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Ireland's Ocean Economy

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NUI Galway
OÉ Gaillimh

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SEMRU

The Socio-Economic Marine Research Unit (SEMRU) 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 build an appropriate methodology 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 SEMRU: to develop a sustainable methodology for the regular reporting on Ireland's Ocean Economy.

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NUI Galway
OÉ Gaillimh

NDP
National Development Plan 2007 - 2013

Marine Institute
Foras na Mara

SeaChange
Casadh na Taoide

SSTI
Strategy for Science, Technology and Innovation

teagasc
Agriculture and Food Development Authority

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Glossary of Acronyms / Terms

AMETS	Atlantic Marine Energy Test Site
ASI	Annual Services Inquiry
BCI	Building and Construction Inquiry
BIM	Bord Iascaigh Mhara
CBC	Census of Building and Construction
CFP	Common Fisheries Policy
CIP	Census of Industrial Production
CRO	Company Registration Office
CSO	Central Statistics Office
DAFM	Department of Agriculture, Food and the Marine
DCENR	Department of Communication, Energy and Natural Resources
EDs	Electoral Districts
ESRI	Economic and Social Research Institute
FDI	Foreign Direct Investment
FH2020	Food Harvest 2020
FI	Fáilte Ireland
FTE	Full Time Equivalents
GDP	Gross Domestic Product
GVA	Gross Value Added
HMRC	Hydraulics and Maritime Research Centre
HOOW	Harnessing Our Ocean Wealth – An Integrated Marine Plan for Ireland
ICT	Information and Communication Technology
IMDO	Irish Maritime Development Office
IMERC	Irish Maritime and Energy Resource Cluster
IMP	Integrated Marine Plan
MCG	Marine Coordination Group
MI	Marine Institute
MIDI	Marine Industry Data Inventory
MSFD	Marine Strategy Framework Directive
MSY	Maximum Sustainable Yield
NACE	Nomenclature Générale des Activités Économiques dans les Communautés Européennes (French, EU classification system)
NREAP	National Renewable Energy Action Plan
PAD	Petroleum Affairs Division
RandD	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)
SEAI	Sustainable Energy Authority Ireland
SEMRU	Socio Economic Marine Research Unit
SFPA	Sea Fisheries Protection Authority
SME	Small or Medium Sized Enterprises
STECF	Scientific, Technical and Economic Committee for Fisheries

Executive Summary

In 2013, the Socio Economic Marine Research Unit (SEMRU) began the extensive task of data collection and analysis of Ireland's ocean economy. Marine socio-economic data are not readily available in Ireland; however, it is essential in determining the value of the ocean economy in order to realise its full potential. This report is part of a series of economic reports and it provides an accurate and realistic monitoring of the ocean economy over time. It presents a complete and comparable sectoral profile, which allows us to observe progress on the targets set out in the Government's Integrated Marine Plan (IMP) for Ireland - Harnessing Our Ocean Wealth (HOOW) (2012). The reference year of this report is 2010.

This report aims to:

- Provide a profile of Ireland's ocean economy for the 2010 baseline year against which future data can be compared;
- Identify progress of a number of targets set out in the Government's Integrated Marine Plan for Ireland - Harnessing Our Ocean Wealth (2012);
- Review the policy environment and outlook of the sector where applicable;
- Develop a sustainable methodology for the collection of marine socio-economic data in Ireland;
- Revise and update the methodology used in the previous report.

In 2010, the direct economic value of the Irish ocean economy is estimated to have been worth €1.2 billion or approximately 0.8% of GDP. The sector had a turnover of €3.5 billion, and provided employment for approximately 16,300 full time equivalent (FTE).

The Irish Ocean Economy 2007 - 2010			
	2007	2010	CHANGE
GVA	€1.7 billion	€1.2 billion	-29.7%
%GDP	0.9% GDP	0.8% GDP	-11.1%
Turnover	€4.6 billion	€3.5 billion	-25.4%
Employment	20,587 FTE	16,292 FTE	-20.9%

The previous Ocean Economy Report was based on the reference year 2007, at the height of the economic boom (2003-2007). This report represents 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.

Compared to 2007, 2010 saw a 25.4% decrease in turnover, a 20.9% fall in employment and a 29.7% decrease in gross value added (GVA).

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

- **Established Marine Industries** in 2010 had a turnover of €3.3 billion and provided employment to 15,303 FTE representing 95% of the turnover and 94% of employment in the 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.

- Shipping and maritime transport, marine tourism, marine retail services, marine manufacturing, construction and engineering, all experienced a significant fall in activity, with turnover, GVA and employment decreasing across the sector in the period. While the sea fisheries sector experienced a fall in overall turnover during the period, both GVA and employment increased. The aquaculture sector had an increase in turnover and GVA over the period; however, employment decreased in the same period.

- **Emerging Marine Industries** in 2010 had a turnover of €164 million and provided employment to 989 FTE representing 5% of the turnover and 6% of employment in the Ocean Economy. Emerging industries refer to those that are still at a relatively early stage of development, are R&D intensive and/or use the latest cutting edge technology in their pursuit of economic growth. The Irish marine sector includes a number of emerging industries with currently untapped potential. It includes high tech marine products and services, marine commerce, marine biotechnology and bioproducts and marine renewable energy.

  - In comparison with the established industries, the emerging industries are excelling in terms of growth. High tech marine products and services, marine biotechnology and bioproducts and marine renewable energy all experienced large increases in turnover and employment. However in all cases, GVA stayed constant or decreased. Marine commerce as an emerging sector saw a large decrease in activity over the period, in line with the general economy and the international financial markets.

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.*

Further information on these definitions of Ireland's Ocean and Coastal Economies are provided in Appendix 3.

Photography: David Branigan

1. 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"[1]. 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) and the Marine Institute (MI) using 2007 data. This current report builds on these previous works by profiling and analysing the Irish ocean economy using 2010 data and indicating how it has changed in the intervening periods.

The importance of marine socio-economic data collection and analysis has been recognised by the Government in *Harnessing Our Ocean Wealth (HOOW) – 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"[2]. The turnover targets shown in Table 1 are nearly twice those of 2010.

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

Table 1: Sectoral Target 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

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

As part of the implementation process of HOOW, two Task Forces have been established to address a number of priority actions outlined in the IMP– (1) an Enabler's Task Force on Marine Spatial Planning and (2) a Development Task Force focusing on an integrated enterprise strategy and further progressing the jobs and growth targets outlined in the IMP. This current report by SEMRU aims at facilitating this process by providing a profile of Ireland's ocean economy for the 2010 baseline year against which future marine socio-economic data can be compared. Data is also currently being provided to support Ireland's implementation of the EU Marine Strategy Framework Directive (MSFD).

The methodology used in compiling the ocean economy has built on and progressed from that used in the previous report. To allow for comparability across the reports, we have recalculated some of the estimates from the 2010 published report using the current methodology. The definition and scope of the ocean economy has also evolved from the previous report; in this report, a more inclusive definition of the ocean economy is presented. In order to compare the figures across the years, it was necessary to revise estimations from the earlier report with more up to date information on some of the categories of activity that has become available in the intervening period.

[1] O'Connor, J., O'Leary, J. and Shields, Y., 'Ireland's Ocean Economy and Resources', Marine Institute 2005
[2] Government of Ireland, Inter-Departmental Marine Coordination Group (MCG), "Harnessing Our Ocean Wealth - An Integrated Marine Plan (IMP) for Ireland," July 2012.

It was necessary to take 2010 as the reference year to allow for a complete and comparable representation of the 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 in 2013 was 2010 data[3].

The year 2010 post-dates the downturn in the global and Irish economy and therefore reflects the fall in activity which has been experienced since then, similar to other economic sectors in the country.

[3] Where available, more up-to-date information for a number of the identified marine sectors is provided in "Update" boxes.

2. A Profile of Ireland's Ocean Economy

In 2010 the ocean economy had a turnover[4] of €3.5 billion, of which €1.2 billion was direct Gross Value Added (GVA)[5]. The Irish Marine sector employed approximately 16,300 full time equivalent (FTE[6]). Ireland's total Gross Domestic Product (GDP) in 2010 was €156 billion. The GVA from marine economic activity is approximately 0.8% of national GDP.

The established industries in the ocean economy account for 95% of total marine turnover. This category is dominated by shipping and maritime transport and marine tourism (Table 2). Shipping and maritime transport is the largest contributor in terms of turnover, GVA, and employment in 2010. Marine tourism and leisure is the next largest category. Within the emerging marine industries sector, marine commerce and high tech marine products and services make the largest contribution in terms of turnover and GVA. The high tech marine products and services category is also an important category in terms of employment.

Table 2: Direct Turnover, GVA and Employment by Sector, 2010

2010	Turnover €000's	Direct GVA €000's	Direct Employment (FTE)
Established Industries			
Shipping and Maritime Transport	1,422,430	422,061	4,633
Marine Tourism and Leisure	841,030	337,376	3,502
Cruise	17,100	-	-
Marine Retail Services	57,688	33,908	252
Sea-Fisheries	202,100	116,100	2,825
Aquaculture	122,545	46,855	918
Seafood Processing	389,635	80,008	1,586
Oil and Gas	125,759	61,182	861
Marine Manufacturing, Engineering and Construction	110,812	44,003	726
Established Industries Sub-Total	3,289,099	1,141,493	15,303
Emerging Industries			
High Tech Marine Products and Services	55,924	20,807	391
Marine Commerce	66,594	39,652	78
Marine Biotechnology andBioproducts	29,867	12,990	304
Marine Renewable Energy	11,541	3,649	216
Emerging Industries Sub-Total	163,926	77,098	989
Total	3,453,025	1,218,591	16,292

Overall turnover in the ocean economy declined from €4.6 billion in 2007 to €3.5 billion in 2010 (Table 3), representing a 25.4% decrease in turnover. GVA decreased from €1.7 billion in 2007 to €1.2 billion in 2010. This represents a 29.7% decrease. Over the period, employment in the marine sector decreased from 20,587 to 16,298, a decrease of 20.9%.

[4] Turnover is the value of goods and services produced by a company

[5] GVA refers to a sector's turnover (output) minus intermediate consumption (the inputs into the process of production). It is measured at basic prices, excluding taxes less subsidies on products. Value added at basic prices by industry is equal to the difference between output (basic prices) and intermediate consumption (purchasers' prices).

[6] FTE: Full time equivalents, ratio is 2:1 for part time: full time

Turnover in the traditional, established marine industries fell from €4.4 billion to €3.3 billion in the three year period. This represented a 26% decrease. Employment in the established industries category fell from 19,767 in 2007 to 15,303 in 2010, a decrease of 22.6%.

Turnover of firms in the emerging marine industries also decreased from €179 million to €165 million, a decrease of 7.8%. Employment in the emerging industries category experienced an increase of 20.6%, while GVA decreased by 16.1%.

Table 3: Direct Turnover, Employment and GVA in the Ocean Economy by Sector for 2007 and 2010

Ocean Economy	Turnover (€ millions)		% Change	Direct Employment		% Change	Direct GVA (€ millions)		% Change
	2007	2010	2007-2010	2007	2010	2007-2010	2007	2010	2007-2010
Established Industries									
Shipping and Maritime Transport	2,194	1,422	-35.2	5,903	4,633	-21.5	660	422	-36.1
Marine Tourism and Leisure	944	841	-10.9	5,836	3,502	-40.0	453	337	-25.6
Cruise Liners	-	17		-	-		-	-	
Marine Retail Services	99	58	-41.4	287	252	-12.2	51	34	-33.3
Sea-Fisheries	251	202	-19.5	2,200	2,825	28.4	100	116	16.0
Marine Aquaculture	106	123	16.0	1,061	918	-13.5	42	47	11.9
Seafood Processing	396	390	-1.5	2,090	1,586	-24.1	88	80	-9.1
Oil and Gas	197	126	-36.0	790	861	9.0	137	61	-55.5
Marine Manufacturing, Construction and Engineering	265	111	-58.1	1,600	726	-54.6	110	44	-60.0
Established Industries Sub-Total	**4,452**	**3,290**	**-26.1**	**19,767**	**15,303**	**-22.6**	**1,641**	**1,141**	**-30.5**
Emerging Industries									
High Tech Marine Products and Services	44	56	27.3	350	391	11.7	27	21	-22.2
Marine Commerce	101	67	-34	105	78	-25.7	48	40	-16.7
Marine Biotechnology and Bioproducts	28	30	7.1	264	304	15.2	14	13	-7.1
Marine Renewable Energy	6	12	100	101	216	113.9	4	4	0.0
Emerging Industries Sub-Total	**179**	**165**	**-7.8**	**820**	**989**	**20.6**	**93**	**78**	**-16.1**
Total	**4,631**	**3,455**	**-25.4**	**20,587**	**16,292**	**-20.9**	**1,734**	**1,219**	**-29.7**

http://www.nuigalway.ie/semru/ocean_economy_tables.html

Ireland's Changing Economic Landscape

Since the publication of SEMRU's last report on Ireland's ocean economy, the country has experienced a severe contraction in economic activity. The year 2010 post-dates the downturn in the global and Irish economy and a severe reduction in economic output. Table 4 shows the decline in GDP at current market prices for the 2007-2010 period. The decline in activity was experienced across most economic sectors in the country, including those that constitute the ocean economy. One of sectors worst affected by the recession was the building and construction sector; the value added for this sector fell by 52% in 2010 compared to 2007[7].

The economic downturn was also reflected in the general drop in employment levels. The number of persons in employment decreased from 2,113 million in 2007 to 1,859 million in 2010. The overall unemployment rate increased from 4.7% in 2007 to 13.6% in 2010[8]. According to the Central Statistics Office (CSO) report "Measuring Ireland's Progress 2010", the employment rate in Ireland was below the EU average for that period, with the sixth highest unemployment rate in the EU[9] after Spain and the Baltic States.

Regarding expenditure, exports performed strongly in 2010. According to the CSO, there was a growth in net exports of €5.9 billion at constant prices (23.8%). However, this was not enough to counteract the large decline in domestic demand, which fell by €6.7 billion (-4.9%) in the same period.

General trends in the Irish economy are inevitably reflected in the ocean economy as shown in Table 2 and Table 3 in the previous section.

Table 4: GDP at Current Market Prices for Ireland 2007-2010 (Billion Euro)

Year	GDP at current market prices
2007	€189.9
2008	€179.9
2009	€160.5
2010	€155.9

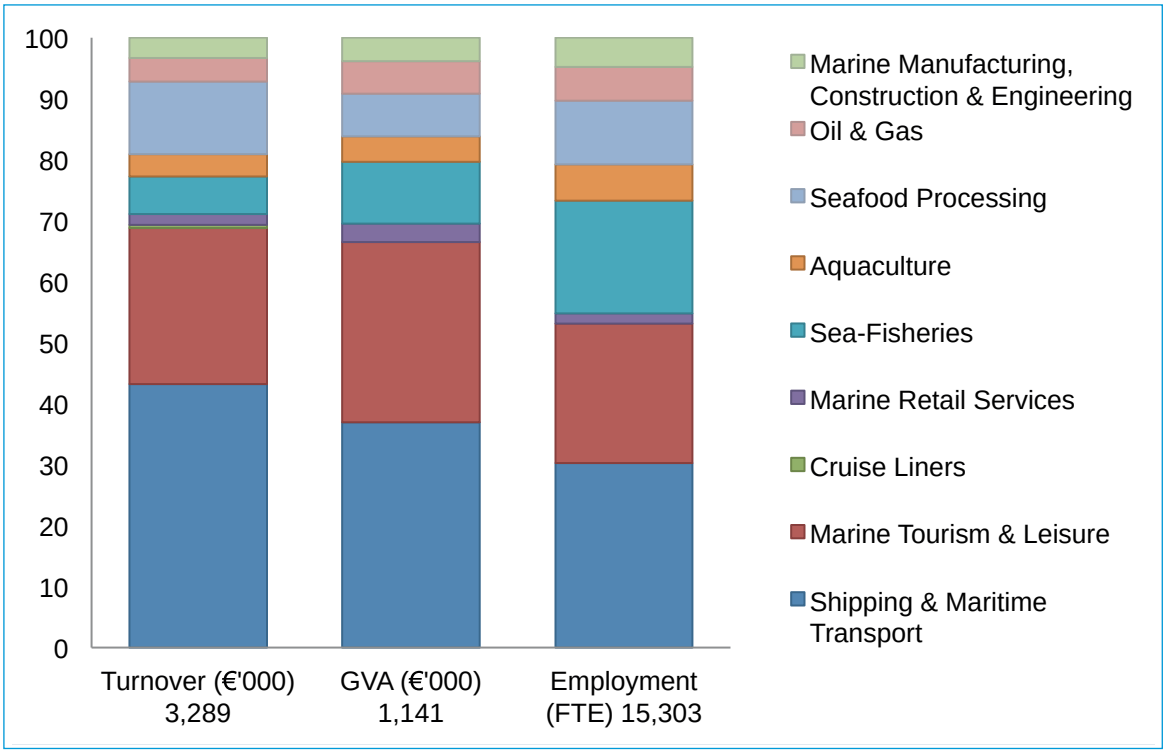
Source: CSO (2011). Statistical Yearbook of Ireland 2010. Dublin

[7] Central Statistics Office 2011, Statistical Yearbook of Ireland 2010. Dublin.
[8] Central Statistics Office 2011, Statistical Yearbook of Ireland 2010. Dublin.
[9] Central Statistics Office Press Release 2011, 'Measuring Ireland's Progress 2010'

2.1 Established Marine Industries

Established industries refer to the traditional sectors that are usually associated with marine activity. The Established Marine Industries had a turnover of €3.3 billion in 2010 and provided employment to 15,303 FTE, representing 95% of the turnover and 94% of employment in the 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 industries are shown in Figure 1.

Figure 1: Contribution of Sectors within the Established Marine Industries, 2010



http://www.nuigalway.ie/semru/ocean_economy_tables.html

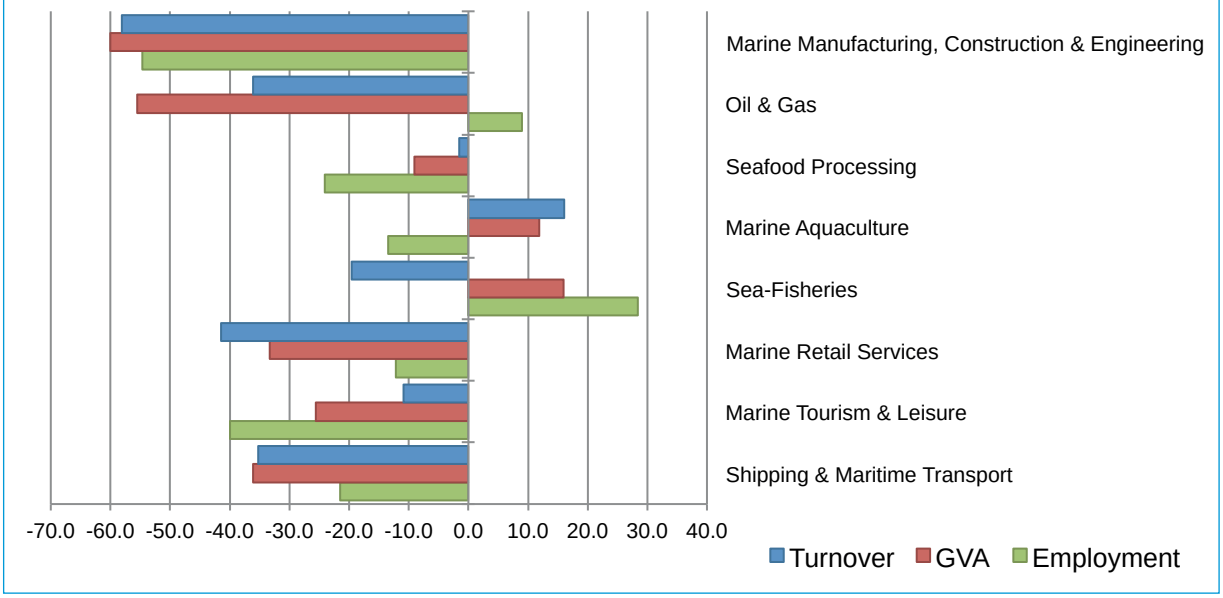
The shipping and maritime sector was the largest contributor in the established industries of turnover to the ocean economy in 2010, followed by marine tourism and leisure, seafood processing, sea fisheries, aquaculture, marine manufacturing engineering and construction, oil and gas, marine retail services and cruise tourism, respectively.

The shipping and maritime transport sector was the largest sector for marine employment in 2010 in the established industries, followed by marine tourism and leisure, sea fisheries, seafood processing, oil and gas, aquaculture, marine manufacturing and marine retail services, respectively.

In terms of GVA, again shipping and maritime transport is the largest contributor, followed by marine tourism and leisure, sea fisheries, seafood processing, oil and gas, aquaculture, marine manufacturing, marine retail services, respectively.

Figure 2 shows the rate of change in turnover, GVA and employment for the established industries from 2007 to 2010. Marine manufacturing, construction and engineering present the largest decline in all the above indicators. Other sectors that present an overall decline in activity are marine tourism and leisure, shipping and maritime transport and marine retail services. Some sectors have experienced positive trends in some indicators; for example, the sea fisheries sector has experienced an increase in employment. Details on economic trends by sector are presented in the following sections, as well as the policy context and overall economic outlook.

Figure 2: Rates Of Change (%) in Turnover, GVA and Employment. Established Industries, 2007-2010



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BV
QUAY SIDE PARKING
P
Craig's Place

Shipping and Maritime Transport

Sea-based transport accounted for 99% of the total volume and 95% of the total value[10] of the goods traded in Ireland in 2010[11]. 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, exports and employment levels for the shipping and maritime transport sector in 2010.

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 Services Employment: 2007 and 2010

Shipping and Maritime Transport Services	2007	2010
Turnover €000's	€2,194,331	€1,422,430
GVA €000's	€660,445	€422,061
Exports €000's	€420,544	€244,249
Employment FTE	5,903	4,633
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 Enquiry 2007 and 2010 - 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

The turnover generated by shipping and maritime services in 2010 was €1,422 million, of which €244 million was from exports. Total GVA generated was €422 million. Turnover decreased between 2007 and 2010 by 35.2%, with a 41.9% decrease in exports in the same period.

Shipping and maritime services employed 4,633 FTE in 2010. Employment decreased by 21.5% between 2007 and 2010.

After the previous record volumes set in 2007 by the Irish ports and shipping sectors, a record 36 month volume low at varying points in 2009 was reported as the downturn in the economy reached new heights[12]. Figure 3 shows the total freight volumes by category of traffic since 2006. The sector began to show positive signs of recovery towards the last quarter of 2009[13]. Although volume recovery in the main category segments was achieved in 2010, the total volume in some categories was still running at 35% less than 2007 volumes[14].

[10] 45 million tonnes and €128 billion
[11] Government of Ireland, Inter-Departmental Marine Coordination Group (MCG), "Harnessing Our Ocean Wealth - An Integrated Marine Plan (IMP) for Ireland," July 2012.
[12] IMDO Press Release 2010, 'Irish Ports and Shipping Sector Begins Recovery from Record Fall in Volumes During 2009'
[13] IMDO Press Release 2010 – 'Irish Ports and Shipping Sector Begins Recovery from Record Fall in Volumes During 2009'
[14] IMDO Press Release 2010 - 'Quarter 3 2010 Shipping and Ports Traffic'

Figure 3: Total Freight Traffic Volumes by Category in the Republic of Ireland: 2006-2012

Source: Irish Maritime Transport Economist, IMDO 2007-2013

In 2010, ferry passenger volumes saw a 5% increase. On an all-Ireland basis, there were 5 operators operating between Ireland and the UK, and 2 operators between Ireland and France providing 60 daily sailings in 2010[15]

Overview of the Policy Regime

Recent policy developments at the national and European level have been of relevance for the shipping and maritime transport sector in Ireland. The National Ports Policy (2013) provides a vision for the future of the sector in line with European transport policy objectives. The European Atlantic Action Plan (2013) identifies the importance of improvements in accessibility and connectivity through the promotion of port cooperation as a priority for the development of the blue economy.

[15] IMDO Press Release 2010 – 'Q3 2010 Passenger Traffic'

Sector Outlook

Companies operating in the ports and maritime transport services area are largely dependent on the wider performance of the Irish economy to drive growth and investment. The growth in this segment can be linked to future domestic GDP forecasts. The ports and maritime transport services sector in Ireland is likely to see modest growth over the next 3-5 years[16]. The IMP for Ireland (hereafter referred to as HOOW) sets out a target of a projected annual turnover of €1.2 billion by 2020 for Ports and Maritime Ports Services, Maritime Manufacturing, Engineering, Offshore Oil and Gas, other marine industries.

HOOW also sets out a target for an increase in turnover to €2.6 billion in maritime commerce and ship leasing[17] by 2020. While this is an ambitious target, a proposal to build an international shipping services centre in Dublin could facilitate it being reached. The scheme, similar to the International Financial Services Centre, is being promoted by ISSC Dublin, the Irish Maritime Development Office (IMDO) and IDA Ireland. It is expected that such a hub would attract firms involved in ship leasing, shipping finance, operations management and maritime education[18].

Box B: Estimates for the Irish-based International Shipping and Leasing Sector

Employment increased by 5% in 2012

100 new direct jobs created since 2010

Over €3 billion of shipping managed and controlled from Ireland

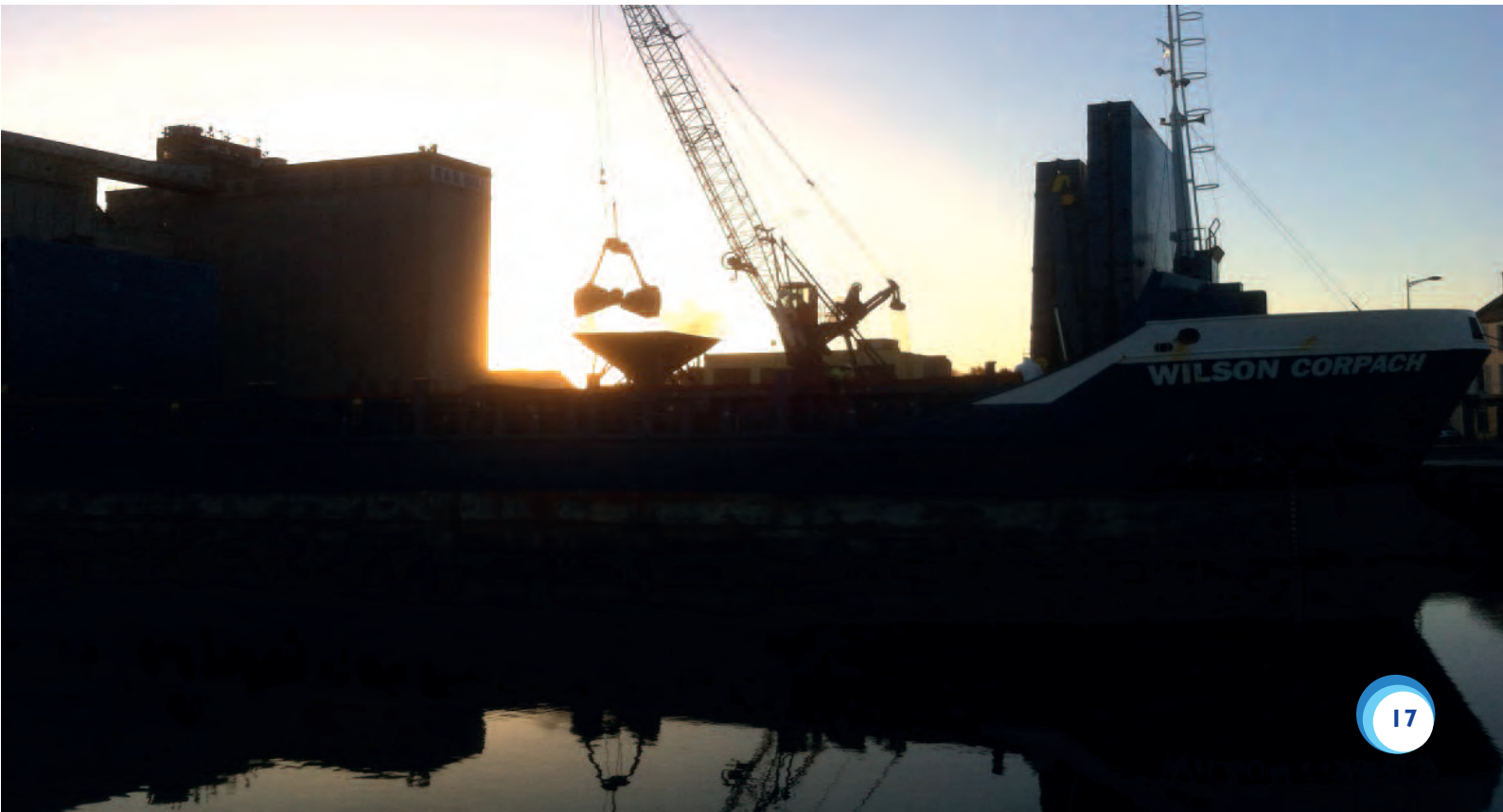
The tonnage tax has made a positive economic contribution to Ireland with the creation of new jobs and investment opportunities for over 600 people.

Source: IMDO Press Release, June 2013

[16] IMDO, Transport economist 2012

[17] The ship leasing component of this target is included in shipping and maritime transport in this report, and cannot be disaggregated due to data confidentiality.

[18] Irish Times 2nd August 2013: Global shipping hub plan for Dublin docklands on scale of IFSC has O'Brien as investor - Proposal aims to make Dublin a world centre for shipping and related services



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. In 2010, the tourism industry contributed an estimated €5.8 billion to the Irish economy[19]. Marine tourism is estimated to account for 10% of the overall value of the tourism sector in Ireland[20].

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 127,000 overseas visitors engaged in angling activities[21] in Ireland in 2010, spending €89 million[22]. Coastal attractions, such as the Cliffs of Moher, also receive high numbers of international visitors. Adventure tourism, which includes marine activities such as surfing, wind-surfing, kite surfing, sailing and kayaking, has a strong domestic market and is becoming increasingly popular (see map of water based activities around the coast of Ireland). Table 6 shows the turnover, GVA, exports and employment levels for marine tourism and leisure in 2007 and 2010.

Profile

Angling

- Sea Angling from boats
- Sea Angling from the Shore

Watersports

- Sailing at Sea
- Boating at Sea
- Water Skiing/Jet Skiing
- Surfing, Sail Boarding
- Sea Kayaking
- Scuba Diving/Snorkelling
- Other Sea Sports

Seaside/Resort Trips

- Swimming in the Sea
- Bird Watching in Coastal Areas
- Whale/Dolphin Watching
- Visiting Coastal Natural Reserves
- Other trips to the beach, seaside and islands

Table 6: Marine Based Tourism and Leisure Sector Turnover, GVA, Employment: 2007 and 2010

Marine Based Tourism and Leisure - Domestic and Overseas	2007	2010
Turnover €000's	€944,380	€841,030
GVA €000's	€453,310	€337,376
Employment FTE	5,836	3,502
Location of activity	Marine based tourism and marine activities are offered all along the coast of Ireland.	

Source: ESRI Report 2004; Fáilte Ireland Statistics 2010

In 2010, marine-based tourism and leisure generated a turnover of €841 million, a decrease of 11% between 2007 and 2010. This decrease reflects the global downturn in the economy during this period.

The sector supported 3,364 FTE in employment in 2010, a decrease of 40% between 2007 and 2010. Marine-based tourism employment represents approximately 3% of the total employment in the general tourism sector. This decline in employment levels is consistent with the overall drop in employment in the tourism and leisure sector in Ireland in the same period[23]. Figure 4 shows the marine leisure activities around the coast of Ireland.

[19] Fáilte Ireland Tourism Facts, 2010

[20] 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

[21] This figure refers to all angling in Ireland (not only sea angling)

[22] Fáilte Ireland Tourism Facts, 2010

[23] CSO, Annual Service Inquiry, 2007 and 2010.

Figure 4: Marine Leisure Activities around the Coast of Ireland

Source: Irish Marine Atlas using Fáilte Ireland Statistics. Note that this map does not include all possible 'Tourism and Leisure Activities' along the coastline. Coastal walks, coastal attractions, harbours and marinas are also important facilitators for tourism and leisure. Efforts to map all leisure facilities and activities are currently being undertaken by Fáilte Ireland.

Overview of the Policy Regime

Since the preparation of the two tourism development strategies – the Marine Tourism and Leisure Strategy (2007-2013) by the MI and the Fáilte Ireland (FI) Tourism Product Development Strategy (2007-2013) - major changes have taken place in the global and Irish economy which has impacted heavily on tourism. To reflect this, a number of policy documents/strategies[24]relating to the survival, renewal and growth of the sector have been published and at a local level, strategies for marine tourism have been developed and implemented[25]. HOOW identifies this sector as an important contributor to Ireland's economic recovery and growth. The Plan commits to carrying out *national, regional and local initiatives aimed at tapping into the potential of new and existing coastal infrastructure to develop sustainable products, services and jobs. This would encourage investment along the coast. Initiatives include: mapping existing marine and coastal infrastructure and amenities throughout the country to support the development of marine and coastal tourism and leisure products and services; research into best practice regarding the development and funding of marina and berthing facilities in Ireland and abroad, with a view to shaping national policy in this area*[26].

Sector Outlook

There is significant potential to develop adventure tourism in Ireland, which includes marine activities such as surfing, wind-surfing, kite surfing, sailing and kayaking. A range of supports have been identified and prioritised to deliver high quality adventure holidays around the country[27].

There is also the potential to host international marine focused events in Ireland, which can positively impact on the Irish ocean economy. For example, an assessment of the economic value of the 2012 Volvo Ocean Race Finale in Galway showed that the event generated an economic impact of €60.5m in the Irish economy[28].

Additionally, FI is involved in projects to rejuvenate Irish tourism such as The Wild Atlantic Way. This project aims to develop a long-distance driving route stretching along the Atlantic coast from Donegal to West Cork that will achieve greater visibility for the west coast of Ireland in overseas tourist markets[29].

HOOW sets out a target for an increase in turnover to €1.5 billion in marine and coastal tourism and leisure (including cruise tourism) by 2020.

Box C: Sea Angling Recreation

Sea Angling Recreation

A study of recreational angling commissioned by Inland Fisheries Ireland estimated that on a per capita basis, 'Sea Bass' fishers had the second highest spend for any category of recreational angler surveyed. Only 'Course' anglers had a higher total expenditure pattern.

	Sea Bass	Other Sea Species (excludes Bass)
Estimated Domestic Participants	33,000 - 44,000	71,000 - 93,000
Estimated Overseas Participants	28,000	27,000
Average Expenditure per person per annum (€)	2,685	1,331

Source: Inland Fisheries Ireland (2013), Socio-Economic Study of Recreational Anglers, Inland Fisheries Publication.
http://www.fisheriesireland.ie/Angling-Information/socio-economic-survey-of-recreational-anglers.html

[24] Department of Transport, Tourism and Sport: A Framework for Survival – Urgent Actions 2009-2010; and A Framework for Recovery and Growth – Building for the Future 2010-2013

[25] Examples include A Marine Leisure Infrastructure Strategy for the Western Division of Cork County Council (2008); Donegal Marine and Water Leisure Programme (2005)

[26] Government of Ireland, Inter-Departmental Marine Coordination Group (MCG), "Harnessing Our Ocean Wealth - An Integrated Marine Plan (IMP) for Ireland," July 2012. Key Action 34 (P43)

[27] 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

[28] Volvo Ocean Race 2011-2012 – An Economic Impact Assessment, NUI Galway, 2012

[29] For more information visit: http://www.failteireland.ie/wildatlanticway

International Cruise Industry

In 2010, European cruise industry direct expenditures reached €14.5 billion[30]. 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. More recently, there has been an increase in British operators including Ireland in their itineraries, with three out of every five cruise ships arriving in Ireland originating in Britain[31]. Table 7 presents estimates of average expenditure per person in 2010.

Profile

Main ports of call for cruise liners include:

Dublin Cork Waterford Dun Laoghaire

Table 7: International Cruise Ships Sector passengers, calls, expenditure: 2007, 2010

International Cruise Ships	2007	2010
Average passengers per port call	787	1,012
Number of calls to the four main ports	130	202
Average Expenditure per person	Data not comparable	€71
Total Expenditure by Cruise Passengers €000's	Data not comparable	17,100[32]

Source: Fáilte Ireland – Cruise Tourism to Ireland Research Report, 2010

A total of 202 liners docked at Irish ports in 2010, representing a 55.4% increase on 2007 figures. The total number of passengers in 2010 was 204,424, showing an increase of 100% compared to 2007. The average number of passengers on board each liner was 1,012 in 2010.

A report commissioned by FI estimated that the average spend per disembarking cruise passenger was €71 in 2010 which equates to an estimated €17.1 million in total cruise liner related expenditure in Ireland.

Overview of the Policy Regime

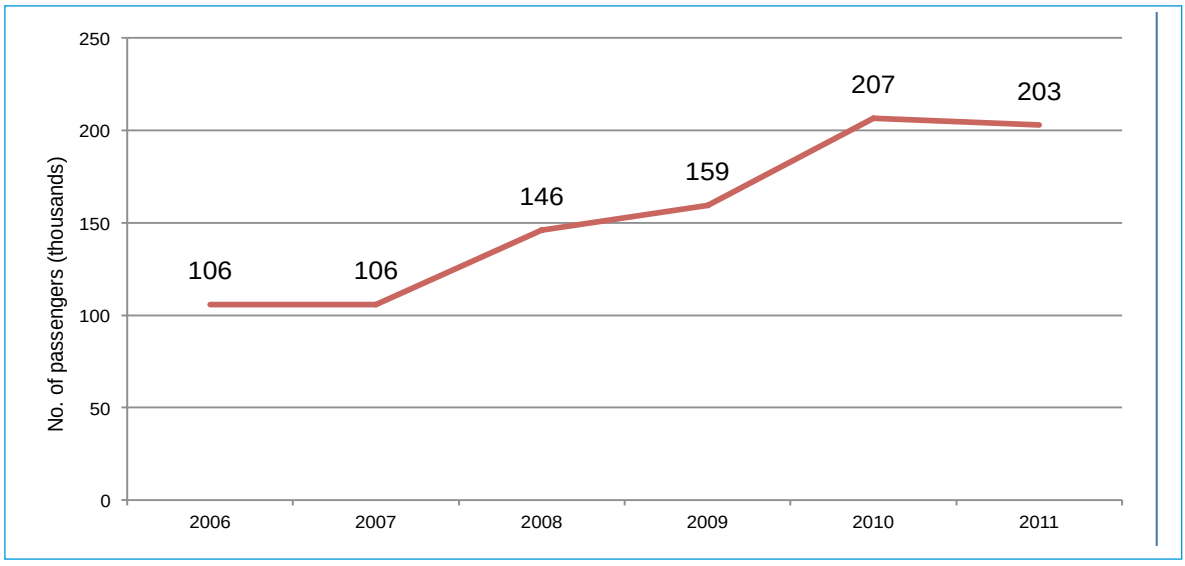
The recently published National Ports Policy aims at facilitating a competitive and efficient market for maritime transport services in Ireland[33]. One of the main policy developments is the introduction of a categorisation of the ports sector into Ports of National Significance (Tier 1), Ports of National Significance (Tier 2) and Ports of Regional Significance. Among the proposed regional ports is Dun Laoghaire, the third largest ferry port in the State. The harbour, which is in the middle of the town, is expected to focus on marine-related tourism, cruise liners and marine leisure activity. Similarly, Galway Harbour's location close to Galway city centre has focussed on the development of the international cruise business[34].

[30] European Cruise Council, "The Cruise Industry: Contributions of Cruise Tourism to the Economies of Europe", 2012
[31] Fáilte Ireland – Cruise Tourism to Ireland Research Report, 2010
[32] This figure includes spending by passengers and crew while disembarked (14.7m), and advanced payments (2.4m) repatriated to Ireland prior to their trip
[33] Department of Transport, Tourism and Sport - National Ports Policy, 2013
[34] Galway Port Development Plan, Galway Harbour Company, 2013

Sector Outlook

Since the launch of Cruise Ireland[35] in 1994, Ireland has enjoyed significant success attracting cruise ships. Figure 5 shows a positive trend in passenger visits to Irish ports since 2006. The strong growth of the European cruise industry has continued despite the global economic downturn[36]. While 2009 was a tough year for cruise line operators, the industry is performing well and modest growth is predicted in the coming years[37]. In 2012, the largest cruise ports in Ireland have recorded very positive cruise traffic levels, with Dublin Port and the Port of Cork receiving 87 and 57 cruise vessel calls respectively. Dun Laoghaire is expecting 14 cruise vessels in 2013[38]. While the number of cruise liners calling is estimated to increase, there have been concerns regarding the lack of infrastructure at Irish ports to handle the increased traffic of large ships and the implications for maritime safety[39].

Figure 5: Passenger Visits to Irish Ports (Number) 2006-2011



Source: CSO

[35] Cruise Ireland is a marketing co-operative, which was formed in 1994 to promote the island of Ireland as a premier cruise destination. See www.cruiseireland.ie

[36] Cruise Lines International Association Europe – Cruise Facts

[37] 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

[38] IMDO, Irish Maritime Transport Economist – vol10, April 2013

[39] Department of Transport, Tourism and Sport, National Ports Policy Review

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, exports and employment levels for 2007 and 2010.

Profile

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

Table 8: Marine Retail Services Sector turnover, GVA, exports, employment: 2007, 2010

Marine Retail Services	2007[40]	2010
Turnover €000's	€98,585	€57,687
GVA €000's	€51,193	€33,908
Exports €000's	€10,876	€4,895
Employment FTE	287	252
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.	

Sources: SEMRU Company Survey; CSO – Annual Service Enquiry 2007 and 2010 - REV 1: NACE Four-Digit Codes: 52.23; REV 2: NACE Four-Digit Code: 47.23

In 2010, turnover from these marine retail services was €57.7million, a decrease of 41.5% since 2007. Chandlery and boat sales turnover decreased by 46%, while the retail of seafood in fishmonger shops increased by 60% between 2007 and 2010. Marine retail services contributed €33.9million in GVA to the Irish economy in 2010.

Exports from this sector were valued at €4.9million in 2010. There was a large decrease in exports of 55% between 2007 and 2010.

The sector employed a total of 252 FTE in 2010, a decrease of 12.2% since 2007.

Sector Outlook

In general, the marine retail sector is facing similar challenges to the overall retail sector in Ireland. These challenges relate to a weak domestic demand with consumer spending decreasing every year since 2008. As a result, sales have fallen sharply and the retail sector has experienced significant job losses[41]. With regard to the domestic seafood retail sector, the sector outlook was positive in 2012 with an increase in spending on fish at the retail level by 5% compared to the previous year[42]. In terms of growth, fish sales are outperforming all beef and poultry[43]. With increased investment in the seafood processing sector, the retail of fish is expected to increase by 2015. No specific targets were set for this sector in HOOW.

[40] Figures updated since the previous report – previously included ship surveyors which are now included under Marine Commerce. Additionally, the figure for retail sale of seafood has been revised and updated

[41] IBEC, Retail Ireland Facts, 2013

[42] BordBia Press Release 2013, 'Irish consumers spending 5% more on fish'

[43] BIM - Irish Seafood Retail Sales, May 2012.

Sea Fisheries

In 2010, the Irish fishing fleet comprised of 2,119 vessels with a total capacity of 70,800 tonnes and a total engine power of 197,000KW. The number of vessels increased by 24% (or 409 vessels) in the period 2007-2010, while the total engine power of the fleet declined by 6% during the same period. The over 10 meter fishing fleet spent a total of around 54,300 days at sea[44]. Table 9 presents the turnover, GVA, exports and employment levels for the sea fisheries sector in 2007 and 2010.

Profile

Fishing Segments

- Pelagic
- Polyvalent
- Beam-trawl
- Specific

Main Target Species

Fin Fish

- Mackerel
- Herring
- Horse Mackerel
- Blue Whiting
- Monkfish
- Megrim
- Haddock
- Whiting
- Cod
- Sole
- Plaice

Shellfish

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

Table 9: Sea Fisheries Sector turnover, GVA, exports, employment: 2007, 2010

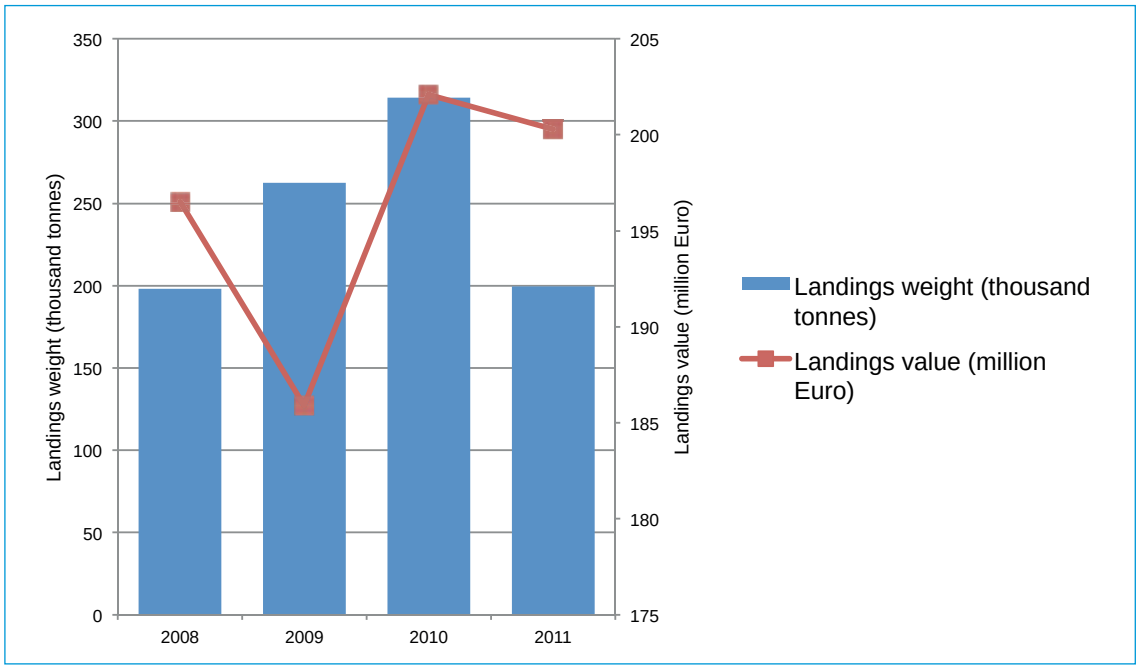
Sea Fisheries	2007	2010
Turnover €000's (landings value)	€251,000	€202,100
GVA €000's	€100,307	€ 116,100
Exports €000's	€200,312	€ 161,680[45]
Employment FTE	2,200	2,825
Location of activity	Fishing communities are distributed around the coast of Ireland, centred particularly on the fishing harbours of Killybegs, Co. Donegal, Ros an Mhíl, Co. Galway, An Daingean, Co. Kerry, Castletownbere, Co. Cork, Dunmore East, Co. Waterford and Howth, Co. Dublin.	

Sources: Sea Fisheries Protection Authority (SFPA) Annual Report 2010; Scientific, Technical and Economic Committee for Fisheries (STECF) – The Annual Economic Report on EU Fishing Fleet 2012; 2013.

Ireland had fish landings valued at €202.1 million in 2010[46]. Turnover, measured as the value of landings, decreased between 2007 and 2010 by 19.5%. Some of the factors contributing to the economic performance of the Irish National fleet in 2010 were low first point of sale prices returned to vessels and the increasing cost of fuel in the latter part of the year[47]. Figure 6 shows the most recent trends in sea fisheries production. The volume of landings to Irish ports increased significantly between 2007 and 2010; however, the value of landings decreased in the same period, which may be linked to the economic downturn and its direct effect on the price of fish. Figure 7 shows the breakdown of fish landings by species by weight and value in 2010.

[44] The 2012 Annual Economic Report on the EU Fishing Fleet (STECF-12-10)
[45] Estimated figure by SEMRU based on the breakdown of turnover/exports in the previous period.
[46] The base year for this report is 2010. 2011 Statistics are available from BIM on the next page of this report.
[47] The 2012 Annual Economic Report on the EU Fishing Fleet (STECF-12-10).

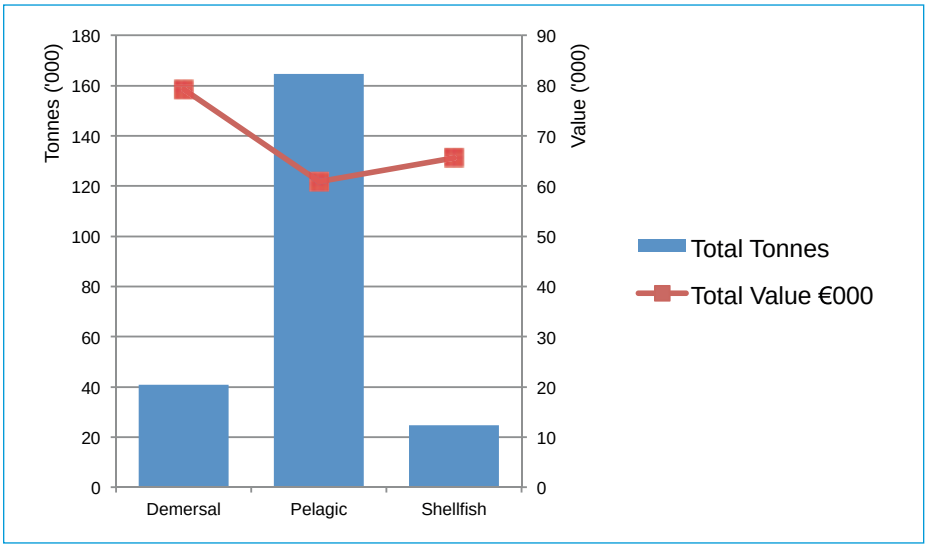
Figure 6: Sea Fisheries Production Trends for 2008-2011



Source: 2013 Annual Economic Report on the EU Fishing Fleet (STECF-13-18)

Photography: John Joyce

Figure 7: Breakdown of Fish Landings by Weight and Value 2010



Source: 2013 Annual Economic Report on the EU Fishing Fleet (STECF-13-18)

Sea Fisheries employed 2,825FTE in 2010, representing an increase of 28.5% between 2007 and 2010. This could be as a result of the slowdown in the construction industry in Ireland over the same period.

Exports from fish landings were valued at €161.7million. Commercial fishing contributed an estimated €116.1 million in GVA to the Irish economy in 2010.

The spatial concentration of sea fishing activity is shown in Figure 8 (next section) together with aquaculture activities.

Box D: Sea Fisheries Data Update – 2011

Turnover €000's	€200,300
GVA €000's	€111,600
Employment FTE	3,168

Source: 2013 Annual Economic Report on the EU Fishing Fleet (STECF-13-18)

Overview of the Policy Regime

Catching of wild fish is regulated at national and EU levels. Under the Common Fisheries Policy (CFP), annual quotas are set for most fish species. Primary responsibility for the allocation and management of these quotas rests with the Department of Agriculture, Food and the Marine (DAFM)[48]. The reform of the CFP is of critical importance to the future of the sector, particularly with respect to access to resources for the Irish industry[49]. One important development of the CFP reform relates to the recently agreed ban on discards of fish caught over EU quotas. Additional policy developments that affect the sea fisheries sector include the MSFD. Closer to home, renewed interest in sea fisheries has been stimulated by the publication of the Food Harvest 2020 (FH2020) strategy[50]. FH2020 has set ambitious targets for the expansion of the Irish sea fisheries and aquaculture sectors, with targets being set to increase revenue in these sectors to €1 billion and employment to 14,000 FTE jobs by 2020.

[48] SFPA Annual Report 2010
[49] 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
[50] Department of Agriculture, Fisheries and The Marine (2010a) Food Harvest 2020 – A Vision for Irish Agri-Food and Fisheries (Dublin: DAFM)

Sector Outlook

The potential for the sector lies in adding value to the existing catch, which is likely to remain stable. This can be achieved by rebuilding and management of the stocks to enable higher annual fish quotas in line with the CFP objectives and Maximum Sustainable Yield (MSY) obligations. The current reforms of the CFP are also aimed at 'greening' the policy. These environmental considerations may further impact upon Irish fishermen's ability to land their produce[51]. There has been a stabilisation of the sector after a decline from 2007 to 2009[52]. Increases in oil prices are likely to continue, which are expected to affect the profitability of the Irish national fleet in the future. Overall, there is increasing uncertainty among seafood operators regarding the effect of higher taxes and reduced government expenditure on demand and spending power, which may result in consumption changes towards cheaper seafood and higher pressure on prices[53]. HOOW sets out a target for an increase in turnover to €1 billion in fisheries, aquaculture and seafood processing by 2020. This figure is based on targets set in *FH2020*.

[51] Hynes, S. and Hennessy, T. (2012). Agriculture, Fisheries and Food in the Irish Economy. World Economy, 35 (10): 1340-1358.
[52] 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
[53] BIM Seafood Bulletin, September 2011

Copyright: Marine Institute:

Marine Aquaculture

Marine aquaculture can be divided into finfish and shellfish farming. Currently, aquaculture in Ireland is comprised of 850 licensed operations covering 2,000 sites, primarily consisting of shellfish production[54]. The number of active enterprises engaged in marine aquaculture has remained stable with total of 291 enterprises[55]. In recent years, there has been an increase in salmon and Gigas oyster production, while mussel production has decreased due to both seed supply and market demand reduction[56]. Table 10 shows the turnover, GVA, exports and employment levels for 2007 and 2010.

Profile

Fin Fish

- Salmon
- Seawater Troutl
- Arctic Char
- Cod

Shellfish

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

Table 10: Marine Aquaculture Sector turnover, GVA, exports, employment: 2007, 2010

Marine Aquaculture	2007	2010
Turnover €000's	€105,700	€122,545
GVA €000's	€42,280	€46,855
Exports €000's	€22,560	€29,982*
Employment FTE	1,061	918
Location of activity	Shellfish aquaculture activities are widely distributed around 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	

*Refers to exports of shellfish only (fresh mussels and oysters). Exports of finfish are included as part of seafood processing (next section). Total exports from aquaculture were valued at €94.2 million in 2010 (BIM, 2013)

Sources: Scientific, Technical and Economic Committee for Fisheries (STECF) – The Economic Performance of the EU Aquaculture Sector; Bord Iascaigh Mhara (BIM).

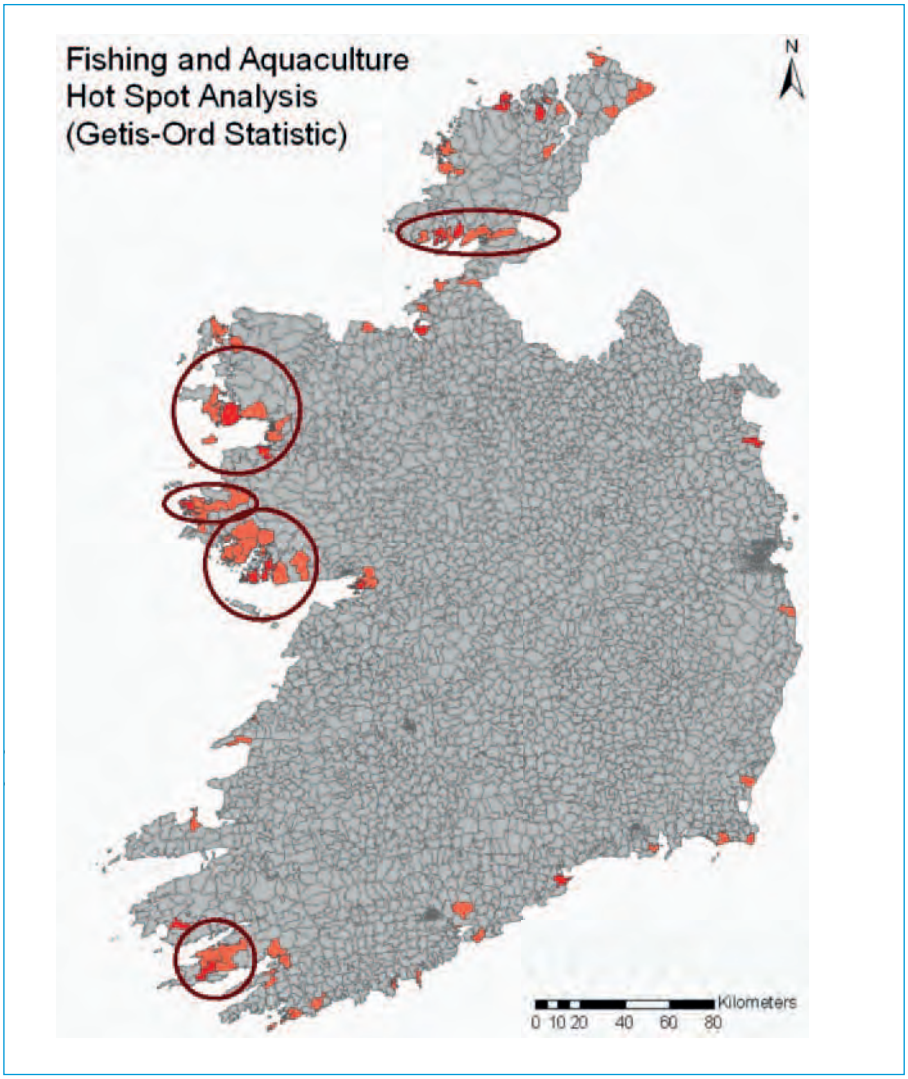
[54] Government of Ireland, Inter-Departmental Marine Coordination Group (MCG), "Harnessing Our Ocean Wealth - An Integrated Marine Plan (IMP) for Ireland," July 2012, Briefing Document Part II: Sectoral Briefs

[55] The Economic Performance of the EU Aquaculture Sector – (STECF-OWP-12- 03); (STECF-13-03)

[56] The Economic Performance of the EU Aquaculture Sector – 2012 exercise (STECF-13-03)

Figure 8 illustrates the hot-spot analysis for fishing/aquaculture. The areas marked in the map show those electoral districts in which the concentration of activity for these two sectors is statistically significant, which means that there is not only a high value of activity in that particular area, but that it also surrounded by other areas with high concentrations as well.

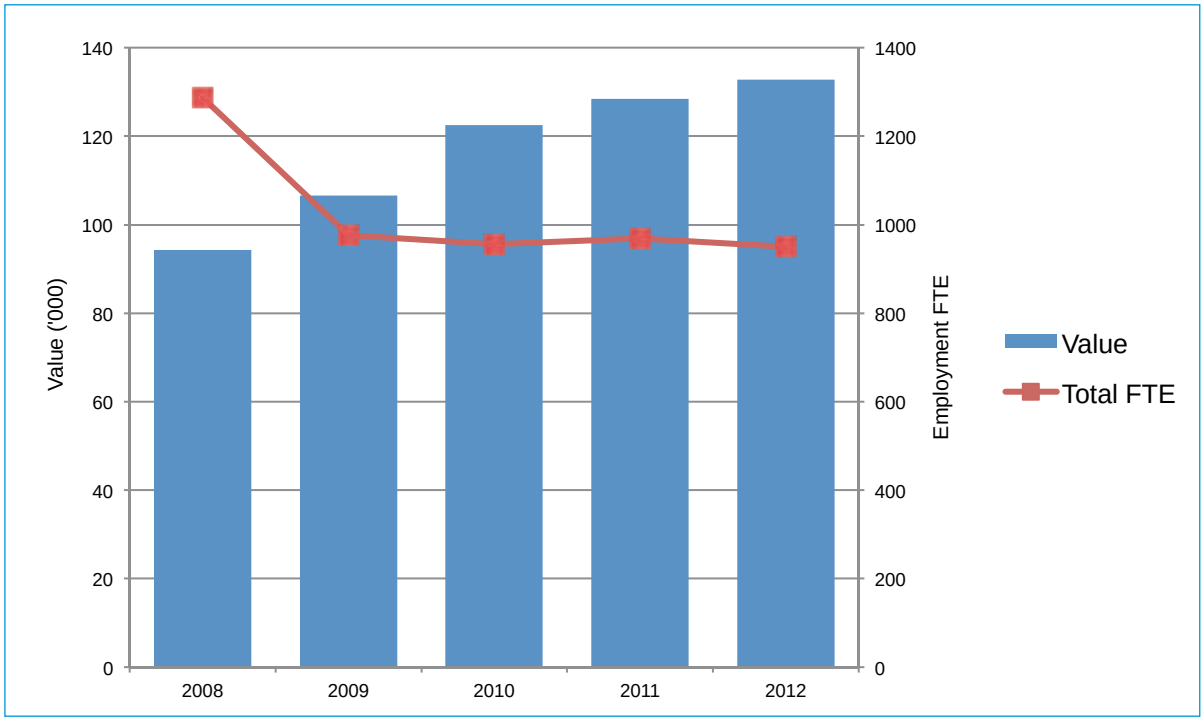
Figure 8: Spatial Concentrations of Fishing and Aquaculture Activity in Ireland, 2012



The total value of aquaculture in 2010 was €122.5 million. Turnover increased between 2007 and 2010 by 15.9%. Increased production volume and unit value per tonne of the salmon and oyster industry have been the chief contributors to this trend[57].

[57] The Economic Performance of the EU Aquaculture Sector – (STECF-OWP-12- 03); (STECF-13-03)

Figure 9: Total Production Value and Employment in Marine Aquaculture 2008-2012



Source: Bord Iascaigh Mhara (BIM)

Exports from aquaculture were valued at €29million in 2010. Marine aquaculture contributed to the Irish economy in 2010 with an estimated €46.8million in GVA. This represents an increase of 10.8% over 2007.

The sector employed 918 FTE in 2010. A large proportion of total employment – 83% - is along the Western seaboard[58]. There was a decrease in employment of 13.7% between 2007 and 2010. Shellfish production decline in the mussel sector is reflected in the overall decrease in employment levels, while employment for other marine aquaculture sectors has remained stable overall[59].

Box E: Marine Aquaculture Data Update - 2012

30% increase in first sale value since 2008

Over 1,700 people are directly employed in the aquaculture industry in 2012, an increase of 5%

Source: 2012 BIM Annual Aquaculture Survey

[58] BIM Annual Aquaculture Survey, 2012
[59] The Economic Performance of the EU Aquaculture Sector – 2012 exercise (STECF-13-03)

Copyright: Marine Institute

Overview of the Policy Regime

Ireland will have to address difficulties in achieving compliance with the Birds and Habitats Directives before the true potential of the aquaculture sector can be realised. Recently (April 2013), the European Commission issued strategic guidelines to boost the development of EU aquaculture, thereby cooperating with Member States and stakeholders in overcoming the challenges facing the sector. These guidelines address the challenges and identify a mix of measures like administrative simplification, spatial planning, market organisation, diversification, better labelling and information, to help market forces unlock the potential of the EU aquaculture sector[60]. At the national policy level, Bord Iascaigh Mhara (BIM) has recently published its strategy for 2013 - 2017, with the main objective of expanding and significantly developing the aquaculture sector in Ireland[61]. As with the sea fisheries sector, the Food Harvest 2020 strategy has also set ambitious targets for the aquaculture sector with a target of a 78 per cent increase in aquaculture volume production by 2020.

Sector Outlook

The potential to increase production has been hampered by a shortage of available licensed sites[62], however there is significant scope for aquaculture expansion in Ireland, including in deep water sites[63]. Ireland is well placed to increase aquaculture production but it has to overcome difficulties within the state regulatory structure.

60 Europa.eu Press Release 2013, Commission calls for cooperation to boost sustainable aquaculture in Europe (http://europa.eu/rapid/press-release_IP-13-381_en.htm)

61 BIM (2013), Capturing Ireland's share of the global seafood opportunity, BIM Strategy 2013-2017.

62 The Economic Performance of the EU Aquaculture Sector – 2012 exercise (STECF-13-03)

63 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

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. As the emerging economies of the Far East grow wealthier, their demand for seafood is expected to increase substantially[64].

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 2010[65]. There are currently an estimated 138 companies engaged in the handling, processing, distributing and marketing of seafood in Ireland[66]. 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 specialised in more than one species. Table 11 presents the turnover, GVA, exports and employment levels for 2007 and 2010.

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 Sector turnover, GVA, exports, employment: 2007, 2010[67]

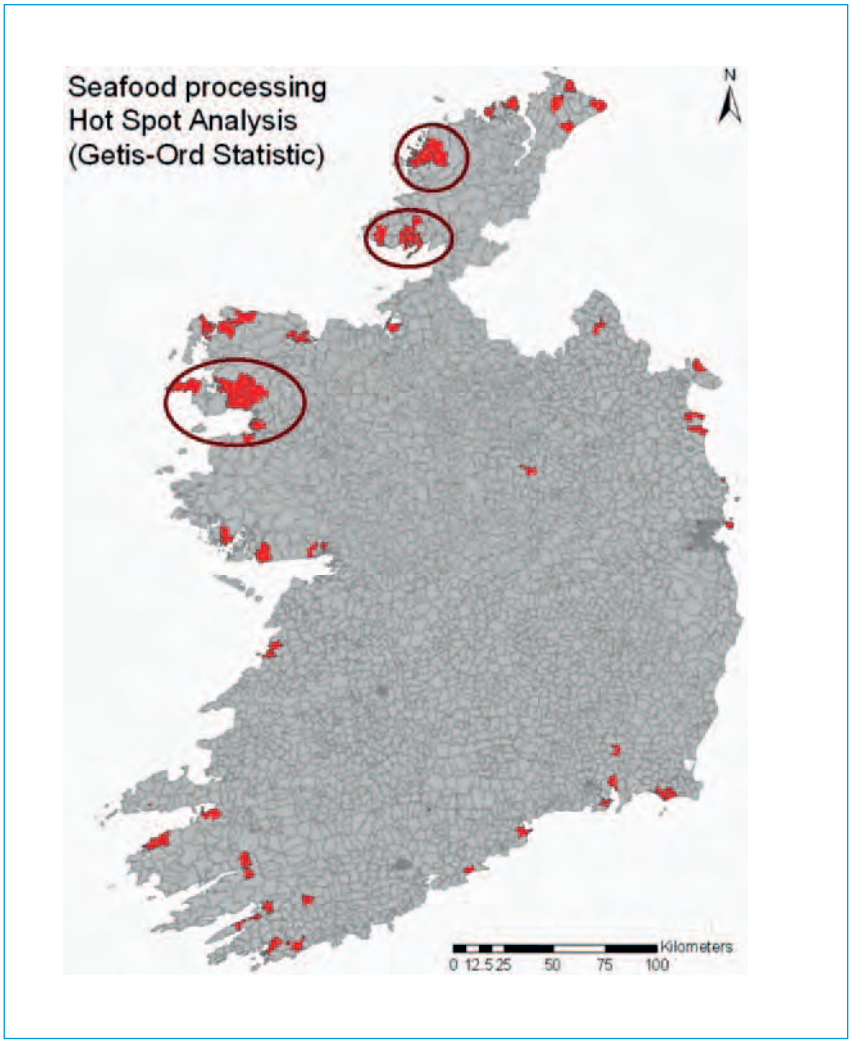
Seafood Processing	2007	2010
Turnover €000's	€395,593	€389,635
GVA €000's	€88,204	€80,008
Exports €000's	€280,159	€233,996
Employment FTE	2,090	1,586
Location of activity	The sector is concentrated in the coastal regions of Donegal, Mayo, Cork, Kerry, Galway and in the South East (see map below)	

Source: CSO – Census of Industrial Production (CIP) 2010 - REV 1: NACE Four-Digit Code: 15.02; REV 2: NACE Four-Digit Code: 10.20

[64] BIM Strategy 2010-2012, 'Delivering on the potential of Irish seafood' [report]
[65] Economic Performance of the EU Fish Processing Industry Sector (STECF-OWP-12-01)
[66] 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
[67] Figures from 2007 and 2010 are not directly comparable - See methodology for more detail

Figure 10 illustrates the hot-spot analysis for seafood processing showing the electoral districts in which the concentration of activity for this sectors is statistically significant, which means that there is not only a high value of activity in that particular area, but that it also surrounded by other areas with high values as well.

Figure 10: Spatial Concentrations of Fishing and Aquaculture Activity in Ireland, 2012



The turnover generated by Ireland's seafood processing sector in 2010 was €389.6 million. Turnover decreased slightly by 1.53% between 2007 and 2010, with employment also decreasing over the same period by 31.78%. The sector employed 1,586 FTE in the handling, processing and distributing of fish in 2010, compared with 2,090 FTE in 2007. The reduction in funding available for enterprise development and the difficulties in accessing these funds have had a major impact in the levels of employment in the sector[68].

[68] Economic Performance of the EU Fish Processing Industry Sector (STECF-OWP-12-01)

The sector contributed €80 million in GVA to the Irish economy in 2010. Value added in this sector is low at 20.53% of turnover. In general, the sector suffers from very low margins due to increases in raw materials and energy costs, which cannot be translated into price increases due to the retail sector's high negotiation power[69]. This trend is consistent with other European countries.

The significant decrease in employment relative to the moderate drop in turnover and value added shows an important efficiency gain in the Irish processing sector in the period 2007-2010. A combination of business development programmes designed and implemented by BIM and the Irish seafood processing industry are geared to increase value added in the sector[70]

Exports were approximately €234 million of turnover in 2010. In 2007 exports accounted for 70.82% of turnover, compared to 60.05% in 2010. The main European Irish seafood markets accounted for 65% of exports in 2010[71]. Markets outside of the EU are also important for Ireland's seafood processing enterprises, with Nigeria and Russia among the main export markets.

Overview of the Policy Regime

The delivery of a supportive policy framework at EU level is critical for the future of Ireland's seafood processing sector. Ensuring that Ireland can retain access to and grow the natural resource base on which the industry is wholly dependent is essential. The potential of the Irish seafood processing sector has been addressed at the national level in FH2020. Launched by the Irish government in 2010, FH2020 sets out the government's long-term strategy for the Irish agri-food, forestry and fisheries sectors with specific growth targets for the sea processing sector in terms of additional processing revenue and jobs. The strategy focuses on expanding access to raw material supplies for the seafood processing from increased aquaculture output and landings from foreign vessels. Also, the strategy aims to support innovation and the creation of added value products through the increased differentiation of Irish seafood and greater co-operation between processors in co-processing, sales and marketing areas[72]. More recently, a further policy development relevant for the seafood processing sector has taken place in Ireland with the publication of the BIM Strategy 2013-2017. The strategy strongly focuses on maximising additional value from the primary sector by expanding and developing the processing sector through, among other measures, better access to seafood processing investment schemes[73].

Sector Outlook

The seafood processing sector has developed a profitable growth strategy. The Seafood Processing Investment Scheme administered by BIM is targeting the seafood processing sector to boost the value added in the sector. In 2012, investment by 21 seafood processing companies of close to €15 million (supported by grants of €3.2 million under an EU co-funded scheme) was announced by DAFM[74]. From an international perspective, the outlook of the sector is positive with regard to the potential for export growth in seafood processing products from Ireland to China, where full market access for salmon exports was recently announced by the Irish government[75]. Although the value of exports decreased in the 2007-2010 period, exports appear to be performing well in more recent years[76].

[69] Economic Performance of the EU Fish Processing Industry Sector (STECF-OWP-12-01)

[70] 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

[71] BIM Irish Seafood Industry 2012 – Fish Facts

[72] 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

[73] BIM Strategy 2013-2017. As before – consider putting in title

[74] Compared with 18 companies and €6 million investment in 2010

[75] Department of Foreign Affairs and Trade Press Release, 2013, 'Tánaiste announces full market access for Irish salmon in China'

[76] BIM Facts and Figures 2012

Oil and Gas Exploration and Production

The Irish offshore oil and gas sector has 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)[77]. Over the last 40 years 129 exploration wells have been drilled with limited success making the probability of a commercial discovery in Ireland low[78]. No commercial oil production in Ireland has been achieved to date. Table 12 shows the turnover, GVA and employment in 2007 and 2010.

Profile

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

Table 12: Oil and Gas Exploration and Production Sector turnover, GVA, employment: 2007, 2010

Oil and Gas Exploration and Production	2007	2010
Turnover €000's	€197,300	€125,759
GVA €000's	€137,117	€61,182
Employment FTE	790	861
Location of activity	The sector is concentrated in the coastal regions of Donegal, Mayo, Cork, Kerry, Galway and in the South East (see map below)	

Sources: CSO – Census of Industrial Production 2010; 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

The turnover generated by oil and gas exploration and production was €125.8 million in 2010 and the sector generated €61 million in GVA. Turnover decreased between 2007 and 2010 by 36%. The Kinsale Head Field is reaching the end of its production lifecycle and extraction is falling accordingly which could account for the large fall in turnover and GVA in the sector. The Corrib Gas Field is expected to come on stream in 2014 and this may reverse this trend.

Although there have been low levels of exploration off Ireland's coast and limited success over the past forty years, the oil and gas industry generates employment in Ireland, with 861 FTE working in the sector in 2010. Even with the sector experiencing a significant decrease in turnover, employment increased by 9% between 2007 and 2010. This could be due to non-commercial projects such as the Corrib Gas Field increasing employment, however not operating commercially yet so they do not contribute to turnover in the sector for Ireland.

[77] PwC Report, 2013, 'Making the most of our natural resources: Oil and gas exploration in Ireland.' [report]
[78] 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

Overview of the Policy Regime

In order to support Ireland's oil and gas policy, the State 1) has given responsibility to the Department of Communications, Energy and Natural Resources (DCENR)/the Petroleum Affairs Division (PAD) for the promotion, regulation and monitoring of oil and gas exploration in Ireland 2) operates a licensing regime and 3) is developing a specialist fiscal policy – currently 25% corporation tax and a resource rent tax of zero to 15% of profits[79]. Ireland's fiscal terms for the oil and gas industry are currently under review.

Sector Outlook

Ireland's challenging offshore environment, particularly on the Atlantic Coast, the low success rate of exploratory drilling and high offshore operating costs make the oil and gas industry in Ireland less attractive relative to countries such as Norway and the UK.

However, the success in applications and licences offered under the Atlantic Margin Licensing Round and the recent Barryroe oil discovery announced in 2011 provide a positive outlook for the industry. The future of the oil and gas sector will vary depending on the amount of exploration activities that take place over the coming years. The review of Ireland's oil and gas fiscal terms in 2013 will have a significant impact on the levels of investment in the sector. For the immediate future, Ireland is forecast to be a small producer of gas.

No specific targets were set 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.

[79] Department of Communications Press Release 2013, Energy and Natural Resources 'Rabbitte announces review of fiscal terms for oil and gas production'

Photography: Aoihan Fitzgerald

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, exports and employment in 2007 and 2010.

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 Sector turnover, GVA, exports, employment: 2007, 2010

Marine Manufacturing	2007	2010
Turnover €000's	€265,227	€110,812
GVA €000's	€110,429	€44,003
Exports €000's	€12,850	€9,719
Employment FTE	1,600	726
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.	

Sources: CSO - Census of Industrial Production 2010; CSO – Building and Construction Inquiry 2010 - 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; SEMRU Company Survey

In 2010 marine manufacturing, construction and engineering had a turnover of approximately €110.8 million with exports amounting to €9.7 million. The sector generated €44 million in GVA to the Irish Economy and employed 726 FTE.

There has been a significant decline in activity between 2007 and 2010 in this sector, with a decrease of approximately 59% in turnover. The decline in this sector was primarily due to the slowdown in the construction industry from 2008 onwards.

Once again, no specific targets were set 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.

2.1 Emerging Marine Industries

The Emerging Marine Industries in 2010 had a turnover of €165 million and provided employment to 989 FTE representing 5% of the turnover and 6% of employment in the Ocean Economy. Emerging industries refer to those that are still at a relatively early stage of development, 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 with currently untapped potential.

The Emerging Marine industries have significant potential for growth and development to contribute to the ocean economy in the future. Firms in this category also tend to have considerable potential for knowledge creation.
Emerging marine sectors identified and profiled below include:

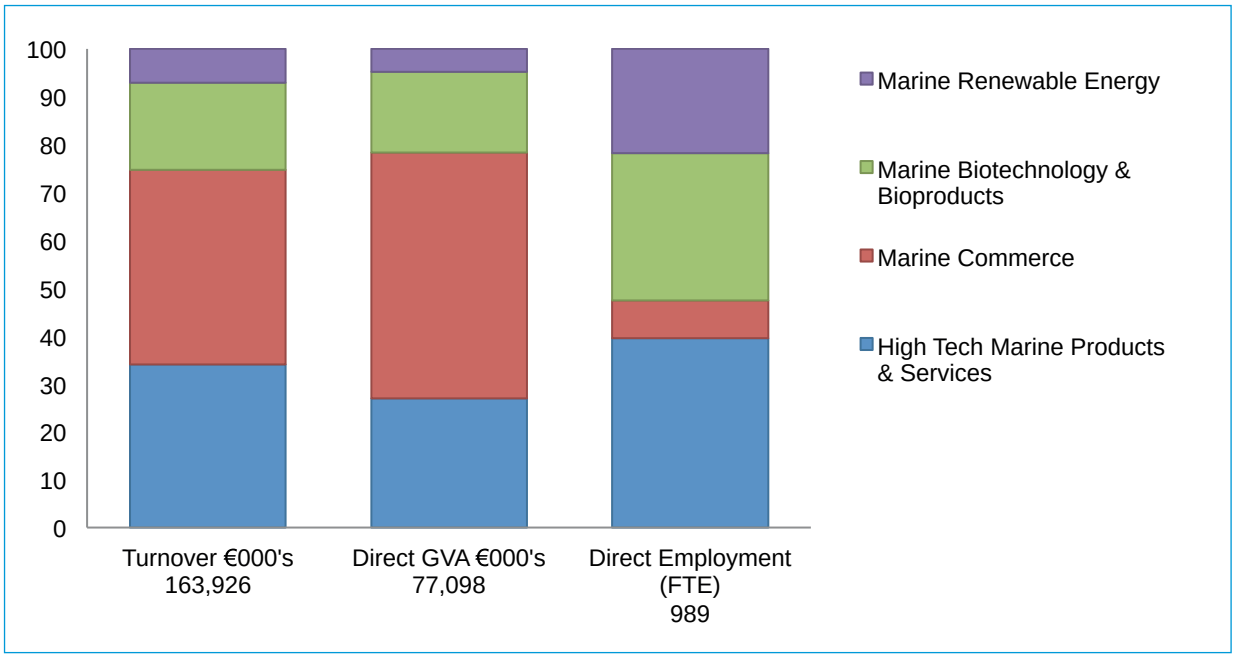
- Marine Commerce
- High Tech Marine Products and Services
- Marine Biotechnology and Bioproducts
- Marine Renewable Energy

Figure 11 shows the relative contribution of each of these sectors to the overall turnover, employment and GVA of the Emerging Marine Industries. The marine commerce sector was the largest contributor of turnover to the marine economy in 2010 for the emerging industries, followed by high tech products and services, biotechnology and bi-products and marine renewable energy, respectively.

In terms of GVA, Marine Commerce was the largest contributor in 2010 for the emerging industries, followed by the high tech products and services sector, the biotechnology and bi-products sector and the marine renewable energy sector, respectively.

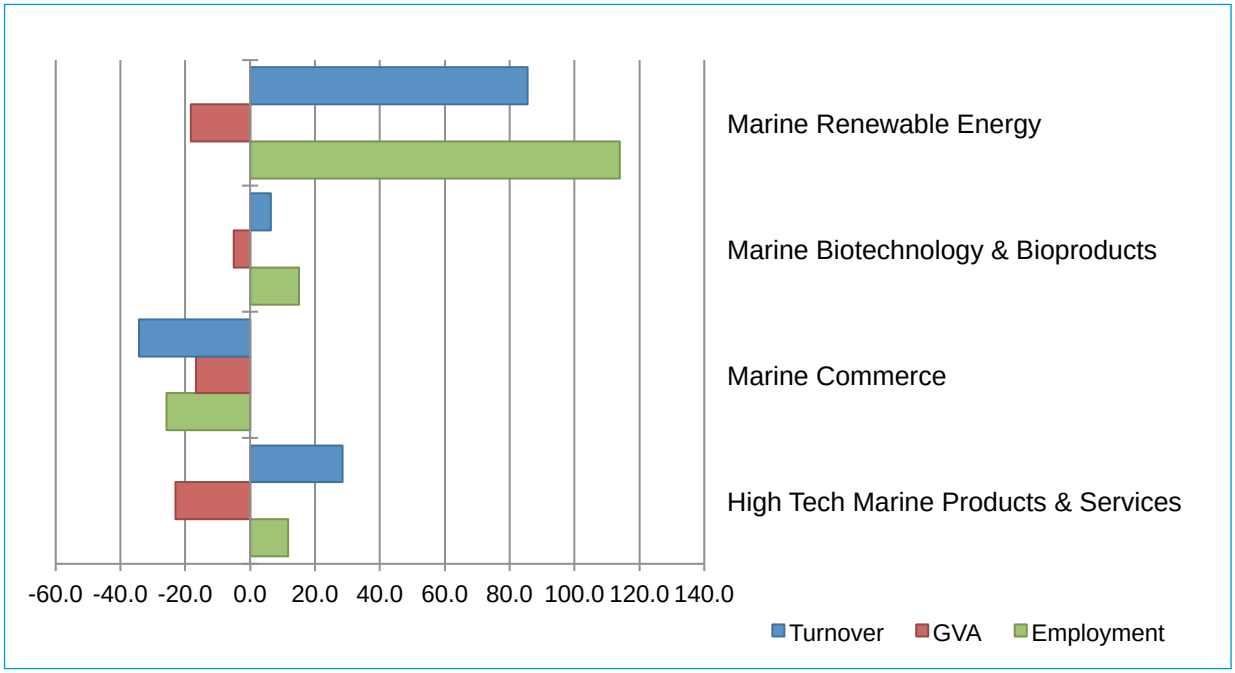
The high tech products and services sector was the largest contributor for employment in the emerging industries for 2010, followed by biotechnology and bi-products, marine renewable energy and marine commerce, respectively.
Figure 12 shows the rate of change in turnover, GVA and employment for the emerging industries in the 2007-2010 period. Marine renewable energy presents the largest increase in turnover and employment, followed by high tech marine products and services. Marine commerce has experienced the largest drop in economic activity since 2007.

Figure 11: Contribution of Sectors within the Emerging Irish Marine Industries, 2010



http://www.nuigalway.ie/semru/ocean_economy_tables.html

Figure 12: Rates of Change (%) in Turnover, GVA and Employment. Emerging Industries, 2007-2010



http://www.nuigalway.ie/semru/ocean_economy_tables.html

High Tech Marine Products and Services

Marine information and communication technology (ICT) is a multi-disciplinary activity that encompasses industry players across the ICT and marine sectors. It is an emerging sector of strategic interest to many large multinational companies investing in Ireland. The sector is comprised of a small but diverse range of "knowledge-based" companies with core capabilities in the areas of information and communications technologies. Such technologies are sought to improve decision making and drive efficiencies in global marine related markets including the areas of environmental monitoring, oil and gas, transport and shipping, aquaculture, coastal tourism, safety, security and surveillance. New opportunities have also been identified in the emerging areas of marine renewable energy, integrated marine monitoring systems and resource management[80]. Table 14 shows the turnover, GVA, exports and employment in 2007 and 2010.

Profile

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

Table 14: High Tech Marine Services Sector turnover, GVA, exports, employment: 2007, 2010

High Tech Marine Services	2007	2010
Turnover €000's	€43,618	€55,924
GVA €000's	€27,299	€20,807
Exports €000's	€10,876	€12,307
Employment FTE	350	391
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.	

Sources: SEMRU Company Survey; Company Registrations Office

High tech marine products and services had a turnover of € 55.9 million in 2010, with approximately 22% of this turnover being represented by exports. Turnover increased by 28.2% between 2007 and 2010.

The sector generated €20.8 million in GVA to the Irish economy, representing 37.2% of turnover. Employment increased by 11.7% to 391 FTE since 2007.

[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

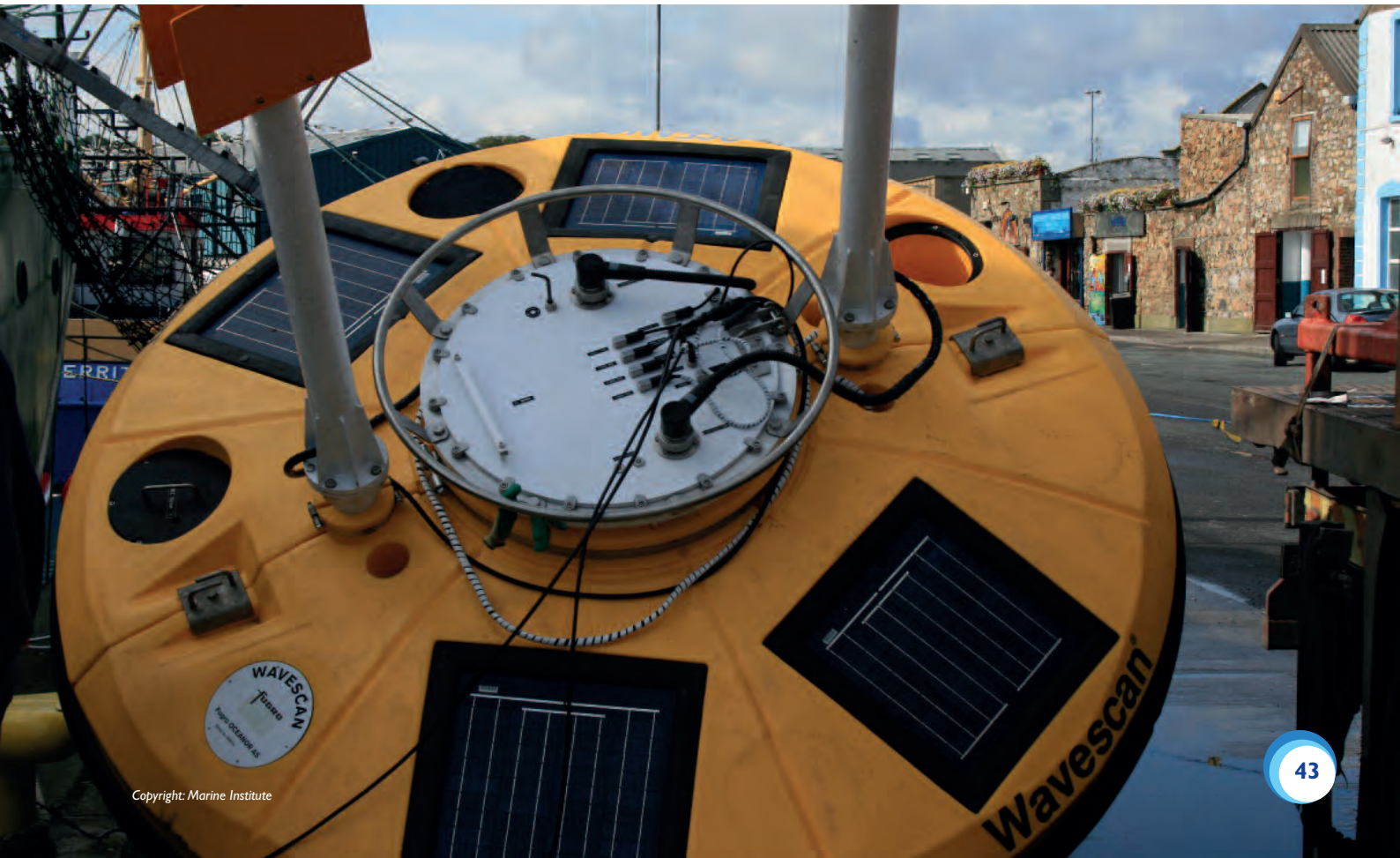
Overview of the Policy Regime

In 2010, the Marine Institute published a National Strategy on the development of the Smart Ocean Innovation Cluster. The Smart Ocean Vision 2020 envisions that by 2020 Ireland will be a recognised leader in the development, testing, commercialisation and delivery of the next generation of innovative technologies in marine renewable energy, environmental monitoring and water technologies[81]. HOOW identified the high tech sector as a growing sector and set a target of further growth in the sector by 2020.

Sector Outlook

Ireland's geographic location and extensive ocean resource, together with the existence of research infrastructure and datasets and the presence of a research orientated FDI and SME base, makes Ireland an attractive location for marine related ICT. HOOW has set out a target for an increase in turnover to in excess of €61 million in marine ICT and biotechnology by 2020.

[81] 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



Copyright: Marine Institute

Marine Commerce

Marine commerce, as defined here, refers to legal services, finance 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 and 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 and 2010.

Profile

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

Table 15: Marine Commerce Sector turnover, GVA, employment: 2007, 2010

Marine Commerce	2007	2010
Turnover €000's	€101,338	€66,594
GVA €000's	€48,009	€39,652
Employment FTE	105	78
Location of activity	Companies that provide marine commerce services are primarily located in Dublin, Cork, and Galway	

SEMRU Company Survey; Company Registrations Office

Marine commerce had a turnover of €66.5 million in 2010 and generated €39.6 million in GVA to the Irish economy. Turnover decreased by 34.2% between 2007 and 2010, particularly in the areas of financing and insurance. This was as a result of the global financial downturn from 2008 onwards.

The Irish marine commerce sector employed 78 FTE in 2010. Interestingly, this sector is the biggest contributor in terms of turnover and GVA to the emerging marine economy, yet it is the smallest contributor to employment.

This sector is largely dependent on the wider global economy. Recent economic turbulence saw a sharp change in the finance/banking system in Ireland, affecting the availability of finance which affected the marine commerce sector on a large scale. In Ireland, the peak of the recession was in the third quarter of 2010.

Overview of the Policy Regime

HOOW sets out a target for an increase in turnover to €2.6 billion in maritime commerce and ship leasing by 2020. While this is an ambitious target, on-going work by the IMDO and the IDA regarding a proposed international shipping services centre in Dublin could facilitate it being reached (see also section on Shipping and Maritime Services above).

Sector Outlook

With modest growth in GDP of 1.8% and 2.7% predicted for Ireland in 2013 and 2014 respectively (forecasts are based on the assumption that the European economy returns to growth in 2014)[82], the recovery of the Irish marine commerce sector is likely to be gradual. A proposal to build an international shipping services centre in Dublin could see significant growth in this sector in the longer term. Similar to the International Financial Services Centre, it is expected that such a centre would attract firms involved in ship leasing, shipping finance, operations management and maritime education.

[82] ESRI Press Release 2013, 'The Quarterly Economic Commentary', Spring 2013

Photography: David Branigan

Marine Biotechnology and Bioproducts

Marine biotechnology is the use of biological knowledge, 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 chemistry[83].

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 and 2010.

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 biofeuls

Table 16: Marine Biotechnology and Bioproducts Sector turnover, GVA, exports, employment: 2007, 2010

Marine Biotechnology and Bioproducts	2007	2010
Turnover €000's	€28,251	€29,867
GVA €000's	€13,759	€12,990
Exports €000's	€8,455	€11,645
Employment FTE	264	304
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.	

Sources: SEMRU Company Survey; Company Registration Office

The turnover generated by the marine biotechnology and bioproducts industry in 2010 was almost €30 million. Turnover remained steady between 2007 and 2010, with a 5.7% increase during the period.

Exports of €11.6 million, mainly to the UK, Spain, France, and the US, accounted for a third of the turnover. Exports increased by 37.7% between 2007 and 2010.

[83] 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

The GVA to the Irish economy was €13 million in 2010.

In terms of employment, 304 FTE were employed within sector in 2010. Employment increased by 15% between 2007 and 2010.

Overview of the Policy Regime

A European Strategy for Marine Biotechnology[84] was introduced in 2010. This strategy identifies target market areas where by exploiting the potential of marine biotechnology, Europe can secure a competitive advantage. Ireland has a strategic advantage in the context of an extensive natural marine resource encompassing a variety of habitats and organisms[85]. A number of national policy development and research strategies support the potential of the marine biotechnology and bio-products sector (e.g. Sea Change, Food Harvest 2020, Harnessing Our Ocean Wealth, and the Report from the Research Prioritisation Exercise). The Marine Institute operates the National Marine Biotechnology Programme. The objectives include developing Ireland as a location in which to engage in advanced marine biotechnology related activities, and connecting publicly funded research activity with the commercially oriented targets of the enterprise sector in existing and emerging markets for marine biotechnology enabled products and processes[86].

Sector Outlook

As Ireland is a key location for the international life sciences industry, government funding is an important aspect and attracts foreign companies to locate to Ireland. The marine biotechnology sector is comprised of a growing number of SMEs who are seeking ways to increase capacity and capability for innovation to both increase turnover and employment. HOOW has set out a target for an increase in turnover to in excess of €61 million in marine ICT and biotechnology by 2020.

[84] Marine Biotechnology: A New Strategy and Vision for Europe, Marine Board- ESF Position Paper 15, Ostend, 2010
[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] 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

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 from 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 level[87]. Table 17 shows the turnover, GVA and employment in 2007 and 2010.

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 Sector turnover, GVA, employment: 2007, 2010[88]

Marine Renewable Energy	2007	2010
Turnover €000's	€6,218	€11,541
GVA €000's	€4,415	€3,649
Employment FTE	101	216
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

In 2010, the marine renewable sector had a turnover of €11.5 million. Turnover increased by 85.6% between 2007 and 2010. GVA for the sector is low for 2010 at 31.6% relative to turnover.

There were 216 FTE in the field of marine renewable energy in 2010. Employment more than doubled between 2007 and 2010 in this sector.

Overview of the Policy Regime

Irish renewable energy policy is framed in the context of European legal obligations specified in various Directives and Regulations, as well as other international and national targets. Ireland's target set by the EU is that 16% of all energy consumption (up from 3.1% in 2005) is to be from renewable energy sources by 2020. Under the EU Directive, a National Renewable Energy Action Plan (NREAP) was published in 2010 showing how Ireland will achieve their target. Ireland is involved in many initiatives such as the British Irish Council renewable energy subgroups and the North Sea Offshore Grid Initiative subgroup. Recently, the Strategy for Renewable Energy: 2012 – 2020 was published which identified five strategic goals: increasing both on and offshore wind, building a sustainable bioenergy sector, fostering RandD in renewables such as wave and tidal, growing sustainable transport and building robust and efficient electricity networks[89]. The Department of Communication, Energy and Natural Resources (DCENR) is expected to publish shortly Ireland's Offshore Renewable Energy Development Plan.

[87] 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

[88] Figures from 2007 and 2010 are not directly comparable - See methodology for more detail

[89] SEAI Report 2011: Renewable Energy In Ireland 2011

Sector Outlook

Developing renewable energy is an integral part of Ireland's sustainable energy objectives and climate change strategy. In a period of increasing and volatile energy costs, renewables can also contribute to cost competitiveness by reducing dependence on imported fossil fuels and hedging against further fossil fuel price volatility.

It is estimated that the total accessible wave energy resource equates to 75% of the total electricity demand for Ireland in 2011. A number of wave energy devices have being tested in a site located in Galway Bay. While there are plenty of different wave energy device prototypes in development, a commercial wave energy device does not yet exist[90].

HOOW highlights the opportunity to develop world-class research and test facilities related to ocean energy. This includes the Quarter Scale Wave Energy Test Site and SmartBay Ireland - National facility for marine ICT - in Galway Bay; the proposed full-scale pre commercial prototype grid connected Atlantic Marine Energy Test Site (AMETS) located off Annagh Head, west of Belmullet, Co. Mayo and the upgraded wave tank facilities of the HMRC (Hydraulics and Maritime Research Centre) that will be housed in the IMERC initiative. Recent investment by the State in research and innovation infrastructure will further support the development of this sector.
No specific targets were set for this sector in HOOW.

[90] SEAI Report 2011: Renewable Energy In Ireland 2011

3. Conclusion

This report provides a profile of Ireland's ocean economy for the 2010 baseline year against which future marine socio-economic data can be compared. One of the main aims of the report is to monitor progress against the 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 2010, the direct economic value of the Irish ocean economy is estimated to have been worth €1.2 billion or approximately 0.8% of GDP. The sector had a turnover of €3.5 billion, and provided employment for approximately 16,300 FTE. Compared to 2007, 2010 saw a 25.4% decrease in turnover, a 20.9% fall in employment and a 29.7% decrease in GVA.

TRENDS

- Shipping and maritime transport experienced a significant fall in activity, with turnover, GVA and employment decreasing across the sector in the period.
- Marine tourism and leisure saw a decline in turnover, employment and GVA in line with the trends in general tourism.
- With the change in methodology, cruise liners data is not comparable across the years; however the number of passengers has increased significantly in the last decade.
- The marine retail sector faced similar challenges to the overall retail sector in Ireland. These challenges relate to a weak domestic demand with consumer spending decreasing every year since 2008.
- While the Sea Fisheries sector experienced a fall in overall turnover during the period, both GVA and employment increased. Interestingly, employment increased by 28.4% from 2007 – 2010. This may be a result of the downturn in the construction sector in recent years, driving employment towards traditional industries.
- The aquaculture sector had an increase in turnover and GVA over the period of 16% and 12% respectively, however employment decreased by 13.5% in the same period.
- While there was a large decrease in turnover and GVA in the oil and gas sector, employment increased by 9% in 2007-2010. The drop in oil and gas activity recorded for this period reflects the current market circumstances of the oil and gas industry in Ireland, with the Kinsale Head Field reaching the end of its production lifecycle and the Corrib Gas Field not coming on stream until 2014.
- Marine manufacturing, construction and engineering saw the largest decrease overall, with turnover falling by 58%, GVA by 60% and employment by 55%. This sector was dominated by water construction in 2007, which with the downturn in the construction sector in recent years has suffered a significant drop in activity.
- In comparison to the established industries, the emerging industries are excelling in terms of growth. High tech marine products and services, marine biotechnology and bioproducts and marine renewable energy all experienced large increases in turnover and employment. However in all cases, GVA stayed constant or decreased.
- Marine commerce as an emerging sector saw a large decrease in activity over the period, in line with the general economy and the international financial markets.

The collection of marine socio-economic data is essential for monitoring the marine sector targets set out in HOOW. 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 SEMRU, the focus has been on developing a coherent and robust methodology for the collection of marine socio-economic data in Ireland. In this regard, SEMRU is currently a partner on the MARNET project[91], an EU transnational co-operation project which aims to create a European Atlantic marine socio-economic network to develop a methodology for the collection of comparable marine socio-economic data across Atlantic regions. The data will be then used to support marine socio-economic development initiatives along the Atlantic Area. The project is supported by the ERDF and the EU Interreg Atlantic Area Programme 2007-2013. Other additional data collection studies in progress include the DG Maritime Affairs and Fisheries study on deepening the understanding of potential blue growth in the EU member states on Europe's Atlantic Arc.

The marine economic trends presented in this report are a reflection of the difficult times that Ireland has experienced since 2008. Overall, the indicators for the established marine industries echo the general economic trends observed in Ireland, and with a slow recovery predicted for the forthcoming years, the outlook for these sectors looks to be in line with the rest of the economy. With the exception of marine commerce, the emerging marine sectors show positive growth trends over the period 2007-2010. Innovation and investment in these sectors is expected to enable Ireland to gain a competitive advantage in the global markets.

Even in the current difficult economic climate, Ireland's location at the Western edge of the Atlantic Ocean, its extensive ocean resource, together with the existence of research infrastructure and a research orientated FDI and SME base, still position the country to take advantage of the emerging opportunities that may arise in the marine economy. This is especially the case in the areas of marine renewable energy, marine related ICT and marine biotechnology and bio-products.

[91] For more information on the MARNET project, please visit www.marnetproject.eu

4. Appendices

Appendix I: Methodology and Data Sources

Methodology

Definitions of marine-based industries within the ocean economy differ across countries. However, the general approach taken in this report, similar to the previous 2007 report when measuring the ocean economy was to:

1. Revise and update the industries from the previous report 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, ie. a survey, must be developed

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

Due to data availability, the reference year of this report is 2010. The year 2010 post-dates the downturn in the economic fortunes of the State and therefore reflects the fall in certain marine activities across sectors (for example, shipping and maritime transport, water construction) which has been experienced since the last report in 2007. This experience is similar to that of other economic sectors in the country.

The general approach adopted in this report for valuing the ocean economy has been concerned with production activity: net output/turnover, input, value added, and employment. Where available, export data has also been included. The CSO provides data on turnover, GVA, employment, and where applicable, exports for each sector within the Irish economy. This data is collected across a number of censuses and surveys. The CSO census and surveys used for the collation of the data on the marine sector include;

- The Census of Industrial Production (CIP), 2010
- The Annual Services Inquiry (ASI), 2010
- Building and Construction Inquiry (BCI) , 2010
- Trade Statistics 2010

At an EU level, it should be noted that there was a change in the NACE code system from Revision 1 to Revision 2 in 2008. Although it did not affect the majority of the data collection, it has had an impact on certain sectors such as water construction. At a national level, the Census of Building and Construction (CBC) has been changed from a census to a survey, now known as the Building and Construction Inquiry (BCI). Again, this affects the reliability of the data, as a census covers the total population, while a survey is carried out on a sample of the population.

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 which groups companies according to their business activities. It assigns a unique 2, 3 and 4 digit code to each industry. Where data was not available in CSO datasets, a survey developed by SEMRU was administrated to enterprises in the particular marine sectors. This survey was similar to the surveys administrated by the CSO and contained questions on the enterprises annual turnover, purchases, employee levels, labour costs, and investment among others. The companies surveyed were compiled using an updated listing of the Marine Institute's Marine Industry Data Inventory (MIDI) company database. A total of 235 surveys were carried out.

The marine sectors reviewed in this report correspond to those outlined in the previous 2010 report 'Ireland's Ocean Economy'. 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 the 2007 report are outlined below in Appendix 2 by sector.

Data Sources

Shipping and Maritime Transportation Logistics

- Turnover, GVA, Employment and Exports: Central Statistics Office - Annual Services Inquiry 2010

Marine Tourism and Leisure

- Turnover: ESRI (2004) 'A National Survey of Water Based Leisure Activities in Ireland in 2003' figures have been updated to 2010 figures (adjusted using domestic tourism figures for the period 2004 to 2010 released by Fáilte Ireland).
- Employment: Fáilte Ireland figures for employment in tourism inflated/deflated in line with overall employment figures for the sector from 2004 through to 2010.
- GVA: Coefficient for NACE classification 'Recreational, cultural and sporting activities' used to estimate figure.

Sea Fisheries

- Turnover: Sea Fisheries Protection Agency and Bord Iascaigh Mhara
- Turnover, GVA, Employment: Bord Iascaigh Mhara
- Exports: SEMRU estimates based on trends identified from previous report

Aquaculture

- Turnover, GVA, Employment and Exports: Bord Iascaigh Mhara; CSO Trade Statistics

Marine Biotechnology and Bioproducts

- SEMRU Company Survey

Seafood Processing

- Central Statistics Office - Census of Industrial Production 2010

International Cruise

- Fáilte Ireland Report 2010: Cruise Tourism to Ireland Research Report 2010

Oil and Gas Activity

- Turnover: Central Statistics Office - Census of Industrial Production 2010
- GVA: Central Statistics Office - Census of Industrial Production 2010
- Employment: Central Statistics Office - Census of Industrial Production 2010, and a SEMRU Company Survey

Renewable Energy

- SEMRU Company Survey
- Company Registration Office

Water Construction

- Central Statistics Office - Buildings and Construction Inquiry 2010

Marine Engineering

- SEMRU Company Survey
- Company Registration Office

Net Manufacturing

- CSO Prodcom 2010

Boat Building

- Central Statistics Office - Census of Industrial Production 2010

High Tech Marine Services

- SEMRU Company Survey
- Company Registration Office

Marine Commerce

- SEMRU Company Survey
- Company Registration Office

Marine Retail Services

- Chandlery and Boat Sales: SEMRU Company Survey and Company Registration Office
- Retail of seafood in specialised stores–CSO Annual Survey Inquiry 2007, 2010

Appendix 2: Methodology by Sector

The methodology used in the current analysis has been updated since the 2007 report. Therefore to allow for comparability across the reports we have recalculated some of the 2007 figures to include additional NACE codes which previously had not been included.

Shipping and Maritime Transport

Shipping is one of the EU maritime sectors that can be directly identified in the standard classification. The data for the Shipping and Maritime Transport sector was obtained entirely from the CSO, Annual Services Enquiry. In the 2007 report, the NACE code for 'Other transportation support activities' (NACE Rev (2) 52.29) was not included in the total for the sector. It was added for the 2010 data collection as it includes numerous marine related activities. As the code includes some activities that are not fully marine related, a proxy (percentage of trade by sea: 74%) was used to estimate the support activities related to the marine sector. The 2007 figure was subsequently updated to include this code to allow comparison between years.

Additionally, in the 2007 report, the NACE code for Cargo Handling (Rev (1) 63.11; Rev (2) 52.24) was counted as fully marine. This has been revised and in 2010 a proxy (percentage of trade by sea; 74%) was used to estimate the cargo handling attributed to the marine sector. For comparison purposes, the 2007 figure was updated similarly.

Marine Tourism and Leisure

There was a change in methodology from the 2007 report where a survey was conducted to value marine-based tourism and leisure. For this report, no survey was undertaken. In 2003, FI estimated the number and expenditure of overseas visitors engaged in marine activities. In the 2007 report, these figures were updated using FI estimates of overseas visitors from 2004 through to2007. The same approach has been followed in this report where the 2007 estimated figures were updated using again FI estimates of domestic and overseas visitors from 2007 to 2010. Employment figures for domestic and overseas visitors were updated from 2007 according to the average change in employment experienced by the overall Irish tourism sector in the period 2007-2010.

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 published by FI in 2010 was used, where the passengers and crew were surveyed regarding their expenditure while disembarking their cruise liner in Ireland. The average expenditure of €71 was then applied to the total number of passengers for 2010, giving a total expenditure for the sector.

In 2007 a report by Maloney and Ward[92] was used in the calculation of expenditure by cruise passengers. With the difference in methodology, the 2007 and 2010 data are not comparable across periods.

[92] Maloney, R. and Ward, A. (2008). Economic Contribution of the Port of Cork to the Irish Economy, UCC Report, University College Cork, Cork.

Marine Retail Services

An online survey was designed by SEMRU and administered to the companies conducting boat sales and chandlery services in February 2013. The Marine Institute provided company contacts for this sector. The initial online response rate was 40% and where a company did not respond, a follow up phone call was conducted. The total response rate after the phone follow-up was 74%. The remaining companies did not wish to participate in the survey. An estimate was used for the remaining companies based on company size.

The retail of seafood data was obtained from the CSO – ASI 2010. The figure reported for retail of seafood in the 2007 report for the NACE code was revised and updated.

In 2007, this sector also included ship surveyors. In the current report, this has been revised and ship surveyors are now categorised under marine commerce. The figures from 2007 have been updated to reflect this change and also, to allow comparisons across the time period.

Sea Fisheries

The CSO has not collected sea fisheries data since 2004, therefore, the data collected for sea fisheries came from other sources. The turnover figure was from the Sea Fisheries Protection Agency Annual Report 2010, and then updated by BIM in their 2013 report to the Scientific, Technical and Economic Committee for Fisheries (STECF), European Commission. The employment and GVA data was provided by BIM. Export data was estimated by SEMRU using the breakdown of turnover and exports in 2007.

Aquaculture

The CSO has not collected aquaculture data since 2004. The data collected for aquaculture therefore came from alternative sources. The turnover, GVA and employment figures were provided by BIM. The exports data was collected from the CSO Trade Statistics 2010 database. The main data source is the 2013 report to the STECF, European Commission on the 'Economic Performance of the EU Aquaculture Sector- 2012 Exercise' (STECF-13-03); the data in this report for Ireland being provided by BIM.

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'. There were no changes in methodology between the two reports, however due to the change from revision 1 to revision 2 in the NACE classification, prepared fish dishes were included in the 10.20 code (REV 2) which were not included in the previously used code 15.20 (REV 1).

Oil and Gas

Oil and Gas can be directly identified in the standard NACE classification. The data for the Oil and Gas sector was obtained in part by the CSO from their Census of Industrial Production 2010. The data was confidential due to the small number of companies operating under the three Oil and Gas NACE codes. As a result, a survey was administered to the sector to complement the CSO data. Employment in this sector is also not fully captured within the CSO data as ongoing non- commercial projects (for example, the Corrib Gas Field) do not report to the CSO.

Marine Manufacturing, Engineering and Construction

The marine manufacturing sector data was collected primarily through the CSO, but was complemented by survey data also.

The NACE code for 'Dismantling of wrecks' had previously been included in the 2007 report, however it was not included for this report as the proportion of marine-related activity in this sector is negligible. The 2007 figure was updated to reflect this and to allow for comparison across years.

The change in NACE code classification from Revision 1 to Revision 2 in 2008 impacted this sector. There are a number of companies that were previously coded to the 'Construction of Water Projects' which are no longer included in this code, which decreased the turnover of the sector significantly between the two reports.

A survey was administered to the marine engineering companies identified in January 2013, as it is not possible to identify specifically marine engineering in the main engineering NACE Codes. The initial response rate was one of the lowest at 20%. Where a company did not respond, a follow up phone call was conducted. The total response rate after the phone follow-up was 70%. The remaining companies did not wish 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 estimate was used based on the company size.

High Tech Marine Products and Services

An online survey was designed by SEMRU and was administered to the marine renewable energy sector in February 2013. The Marine Institute and the National Marine Technology Programme provided company contacts for this sector. The initial response rate was lower than other sectors at 35%. Where a company did not respond, a follow up phone call was conducted. The total response rate after the phone follow-up was 70%. 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 estimate was used based on the company size.

Marine Commerce

An online survey was designed by SEMRU and was administered to the marine commerce sector in February 2013. The Marine Institute and the Irish Maritime Development Office (IMDO) provided company contacts for this sector. The initial response rate was also low at approximately 20%. 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 estimate was used based on the company type (financial, legal or insurance) and size.

In the 2007 report, ship surveyors were included under 'Marine retail services'. For the 2010 report this has been revised and ship surveyors are now included under 'Marine Commerce'. The figures for 2007 have been updated accordingly to allow comparisons across the years.

Biotechnology – Seaweed

An online survey was designed by SEMRU and administered to the marine biotechnology sector in February 2013. The Marine Institute and the National Marine Biotechnology Programme provided company contacts for this sector.

The initial response rate was higher than other sectors at 50%. Where a company did not respond, a follow up phone call was conducted. The total response rate after the phone follow-up was 75%. 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 estimate was applied based on the company size.

In the 2010 report, a large food ingredients company was included that had previously not been included in the 2007 report. The figures for this company for 2007 have been obtained from the CRO and updated accordingly to allow comparisons across the years.

Marine Renewable Energy

An online survey was designed by SEMRU and administered to the marine renewable energy sector in January 2013. The Marine Institute provided company contacts for this sector.

The initial response rate was highest for this sector at 55%. Where a company did not respond, a follow up phone call was conducted. The total response rate after the phone follow-up was 69%. 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 estimate was applied based on the company size.

The 2007 and 2010 are not directly comparable due to an increase in survey coverage in the 2010 report for this sector. Also, the scope of the sector was broadened to include services in addition to production for marine renewable energy.

Appendix 3: Definition of Ireland's Ocean and Coastal Economies

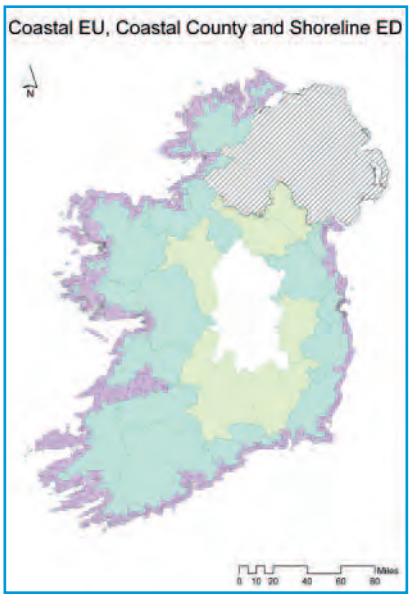
The ocean economy can be defined as the economic activity which directly or indirectly uses the sea as an input independent of location, whereas the coastal economy represents all the economic activity which takes place in a specified coastal region. Therefore, the ocean economy is likely to be much 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 NUTS[93] 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 13: Irelands Coastal Economic Regions at Alternative Spatial Scales



Source: SEMRU.

[93] 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.

European NUTS3 Costal 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 Westmeath[94].

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 67perkm^2. At the EU coast (NUTS 3) level of aggregation the population density is 69 inhabitants perkm^2. At the coastal county definition it is 76 inhabitants per km^2 while at the shoreline ED level it is 94 inhabitants per km^2. The density of the population increases the more confined the regional definition is to the coastline[95].

Table 18: Socio-Economic Characteristics of Irish Coastal Communities

Socio-Ecomonic Characteristics	Shoreline ED	Shoreline ED Rural	Shoreline Urban	National 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 and 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)

[94] Hynes, S. and Farrelly, N. (2012). Defining standard statistical coastal regions for Ireland, Marine Policy 36: 393–404
[95] Based on figures from the 2011 Census of Population of Ireland available at www.cso.ie

Appendix 4: Marine NACE Codes[96]

Table 19: Marine NACE Codes (Fully and Partially Marine)

Section	Division	Class	Description	Marine Share (F= Fully, P= Partially Marine)
A	3	3.11	Marine fishing	F
A		3.21	Marine aquaculture	F
B	6	6.1	Extraction of crude petroleum	P
B	6	6.2	Extraction of natural gas	P
B	8	8.12	Operation of gravel and sand pits; mining of clays and kaolin	P
B	8	8.93	Extraction of salt	F
B	9	9.1	Support activities for petroleum and natural gas extraction	P
B	9	9.9	Support activities for other mining and quarrying	P
C	10	10.2	Processing and preserving of fish, crustaceans and molluscs	F
C	30	30.11	Building of ships and floating structures	F
C	30	30.12	Building of pleasure and sporting boats	F
C	33	33.15	Repair and maintenance of ships and boats	F
D	35	35.11	Production of electricity	P
D	35	35.12	Transmission of electricity	P
E	38	38.31	Dismantling of wrecks	P
E	39	39	Remediation activities and other waste management services	P
F	42	42.21	Construction of utility projects for fluids	P
F	42	42.22	Construction of utility projects for electricity and communication	P
F	42	42.91	Construction of water projects	P
F	42	42.99	Construction of other civil engineering projects n.e.c.	P
F	43	43.99	Other specialised construction activities n.e.c.	P
G	46	46.38A	Wholesale of other food, including fish, crustaceans and molluscs	P
G	47	47.23	Retail sale of fish, crustaceans and molluscs in specialised stores	F
H	49	49.5	Transport via pipeline	P
H	50	50.1	Sea and coastal passenger water transport	F
H	50	50.2	Sea and coastal freight water transport	F
H	50	50.3	Inland passenger water transport	F
H	52	52.22	Service activities incidental to water transportation	F

[96] This lists possible Marine NACE codes (it is not exhaustive), both fully and partially marine, that could be used in valuing the ocean economy

Table 19: Marine NACE Codes (Fully and Partially Marine)

Section	Division	Class	Description	Marine Share (F= Fully, P= Partially
H	50	50.4	Inland freight water transport	F
H	52	52.24	Cargo handling	P
H	52	52.29	Other transportation support activities	P
I	55	55.1	Hotels and similar accommodation	P
I	55	55.2	Holiday and other short-stay accommodation	P
I	55	55.3	Camping grounds, recreational vehicle parks and trailer parks	P
I	56	56.1	Restaurants and mobile food service activities	P
I	56	56.3	Beverage serving activities	P
K	65	65.12	Non-life insurance	P
K	65	65.2	Reinsurance	P
M	71	71.11	Architectural activities	P
M	71	71.12	Engineering activities and related technical consultancy	P
M	71	71.2	Technical testing and analysis	P
M	72	72.19	Other research and experimental development on natural sciences and engineering	P
N	77	77.21	Renting and leasing of recreational and sports goods	P
N	77	77.34	Renting and leasing of water transport equipment	P/F
O	84	84.13	Regulation of and contribution to more efficient operation of businesses	P
O	84	84.22	Defence activities	P
O	84	84.24	Public order and safety activities	P
P	85	85.32	Technical and vocational secondary education	P
P	85	85.41	Post-secondary non-tertiary education	P
P	85	85.42	Tertiary education	P
P	85	85.51	Sports and recreation education	P
R	93	93.11	Operation of sports facilities	P
R	93	93.12	Activities of sport clubs	P
R	93	93.19	Other sports activities	P
R	93	93.21	Activities of amusement parks and theme parks	P
R	93	93.29	Other amusement and recreation activities	P

Source: MARNET EU INTERREG Project (table prepared by Regis Kalaydjian, Ifremer)

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