

# Annual Aquaculture Report

Findings of the National Seafood Survey 2024



Rialtas na hÉireann  
Government of Ireland



Arna chomhchistiú ag  
an Aontas Eorpach

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**The Annual Aquaculture Report:** Findings of the National Seafood Survey 2024 **supersedes all previous reports.** Comparisons across reports cannot be made as data is revised if survey returns arrive after the official deadline.

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# 1. Executive Summary

BIM's National Seafood Survey provides insights into the status of Ireland's aquaculture sector on an annual basis. It examines the economic performance and the social demographics of people employed in the sector. The National Seafood Survey is a critical part of Ireland's legal obligations under the European Union Multi Annual Programme (EU MAP) Data Collection Framework (DCF).

In 2023, the Irish aquaculture sector demonstrated remarkable resilience and innovation, despite facing a mix of challenges. Several positive trends and developments highlight the sector's potential and capacity for recovery and growth.

Producers of premium-grade oysters achieved high unit prices, particularly in the Netherlands, reflecting the sector's ability to compete in international markets with high-quality products. The demand for fresh rope-grown mussels recovered significantly in the second quarter, demonstrating the market's resilience and the segment's ability to recover from early setbacks.

Employment in the suspended mussel culture segment increased, indicating ongoing investment in human resources and confidence in the segment's future. Additionally, the seaweed aquaculture segment showed an 8% increase in output and an impressive 64% increase in sales value, signalling its maturation and progression to commercial-level production. These positive developments underscore the sector's diversification and potential for future growth.

While national aquaculture output fell by 20% in volume and 9% in sales value, the smaller decrease in sales value suggests that unit sales values held steady or improved for some products. This demonstrates the market's strength for higher-quality or premium products.

The North (Donegal) region generated the largest regional revenue of €41 million, sustaining 623 jobs across 62 production units. This region supports key aquaculture segments, including farmed oysters, seabed cultured oysters, rope-grown mussels, and penned salmon. The Northeast, represented by Carlingford Lough, produced €7 million, employing almost 100 people, while the Southeast earned €19 million, employing 200 people in 29 production units.

However, the sector also faced significant challenges. Salmon sea production was affected by smolt supply shortages due to a lack of investment in hatchery capacity, rising sea temperatures, and biological challenges arising from these environmental challenges. The need to sell smaller fish to protect stock resulted in a shortage of larger fish later in the year.

Shellfish sales were hampered by market surpluses early in the year, particularly impacting standard-grade oysters in France. Additionally, deteriorating water quality affected shellfish meat yield and growth, leading to industry shutdowns in Waterford Harbour. Rising operational costs and labour shortages further strained all segments narrowing already stressed profit margins.

The ability to produce competitive, high-quality products, coupled with investments in human resources and diversification into new segments like seaweed, provides a solid foundation for future progress and sustainability. Overall, while the sector faced a challenging year, the positive trends and resilience demonstrated across various segments highlight its potential for recovery and long-term growth.

# National Aquaculture

## INCOME



**€182.2m**

Total Income

**€168.2m**  
Turnover

**€2.26m**  
Subsidies

**€11.7m**  
Other income Total

## EXPENDITURE



**€187.4m**

Total Costs

**€40.8m**  
Wages and salaries

**€3.75m**  
Financial costs, net

**€9.4m**  
Energy costs

**€15.6m**  
Repair and maintenance

Raw material costs

**€22.7m**  
Livestock costs



**€41.9m**  
Feed costs



**€41.2m**  
Other operational costs

**€12m**  
Depreciation of capital



# Scale of operation in 2023

## INPUT AND OUTPUT



**35,737** tonnes  
Total sales volume

Raw material volume



**8,212**  
Livestock  
tonnage



**19,946**  
Feed  
tonnage

## EMPLOYMENT



**1,961**  
Total Employees

**1,744**  
Male  
employees

**217**  
Female  
employees

**1,149**  
Full Time  
Equivalent  
(FTEs)

## ECONOMIC INDICATORS



**€49m**  
Gross Value  
Added (GVA)

**€2.8m**  
Operating  
Capital Flow  
(OCF)

**-€4.1m**  
Earnings Before  
Interest and Tax  
(EBIT)

**-€7.9m**  
Net Profit

## ENTERPRISES SUMMARY



**280**  
Number of  
production units

**12,250**  
Licensed  
hectares

**545,133**  
Number of  
structures used

## 2. National aquaculture in 2023

### 2.1 National aquaculture output in 2023

National aquaculture output fell in volume by 20% and in sales value by 9% in 2023. The smaller decrease in sales value indicates that unit sales value held or improved for some products. A total of 35,737 tonnes was produced and sold at the farm gate for €168 million. The decrease in output volume was proportional for both finfish and shellfish segments, with shellfish experiencing a greater loss of sales revenue at 12%.

Finfish production, dominated by penned salmon at sea, fell from 12,409 tonnes to 9,940 tonnes, generating €101 million in 2023. Shellfish production, dominated by the oyster and mussel segments, fell from 32,124 tonnes to 25,797 tonnes, generating €67.4 million in 2023.

The finfish segment was impacted by limited smolt availability due to a lack of hatchery capacity, rising water temperatures, and the re-emergence of pathogenic activities such as Furunculosis, which affected mortality rates and fish condition. Pressure to sell smaller fish sizes impacted the ability to supply larger fish later in the year.

Shellfish segments are particularly vulnerable to changing environmental parameters and deteriorating water quality. Many bays nationally experienced lower than normal growth rates. This coupled with deteriorating water quality put increasing pressure on producers particularly in the SE and SW.

There was a surplus of home-grown product in export destinations for both mussels and oysters in 2023. In the case of rope-grown mussels, the French Bouchot mussel supply was particularly abundant early in the year. Sales output and unit sales value per tonne for the exported fresh product recovered but did not reach 2022 levels. Similarly, the demand for premium quality Irish oysters recovered as the year progressed, and unit sales value for these increased compared to 2022. However, the market for other oyster grades did not recover, decreasing sales revenue for several Irish producing bays. Rising water temperatures are believed to affect the balance of micro-organisms in the water column, reducing the food content available to filter-feeding shellfish, causing stock stress, elevated mortalities, and reducing the ability to produce premium grades now demanded as standard by most export markets. As of May 2024, an increasing number of mussels are falling off suspended systems, negatively impacting rope mussel output for 2024.

**Table 1:** Aquaculture output trend by category, 2022 to 2023

Aquaculture Category	2022	2023	% change 2022 to 2023
<b>Finfish</b>			
Sales volume (tonnes)	12,409	9,940	-20
Sales value (millions €)	€107.30	€101	-6
<b>Shellfish/Other</b>			
Sales volume (tonnes)	32,124	25,797	-20
Sales value (millions €)	€76.47	€67.40	-12
<b>National Totals</b>			
National output (tonnes)	44,532	35,737	-20
National Sales value (millions €)	€184	€168.20	-9

## 2.2 Socio-employment, production units, capacity

Employment in the sector stood at a total of 1,961 employed, with a Full Time Equivalent (FTE) of 1,149 in 2023, a drop of 2%. The total number of production units fell by 5%, with a loss of 14 units. The finfish segment absorbed a larger proportion of employment losses, with a decrease of 14 persons or eight FTEs (5% and 3%, respectively).

The shellfish sector lost 29 persons and 20 FTEs (both 2%). Shellfish production units decreased by 9 units (3%), while land-based finfish production units decreased by five units. In 2023, a total of 251 shellfish and 29 finfish units were in operation. Two challenging years have had a direct impact on finfish employment and the wider local economy, as each FTE unit of employment has a multiplier effect of 2.5 units elsewhere in the economy ([BIM Bay Study, 2021](#)). Shellfish units have lost staff not only due to production declines but also because of difficulties in retaining staff attracted to better wages and conditions in other sectors.

**Table 2:** Aquaculture employment and production unit trends by segment, 2022 to 2023

Aquaculture Category	2022	2023	% change 2022 to 2023
<b>Finfish</b>			
Number employed	304	290	-5
Number of FTE	256	248	-3
Number of production units	34	29	-15
<b>Shellfish/Other</b>			
Number employed	1,700	1,671	-2
Number of FTE	921	901	-2
Number of production units	260	251	-3
<b>National Totals</b>			
Number employed	2,004	1,961	-2
Number of FTE	1,177	1,149	-2
Number of production units	294	280	-5

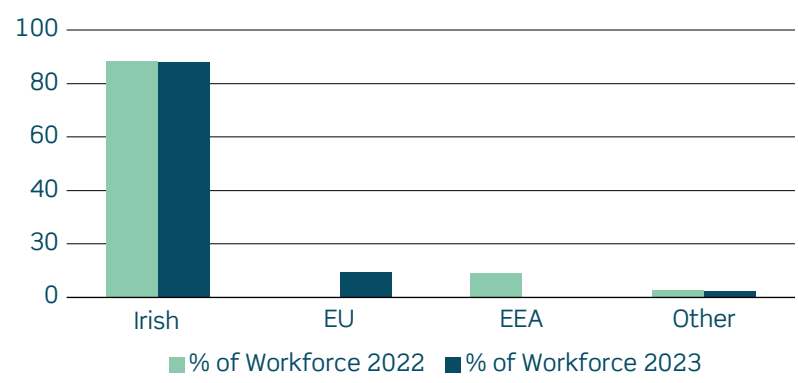
In 2023, 88% of the workforce were Irish nationals. EU citizens make up 9%, and 2% came from outside the EU/EEA. In 2023, 62% of the workforce completed their formal education at the secondary level, unchanged from 2022. There was a slight increase in those with tertiary education to 22.3%. The workforce educated to primary or vocational level made up 15% of the total.

**Table 3:** Aquaculture employment demographics, 2022 and 2023

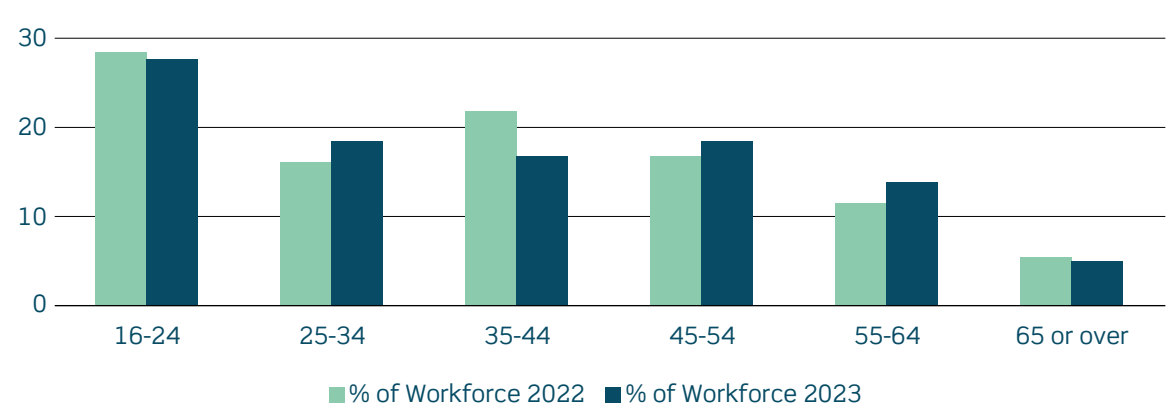
Nationality	% of Workforce 2022	% of Workforce 2023	% Trend
Irish	88	88	0
EU	0	9	-
European Economic Area (EEA)	9	1	-100
Other	3	2	-33
<b>Age Profile</b>			
16-24	28	28	0
25-34	16	18	13
35-44	22	17	-23
45-54	17	18	6
55-64	12	14	17
65 or over	5	5	0
<b>Highest level of Education</b>			
Primary education	13	11	-15
Secondary education	62	62	0
Third-level education	21	22	5
Other education	3	5	67

The number of people of retirement age decreased by 7%. There is an even distribution of age cohorts in between, with a partial shift from the 35 to 44-year group to the 45 to 54-year group, indicating a degree of workforce ageing.

Workforce nationality profile, 2022 and 2023



Workforce age profile, 2022 and 2023



Workforce education profile, 2022 and 2023

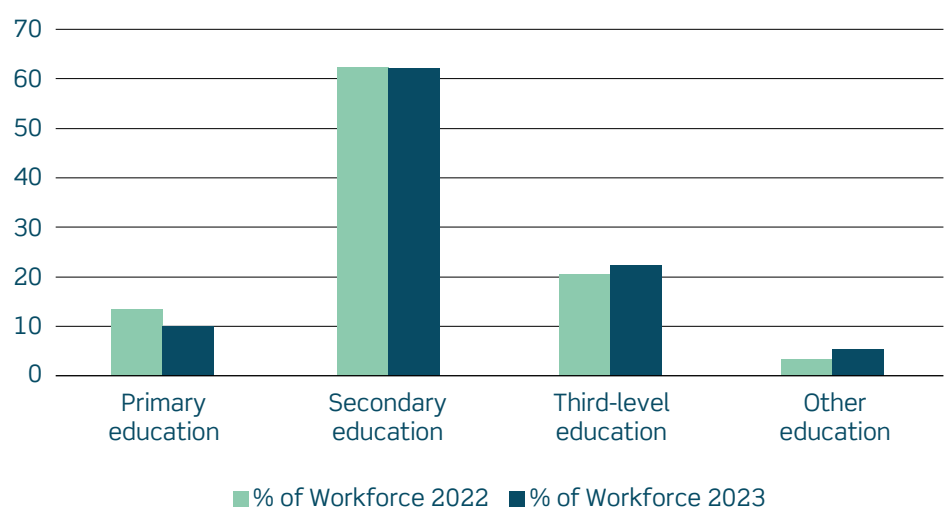


Figure 1: Workforce age profile, nationality, and education level, 2022 and 2023

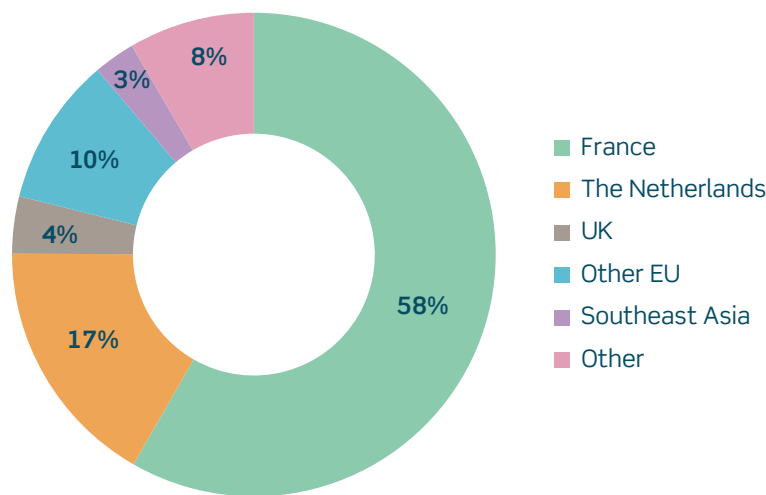
## 2.3 Markets

The sector primarily produces; salmon, trout, mussels, oysters, and other bivalve shellfish products for direct consumer use or for further growing in other units to market specifications. Products are sold fresh-live and processed shellfish, and fresh fish products as whole-round, head-on gutted, filleted, and other value-added formats. A small but growing seaweed segment produces ingredients for pet food, pharmaceutical products, and human consumption.

Most produce is exported, though 28% of produce in 2023 was for a growing home market. The sector exported 25,249 tonnes of produce worth approximately €127.6 million in 2023, an 11% decrease from the previous year. France remains the most significant destination for all products, accounting for 58% of total export volume, down 1% from the previous year. The Netherlands is the next most significant destination at 17%, primarily importing live shellfish. The UK and other EU Member States accounted for 14% of exports, mainly shellfish, and Southeast Asian destinations accounted for 3%, mainly live oysters. Other destinations in Africa and the Americas accounted for 8% of exports in 2023.

**Table 4:** Aquaculture market destinations, 2023

Destination	Tonnes exported	% of export
France	14,719	58
The Netherlands	4,232	17
UK	966	4
Other EU	2,508	10
Southeast Asia	699	3
Other	2,125	8
<b>Total export volume</b>	<b>25,249</b>	<b>100</b>



**Figure 2:** Aquaculture market destinations 2023



## 2.4 Inputs and Costs

In 2023, the cost of production for the sector outstripped revenue generated. The trend is dominated by the significant roles of the salmon farming and seabed cultured mussel segments and their challenging production year. The relative importance of different costs at the national level is similarly dominated by these segments' costs.

Juvenile and feed inputs are the most significant components of aquaculture costs, taking up 35% of the total. Other operational costs, at 22%, are diverse but significant for all segments, particularly for the technical and logistically complex salmon productions. Wages and salaries, at 22% of total costs in 2023, have become more significant in recent years, though the rate of increase is levelling off. This trend is partially caused by the overall decrease in national employment numbers. The wage and salary cost per FTE in 2023 was estimated at over €36,500.

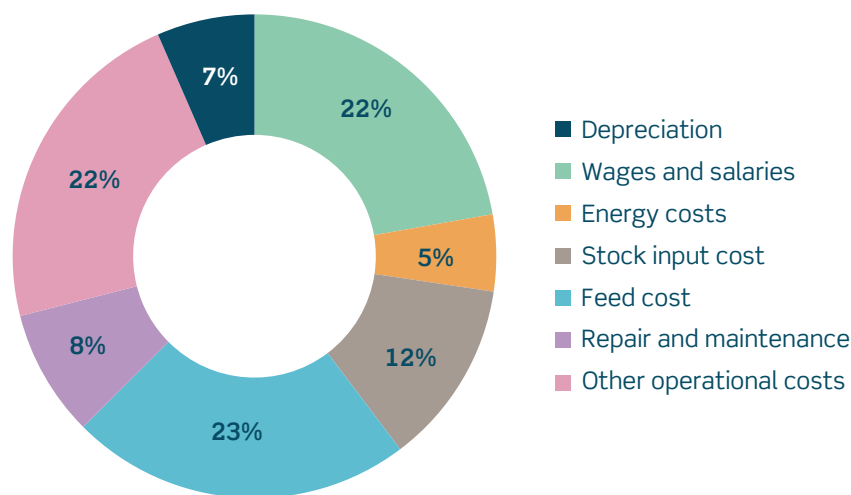
All employees are paid as a rule, with unpaid employment restricted to business owners and their families. The smaller family-run production units in both shellfish and finfish segments have been affected, with business owners and family members taking on unpaid tasks due to rising labour shortages and costs.

National energy costs are proportionally low relative to overall costs. These are mainly fuel-related costs. In 2023, national energy use cost an estimated €9.4 million, down 11%, reflecting the output downturn rather than a fall in fuel prices.

Depreciation at the national level increased by 13% to €12 million in 2023, indicating that capital investment is not keeping up with the pace of the industry's ageing equipment.

**Table 5:** Aquaculture production costs, 2022 to 2023

National-level Costs (millions €)	2022	2023	% Trend, 2022 to 2023	% of Total 2023 cost
<b>Total income</b>	€199	€182	-8	
Wages and salaries	€40	€41	2	22
Energy costs	€11	€9	-11	5
Stock input cost	€22	€23	2	12
Feed cost	€37	€42	13	23
Repair and maintenance	€15	€16	8	8
Other operational costs	€39	€41	5	22
Depreciation	€11	€12	13	7
<b>Total costs</b>	€174	€184	5	
<b>Cost % of Income</b>	88%	101%	15	

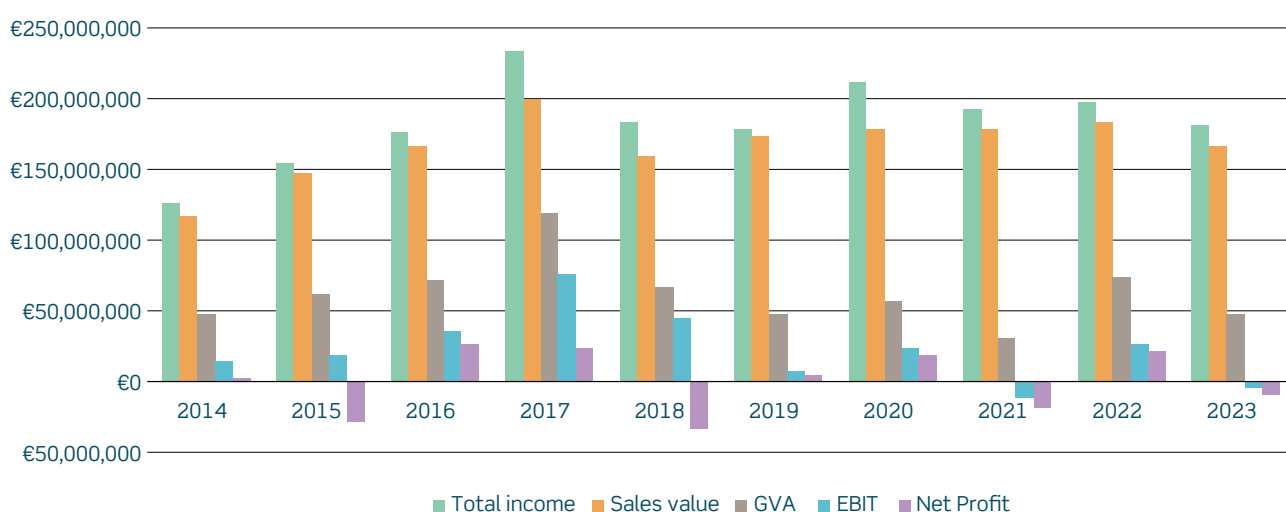


**Figure 3:** Aquaculture costs breakdown, 2023

## 2.5 Economic performance

The economic performance of the sector in 2023 was hampered by an imbalance between costs incurred and output revenue generated. The trend was pronounced by the difficult year experienced by segments such as seabed cultured mussels and penned salmon. Gross Value Added (GVA) to the economy in 2023 was estimated at €49 million. Earnings before interest and tax (EBIT) and net profit were estimated to have negative values of €4.1 million and €7.9 million, respectively, indicating net losses for the sector in 2023.

These economic indicators represent a significant downturn compared to 2022 but are still higher than those experiences in 2021 pointing to both the cyclical nature of production trends and the ability of the sector to reverse these trends. It is expected that in 2024 the industry will manage to reverse this trend and return to positive net profit.



**Figure 4:** Aquaculture 10-year economic performance to 2023

## 2.6 Aquaculture regional output

Output and revenue were down in most regions in 2023. The North was down by 28%, the Northeast and Southeast by 18%, and the Southwest by 52%. The salmon output phase of production shifted from the Southwest to the South. The North (Donegal) generated the largest regional revenue of €41 million, sustaining 623 employees (32% of the national total) in 62 production units. Revenue was down by 28% from 2022. The area supports the main aquaculture segments: farmed oyster, seabed cultured oysters, rope-grown mussel, and penned salmon segments within its mixed deep, shallow, exposed, and sheltered production bays.

The Northeast, represented by Carlingford Lough, produced €7 million or 4% of national sales in 2023, employing almost 100 people in nine large production units. The sites are a mix of intertidal and shallow subtidal, hosting seabed cultured mussel and farmed oyster cultures.

The Northwest earned €23 million, employing 241 people in 38 production units. Production sites are a mix of intertidal, shallow subtidal, sheltered deep, and exposed deepwater sites, allowing for the farming of a range of species: penned salmon, rope mussel, seabed, and farmed oysters.

The South earned €30 million, employing 262 people in 44 production units. The region's varied licensed site environments—deep sheltered and exposed sites in Bantry Bay, shallow subtidal and intertidal sites in Roaringwater Bay—support the farming of penned salmon, rope mussel, farmed oyster, and seaweed.

The Southeast earned €19 million, employing 200 people in 29 production units. The area comprises sheltered shallow and intertidal zones, supporting the culture of farmed oysters and seabed cultured mussels.

The Southwest earned €12 million, employing 299 people in 46 production units. The strong drop in output was caused by a switch of salmon production from the Southwest to adjacent South regional production sites. Production sites are deep sheltered or exposed sites in Kenmare Bay, hosting rope mussel and penned salmon culture, along with estuarine sub-tidal and intertidal sites in harbours like Castlemaine and Valentia, supporting farmed seabed cultured mussel and farmed oyster culture.

The West earned €36 million in sales, employing 238 people in 52 production units. The region's sites range from deep exposed and sheltered bays such as Kilkieran, Mannin, and Killary to the shallow subtidal and intertidal sites of Galway Bay, hosting penned salmon, rope mussel, farmed, and seabed cultured oysters.

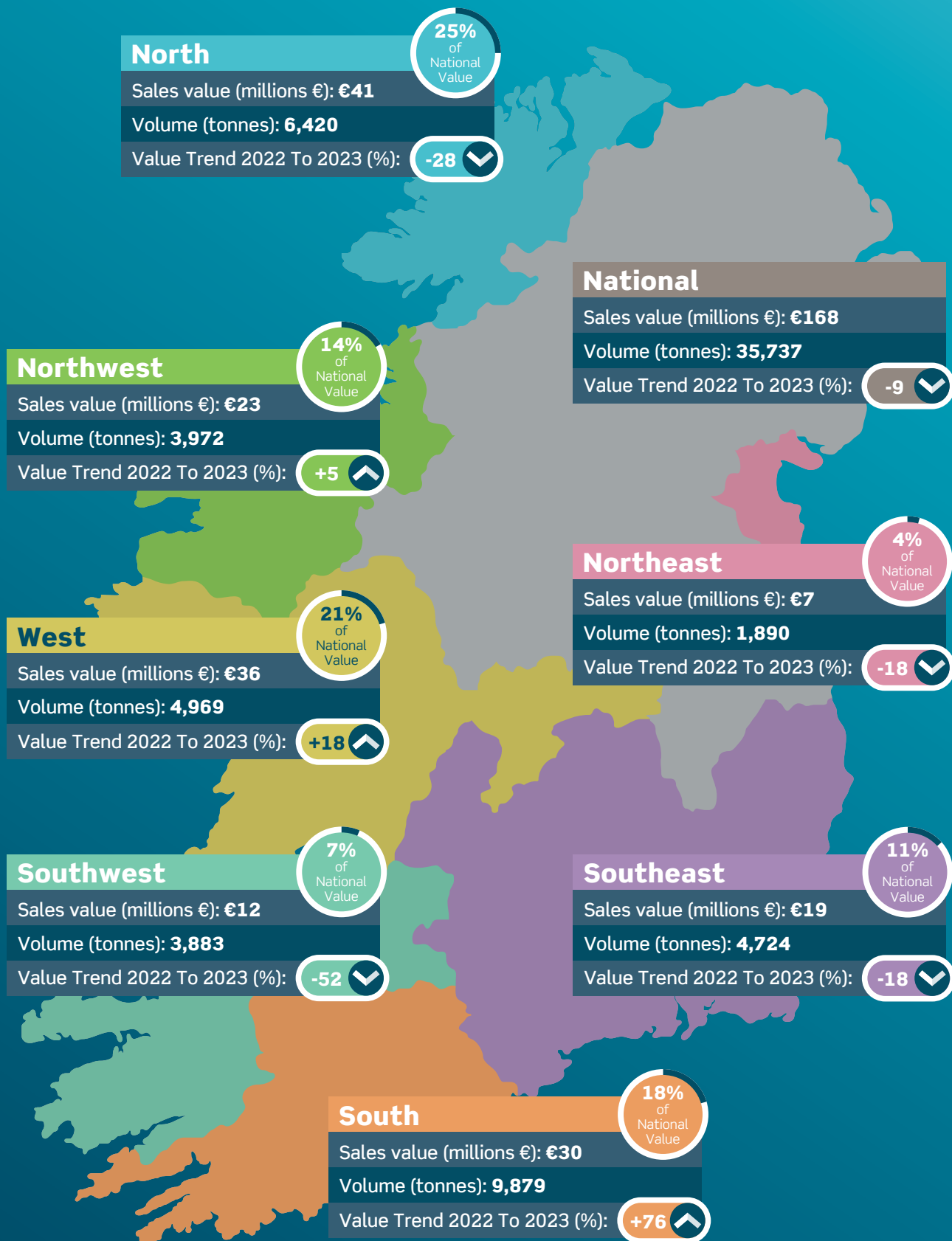
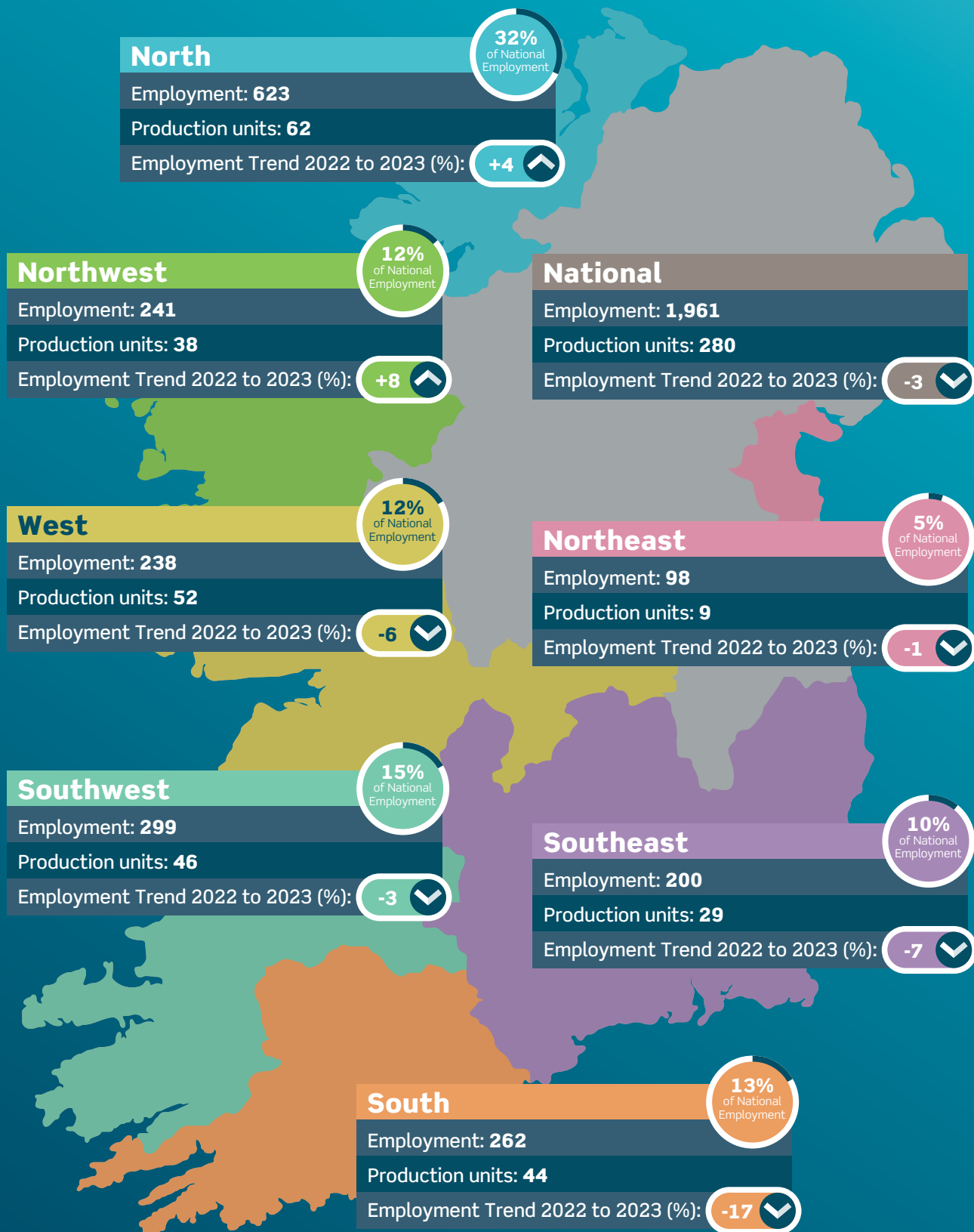


Figure 5: Map of regional outputs in 2023



**Figure 6:** Map of aquaculture employment and production unit distribution by NUTs III regions, 2023

# 3. The Segments

## 3.1 Farmed Salmon

### 3.1.1 Output

The salmon sea farm segment faced another challenging year in 2023. Output decreased by 22% to 9,289 tonnes. Unit sales value continued to recover to an average of €10.20 per kilogram, partially mitigating a 7% drop in sales value generated for the segment.

Output decline is influenced by several factors: increased mortalities due to environmental conditions, re-emergence of diseases such as Furunculosis, and limited smolt production capacity. The industry operates in suitable deep-water bays along the west coast from Lough Swilly in Donegal to Bantry Bay in Cork. Most production in 2023 occurred in the NUTS III regions of the West (Galway) with 3,212 tonnes and the North (Donegal) with 2,925 tonnes.

**Table 6:** Penned salmon output trend, 2022 to 2023

	2022	2023	% Trend
Output volume (Tonnes)	11,862	9,289	-22
Sales value (€)	101,550,851	94,753,683	-7

### 3.1.2 Employment, production units, capacity

Total employment in the segment dropped by 6% from 2022, or 4% in FTE terms, to 239 persons in 2023. Part-time employment saw the largest decline, with a 19% loss from 2022, exclusively affecting female employment, which decreased by 24 persons.

The number of production units remained stable at 16, operated by five companies. The average sea-site production unit produced 774 tonnes worth €7.9 million, employing 14 persons in 2023, with production occurring in 466 pens within 962 licensed hectares.

**Table 7:** Penned salmon employment and production units 2022 to 2023

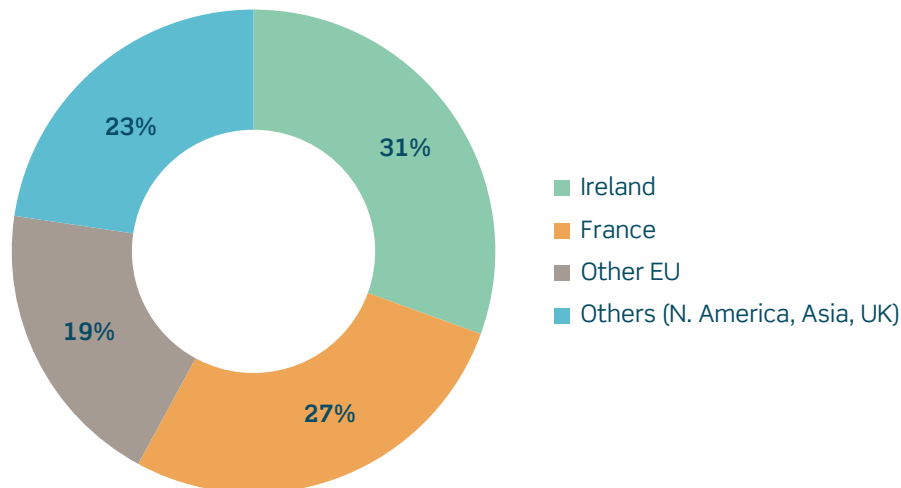
	2022	2023	% Trend
<b>Employment Category</b>			
Full Time	181	180	-1
Part Time	69	56	-19
Casual	3	3	0
<b>Gender</b>			
Male	206	216	5
Female	47	23	-51
Total employed	253	239	-6
Total FTE	217	209	-4
<b>Production Unit Category</b>			
5 or less employed	6	0	-100
6-10 employed	7	4	-43
10 or more employed	4	12	200
Total production units	17	16	-6



### 3.1.3 Markets

Approximately 31% of production (2,838 tonnes) in whole round terms was sold to the growing home market. A total of 6,451 tonnes of home-grown salmon was exported, primarily to France (27%), other EU states led by the Dutch market (19%), and other destinations in Asia, North America, and the UK (23%).

Other exported salmon products were derived from imported raw material as Irish production cannot meet processor raw material demand. Most home-grown and exported products are sold either as whole round or head-on gutted.



**Figure 7:** Penned salmon market destinations in 2023

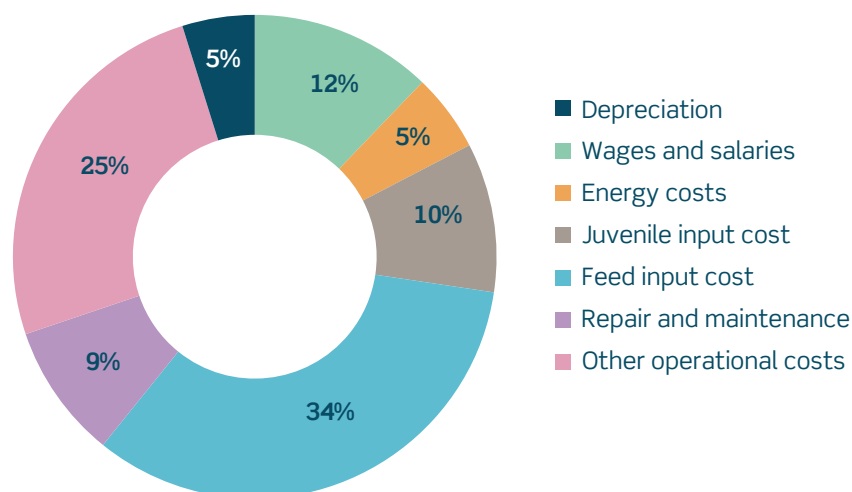
### 3.1.4 Inputs and Costs

The most significant operational costs for the segment in 2023 were inputs, particularly feed, which accounted for 34% of the total. Juvenile and feed input costs rose by 7% and 14%, respectively. Smolt supply is expensive due to limited production capacity. Feed costs are increased by the variable supply of different raw materials required for organic feed, most of which is imported.

Other operational costs, encompassing overheads and service costs, increased by 12%, making up 25% of total costs in 2023. Wages and salaries accounted for 12% of operational costs, with the average employment cost per FTE at €74,010, a 7% increase from 2022. Energy costs, making up 5% of the total, decreased sharply by 18% due to carbon footprint efficiencies and reduced production activity. Repairs and maintenance accounted for 9% of total costs, increasing moderately by 4%.

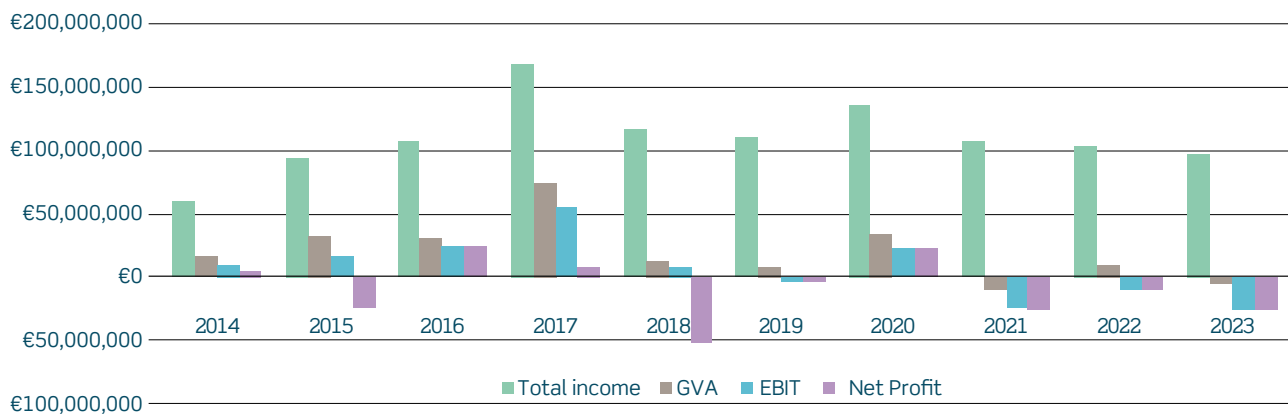
**Table 8:** Penned salmon production costs ('000s €) 2022 to 2023

Penned salmon culture costs ('000s €)	2022	2023	% Trend, 2022 to 2023	% of Total 2023 cost
Total income	€103,578	€97,096	-6	
Wages and salaries	€14,987	€14,802	-1	12
Energy costs	€7,725	€6,318	-18	5
Juvenile input cost	€11,394	€12,136	7	10
Feed input cost	€35,735	€40,644	14	34
Repair and maintenance	€10,563	€10,957	4	9
Other operational costs	€27,629	€30,812	12	25
Depreciation	€5,647	€5,882	4	5
Total costs	€113,681	€121,551	7	
Cost % of income	110%	125%		

**Figure 8:** Penned salmon production costs, 2023

### 3.1.5 Economic performance

For the third consecutive year, the segment faced unfavourable economic conditions due to falling production sales revenue and rising costs, particularly in inputs and operational expenses. Key economic indicators such as GVA and EBIT remained negative in 2023, indicating the segment has not been profitable since 2020.



**Figure 9:** Penned salmon 10-year economic performance trend to 2023

National 2023			
Tonnes Sold:	9,289	Total Employed:	229
Sales Value ('000s€):	94,754	Production Units:	16

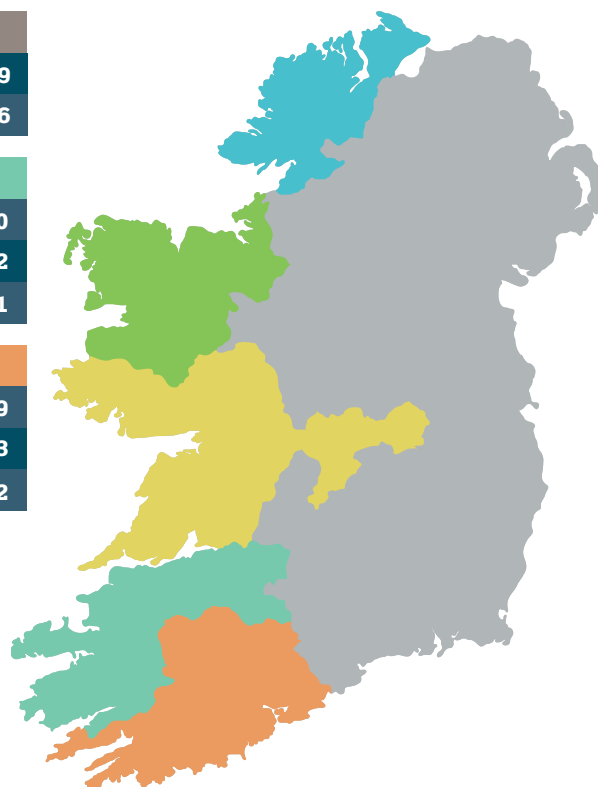
North		Southwest	
Tonnes Sold:	2,925	Tonnes Sold:	0
Total Employed:	101	Total Employed:	12
Production Units:	8	Production Units:	1

Northwest		South	
Tonnes Sold:	1,325	Tonnes Sold:	1,829
Total Employed:	35	Total Employed:	23
Production Units:	2	Production Units:	2

West	
Tonnes Sold:	3,212
Total Employed:	58
Production Units:	3



**Figure 10:** Map of combined salmon output volume (tonnes) and employment by NUTs iii regions in 2023

## 3.2 Farmed oyster

### 3.2.1 Output

The farmed oyster segment experienced a significant decline in output volume to 9,663 tonnes and sales value to €50.8 million, down 13% and 7%, respectively. Average unit sales value increased to €5,261 in 2023 due to premium prices for high-quality grades.

However, these prices were insufficient to offset the decline in the market for standard-grade oysters. Production is widespread, with the largest outputs from the North (Donegal) and Southeast (Waterford). The Southeast generated €13.5 million in sales revenue employing 150 people, while the North generated €10.8 million employing 370 people.

**Table 9:** Farmed oyster output trend, 2022 to 2023

Farmed oyster	2022	2023	% Output Trend
Sales volume (tonnes)	11,038	9,663	-13
Sales value (€)	54,483,948	50,831,867	-7

**Table 10:** Farmed oyster unit value by product category 2023

Output category	Tonnes	Avg. Sales value (€) per tonne 2023
Total output	9,663	5,261
Consumer-Ready	7,777	5,165
Greater than or equal €5.00 per kg	5,555	6,369
Half-grown	2,305	3,923
Exported	8,449	5,538
Triploid	8,706	5,227
Diploid	957	3,421

### 3.2.2 Employment, production units and capacity

The segment reported difficulties in retaining employees, indicated by a modest drop of 3% in total employment. The largest decline was in part-time employment, down 5%.

The number of production units declined by 2%, primarily due to the shutdown of units in Waterford Harbour as a result of declining water quality. In 2023, 161 units employed 1,002 persons, using 539,515 trestles over 1,617 hectares of licensed ground to produce 9,663 tonnes of oysters.

**Table 11:** Employment and production units, 2022 to 2023

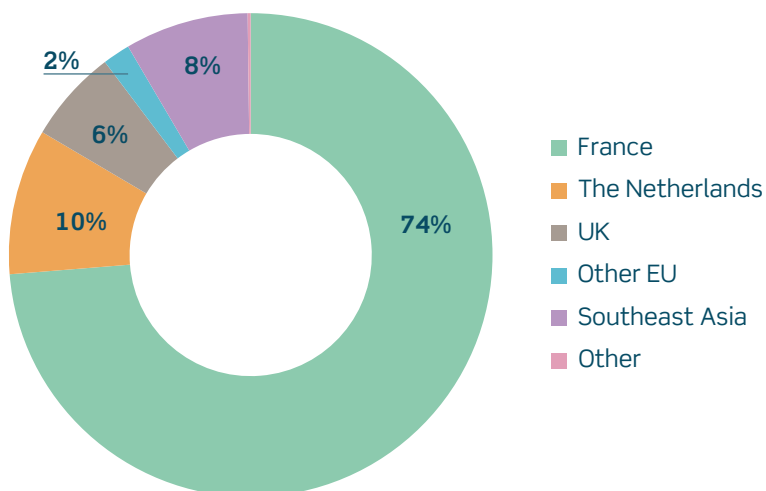
	2022	2023	% Trend
<b>Employment Category</b>			
Full Time	430	416	-3
Part Time	325	309	-5
Casual	282	277	-2
<b>Gender</b>			
Male	915	881	-4
Female	122	121	-1
Total employed	<b>1,037</b>	<b>1,002</b>	<b>-3</b>
FTE	<b>640</b>	<b>617</b>	<b>-4</b>
<b>Production Unit Category</b>			
5 or less employed	103	106	3
6-10 employed	32	28	-13
10 or more employed	27	25	-7
<b>Total Production Units</b>	<b>164</b>	<b>161</b>	<b>-2</b>

### 3.2.3 Markets

France remains the primary market for farmed oysters, importing 6,230 tonnes (74% of all exports). The Netherlands and the UK are significant European market destinations, accounting for 10% and 6% of exports, respectively. Southeast Asian markets collectively accounted for 8% of exported product. Overall exports were down 9% from 2022 to 8,449 tonnes.

**Table 12:** Farmed oyster export destination by % in 2023

Country	Tonnes	% of total exports
France	6,230	74
The Netherlands	824	10
UK	526	6
EU - Other	155	2
Southeast Asia	698	8
Other	17	0.2
<b>Total export volume</b>	<b>8,449</b>	



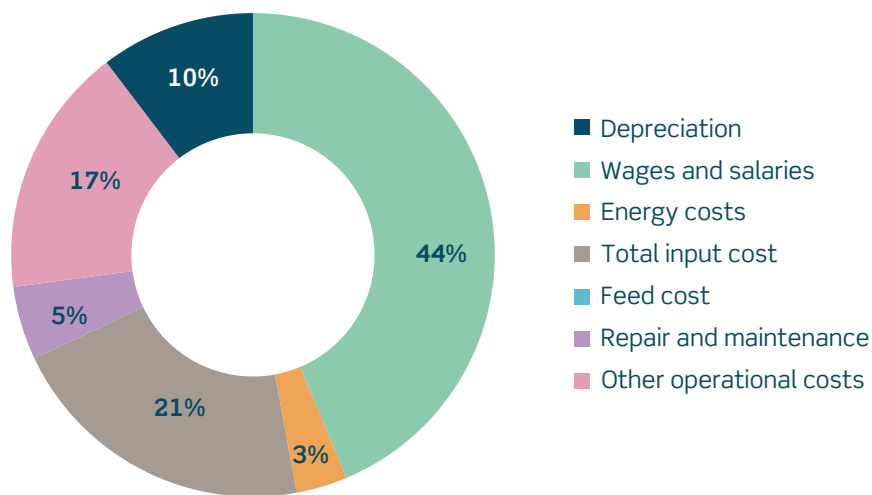
**Figure 11:** Farmed oyster market destinations by % of total exports in 2023

### 3.2.4 Costs

Wages and salaries are the largest component of operational costs for the segment, up 4% in 2023. The average wage for a full-time person was €27,162, up 7% from 2022. Input of juvenile stock is the next most significant cost at 21%. Overheads and depreciation together accounted for 26% of total costs. Total costs accounted for 68% of income, up 61% from 2022.

**Table 13:** Farmed oyster production costs ('000s €), 2022 to 2023

Farmed oyster culture costs (000s €)	2022	2023	% Trend, 2022 to 2023	% of Total 2023 cost
Total income	€62,465	€57,877	-7	
Wages and salaries	€16,116	€16,759	4	44
Energy costs	€1,365	€1,314	-4	3
Total input cost	€7,957	€8,001	1	21
Feed cost	€13	€0	-100	0
Repair and maintenance	€1,990	€1,888	-5	5
Other operational costs	€7,431	€6,434	-13	17
Depreciation	€3,434	€3,972	16	10
Total costs	€38,308	€38,370	1	
Cost % of Income	61%	68%		



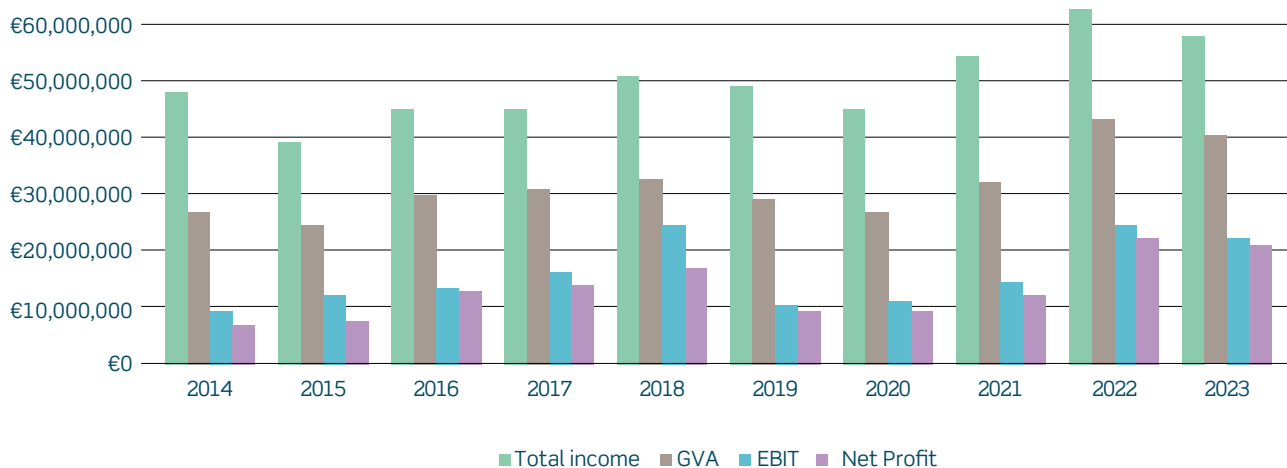
**Figure 12:** Farmed oyster production costs 2023



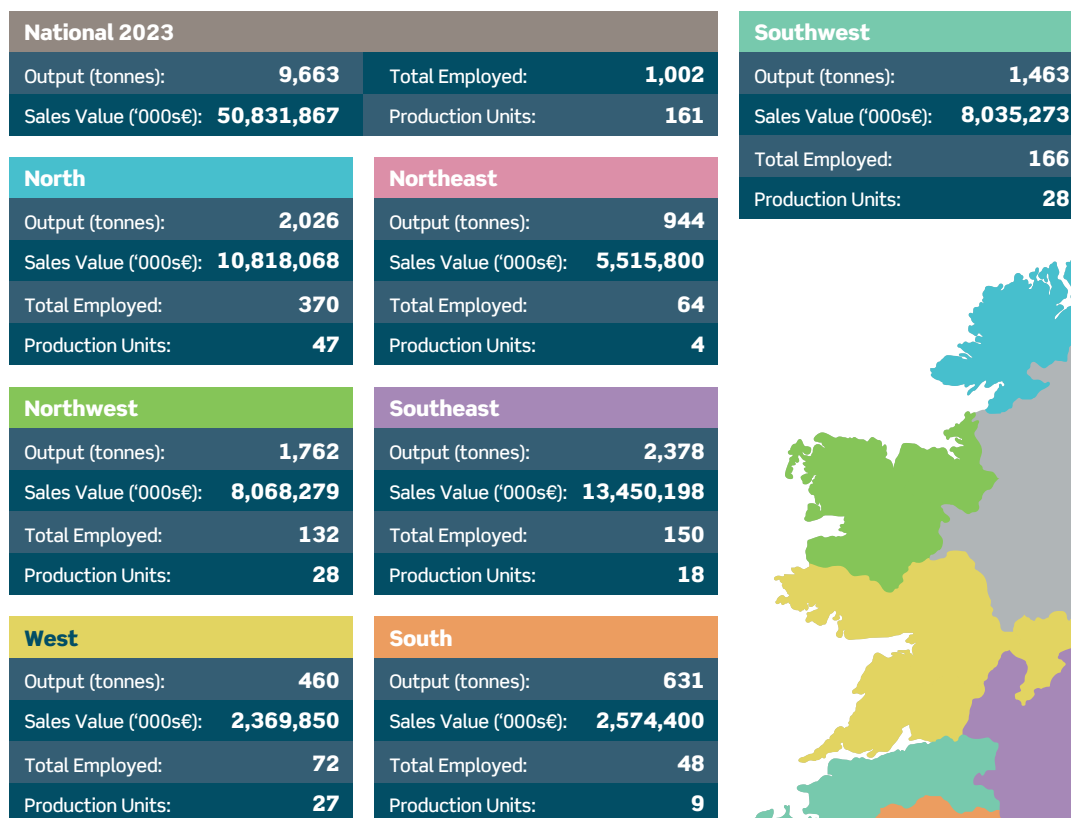
### 3.2.5 Economic performance

Despite increased costs and decreased output and sales revenue, the segment remained economically robust. Total income was €57.9 million, down 8% from 2022. GVA to the economy was €40.1 million, with gross and net profits of €22.3 million and €21 million, respectively, marginally lower than 2022 values.

Regional performances varied, depending on the ability to produce premium-grade oysters, market requirements, and environmental conditions.



**Figure 13:** Farmed oyster 10-year economic performance trend to 2023



**Figure 14:** Map of farmed oyster production and employment by NUTs iii regions in 2023

**Table 14:** Farmed oyster average unit sales value from regions in 2023

Region	Bay	Average unit sales (€)/kg 2023	Average unit sales (€)/kg 2022
North	Donegal Bay	5.98	5.81
North	Lough Foyle	5.56	6.14
North	Trabreaga Bay	5.22	3.58
Northeast	Carlingford Lough	5.80	6.02
Northwest	Achill Island	5.10	4.96
Northwest	Clew Bay	3.89	3.64
South	South Bays Average	4.08	3.72
Southeast	Bannow Bay	5.96	5.98
Southeast	Dungarvan Bay	5.88	5.54
Southwest	Dingle Bay	5.50	5.37
West	Shannon Estuary	3.52	4.11
West	Galway Bay	6.29	4.53

### 3.3 Suspended Mussel Culture

#### 3.3.1 Output

The segment produced 11,058 tonnes of mussels in 2023, with 6,710 tonnes (61%) for the fresh market and 4,348 tonnes (39%) processed. 89% of the fresh product and an unknown tonnage of processed mussels were exported. Output volume and value declined by 16% and 9%, respectively. Unit sales prices per tonne increased to an average of €930 for fresh and €621 for processed mussels. Sales value dropped from €9.8 million to €8.9 million in 2023.

The deep bays in the South contain the largest licensed production capacity. In 2023 the region experienced the most significant drop in output volume; 6,888 tonnes, a drop of 26% on the regions 2022 output. More moderate output declines occurred in the West and North. Moderate output increases occurred in the Southwest and Northwest. Output decreases in 2023 were attributed to a combination of a glut in the export markets and previous poor seed settlement and collection season in certain bays the previous year.

**Table 15:** Suspended mussel national output 2022 to 2023

	National Sales values		
	2022	2023	Output Trend (%)
Rope Mussel			
Sales volume (tonnes)	13,240	11,058	-16
Sales value ('000s €)	9,825	8,909	-9

**Table 16:** Suspended mussel, output product profile, 2022 to 2023

Output category	Tonnes	Sales value (€) per tonne 2023
Total output	11,058	806
Fresh market	6,710	930
For process	4,348	621
Exported	5,991	

### 3.3.2 Employment, production units, capacity

Despite the decrease in output and sales value, paid employment increased by 10 persons (five FTE) to 242 persons in 2023. The increase came in part-time employment, while full-time and casual employment decreased. The number of production units remained stable at 53 units. The average production unit produced 209 tonnes, worth €168,165, employing five persons (3 FTE). In 2023, 1,960 suspended systems over 913 hectares produced €8.9 million in sales revenue.

**Table 17:** Suspended mussel, employment, and production units, 2022 to 2023

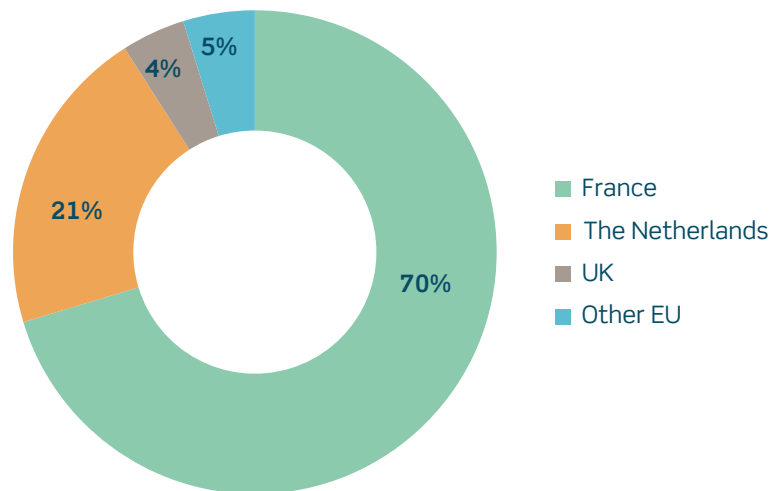
Rope Mussel	2022	2023	% Trend
<b>Employment Category</b>			
Full Time	92	89	-3
Part Time	76	94	24
Casual	64	59	-8
<b>Gender</b>			
Male	207	217	5
Female	25	25	0
Total employed	<b>232</b>	<b>242</b>	<b>4</b>
FTE	<b>141</b>	<b>146</b>	<b>4</b>
<b>Production Unit Category</b>			
5 or less employed	38	39	3
6-10 employed	11	9	-18
10 or more employed	4	5	25
<b>Total Production Units</b>	<b>53</b>	<b>53</b>	<b>0</b>

### 3.3.3 Market Destination

France, the main destination for Irish rope-grown mussels, increased its share of Irish exports to 70% in 2023. The Netherlands accounted for 21% of exports, a 9% decrease from 2022. Other EU Member States and the UK collectively imported 542 tonnes (9%) in 2023.

**Table 18:** Suspended mussel market destinations by % of export in 2023

Destination	Tonnes	% Proportion of export
France	4,213	70
The Netherlands	1,236	21
UK	255	4
EU- Other	287	5
Total exports	5,991	
Ireland	5,067	
Total Output	11,058	



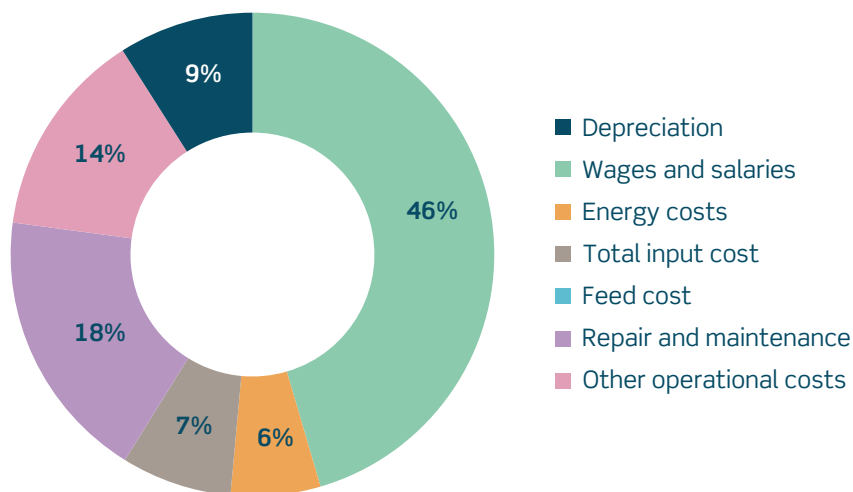
**Figure 15:** Suspended mussel market destinations by % in 2023

### 3.3.4 Costs

Operational costs for producing mussels by suspended culture increased by 7% to €7.9 million in 2023. Wages and salaries, the most significant cost, rose by 15% to €3.6 million. Repairs and maintenance costs increased sharply by 44% to €1.45 million. Other operational costs decreased by 21% but remained significant. Energy and input costs together made up 13% of overall costs. Depreciation costs increased by 23% to €715,891.

**Table 19:** Suspended mussel production costs ('000s €), 2022 to 2023

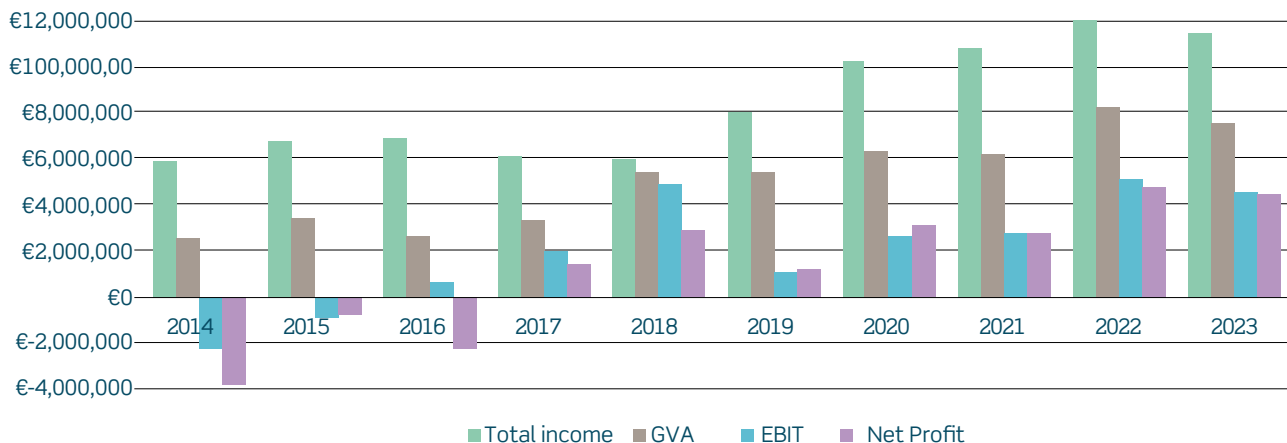
National Totals (000s €)	2022	2023	% Trend, 2022 to 2023	% of Total 2023 cost
Total income	€12,047	€11,402	-5	
Wages and salaries	€3,149	€3,608	15	46
Energy costs	€439	€476	8	6
Input Cost	€798	€586	-27	7
Feed cost	–	–	0	0
Repair and maintenance	€1,008	€1,450	44	18
Other operational costs	€1,400	€1,100	-21	14
Depreciation	€584	€715	23	9
Total costs	€7,380	€7,938	7	
Cost % of Income	61%	73%		



**Figure 16:** Suspended mussel production costs 2023

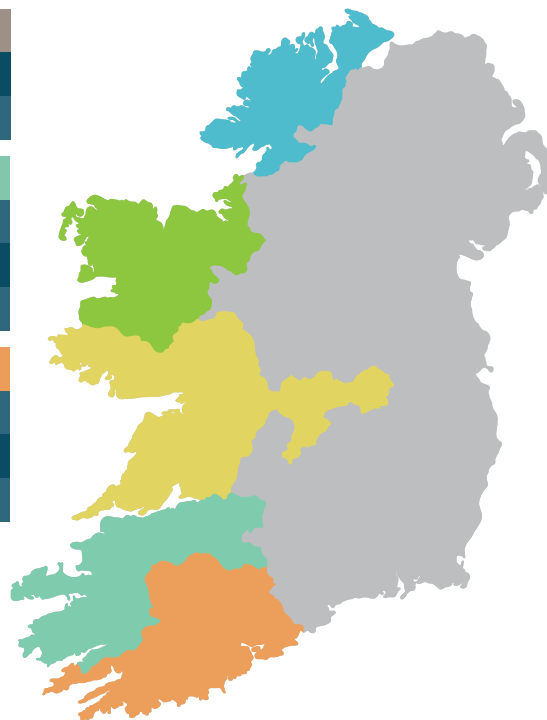
### 3.3.5 Economic performance

Despite revenue declines and rising costs, the segment showed strong economic performance. Total income was €11.4 million, GVA was €7.5 million, and net profit was €4.4 million in 2023, down 5%, 9%, and 8%, respectively from 2022. The segment demonstrated resilience to rising costs and weaker market demand.



**Figure 17:** Suspended mussel 10-year economic performance trend to 2023

National 2023			
Sales volume (tonnes)	11,058	Total Employed:	242
Sales Value ('000s€):	8,909	Production Units:	53
North		Southwest	
Sales volume (tonnes)	920	Sales volume (tonnes)	1,208
Total Employed:	11	Total Employed:	14
Production Units:	2	Production Units:	9
Northwest		South	
Sales volume (tonnes)	829	Sales volume (tonnes)	6,888
Total Employed:	7	Total Employed:	157
Production Units:	1	Production Units:	28
West			
Sales volume (tonnes)	1,213		
Total Employed:	43		
Production Units:	13		



**Figure 18:** Map of suspended mussel output and employment by NUTs iii regions in 2023



### 3.4 Seabed Cultured Mussels

#### 3.4.1 Output

The segment suffered a steep decrease in output volume to 3,626 tonnes and sales value to €3.96 million in 2023, down 47% and 56%, respectively, from 2022. Average unit sales price fell by 16.5% to €1,091 in 2023. All seabed cultured mussels are sold fresh. High mortalities of maturing stocks and weak market demand contributed to this decline. Seed mussel input for 2023 also declined significantly, impacting output for 2024.

The segment produces in Carlingford Lough, Wexford Harbour, and Castlemaine Harbour. The larger dredger operating companies either have sites in more than one location or hire themselves and their vessels to operations outside of their home areas.

At the time of writing, the industry retains the licensed capacity to rebuild output, should seed supply and survival improve along with markets. A sizeable portion of Wexford harbours licensed area is under review for licence removal from the industry to other stakeholders. Removal of these mussel producing licences in Wexford would make recovery of the segment even more difficult. Costs for using the bay such as harbour and berthing dues are reported anecdotally as having risen sharply recently, impacting the cost of keeping the segment's vessels which are essential to its operations.

**Table 20:** Seabed cultured mussel output 2022 to 2023

	National Output values		
	2022	2023	Output Trend (%)
Tonnes produced	6,864	3,626	-47
Sales value ('000s €)	8,966	3,957	-56

#### 3.4.2 Employment, production units, capacity

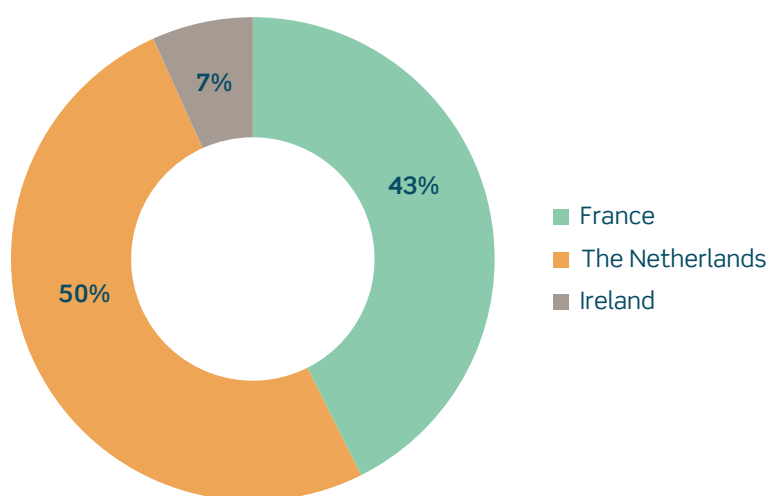
Employment in the segment dropped by 13 persons to 90 (13%) in 2023, with no change in FTE. The decline occurred in part-time and casual employment levels, with some of these positions being made full-time. The number of production units decreased by four to 18, with some remaining units operating at a low level. The average production unit employed five persons (FTE 3.5) and produced 201 tonnes worth €219,374 in 2023. The licensed area for seabed culture mussels in 2023 was 2,154 hectares.

**Table 21:** Seabed cultured mussel employment and production units, 2022 to 2023

Bottom Mussel	2022	2023	% Trend
<b>Employment Category</b>			
Full Time employed	39	46	18
Part Time employed	44	33	-25
Casual employed	20	11	-45
<b>Gender</b>			
Male	95	81	-15
Female	8	9	13
Total employed	<b>103</b>	<b>90</b>	<b>-13</b>
FTE	<b>64</b>	<b>64</b>	<b>0</b>
<b>Production Unit Category</b>			
5 or less employed	16	12	-25
6-10 employed	3	5	67
10 or more employed	3	1	-67
<b>Total Production Units</b>	<b>22</b>	<b>18</b>	<b>-18</b>

### 3.4.3 Markets

The Netherlands and France were the main export destinations for Irish bottom-cultured mussels. In 2023, 1,836 tonnes (50% of total production) went to the Netherlands, and 1,545 tonnes (43%) went to France. Additionally, 245 tonnes (7%) of half-grown stock were sold locally to fattening units in Castlemaine Harbour. The average sales value per tonne of consumer-ready product nationally was €1,091.

**Figure 19:** Seabed cultured mussel market destinations by % of total export volume in 2023

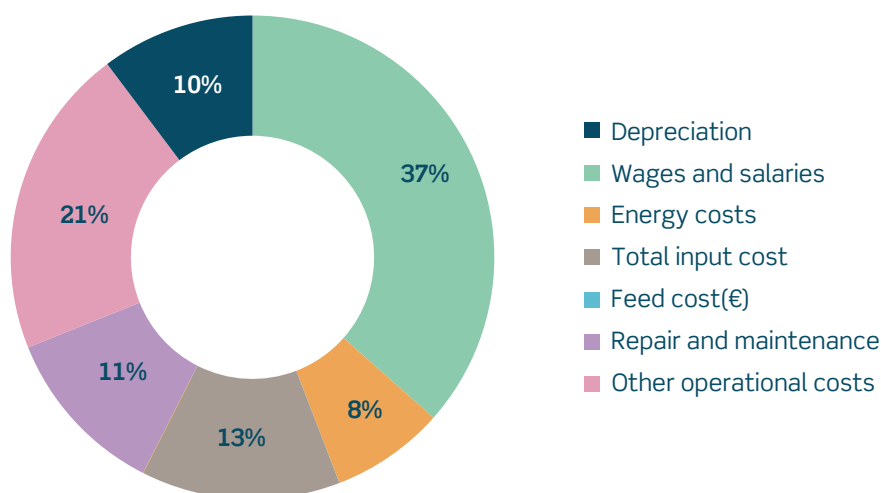
### 3.4.4 Inputs and Costs

In 2023, output and income fell while production costs increased, particularly depreciation, repairs and maintenance, and energy consumption. Costs exceeded income by almost double. Much of the costs are associated with running, maintaining, and crewing the dredgers essential for seed searching, gathering, relaying, husbandry, and harvesting of stock. Wages and salaries made up the largest component of cost, increasing by 16% in 2023.

Total input costs rose by 14%, making up 13% of the total. The segment's viability is dependent on wild seed settlement, which has been erratic in recent years, leading to increased costs in proportion to the time, energy, and distance covered in searching for seed. Other operational costs rose by 14%, making up 21% of the total. Depreciation costs doubled in 2023, making up 10% of all costs, associated with the value of the main asset, the dredger. Repair and maintenance costs increased by 52% in 2023, making up 11% of all costs. Energy costs, although a smaller component, rose sharply by 19% over the period, making up 8% of total costs.

**Table 22:** Seabed cultured mussel production costs ('000s €), 2022 to 2023

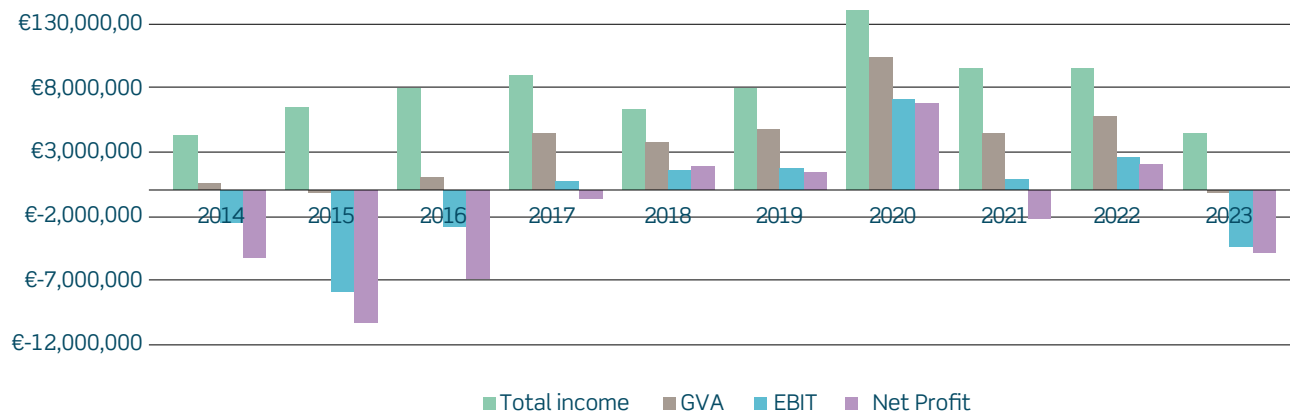
Bottom mussel culture costs ('000s €)	2022	2023	% Trend, 2022 to 2023	% of Total 2023 cost
Total income	€9,523	€4,454	-53	
Wages and salaries	€2,725	€3,160	16	37
Energy costs	€553	€657	19	8
Total input cost	€1,009	€1,153	14	13
Feed cost	€0	€0	–	–
Repair and maintenance	€650	€990	52	11
Other operational costs	€1,582	€1,800	14	21
Depreciation	€422	€887	110	10
Total costs	€6,945	€8,649	25	
Cost % of income	73%	194%		



**Figure 20:** Seabed cultured mussel production costs 2023

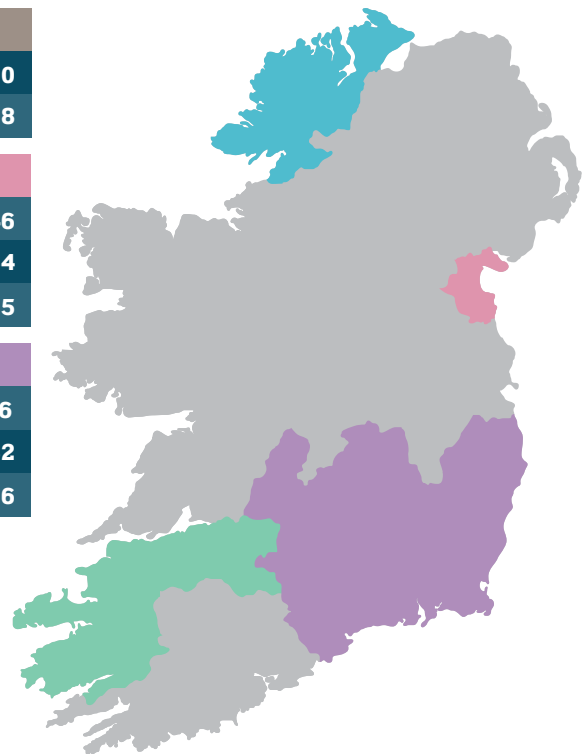
### 3.4.5 Economic performance

Falling incomes and rising costs have caused a severe downturn in the segment's economic performance. The indicators used in this report—GVA, EBIT, and net profit—are all in negative figures, indicating that the segment is in economic distress. Improving seed resource procurement and management, protecting transplanted stock, retaining licensed capacity, and accessing stronger markets are all essential to revitalise the segment.



**Figure 21:** Seabed cultured mussel 10-year economic performance trend to 2023

National 2023			
Output (tonnes)	3,626	Total Employed:	90
Sales Value ('000s €):	3,957,466	Production Units:	18
North		Northeast	
Output (tonnes)	0	Output (tonnes)	946
Total Employed:	0	Total Employed:	34
Production Units:	1	Production Units:	5
Southwest		Southeast	
Output (tonnes)	874	Output (tonnes)	1,806
Total Employed:	24	Total Employed:	32
Production Units:	6	Production Units:	6




























**Figure 22:** Map of seabed cultured mussel output and employment by NUTs iii regions in 2023

## 3.5 Other Segments

In addition to Atlantic salmon, Pacific oyster, and blue mussel cultivation, there are smaller levels of production output from other culture segments. These include seabed culture of other bivalve shellfish, native oyster but also small quantities of king scallop and Manila clam, land-based hatchery production of juvenile salmon, and the on-growing production of rainbow trout.

There is also a growing output from Ireland's newest aquaculture segment, seaweed culture. The smaller culture segments collectively produced 2,109 tonnes of produce with a sales value of over €12 million, employing 426 persons (130 FTE) in 2023.

**Table 23:** Distribution of other aquaculture units in 2023

	Other extensive shellfish	Land based shellfish	Seaweed	Salmon Hatcheries	Freshwater trout	Perch/Charr/Other
Clare						
Cork						
Donegal						
Galway						
Kerry						
Kilkenny						
Mayo						
Offaly						
Roscommon						
Sligo						
Tipperary						
Wexford						
Wicklow						

### 3.5.1 Other seabed cultured shellfish

#### 3.5.1.1 Output

Native oyster production output decreased by 6% to 462 tonnes in 2023. However, the average price per tonne increased by 8% to €6,191, raising the sales value for 2023 by 2% to €2.9 million. Over 90% of the produce is exported to Spain, France, and the Netherlands, with the UK and Italy taking smaller quantities. The most significant producing bays are Tralee Bay, Lough Foyle, and Cork Harbour, with smaller outputs from other west coast areas such as Galway, Kilkieran, Clew, and Blacksod Bays.

Several units in the northwest are attempting to rebuild Manila clam production, which was significant in 2010 before collapsing due to Brown ring disease. The seabed culture of king scallop fell to insignificance from 2017 onwards due to unpredictable wild seed settlement and poor prices. A successful resumption may require a reliable method of induced seed settlement, as several remaining Irish shellfish hatchery units are focused on supplying on-growing farmed oyster units with seed.

**Table 24:** Other bottom bivalve culture output, 2022 to 2023

	2022	2023	% Trend
Volume Tonnes	489	462	-6
Value ('000s €)	2,802	2,860	2

### 3.5.1.2 Employment, business structure, capacity

There are 13 native oyster production units, mainly cooperatives, managing extensive low-density seabed culture in seven bays on the west coast. The culture differs from fisheries in that seabed are prepared for seed settlement using culches, and reseeded programmes are occasionally run.

Employment is almost exclusively Irish, casual male workers, with 309 persons (55 FTE) in 2023. The workforce has a broad representation of age demographics with 88% below retirement age and 10% between the ages of 16 to 24 years. The workforce operates light dredges deployed from two-man half-deckers or open deck vessels over short harvesting seasons. The drop in FTE value in 2023 indicates a shortening of the season. The units worked an estimated 2,200 hectares of cooperative order ground in 2023.

**Table 25:** Other bottom bivalve employment and production units, 2022 to 2023

	2022	2023	% Trend
<b>Employment categories</b>			
Male	278	292	5
Female	18	18	0
Total employed	295	309	5
FTE	58	55	-4
<b>Production Unit Category</b>			
5 or less employed	4	5	25
6-10 employed	2	1	-50
10 or more employed	6	8	33
Total Production Units	12	13	8



**Figure 23:** Outline Ireland map showing the production bay location of Other bivalve shellfish aquaculture by present or recent output volume (tonnes) category.

## 3.5.2 Land-based finfish production

### 3.5.2.1 Output, employment, production units and capacity

Land-based aquaculture, consisting of on-growing rainbow trout, European perch, and other culture units, and the production of Atlantic salmon smolts in hatchery units, increased output by 11% to 1,120 tonnes. However, sales value fell by 3% to €8.6 million in 2023. Trout production mostly supplies the home market (91% in 2023), with the remaining 9% going to the UK. Salmon smolt production supplies national on-growing sea site production.

Occasionally, smolts, parr, or eggs are sold to units in the UK. Lumpfish are grown to remove parasites from sea-site salmon stock. Other culture units produced at low levels or were suspended in 2023. 94 persons (71 FTE) were employed in 2023, a 31% FTE increase, across 14 inland production units. The number of units declined by 22%, and the number of structures used for culturing (tanks, ponds, or cages) fell by 4% to 458, using 80,697m<sup>3</sup> of capacity.

**Table 26:** Land based finfish aquaculture output, employment, and capacity, 2022 to 2023

Variables	2022	2023	% Trend
Tonnage output	<b>1,009</b>	<b>1,120</b>	<b>11</b>
Sales value ('000s €)	€8,881	€8,572	-3
Total employed	68	94	38
FTE	54	71	31
Total Production Units	18	14	-22
Licensed capacity used (m <sup>3</sup> )	104,642	80,697	-23
Ponds, tanks, and cages in use	475	458	-4

### 3.5.2.2 Costs and economic performance

The proportion of costs to income decreased from 85% to 73%, indicating increased profitability for land-based units. All costs decreased due to increased efficiencies and a focus on essential repairs and maintenance rather than sales revenue increases. Despite increased employment, personnel costs decreased by €332,294 (16%).

The imputed value of unpaid labour increased to €607,976, indicating that business owners and their families took on more unpaid work. Significant decreases in repair and maintenance, depreciation, and other operational costs suggest a reduction in non-essential work and investment in capital assets.



**Table 27:** Land based finfish aquaculture production costs ('000s €), 2022 to 2023

Freshwater Finfish ('000s €)	2022	2023	% Trend, 2021 to 2022	% of Total 2022 cost
Total income	€10,618	€9,827	-7	
Wages and salaries	€2,077	€1,745	-16	24
Energy costs	€622	€535	-14	7
Total input cost	€1,062	€1,059	0	15
Feed cost	€2,471	€2,430	-2	34
Repair and maintenance	€490	€257	-48	4
Other operational costs	€1,746	€789	-55	11
Depreciation	€537	€352	-34	5
Total costs	€9,008	€7,169	-20	
Cost % of income	85%	73%		

### 3.5.3 Seaweed

#### 3.5.3.1 Output, employment, and capacity

Seaweed aquaculture output increased by 8% to 532 tonnes in 2023. Sales value generated increased by 64% to €650,739. FTE remained unchanged, though total employment declined by four persons to 29. One production unit ceased operations, leaving eight active units in 2023. The trend indicates a maturing segment, with the most viable units progressing to commercial-level production.

In 2023, 252 suspended longline systems over 1,210 licensed hectares produced the output. The most cultured plant is the fast-growing *Alaria esculentia* ('winter weed'), with seed supplied on rope by the hatchery and harvested by May or June. Other weeds grown include *Laminaria* and *Saccharina* species. Wet weight product prices range from €1 to €3 per kilogram, depending on the species.

**Table 28:** Seaweed culture output and employment, 2022 to 2023

Year	2022	2023	% Trend
Tonnage output	493	532	8
Sales value ('000s €)	396	650	64
Total employed	33	29	-12
FTE	19	19	0
Total Production Units	9	8	-11
Licensed capacity (hectares)	990	1,210	22
Number of structures used	343	252	-27

**Table 29:** Seaweed culture income to costs, 2022 to 2023

Year	2022	2023	% Trend
Total income	€1,050,937	€832,825	-21
Wages and salaries	€130,952	€536,842	310
Energy costs	€41,210	€91,057	121
Total Input cost	€30,540	€32,540	7
Feed cost	–	–	0
Repair and maintenance	€52,985	€50,842	-4
Other operational costs	€8,275	€89,263	85
Depreciation	€145,706	€177,838	22
Total costs	€449,669	€978,382	118
Costs % of income	43%	117%	

# Appendices

## Appendix 1: Concepts, terms, and definitions

### Financial Position:

The financial position of a business or grouping of them is an EU Data Collection Framework economic indicator measuring liquidity.

*The formula is:  $(\text{Assets} - \text{debt} / \text{debt}) * 100$*

### Future Expectations of the industry (FEI):

A measure of its trend towards growing, surviving, or leaving the sector, depending on its value being positive, zero or negative, in that order.

*The formula is:  $(\text{Net investment} - \text{Depreciation} / \text{assets})$*

### Turnover:

Comprises the totals invoiced during the reference period and corresponds to market sales of goods or services supplied to third parties. Turnover includes all duties and taxes on the goods or services invoiced by the unit with the exception of the VAT invoiced by the unit vis-à-vis its customer and other similar deductible taxes linked to turnover. It also includes all other charges (e.g., transport, packaging) passed on to the customer, even if these charges are listed separately in the invoice. Reduction in prices, rebates, and discounts as well as the value of returned packing must be deducted. Income classified as other operating income, financial income and extraordinary income in company accounts is excluded from turnover.

### Subsidies:

The financial assistance received from public authorities or the institutions of the European Union which are excluded from turnover. It includes direct payments, e.g., compensation for stopping trading, refunds of fuel duties or similar lump sum compensation payments; excludes social benefit payments and indirect subsidies (e.g., reduced duty on inputs such as fuel or investment subsidies).

### Other income:

Refers to other operating income included in company accounts which are excluded from turnover; income coming from other activities than aquaculture (e.g., the licensing of ponds for recreational fishery purposes).

### Wages and salaries:

Defined as “the total remuneration, in cash or in kind, payable to all persons counted on the payroll (including homeworkers), in return for work done during the accounting period.” Regardless of whether it is paid on the basis of working time, output, or piecework and whether it is paid regularly or not. Wages and salaries include the values of any social contributions, income taxes etc. payable by the employee even if they are, withheld by the employer and paid directly to social insurance schemes, tax authorities, etc. on behalf of the employee. Wages and salaries do not include social contributions payable by the employer.

### Social security costs:

Employers' social security costs correspond to an amount equal to the value of the social contributions incurred by employers to secure for their employees, the entitlement to social benefits.

Imputed value of unpaid labour: Unpaid workers normally refer to persons who live with the proprietor of the unit and work regularly for the unit, but do not have a contract of service and do not receive a fixed sum for the work they perform. This is limited to persons who are not included on the payroll of another unit as their principal occupation. Thus, imputed value of unpaid labour estimates the value of the salaries that these unpaid workers would have received if their work was remunerated.

### Energy costs:

Corresponds to the purchase of energy products (in value) during the reference period.

### Livestock costs:

Correspond to the variable livestock volume.

### Feed costs:

Include the purchasing costs of the feed during the reference period. The feed costs should correspond to feed volume.

### Repair and maintenance:

Under repair and maintenance there should be included the costs incurred to bring an asset back to its earlier condition or to keep the asset operating at its present condition (as opposed to improving the asset).

### Other operational costs:

Comprise outsourcing costs, property or equipment rental charges, the cost of raw materials and supplies that cannot be held in the inventory and have not been already specified (i.e. water, small items of equipment, administrative supplies, etc.), insurance premiums, studies and research costs, external personnel charges, fees payable to intermediaries and professional expenses, advertising costs, transportation charges, travel expenses, the costs of meetings and receptions, postal charges, bank charges (but not interest on bank loans) and other items of expenditure.

### Depreciation of capital:

Refers to the decline in value of the assets. In accounting, it is used as the allocation of the cost of tangible assets to periods in which the assets are used, to reflect this decline in their value.

### Livestock (volume):

Volume of livestock purchased during the reference period. The livestock volume should correspond to the livestock cost.

### Fish feed (volume):

Volume of feed purchased during the reference period. The feed volume should correspond to feed cost.

### Volume of sales:

The volume of sales should correspond to the variable on turnover value.

### Number of persons employed (Total employment):

This indicator refers to the number of people employed (including full-time and part-time employees inclusive of working proprietors, partners working regularly in the unit and unpaid family workers), as well as persons who work outside the unit who belong to it and are paid by it (e.g., sales representatives, delivery personnel, repair, and maintenance teams). The number of employees should be reported by gender.

### FTE National:

The number of employees converted into full time equivalents (calculation methodologies vary between countries).

### Number of enterprises:

This parameter corresponds to a count of the number of enterprises active during at least a part of the reference period.

### Average wage:

The average salary or mean wage estimates the salary an employee working full time is receiving in this sector. It includes the salaries, the social security costs, and imputed value of unpaid labour.

*Mean wage = (Wages and salaries + Imputed value of unpaid labour) / FTE*

### Gross Value Added (GVA):

Measures the contribution of the sector to the economy and is defined as the gross income from operating activities after adjusting for operating subsidies and indirect taxes. It can be calculated from turnover, plus capitalised production, plus, other operating income, plus or minus the changes in stocks, minus the purchases of goods and services, minus other taxes on products which are linked to turnover but not deductible, minus the duties and taxes linked to production. Gross Value Added is calculated on this report as:

$$GVA = \text{Turnover} + \text{Other Income} - \text{Energy costs} - \text{Livestock costs} - \text{Feed costs} - \text{Repair and maintenance} - \text{Other Operational costs}.$$

### GVA to Revenue:

Indicates the share of revenue that contributes to the economy through factors of production (returns to labour and returns to capital). Indicator is calculated as the ratio between gross value added and revenue (the sum of Turnover and Other Income). Expressed as a percentage.

$$GVA \text{ to Revenue} = \frac{GVA}{\text{Turnover} + \text{Other Income}} \times 100\%$$

### Earnings Before Interest and Tax (EBIT):

Or “Operating profit” is a measure of a firm's profitability that excludes interest and income tax expenses.

$$EBIT = \text{Turnover} + \text{Other Income} + \text{Subsidies} - \text{Energy costs} - \text{Wages and salaries} - \text{Imputed value of unpaid labour} - \text{Livestock costs} - \text{Feed costs} - \text{Repair and maintenance} - \text{Other}$$

### Net profit:

Measure of a firm's profitability that includes the results of financial activity of the enterprise.

### Net profit margin:

Measure of the economic performance of a sector or enterprise expressed in relative terms. It is a difference between total income and all incurred costs (operating, capital and financial). Expressed as a percentage.

## Appendix 2: Aquaculture output tonnage by culture Groups, 2014 to 2023

Culture Groups	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Bottom Mussel	3,206	5,697	6,475	7,491	4,697	4,894	4,354	5,865	6,864	3,626
Caged Salmon	9,666	13,477	16,718	18,686	12,044	11,567	12,870	13,214	11,862	9,289
Farmed oyster	8,939	8,953	9,459	9,990	10,196	9,899	8,763	10,823	11,038	9,663
Minor Finfish	886	848	720	647	557	608	604	537	398	488
Other Bottom Bivalves	581	521	413	241	250	256	233	440	489	462
Rope Mussel	8,169	10,318	9,770	8,582	9,604	10,460	10,375	11,575	13,240	11,058
Salmon Hatchery	190	166	191	201	196	167	462	153	149	163
Seaweed	73	76	54	96	97	73	75	215	493	532
<b>National value</b>	<b>31,709</b>	<b>40,057</b>	<b>43,799</b>	<b>45,934</b>	<b>37,640</b>	<b>37,922</b>	<b>37,735</b>	<b>42,822</b>	<b>44,532</b>	<b>35,280</b>

### Appendix 3: Aquaculture Sales value by culture groups, 2014 to 2023

Culture Groups	2014	2015	2016	2017
Bottom Mussel	€4,181,450	€6,015,030	€5,858,497	€8,829,931
Caged Salmon	€58,770,266	€92,266,814	€105,997,716	€134,927,870
Farmed oyster	€39,297,661	€34,961,262	€41,175,352	€43,727,845
Minor Finfish	€3,132,950	€2,727,910	€2,038,910	€1,970,910
Other Bottom Bivalves	€2,995,525	€2,816,550	€2,417,250	€1,387,150
Rope Mussel	€5,394,809	€6,672,827	€6,479,047	€5,774,665
Salmon Hatchery	€2,157,500	€2,414,000	€2,647,000	€3,937,000
Seaweed	€383,000	€637,500	€432,700	€342,400
<b>National value</b>	<b>€116,313,161</b>	<b>€148,511,893</b>	<b>€167,046,472</b>	<b>€200,897,771</b>

### Appendix 4: Aquaculture total employment number by culture groups, 2014 to 2023 (DCF frame population)

Culture Groups	2014	2015	2016	2017
Bottom Mussel	120	107	114	124
Caged Salmon	150	159	180	169
Farmed oyster	725	772	800	834
Minor Finfish	29	26	23	19
Other Bottom Bivalves	502	462	507	491
Rope Mussel	260	256	262	240
Salmon Hatchery	34	32	31	43
Seaweed	28	32	33	31
<b>National value</b>	<b>1,848</b>	<b>1,846</b>	<b>1,950</b>	<b>1,951</b>

2018	2019	2020	2021	2022	2023
€6,074,218	€7,885,878	€7,067,211	€9,141,696	€8,966,418	€3,957,466
€97,282,392	€109,005,515	€118,942,346	€106,108,320	€101,550,851	€94,753,683
€44,609,884	€44,057,456	€36,735,163	€47,551,477	€54,483,948	€50,831,86
€1,635,000	€1,674,425	€1,882,885	€1,762,045	€2,224,091	€2,310,700
€1,375,000	€1,238,650	€853,850	€2,037,000	€2,802,838	€2,860,181
€6,069,065	€6,906,938	€6,200,213	€7,952,015	€9,824,756	€8,909,270
€3,578,322	€3,108,931	€7,831,331	€3,437,000	€3,512,100	€3,983,500
€346,600	€260,200	€271,265	€753,115	€396,239	€650,739
<b>€160,970,480</b>	<b>€174,137,992</b>	<b>€179,784,263</b>	<b>€178,742,668</b>	<b>€183,761,242</b>	<b>€168,257,406</b>

2018	2019	2020	2021	2022	2023
112	102	110	84	103	90
199	215	170	245	253	229
847	837	850	1,033	1,037	1,002
20	22	22	21	26	22
505	524	376	273	295	309
228	226	249	226	232	242
31	28	47	26	25	28
29	32	34	35	33	29
<b>1,971</b>	<b>1,986</b>	<b>1,858</b>	<b>1,943</b>	<b>2,004</b>	<b>1,951</b>

## Appendix 5: Aquaculture Economic performance 2014 to 2023

Variable	2014	2015	2016	2017
Turnover	€116,298,661	€148,594,293	€167,724,372	€200,017,543
Subsidies	€1,719,820	€1,816,919	€4,316,202	€1,724,345
Financial income	–	–	–	€32,269,404
Other income	–	–	–	€979,456
Other income total	€1,719,820	€1,816,919	€4,316,202	34,973,205
Total income	€126,521,383	€154,505,319	€176,106,777	€234,990,748
Wages and salaries	€28,256,803	€30,872,908	€27,854,618	€26,830,773
Imputed value of unpaid labour	€1,789,891	€1,517,451	€1,416,301	€852,315
Energy costs	€3,782,682	€4,160,373	€4,988,212	€2,693,931
Raw material costs: Livestock costs	€14,678,690	€28,504,784	€16,886,284	€14,280,006
Raw material costs: Feed costs	€24,903,003	€20,100,628	€36,196,864	€31,099,907
Repair and maintenance	€7,034,956	€9,412,331	€9,851,804	€9,721,112
Other operational costs	€25,238,866	€29,141,074	€33,084,156	€18,099,786
Depreciation of capital	€5,028,579	€9,132,866	€5,745,397	€9,057,950
Financial costs, net	€6,367,228	€8,979,875	€4,877,908	€3,084,344
Extraordinary costs, net	€6,997,236	€40,242,642	€4,914,061	€47,924,575
Sum of costs*	€115,290,807	€140,304,839	€139,485,242	€114,867,810
Total value of assets	€199,768,441	€175,865,728	€190,942,888	€194,431,686
Net Investments	€20,441,417	€3,833,551	€7,208,575	€7,639,443
Debt	€85,968,019	€76,138,898	€84,362,877	€66,635,403
Raw material volume: Livestock	15,866	17,592	15,612	14,083
Raw material volume: Feed	€17,030	€13,333	€23,883	€22,576
Total sales volume	€31,659	€40,128	€44,018	€45,726
Male employees	1,692	1,713	1,798	1,773
Female employees	129	118	150	150
Total employees**	1,821	1,830	1,948	1,923
Male FTE	871	917	950	950
Female FTE	70	67	78	78
Total FTE	941	983	1,027	1,026
Number of enterprises <=5 employees	197	200	194	185
Number of enterprises 6-10 employees	49	48	61	67
Number of enterprises >10 employees	31	31	34	30

Red font = provisional data

\* Excluding value of unpaid labour

\*\* Including all hatcheries



2018	2019	2020	2021	2022	2023
€179,455,531	€175,288,680	€179,962,851	€178,878,868	€183,769,642	€168,187,524
€2,769,867	€1,720,133	€9,538,153	€2,224,592	€3,152,309	€2,259,622
€776,749	€989,726	€5,971,344	€373,574	€3,310,584	€1,221,105
€1,688,522	€3,387,468	€16,700,557	€11,398,805	€10,357,665	€10,482,636
€5,235,137	€6,097,327	€32,210,055	€13,996,971	€16,820,559	€11,703,740
€184,690,669	€178,143,158	€212,172,906	€192,875,840	€199,323,809	€182,150,887
€29,820,207	€31,027,724	€34,331,124	€33,697,747	€38,979,147	€40,766,394
€1,966,961	€309,763	€3,480,619	€2,203,905	€2,030,695	€2,602,282
€9,564,373	€2,736,982	€3,689,535	€5,573,681	€10,638,427	€9,399,532
€12,317,040	€18,623,317	€14,679,024	€32,024,488	€22,279,113	€22,739,977
€23,658,466	€21,733,606	€30,536,557	€37,995,860	€37,039,447	€41,893,221
€9,397,921	€5,949,501	€7,777,028	€9,548,801	€14,544,483	€15,621,435
€65,402,360	€64,917,632	€60,710,589	€64,934,180	€39,182,691	€41,177,914
€9,346,213	€12,488,705	€10,030,618	€9,193,925	€10,617,487	€12,021,659
€1,355,238	€1,301,243	€18,300,472	€8,786,587	€3,440,061	€3,754,250
€5,308,483	€2,110,405	€0	€0	€0	€0
€160,861,817	€158,778,709	€180,054,946	€191,122,449	€176,720,856	€187,374,383
€240,470,462	€315,087,657	€315,087,657	€252,253,199	€280,079,898	€280,079,898
€10,548,856	€11,130,926	€11,130,926	€6,728,866	€11,566,556	€11,566,556
€79,492,327	€70,675,213	€70,675,213	€79,528,553	€91,607,858	€91,607,858
860,790	3,361,766	12,138,047	5,050,377	14,207,069	8,212,384
€16,347	€20,113	€20,388	€24,328	€20,853	€19,946
€37,201	€38,289	€37,822	€42,970	€44,532	€35,269
1,709	1,824	1,665	1,768	1,764	1,738
149	162	188	189	240	213
1,858	1,986	1,853	1,957	2,004	1,961
1,006	999	926	1,038	1,033	1,019
77	81	90	106	138	124
1,083	1,080	1,016	1,128	1,171	1,143
181	200	208	220	188	178
68	48	61	57	59	51
32	40	41	41	44	51

## Appendix 6: Aquaculture Economic Indicators 2014 to 2023

	2014	2015	2016	2017
Total sales volume €	40,128	44,018	45,726	37,201
Total income €	154,505,319	176,106,777	234,990,748	184,690,669
Gross Value Added (GVA) €	57,275,103	66,717,053	157,371,661	61,580,642
Operating Capital Flow (OCF) €	28,219,114	43,178,637	132,265,233	34,530,302
Earnings Before Interest and Tax (EBIT)	17,568,797	36,016,940	122,354,967	23,217,129
Net Profit €	-31,653,720	26,224,971	71,346,048	16,553,408
Return on investment (ROI)	0.1	0.2	0.6	0.1
Financial Position	1.3	1.3	1.9	2.0
Full Time Equivalent (FTE)	983	1,027	1,026	1,083
Subsidies	1,816,919	4,316,202	1,724,345	2,769,867
Labour productivity	58,244	64,991	153,381	56,861
Capital productivity	0.3	0.3	0.8	0.3
Running cost to turnover ratio	82	77	51	84
EBIT to turnover ratio	11	20	52	13
GVA per FTE €	58,244	64,991	153,381	56,861

2018	2019	2020	2021	2022	2023
38,289	37,822	42,970	44,723	44,532	35,269
178,143,158	212,172,906	192,875,840	206,891,417	199,323,809	182,150,887
65,704,836	85,242,020	40,574,238	67,990,626	73,753,729	49,028,068
36,397,245	60,449,050	9,101,083	30,514,865	37,926,892	46,837,305
23,598,777	46,937,813	-2,296,747	15,723,930	25,278,710	-4,102,646
20,187,129	28,637,341	-11,083,335	11,409,787	21,838,649	-7,856,896
0.1	0.1	-0.0	0.1	0.1	-1.5
3.5	3.5	2.2	1.9	2.1	205.7
1,080	1,016	1,128	1,170	1,171	1,117
1,720,133	9,538,153	2,224,592	2,224,592	3,152,309	2,259,622
60,822	83,900	35,964	58,112	62,992	43
0.2	0.3	0.2	0.3	0.3	17.5
83	84	103	95	89	102
13	22	-1	8	13	-2
60,822	83,900	35,964	58,112	62,992	43,199



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