marine - for 'Other transportation support activities' (NACE Rev (2) 52.29) and Cargo Handling (NACE Rev (2) 52.24) – therefore, a proxy, i.e. the percentage of trade by sea, was used to estimate the support activities related to this sector.

Economic projections for turnover and GVA in 2013 and 2014 are based on the performance of the shipping and maritime transport reported in the IShip index, Irish Maritime Development Office (Irish Maritime Transport Economist). Estimates for employment are obtained from the annual growth rate reported by the CSO in their Quarterly National Household Survey (Transport and storage).

Marine Tourism & Leisure

In 2003, the Marine Institute published a national survey of water-based leisure activities carried out by the ESRI with estimates of expenditure by domestic residents. Fáilte Ireland estimated the number and expenditure of overseas visitors engaged in marine activities in 2003. Fáilte Ireland annually estimates the number and expenditure of overseas and domestic visitors. The overall expenditure by national and international visitors in the marine sector is updated using Fáilte Ireland estimates from 2004 through to 2014. Employment figures for domestic and overseas visitors are computed according to the average change in employment experienced by the overall Irish tourism sector.

Economic projections for turnover and GVA in 2013 and 2014 are based on the same methodology used for 2012 by extending the estimated expenditure on marine activities by domestic and overseas visitors with up-to-date Fáilte Ireland statistics. Estimates for employment are obtained from the annual growth rate reported by the CSO in their Quarterly National Household Survey (Accommodation and food service activities).

International Cruise Industry

There is no NACE classification for the collection of international cruise data in Ireland. International cruise data differs to other sectors as it captures passenger expenditure rather than cruise ship turnover. For this report, cruise data on the total number of passengers for 2012, 2013 and 2014 from the Irish Maritime Development Office were used in conjunction with the average expenditure of €71 by disembarking passenger previously reported by Fáilte Ireland.

Economic projections for 2013 and 2014 are based on historic growth estimates in cruise passenger numbers to Ireland in the 2006-2014 period.

Marine Retail Services

An online survey was designed by SEMRU and administered to the companies conducting boat sales and chandlery services in October 2014. The Marine Institute provided company contacts for this sector. The initial online response rate was 26% and where a company did not respond, a follow up phone call was conducted. The total response rate after the phone follow-up was

57%. The remaining companies did not want to participate in the survey. An average was applied to the remaining companies based on the company size. Additional data from for seafood retail establishments were obtained from the CSO – Annual Services Inquiry 2012.

Economic projections for turnover and GVA in 2013 and 2014 are based on reported data from the Retail Sales Inquiry, published by the CSO. Estimates for employment are obtained from the annual growth rate reported by the CSO in their Quarterly National Household Survey (Wholesale and retail trade).

Sea Fisheries

Figures for turnover, GVA and employment come from Bord Iascaigh Mhara's (BIM) data reported to the Scientific, Technical and Economic Committee for Fisheries (STECF) in their annual economic reports on the EU Fishing Fleet.

Economic projections for turnover and GVA in 2013 and 2014 are based on reported data by SFPA on the value of Irish landings. Estimates for employment are obtained from the annual growth rate reported by STECF in the 2008-2014 period.

Aquaculture

Figures for turnover, GVA and employment come from Bord Iascaigh Mhara's (BIM) data reported to the Scientific, Technical and Economic Committee for Fisheries (STECF) in their annual report on the economic performance of the EU Aquaculture Sector.

Economic projections for turnover, GVA and employment in 2013 and 2014 are obtained from the annual growth rate reported by STECF in the 2008-2014 period.

Seafood Processing

Seafood Processing can be directly identified in the standard NACE classification. The data was collected under the NACE code 10.20 'Seafood Processing' from the Census of Industrial Production (CIP), 2012.

Economic projections for turnover and GVA in 2014 are estimated as a function of the level of seafood exports reported by Bord Bia in 2015. Employment figures for 2013 and 2014 are obtained from the annual growth rate reported by STECF in the 2008-2013 period.

Oil & Gas

Oil & Gas can be directly identified in the standard NACE classification. The data for the Oil & Gas sector was obtained in part by the CSO from their Census of Industrial Production 2012 - NACE 06.10, 06.20, 09.10. The data is confidential due to the small number of companies operating under the three Oil & Gas NACE codes. As a result, a survey was administered to the sector to complement the CSO data and to include oil and gas exploration activities. The employment figures from the CSO only partially account for the entire size of oil & gas employment. Previously reported information in Ireland's Ocean Economy Series- Reference Year: 2010 referred to all employment in the Corrib Gas Field. In this report, the employment data refers exclusively to marine-related employment.

Economic projections for turnover and GVA in 2013 and 2014 are estimated on the basis of historic trends in the sector and growth rates in exploration licenses, licensing options and seismic acquisitions, as well as the number of wells spudded and drilled offshore. All information was provided by the Department of Communications, Energy and Natural Resources. Employment figures for 2013 and 2014 are obtained from the SEMRU survey directly.

Marine Manufacturing, Engineering & Construction

The marine manufacturing sector data was collected primarily from the Census of Industrial Production and the Building and Construction Inquiry, CSO. The data reported also include engineering activities. A survey was administered to the marine engineering companies identified in October 2014, as it is not possible to identify specifically marine engineering in the main engineering NACE Codes. The initial response rate was 34%. Where a company did not respond, a follow up phone call was conducted. The total response rate after the phone follow-up was 47%. The remaining companies did not want to participate in the survey. Where available, the company accounts were obtained from the Companies Registration Office (CRO). If no accounts



information was available, an average was applied to the company based on the company size.

Economic projections for turnover, GVA and employment in 2014 are estimated on the basis of historic trends in the sector as measured by SEMRU surveys in 2007 and 2010. This was complemented by company interviews where the economic performance in the current scenario was discussed.

High Tech Marine Products and Services

An online survey was designed by SEMRU and was administered to the marine renewable energy sector in October 2014. The Marine Institute and the National Marine Technology Programme provided company contacts for this sector.

The initial response rate was the lowest of the sectors at 13%. Where a company did not respond, a follow up phone call was conducted. The total response rate after the phone follow-up was 28%. The remaining companies did not want to participate in the survey. Where available, the company accounts were obtained from the CRO. If no accounts information was available, an average was applied to the company based on the company size.

Economic projections for turnover, GVA and employment in 2014 are estimated on the basis of historic trends in the sector as measured by SEMRU surveys in 2007 and 2010. This was complemented by company interviews where the economic performance in the current scenario was discussed.

Marine Commerce

An online survey was designed by the Irish Maritime Development Office (IMDO) and was administered to the marine commerce sector in October and November 2014. The initial response rate was approximately 42%. Where a company did not respond, a follow up phone call was conducted. The total response rate after the phone follow-up was 56%. The remaining companies did not wish to participate in the survey. Where available, the company accounts were obtained from the CRO. If no accounts information was available, an average was applied to the company based on the company type (financial, legal or insurance) and size.

Economic projections for turnover, GVA and employment in 2014 are estimated on the basis of historic trends in the sector as measured by SEMRU surveys in 2007 and 2010. This was complemented by company interviews where the economic performance in the current scenario was discussed.

Biotechnology – Seaweed

An online survey was designed by SEMRU and administered to the marine biotechnology sector in October 2014. The Marine Institute and the National Marine Biotechnology Programme provided company contacts for this sector.

The initial response rate was 42%. Where a company did not respond, a follow up phone call was conducted. The total response rate after the phone follow-up was 49%. The remaining companies did not wish to participate in the survey. Where available, the company accounts were obtained from the CRO. If no accounts information was available, an average was applied to the company based on the company size.

Marine Renewable Energy

An online survey was designed by SEMRU and administered to the marine renewable energy sector in October 2014. The Marine Institute provided company contacts for this sector.

The initial response rate was highest for this sector at 52%. Where a company did not respond, a follow up phone call was conducted. The total response rate after the phone follow-up was 63%. The remaining companies did not want to participate in the survey. Where available, the company accounts were obtained from the CRO. If no accounts information was available, an average was applied to the company based on the company size.

Economic projections for Biotechnology - Seaweed and Marine Renewable Energy regarding turnover, GVA and employment in 2014 are estimated on the basis of historic trends in the sector as measured by SEMRU surveys in 2007 and 2010. This was complemented by company interviews where the economic performance in the current scenario was discussed.

Data Sources

Shipping and Maritime Transportation Logistics

- Annual Services Inquiry 2012, CSO
- IShip Index 2008-2014, IMDO
- Quarterly National Household Survey (Transport and storage) 2013; 2014, CSO

Marine Tourism & Leisure

- ESRI (2004) 'A National Survey of Water Based Leisure Activities in Ireland in 2003'
- Domestic and overseas visitors 2004-2014, Fáilte Ireland
- Quarterly National Household Survey (Accommodation and food service activities) 2013; 2014, CSO
- Coefficient for NACE classification 'Recreational, cultural and sporting activities' used to estimate GVA.

Sea Fisheries

- The 2014 Annual Economic Report on the EU Fishing Fleet (STECF 14-16), JRC Scientific and Policy reports, European Commission
- The 2013 Annual Economic Report on the EU Fishing Fleet (STECF 13-15), JRC Scientific and Policy reports, European Commission
- Historic trends on value of Irish landings 2010-2014, Sea Fisheries Protection Agency (SFPA)

Aquaculture

- The Economic Performance of the EU Aquaculture Sector (STECF 14-18), JRC Scientific and Policy reports, European Commission

Marine Biotechnology & Bioproducts

- SEMRU Company Survey, 2012; 2013.

Seafood Processing

- Census of Industrial Production 2012, CSO
- Seafood exports 2013; 2014, Bord Bia

International Cruise

- Irish Maritime Transport Economist 2012; 2013; 2014, IMDO
- Maritime Statistics 2012, CSO

Oil and Gas Activity

- Census of Industrial Production 2012, CSO
- SEMRU company survey, 2012; 2013

Renewable Energy

- SEMRU Company Survey, 2012; 2013

Water Construction

- Buildings and Construction Inquiry 2012, CSO

Marine Engineering

- SEMRU Company Survey, 2012; 2013
- Quarterly National Household Survey (Industry) 2013; 2014, CSO
- Industrial Turnover Index 2014, CSO

Boat Building

- Census of Industrial Production 2012, CSO
- Industrial Turnover Index 2014, CSO

High Tech Marine Services

- SEMRU Company Survey, 2012; 2013

Marine Commerce

- SEMRU Company Survey, 2012; 2013

Marine Retail Services

- SEMRU Company Survey, 2012; 2013
- Annual Survey Inquiry 2012, CSO
- Quarterly National Household Survey (Wholesale and retail trade) 2013; 2014, CSO
- Retail Sales Inquiry 2014, CSO

Appendix 2: Definition of Ireland's Ocean and Coastal Economies

The ocean economy can be defined as the economic activity, which directly or indirectly uses the sea as an input independent of location, whereas the coastal economy represents all the economic activity, which takes place in a specified coastal region. Therefore, the ocean economy is likely to be much smaller in value than the coastal economy. However, there is considerable overlap in Ireland between activities in the coastal and ocean economies.

Ireland's coastal region and coastal economy is drawn up on the basis of a tiered approach of geography extending inland from the shorelines of the oceans and seas surrounding the Republic of Ireland. The definitions of alternative tiers are based on electoral districts (EDs), county boundaries and EU NUTS⁹¹ 3 regions.

Shoreline Electoral Districts: includes establishments or population located in an ED that is immediately adjacent to an ocean or sea, included estuaries and bays. Of the 3400EDs in the country, approximately 630 are Shoreline Electoral Districts.

Coastal Counties: includes establishments or population located in a county that has a shoreline of any length adjacent to an ocean or sea, including estuaries and bays. 15 of the 26 counties in the Republic of Ireland are Coastal Counties.

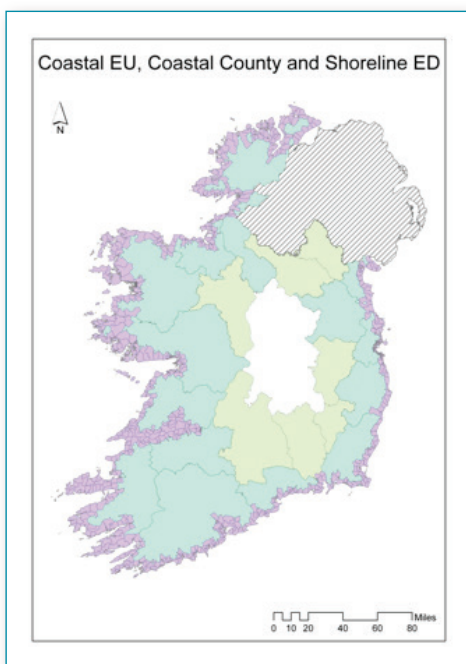


Figure 24: Ireland's Coastal Economic Regions at Alternative Spatial Scales

European NUTS3 Coastal Regions: are standard statistical regions (EU NUTS3 level), where at least half of the population is within 50km of the shoreline. This is the Eurostat definition of a coastal region and in the Irish case would include 7 of the 8 NUTS3 regions in Ireland. Only the four counties of the Midlands NUT3 region are excluded from this definition. They are counties Laois, Longford, Offaly and Westmeath⁹².

This definition is unsuitable for Ireland in terms of data collection for certain marine activities as it includes the majority of the country and defines activity taking place across the 7 regions as coastal; for example, looking at marine tourism it would suggest that any tourism in the 7 regions would be classified as marine tourism, which could be difficult to justify.

The population density in coastal regions of Ireland changes depending on the definition used. At a national level of aggregation, the population density is 67 per km². At the EU coast (NUTS 3) level of aggregation the population density is 69 inhabitants per km². At the coastal county definition it is 76 inhabitants per km² while at the shoreline ED level it is 94 inhabitants per km². The density of the population increases the more confined the regional definition is to the coastline⁹³.

91 The Nomenclature of Territorial Units for Statistics (NUTS) were drawn up by Eurostat in order to define territorial units for the production of regional statistics across the European Union. <http://www.cso.ie/en/census/census2011boundaryfiles/>

92 Hynes, S. and Farrelly, N. (2012). Defining standard statistical coastal regions for Ireland, Marine Policy 36: 393–404

93 Based on figures from the 2011 Census of Population of Ireland available at www.cso.ie

Table 17: Socio-Economic Characteristics of Irish Coastal Communities

Socio-Economic Characteristics	Shoreline ED		Shoreline	National
		Rural	Urban	Average
Male Unemployment Rate (%)	22.47	23.47	19.90	21.71
Females Unemployment Rate (%)	14.28	14.44	13.89	13.86
Male Unemployment Rate (% change 2006 to 2011)	119.12	125.37	103.51	130.00
Females Unemployment Rate (% change 2006 to 2011)	200.12	225.95	133.79	266.67
% Primary Education Only	114.75	121.72	97.35	125.95
% 3rd Level Education	18.73	20.84	13.31	18.84
% Higher & Lower Professionals	29.77	26.22	38.87	25.88
Semi and unskilled Manual Workers	17.94	19.07	15.04	18.26
Population Change (% change 2006 to 2011)	6.29	6.99	4.49	7.79
Age Depending Ratio	35.05	36.13	32.28	34.94
Lone Parent Ratio	17.73	15.47	23.52	16.28
Affluence index score	-0.59	-2.21	3.57	-1.46
Affluence index score (% change 2006 to 2011)	0.75	0.45	1.54	-0.11
Number of EDs	638	459	179	3406

Source: Figures based on the 2011 Census of Population of Ireland, CSO Statistics (www.cso.ie)⁹⁴⁹⁵⁹⁶

94 Based on SEMRU estimates from total passengers and crew numbers and cruise vessel calls reported by the IMDO in The Irish Maritime Transport Economist, Volume 12, 2015

95 Figures for 2010 have been updated according to BIM's new estimates of turnover for 2010 published in The 2014 Annual Economic Report on the EU Fishing Fleet (STECF-14-16)

96 Turnover here represents overall aquaculture turnover. Shellfish and marine species aquaculture account for approximately 95% of overall turnover

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Table 7: International Cruise Industry passengers, calls, expenditure 2007, 2010, 2012, 2013, 2014(e)

Table 8: Marine Retail Services turnover, GVA, employment, 2007, 2010, 2012, 2013(e), 2014(e)

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Table 10: Marine Aquaculture turnover, GVA, exports, employment, 2007, 2010, 2012, 2013(e), 2014(e)

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Table 13: Marine Manufacturing, Construction and Engineering turnover, GVA, exports, employment, 2007, 2010, 2012, 2013(e), 2014(e)

Table 14: High Tech Marine Services turnover, GVA, exports, employment, 2007, 2010, 2012, 2013, 2014(e)

Table 15: Marine Commerce turnover, GVA, employment, 2007, 2010, 2012, 2013, 2014(e)

Table 16: Marine Biotechnology and Bioproducts turnover, GVA, exports, employment, 2007, 2010, 2012, 2013, 2014(e)

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Figure 23: Irelands Coastal Economic Regions at Alternative Spatial Scales

Boxes

Box A: Harnessing Our Ocean Wealth Targets

Box B: Seafood Exports for Ireland

Glossary of Acronyms/Terms

AMETS	Atlantic Marine Energy Test Site
ASI	The Annual Services Inquiry
BCI	Building and Construction Inquiry
BIM	Bord Iascaigh Mhara
CBC	Census of Building & Construction
CFP	Common Fisheries Policy
CIP	Census of Industrial Production
CRO	Company Registration Office
CSO	Central Statistics Office
DCENR	Department of Communication, Energy & Natural Resources
EDs	Electoral Districts
ESRI	Economic and Social Research Institute
FDI	Foreign Direct Investment
FH2020	Food Horizon 2020
FI	Fáilte Ireland
FTEs	Full Time Equivalent

GDP	Gross Domestic Product
GVA	Gross Value Added
HMRC	Hydraulics & Maritime Research Centre
HOOW	Harnessing Our Ocean Wealth
ICT	Information & Communication Technology
IMDO	Irish Maritime Development Office
IMERC	Irish Maritime & Energy Resource Cluster
IMP	Integrated Marine Plan
MIDI	Marine Industry Data Inventory
MSFD	Marine Strategy Framework Directive
MSY	Maximum Sustainable Yield
NACE	Statistical classification of economic activities in the European Community
NREAP	National Renewable Energy Action Plan
PAD	Petroleum Affairs Division
R&D	Research and Development
REV 1	Revision 1 of the NACE code system (pre 2008)
REV 2	Revision 2 of the NACE code system (post 2007)
SEMRU	Socio Economic Marine Research Unit
SME	Small or Medium Sized Enterprises
STECF	Scientific, Technical and Economic Committee for Fisheries



Notes:

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