Scottish Government
Riaghaltas na h-Alba
gov.scot

Scotland's Marine Economic Statistics

marinescotland

Scotland's Marine Economic Statistics

Contents

Figures

Tables

Background

Overview

Fishing

Aquaculture

Oil and Gas services

Processing

Shipbuilding

Construction and water transport services

Water Transport

Renting and leasing of water transport equipment

Marine Tourism

Tables

Sources, methodology, references

Acknowledgments

MAU acknowledges the value of the information provided by numerous analysts generating the data used to produce these statistics. We are grateful to colleagues responsible for generating the SABS statistics, on which we have drawn extensively throughout this report. Equally, we are grateful for the underpinning data from other source publications, referenced in relevant sections. Descriptions and explanations have, where necessary, been replicated from the relevant source data, in particular in Annex B describing methodologies.

Thanks go to Marine Scotland colleagues, MMO, CEFAS and Seafish who produced information on sea fisheries and aquaculture, Transport Scotland colleagues who provided water transport data and Marine Scotland colleagues who provided maps and graphics.

1. Introduction

This report presents estimates of the economic contribution (Gross Value Added[1] and turnover) and employment of Scotland's marine activities (hereafter referred to as the marine economy). It is the first year of publication and as such the report presents experimental statistics.

The marine economy can be considered as economic activity linked to the oceans, seas, bays, estuaries and other major water bodies, and the ecological and physical systems associated with them.

All of the economic data presented relates to the direct contributions of the activities to Scotland's economy and not to the wider supply chain.

The majority of the economic information in the report is based on the Scottish Annual Business Survey (SABS)[2]. SABS is derived from the Office of National Statistics (ONS) Annual Business Survey (ABS), and allows detailed analysis of the structure and performance of businesses in Scotland over the period 2008 to 2016. The ABS covers approximately two thirds of the economy. The main sectors not covered are the financial sector & parts of agriculture and the public sector.

Information for most of the marine economic sectors is extracted using selected Standard Industrial Categories (SIC) from SABS. The industry sectors selected are shown below. For the purposes of labelling charts and discussing findings, the abbreviated names shown in the right hand column have been used as shorthand for the full SABS SIC codes.

Table 1: SIC codes and abbreviations used in this report

Specific Marine SIC codes	Abbreviation used in this report
03.1: Fishing (SABS values not used)	Fishing
03.2: Aquaculture (SABS values not used)	Aquaculture
09.1: Support activities for petroleum and natural gas extraction	Oil & gas services
10.2: Processing and preserving of fish, crustaceans and molluscs	Seafood processing
30.1: Building of ships and boats & 33.15: Repair and maintenance of ships and boats	Ship building
42.91: Construction of water projects & 52.22: Service activities incidental to water transportation	Construction and water transport services
50.1: Sea and coastal passenger water transport	Passenger water transport
50.2: Sea and coastal freight water transport	Freight water transport
77.34: Renting and leasing of water transport equipment	Renting & leasing
Various SIC codes within 100m of the coast – see Annex A	Marine Tourism

[1] Gross Value Added (GVA) is a measure of the economic value generated by an industry or business. See the References and Glossary for details.

[2] Scottish Annual Business Statistics (SABS) provides information on businesses' employment, turnover, purchases, approximate gross value added and labour costs. **www.gov.scot/Topics/Statistics/Browse/Business/SABS**

Economic data for fishing and aquaculture is sourced from **Marine Scotland statistics** and business level data collected to meet the European Commission's Data Collection Framework requirements (DCF)[3]. The sources and methods used in the report are set out in *Annex B: Methodology and source data*.

Sectors such as marine renewable energy and marine research and development also contribute to the Scottish economy, although comprehensive data covering these are currently limited.

The economic values provided for each industry are:

- **Gross Value Added (GVA)** - this represents the amount that individual businesses, industries or sectors contribute to the economy. It is the value generated by any unit engaged in the production of goods and services less any intermediate inputs into the production process.

- **Turnover -** defined as total sales and work done. This is calculated by adding together the values of:
    - sales of goods produced
    - goods purchased and resold without further processing
    - work done and industrial services rendered
    - non-industrial services rendered.

- **Employment -** a point in time estimate of the number of full and part time employees on the payroll plus the number of working proprietors employed on a set day in September. Total Employment is a head count and not a Full Time Equivalent (FTE) measure. This distinction is particularly important when comparing sectors as some of them have high levels of part time employment (e.g. Marine Tourism).

Each section of the report presents :

- The industry sector in a national context;
- A time series of turnover, GVA and employment;
- Supporting information about each sector, where it is available and
- A geographic breakdown, where it is available and not disclosive.

To provide the national context, GVA and employment values are considered as a proportion of the Scotland total:

- the Scottish GVA, taken from the **National Accounts Scotland**
- Scottish employment, taken from the **Business Register and Employment Survey**

[3] The European Commission's Data Collection Framework (DCF) establishes a European Community framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the Common Fisheries Policy (CFP).

The source and notes for each table are explained in the Annex B: Methodology and source data. Only notes that are specific to the individual table are shown beneath each table.

Throughout the report, prices are shown adjusted to 2016 prices.

The information is available in spreadsheet format for further analysis and as a summary topic sheet presenting a top level summary of the latest year of marine economy data.

1.1 Reference dates

The latest year of data in this economic statistics publication is for 2016. Time series are presented for 2008 to 2016. SIC codes changed in 2007, so data before 2008 is not comparable with this series. SABS figures for 2016 were released in June 2018.

To enable meaningful comparison of monetary values over time, all values have been adjusted to 2016 prices. Links to the ONS deflation tables used for these calculations are given in Annex B.

Web links to other relevant online information are provided in the *References* section and explanations of the terms used are presented in the References and Glossary section.

2. Marine Economy Overview

2.1 Introduction

This report presents a time series of GVA, turnover and employment for industrial categories defined as part of the marine sector. The data is provided for 2008 to 2016.

Oil and gas extraction is not included in these figures, although support services for oil and gas are included. This broadly aligns the figures with those provided by the onshore values in the National Accounts for Scotland.

The categories included in this analysis are detailed in Annex A. Summary data tables are included in the commentary, while more detailed supporting data tables are contained in the Tables Section on page 52.

2.2 Marine Economic Key Points

In 2016 the Scottish marine economy **generated £3.8 billion GVA**: accounting for 2.9 % of the overall Scottish economy. In terms of employment, the Scottish marine economy provided **employment for a headcount of 75,300 people**, contributing 2.9 % of the total Scottish employment.

The oil and gas services sector is the biggest contributor to the marine economy in terms of turnover and GVA. However, marine tourism employs for the most number of people in all the sectors. Oil and gas services provide 55 % of the marine economy GVA and 26 % of the employment while marine tourism provides 10 % of the GVA and 37 % of the employment (see Table 2 and Figure 1).

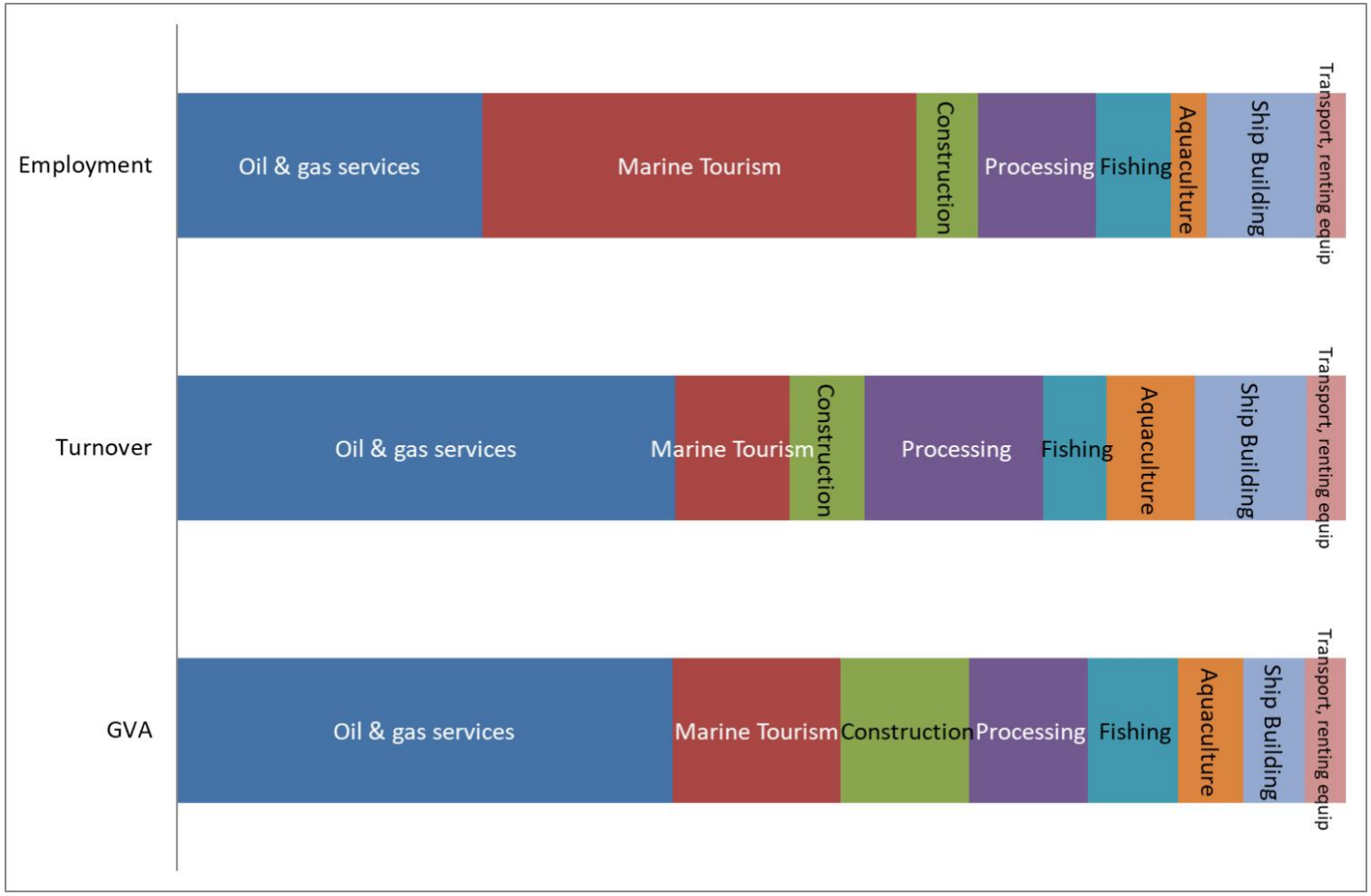
This indicates there are considerable variations in labour productivity (GVA per worker) across the marine economy, with freight water transport producing the highest GVA per worker in 2016 (£130,000), and marine tourism producing the lowest at just under £20,000.

Table 2 : Marine economic sectors – GVA, turnover, employment and GVA per head, 2016

Description	GVA £M	Turnover £M	Employment Headcount 000's	GVA Per Head £
Fishing*	296	571	4.8	61,344
Aquaculture*	216	797	2.3	94,850
Support for oil & gas	1,631	4,483	19.7	82,802
Processing	391	1,602	7.6	51,395
Ship building	202	1,001	7.0	28,829
Construction and water transport services	422	672	4.0	105,600
Passenger water transport	63	168	1.4	45,286
Freight water transport	65	178	0.5	130,400
Renting and leasing of water transport equipment	8	14	0.1	82,000
Marine Tourism	554	1,031	27.9	19,864
TOTAL	**3,849**	**10,517**	**75.3**	**51,114**

* Fishing and aquaculture figures were not sourced from SABS statistics.

Figure 1 : Scotland's marine economy - distribution of GVA, turnover and employment across sectors, 2016



Sectors ranked in order of GVA contribution
Sea and coastal freight and passenger transport and Renting and leasing of water transport equipment have been combined to make the chart more readable.

2.3 Marine Economy Trends

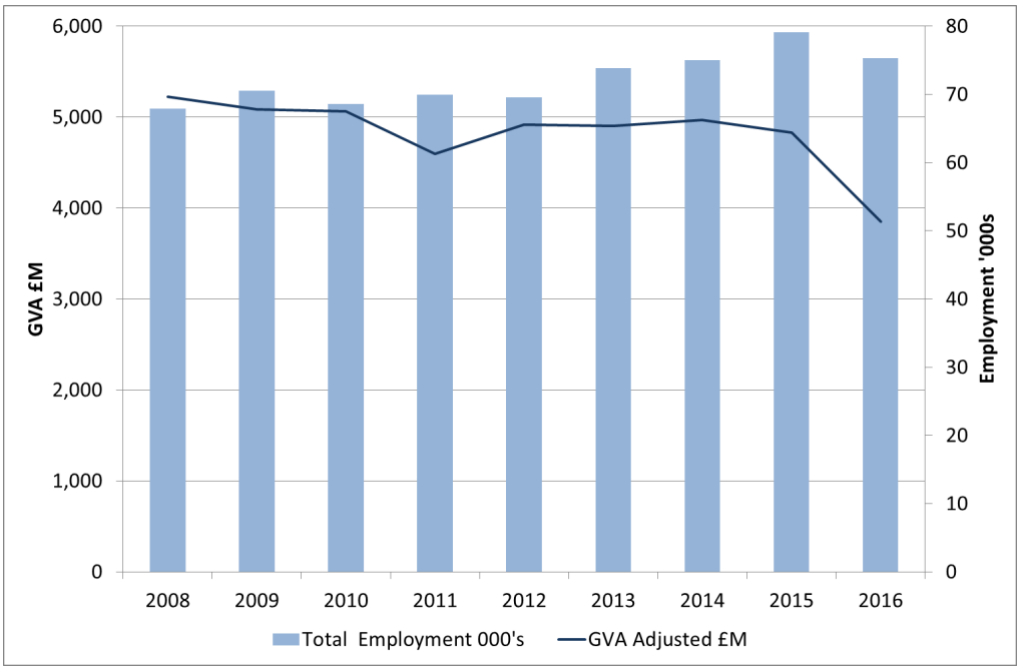
Between 2015 to 2016 the marine sector GVA fell by 20% from £4.83 billion to £3.85 billion. Employment fell by 5%.

Table 3: Marine sector - GVA, turnover and employment, 2008 to 2016 (2016 prices)

Year	GVA £M	Turnover £M	Employment Headcount 000's	GVA Per Worker £
2008*	5,225	11,992	67.9	76,989
2009*	5,088	13,340	70.6	72,101
2010*	5,063	12,370	68.5	73,872
2011	4,599	12,322	69.9	65,789
2012	4,915	12,733	69.5	70,669
2013	4,901	13,253	73.9	66,359
2014	4,967	13,931	75.0	66,199
2015	4,830	13,524	79.1	61,059
2016	3,849	10,517	75.3	51,114

The longer term trend shows that between 2008 and 2016 the marine economy GVA (adjusted to 2016 prices) fell by 26% while employment increased by 11% (over 7,000 workers). This has had the effect of reducing the GVA per person from £77,000 to £51,000. The individual sectors driving these trends will be explored in subsequent chapters.

Figure 2: Marine sector - GVA and employment, 2008 to 2016 (2016 prices)



The detailed breakdown of the marine economy by industry is shown in Table 19 on page 52.

2.4 Marine Economy by geography

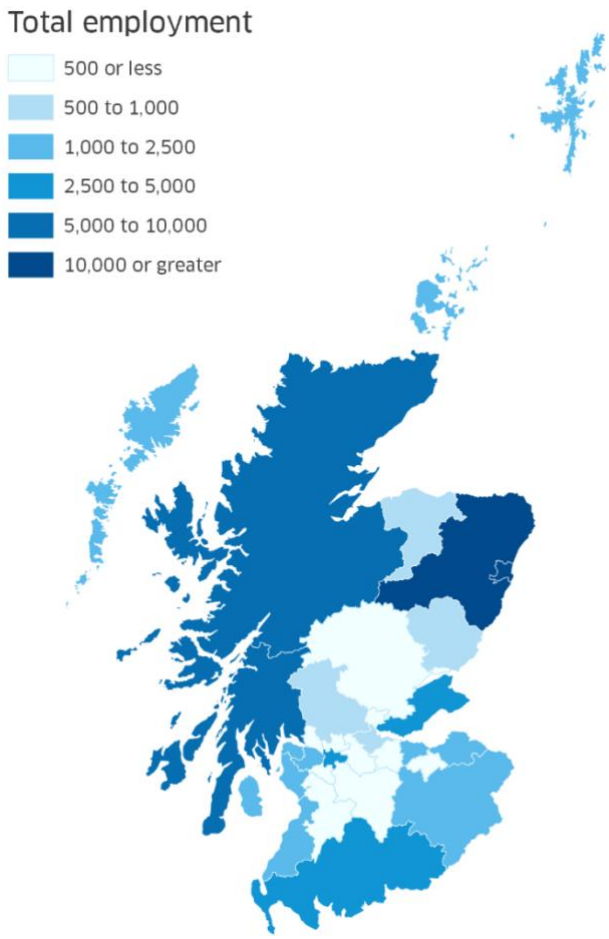
The values presented at local authority level are mostly based on SABS data. Marine Scotland specific analysis was used to estimate the geographic breakdowns for fishing and aquaculture sectors. The methodology for substituting the Marine Scotland fishing and aquaculture values is detailed in Annex B. Most marine economic totals can be provided by local authority, though some become disclosive at this level and are aggregated into the 'unallocated' category.

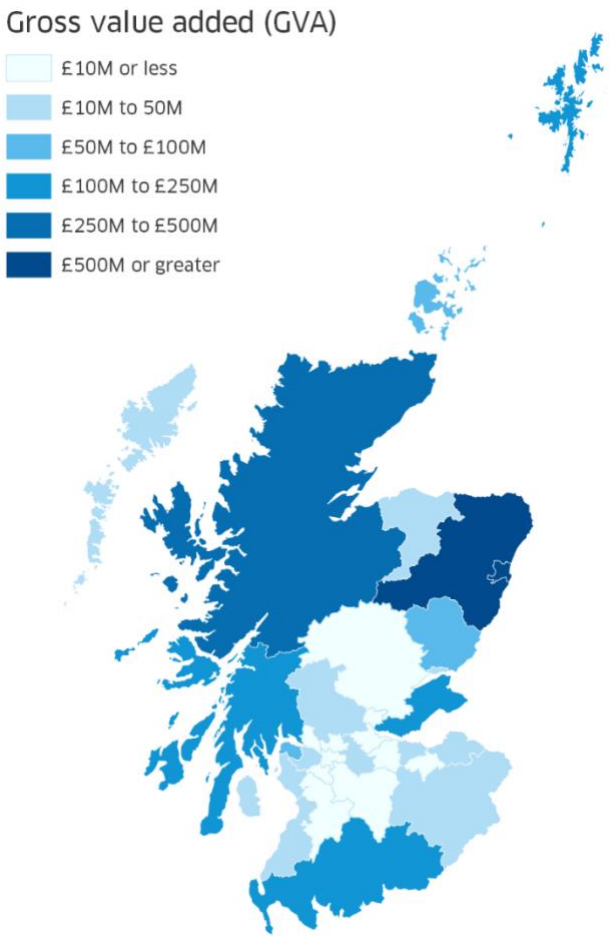
Table 4 : Marine sector - GVA, turnover and employment (headcount), by local authority, 2016

				% of Scotland's marine economy		
	GVA £M	**Turnover £M**	**Employment 000's**	**GVA £M**	**Turnover £M**	**Employment 000's**
Aberdeen City	1,591	3,869	18.30	41%	37%	24%
Aberdeenshire	706	2,055	10.89	18%	20%	14%
Angus	64	106	0.91	2%	1%	1%
Argyll & Bute	147	369	5.36	4%	4%	7%
Clackmannanshire	0	2	0.00	0%	0%	0%
Dumfries & Galloway	107	285	2.64	3%	3%	3%
Dundee City	12	23	0.40	0%	0%	1%
East Ayrshire	*	*	*	0%	0%	0%
East Dunbartonshire	*	*	*	0%	0%	0%
East Lothian	25	52	1.21	1%	0%	2%
East Renfrewshire	1	2	0.00	0%	0%	0%
Edinburgh, City Of	43	114	1.50	1%	1%	2%
Falkirk	*	*	0.70	0%	0%	1%
Fife	137	524	4.71	4%	5%	6%
Glasgow, City Of	-6	*	3.60	0%	0%	5%
Highland	263	693	8.83	7%	7%	12%
Inverclyde	87	148	1.50	2%	1%	2%
Midlothian	*	*	*	0%	0%	0%
Moray	26	68	0.93	1%	1%	1%
Na H-Eileanan Siar	38	147	1.43	1%	1%	2%
North Ayrshire	50	105	1.80	1%	1%	2%
North Lanarkshire	13	34	0.20	0%	0%	0%
Orkney Islands	66	196	1.34	2%	2%	2%
Perth & Kinross	8	24	0.40	0%	0%	1%
Renfrewshire	31	56	1.60	1%	1%	2%
Scottish Borders	34	1	1.11	1%	0%	1%
Shetland Islands	194	447	2.63	5%	4%	3%
South Ayrshire	35	64	1.12	1%	1%	1%
South Lanarkshire	9	*	*	0%	0%	0%
Stirling	18	32	0.60	0%	0%	1%
West Dunbartonshire	5	11	0.20	0%	0%	0%
West Lothian	2	6	0.10	0%	0%	0%
Unallocated	*144*	*1,085*	*1.28*	*4%*	*10%*	*2%*
Scotland	**3,849**	**10,517**	**75**	100%	100%	100%

* = disclosive data

Figure 3: Marine sector – distribution of employment and GVA by local authority, 2016





Scottish Government (Marine Scotland) 2018

Aberdeen City accounted for 41% of the marine economy GVA for 2016, with Aberdeenshire the next highest with 18%. The City of Glasgow reported a negative GVA for 2016. This is likely to be due to the spasmodic nature of ship building and maintenance, and reflects the dominance of the industry in Glasgow's marine sector. This is discussed in more detail in the section on Shipbuilding.

Employment was more evenly spread across Scotland, with Aberdeen City and Aberdeenshire contributing 24% and 14% respectively.

3. Fishing

3.1 Introduction

Scotland's fishing fleet and sea fisheries are significant contributors to Scotland's rural and coastal economies. The fishing industry contributes to Scotland's food and drink economy, in particular playing an important part in many remote and potentially fragile communities.

In this section the economic contribution of the fishing sector has been estimated using ***Marine Scotland Sea Fisheries Statistics*** and ***Seafish Industry Authority Fleet Economic Survey*** published statistics. This approach provides a more reliable estimate of economic activity than the SABS figures, primarily because the turnover source data covers the entire population of fishing vessels. The Seafish survey provides financial data collected for the DCF, and this is used to estimate GVA for the Scottish fleet. Details of the methodology are provided in *Annex B: Methodology and source data* on page 66. Previous Marine Scotland topic sheets estimated GVA using Marine Scotland statistics, but using a different methodology as described in Annex B.

The latest sea fisheries statistics available at the time of writing are for 2017. However the GVA figures shown here depend on the latest fleet economic data which is for 2016 and which aligns with the latest available SABS data.

3.2 Key economic points

In 2016 fishing **generated £296 million GVA**: accounting for 0.2 % of the overall Scottish economy, and eight per cent of the marine economy.

In terms of employment, fishing provided **employment for a headcount of 4,800 people**, contributing 0.2 % to total Scottish employment, and 6 % of the marine economy employment.

From 2015 to 2016 the GVA from fishing (adjusted to 2016 prices) increased by 34%, while the longer term trend from 2008 to 2016 showed that fishing GVA increased by 63%

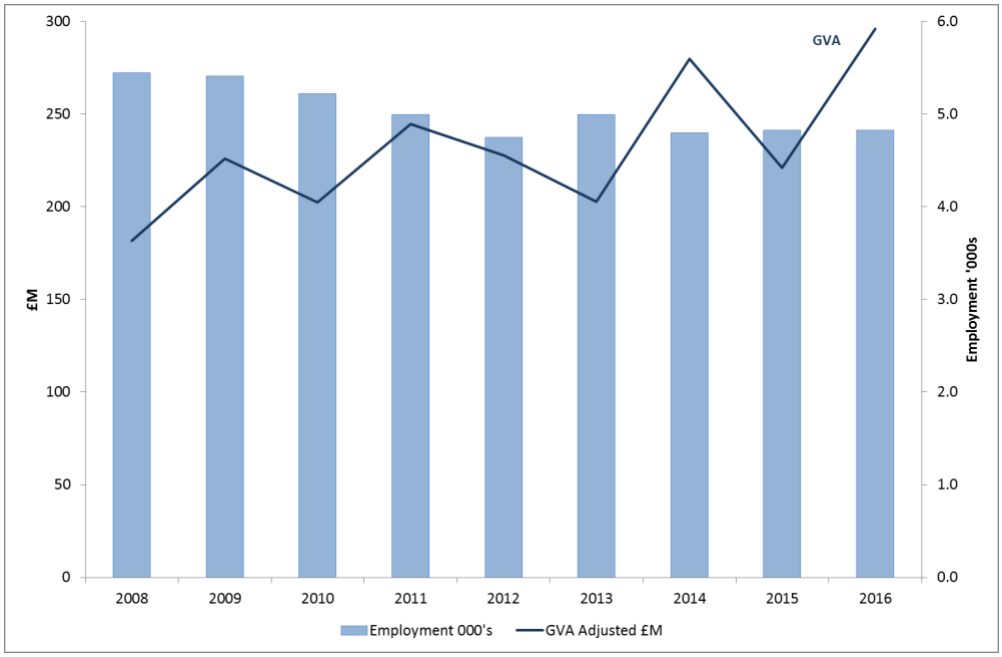
Over the same period, employment fell by 11%, though it has been stable in recent years.

The GVA per worker (adjusted to 2016 prices) has increased from £33,000 in 2008 to £61,000 in 2016. Most recent figures show an increase of 34% in GVA per worker between 2015 and 2016.

Table 5 : Fishing - GVA, turnover, employment and GVA per head, 2008 to 2016 (2016 prices)

Year	GVA £M	Turnover £M	Employment Headcount 000's	GVA Per Worker £
2008	182	452	5.45	33,347
2009	226	516	5.41	41,779
2010	202	496	5.22	38,801
2011	245	553	5.00	48,955
2012	228	518	4.75	47,997
2013	203	478	4.99	40,605
2014	280	541	4.80	58,362
2015	221	455	4.82	45,820
2016	296	571	4.82	61,344

Figure 4: Fishing - GVA and employment, Scotland , 2008 to 2016

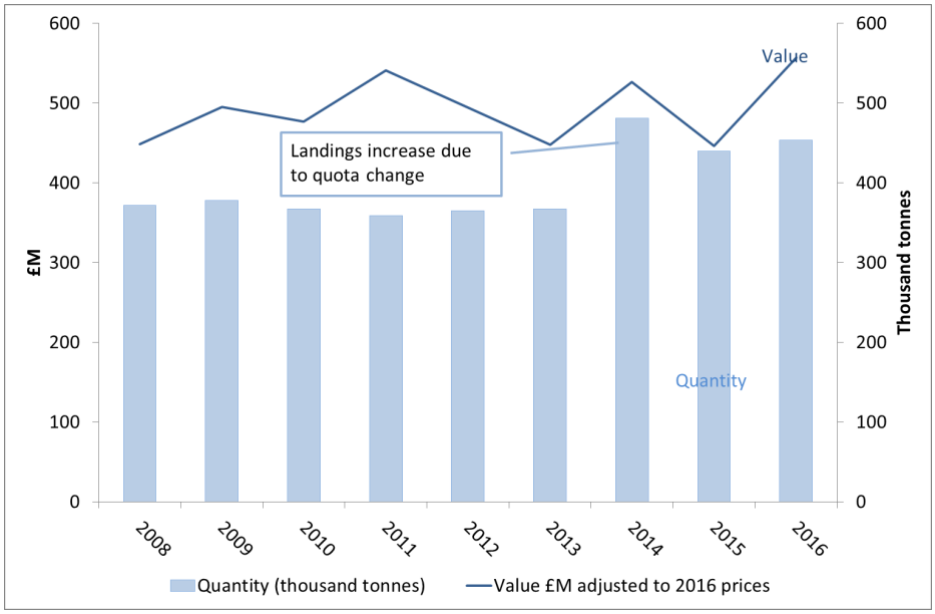


3.3 Sea fishing trends

The economic performance of the fishing sector is dependent on the amount of fish landed and the value of the landings. Figure 5 shows this for by Scottish registered vessels from 2007 to 2016. Full data tables are shown in the Tables section on page 57.

Total landings statistics can be influenced by quota changes, such as the 31 % increase in quantity of landings in 2014 (see Figure 5). In addition, the value is influenced by the price of fish.

Figure 5: Fishing - quantity and value of all landings by Scottish vessels, 2008-2016



Between 2008 and 2016, the quantity of fish landed increased by 22% and value by 24%.

3.4 Sea fishing by geography

3.4.1 Landings

The tables below present the data at local authority level based on the vessel's registered port. Details of the method used are shown in Annex B: Methodology and source data. Table 23, in the Tables section, shows the time series from 2014 to 2016 of GVA by local authority areas based on this analysis.

Table 6 : Fishing - GVA by Local Authority area of the vessel registration, 2016

Local authority	GVA £M
Aberdeenshire	131.34
Shetland Islands	72.27
Highland	29.66
Argyll And Bute	13.86
Orkney Islands	9.34
Dumfries And Galloway	7.81
Na h-Eileanan Siar	7.55
Moray	7.41
South Ayrshire	5.21
Fife	2.32
Scottish Borders	2.27
East Lothian	1.43
Angus	1.27
North Ayrshire	0.78
City Of Edinburgh	0.20
Aberdeen City	0.13
Unallocated	*3.02*
Total	295.86

Local authorities ranked in descending order of GVA in 2016.

Sixteen local authorities are reported here. The other 16 either have no GVA from fishing or have so few vessels registered that to publish GVA statistics for them would be disclosive. The suppressed statistics are reported in the table as 'unallocated'.

3.4.2 Employment

Employment on Scottish registered vessels is regularly reported in the Marine Scotland *Scottish Sea Fisheries Statistics.* The employment figures are currently reported by regions, which are broadly local authority areas, with the island local authorities combined.

With 1,207 fishers, Aberdeenshire has the largest number of people employed in sea fishing in Scotland and accounted for 25 % of the total number of fishers on Scottish vessels in 2016. The Islands group accounted for 22% of the employment.

Table 7 : Fishing – employment on Scottish registered vessels, by region: 2016

Region	Headcount employed in fishing
Aberdeenshire	1,207
Na H-Eileanan An Iar, Orkney & Shetland	1,077
Highland	897
Argyll & Bute	547
Dumfries & Galloway	263
South Ayrshire	186
Moray	174
Fife	158
Scottish Borders	117
East Lothian	95
Angus	52
North Ayrshire	24
Aberdeen City	13
Edinburgh City	13

4. Aquaculture

4.1 Introduction

Aquaculture or fish farming is the breeding, growing and harvesting of plants and animals in water. It can take place in natural water bodies such as ponds, lakes, marshland or brackish water and the ocean. It can also be conducted in tanks, commonly found in fish hatcheries.

Aquaculture production provides a range of seafood products:

- Finfish – salmon, rainbow trout, brown trout and halibut
- Shellfish – mussels, Pacific oysters, native oysters, queen scallops and king scallops

In this section the economic contribution of aquaculture has been estimated using two main data sources: Marine Scotland Aquaculture survey statistics for 2016 and economic data collected to meet DCF requirements. This approach allows for more reliable estimates of economic activity than SABS figures, primarily because the aquaculture surveys is reported for every production site registered as active during the survey year.

The aquaculture survey statistics provide production and employment data, while data collected for DCF provides financial data from a sample survey. Details of the methodology employed are shown in Annex B: Methodology and source data on page 66.

There is a difference of around 20%[4] in the aquaculture GVA statistics extracted from SABS and those drawn from the Marine Scotland Aquaculture Survey Statistics. The Marine Scotland statistics are used here.

4.2 Key economic points

In 2015 aquaculture **generated £216 million in GVA**: accounting for 0.16 % of the overall Scottish economy, and 6 % of the marine economy.

In terms of employment, aquaculture provided **employment for a headcount of 2,300 people**, contributing 0.09 % to total Scottish employment, and 3 % of the marine economy employment.

[4] The difference in GVA estimated using SABs and the Marine Scotland Aquaculture survey (along with CEFAS financial data) was over 100% in 2015. See Annex B: Methodology and source data for a discussion of this variation.

4.3 Aquaculture trends

Table 8: Aquaculture - GVA, turnover, employment and GVA per head, 2008 to 2016 (2016 prices)

Year	GVA £M	Turnover £M	Employment Headcount 000's	GVA Per Worker £
2008	108	415	1.83	59,028
2009	128	488	1.76	72,780
2010	163	617	1.92	84,752
2011	174	656	1.81	96,255
2012	157	594	1.90	82,689
2013	220	729	1.86	117,855
2014	254	763	2.14	118,705
2015	110	683	2.18	50,713
2016	216	797	2.28	94,833

Between 2008 and 2016 aquaculture GVA (adjusted to 2016 prices) doubled while employment increased by 25%.

Aquaculture has been affected by diseases, including sea lice. In 2015 GVA was at its lowest since 2008, which was due to a combination of lower turnover and higher costs as a result of disease challenges. Between 2015 and 2016, although production volume decreased (see Table 24), farmed fish prices rose with the result that GVA for 2016 almost doubled from £110 million in 2015 to £216 million in 2016.

Figure 6 : Aquaculture - GVA and employment, Scotland , 2012 to 2016

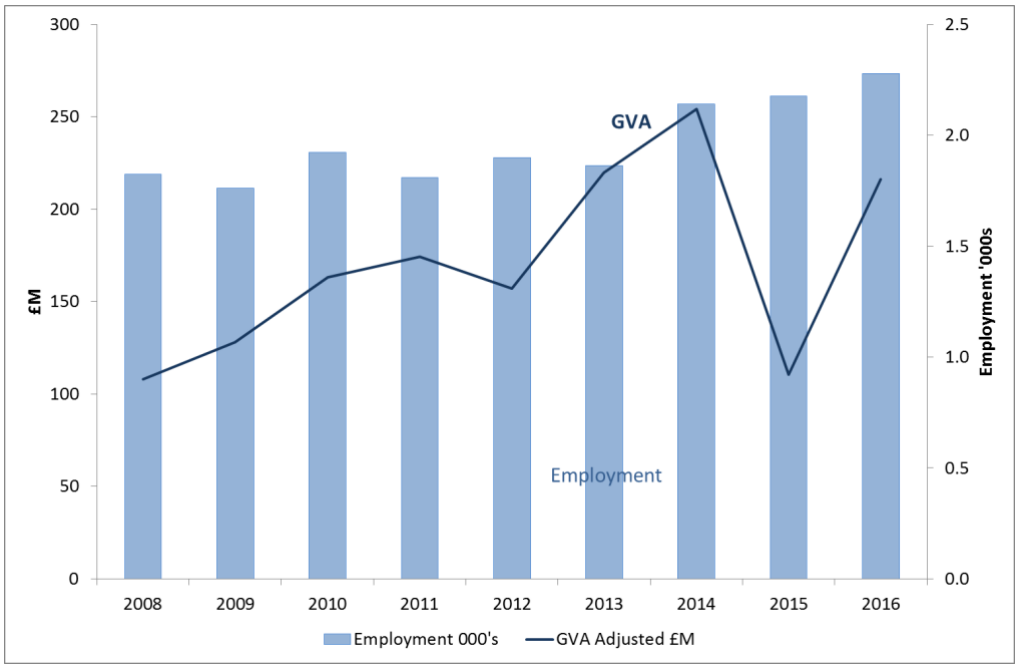


Table 24 presents more detailed aquaculture data, including aquaculture breakdown by aquaculture type (fin fish or shellfish).

4.4 Aquaculture by geography

It is not possible to report disaggregated Aquaculture outputs to local authority levels as these become too disclosive. In the Marine Scotland *Aquaculture Production Survey Statistics* figures are presented by Scottish marine region[5] (SMR) as far as possible. However for the smaller industry sectors (for example, trout or scallops etc.) any geographic disaggregation is disclosive and some regions have had to be merged.

Atlantic salmon production accounts for 95% of all aquaculture. Around 28% of salmon production occurs on the North coast (Marine regions: West Highlands, Moray Firth & North Coast), one fifth occurs in both the Outer Hebrides and Argyll and Clyde with a little under 10% produced in the Orkney Isles.

Mussels are mostly grown in the Shetland Isles, which accounts for three quarters of all production.

Oyster production accounts for around 1% of all aquaculture value and is largely split between the North Coast group and Argyll and Clyde (around a third of total production in each).

[5] Scottish Marine Regions were introduced by The Scottish Marine Regions Order 2015. The boundaries identify the areas for preparing and adopting regional marine plans. See References section.

5. Oil and gas services

5.1 Introduction

This section refers to the services that support the extraction of oil and gas. Estimates for oil and gas extraction are not presented here to remain consistent with UK extra regio (offshore) activity in National Accounts Statistics. The support activities are largely exploration and test drilling, but also look ahead to oil and gas decommissioning, where there is substantial potential for economic growth. Oil and gas support activities are the largest contributors of turnover and GVA to the marine economy.

The SABS categories used to provide the information in this section have changed in recent years. Since 2011, support services for oil and gas were extracted using the SIC code '09.1: Support activities for petroleum and natural gas extraction'. However, between 2008 and 2010 these figures were disclosive and so the wider code SIC '09 Mining support activities' was used to provide data. The difference between statistics using the different SIC codes is insignificant, but it is important to note the change in coverage of the industry. For further analysis of the change see Annex B: Methodology and source data.

For ease of reading the category 'Support activities for petroleum and natural gas extraction' is referred to in this report as 'Oil and gas services'.

5.2 Key economic points

In 2016 oil and gas services **generated £1.6 billion GVA** accounting for 1.24 % of the overall Scottish economy, and 42 % of the marine economy.

In terms of employment, oil and gas services provided **employment for a headcount of 19,700 people**, contributing 0.8 % to total Scottish employment, and 26 % of the marine economy employment.

5.3 Oil and gas services - trends

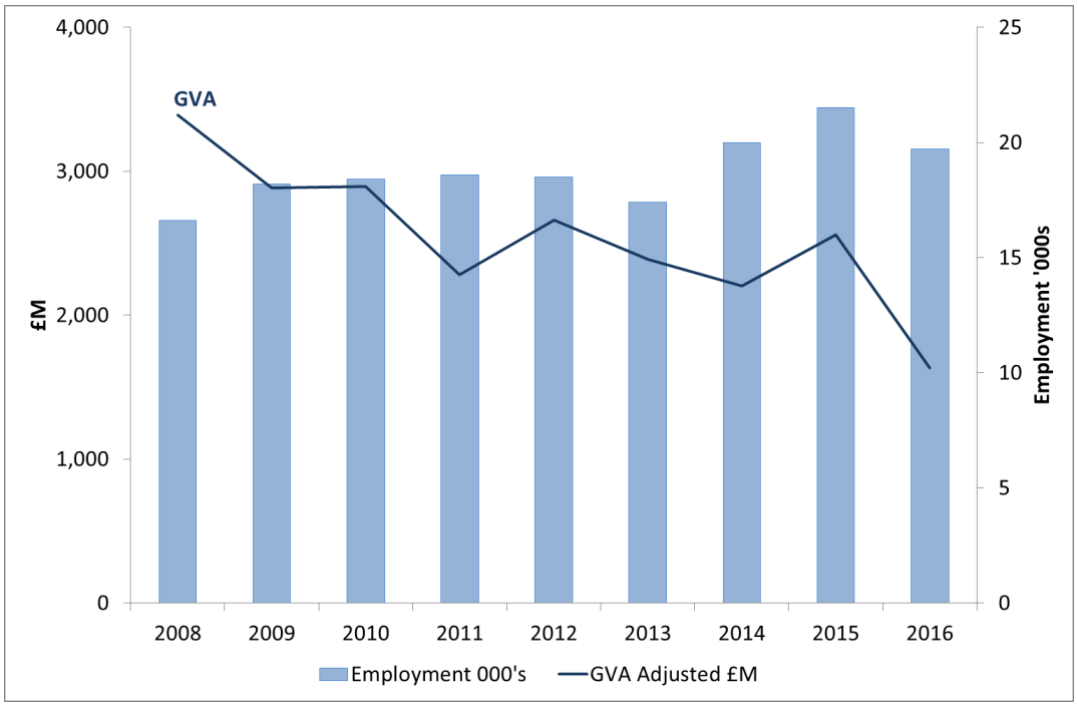
Between 2008 and 2016 oil and gas services GVA (adjusted to 2016 prices) halved while employment increased by almost 20%. Between 2015 and 2016 turnover and GVA dropped by a third.

Table 9 : Oil and gas services - GVA, turnover, employment and GVA per head, 2008 to 2016 (2016 prices)

Year	GVA £M	Turnover £M	Employment Headcount 000's	GVA Per Worker £
2008*	3,392	6,775	16.6	204,362
2009*	2,886	7,162	18.2	158,575
2010*	2,892	6,226	18.4	157,167
2011	2,281	5,971	18.6	122,655
2012	2,659	6,215	18.5	143,751
2013	2,388	6,372	17.4	137,242
2014	2,204	6,966	20.0	110,212
2015	2,558	6,863	21.5	118,982
2016	1,631	4,483	19.7	82,802

*SABS categories changed between 2010 and 2011. See introduction to this section and the Methodology.

Figure 7: Oil and gas services – GVA and employment, Scotland, 2008 to 2016 (2016 prices)



*SABS categories for oil and gas services changed between 2010 and 2011. See introduction to this section and the Methodology.

While the GVA contribution provided by the oil and gas support activities has been declining, employment has not been falling at the same rate.

Geographic breakdown of oil and gas services are not readily available.

6. Seafood Processing

The seafood processing industry is defined in SABS as "Processing and preserving of fish, crustaceans and molluscs". In this publication SABS information on seafood processing is used as the source data. *Seafish* produces a *2016 Seafood Processing Industry Report* which presents economic values for processing of sea fish. However the methodological differences mean that the SABS data allows for better comparisons with other industry results (see the Methodology section).

SABS employment figures for 'Processing and preserving of fish, crustaceans and molluscs' are almost twice that of the Seafish employment values. The main difference is the inclusion of aquaculture processing in the SABS survey and not in the Seafish survey. This highlights the importance of salmon in the processing economy. The Seafish employment survey is carried out every two years. SABS employment figures are reported in Table 10.

While fish processing is predominantly a terrestrial activity, the bulk of processing in Scotland is highly dependent on fish landed in Scottish waters. Therefore fish processing has been included in the marine economy.

6.1 Key economic points

In 2015 seafood processing **generated £391 million GVA**: accounting for 0.3 % of the overall Scottish economy, and 10 % of the marine economy.

In terms of employment, fish processing provided **employment for 7,600 workers**, again contributing 0.3 % to total Scottish employment, and 10 % of the marine economy employment.

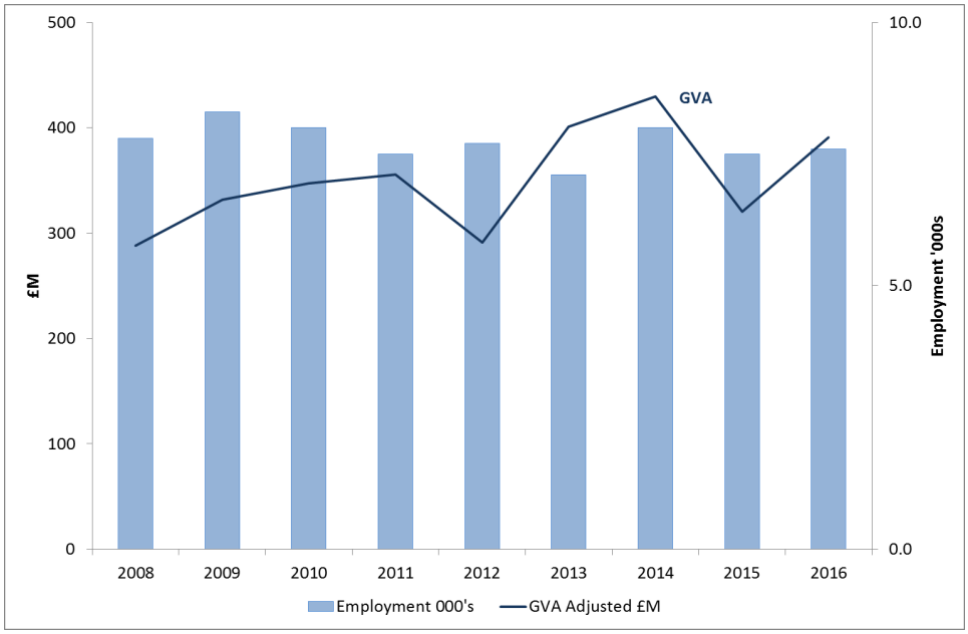
6.2 Seafood Processing – trends

Table 10 : Seafood processing - GVA, turnover, employment and GVA per head, 2008 to 2016 (2016 prices)

Year	GVA £M	Turnover £M	Employment Headcount 000's	GVA Per Head £
2008	288	1,235	7.80	36,944
2009	332	1,618	8.30	39,952
2010	347	1,593	8.00	43,437
2011	355	1,371	7.50	47,389
2012	291	1,400	7.70	37,767
2013	401	1,635	7.10	56,443
2014	430	1,737	8.00	53,705
2015	320	1,597	7.50	42,703
2016	391	1,602	7.60	51,395

Between 2008 and 2016 seafood processing GVA (adjusted to 2016 prices) increased by one third while employment fell by 3%.

Figure 8: Seafood processing – GVA and employment, Scotland, 2008 to 2016



With some variation from year to year, employment in seafood processing in Scotland has changed little over the period from 2008 to 2015. GVA reached a record value in 2014, but fell to a second lowest value in 2015 before recovering in 2016.

6.3 Seafood Processing by geography

The **Food Standards Agency** publish a full list of establishments approved to handle, prepare or produce products of animal origin, including fish processing plants. The information is provided by local authority and this list was used to provide the number of fish processing businesses in Scotland. It does not consider volume of throughput, or type of fish.

As of September 2018, there were 284 registered fish processing plants in Scotland. The three local authorities with the highest number of plants were Aberdeenshire (52), Highland (43) and Aberdeen City (38).

7. Shipbuilding

7.1 Introduction

Shipbuilding is represented in this report by the SABS SIC codes 30.1: *Building of ships and boats* and 33.15: *Repair and maintenance of ships and boats* . As part of the SABS annual publications, Scottish Government published a **Shipbuilding Profile** where the Scottish shipbuilding sector is analysed in relation to UK economic sectors.

Shipbuilding data can fluctuate considerably due to the spasmodic nature of the business. It can take a number of years to build and sell a ship, so purchase figures may be higher in some years and turnover higher in other years. Company re-structuring within the industry has also contributed to year-on-year fluctuations in statistics for the industry. The ONS estimation methodology produces regional estimates for both Scottish and non-Scottish business sites from single business returns which cover all UK activity. A few business sites can therefore make a large difference to the outputs. The SIC codes covered in the shipbuilding profile have a very slightly narrower definition than the codes supplied for this Marine sector.

7.2 Key economic points

In 2016 shipbuilding **generated £202 million GVA**: accounting for 0.15 % of the overall Scottish economy, and 5 % of the marine economy.

In terms of employment, ship building provided **employment for 7,000 workers in** 2016, contributing 0.3 % to total Scottish employment, and 9 % of the marine economy employment.

The SABS ***Shipbuilding Profile*** reports that in 2016 the shipbuilding sector accounted for around 3% of turnover and 2% of GVA in Scottish manufacturing as a whole. It also considers Scottish shipbuilding in the context of total UK output of the shipbuilding industry, where the Scottish sector accounted for around 12% of GVA.

The SABS supporting notes on the Shipbuilding Profile explain that changes in a small number of (large) companies can have a have a very marked effect, particularly on sectoral and local authority figures, from one year to the next.

At this disaggregate level of analysis (4-digit SIC), particular caution should be exercised in looking at year-on-year changes for the sector. Instead, figures should be used to chart long-term trends.

7.3 Shipbuilding - trends

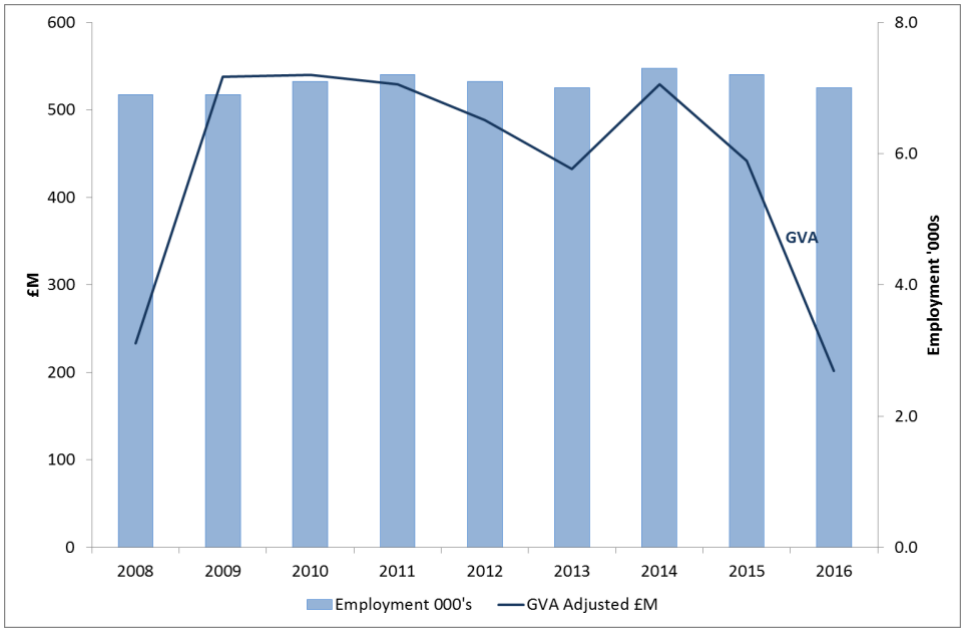
Table 11 : Ship building - GVA, turnover, employment and GVA per head, 2008 to 2016 (2016 prices)

Year	GVA £M	Turnover £M	Employment Headcount 000's	GVA Per Head £
2008	233	914	6.90	33,821
2009	538	1,448	6.90	77,975
2010	540	1,560	7.10	76,049
2011	529	1,532	7.20	73,514
2012	489	1,610	7.10	68,812
2013	433	1,276	7.00	61,820
2014	529	1,448	7.30	72,498
2015	442	1,668	7.20	61,326
2016	202	1,001	7.00	28,829

From 2015 to 2016 the shipbuilding GVA dropped by over half, though the spasmodic nature of the business should be taken into account here, and SABS caution noted.

The longer term trend, between 2008 and 2016, shows shipbuilding GVA (adjusted to 2016 values) dropped by 14% from £233 million to just over £200 million, though Figure 9 shows that there has been considerable fluctuation over that period. Over the 9 years of comparable SABS statistics, employment has remained relatively stable at around 7,000 workers.

Figure 9: Shipbuilding - GVA and employment, Scotland, 2008 to 2016 (2016 prices)



7.4 Shipbuilding – by geography

The SABS Shipbuilding profile reports that the top three local authority areas in 2016 (Aberdeen City, Fife and Glasgow City) accounted for 75% of employment, 84% of turnover and 60% of GVA in the sector. It is not possible to supply a full individual list of local authorities with shipbuilding activity for confidentiality reasons.

8. Construction of Water Projects and Water Transport Service Activities

8.1 Introduction

For ease of description, in this report the joint industry sector will be referred to as 'Construction and water transport services'.

The two industry classes 42.91: 'Construction of water projects' and 52.22: 'Service activities incidental to water transportation' have been combined so that the data in both categories is not disclosive. Construction and water transport services are key for connectivity and supporting growth of island economies.

The SABS category of *Construction of water projects* includes:

- construction of:
    - waterways, harbour and river works, pleasure ports (marinas), locks, etc.
    - dams and dykes
- dredging of waterways

It excludes project management activities related to civil engineering works.

The SABS category of Service activities incidental to water transportation includes:

- activities related to water transport of passengers, animals or freight:
    - operation of terminal facilities such as harbours and piers and operation of waterway locks etc.
    - navigation, pilotage and berthing activities
    - lighterage (the transference of cargo by means of a lighter), salvage activities
- lighthouse activities

This class excludes cargo handling and operation of marinas.

8.2 Key economic points

In 2016, Construction and water transport services **generated £422 million in GVA**: accounting for 0.3 % of the overall Scottish economy, and 11 % of the marine economy.

In terms of employment, Construction and water transport services provided **employment for 4,000 workers**, contributing 0.15 % to total Scottish employment, and 5 % of the marine economy employment.

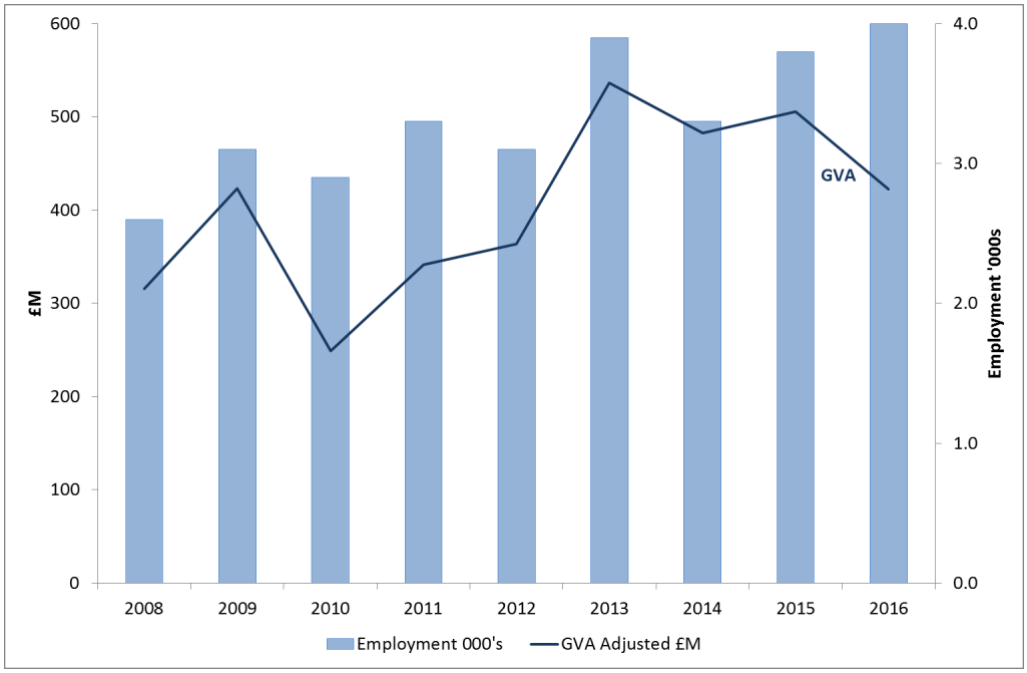
8.3 Construction and water transport services – trends

Table 12 : Construction and water transport services - GVA, turnover, employment and GVA per head, 2008 to 2016 (2016 prices)

Year	GVA £M	Turnover £M	Employment Headcount 000's	GVA Per Worker £
2008	316	538	2.60	121,480
2009	423	602	3.10	136,567
2010	249	449	2.90	85,790
2011	341	592	3.30	103,356
2012	364	852	3.10	117,311
2013	536	1,022	3.90	137,497
2014	483	837	3.30	146,339
2015	506	863	3.80	133,027
2016	422	672	4.00	105,600

Between 2015 and 2016, GVA fell by 16% while employment rose by 5%. Looking at the longer term trends, which have been variable, between 2008 and 2016 Construction and water transport services GVA (adjusted to 2016 prices) increased by a third and employment increased by 54%.

Figure 10 : Construction and water transport services – GVA and employment, 2008 to 2016 (2016 prices)



9. Sea & Coastal Water Transport

9.1 Introduction

This sector includes passenger and freight transport though they are discussed separately. Inland water transport is not included.

Sea and coastal water transport is an essential part of Scotland's transport network. It is key for connectivity and supporting both island and mainland communities. One quarter of Scotland's total freight tonnage, including exports, was carried by water transport in 2016[6].

Supplementary water transport information is taken from the **Transport Scotland** *Scottish Transport Statistics* publication, supported by data from the **Department of Transport statistics**.

9.2 Passenger water transport – description

Sea and coastal passenger water transport includes the transport of passengers on vessels designed for operating on sea or coastal waters.

It includes:

- transport of passengers over seas and coastal waters, whether scheduled or not:
- operation of excursion, cruise or sightseeing boats
- operation of ferries, water taxis etc.

and

- renting of pleasure boats with crew for sea and coastal water transport (e.g. for fishing cruises)

This class excludes:

- restaurant and bar activities on board ships, when provided by separate units,
- renting of pleasure boats and yachts without crew,
- renting of commercial ships or boats without crew,
- operation of "floating casinos".

9.3 Passenger water transport – economic key points

In 2015 water passenger transport **generated £63 million GVA**: accounting for 0.05 % of the overall Scottish economy, and 1.6 % of the marine economy GVA.

[6] Scottish Transport Statistics, No 36, 2017 Edition, **https://www.transport.gov.scot/publication/scottish-transport-statistics-no-36-2017-edition/chapter-9-water-transport/**

In terms of employment, water passenger transport provided **employment for 1,400 workers**, again contributing 0.05 % to total Scottish employment, and 3 % of the marine economy employment.

9.4 Passenger water transport – trends

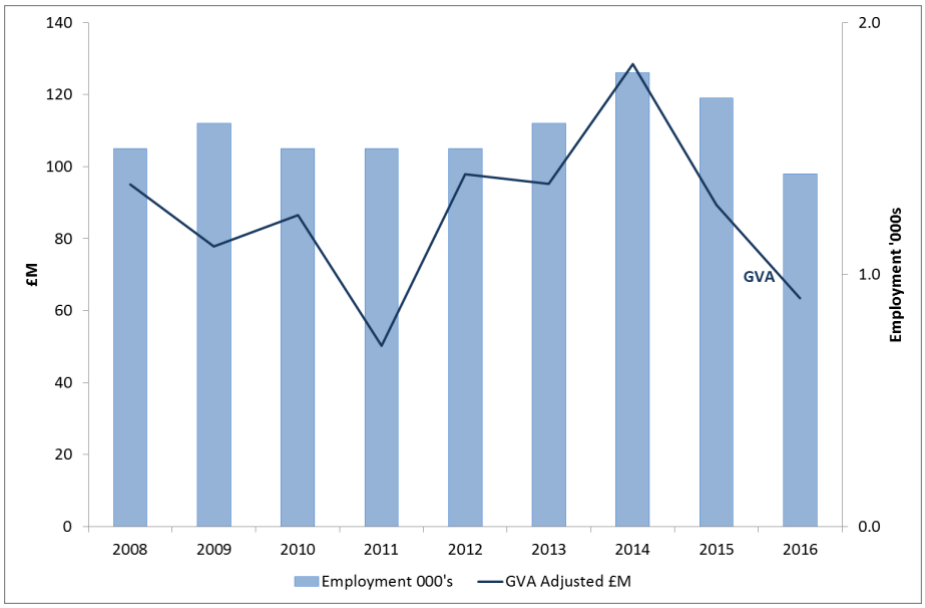
Table 13 : Passenger water transport - GVA, turnover, employment and GVA per head, 2008 to 2016 (2016 prices)

Year	GVA £M	Turnover £M	Employment Headcount 000's	GVA Per Worker £
2008	95	311	1.50	63,381
2009	78	374	1.60	48,617
2010	87	259	1.50	57,732
2011	50	382	1.50	33,439
2012	98	328	1.50	65,284
2013	95	365	1.60	59,474
2014	128	338	1.80	71,384
2015	89	223	1.70	52,559
2016	63	168	1.40	45,286

Between 2015 and 2016 passenger transport GVA fell by 29% and employment fell by 18%.

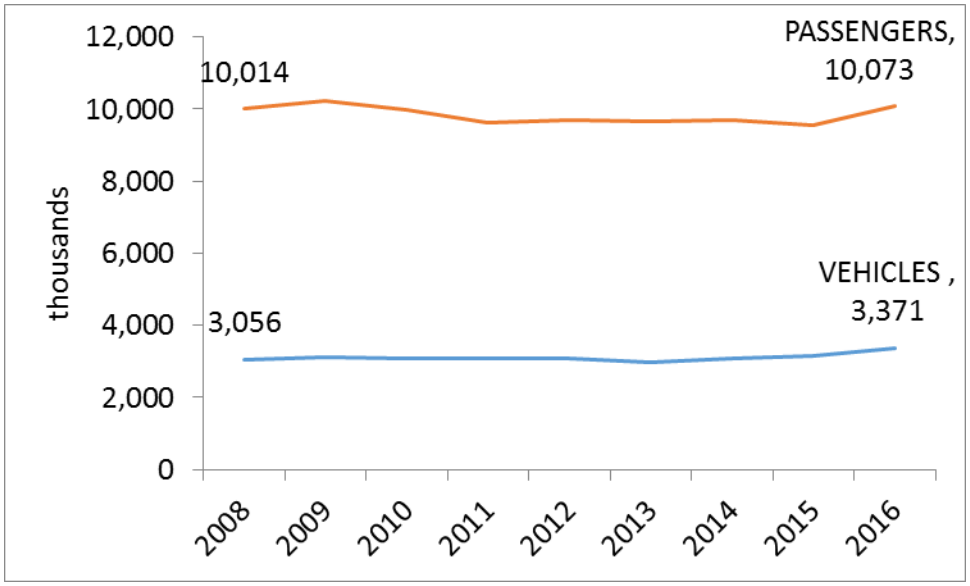
In the longer term trend, passenger transport GVA (adjusted to 2016 prices) fluctuated between 2008 and 2016, with 2016 values being the second lowest in the series. GVA is down by one third and employment by 7%.

Figure 11 : Passenger water transport – GVA and employment (headcount), 2008 to 2016 (2016 prices)



Transport Scotland statistics show that, the number of passengers in 2008 was very similar to 2016, while the number of vehicles increased by 10%.

Figure 12: Passenger water transport - numbers of passengers and vehicles carried on ferry routes, 2008 to 2016



Source: Transport Scotland from ferry operators – not National Statistics

9.5 Freight water transport– description

This group includes the transport of freight on vessels designed for operating on sea or coastal waters.

- transport of freight over seas and coastal waters, whether scheduled or not
- transport by towing or pushing of barges, oil rigs etc.
- renting of vessels with crew for sea and coastal freight water transport

It excludes:

- storage of freight,
- harbour operation and other auxiliary activities such as docking, pilotage, lighterage, vessel salvage
- cargo handling
- renting of commercial ships or boats without crew

9.6 Freight water transport– economic key points

In 2016 freight water transport **generated £65 million GVA**: accounting for 0.05 % of the overall Scottish economy, and 1.7 % of the marine economy.

In terms of employment, water freight transport provided **employment for 500 workers**, contributing 0.02 % to total Scottish employment, and 0.7 % of the marine economy employment.

9.7 Freight water transport – trends

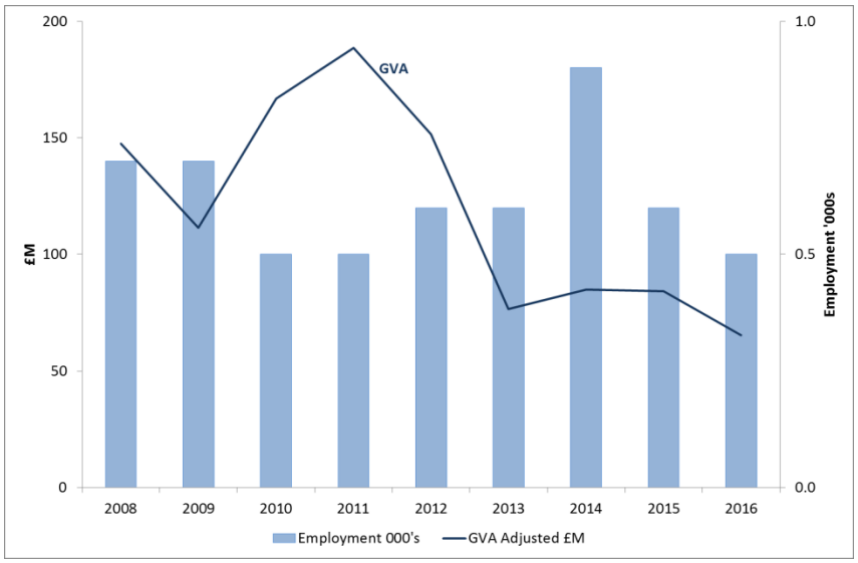
Table 14 : Freight water transport - GVA, turnover, employment and GVA per head, 2008 to 2016 (2016 prices)

Year	GVA £M	Turnover £M	Employment Headcount 000's	GVA Per Head £
2008	147	439	0.70	210,532
2009	111	366	0.70	159,023
2010	167	328	0.50	333,630
2011	189	380	0.50	377,102
2012	152	267	0.60	252,780
2013	77	366	0.60	127,502
2014	85	276	0.90	94,382
2015	84	242	0.60	140,417
2016	65	178	0.50	130,400

9.8 Freight water transport – trends

From 2015 to 2016 water freight transport GVA (adjusted to 2016 prices) fell by almost a quarter (23%) and employment fell by 17%. GVA reached a peak of £189 million in 2011, but between 2008 and 2016 GVA fell by over a half (56%) and employment fell by 29%.

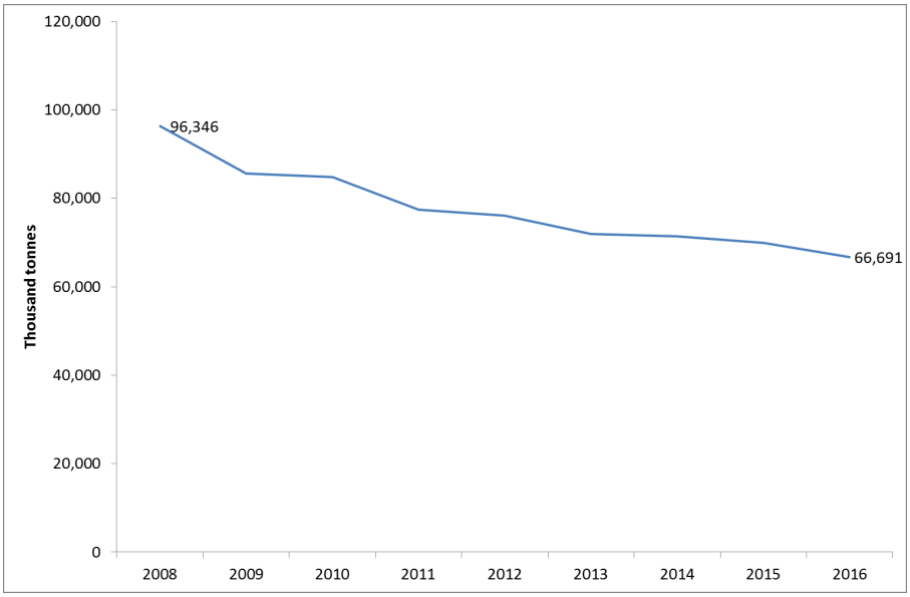
Figure 13 : Freight water transport - GVA and employment (headcount), 2008 to 2016 (2016 prices)



Passenger water transport produced similar GVA to freight water transport in 2015 and 2016. However, because freight transport employed fewer people, the GVA per worker in freight water transport is almost three times that of passenger transport.

Figure 14 shows Transport Scotland's statistics for the tonnage of freight traffic through Scottish ports. There were 67 million tonnes of freight handled by ports in Scotland in 2016. However, between 2008 and 2016 the total tonnage of freight traffic through Scottish ports reduced by 31%.

Figure 14 : Freight water transport – freight tonnage, Scottish ports, all freight traffic, 2008 – 2016



Source: DfT **Maritime and shipping statistics** Table PORT0101

9.9 Freight water transport – by geography

The highest freight traffic in 2016 was through Forth ports (27 million tonnes), Clyde ports (9 million tonnes) and Sullom Voe ports (6 million tonnes).

10. Renting & Leasing of Water Transport Equipment

10.1 Introduction

This class includes renting and leasing of marine passenger and freight transport equipment e.g. commercial boats and ships, without an operator. It excludes renting of pleasure boats, water-transport equipment with operator and financial leasing.

10.2 Key economic points

In 2016 renting and leasing of water transport equipment **generated £8 million GVA** accounting for 0.01 % of the overall Scottish economy, and 0.2 % of the marine economy.

In terms of employment, renting and leasing of water transport equipment provided **employment for around 100 workers**, contributing less than 0.01 % to total Scottish employment, 0.2 % of the marine economy employment.

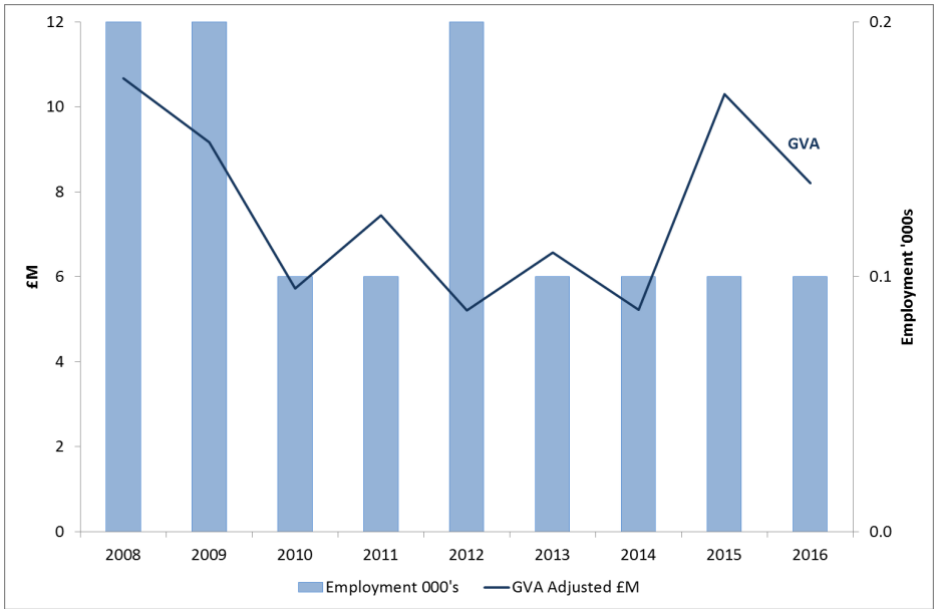
10.3 Renting and leasing – trends

From 2015 to 2016 GVA from renting and leasing water transport fell by around £2 million (20%, adjusted to 2016 prices) and the longer term trend, between 2008 and 2016, saw GVA fall by 23%. For the duration of the time series, employment in the industry sector has been either 100 or 200 people. So, while reported employment halved between 2008 to 2016, the proportional fluctuations are affected by the small numbers involved.

Table 15 : Renting and leasing of water transport equipment - GVA, turnover, employment and GVA per head, 2008 to 2016 (2016 prices)

Year	GVA £M	Turnover £M	Employment Headcount 000's	GVA Per Head £
2008	11	21	0.20	53,322
2009	9	20	0.20	45,823
2010	6	11	0.10	57,219
2011	7	13	0.10	74,428
2012	5	12	0.20	26,021
2013	7	12	0.10	65,662
2014	5	13	0.10	52,257
2015	10	18	0.10	103,018
2016	8	14	0.10	82,000

Figure 15: Renting & Leasing of Water Transport Equipment - GVA and employment (headcount), Scotland, 2008 to 2016 (2016 prices)



10.4 Renting and leasing – by geography

Renting and leasing is a relatively small economic sector and so geographic breakdowns of the data are not available.

11. Marine Tourism

11.1 Introduction

In 2017, Marine Scotland developed the methodology for estimating marine tourism and recreation, as distinct from all tourism. SABS SIC codes were identified as being related to tourism and recreation. Then, all tourism businesses located in postcodes within 100 metres of the coastline were assumed to be engaging in marine tourism and recreation or dependent on the marine environment. While this may include some businesses that are not marine-related, and not include some that are marine-related, it provides a reasonable and replicable method of estimating marine tourism and recreation businesses with existing data. Details are contained in *Annex B: Methodology and source data.*

11.2 Key economic points

In 2016 marine tourism **generated £554 million GVA**: accounting for 0.4 % of the overall Scottish economy, and 14 % of the marine economy.

In terms of employment, marine tourism provided **employment for 27,900 workers**, contributing 1.1 % to total Scottish employment, the biggest marine economy employer accounting for 37 % of the marine economy employment.

Scottish tourism as a whole was estimated as producing £3.9 billion GVA in 2016. Thus marine tourism is estimated to account for around 14% of all Scottish tourism.

11.3 Marine tourism – trends

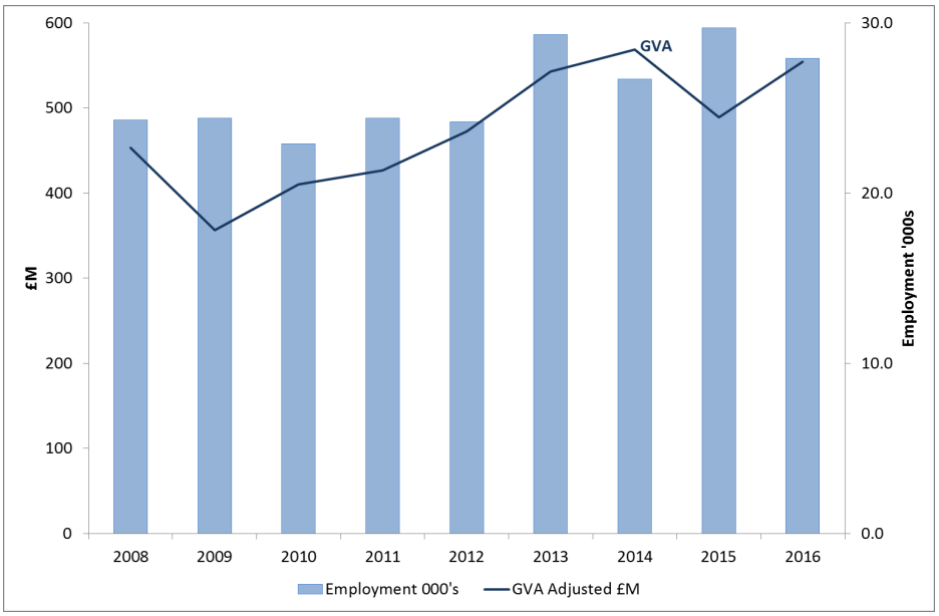
While the marine tourism methodology was developed in 2017, figures have been estimated retrospectively, showing that, between 2008 and 2016 marine tourism GVA (adjusted to 2016 prices) increased by 22% and employment increased by 15%.

The latest figures show a 13% increase in marine tourism GVA between 2015 and 2016, though employment dropped by 6% in that time.

Table 16: Marine tourism - GVA, turnover, employment and GVA per head, 2008 to 2016 (2016 prices)

Year	GVA £M	Turnover £M	Employment Headcount 000's	GVA Per Head £
2008	453	892	24.30	18,647
2009	357	746	24.40	14,616
2010	410	830	22.90	17,923
2011	427	871	24.40	17,493
2012	473	937	24.20	19,530
2013	543	996	29.30	18,519
2014	569	1,013	26.70	21,295
2015	489	913	29.70	16,464
2016	554	1,031	27.90	19,864

Figure 16 : Marine tourism - GVA and employment (headcount), 2008 to 2016 (2016 prices)



Employment in Marine tourism and recreation contributes strongly to employment in the marine economy in Scotland, though GVA is a smaller proportion of Scotland's marine economy GVA, possibly reflecting the seasonal nature of tourism and recreation and the part time nature of employment.

11.4 Marine tourism by geography

The 2016 economic values were attributed to Scottish Marine Regions (attribution by local authority is partially disclosive due to the small quantity of data). While SMRs are marine

geographies, marine tourism is earned on land, therefore Figure 17 shows outputs around the coast.

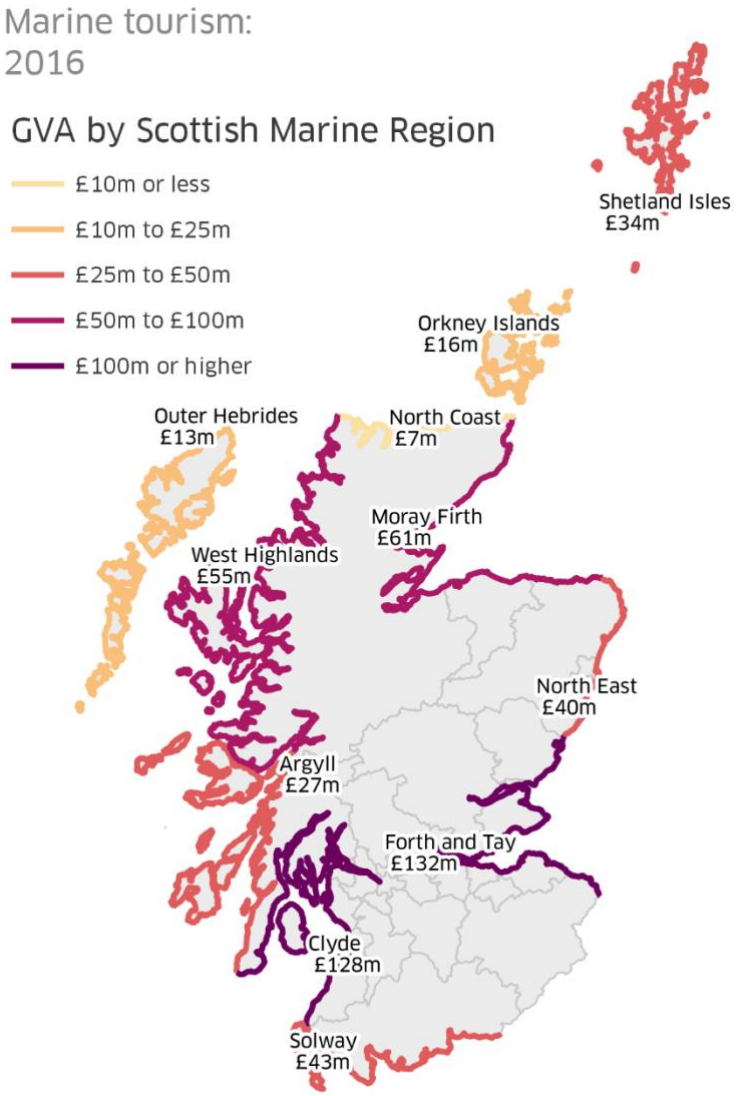
The Forth and Tay region contributed the largest marine tourism GVA in 2016, while the Clyde region contributed higher turnover and employment.

Table 17: Marine tourism - GVA, turnover and employment, by SMR, 2016

Ranked in order of GVA.

SMR	GVA £M	Turnover £M	Employment Headcount '000s
Forth and Tay	132	221	6.3
Clyde	128	249	7.3
Moray Firth	61	120	3.4
West Highlands	55	90	3.2
Solway	43	93	1.4
North East	40	74	2.0
Shetland Isles	34	72	0.9
Argyll	27	47	1.7
Orkney Islands	16	27	0.6
Outer Hebrides	13	28	0.8
North Coast	7	10	0.4
Grand Total	**554**	**1,031**	**28.0**

Figure 17: Marine tourism GVA by Scottish Marine Region, 2016



Scottish Government (Marine Scotland) 2018
Contains National Statistics data ©
Crown copyright and database right

12. Other marine economic sectors

The information provided in this report is based on available, validated economic sources. While other sectors contribute to the marine economy, such as offshore renewable energy and research and development (R&D), because figures are not readily available it has not been possible to include them here. The estimates within this report are therefore likely to provide a lower bound of the economic value of Scotland's marine sector.

The fishing section is based around sea fisheries statistics. These do not include the coastal netting of sea salmon and trout, which are not currently included within these Marine Economic Statistics. Direct GVA from angling and netting was estimated to be £25.9m in 2014. Only netting would be relevant to these economic statistics.

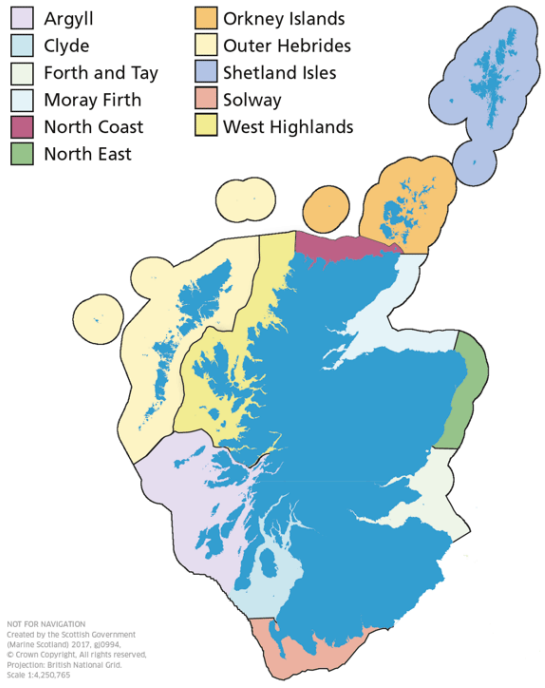
Seaweed harvesting is a potential addition to the marine economy, though it is not yet sufficiently active to be included here.

13. References and Glossary

Aquaculture	Aquaculture or fish farming is the breeding and harvesting of plants and animals in water. It can take place in natural water bodies such as ponds, lakes, marshland or brackish water and the ocean. It can also be conducted in tanks, commonly found in fish hatcheries.
Aquaculture statistics for 2016 Marine Scotland	The Marine Scotland aquaculture statistics are based on two annual aquaculture surveys; one on finfish and one on shellfish. These are the source for production and employment data. http://www.gov.scot/Topics/Statistics/Browse/Agriculture-Fisheries/PubFisheries
Business Register and Employment Survey (BRES)	The Business Register and Employment Survey was used as the source for employment statistics. www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/datasets/regionbusinessregisterandemploymentsurveybrestable3
CEFAS	Centre for Environment, Fisheries and Aquaculture Science www.cefas.co.uk/ . CEFAS annually coordinates the UK collection of economic data on aquaculture for the DCF https://www.cefas.co.uk/cefas-data-hub/
Data Collection Framework DCF data	The European Commission's Data Collection Framework (DCF) establishes a European Community framework for the collection, management and use of data in the fisheries industry. The Data Collection Framework (DCF) regulation is EU Regulation 2017/1004 which replaced EC Reg 199/2008. https://www.gov.uk/guidance/data-collection-framework Under the regulations, member states are required to compile a wide range of biological and economic data as specified in the Commission Implementing Decision (EU) 2016/1251 of 12 July 2016 which sets out the requirements for 2017-19. The requirements include: • biological data on stocks caught by Union commercial fisheries and by recreational fisheries; • data to assess the impact of Union fisheries on the marine ecosystem; • detailed data on the capacity and activity of Union fishing; • social and economic data on fisheries ; • social, economic and environmental data on aquaculture; The DCF social and economic data provided the source for producing the economic statistics for aquaculture and fishing.
Fleet Economic Survey Seafish publication	http://www.seafish.org/research-economics/industry-economics/seafish-fleet-economic-performance-data

	The fleet economic performance dataset contains financial, economic and operation performance indicators for the sea fisheries fleet for the period 2007-2017.
Food Standards Agency (FSA)	The FSA publish data on Approved Food Establishments. The data was used to provide the geographic distribution of fish processing plants. https://data.gov.uk/dataset/2c80e0ce-ee1c-4f26-ba6f-1e1ae1bd8ee9/approved-food-establishments
Full Time Equivalent (FTE)	This allows part-time workers' working hours to be standardised against those working full-time. The standardised figure is 1.0, which refers to a full-time worker. The SABS data is presented as **head counts**, i.e. not taking working hours (or seasonal employment) into account. All employment counts in this publication are presented as head counts to remain consistent with SABS presentation.
Gross Value Added (GVA)	Approximate Gross Value Added is the value generated by any unit engaged in the production of goods and services less any intermediate inputs into the production process. While Turnover measures the value of the goods and services produced, GVA measures the net of inputs used (i.e. turnover less the value of intermediate inputs). GVA is a measure of the contribution the economy made by to the production of goods and services, and as such is a more useful indication of contribution to the economy.
Headcount	SABS reports employment by headcount i.e. the number of individuals working in a sector, not taking account of their working hours (or seasonal employment). All employment statistics in this publication are presented as head counts to remain consistent with SABS presentation. See FTE.
Marine Sector	Marine Scotland has defined the SABS industrial categories that make up the marine economy. These can be seen in Annex A. They are supplemented by other data in some industry sectors.
Marine Management Organisation (MMO)	The MMO licences, regulates and plans marine activities in the seas around England so that they're carried out in a sustainable way. It is also manages fisheries data collection for the UK.
National Accounts Scotland	Scottish GVA, taken from the National Accounts Scotland https://www.gov.scot/Topics/Statistics/Browse/Economy/QNA2016Q4
Processing sector statistics Seafish publication	Annual financial surveys of UK fish processors and a census of all UK fish processing businesses every two years. This survey is referred to but is not used in this report as the SABS data was more consistent. http://www.seafish.org/research-economics/industry-economics/processing-sector-statistics

Quarterly National Accounts of Scotland	The Quarterly National Accounts of Scotland provided national-level GVA estimates. The 2016 statistics for Scotland's onshore economy were used. https://www.gov.scot/topics/statistics/browse/economy/QNA2016Q4
Scottish Annual Business Survey Statistics (SABS)	SABS provides the core data for this publication. SABS contains data mainly on the Production (including Manufacturing), Construction and Service Sectors in Scotland. The SABS data is published in tables that include information on businesses' employment, turnover, purchases, estimates of approximate gross value added and labour costs. Businesses in the survey are classified according to industry group, geographical area and ownership. http://www.gov.scot/Topics/Statistics/Browse/Business/SABS
Scottish Marine Regions	Scottish Marine Regions were introduced by The Scottish Marine Regions Order 2015. The boundaries identify the areas for preparing and adopting regional marine plans and a map of these regions is now available online. https://www.gov.scot/Topics/marine/seamanagement/regional/Boundaries



Scottish Sea Fisheries Statistics Marine Scotland publication	This is an annual statistical bulletin that provides detailed statistics on the Scottish fishing fleet, fishers employment, and the quantity and value of fish landings for the year previous to publication year. Summary, provisional figures are published annually in May and updated and detailed, finalised figures are published in September each year. http://www.gov.scot/Topics/Statistics/Browse/Agriculture-Fisheries/PubFisheries

Seafish	Seafish is an industry funded body that supports the seafood industry to work for a sustainable, profitable future. It offers regulatory guidance and services to the seafood industry, including catching and aquaculture, processors, importers, exporters and distributors of seafood. It also collects and publishes economic and social data on seafood sectors www.seafish.org
Shipbuilding Profile SABS analysis	SABS specialist analysis of Scottish shipbuilding figures. www.gov.scot/Topics/Statistics/Browse/Business/SABS/ShipProfile
Standard Industrial Classification - SIC Codes	A Standard Industrial Classification (SIC) is used for classifying business establishments and other statistical units by the type of economic activity in which they are engaged. The classification provides a framework for the collection, tabulation, presentation and analysis of data, and its use promotes uniformity in defining and identifying industries. In addition, it can be used for administrative purposes and by non-government bodies as a convenient way of classifying industrial activities into a common structure. The current codes were introduced in 2007 and are the reason that the reporting in this publication runs from 2008 onwards. SIC 2007: structure and explanatory notes
Sustainable Tourism by Local Authority Area SABS Analysis	SABS specialist analysis of Scottish tourism by local authority. www.gov.scot/Topics/Statistics/Browse/Business/SABS/LATables/Tourism-by-LA
Transport Scotland	Transport Scotland produce transport activity statistics. The passenger and freight activity data was extracted from Scottish Transport Statistics – No 36 – Datasets. Chapter 9 Water Transport. The data was supplied by ferry operators and is not classified as National Statistics. **www.transport.gov.scot/publication/scottish-transport-statistics-no-36-datasets/**

14. Tables

14.1 Economic Overview

Table 18: Economic Overview - Scotland's marine economic statistics by sector, 2016

Industry sector	GVA £M			Turnover £M		Employment '000s [5]		
	GVA	% of Scotland Marine Economy	% of Scotland total economy[4]	Turnover	% of Scotland Marine Economy	Employment 000's	% of Scotland Marine Economy	% of Scotland total economy
03.1: Fishing[1]	296	4%	0.22%	571	5%	4.8	6%	0.19%
03.2: Aquaculture[2]	216	2%	0.16%	797	8%	2.3	3%	0.09%
09.1: Support activities for petroleum and natural gas extraction	1,631	55%	1.24%	4,483	43%	19.7	26%	0.76%
10.2: Processing and preserving of fish, crustaceans and molluscs	391	6%	0.30%	1,602	15%	7.6	10%	0.29%
30.1: Building of ships and boats & 33.15: Repair and maintenance of ships and boats	202	9%	0.15%	1,001	10%	7.0	9%	0.27%
42.91: Construction of water projects & 52.22: Service activities incidental to water transportation	422	10%	0.32%	672	6%	4.0	5%	0.15%
50.1: Sea and coastal passenger water transport	63	2%	0.05%	168	2%	1.4	2%	0.05%
50.2: Sea and coastal freight water transport	65	2%	0.05%	178	2%	0.5	1%	0.02%
77.34: Renting and leasing of water transport equipment	8	0%	0.01%	14	0%	0.1	0%	0.00%
Marine Tourism[3]	554	10%	0.42%	1,031	10%	27.9	37%	1.08%
Marine economy total	**3,849**	**100%**	**2.92%**	**10,517**	**100%**	**75.3**	**100%**	**2.91%**
Scotland total	**131,636**					**2,587.6**		

Source: Marine Scotland, Scottish Annual Business Statistics, Office for National Statistics

Footnotes: Turnover and GVA adjusted for inflation based on 2016 price estimates.

1 – Fishing values taken from Marine Scotland Sea Fisheries Statistics, GVA estimated using Marine Scotland and Seafish Statistics.

2 – Aquaculture values taken from Marine Scotland Aquaculture Surveys, GVA estimated using Marine Scotland and DCF statistics.

3 – Marine tourism values include specific tourism SIC groups (See Annex A) within 100m of the coast.

4 - Scotland total GVA is from Quarterly National Accounts Scotland Scotland employment is from Business Register and Employment Survey

5 - Employment figures are head counts (not adjusted to Full Time Equivalents).

Table 19 : Economic Overview - GVA time series by industry, 2008 to 2016, £ million

Description	2008	2009	2010	2011	2012	2013	2014	2015	2016
03.1: Fishing[1]	182	226	202	245	228	203	280	221	296
03.2: Aquaculture[2]	108	128	163	174	157	220	254	110	216
09.1: Support activities for petroleum and natural gas extraction	3,392	2,886	2,892	2,281	2,659	2,388	2,204	2,558	1,631
10.2: Processing and preserving of fish, crustaceans and molluscs	288	332	347	355	291	401	430	320	391
30.1: Building of ships and boats & 33.15: Repair and maintenance of ships and boats	233	538	540	529	489	433	529	442	202
42.91: Construction of water projects & 52.22: Service activities incidental to water transportation	316	423	249	341	364	536	483	506	422
50.1: Sea and coastal passenger water transport	95	78	87	50	98	95	128	89	63
50.2: Sea and coastal freight water transport	147	111	167	189	152	77	85	84	65
77.34: Renting and leasing of water transport equipment	11	9	6	7	5	7	5	10	8
Marine Tourism[3]	453	357	410	427	473	543	569	489	554
Marine economy total	**5,225**	**5,088**	**5,063**	**4,599**	**4,915**	**4,901**	**4,967**	**4,830**	**3,849**

Source: Marine Scotland, Scottish Annual Business Statistics, Office for National Statistics

Footnotes

GVA adjusted for inflation based on 2016 price estimates.

1 – Fishing GVA estimated using Marine Scotland and Seafish Statistics.

2 – Aquaculture GVA estimated using Marine Scotland and DCF statistics.

3 – Marine tourism GVA includes specific tourism SIC groups within 100m of the coast.

SABS categories for oil and gas services changed between 2010 and 2011. See section 16.7.

Table 20 : Economic Overview - Turnover time series by industry, 2008 to 2016, £ million

Description	2008	2009	2010	2011	2012	2013	2014	2015	2016
03.1: Fishing[1]	452	516	496	553	518	478	541	455	571
03.2: Aquaculture[2]	415	488	617	656	594	729	763	683	797
09.1: Support activities for petroleum and natural gas extraction	6,775	7,162	6,226	5,971	6,215	6,372	6,966	6,863	4,483
10.2: Processing and preserving of fish, crustaceans and molluscs	1,235	1,618	1,593	1,371	1,400	1,635	1,737	1,597	1,602
30.1: Building of ships and boats & 33.15: Repair and maintenance of ships and boats	914	1,448	1,560	1,532	1,610	1,276	1,448	1,668	1,001
42.91: Construction of water projects & 52.22: Service activities incidental to water transportation	538	602	449	592	852	1,022	837	863	672
50.1: Sea and coastal passenger water transport	311	374	259	382	328	365	338	223	168
50.2: Sea and coastal freight water transport	439	366	328	380	267	366	276	242	178
77.34: Renting and leasing of water transport equipment	21	20	11	13	12	12	13	18	14
Marine Tourism[3]	892	746	830	871	937	996	1,013	913	1,031
Marine economy total	**11,992**	**13,340**	**12,370**	**12,322**	**12,733**	**13,253**	**13,931**	**13,524**	**10,517**

Source: Marine Scotland, Scottish Annual Business Statistics, Office for National Statistics

Footnotes

Turnover adjusted for inflation based on 2016 price estimates.

1 – Fishing values taken from Marine Scotland Sea Fisheries Statistics, GVA estimated using Marine Scotland and Seafish Statistics.

2 – Aquaculture values taken from Marine Scotland Aquaculture Surveys, GVA estimated using Marine Scotland and DCF statistics.

3 – Marine tourism values include specific tourism SIC groups (See Annex A) within 100m of the coast.

SABS categories for oil and gas services changed between 2010 and 2011. See section 16.7.

Table 21 : Economic Overview - Employment time series by industry, 2008 to 2016, '000s

SIC 2007/Description	2008	2009	2010	2011	2012	2013	2014	2015	2016
03.1: Fishing[1]	5.4	5.4	5.2	5.0	4.7	5.0	4.8	4.8	4.8
03.2: Aquaculture[2]	1.8	1.8	1.9	1.8	1.9	1.9	2.1	2.2	2.3
09.1: Support activities for petroleum and natural gas extraction	16.6	18.2	18.4	18.6	18.5	17.4	20.0	21.5	19.7
10.2: Processing and preserving of fish, crustaceans and molluscs	7.8	8.3	8.0	7.5	7.7	7.1	8.0	7.5	7.6
30.1: Building of ships and boats & 33.15: Repair and maintenance of ships and boats	6.9	6.9	7.1	7.2	7.1	7.0	7.3	7.2	7.0
42.91: Construction of water projects & 52.22: Service activities incidental to water transportation	2.6	3.1	2.9	3.3	3.1	3.9	3.3	3.8	4.0
50.1: Sea and coastal passenger water transport	1.5	1.6	1.5	1.5	1.5	1.6	1.8	1.7	1.4
50.2: Sea and coastal freight water transport	0.7	0.7	0.5	0.5	0.6	0.6	0.9	0.6	0.5
77.34: Renting and leasing of water transport equipment	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1
Marine Tourism[3]	24.3	24.4	22.9	24.4	24.2	29.3	26.7	29.7	27.9
Marine economy total	**67.9**	**70.6**	**68.5**	**69.9**	**69.5**	**73.9**	**75.0**	**79.1**	**75.3**

Source: Marine Scotland, Scottish Annual Business Statistics, Office for National Statistics

Footnotes

1 – Fishing values taken from Marine Scotland Sea Fisheries Statistics, GVA estimated using Marine Scotland and Seafish Statistics.

2 – Aquaculture values taken from Marine Scotland Aquaculture Surveys, GVA estimated using Marine Scotland and DCF statistics.

3 – Marine tourism values include specific tourism SIC groups (See Annex A) within 100m of the coast.

SABS categories for oil and gas services changed between 2010 and 2011. See section 16.7.

Employment figures are head counts (not adjusted to Full Time Equivalents).

Table 22 : Economic Overview - by local authority, 2014 to 2016 (2016 prices)

	GVA £M			Turnover £M			Employment 000's		
	2014	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Aberdeen City	1,967	2,009	1,591	6,102	5,616	3,869	18.6	20.6	18.3
Aberdeenshire	986	1,201	655	2,546	2,875	2,012	10.3	9.4	10.3
Angus	33	36	63	64	72	106	0.8	0.9	0.9
Argyll & Bute	168	121	141	429	370	364	5.1	5.7	5.3
Clackmannanshire	2	1	-0	4	3	2	0	0	0
Dumfries & Galloway	103	106	104	323	302	282	2.8	3.1	2.6
Dundee City	9	11	12	17	22	23	0.4	0.5	0.4
East Ayrshire	*	*	*	*	*	*	*	*	*
East Dunbartonshire	*	*	*	*	*	*	*	*	*
East Lothian	32	31	25	60	63	52	1.2	1.2	1.2
East Renfrewshire	1	*	1	1	*	2	0	0	0
Edinburgh, City Of	114	105	43	255	234	114	1.6	1.5	1.5
Falkirk	*	*	*	*	100	*	0.7	0.7	0.7
Fife	168	130	137	470	518	523	4.3	4.6	4.7
Glasgow, City Of	236	222	-6	817	*	*	4.6	3.9	3.6
Highland	333	221	252	796	670	683	8.5	9	8.7
Inverclyde	69	76	87	140	160	148	1.2	1.4	1.5
Midlothian	*	*	*	*	*	*	*	*	*
Moray	26	23	23	65	65	66	0.9	0.9	0.9
Na H-Eileanan Siar	69	48	35	172	164	144	1.4	1.4	1.4
North Ayrshire	64	58	50	121	109	105	1.6	1.7	1.8
North Lanarkshire	8	7	13	33	21	34	0.2	0.2	0.2
Orkney Islands	47	26	63	163	79	193	1.3	1.3	1.3
Perth & Kinross	2	4	8	23	20	24	0.4	0.4	0.4
Renfrewshire	32	32	31	67	59	56	1.5	1.6	1.6
Scottish Borders	30	28	33	100	106	*	0.9	0.9	1.1
Shetland Islands	118	83	166	305	365	423	2.4	2.4	2.3
South Ayrshire	33	24	33	66	48	63	1	1.1	1.1
South Lanarkshire	7	-	9	*	*	*	*	*	*
Stirling	19	14	18	45	36	32	0.5	0.6	0.6
West Dunbartonshire	5	6	5	11	14	11	0.2	0.3	0.2
West Lothian	9	2	2	13	5	6	0.2	0.1	0.1
Scotland	**4,789**	**4,710**	**3,698**	**13,519**	**13,207**	**10,134**	**73.6**	**76.4**	**73.7**

Source: Scottish Annual Business Statistics

Notes: Turnover and GVA are adjusted for inflation based on 2016 price estimates.

1. Marine totals are compiled from combined SIC codes – see Annex A
2. Employment figures are head counts only (not adjusted to FTEs).
3. The Annual Business Survey was expanded from 2016 to include additional solely Pay As You Earn (PAYE)-based businesses. This should be considered when comparing the estimates for 2016 with previous years. For more see SABS page **http://www.gov.scot/Topics/Statistics/Browse/Business/SABS/ScotlandTables**
4. Totals may not sum due to rounding.

* = Denotes disclosive data.

14.2 Sea Fisheries

Table 23 : Fishing - GVA and fishing income by Scottish vessels, by local authority, 2014 to 2016 (2016 prices)

	GVA £M			Fishing Income £M		
Local Authority	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Aberdeen City	0.1	0.1	0.1	0.2	0.2	0.2
Aberdeenshire	126.1	96.1	131.3	228.9	197.8	238.8
Angus	0.8	0.8	1.3	1.7	1.7	2.2
Argyll & Bute	11.3	11.0	13.9	25.0	23.2	27.3
Edinburgh, City Of	0.1	0.1	0.2	0.3	0.3	0.4
Dumfries & Galloway	6.8	7.9	7.8	16.7	16.1	17.6
East Lothian	1.2	0.9	1.4	2.9	2.1	2.8
Fife	1.8	1.5	2.3	4.4	3.9	4.7
Highland	16.8	26.1	29.7	35.9	55.2	59.6
Moray	5.6	4.5	7.4	15.0	12.3	16.1
Na h-Eileanan Siar	5.3	5.8	7.6	11.6	11.7	14.0
North Ayrshire	0.6	0.7	0.8	1.1	1.4	1.4
Orkney Islands	7.9	7.3	9.3	18.4	16.2	19.0
Scottish Borders	2.1	1.6	2.3	4.9	3.5	4.3
Shetland Islands	74.8	49.0	72.3	114.3	85.6	115.7
South Ayrshire	11.8	4.5	5.2	28.8	9.1	10.6
Unallocated	*7.0*	*3.1*	*3.0*	*31.1*	*14.5*	*36.1*
Scotland Total	**279.9**	**221.0**	**295.9**	**541.2**	**454.9**	**570.9**

Source: Marine Scotland Sea Fisheries Statistics, Seafish Fleet Economic Survey
Notes: Values adjusted for inflation based on 2016 price estimates.
Seafish produced estimated GVA based on the vessel's registered port.
Where values became disclosive they were not reported and are shown here as unallocated to a local authority

14.3 Aquaculture

Table 24 : Aquaculture time series: GVA, production volume, value and employment, 2008 to 2016 (2016 prices)

		GVA £M			Production Tonnes			Production Value £M			Employment Headcount		
	Year	Fin	Shell	**Total**	Fin	Shell	**Total**	Fin	Shell	**Total**	Fin	Shell	**Total**
GVA Values calculated using mean GVA ratio between 2013 and 2016	**2008**	103.2	4.6	**107.73**	138,616	6,275	**144,891**	406.7	8.6	**415.2**	1,398	400	**1,825**
	2009	123.6	4.6	**128.17**	151,403	6,591	**157,994**	479.5	8.6	**488.1**	1,442	390	**1,761**
	2010	158.2	4.9	**163.06**	159,497	7,492	**166,989**	607.7	9.2	**616.9**	1,477	348	**1,924**
	2011	168.6	5.7	**174.22**	162,783	7,281	**170,064**	645.7	10.6	**656.2**	1,416	345	**1,810**
	2012	152.0	5.0	**156.94**	168,008	6,522	**174,530**	584.5	9.2	**593.7**	1,525	399	**1,898**
GVA values calculated using actual annual data	**2013**	214.8	4.9	**219.68**	168,945	6,935	**175,880**	720.0	9.3	**729.4**	1,467	343	**1,864**
	2014	248.5	5.7	**254.15**	184,958	7,978	**192,936**	751.6	10.8	**762.4**	1,540	358	**2,141**
	2015	104.2	6.2	**110.40**	180,408	7,507	**187,915**	672.5	10.3	**682.8**	1,531	333	**2,177**
	2016	209.8	6.4	**216.12**	171,021	8,051	**179,072**	785.8	11.6	**797.4**	1,796	345	**2,279**

Source: Marine Scotland Aquaculture survey statistics, DCF data
GVA and Value adjusted for inflation based on 2016 price estimates.
Values are rounded and so totals may not match exactly.

Table 25: Aquaculture time series: Salmon, mussel and pacific oyster, Turnover by SMR, 2013 to 2016 (2016 prices)

	Turnover £M			
SMR/ group of SMRs	**2013**	**2014**	**2015**	**2016**
Argyll & Clyde	151.1	143.8	136.1	147.4
Orkney Islands	49.2	53.0	41.5	69.3
Outer Hebrides	158.5	137.8	102.9	154.5
Shetland Isles	162.6	195.7	167.3	183.5
West Highlands, Moray Firth & North Coast	187.2	208.0	206.2	221.9
All Scotland	**708.5**	**738.3**	**654.0**	**776.7**

Source: Marine Scotland Aquaculture production surveys
Only Atlantic salmon, mussel and pacific oyster production has been included in this geographic breakdown.
Figures for West Highlands, Moray Firth and the North Coast have been merged due to commercial confidentiality.
Prices have been adjusted for inflation based on 2016 price estimates.

Table 26 : Aquaculture time series: Salmon, mussel and pacific oyster, GVA by SMR, 2013 to 2016 (2016 prices)

	GVA £M			
SMR/ group of SMRs	**2013**	**2014**	**2015**	**2016**
Argyll & Clyde	45.8	48.0	21.5	40.2
Orkney Islands	14.8	17.6	6.4	18.7
Outer Hebrides	47.9	45.8	16.2	41.9
Shetland Isles	50.0	66.2	28.6	51.4
West Highlands, Moray Firth & North Coast	56.7	69.3	32.0	60.2
All Scotland	**215.2**	**246.9**	**104.7**	**212.4**

Source: Marine Scotland Aquaculture production surveys and DCF data
Only Atlantic salmon, mussel and pacific oyster production has been included in this geographic breakdown.
Figures for West Highlands, Moray Firth and the North Coast have been merged due to commercial confidentiality.
Prices have been adjusted for inflation based on 2016 price estimates.

14.4 Sea Transport

Table 27 : Passenger water transport - Total passengers and vehicles carried, 2006 to 2016

Thousands

	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total passengers	10,014	10,219	9,990	9,631	9,698	9,662	9,679	9,554	10,073
Total vehicles	3,056	3,135	3,072	3,071	3,076	2,973	3,075	3,148	3,371

Source: Scottish Transport Statistics – No 36 – Datasets. Chapter 9 Water Transport.
Data supplied by ferry operators – Not National Statistics
https://www.transport.gov.scot/publication/scottish-transport-statistics-no-36-datasets/

Table 28 : Freight water transport - All freight traffic through Scottish ports by Local Authority, 2008 to 2016

Thousand tonnes

Local authority	2008	2009	2010	2011	2012	2013	2014	2015	2016
Aberdeen City	4,833	4,570	4,164	4,165	4,493	4,263	4,231	4,376	3,770
Aberdeenshire	955	889	1,187	1,137	1,105	1,061	1,453	1,530	1,214
Angus	609	423	512	488	518	588	601	493	504
Argyll And Bute	107	63	111	124	59	100	109	107	57
Clyde*	14,338	12,552	12,283	13,431	15,421	14,783	16,201	12,484	8,742
Dumfries And Galloway	4,118	3,749	3,652	3,918	4,425	4,501	4,407	4,712	5,097
Dundee City	978	810	962	929	842	815	517	515	534
Fife	39,235	36,788	34,506	28,034	25,505	26,492	24,775	27,268	27,651
Highland	9,683	9,408	10,560	11,052	9,107	10,126	9,026	6,857	6,914
Moray	102	105	108	113	90	110	74	83	91
Na H-Eileanan Siar	240	236	258	298	284	213	242	232	217
Orkney Islands	4,789	3,241	3,244	2,344	1,729	1,054	1,151	3,945	4,615
Perth And Kinross	141	125	103	74	62	60	61	63	33
Shetland Islands	15,198	11,808	11,862	10,760	12,082	7,250	8,055	6,915	6,837
South Ayrshire	1,020	812	1,307	546	418	575	478	388	416
Grand Total	**96,346**	**85,580**	**84,818**	**77,413**	**76,138**	**71,992**	**71,381**	**69,968**	**66,691**

Source: DfT **Maritime and shipping statistics** Table PORT0101

Note:

*Transport Scotland report freight tonnage through major and minor ports. These ports were assigned to local authorities. However, several ports in the Clyde region are only reported for statistical purposes as 'Clyde' and so the tonnage can't be allocated to the correct local authority. They are shown here under the Clyde heading, although this is not a valid local authority. Equally, Forth ports carry the highest tonnage of freight traffic, and the recording rules mean that the ports are assigned to Fife. Hence, no freight is recorded as carried through Edinburgh City local authority.

Table 29 : Freight water transport - All freight traffic through Scottish ports by Scottish Marine Region, 2008 to 2016

Thousand tonnes

Scottish Marine Region	2008	2009	2010	2011	2012	2013	2014	2015	2016
Argyll	6,443	5,654	5,957	6,184	5,600	5,846	6,456	5,704	5,543
Clyde	15,358	13,364	13,591	13,977	15,839	15,358	16,679	12,872	9,158
Forth & Tay	40,963	38,146	36,083	29,525	26,926	27,956	25,955	28,340	28,722
Moray Firth	3,079	3,642	4,458	4,768	3,274	4,082	2,214	943	1,175
North Coast	236	252	262	277	240	264	285	252	247
North East	5,704	5,367	5,271	5,218	5,517	5,235	5,608	5,844	4,918
Orkney Islands	4,789	3,241	3,244	2,344	1,729	1,054	1,151	3,945	4,615
Outer Hebrides	240	236	258	298	284	213	242	232	217
Shetland Isles	15,198	11,808	11,862	10,760	12,082	7,250	8,055	6,915	6,837
Solway	4,118	3,749	3,652	3,918	4,425	4,501	4,407	4,712	5,097
West Highlands	218	121	182	143	222	234	330	209	162
Grand Total	**96,346**	**85,580**	**84,818**	**77,413**	**76,138**	**71,992**	**71,381**	**69,968**	**66,691**

Source: DfT **Maritime and shipping statistics** Table PORT0101

Note: Transport Scotland report freight tonnage through major and minor ports. These ports were assigned to SMRs.

14.5 Marine Tourism

Table 30: Marine tourism - GVA, turnover, employment, by SMR, 2014 to 2016 (2016 prices)

	GVA £M			Turnover £M			Employment Headcount '000s		
Region	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Argyll	34.6	25.6	26.5	64.7	47.8	46.5	1.6	2.0	1.7
Clyde	146.4	127.5	127.5	271.3	234.9	248.9	7.1	7.5	7.3
Forth and Tay	114.1	119.5	132.1	203.5	205.4	221.4	6.1	6.4	6.3
Moray Firth	63.9	48.6	60.9	109.0	93.5	119.9	3.1	3.5	3.4
North Coast	6.4	4.4	6.6	11.9	9.0	10.4	0.3	0.4	0.4
North East	47.0	49.8	39.7	81.9	94.3	74.3	2.0	2.2	2.0
Orkney Islands	8.2	5.2	16.3	15.1	10.3	27.4	0.6	0.7	0.6
Outer Hebrides	34.1	22.1	13.3	46.3	41.9	27.7	0.7	0.8	0.8
Shetland Isles	16.9	11.0	34.0	36.3	29.9	71.9	0.9	1.1	0.9
Solway	34.0	31.5	42.5	59.3	64.5	93.0	1.2	1.5	1.4
West Highlands	62.8	43.8	54.6	113.5	81.5	89.5	3.0	3.4	3.2
TOTALS	**568.6**	**489.0**	**554.2**	**1,013.0**	**912.9**	**1,031.0**	**26.7**	**29.7**	**27.9**

Source: SABS extract - SABS SIC codes were identified as being related to tourism and recreation. Then, all tourism businesses located in postcodes within 100 metres of the coastline were included as 'marine tourism'.

Notes:

- Employment figures are head counts (not adjusted to Full Time Equivalents)
- GVA and turnover values are adjusted to 2016 prices
- Totals may not sum due to rounding and disclosure control.

15. Annex A – SABS SIC Codes

The main source for the economic statistics is the **Scottish Annual Business Survey**[7].

Throughout this document SABS class definitions are quoted from the ***UK Standard Industrial Classification of Economic Activities 2007 (SIC 2007)***[8]

Standard Industrial Classification of Economic Activities, or SIC, is a Classification to help classify businesses according to the type of their economic activity. One or more SIC codes can be attributed to a business.
Marine totals are compiled from combined outputs for:

The 'Marine related' SIC codes were agreed with Marine Scotland for the Economic Topic Sheets, published since 2011. The codes *exclude* SIC 06 Extraction of crude petroleum and natural gas. Although oil and gas extraction is a key component of the Scottish economy, estimates are not presented here to remain consistent with UK extra region (offshore) activity in National Accounts Statistics.

In addition to the marine related SIC codes, a marine tourism category has been derived, defined in terms of SIC codes set out in Scottish Government's Growth Sectors, for postcodes identified as being up to 100m from coast-line.

Table 31 shows the SIC codes used to extract economic values for the marine economy. For the purposes of labelling charts and discussing findings, abbreviated names have been used as shorthand for the full SABS SIC codes, these are included in the table.

[7] https://www.gov.scot/Topics/Statistics/Browse/Business/SABS
[8]https://www.ons.gov.uk/methodology/classificationsandstandards/ukstandardindustrialclassificationofeconomicactivities/uksic2007

Table 31: SIC codes and abbreviations used in this report

For the purposes of labelling charts and discussing findings, the following abbreviated names have been used as shorthand for the full SABS SIC codes.

Specific Marine SIC codes	**Abbreviation used in this report**
03.1: Fishing	Fishing
03.2: Aquaculture	Aquaculture
09.1: Support activities for petroleum and natural gas extraction	Oil and gas services
10.2: Processing and preserving of fish, crustaceans and molluscs	Seafood processing
30.1: Building of ships and boats & 33.15: Repair and maintenance of ships and boats	Ship building
42.91: Construction of water projects & 52.22: Service activities incidental to water transportation	Construction and water transport services
50.1: Sea and coastal passenger water transport	Passenger water transport
50.2: Sea and coastal freight water transport	Freight water transport
77.34: Renting and leasing of water transport equipment	Renting & leasing
Marine Tourism and Recreation SIC codes	
55.1: Hotels and similar accommodation 55.2: Holiday and other short-stay accommodation 55.3: Camping grounds, recreational vehicle parks and trailer parks 56.1: Restaurants and mobile food service activities 56.3: Beverage serving activities 79.12: Tour operator activities 79.9: Other reservation service and related activities 91.02: Museum activities 91.03: Operation of historical sites and buildings and similar visitor attractions 91.04: Botanical and zoological gardens and nature reserve activities 93.11: Operation of sports facilities 93.199: Other sports activities (not including activities of racehorse owners) 93.21 Activities of amusement parks and theme parks 93.29: Other amusement and recreation activities	Marine tourism

The SABS **Methodology page** provides details on all aspects of the data collection and limitations. Key points are covered in Annex B: Methodology and source data.

16. Annex B: Methodology and source data

16.1 Notes about tables

To prevent repetition of notes beneath each table, generic notes are presented in this section. Specific points about individual tables are noted as they arise in the report.

Source data : Scottish Annual Business Statistics(SABS), Office for National Statistics, Marine Scotland. Fishing and Aquaculture figures are taken from analysis of Marine Scotland statistics rather than the SABS figures.

Table 32 summarises the main data sources for individual topics in this publication.

Table 32 : Source data for marine economic sectors

Economic sector and SABS SIC Code	Data sources – economic measures
03.1: Fishing *SABS data not used*	Marine Scotland Sea Fisheries statistics Seafish Fleet Economic Survey
03.2: Aquaculture *SABS data not used*	Marine Scotland Aquaculture Survey statistics: Shellfish Production Survey, and Fish Farm Production Survey Data Collection Framework (DCF) economic data[9]
09.1: Support activities for petroleum and natural gas extraction (extraction is not included in this publication)	SABS
10.2: Processing and preserving of fish, crustaceans and molluscs	SABS Seafish Processing Industry statistics – available but not used Number of Plants – Food Standards Agency
30.1: Building of ships and boats & 33.15: Repair and maintenance of ships and boats	SABS
42.91: Construction of water projects & 52.22: Service activities incidental to water transportation Marine tourism	SABS
50.1: Sea and coastal passenger water transport 50.2: Sea and coastal freight water transport	SABS Transport Scotland statistics
77.34: Renting and leasing of water transport equipment	SABS
Marine tourism	SABS various SIC codes (see Annex A) supplemented by geographic filters to select businesses within 100m of the coast line

[9] CEFAS annually collects **economic data** on aquaculture under the Data Collection Framework (DCF) regulation (EU Regulation 2017/1004)

Notes:

- Industry sector names are abbreviated for simpler presentation. Annex A contains the full SABS SIC title for the sector and the abbreviation used.
- Employment figures are head counts (not adjusted to Full Time Equivalents).
- GVA and turnover values are adjusted to 2016 prices
- Since 2011, support activities for oil and gas were extracted using the SIC code SIC 09.1: Support activities for petroleum and natural gas extraction. However, between 2008 and 2010 these figures were disclosive and so the wider code SIC 09 Mining support activities used to provide data. While there is little difference between the code values, it is important to note the change in coverage of the industry that is the largest contributor to the marine economy. The difference is minimal - see later in this section.
- Totals may not sum due to rounding and disclosure control.

16.2 Scottish Annual Business Survey

The majority of economic figures in this publication have been taken from the **Scottish Annual Business Statistics** (SABS) publication. This provides data on a number of economic variables across a range of sectors, based on data from the Annual Business Survey (ABS) conducted by the Office for National Statistics (ONS). The SABS statistics were produced under partnership procedures between ONS and the Scottish Government. These have resulted in an improvement in the quality of the underlying data and consistency in the figures used by ONS and SG.

SABS data is attributed according to business site address e.g. a shop or factory, so data for a large company can be split over more than a single site.

Rigorous checks are made to ensure that information relating to individual businesses are not disclosed, either directly or by deduction, in the figures released. In some cases this means that data cannot be presented at smaller geographies such as local authority areas.

To set the individual industry results in context, throughout this publication they have been considered in the context of the Scottish economy as a whole.

- The national GVA estimate was taken from the **Quarterly National Accounts of Scotland**.
- The total employment in Scotland was taken from ONS' **Business Register and Employment Survey (BRES), Table 3 -** Employment by Region.

16.2.1 Sampling methodology

The ABS uses a register of businesses (the Inter Departmental Business Register (IDBR)) to produce an estimate of all businesses etc. that make up the population. The ABS sample is designed as a stratified random sample of UK businesses from the IDBR. The inquiry

results are grossed up to the register population, so that they relate to all active UK businesses on the IDBR for the sectors covered.

Scottish Government also funds an enhanced ABS sample in Scotland, to improve the quality of Scottish figures. In 2016, around 2,600 extra firms in Scotland were sampled as a result of this boost, giving a total sample size in Scotland of **around 8,200 firms**.

Scottish Annual Business Statistics are published as soon as possible after the release of ONS's regional results, which are due out each Summer. In 2018 the SABS figures for 2016 were released in 20th June, 18 months after the end of the relevant calendar year.

SABS publish information about sample sizes and error margins for the survey.
https://www.gov.scot/Topics/Statistics/Browse/Business/SABS/QualityMeasures

16.2.2 Marine economic sectors

Marine economic sectors have been defined as those depending on the marine environment for their output, and where official statistics are available. The SABS data is used along with Marine Scotland's own statistical publications to gauge each industry's contribution to the Scottish economy. Where SABS is the sole source of data, the estimates are used directly. Where other sources are used the methodology is introduced in the relevant section of the report and explained more fully in this Methodology section.

Economic values have been adjusted to take inflation into account and are presented at 2016 prices. This means that they are directly comparable in a time series.

16.3 Geographic Distribution

The distribution of the whole marine economy was provided from SABS data. However, in this report economic statistics for fishing and aquaculture are not derived from SABS and so reconciliation was necessary for the economic values at local authority level. To achieve this, the fishing and aquaculture values were distributed to local authorities as far as possible and the residue, which could not be allocated, was assigned to an 'unallocated' category.

16.4 Price presentation

All values have been adjusted to 2016 prices using the GDP deflators https://www.gov.uk/government/collections/gdp-deflators-at-market-prices-and-money-gdp making it simpler to compare values across a time series.

16.5 Sea Fisheries Methodology

The economic contribution of the fishing sector was estimated using ***Marine Scotland Sea Fisheries Statistics***[10] and ***Seafish Industry Authority Fleet Economic Survey***[11] data.

This provides a more reliable estimate of economic activity than the SABS figures, primarily because the landings data, which is the source data for 'turnover' covers the entire population rather than just a sample (as is the case with SABS).

The Marine Scotland statistics provide values for quantity and value of landings, employment in fishing and vessels registered in Scotland. Because Seafish figures are used for the economic values there is a slight discrepancy between the totals shown in this report and Marine Scotland Sea Fisheries Statistics.

The Seafish survey provides financial data, including total fishing income, that is used to estimate GVA for the Scottish fleet.

The methodology used in this publication varies slightly from that used in previous Marine Scotland topic sheets which estimated GVA using a five-year average of the GVA/revenue ratio derived from Seafish's price data. It is intended that future topic sheets will use the methodology shown here.

Sample sizes

Marine Scotland publishes Scottish Sea Fisheries Statistics as an annual National Statistics publication. The statistics provide a detailed overview of the quantity and value of landings of sea fish and shellfish by Scottish vessels, and landings into Scotland. The Marine Scotland data is a census of all landings by Scottish registered vessels. Information on the Scottish fishing fleet and the number of fishers on Scottish vessels is also presented. Scottish Sea Fisheries Statistics are obtained by data extractions from Scottish and UK databases from data supplied by skippers.

The *Seafish* Industry Authority carries out economic surveys of the UK fishing fleet, published as the Seafish Fleet Economic Performance Dataset (see above and footnote). This contains financial, economic and operation performance indicators for the period 2007-2017. The figures presented in this publication are an extract of economic performance data for all active vessels registered in Scotland.

The Seafish Fleet Economic Survey combines costs and earnings information from vessel accounts provided by vessel owners to the annual Seafish UK Fleet Survey, with official effort, landings and capacity data for Scottish registered vessels from Marine Scotland's Sea Fisheries Statistics. In 2017, the Seafish survey collected 570 sets of financial accounts for the UK fleet (12% of the UK fleet).

[10] **http://www.gov.scot/Topics/Statistics/Browse/Agriculture-Fisheries/PubFisheries**
[11] **http://www.seafish.org/research-economics/industry-economics/seafish-fleet-economic-performance-data**

16.5.1 Regional data

Seafish provided figures at local authority and Scottish Marine Region level so that a regional distribution of the turnover and GVA can be presented. Data was allocated to the geography based on the location of the registration port of the vessel. Reporting at this level introduces the possibility of disclosing commercially sensitive information. To prevent this happening, all other segmentation categories were aggregated (species type, fishing gear etc.) and outputs where five or fewer vessels were registered were restricted. This resulted in a small difference in total value and weight of landing totals between Seafish disaggregated totals and Scottish Sea Fisheries Statistics totals. The difference was reported in the tables as 'Unallocated' to the regions.

16.5.2 Seafish economic analysis methodology

Outputs from the Seafish Fleet Economic Survey were used in the fishing GVA estimation. Full details of the Seafish methodology are available in the Seafish Fleet Economic Survey, a summary is given here.

1. The UK fleet is stratified into fleet segments using MMO data[12] on capacity, effort and landings for each vessel. For the data in this publication, only Scottish registered vessels were included and other segment criteria were suppressed.
2. Financial accounts were collected for each fleet segment.
3. Costs and earnings data from vessel accounts were allocated to fleet segments.
4. The cost structure of all vessels in each fleet segment is estimated by:
    a) sum the individual cost and earnings items from vessel accounts within each segment sample.
    b) calculate the proportion of the costs as % of fishing income e.g. sum of gear cost is 10% of sum of fishing income, sum of commission is 3% of sum of fishing income etc.
    c) Fuel costs and crew costs are calculated differently from the other costs. For crew share, assign a minimum £100 per day, or the actual observed amount, whichever is the higher. For fuel costs, estimate fuel consumption in litres and combine with the average annual red diesel price (excluding duty).
    d) Following calculation of fuel cost and crew share, apply the proportions from the other costs to the official declared fishing income for each vessel to calculate Gross Value Added, operating profit and net profit for each vessel.

[12] MMO collate the UK data returns on fishing. Scottish data is provided to MMO and the Scottish Sea Fisheries Statistics are extracted from the MMO database.

5. UK fleet totals and fleet segment totals and averages are then calculated from the estimates produced for each vessel.

Where there are low sample sizes for a particular segment in a particular year previous years' estimates are taken into consideration.

16.6 Aquaculture methodology

16.6.1 Source data

The quantity and value of fin and shell fish produced on Scottish aquaculture sites is sourced from the **Marine Scotland Aquaculture Surveys**. The aquaculture surveys are census surveys, receiving a response from every active fish farm in Scotland.

The financial data is drawn from EU Data Collection Framework (DCF) data. The DCF sets out broad requirements for collecting social, economic and environmental data on aquaculture for the UK. The MMO acts as national correspondent for the data, and CEFAS collects the financial data for the UK. It is the CEFAS DCF survey data that provided the source financial data for estimating the aquaculture GVA for Scotland.

The sample numbers of DCF aquaculture data are not large. The table below shows sample sizes for Scotland over three years of DCF surveys as collected by CEFAS.

Scotland

	Species	Count of samples
2013	Mussels	12
	Salmon	14
	Trout	3
	Total samples	29
2014	Mussels	9
	Salmon	16
	Trout	4
	Total samples	29
2015	Mussels	5
	Salmon	8
	Trout	6
	Total samples	19
2016	Mussels	5
	Salmon	8
	Trout	5
	Total samples	18

16.6.2 Calculating GVA using DCF sample data and Marine Scotland survey data

1. The DCF sample data contains financial returns for UK aquaculture businesses, by year and by species type. For this analysis, DCF data for Scottish production of salmon, trout, and mussels is used to represent the aquaculture categories, salmon, other finfish, shellfish. See below.

DCF survey		MS survey
Mussels	=	Shellfish
Salmon	=	Salmon
Trout	=	Trout and all finfish except salmon

2. Because the aquaculture survey is a census survey, the total production value can be assumed to estimate the value for Scotland. The DCF sample is scaled to Scotland level using the ratio of the DCF sample income to the Marine Scotland Aquaculture sample. i.e.

$$\textbf{Sample weighting} = \frac{MS\ Survey\ income}{CEFAS\ sample\ income}$$

3. Multiply the DCF financial sample values by the sample weighting to estimate the values for Scotland.

4. For each species type, calculate, at the Scotland level, total outputs and total inputs.

$$\boldsymbol{Total\ output} = Production\ Income\ (£) + Non\ Aquaculture\ Income\ (Subsidies)$$

and

$$\begin{aligned}\boldsymbol{Total\ inputs} = {} & Livestock\ purchased\ (value) + Feed\ purchased\ (value) \\ & + Energy\ Costs + Repair\ and\ Maintenance\ Costs \\ & + Other\ Operating\ Costs + Net\ Extraordinary\ Costs\end{aligned}$$

Then

$$\boldsymbol{GVA = Total\ output - Total\ input}$$

5. Calculate the GVA to income ratio by

$$\text{GVA to income ratio} = \frac{\text{GVA}}{\text{Total output}}$$

This GVA to income ratio can be used to estimate annual GVA where the output (value of the production in £) is known, e.g. for regional estimates. DCF data is available for 2013 to 2016 i.e. four years of data. A ratio is calculated for each of these years. To produce a longer time series, incorporating figures for before 2013, a mean GVA to income ratio was calculated and used to estimate the GVA from the known aquaculture turnover. This is noted in the tables.

Table 33 : GVA Ratios for aquaculture production

	GVA	GVA to income ratio	Mean ratio
Mussels			
2013	5,848,739	0.50	
2014	6,560,362	0.50	
2015	7,243,233	0.59	
2016	8,581,333	0.54	**0.54**
Salmon			
2013	205,064,024	0.30	
2014	241,307,702	0.33	
2015	98,314,541	0.15	
2016	207,665,156	0.27	**0.27**
Trout			
2013	1,035,105	0.08	
2014	1,200,294	0.08	
2015	3,842,184	0.15	
2016	2,081,832	0.10	**0.11**

16.6.3 Comparisons with other data

SABS produces estimates for aquaculture GVA, turnover and employment. These have not been used because the aquaculture survey statistics are more complete than the ABS surveys. However, estimates for 2015 showed a considerable variance between SABS and estimates based on aquaculture data. This has been explored and the estimates in this publication seem to more accurately reflect the situation. In 2015, production was lower and costs higher due to biological problems such as sea lice and disease. This does not appear to have affected SABS survey estimates.

As with fishing estimates, aquaculture economic data has previously been reported in the Marine Scotland Economic Topic Sheet. The aquaculture method previously used a **mean** GVA to turnover estimate based on five years of SABS ratios. With the more specific data used for the estimates in this publication, individual years are estimated for 2014 to 2016. While the large change in GVA in 2015 did trigger investigation into potential preference for using a mean ratio, in fact the individual annual figures are felt to better demonstrate the industry performance.

However, specific years' data was not available prior to 2013. To be able to estimate GVA for 2008 to 2012 a mean GVA : turnover ratio was calculated and applied to turnover in Table 24.

16.7 Oil & Gas

In this publication estimates for **support activities** related to oil and gas extraction are presented rather than the extraction itself. This retains consistency with National Accounts Statistics and ABS data where Oil & Gas *extraction* is normally allocated to a separate 'Extra Regio' category rather than allocated to a region within the UK.

ABS data relating to Oil & Gas extraction (SIC 6) is allocated to UK regions (including Scotland) according to the address at which the business is registered - onshore and offshore Oil & Gas extraction and activities are allocated in this way. GVA associated with off-shore activity, under UK regional accounts procedures, is normally allocated to a separate 'Extra Regio' category rather than allocated to a region within the UK.

The codes used to produce figures related to oil and gas production have changed from 2008 to 2016.

From 2008 to 2010, data was provided for *SIC 09 Mining support service activities*. This included both *SIC 09.1: Support activities for petroleum and natural gas extraction* and *SIC 09.9: Support activities for other mining and quarrying*. While 'other mining and quarrying' activities are not necessarily marine, they were included because publishing only SIC 09.1 at the Scotland level would have been disclosive.

Since 2011, only SIC 9.1 Support activities for petroleum and natural gas extraction have been included.

SIC 09.9 'other mining and quarrying' is a small component of SIC 09. It is less than 0.02% of the employment, GVA or turnover of SIC 09.1 'Oil and gas services' and so the series has been considered comparable and no break in the series is required. Footnotes to tables explain this and in the Oil and gas methodology section the differences are explored.

Table 34 below quantifies the difference between SIC 09.1 and SIC 09.9 to understand the impact of the change in categories. It is clear that SIC 09.9 is very small, and reported no employment in the SABS data presented, therefore having very little impact on the change in categories.

Table 34 : SIC Codes used for Support activities for Oil and Gas

SIC 2007/Description	Year	Employment 000's	Turnover £m	GVA - Basic Prices £m
09.1: Support activities for petroleum and natural gas extraction	2011	18.6	5,535.6	2,115.0
	2012	18.5	5,851.8	2,503.9
	2013	17.4	6,114.1	2,291.2
	2014	20	6,798.1	2,151.2
	2015	21.5	6,728.9	2,508.0
	2016	19.7	4,483.2	1,631.2
09.9: Support activities for other mining quarrying	2011	0	2.5	0.8
	2012	0	3.6	1.4
	2013	0	3.8	1.6
	2014	0	4.4	2.1
	2015	0	6.7	2.9
	2016	0	4.9	2.3
SIC 09.9 as a percentage of SIC 09.1	*2011*	*0.00%*	*0.05%*	*0.04%*
	2012	*0.00%*	*0.06%*	*0.06%*
	2013	*0.00%*	*0.06%*	*0.07%*
	2014	*0.00%*	*0.06%*	*0.10%*
	2015	*0.00%*	*0.10%*	*0.12%*
	2016	*0.00%*	*0.11%*	*0.14%*

Source: SABS

Prices presented as basic values – not adjusted for inflation.

16.8 Fish Processing

Seafish carries out annual financial surveys of UK fish processors and a census of all UK fish processing businesses around every two years.

Their **Seafood Processing Industry Report** presents an overview and analysis of the UK seafood processing industry.

While the Seafish report has the advantage of providing sector specific economic data and does provide information on sea fish processing only (SABS provides all fish processing), it has not been used in this publication because:

Seafish economic data is presented for 2010 to 2014.

- Employment is collected in alternate years, 2010 to 2016
- Published employment data is provided as FTE for Scotland, i.e. inconsistent with the headcount figures used in the rest of this publication.

16.9 Water Transport Geographic Distribution Methodology

SABS provides an estimate of the GVA for Scotland for both freight and passenger water transport. These estimates were used as the sole source for economic reporting in this publication.

For the freight transport, DfT statistics provide a tables of tonnages of all freight traffic through UK major and minor ports. Using GIS, the Scottish ports were allocated to both Scottish Marine Regions (SMR) and Local Authorities which allowed an analysis of the geographical distribution of tonnage of freight. The total GVA for Scotland was apportioned according to SMRs by these percentages.

Passenger transport was not presented by specific ports and so no geographical breakdown was made.

16.10 Marine Tourism Methodology

Marine tourism and recreation has been defined as including "activities which involve travel away from one's "habitual" place of residence, which have as their host or focus the marine environment and/or the coastal zone". This is the definition used in the 2015 *Scottish Marine Recreation and Tourism Survey*.

In this Marine Economic Statistics report, the estimates extract tourism that was identified as 'marine related' from all tourism figures as presented in the Scottish Annual Business Statistics data. The approach taken treats all tourism businesses located in postcodes within 100 metres of the coastline as engaging in marine tourism and recreation, or dependent on the marine environment. This is the method that was used to produce the first estimates of Scottish marine tourism in the economic topic sheet released in 2017.

The list of SABS codes for relevant tourism and recreation business activities is provided in Annex A. It assumes that marine tourism and recreation businesses are located along the coast, and therefore may exclude relevant activities of tourism and recreation businesses that are located within postcodes that are more than 100 metres from the coastline. This approach also excludes loch, river, canal and other inland forms of water tourism, as these are not considered marine.

The 100 metre threshold was selected to minimise chances of including in the estimates activities of non-marine tourism and recreation businesses that are located along the coast, especially in urban coastal areas such as Aberdeen and Edinburgh.

A similar approach to estimating the economic contribution of marine tourism and recreation has been used by other EU member states such as Portugal and the Netherlands. The estimates in this report are therefore comparable with those produced by other countries. In addition, this methodology has been discussed with economists at the Oslo-Paris (OSPAR) Commission Socio-economic Working Group, and there is general agreement across member states on the principles of the approach.

In generating a geographic breakdown of the marine tourism sector, presenting the outputs by local authority was partially disclosive and Scottish Marine Regions (SMR) were selected as the lowest non-disclosive geography that could be used. While SMRs are developed strictly for information related to areas of sea within 12 nm of the coast, they were used in conjunction with the methodology described above to present both marine and land based tourism related to the sea.

This publication is available at **www.gov.scot**

Any enquiries regarding this publication should be sent to us at
The Scottish Government
St Andrew's House
Edinburgh
EH1 3DG

ISBN: 978-1-78781-290-1 (web only)

Published by The Scottish Government, October 2018

Produced for The Scottish Government by APS Group Scotland, 21 Tennant Street, Edinburgh EH6 5NA
PPDAS470986 (10/18)