The Economic Impact of the Seafood Sector: Union Hall

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Foreword

The Economic Impact of the Seafood Sector: Union Hall

In 2019, BIM completed the project to evaluate Ireland's top ten seafood ports and assess the importance of the seafood sector directly and downstream in these ports, their hinterlands and at the regional and national levels. The seafood sector is a primary driver of rural economies around the coastline of Ireland and acts as an anchor in these locations around which other supporting service sectors develop. This report reveals the results of this project for the port of Union Hall and its hinterland. Union Hall is an important seafood port in Ireland with significant volumes of Dublin Bay prawns and whitefish landed here annually with a significant processing industry in the locality.

Union Hall is located in the south-west of Ireland in West Cork. The region is characterised as flat to undulating lowlands with agricultural land that is classified as good. The scenic location and availability of marine activities in the Union Hall hinterland attracts tourists to the area. Connectivity of the port is good and bad as it is less than 10km from Skibbereen, however, the connection from the port to the main national road connecting it to Skibbereen and Cork, is a local road in poor condition. The national road connects the port with Cork city (79km), Rosslare (268km) and Dublin city (330km with motorway from Cork city). The seafood sector in Union Hall is an important driver of the local economy after the tourism and professional services sectors.

In this report, it is shown that the seafood sector has significant multiplier effects in terms of gross value added, employment and wages downstream in the economy. In total, 17% of the Union Hall hinterland economy can be attributed to the seafood sector encompassing direct, indirect and induced effects. Direct employment of the seafood economy in the region is 340 with a further 160 full-time employees generated downstream. The sector generates €8 million in wages and salaries directly with a further €5.5 million generated indirectly and through induced effects of the seafood sector at the regional level. Further downstream effects occur outside the region at the national level.

Participation in this survey by seafood producers in Union Hall was above average for the project with 55% of the target audience responding. Special thanks are owed to all participants in the survey and to Bill Deasy (Fisherman) for his assistance in delivering this high level of participation. Richard Curtin, Economic and Strategic Services Unit, BIM, would also like to recognise the excellent work carried out by Oxford Economics and Perceptive Insight in the course of this project.

Executive summary

The seafood sector at the port

The seafood sector makes an important contribution to the Union Hall economy. In 2018, we estimate that the sector directly generated €77 million in turnover, supporting 340 direct jobs. Fish processing is the largest of the three seafood sub-sectors, generating an estimated €61 million in turnover, followed by commercial fishing (€14.6 million) and aquaculture (€1.7 million). When translated into GVA, the seafood sector directly contributes an estimated €29 million to the local port economy.[1]

Our survey explores the characteristics of businesses operating in this sector. In general, they are typically well-established, having operated for more than 10 years, and turnover tends to be relatively stable year-on-year. Seafood operators at Union Hall typically invest less in capital relative to the other ports included in the study and their workforce tends to originate from the local area. Furthermore, over two-fifths of the local seafood produce is exported, with the EU being a dominant destination.

Analysing the survey results allows us to quantify the port seafood sector's value within the regional economy. Once the indirect and induced effects are calculated, we estimate that the total economic contribution of the seafood sector at Union Hall equated to €41.4 million of GVA across the south-west economy in 2018. The port's seafood sector supported an estimated 500 jobs across the region and generated €3.6 million in tax revenues.

€29m

Direct GVA in 2018

The seafood sector makes a significant contribution within the local port economy.

€41m

Total GVA contribution to the South-West economy in 2018

The seafood sector makes any even larger contribution to the wider regional economy.

Fig. 1. The estimated benefits of the port seafood sector, South-West

Ports seafood sector	South-West		
	GVA (€m)	Employment	Wages (€m)
Direct	29.3	340	8.0
Indirect	8.3	110	3.7
Induced	3.9	50	1.8
Total	**41.4**	**500**	**13.5**

Source: *Oxford Economics, Perceptive Insight, CSO*
Note: *May not sum due to rounding*

1 Gross Value Added (GVA) is the difference between the value of goods and services produced by a business or a sector, and the cost of raw materials and other inputs which are used in production. It is essentially a measure of the value added to the services or products provided by a sector or firm.

The role of the individual seafood sub-sectors

Our analysis of the seafood sector at the port produces the following headline findings throughout the region (which again will include the combined direct, indirect and induced impacts).[2]

- Activity in the commercial fishing sub-sector has been estimated to sustain 175 jobs, €5.1 million of wages and €13 million of GVA;
- Activity in the aquaculture sub-sector has been estimated to sustain 40 jobs, €0.5 million of wages and €1.5 million of GVA;
- The fish processing sub-sector has been estimated to sustain 305 jobs, €8.7 million of wages and €28.8 million of GVA.

Socio-economic characteristics

Sectors which are closely aligned with the seafood sector are important employers within the Union Hall economy, especially the agriculture, forestry & fishing sector, which accounts for almost 16% of workplace employment. Commuting data suggests that local employment opportunities could be more limited across the remaining industry sectors. A slightly older skewing and slower growing population suggests that opportunities for new job creation are unlikely to emerge in the short term.

Furthermore, the educational profile within the area appears better matched with primary occupations, and less so with professional services which are currently relatively small locally in employment terms in any case.

As a result, the seafood sector is likely to play a significant role in the local port economy through its provision of direct jobs, supply chain spending in local businesses and the consumer spending it supports. Looking forward, a vibrant and growing local seafood sector will be important for the economic and demographic health of the local area.

2 Summing the benefits of all three elements within our definition of the seafood sector (fishing, aquaculture and processing) will overestimate the indirect and induced impacts, and as a result, overall impacts. This is because the supply chain of the processing sub-sector will likely contain a proportion of the port's fishing sub-sector and its supply chain. To get the direct totals (for employment, GVA and wages), we add all the three sub-sectors. However, for the indirect and induced totals, we sum those of the processing sub-sector with a proportionate share of the fishing and aquaculture (according to the proportion of sales not destined for local processors and informed by the interview process). The remainder of the fishing and aquaculture indirect and induced impacts will already be accounted for within that of the processors.

1. Introduction

1.1 About the study

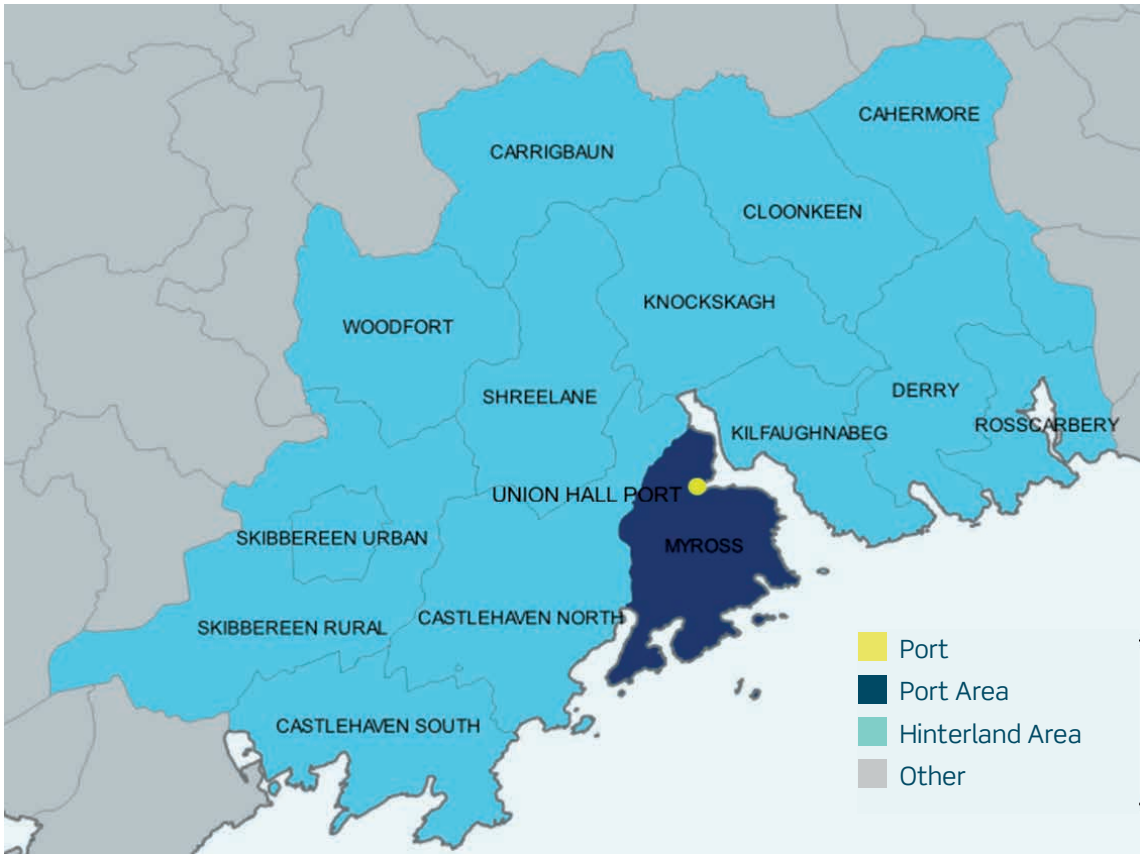
The Irish seafood sector is an important component of the Irish economy. It is, however, more important to coastal communities around the country given its concentration at Ireland's ports and the relatively lower level of alternative economic activity in these economies. In addition, as economic and employment growth is increasingly driven by office-based activity which favours urban areas, the seafood sector's role in providing labour market opportunities, wages and local demand in these local areas is arguably rising.

Against this backdrop, Bord Iascaigh Mhara (BIM) commissioned Oxford Economics and Perceptive Insight to estimate the economic contribution of the seafood sector in ten of Ireland's ports.

1.2 The port area

Union Hall is a small village with a significant seafood industry. Located on the Cork coast in the south-west of Ireland, it is close to the town of Castletownshend. In this report, we define the local port economy as the District Electoral Division (DED) of Myross and those surrounding it, which constitute its hinterland – informed by BIM and shown in the below figure.

Fig. 2. Map of port area



To inform the analysis, a comprehensive seafood-related survey exercise was carried out across Ireland's main ports. We worked closely with BIM in order to, firstly, understand the seafood population at each of the 10 ports. Following this, the market research firm Perceptive Insight collected information concerning the characteristics of the local seafood sector through both telephone and electronic surveys.

In total, there were close to 470 individual responses from seafood-related businesses across Ireland. Of this total, close to 330 unique responses were recorded from seafood operators based in the 10 port areas – a response rate of close to 40%, relative to the known seafood population. The study also draws on published data available to better understand the sectoral composition of coastal areas within the country. Peripheral economies tend to face significant challenges from which Union Hall is not exempt. **Appendix 1** of this report includes a summary discussion of the pertinent issues facing the local port economy.

1.3 The key elements of the local seafood sector

In this paper, we present our estimates of the size of the local seafood sector and how it impacts the regional economy. Our analysis, therefore, estimates the direct activity associated with the commercial fishing, aquaculture and fish processing sub-sectors at the port by drawing on the survey findings and information held by BIM. We then estimate their wider impacts within the local NUTS3 region. These wider impacts include those associated with the seafood sector's supply chain and the consumer spending of those employed as a result of the direct and indirect activity – see **Box 1** for more detail concerning our methodology.

Our analysis is also careful to identify where the three different seafood sub-sectors appear in the supply chains of the other sub-sectors. The most obvious example is commercial fishing appearing within the supply chain of fish processing. Our analysis has isolated the benefits to avoid instances of double counting (see **Appendix 2** for further information concerning the model approach).

BOX 1: INTRODUCING ECONOMIC IMPACT ANALYSIS

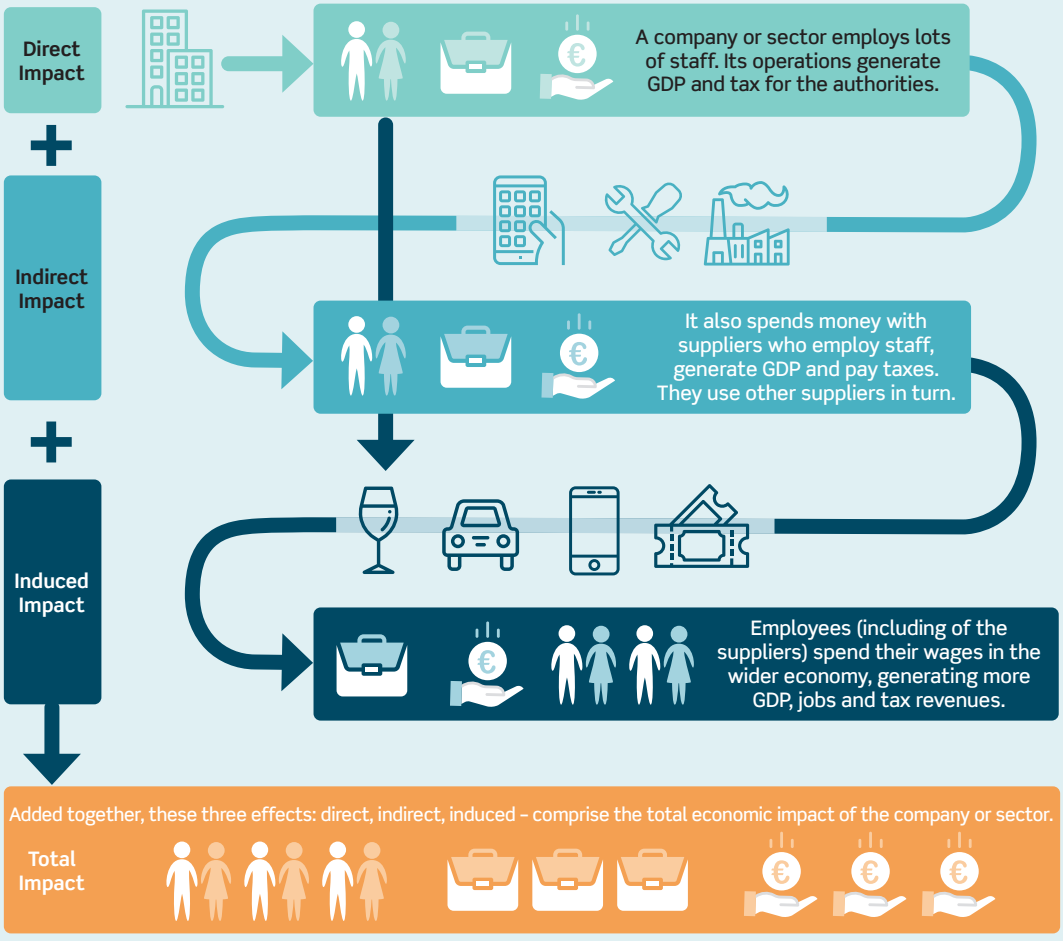
The economic impact of a sector is measured using a standard means of analysis called an economic impact assessment. The report quantifies the three 'core' channels of impact that comprise an organisation/sector's 'economic footprint':

- **Direct impact,** which is the economic activity the seafood sector generates because of its operations;
- **Indirect impact,** or supply chain impact, that occurs because the sector buys inputs of goods and services from Irish businesses; and the
- **Induced impact,** which relates to the wider economic benefits that arise when employees of the local seafood sector and its supply chain spend their wages in the consumer economy, for example, in local retail establishments.

We analyse these channels of impact using three core metrics:

- **Employment,** measured on a Full-Time Equivalent (FTE) headcount basis. This is comprised of both full-time employment and a proportion of part-time working component – where two part-time roles equate to a full-time position;
- **Gross value added** contribution to GDP; and
- **Tax receipts** generated by the Irish activity and employment supported by the seafood sector.

Fig. 3: Economic impact assessment



1.4 Report structure

This report breaks down the characteristics of the collective seafood sector within the port area. It then goes on to show the economic impact this activity creates across the south-west economy.

The report takes the following structure:

- An analysis of the seafood sector within the local port economy;
- A breakdown of the economic benefits associated with the port's seafood sector across the regional economy;
- A summary of the overall benefit associated with the port's seafood sector at the regional level; and
- Finally, we present the report's conclusions.

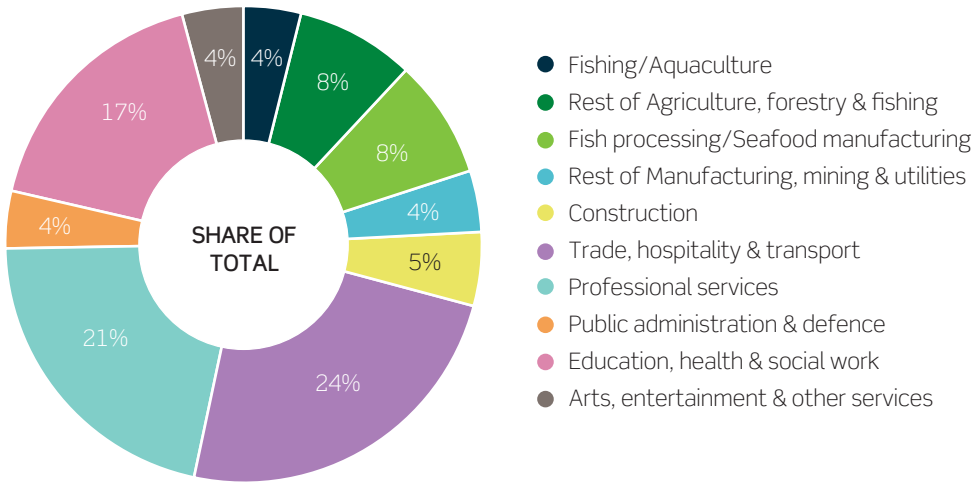
2. The seafood sector at the port

2.1 The importance of the local seafood sector

Before we present the total benefits associated with the port's seafood sector, it is important to first understand the size and characteristics of the sector at the port level – the **direct** activity.

Unsurprisingly, the seafood sector forms a significant component of Union Hall's economy. The latest Census (2016) provided workplace employment data at a sectoral level for small area District Electoral Divisions (DEDs) across Ireland. By combining this employment data with our regional productivity estimates we can quantify the economic footprint of the port economy. We therefore estimate that Union Hall's economy made a GVA contribution to GDP of €248 million in 2018.[3] We estimate that the seafood sector within the port represented €29.3 million of this GVA total. Seafood, therefore, represented 12% of the port economy. The most dominant sector locally was the 'trade, hospitality & transport' sector which represented 24% of the local economy.

Fig. 4. GVA by sector, Union Hall, 2018

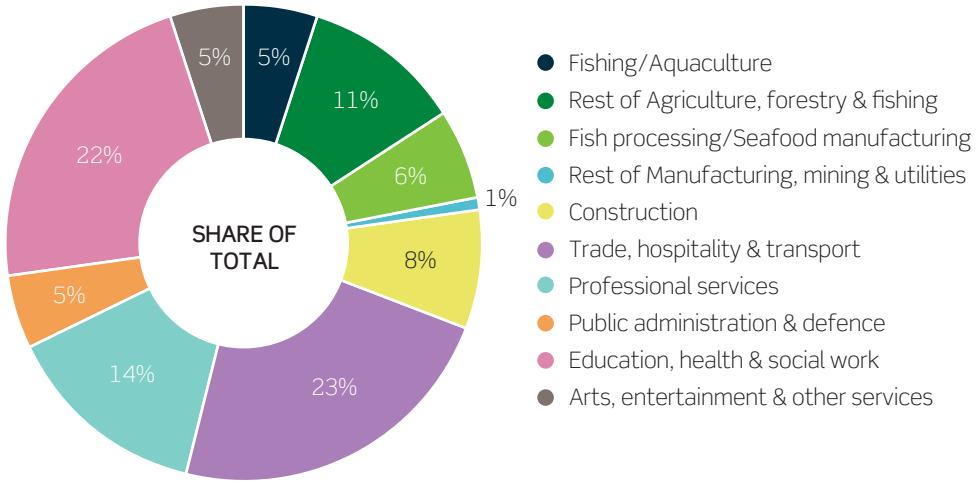


Source: *Oxford Economics, Perceptive Insight, CSO*

In employment terms, seafood is equally important within the port economy. Combined commercial fishing, aquaculture and fish processing is estimated to represent over a tenth of workplace employment across the port area in 2018. Furthermore, fishing and aquaculture represented 30% of local Agriculture, forestry & fishing related employment and fish processing accounted for just over 80% of local Manufacturing, mining & utilities jobs.

3 When estimating the size of the port economies we use the most recent workplace sectoral employment data from the 2016 Census. This employment data relates to workplace zones, which are slightly smaller than DEDs. The workplace zones are therefore mapped across to closely represent the DEDs which cover to the port areas. We then supplement this data with the current snapshot of the local seafood sector as estimated through the survey exercise. Finally, we subtract the commercial fishing and aquaculture activity from the broader 'Agriculture, forestry & fishing' sector to get an indication of its prominence locally. A similar approach is adopted with fish processing in relation to the 'Manufacturing, mining & utilities' sector.

Fig. 5. Employment by sector, Union Hall, 2018



Source: *Oxford Economics, Perceptive Insight, CSO*

2.2 Characteristics of the seafood sector

Within the local seafood industry, fish processing is the largest direct contributor to the local port economy. In 2018 this sector generated €20 million in value added to the local economy, significantly higher than commercial fishing (€8.2 million) or aquaculture (€1 million).

Additionally, fish processing was the main supporter of jobs, with 180 FTE jobs in 2018. These were spread across seven processing companies, compared to the 46 commercial fishing outfits. This highlights the scale of employment available in the processing industry compared to smaller scale employment with individual commercial fishing operators. Commercial fishing supported 125 jobs, with annual turnover of €14.6 million in 2018 and paying out €3.2 million in wages to employees. The wage bill was greatly dissimilar within the local processing industry where turnover was much higher at €60.7 million. Although aquaculture activities formed a relatively small percentage of the overall seafood sector in turnover terms, it still directly maintained 35 jobs within the local economy.

Fig. 6. Headline direct economic contribution of the seafood sector, Union Hall, 2018

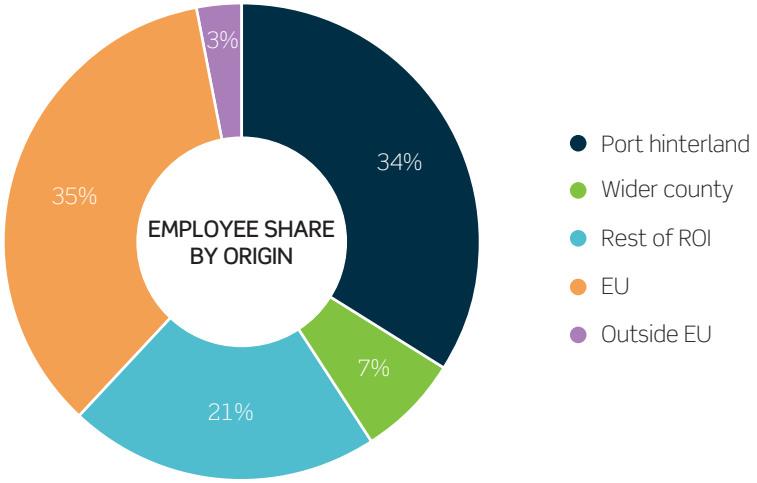
	Turnover (€m)	Jobs	Wages (€m)	Seafood operators
Commercial fishing	14.6	125	3.2	46
Aquaculture	1.7	35	0.3	13
Fish processing	60.7	180	4.5	7
Total	**77.0**	**340**	**8.0**	**66**

Source: *Oxford Economics, Perceptive Insight, BIM*
Note: *May not sum due to rounding*

From our survey of local businesses, we have gained additional insight into the composition and profile of local seafood operators. Drilling down into the Union Hall results some clear findings and implications emerge.

Seeking to better understand the role of Union Hall in the context of regional, national and wider economies our survey examined the employment supported by the seafood sector. Looking at where employees originate from, we found that just over a third of jobs (34%) are taken by those originating in the port area and its hinterland. This reinforces the importance of the fisheries industry for local people and also indicates employment opportunities in Union Hall attract people from across the local port economy. Interestingly, roughly the same proportion (35%) of jobs are taken by migrants from the EU, whilst the share of jobs taken by those from other parts of Ireland is 21%. In comparison, the survey suggests that only a small proportion of the seafood workforce, originate from outside the EU.

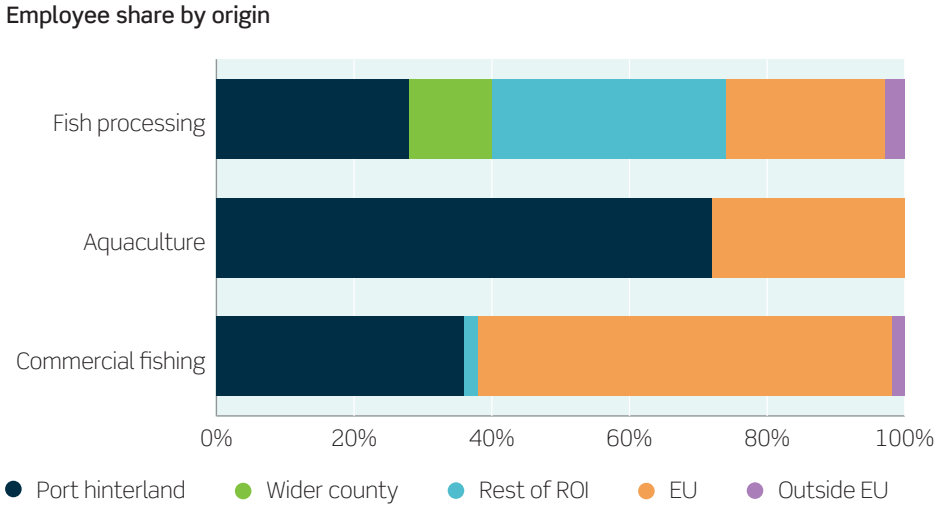
Fig. 7. Workforce origin, Union Hall, 2018



Source: *Oxford Economics, Perceptive Insight*

Employment of those originating from the local port area was highest for aquaculture (72%) but made up less than a third of fish processing employment, at just 28%. The processing plants appear to draw in workers from both other parts of the country and abroad, with 34% of the workforce originating in Ireland but beyond county Cork. Commercial fishing had the highest proportion of EU workers, with 61% of employees, the highest of any port in the study.

Fig. 8. Workforce origin by sub-sector, Union Hall, 2018

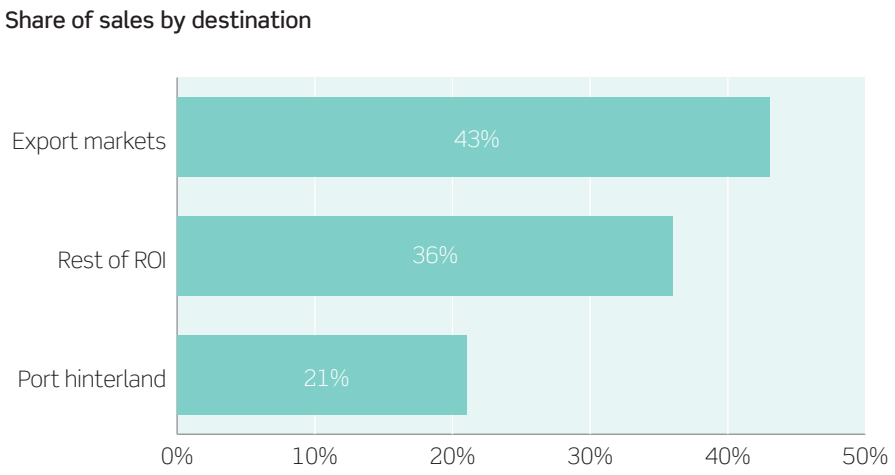


Source: *Oxford Economics, Perceptive Insight*

Of those employed in the Union Hall seafood industry, 43% lived in the hinterland area, almost half the rate of all ports (80%). 36% of workers commute from outside the county to work at Union Hall, by far the highest rate of the ten ports, and indicating a bias towards commuting from outside the local area. Additionally, 11% of the seafood workforce report as living elsewhere in the EU. All of these respondents worked in the commercial fishing sector and reflects an international dimension to the fleet operating from Union Hall.

Whilst the hinterland remains the key location for the workforce the survey also explored the key markets for sale of goods. Sales to the immediate hinterland made up just 21% of total Union Hall sales; the lowest share of sales going to the local area of any port in our study. Whilst the rest of Ireland took 36% of sales, the largest share was the export market at 43%. This is in line with the ten-port average.

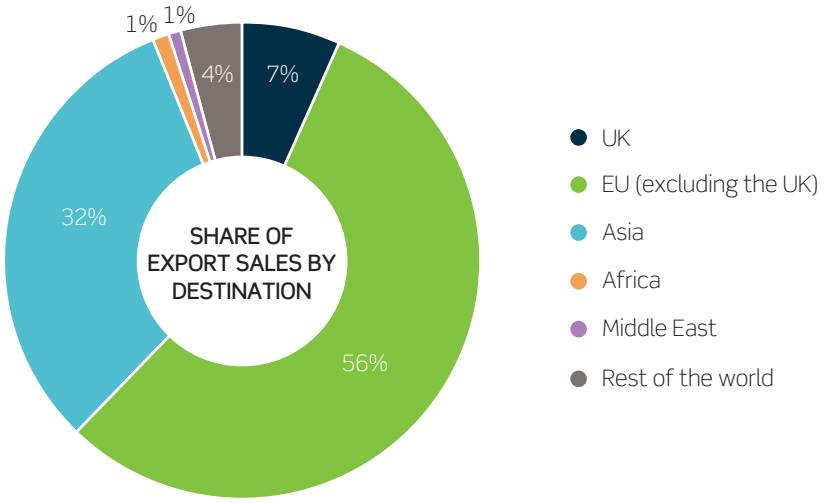
Fig. 9. Seafood sales by destination, Union Hall, 2018



Source: *Oxford Economics, Perceptive Insight*

The export market is largest for fish processing at 63% but also contributes 43% of aquaculture sales in 2018. By far the largest destination for exports was the rest of European Union with 63% of exports being sold here (7% to the UK and 56% to the rest of the EU). However, the far east also forms an important market for Union Hall with 32% of export sales travelling to Asia.

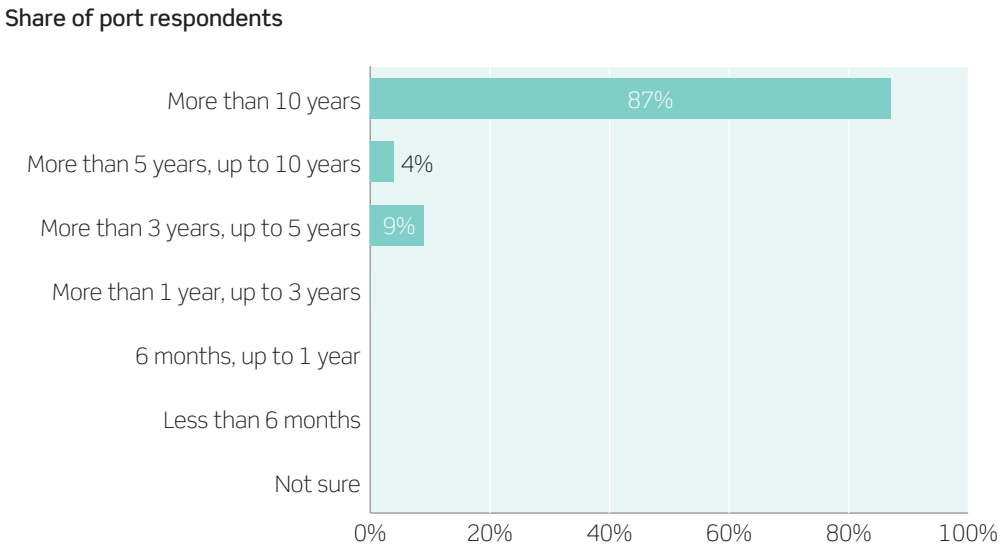
Fig. 10. Export sales by destination, Union Hall, 2018



Source: *Oxford Economics, Perceptive Insight*

As well as looking at the current state of the seafood industry our survey looked to understand the profile of businesses that operated from the port. Business longevity is high in Union Hall with 87% of survey respondents reporting that their business has been operating for ten years or more, the remaining 13% had all been established for at least three years. This sits in line with the average across all ports in the study (89% ten years or more), reflecting the maturity and heritage of the seafood industry at Union Hall. Whilst the survey samples for Union Hall are small at the sectoral level, the results show that the maturity level is broadly the same across commercial fishing, processing and aquaculture industries.

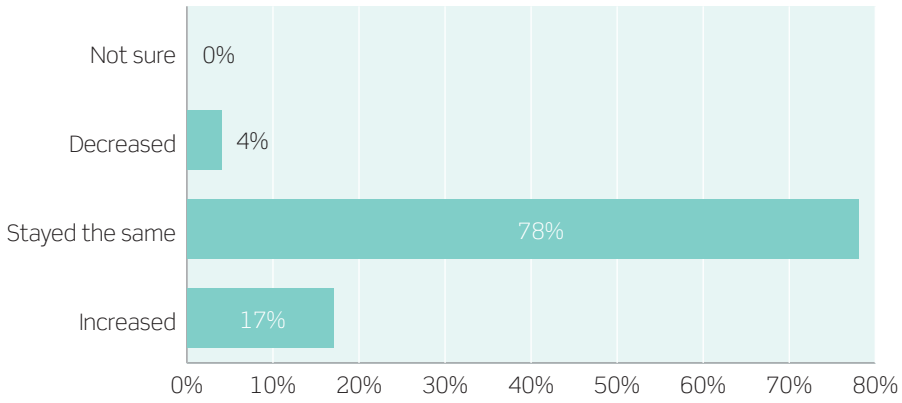
Fig. 11. Seafood sector maturity, Union Hall, 2018



Source: *Oxford Economics, Perceptive Insight*

Looking at the performance of these operating firms our survey addressed turnover and investment in the seafood industry. Overall, the industry appears to be performing well at Union Hall; turnover was reported to have neither increased nor decreased over the last 12 months for 78% of respondents in 2018. Additionally, 17% reported increases in turnover over the previous year. This leaves just 4% reporting a decrease in their turnover, the lowest for any port in the study and 11 percentage points below the port average. The fish processing sector looked to perform particularly strongly, with two of three respondents reporting an increase in turnover. Though the sample size is small these results can be taken as indicative of sectoral performance.

Fig. 12. Turnover in the past 12 months, Union Hall, 2018

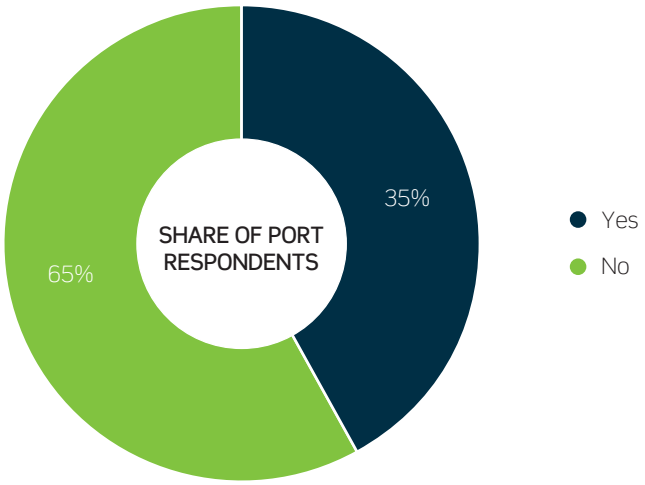


Source: *Oxford Economics, Perceptive Insight*

Looking forward we also asked respondents on their expectations for future turnover. The outlook in Union Hall is broadly in line with historic turnover. The vast majority (83%) of respondents expect turnover to stay the same over the next 12 months, whilst 9% percent believe it will grow, though, again, the sample sizes are small for these results. The consensus across the three seafood sub-sectors is that turnover will likely remain unchanged over the next year.

Improving turnover is often linked with investment: improving the quality and/or quantity of capital available to the workforce can enable improved productivity and therefore sales. On the one hand, the willingness of firms to engage in capital investment may signal a positive outlook for the future; on the other, it may reflect the deterioration of existing capital stocks. Our survey results suggest the latter predominates investment decision making. Despite only 9% of respondents expecting turnover to increase, 35% have already spent money on capital investment in the last financial year.

Fig. 13. Capital investment, Union Hall, 2018



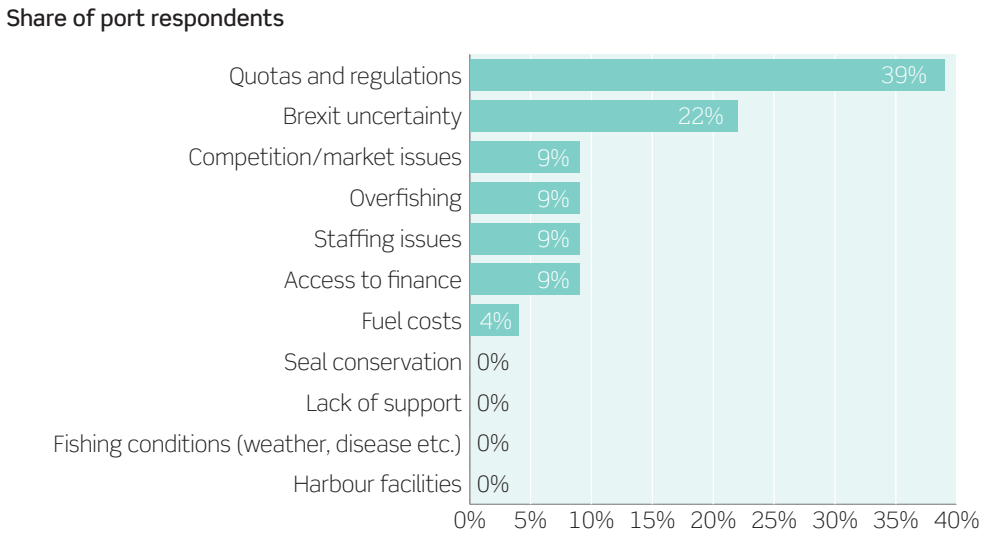
Source: *Oxford Economics, Perceptive Insight*

In all, 93% of this investment was spent within Ireland with nearly half of that (45%) spent in the local area. The 7% spent overseas was concentrated in the aquaculture sector. However, average annual investment in the Union Hall seafood sector sat at €38,000 over the previous 12 months; the lowest level of average investment of all ports.

To better understand the decision making behind these investment decisions our survey also explored the perceived constraints on growth within the seafood sector. The biggest cap on growth was reported as quotas and regulations (39% of respondents). This was reported as an issue by respondents from all three sub-sectors of the seafood industry. However, when asked whether an increase in quotas by 20% would lead operators to hire more staff over half of respondents (52%) said no, in line with the all ports average.

Uncertainty surrounding Brexit and its impact on trade was reported as the second biggest limitation on growth (22%). With 7% of export sales going to the UK and the importance of the UK as a land bridge to continental Europe this may not be a surprise.

Fig. 14. Main constraint on growth, Union Hall, 2018



Source: *Oxford Economics, Perceptive Insight*

2.3 Conclusion

Our survey of the local seafood industry has helped to identify some of the key characteristics of the port's seafood environment. The sector is well established at Union Hall, with the majority of firms operating for at least ten years. On the back of this, turnover appears to be stable or growing for most. Though average capital investment levels are lower here than for other ports, annual capital outlays still averaged €95,000 in the fish processing sector in 2018.

The workforce tends to be quite diverse with roughly a third coming from the EU alongside another third from the port hinterland. Meanwhile 43% of sales are sold abroad; primary export markets are Europe and Asia.

3. The impact of seafood's sub-sectors

In this section, we estimate the wider economic footprint of Union Hall's seafood sector on the regional economy.

3.1 Commercial fishing

The commercial fishing sub-sector at Union Hall generated €13 million of GVA across the south-west economy in 2018. Almost a third of this GVA total (€4.8 million) was separate from the direct commercial fishing activity taking place at the port; €3.1 million of which was associated with economic activity supported throughout its regional supply chain and a further €1.7 million was derived from the wider consumer spending the direct activity supports.

Commercial fishing directly supported an estimated 125 jobs, alongside €3.2 million of associated wages. However, this rises to nearly 175 jobs and €5.1 million of wages when we account for the indirect and induced activity it supports in the wider regional economy. The indirect and induced effects tend to occur in relatively higher value-added sectors, generating more GVA per worker on average than the direct activities at the port. This sub-sector enjoys a GVA multiplier of 1.6, the strongest of the three seafood sub-sectors, meaning that every €1 of direct value added generates an additional €0.60 elsewhere within the regional economy.

Fig. 15. Benefits of the commercial fishing sub-sector, South-West, 2018

Port commercial fishing	South-West		
	GVA (€m)	Employment	Wages (€m)
Direct	8.2	125	3.2
Indirect	3.1	30	1.1
Induced	1.7	20	0.8
Total	**13.0**	**175**	**5.1**

Source: *Oxford Economics, Perceptive Insight, CSO*
Note: *May not sum due to rounding*

The Agriculture, forestry & fishing sector enjoys the largest share of commercial fishing's total GVA benefits. Port based fishing generated €8.5 million of value added within this sector alone (or two-thirds of the total throughout the south-west). However, the sector enjoys relatively little of the multiplier impacts, given that the direct fishing activity is responsible for €8.2 million (97%) of the sector total. Likewise, this sector receives the majority of the employment impacts, supporting over 130 jobs through the region, or three-quarters of the overall total. However, the sector is estimated to only account for 65% of the total wages benefits – a consequence of relatively lower average wages in comparison to the jobs sustained throughout the wider supply chain.

The Wholesale & retail sector enjoyed the next largest benefit from commercial fishing, representing €1.7 million in GVA and 20 jobs. These impacts are the result of fishing's wider procurement spend and the consumer spending it supports. Manufacturing and real estate also experience GVA benefits of €0.8 million and €0.5 million respectively.

Fig. 16. Total benefits by sector, South-West, 2018

Ports commercial fishing	South-West		
	GVA (€m)	Employment	Wages (€m)
Agriculture, forestry & fishing	8.5	130	3.3
Mining & quarrying	0.0	0	0.0
Manufacturing	0.8	<5	0.1
Electricity, gas, steam	0.1	0	0.0
Water supply	0.0	0	0.0
Construction	0.0	0	0.0
Wholesale & retail	1.7	20	0.8
Transportation & storage	0.3	5	0.1
Accommodation & food	0.2	5	0.1
Information & communications	0.0	0	0.0
Financial & insurance	0.2	<5	0.1
Real estate	0.5	5	0.2
Professional, scientific & technical	0.3	5	0.1
Administration & support	0.1	0	0.0
Public administration	0.0	0	0.0
Education	0.1	<5	0.1
Human health	0.1	<5	0.1
Arts, entertainment & recreation	0.0	<5	0.0
Other service activities	0.0	<5	0.0
Total	**13.0**	**175**	**5.1**

Source: *Oxford Economics, Perceptive Insight, CSO*
Note: *May not sum due to rounding*

3.2 Aquaculture

Union Hall's aquaculture sector is the smallest of the three seafood elements at the port. However, its activities still contributed a total of €1.5 million in GVA to the south-west economy in 2018. Over two-thirds of this total was directly supported by aquaculture producers within the port area, while a further €0.5 million was generated through the resulting direct and induced impacts. This direct activity was enough to sustain 40 jobs across the region, 35 of which were in aquaculture itself. These roles generated €0.5 million in wages. Whilst only a few additional jobs were created in the supply chain these tend to be in higher value-added sectors, thereby providing higher output and wages per worker relative to the direct activity.

Fig. 17. Benefits of the aquaculture sub-sector, South-West, 2018

Port aquaculture	South-West		
	GVA (€m)	Employment	Wages (€m)
Direct	1.1	35	0.3
Indirect	0.3	2	0.1
Induced	0.2	2	0.1
Total	**1.5**	**40**	**0.5**

Source: *Oxford Economics, Perceptive Insight, CSO*
Note: *May not sum due to rounding*

Similarly to commercial fishing, the majority of aquaculture impacts are seen in the agriculture, forestry & fishing sector. This sector accounts for close to 90% of the resulting employment impacts throughout the region, generating a wage contribution of €300,000 and supporting €1.1 million of GVA. Outside of this, the majority of the remaining benefits are found in the wholesale & retail sector, accounting for €0.13 million of the GVA benefits and supporting a couple of additional jobs throughout the region.

Fig. 18. Total benefits by sector, South-West, 2018

Ports aquaculture	South-West		
	GVA (€m)	Employment	Wages (€m)
Agriculture, forestry & fishing	1.1	35	0.3
Mining & quarrying	0.0	0	0.0
Manufacturing	0.1	0	0.0
Electricity, gas, steam	0.0	0	0.0
Water supply	0.0	0	0.0
Construction	0.0	0	0.0
Wholesale & retail	0.1	<5	0.1
Transportation & storage	0.0	0	0.0
Accommodation & food	0.0	0	0.0
Information & communications	0.0	0	0.0
Financial & insurance	0.0	0	0.0
Real estate	0.1	0	0.0
Professional, scientific & technical	0.0	0	0.0
Administration & support	0.0	0	0.0
Public administration	0.0	0	0.0
Education	0.0	0	0.0
Human health	0.0	0	0.0
Arts, entertainment & recreation	0.0	0	0.0
Other service activities	0.0	0	0.0
Total	**1.5**	**40**	**0.5**

Source: *Oxford Economics, Perceptive Insight, CSO*
Note: *May not sum due to rounding*

3.3 Fish processing

The fish processing sector was the largest of the seafood elements at the port, directly contributing €19.9 million of GVA within the south-west economy. This increased to €28.8 million when we included the additional activity it supports throughout its regional supply chain and via induced consumer spending. The sub-sector directly supported 180 jobs within the local port economy. However, this employment benefit increases to 305 jobs after we consider the multiplier effects across the wider region. We estimate this employment was enough to support €8.7 million in total earnings. Fish processing, therefore, recorded the strongest employment multiplier (1.7) of the three seafood sub-sectors present within the port economy. We estimate that every direct fish processing job supported 0.7 of an additional job elsewhere in the regional economy.

Fig. 19. Benefits of the fish processing sub-sector, South-West, 2018

Port fish processing	South-West		
	GVA (€m)	Employment	Wages (€m)
Direct	19.9	180	4.5
Indirect	6.2	90	2.9
Induced	2.7	35	1.3
Total	**28.8**	**305**	**8.7**

Source: *Oxford Economics, Perceptive Insight, CSO*
Note: *May not sum due to rounding*

Unlike the other seafood sub-sectors, the biggest sectoral winner associated with local fish processing is manufacturing. It benefited from €20.7 million in GVA, 185 jobs and €4.6 million in associated wages in 2018. The manufacturing sector accounts for a higher proportion of the total GVA impact in comparison to that of employment, reflecting relatively stronger productivity within the sector. However, the agriculture, forestry & fishing also enjoys a significant share of the overall benefits – mainly as a result of its prominent position within the supply chain. As a result, we estimate that this sector benefited to the tune of €3.4 million in GVA and 70 jobs. Wholesale & retail and real estate sectors are the next biggest winners from fish processing, with GVA of €1.1 million and €1 million respectively in 2018.

Fig. 20. Total benefits by sector, South-West, 2018

Port fish processing	South-West		
	GVA (€m)	Employment	Wages (€m)
Agriculture, forestry & fishing	3.4	70	2.0
Mining & quarrying	0.0	0	0.0
Manufacturing	20.7	185	4.6
Electricity, gas, steam	0.2	0	0.0
Water supply	0.0	0	0.0
Construction	0.0	<5	0.0
Wholesale & retail	1.1	15	0.5
Transportation & storage	0.8	10	0.4
Accommodation & food	0.3	10	0.2
Information & communications	0.1	0	0.0
Financial & insurance	0.2	<5	0.0
Real estate	1.0	5	0.3
Professional, scientific & technical	0.3	5	0.1
Administration & support	0.1	<5	0.0
Public administration	0.0	0	0.0
Education	0.2	5	0.1
Human health	0.2	5	0.2
Arts, entertainment & recreation	0.1	<5	0.0
Other service activities	0.1	<5	0.1
Total	**28.8**	**305**	**8.7**

Source: *Oxford Economics, Perceptive Insight, CSO*
Note: *May not sum due to rounding*

3.4 Conclusion

In conclusion, Union Hall's fish processing sector has the largest economic footprint of the three-seafood related sub-sectors. We estimate that it supported 305 jobs, €8.7 million in wages and over €28.8 million in GVA throughout the south-west economy in 2018.

4. Total impact of the seafood sector at Union Hall

4.1 Seafood sector activity at the port

This section takes the estimates presented in the preceding sections of the report and calculates the total economic impact resulting from the activities of the seafood sector within the port area.

However, simply summing the respective benefits of all three elements (commercial fishing, aquaculture and fish processing) will inevitably overestimate the indirect, induced and as a result, total impacts. This is because the supply chains of the fish processing element contain a proportion of the commercial fishing/aquaculture sub-sectors and their supply chains. Therefore, adding everything together would result in double-counting some of the impacts. See **Appendix 2** for further detail on our approach.

We have therefore laid out the following approach to calculate total impacts for GVA, employment, wages and tax:

Direct impacts

- Calculated by summing the direct impacts from the three elements of the seafood sector for GVA, employment, wages and tax.

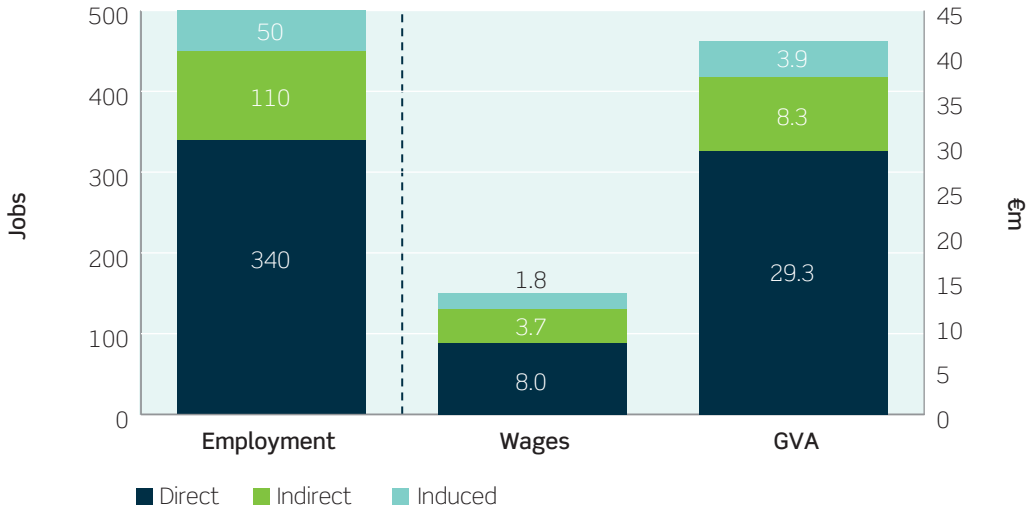
Indirect and induced impacts

- For GVA, employment, wages and taxes, the total indirect and induced impacts are calculated by summing the indirect and induced impacts of fish processing and a 88% and 60% share of the indirect and induced impacts from the respective aquaculture and commercial fishing sub-sectors (as information from the survey interviewees suggest that exports and domestic sales outside the port areas own processors account for 88% and 60% of the respective aquaculture and fishing production). The remainder of the commercial fishing/aquaculture sub-sectors' indirect and induced impacts will already be accounted for in the indirect and induced impacts from the fish processing sub-sector.

4.2 Regional estimates

Overall, we estimate that the Union Hall seafood industry generated €41.4 million in GVA for the south-west regional economy in 2018. This activity supported 500 jobs across a range of sectors and generated €13.5 million in wages for employees.

Fig. 21. Benefits of the seafood sector, South-West, 2018



Source: *Oxford Economics, Perceptive Insight, CSO*

Whilst the bulk of the local seafood sector's economic benefits resulted from the direct activities within the port area, 29% of the total GVA benefit was generated via indirect supply chain impacts or induced spending. Equally, the local seafood sector is estimated to support 500 jobs throughout the regional economy – with almost one-third of this total resulting from multiplier impacts. Union Hall's seafood sector is estimated to have an employment multiplier of 1.5, meaning every two direct jobs helps to support one additional job within the regional economy. We estimate this employment total was enough to sustain €13.5 million in earnings in 2018.

Fig. 22. Total seafood sector benefits, South-West, 2018

Port seafood sector	South-West		
	GVA (€m)	Employment	Wages (€m)
Direct	29.3	340	8.0
Indirect	8.3	110	3.7
Induced	3.9	50	1.8
Total	**41.4**	**500**	**13.5**

Source: *Oxford Economics, Perceptive Insight, CSO*
Note: *May not sum due to rounding*

In GVA terms, the manufacturing sector is the largest benefactor from Union Hall's seafood industry. It generates half of the resulting total GVA impacts (€21.3 million) and supports 185 FTE jobs, along with €4.6 million in wages. Together, manufacturing and agriculture, forestry & fishing account for over 80% of the total GVA benefits. However, although the latter is estimated to enjoy more of the employment benefits (230 jobs), its lower average productivity means it trails manufacturing in terms of overall GVA impact.

Wholesale & retail received the next largest impact, with supporting 30 jobs and €2.3 million in GVA (5% of total) contributed to the regional economy. The real estate sector also benefited from €1.3 million in GVA mainly due to the impact of spending on property via induced effects.

Fig. 23. Total benefits by sector, South-West, 2018

Port seafood sector	South-West		
	GVA (€m)	Employment	Wages (€m)
Agriculture, forestry & fishing	12.9	230	5.6
Mining & quarrying	0.0	0	0.0
Manufacturing	21.3	185	4.6
Electricity, gas, steam	0.2	0	0.0
Water supply	0.0	0	0.0
Construction	0.1	<5	0.0
Wholesale & retail	2.3	30	1.1
Transportation & storage	1.0	10	0.4
Accommodation & food	0.4	10	0.3
Information & communications	0.1	0	0.0
Financial & insurance	0.3	<5	0.1
Real estate	1.3	10	0.4
Professional, scientific & technical	0.6	5	0.2
Administration & support	0.2	<5	0.0
Public administration	0.1	<5	0.0
Education	0.2	5	0.2
Human health	0.3	5	0.2
Arts, entertainment & recreation	0.1	<5	0.1
Other service activities	0.1	5	0.1
Total	**41.4**	**500**	**13.5**

Source: *Oxford Economics, Perceptive Insight, CSO*
Note: *May not sum due to rounding*

4.3 Taxation estimates

Seafood activity at the port provides further benefits through the generation of tax revenues to the Revenue Commissioners. These fiscal impacts can again be split into their direct, indirect and induced components depending on what channel of activity they originate from. We estimate that port seafood sector's direct tax contribution equated to €3.3 million in 2018, consisting of both the labour-based tax paid by the sector's employees (income tax, PRSI etc) and corporation tax receipts.

The indirect fiscal benefits represent the same taxation components as above but are generated within the sector's wider supply chain, in addition to net taxes on input purchases and sectoral taxation on production less subsidies. Combined, these represent a net fiscal deficit of €2.8 million, mainly because of agriculture's prominence within the fish processing supply chain. However, the indirect deficit is compensated for by the consumption related tax the sector supports across the economy. As those employed in the sector and within its supply chain spend their wages, this supports further jobs and activity within the Irish economy. We estimate this induced activity supported a further €3.1 million in tax revenue.

Therefore, in total, Union Hall's seafood sector is estimated to have supported €3.6 million in fiscal benefits in 2018. This total was made up of €4.9 million in employment/labour related tax, €1.2 million in corporation tax, €2 million in taxation associated with the spending of wages, and a net tax deficit of €4.6 million through taxation on inputs and production.[4]

4 Net tax position refers to taxes less subsidies.

Fig. 24. Fiscal impacts by taxation type, Ireland, 2018

Port seafood sector	Total tax estimates (€m)				
	Labour tax	Corporation tax	Production tax	Input purchases tax	Tax on consumption
Agriculture, forestry & fishing	1.7	0.3	-6.3	0.7	0.0
Mining & quarrying	0.0	0.0	0.0	0.0	0.0
Manufacturing	2.0	0.5	0.0	0.0	1.6
Electricity, gas, steam	0.0	0.0	0.0	0.0	0.1
Water supply	0.0	0.0	0.0	0.0	0.0
Construction	0.0	0.0	0.0	0.0	0.0
Wholesale & retail	0.2	0.2	0.0	0.0	0.0
Transportation & storage	0.1	0.1	0.1	0.3	0.0
Accommodation & food	0.1	0.0	0.0	0.0	0.2
Information & communications	0.0	0.0	0.0	0.0	0.1
Financial & insurance	0.1	0.1	0.0	0.1	0.0
Real estate	0.2	0.0	0.1	0.1	0.0
Professional, scientific & technical	0.1	0.0	0.0	0.0	0.0
Administration & support	0.0	0.0	0.0	0.0	0.0
Public administration	0.0	0.0	0.0	0.0	0.0
Education	0.1	0.0	0.0	0.0	-0.1
Human health	0.1	0.0	0.0	0.0	-0.1
Arts, entertainment & recreation	0.0	0.0	0.0	0.0	0.0
Other service activities	0.0	0.0	0.0	0.0	0.0
Total	**4.9**	**1.2**	**-5.9**	**1.3**	**2.0**

Source: *Oxford Economics, Perceptive Insight, CSO*

4.4 Conclusion

In calculating the overall impact of the local seafood sector, we consider the degree to which output from aquaculture and commercial fishing can appear in the supply chain of local fish processors.

Therefore, our analysis shows the Union Hall's overall seafood sector supports 500 jobs and €41.4 million in GVA throughout the regional economy. Furthermore, the sector generates €3.6 million in tax revenues towards the public purse.

5. Conclusions

5.1 The seafood sector in Union Hall

The seafood sector makes an important contribution to the Union Hall economy. In 2018, the direct seafood sector at the port generated an estimated €77 million in turnover, supporting over 340 direct jobs and representing 12% of local port economy in GVA terms. Fish processing is the largest seafood related activity at the port, generating €61 million in turnover, followed by commercial fishing (€14.6 million) and aquaculture (€1.7 million). When translated into GVA, the seafood sector directly contributes €29.3 million to the local port economy.

Our survey of the local seafood industry also identified the key characteristics of the business environment. The sector is well established at Union Hall, with the majority of firms operating for at least ten years. On the back of this, turnover appears to be stable or growing for most. Though average capital investment levels are lower here than for other ports, annual capital outlays still averaged €95,000 in the fish processing sector in 2018.

The workforce tends to be quite diverse with roughly a third coming from the EU alongside another third from the port hinterland. Meanwhile 43% of sales are sold abroad; primary export markets are Europe and Asia.

5.2 The fish processing sub-sector is the main contributor

The fish processing sub-sector makes the strongest contribution to the south-west economy. In 2018, it alone generated €28.8 million of GVA, of which €8.8 million is linked to indirect (€6.2 million) and induced (€2.7 million) effects. The fish processing sector also enjoys the strongest employment multiplier of the three seafood sub-sectors, with every direct job supporting a further 0.7 of a job within the south-west region. The fish processing sub-sector is estimated to provide benefits of the following size:

- 180 direct jobs and €4.5 million of wages, producing €19.9 million of GVA;
- 90 indirect jobs and €2.9 million of wages, producing €6.2 million of GVA; and
- 35 induced jobs and €1.3 million of wages, producing €2.7 million of GVA.

5.3 Though the other components remain significant

Although the commercial fishing sub-sector's economic footprint is smaller than that of the fish processing sector, its economic multipliers remain significant. Accordingly, our analysis shows the economic impact of commercial fishing was of the following size in 2018:

- 125 direct jobs and €3.2 million of wages, producing €8.2 million of GVA;
- 30 indirect jobs and €1.1 million of wages, producing €3.1 million of GVA; and
- 20 induced jobs and €0.8 million of wages, producing €1.7 million of GVA.

Furthermore, our analysis shows that the economic impact of the port's aquaculture sector equates to the following benefits across the south-westWest economy:

- 35 direct jobs and €0.3 million of wages, producing €1.1 million of GVA;
- 2 indirect jobs and €0.1 million of wages, producing €0.3 million of GVA; and
- 2 induced jobs and €0.1 million of wages, producing €0.2 million of GVA.

Therefore, we estimate that the port's collective seafood sector supported 500 jobs, €13.5 million in wages and €41.4 million in GVA within the regional economy in 2018. This activity was enough to sustain €3.6 million in tax revenues towards the public accounts.

5.4 Seafood supporting peripheral economies

Sectors which are closely aligned with the seafood sector are important employers within the Union Hall economy, especially the agriculture, forestry & fishing sector, which accounts for almost 16% of workplace employment. Commuting data suggests that local employment opportunities could be more limited across the remaining industry sectors. A slightly older skewing and slower growing population suggests that opportunities for new job creation are unlikely to emerge in the short term.

Furthermore, the educational profile within the area appears better matched with primary occupations, and less so with professional services which are currently relatively small locally in employment terms.

As a result, the seafood sector is likely to play a significant role in the local port economy through its provision of direct jobs, supply chain spending in local businesses and the consumer spending it supports. Looking forward, a vibrant and growing local seafood sector will be important for the economic and demographic health of the local area.

Appendix 1: Union Hall's economic challenges

Economic activity and structure

The latest available data indicates that Union Hall's labour market performance has been relatively mixed. On one hand the local unemployment rate within the local port economy was relatively low at 7.2% in 2016.[5] This compares to unemployment rates in the south-west region and Ireland overall of 11.0% and 12.9% respectively in the same year. However, the resident employment rate of 51.3% was lower than both regional and national averages (see **Fig. 25**). Census data reveals that the economic inactivity rate[6] among those residents aged 15 and over stood at an above average 42.8%. Local inactivity was therefore higher than both the regional (40%) and the national (39%) averages and represents unused potential within the local economy.

Fig. 25. Headline economic indicator comparisons, 2016

	Unemployment rate	Employment rate	Economic inactivity
Union Hall	10.3%	51.3%	42.8%
South-West	11.0%	53.0%	40.4%
Ireland	**12.9%**	**53.3%**	**38.8%**

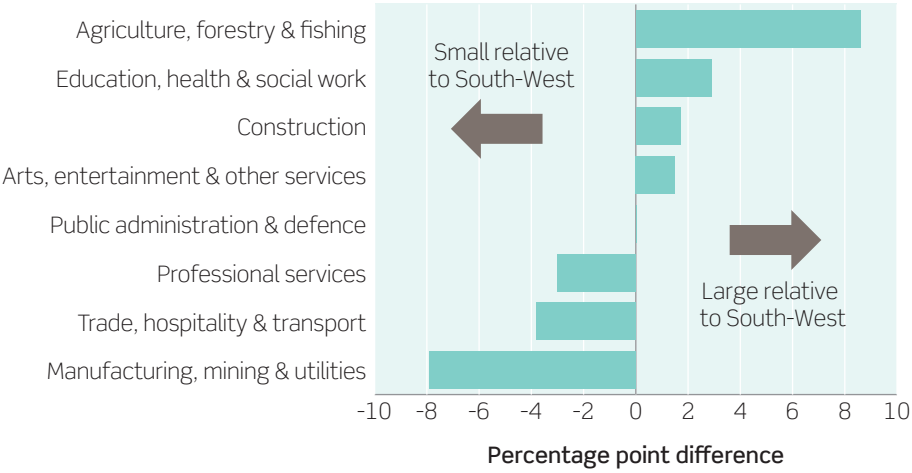
Source: *CSO*

The latest Census in 2016 showed there were 3,550 people employed within the port area and its hinterland. Meanwhile, there were close to 4,300 residents of the area employed in jobs based either in the local economy or elsewhere. The difference represents the scale of net out-commuting of local people out of the local area to take up employment opportunities elsewhere. Such net flows suggest the employment opportunities are more limited within the local economy.

A sectoral breakdown of workplace employment within the port area and its hinterland points to the significance of the local seafood sector. The data shows that workplace employment within the Agriculture, forestry & fishing sector accounted for 16% of the port area total – a share over twice the regional average (7.4%).[7] Likewise, the local economy has relatively little exposure to the faster growing sectors such as professional services. Employment in this sector represented only 13% of the local jobs, compared to 17% across the region.

5 Defined as a share of the labour force aged 15 years and over.
6 Economic inactivity represents the share of the population aged 15 and over who were neither employed nor looking for employment.
7 Commercial fishing and aquaculture fall within the 'Agriculture, forestry & fishing' sector. Fish processing related activity is classified within the industry grouping of 'Manufacturing, mining & utilities'.

Fig. 26. Employment share differences, Union Hall vs region, 2016



Source: *Oxford Economics, CSO*

Demographics

The port area and hinterland population grew by a relatively weak 2.5% in the five years between 2011 and 2016. Recent population growth has therefore been weaker than both the south-west (3.2%) and Ireland (3.8%) averages. However, growth in the working age population was weaker still, contracting by 0.4%, over the period. Linked to this, the overall share of residents aged 15 to 64 was relatively low at 60.6%, 4.9 pps below the national average.

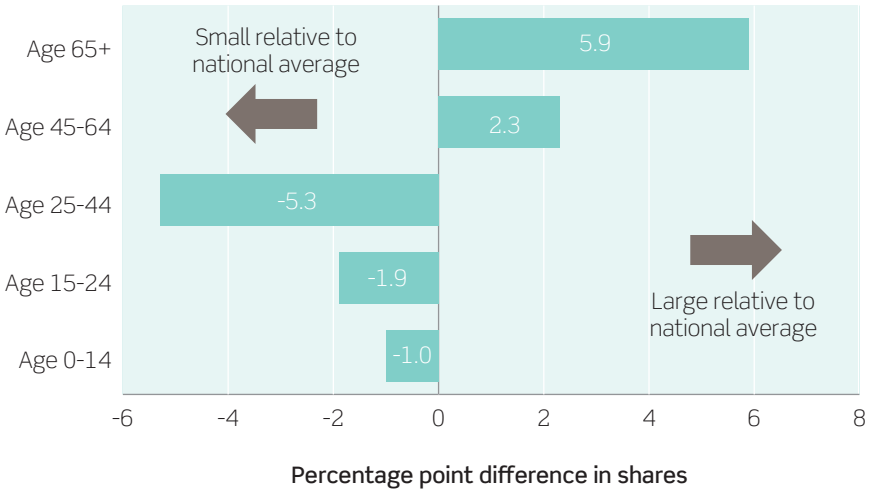
Fig. 27. Population indicators, 2016

	Growth (2011-16)		2016	
	Population	Working age	Population	Working age share
Union Hall	2.5%	-0.4%	10,500	60.6%
South-West	3.2%	0.5%	683,200	65.2%
Ireland	**3.8%**	**1.4%**	**4,761,900**	**65.5%**

Source: *CSO*
Note: *Working age is defined as those aged between 15 and 64*

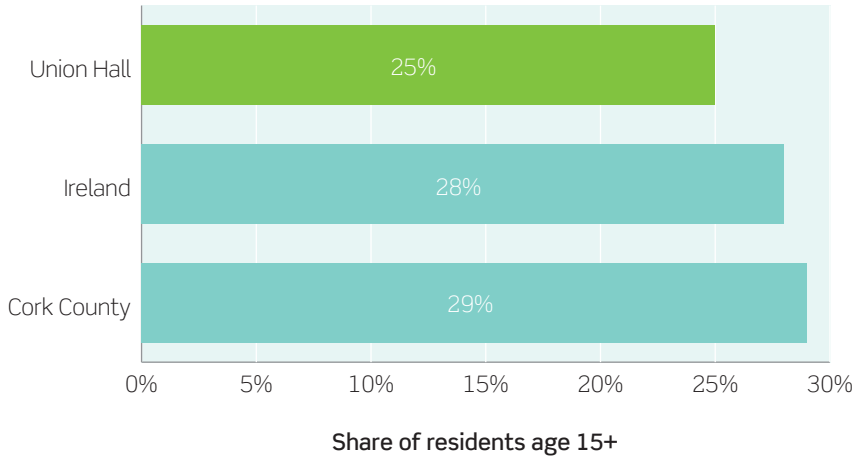
An analysis of port area population by age cohort highlights a skewed distribution towards older age groups relative to the national picture. Older working age people (aged 45-64) and those aged 65 and over were both over-represented within the local population. Whereas those aged 25-44 accounted for just over 24% of all residents, over five percentage points below the national average in 2016.

Fig. 28. Age group comparisons, Port area vs Ireland, 2016



Qualification attainment levels in the Union Hall area tends to be relatively weak – especially against the broader Cork county average. Higher level educational attainment among residents was lower than both the national and county averages. Those educated to degree level or above accounted for 25% of those aged 15 and over in Union Hall, compared to 28% and 29% across Ireland and Cork respectively. Similarly, those with no formal qualifications or at most primary level education represented 12% of residents aged 15 and over in 2016, a rate marginally above the Cork county average (10%), and likely reflective of the older population trends.

Fig. 29. Third level degree or above attainment, 2016



Source: *CSO*

Summary

Sectors which are closely aligned with the seafood sector are important employers within the Union Hall economy, especially the agriculture, forestry & fishing sector, which accounts for almost 16% of workplace employment. Commuting data suggests that local employment opportunities could be more limited across the remaining industry sectors. A slightly older skewing and slower growing population suggests that opportunities for new job creation are unlikely to emerge in the short term.

Furthermore, the educational profile within the area appears better matched with primary occupations, and less so with professional services which are currently relatively small locally in employment terms in any case.

As a result, the seafood sector is likely to play a significant role in the local port economy through its provision of direct jobs, supply chain spending in local businesses and the consumer spending it supports. Looking forward, a vibrant and growing local seafood sector will be important for the economic and demographic health of the local area.

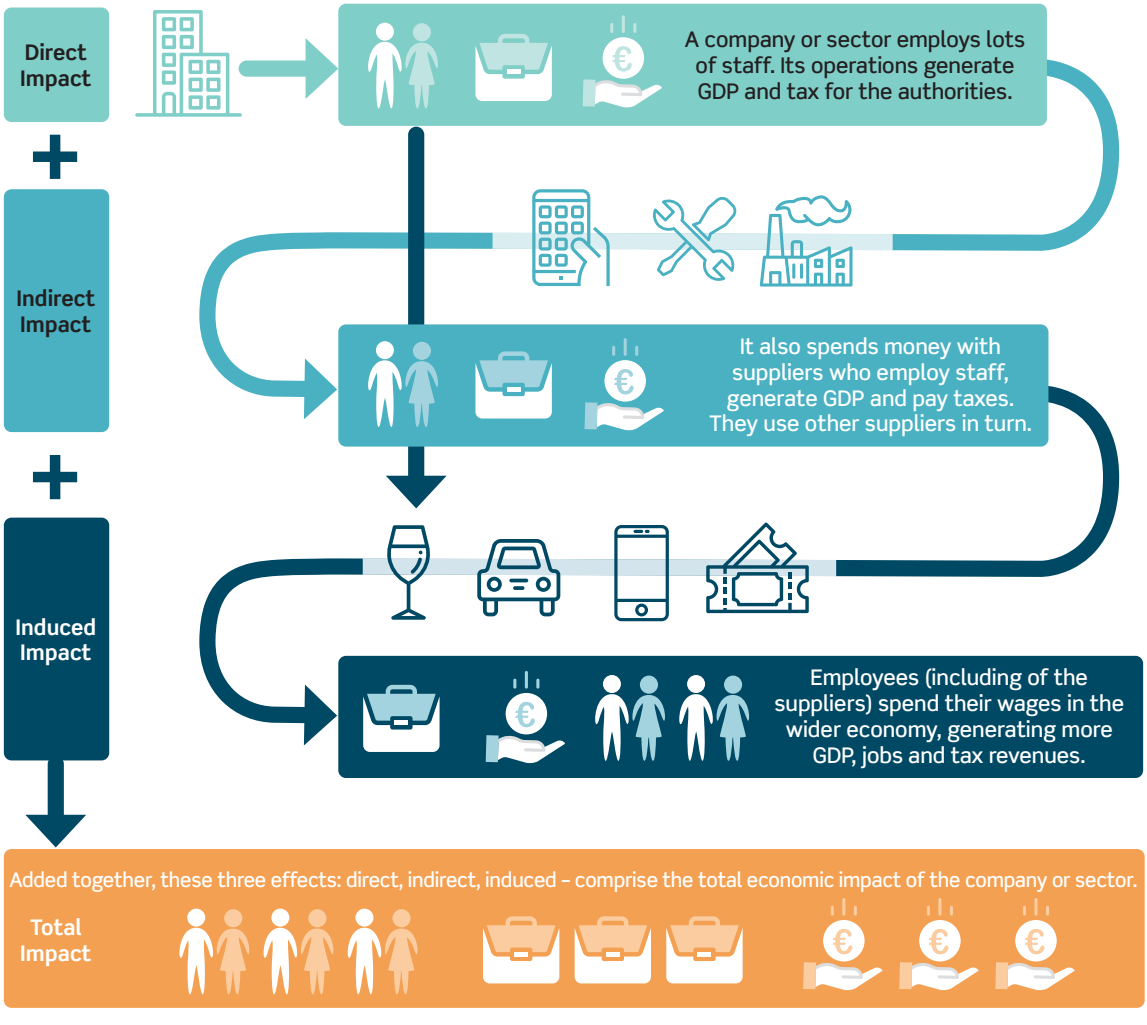
Appendix 2: Model approach

(**Note:** *Feels too long for a summary/port specific report. We could summarise or point to the main report for reference)*

Understanding economic impact assessments

An economic impact assessment quantifies the total economic benefit created by a sector through a range of different channels. For the seafood sector at the ports this arises in four main ways. The first three are the standard channels through which economic impact is usually quantified: direct operational effects, supply chain effects, and the impact of employees spending their wages in the wider consumer economy. The fourth channel, known as 'catalytic' or 'dynamic' benefits represent the wider benefits that society and/or other industries derive from the original economic activity.

Fig. 30. Overview of economic impact methodology



Our report uses three main metrics to quantify each of the channels by which the seafood sector could contribute to the regional[8] and national economy:

- **Gross value-added** contribution to Gross Domestic Product (GDP)[9]: This measured the value of goods and services produced in an area, industry or sector of an economy and is equal to output minus intermediate consumption;
- **Employment** is presented in terms of persons in employment as defined in the report, the combination of workplace employment by full time and part time status; and
- **Wages** is the total value of remuneration offered to the workers associated with the local seafood sector.

All the data used was either provided by BIM (for example, recent seafood operator registrations/industry data), the seafood sector survey carried out by Perceptive Insight or published government website data and industry standards from the likes of CSO Ireland and Oxford's own economic databases. Finally, in the absence of data, reasonable assumptions based on best judgement are clearly rationalised in the study. For example, in the absence of port specific data we will use published sources for comparator geographies as a proxy estimates were appropriate.

Estimating the direct economic contribution

The first step was to understand the **direct** activity associated with the local seafood sector at each of the 10 ports in 2018.

The survey

The seafood survey was designed to provide the evidence base from which to estimate the local seafood sector's contribution to the regional/national economy. Responses from the sector were analysed according to common characteristics (sub-sector, turnover band, main port area etc) and cross-referenced with the most recent full snapshot of the local seafood sector population.[10]

Sample estimates were then 'grossed' up to that of the total population. This was done by drawing on the BIM database of the seafood sector population in each port which contained fields on sector and turnover band. Knowing indicative turnover levels for firms not captured in the survey, we were able to apply the average ratio of jobs to turnover level in that sector and apply average sectoral wages, etc. In other words, we utilised knowledge of the sectors and turnover of the missing companies and applied the ratios and averages of those covered in the survey to estimate their activity. The resulting total seafood related turnover estimate is then split into the different sectors of the economy ('Agri, forestry & fishing' and 'Manufacture of food products').

This turnover figure is essentially the value of output within the local seafood sector and encompasses intermediary demand, wages and profits. Using the sectoral ratios of output to GVA in the Irish input-output tables we estimated the direct sectoral GVA contributions to GDP in the local economy. Both direct employment and gross wages paid within the local port seafood sector are again informed by the survey findings and grossed to the population total based on shared characteristics.

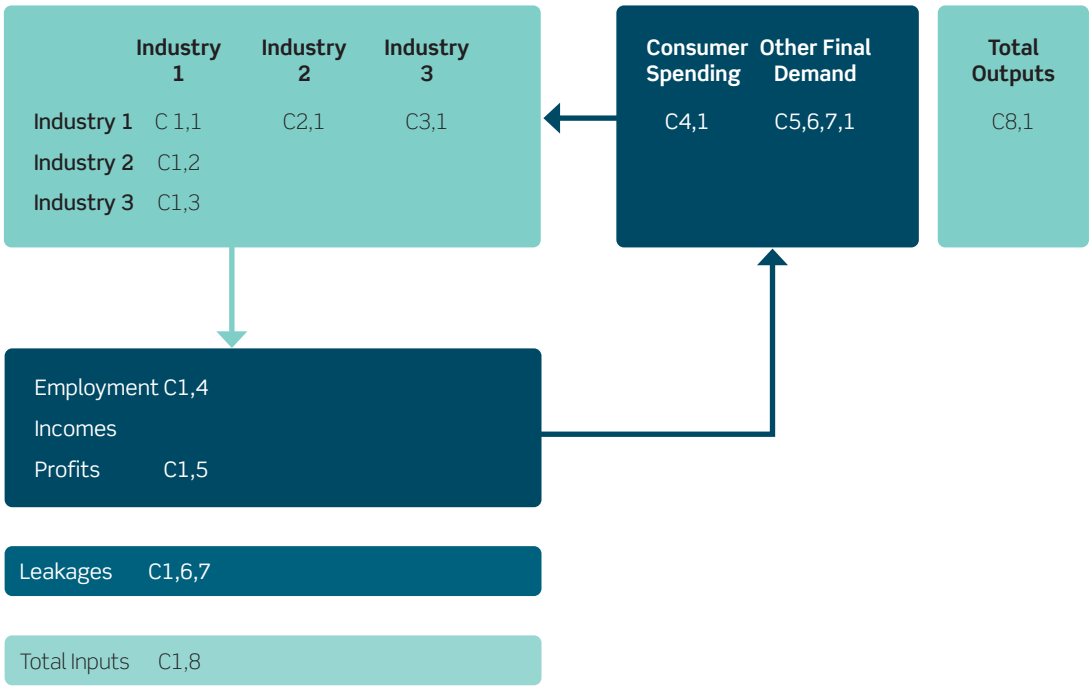
With an estimate of direct wages, we then applied income tax rates and estimated the income tax that will be collected by the Revenue Commissioners.

8 Ideally, we would quantify the impacts of the seafood sector on the port hinterlands, however, there is not enough published sectoral employment, GDP and wage data. Sufficient data is only available at regional level to produce sub-national impacts.
9 GDP is the main summary indicator of economic activity in Ireland. GDP can be defined as GVA plus taxes on products less subsidies on products. References to economic growth (or when the economy enters recession) typically relate to the rate of change of GDP. All references in this report relate to GVA; also known as GDP at 'basic prices'; and they exclude taxes and subsidies.
10 Provided by the client and informed by the most recent fishery registrations and activity listings in the aquaculture and processing sectors. Turnover bands were also assigned to the local seafood population based on returns when available, and when not, estimated by BIM based on shared characteristics.

Estimating indirect and induced impacts

To estimate the indirect and induced impacts we have built an input-output model. **Figure 31** presents a stylised version (showing just three sectors for presentation purposes) of our input-output model which is a model that traces how economic activity flows through an economy as one sector makes purchases from another sector.

Fig. 31. Stylised input-output model



We have used the latest Irish input-output tables for the analysis, but have adjusted these in line with academic guidelines (Flegg, A. T. and Tohmo, T. (2013) "Regional input-output tables and the FLQ formula: A case study of Finland") to account for the size and structure of the local economy.[11] The technique involves constructing sub-national input-output models by applying Location Quotients (LQs) and sub-national size adjustments to the standard Ireland input-output tables. The result is that geographies with higher concentrations of industries receiving procurement or household expenditure have larger impacts. In addition, we have used information gathered from the survey to further isolate the procurement spend locally, thereby strengthening the overall modelling assumptions.

MODELLING SUPPLY CHAIN IMPACTS

The survey provided us with information on the size of supply chain spending relative to turnover, its allocation to specific parts of the economy/goods/services and its location (local/national/international). Using this information, we were able to construct a more detailed picture of the first round of supply chain spending than the published input-output tables would otherwise provide.

11 Due to data availability, the local seafood sector's economic impact can only be localised to the regional level (NUTS 3).

We then used the impact model to estimate all the **rounds of supply chain or indirect spending** of the local seafood sector. The input-output tables provide us with an estimate of indirect output by sector. We then convert this output back into sectoral GVA and into sectoral jobs to provide a range of sectoral impact measurements. Applying average sectoral salaries allowed us to estimate the income effect.

The induced impact is economic activity and employment supported by those directly or indirectly employed spending their income on goods and services in the wider economy. This helps to support jobs in the industries that supply these purchases, and typically includes jobs in retail and leisure outlets, companies producing consumer goods and in a range of service industries. Again, our input-output model were used to estimate the induced impacts.

Overcoming double-counting

Throughout the analysis the impact estimates are presented for the core elements of the seafood sector – commercial fishing, aquaculture and processing. However, when estimating the total impact of the overall port seafood sector, simply summing the respective benefits of all three elements will inevitably over-estimate the indirect and induced and as a result, total impacts. This is because the supply chains of the processing element contain a proportion of the fishing/aquaculture sub-sectors and their supply chains. Therefore, adding everything together would result in the double-counting some of the impacts.

We have, therefore, the following approach to calculate total impacts for GVA, employment, wages and tax:

Direct impacts:

- Calculated by summing the direct impacts from the three elements of the seafood sector for GVA, employment and wages.

Indirect impacts:

- For GVA, employment and wages, total indirect impacts are calculated by summing the indirect impacts of processing and a share of the indirect impacts from the fishing and aquaculture sub-sectors (as indicated by survey responses showing the extent to which local processors account for their total sales). The remainder of the fishing/aquaculture sub-sectors' indirect impacts will already be accounted for in the indirect impacts from the processing sub-sector. Furthermore, at this stage a proportional share of fishing and aquaculture direct impacts were also removed as they fall within the local processing supply chain.

Induced impacts:

- For GVA, employment and wages, total induced impacts are calculated by summing the induced impacts of the local processing sector and a share of the induced impacts from the fishing and aquaculture sub-sectors (as indicated by survey responses showing the extent to which local processors account for their total sales). The remainder of the fishing and aquaculture sub-sectors' induced impacts will already be accounted for within the induced impacts from the processing sub-sector.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