
The New Zealand Seafood Industry Council

Economic Impact Assessment for
New Zealand Regions

By

McDermott Fairgray Group Ltd

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CONTENTS

1	SUMMARY	1
1.1	OBJECTIVE.....	1
1.2	RESULTS	1
1.3	SEAFOOD INDUSTRY DESCRIPTION.....	1
1.4	DIRECT ECONOMIC IMPACTS.....	1
1.5	INDIRECT AND INDUCED ECONOMIC IMPACTS	2
1.6	TOTAL ECONOMIC IMPACTS	2
1.7	REGIONAL SUMMARY.....	3
2	INTRODUCTION	4
2.1	BACKGROUND	4
2.2	OBJECTIVE.....	4
3	METHODOLOGY	5
3.1	OVERVIEW	5
3.2	INPUT-OUTPUT ANALYSIS	5
3.3	REGIONALISATION METHOD	6
3.4	THE ECONOMIC IMPACTS	9
4	NEW ZEALAND	12
4.1	BACKGROUND AND CONTEXT	12
4.2	POPULATION AND EMPLOYMENT.....	13
4.3	ECONOMIC STRUCTURE.....	14
4.4	ECONOMIC OUTLOOK	24
5	REGIONAL SUMMARY	25
5.1	INTRODUCTION AND OVERVIEW.....	25
5.2	IMPACTS BY REGION.....	28

APPENDIX ONE: DETAILED REGIONAL IMPACTS - NORTH ISLAND

1	NORTHLAND	1
1.1	BACKGROUND AND CONTEXT	1
1.2	POPULATION AND EMPLOYMENT.....	1
1.3	ECONOMIC STRUCTURE.....	2
2	AUCKLAND	11
2.1	BACKGROUND AND CONTEXT	11
2.2	POPULATION AND EMPLOYMENT.....	11
2.3	ECONOMIC STRUCTURE.....	12
2.4	ECONOMIC OUTLOOK	20
3	WAIKATO	21
3.1	BACKGROUND AND CONTEXT	21
3.2	POPULATION AND EMPLOYMENT.....	21
3.3	ECONOMIC STRUCTURE.....	22
3.4	ECONOMIC OUTLOOK	30
4	BAY OF PLENTY	31
4.1	BACKGROUND AND CONTEXT	31
4.2	POPULATION AND EMPLOYMENT.....	31
4.3	ECONOMIC STRUCTURE.....	32
4.4	ECONOMIC OUTLOOK	41
5	GISBORNE	42
5.1	BACKGROUND AND CONTEXT	42
5.2	POPULATION AND EMPLOYMENT.....	42
5.3	ECONOMIC STRUCTURE.....	43
5.4	ECONOMIC OUTLOOK	53
6	HAWKE'S BAY	54
6.1	BACKGROUND AND CONTEXT	54
6.2	POPULATION AND EMPLOYMENT.....	54
6.3	ECONOMIC STRUCTURE.....	55
6.4	ECONOMIC OUTLOOK	64

7	TARANAKI	65
7.1	BACKGROUND AND CONTEXT	65
7.2	POPULATION AND EMPLOYMENT.....	65
7.3	ECONOMIC STRUCTURE.....	66
7.4	ECONOMIC OUTLOOK	74
8	MANAWATU-WANGANUI	75
8.1	BACKGROUND AND CONTEXT	75
8.2	POPULATION AND EMPLOYMENT.....	75
8.3	ECONOMIC STRUCTURE	76
8.4	ECONOMIC OUTLOOK	85
9	WELLINGTON	86
9.1	BACKGROUND AND CONTEXT	86
9.2	POPULATION AND EMPLOYMENT.....	86
9.3	ECONOMIC STRUCTURE.....	87
9.4	ECONOMIC OUTLOOK	95

APPENDIX TWO: DETAILED REGIONAL IMPACTS - SOUTH ISLAND

1	MARLBOROUGH	1
1.1	BACKGROUND AND CONTEXT	1
1.2	POPULATION AND EMPLOYMENT.....	1
1.3	ECONOMIC STRUCTURE.....	2
1.4	ECONOMIC OUTLOOK	11
2	NELSON.....	12
2.1	BACKGROUND AND CONTEXT	12
2.2	POPULATION AND EMPLOYMENT.....	12
2.3	ECONOMIC STRUCTURE.....	13
2.4	ECONOMIC OUTLOOK	21
3	TASMAN	22
3.1	BACKGROUND AND CONTEXT	22
3.2	POPULATION AND EMPLOYMENT.....	22
3.3	ECONOMIC STRUCTURE.....	23
3.4	ECONOMIC OUTLOOK	30
4	WEST COAST.....	31
4.1	BACKGROUND AND CONTEXT	31
4.2	POPULATION AND EMPLOYMENT.....	31
4.3	ECONOMIC STRUCTURE.....	32
4.4	ECONOMIC OUTLOOK	40
5	CANTERBURY	41
5.1	BACKGROUND AND CONTEXT	41
5.2	POPULATION AND EMPLOYMENT.....	41
5.3	ECONOMIC STRUCTURE.....	42
5.4	ECONOMIC OUTLOOK	53
6	OTAGO	55
6.1	BACKGROUND AND CONTEXT	55
6.2	POPULATION AND EMPLOYMENT.....	55
6.3	ECONOMIC STRUCTURE.....	56
6.4	ECONOMIC OUTLOOK	65

7	SOUTHLAND	66
7.1	BACKGROUND AND CONTEXT	66
7.2	POPULATION AND EMPLOYMENT.....	66
7.3	ECONOMIC STRUCTURE.....	67
7.4	ECONOMIC OUTLOOK	76

1 SUMMARY

1.1 OBJECTIVE

The objective of this study is to provide an assessment of the total economic impact resulting from the presence of the seafood industry in New Zealand, and each Regional Council area.

1.2 RESULTS

- The seafood industry has a direct economic impact of about \$546 million of value-added, \$1.8 billion of output and 10,520 full time equivalent (FTE) persons.
- The indirect and induced impact is estimated at \$1.2 billion of value-added, \$2.6 billion of output and 16,100 FTEs.
- The industry's total economic impact amounts to a \$1.7 billion contribution to GDP, \$4.5 billion to total output and an employment impact of 26,620 FTEs.

1.3 SEAFOOD INDUSTRY DESCRIPTION

- The industry comprises ocean and coastal fishing and fishing consultants, fishing in inland waters and fish farming, and fish and shellfish processing. Fish and shellfish processing is the largest component, with 61 percent of output, 55 percent of value added, and 72 percent of FTEs.

1.4 DIRECT ECONOMIC IMPACTS

- The seafood industry directly contributes \$546 million of value added to the national economy, in output terms this equates to \$1.8 billion of transactions.
- In terms of employment, the industry directly generates about 10,520 FTEs. Fish and shellfish processing plants account for around half of this.

1.5 INDIRECT AND INDUCED ECONOMIC IMPACTS

- The indirect and induced economic impacts arising from inter-linkages with other industries amount to slightly less than \$1.2 billion value added. More than \$820 million of this is attributable to processing operations.
- The indirect and induced economic impacts measured in output terms amount to \$2.6 billion, with \$1.8 billion generated via processing.
- The employment impact resulting from indirect and induced activity is estimated at approximately 16,100 FTEs.

1.6 TOTAL ECONOMIC IMPACTS

- The total direct, indirect and induced economic impact of the seafood industry is just over \$1.7 billion of value-added, about 1.8 percent of New Zealand's GDP. In output terms the impact is \$4.5 billion.
- Total employment impacts amount to about 26,620 FTEs, or 1.8 percent of total New Zealand employment.

Table 1.1 Seafood Industry Impact Summary

Source: McDermott Fairgray Group Ltd

	Fishing Impacts	Fish & Shellfish Processing Impacts	TOTAL
<i>Output (\$m)</i>			
Direct	700.3	1,120.8	1,821.1
Indirect	518.5	1,444.8	1,963.3
Induced	211.5	471.6	683.1
Total	1,430.2	3,037.3	4,467.5
<i>Value Added (\$m)</i>			
Direct	244.1	302.3	546.4
Indirect	249.2	610.3	859.4
Induced	100.9	227.1	328.0
Total	594.2	1,139.7	1,733.8
<i>Employment (FTEs)</i>			
Direct	4,650	5,870	10,520
Indirect	2,680	8,770	11,450
Induced	1,410	3,240	4,650
Total	8,740	17,880	26,620

1.7 REGIONAL SUMMARY

- The most significant contributions to value added and employment are made in those regions with large fish processing industries.
- The upper South Island, consisting of the Nelson, Marlborough and Tasman regions account for about 38 percent of the value added by the seafood industry to New Zealand economy. In turn, these regions account for 9,030 FTEs or 30 percent of the total employment.
- Nelson Region provides the largest individual contribution to GDP at \$383m or nearly 25 percent of the national total - \$117m directly, \$217m through inter-industry linkages and a further \$49m through induced consumer expenditure. Canterbury and Auckland Regions also make significant contributions to GDP, respectively \$286m and \$166m.
- Nelson Region also has the largest employment impact, generating 2,160 direct jobs and a further 3,280 through inter-industry linkages and consumer spending.

Table 1.2: Regional Economic Impact

Source: McDermott Fairgray Group Ltd.

Region	Value Added (\$m)				Employment (FTEs)			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
Northland	22	31	7	60	450	280	130	860
Auckland	56	78	25	160	1,080	980	430	2,490
Waikato	19	10	4	33	450	160	70	680
Bay of Plenty	25	40	10	75	450	380	180	1,010
Gisborne	8	7	2	16	130	90	20	240
Hawke's Bay	13	19	5	37	230	150	90	470
Taranaki	3	4	1	8	60	30	20	110
Manawatu-Wanganui	12	7	3	22	220	110	50	380
Wellington	27	28	9	64	490	380	160	1,030
Marlborough	46	72	16	133	1,100	950	280	2,330
Nelson	117	217	49	383	2,160	2,410	870	5,440
Tasman	35	30	7	71	650	490	120	1,260
West Coast	17	20	4	41	310	270	80	660
Canterbury	89	152	45	286	1,590	2,050	790	4,430
Chatham Islands	10	8	1	19	170	90	10	270
Otago	24	35	9	68	430	410	160	1,000
Southland	32	44	9	84	540	440	160	1,140
Total	555	801	205	1,561	10,510	9,670	3,620	23,800
New Zealand	546	859	328	1,734	10,520	11,450	4,650	26,620

* Direct regional impacts do not sum exactly to NZ totals due to rounding.

**The leakage from individual regions (which is influenced by inter-regional and international imports) sums to more than the leakage from the nation as a whole (which is based only on international imports). Consequently, national level multipliers are larger than the regional multipliers, leading to greater estimates of total impacts.

2 INTRODUCTION

2.1 BACKGROUND

New Zealand Seafood Industry Council wishes to undertake an analysis of the seafood industry's contribution to the economy at a regional level. The seafood industry includes the catching sector, aquaculture production, at sea and onshore seafood processing, wholesale, retailing and export.

The results of this study are to form part of a wider economic review of the seafood industry. The review documents the industry's triple bottom line of:

- Economic performance
- Environmental sustainability
- Contribution to social cohesion

2.2 OBJECTIVE

The objective of this study is to provide an assessment of the total economic impact resulting from the presence of the seafood industry in New Zealand, and in particular, to assess these impacts at the regional level. McDermott Fairgray Group Ltd has been commissioned by New Zealand Seafood Industry Council to undertake this study.

3 METHODOLOGY

3.1 OVERVIEW

In this study input-output tables have been used to assess the economic value of the seafood industry at both the regional and national level. These tables are based on Statistics New Zealand's 1994-95 Inter-industry Study of New Zealand Economy, the latest available. This table has been updated to 1997-98 and "regionalised" to produce input-output tables for each region in New Zealand. These tables have, in turn, been used to calculate output, value added and employment multipliers necessary to analyse the direct, indirect and induced impacts associated with the presence of the seafood industry.

3.2 INPUT-OUTPUT ANALYSIS

The input-output tables generated in this study cover 51 sectors, providing a detailed "snapshot" of the economy in a simple table format. Included are three customised sectors representing the seafood industry: (1) ocean and coastal fishing and fishing consultants, (2) fishing in inland water and fish farming, and (3) fish and shellfish processing (Table 3.1).

Table 3.1 Definition of Industries

Source: McDermott Fairgray Group

Industry Description	Industry Description
1 Sheep, beef & mixed livestock	27 Gas Treatment & Distribution
2 Dairy	28 Water works and supply
3 Horticulture	29 Construction
4 Services to Agriculture	30 Wholesale and Retail Trade
5 All other farming	31 Accommodation, Restaurants & Cafes
6 Hunting	32 Road Transport incl Rail
7 Forestry & Logging	33 Services Allied to Transport
8 Oil and Gas Exploration and Extraction	34 Water Transport
9 Other mining & quarrying	35 Air Transport
10 Meat and Meat Products Manufacturing	36 Communications Services
11 Dairy Products	37 Finance
12 Manufacture of other food	38 Services to Finance and Insurance
13 Beverage, Malt & Tobacco Manufacture	39 Insurance
14 Textile and Apparel Manufacture	40 Real Estate
15 Wood & Wood Products	41 Business Services
16 Paper and Paper Product Manufacturing	42 Ownership of Owner-Occupied Dwellings
17 Printing & Publishing	43 Education
18 Rubber, Plastic and Other Chemical Product Mfg	44 Health and Community Services
19 Petroleum, Coal and Basic Chemical Product Mfg	45 Cultural & Recreation Services
20 Non-metallic Minerals	46 Personal, Other and Household Domestic Services
21 Basic Metal Industries	47 Central Government Services
22 Fabricated Metal Products	48 Local Government Services
23 Machinery and Equipment Manufacture	49 Ocean and Coastal Fishing and Fishing Consultants
24 Transport Equipment	50 Fishing in Inland Waters and Fish Farming
25 Other Manufacturing	51 Fish and Shellfish Processing
26 Electricity Generation	

These tables not only trace the flow of goods and services between industries, but provide detail on final demands eg. household consumption, government consumption, exports, capital formation and changes in stocks. Primary inputs¹ such as wages and salaries, operating surplus, imports, government subsidies and taxes are also determined.

3.3 REGIONALISATION METHOD

The various approaches available for generating regional input-output tables are usually categorised as 'survey' or 'non-survey'. In survey methods, the elements which make up the transactions table are generated from primary data gathered through the use of various survey techniques and are often considered the most attractive in theoretical terms. In non-survey methods, transaction table elements are derived from

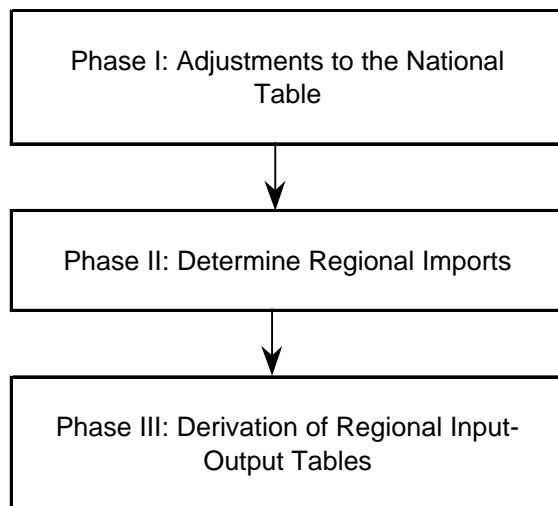
¹ Inputs into industries not generated from other industries.

other tables by various adjustment techniques. These methods are employed when data is unavailable and/or time and cost constraints exist.

The regional input-output tables utilised in this study have been derived using the GRIT non-survey approach. GRIT, or Generating Regional Input-Output Tables, was developed by Dr Guy West at the University of Queensland in the late 1970s. This approach employs a series of mechanical steps to reduce national coefficients to regional equivalents, but also provides opportunities for insertion of superior data and customisation (Figure 1).

Figure 3.1 The GRIT Regionalisation Methodology

Source: After Jensen, West et al (1980)



Phase I: Adjustments to the National Table

In this phase an appropriate national input-output table is chosen and adjustments for international trade, aggregation bias, and inflation and price changes are made.

The regional input-output tables were generated from the 1994-95 Inter-Industry Study of New Zealand Economy published by Statistics New Zealand (SNZ). This study covered 50 sectors, with 9 primary input and 7 final demand categories. All sector definitions are compatible with New Zealand Standard Industrial Classification (NZSIC) system.

International imports and their associated import duties were reallocated over industries using the 1994-95 Statistics New Zealand's Imports into Industries Table which was produced as part of the Inter-industry Study of New Zealand Economy.

Reduction of national coefficients to form regional equivalents almost always results in aggregation bias. This occurs because the constituent businesses that form a sector do not have homogeneous output, even though they are classified in the same sector. This was addressed by disaggregating the table to 164 sectors using the 1986-1987 Inter-industry Study of New Zealand Economy. The table, in turn, was updated to 1997-98 by applying 1994-95 productivity estimates to 1998 full-time equivalent employment (FTE) figures. A final adjustment was made for inflation and price changes by scaling output per sector by the relevant Producers' Price Index (PPI) values. All dollar values are for the financial year ending March 1998.

Phase II: Determining Regional Imports

In this phase approximations of regional coefficients were produced through the calculation of non-competitive and competitive imports. Non-competitive imports result when there is no production in a sector within a region, hence to meet local demand all goods and services attributable to a non-competitive sector must be imported. Competitive imports, or imports that compete with locally produced goods and services, were derived using a location quotient approach.

A location quotient is a measure which compares the relative importance of output or employment of a sector in a region to its relative importance in the nation. Mathematically, this may be expressed as:

$$\text{Location Quotient}_j = (X_j^r/X^r)/(X_j^n/X^n)$$

Where X represents employment and the superscripts r and n respectively the region and nation, and the subscript j a sector. Operationally, the regional coefficients for sector j are estimated by multiplying the national coefficient by the location quotient, and apportioning the difference to imports.

If the location quotient for an industry is less than 1 then the size of the regional industry is smaller in relative terms than its national equivalent. The industry is therefore unable to satisfy local demand and imports from other regions will be required. The location quotients used in this study were generated using 1998 FTEs obtained from Statistics New Zealand's Business Directory.

Phase III Derivation of Regional Input-Output Tables

In this phase transaction tables were derived for New Zealand and each Regional Council. This involved the estimation of intermediate and final demand transactions. Intermediate demand transactions for each sector were estimated by multiplying total national gross output in that sector by the regional FTE share. Household final demands were estimated by scaling national gross output totals by regional population share.

3.4 THE ECONOMIC IMPACTS

A major extension of the input-output model is the derivation of multipliers. These are summary measures of the economic interdependence between industries and final demand. The contribution of an industry to an economy is not limited to the value it creates directly, an increase in final demand for an industry has repercussions throughout the whole economy, causing increases in output beyond the initial change in demand. This is known as the multiplier effect.

The regional input-output tables generated in this study have been used to estimate multipliers for ocean fishing and fish consultants, the inland fish and fish farming, and fish and shellfish processing industries. Two types of multiplier have been used:

- Type I Multiplier: Estimates the **direct and indirect effects** of demand by a particular sector. **Indirect** impacts result from an industry stimulating the creation of further demand through the purchases it makes.
- Type II Multiplier: Estimates the **direct, indirect and induced effects** of demand by a particular sector. **Induced** impacts arise from the increased demand for goods and services made by households who have received increased income as a result of the indirect effects.

Multipliers have been measured for total output, value added (contribution to Gross Regional Product, GRP), and employment. The latter two tend to be most frequently used because they best represent the “true” value of the impact. Value added is the principle measure of economic activity, and is estimated as the difference between revenue and the costs of goods and services purchased from other industries. Employment impacts are measured by total FTEs created. In essence, the higher the multiplier the more far-reaching the local value added and employment benefits of an increase in demand are likely to be.

In this report the following distinctions are made between direct, indirect and induced impacts:

- The **direct impact** refers to the direct contribution made by a particular industry eg. the direct employment impact of the Fish and Shellfish Processing industry equates to the total employment in the Fish and Shellfish Processing industry.
- The **indirect impact** refers to the difference between the direct and indirect impacts as calculated by applying a Type I multiplier **and** the direct impact.
- The **induced impact** refers to the difference between the direct and indirect impacts as calculated by applying a Type I multiplier and the direct, indirect **and** induced impacts as calculated by applying a Type II multiplier.

Multipliers impacts have not only been estimated for the fishing industries and the fish and shellfish processing industry, but also for all other relevant “flow on” industries. Input-output multipliers assume that the product for which the multiplier is assessed is going into final demand, thus estimating only the backward linkages in the economy. In the case of those primary industries which drive other industries it is also necessary to compute the forward linkages in the economy.

In the case of the seafood industry the forward linkages from fishing are felt most in the fish and shellfish processing industry. As the fish and shellfish processing industry forms part of the seafood industry any associated impacts have already been encapsulated in the economic impact above. Nevertheless, forward linkages from the seafood industry exist for other processing industries, in particular, fruit and vegetable processing. These impacts are identified in the report as “flow on” or “forward linkage” impacts.

The forward linkage impact on the fruit and vegetable processing industry is likely to be due to classification issues with Input-Output sectors in the national accounts. Business units may produce output in more than one sector. In the case of fruit and vegetable processing, some business units which predominantly process fruit and vegetables also process significant quantities of seafood. This shows up in the Input-Output table as an intermediate input from the seafood industry to the fruit and vegetable processing industry.

In the detailed regional economic impact assessments (Appendices 1 and 2) this forward linkage is examined explicitly in those regions where it occurs. However for the purpose of clarity, in the regional summaries in the main body of the report it is not distinguished from fish and shellfish processing impacts. This is indicated in footnotes to tables where appropriate.

4 NEW ZEALAND

4.1 BACKGROUND AND CONTEXT

New Zealand's population is currently around 3.8 million. Between 1991 and 1996 it grew at an annual average rate of 1.4 percent. Regions with large urban centres and those with mild sunny climates are generally growing much faster than predominantly rural regions with harsher climates, some of which are suffering net migration losses. This continues a general trend of northward migration in New Zealand. The national median age is 33.0 years, with regional variations reflecting migration patterns, ethnicity, employment and educational opportunities.

Ethnic diversity is much greater in large urban centres, particularly Auckland, which absorbs the majority of external immigration. Maori populations are concentrated in northern regions and are generally more rural than average. The strong Maori presence in the seafood industry is reflected in rapid Maori population growth in regions such as Nelson where the seafood industry is particularly important.

In 1998 New Zealand's GDP was some \$98.2 billion. Between 1993 and 1998 GDP grew at an annual average rate of 3.5 percent. Regionally, economic performance varied widely, with GDP growth ranging from a 2.7 annual average decline in Taranaki to a robust 5.6 percent growth in the burgeoning Auckland economy. It should be noted that this growth was achieved off a low base, and reflects the economy rebounding after the recession of the early 1990s.

The seafood industry makes an important contribution to the national economy due to its strong linkages with other industries. It is particularly important in regions where fish and shellfish processing occurs, as this is where backward linkages are strongest.

New Zealand economy appears well placed to enjoy the benefits of the strong international economic environment due to its export orientation and high degree of openness. Although the lack of genuinely diversified industries leaves the economy

somewhat vulnerable, the strong multiplier impacts of industries such as the seafood industry are an important driver of value added and employment growth.

4.2 POPULATION AND EMPLOYMENT

New Zealand was home to 3,682,000 people at the time of the 1996 census. The population grew at an annual average rate of approximately 1.4 percent between the 1991 and 1996 censuses, and is now estimated at about 3,810,000. By 2021 the country's population is forecast to reach 4,353,000, an annual average growth of just 0.6 percent.

Growth rates differ widely between regions. Internal migration is causing continuing consolidation of large urban populations such as Auckland and Christchurch, and rural depopulation. External migration has reinforced the growth of larger centres, in particular Auckland, where the majority of immigrants choose to settle. Another strong trend to emerge is migration from regions with harsher climates such as Southland to drier, sunnier regions. The Bay of Plenty, Nelson, Tasman and Marlborough are particularly popular retirement destinations. Inter-census population growth rates varied from a 0.6 percent annual average decline in Southland to 2.7 percent in Tasman.

The national population density is about 13.1 people per square kilometre. Auckland has the highest density at 191.0 people per square kilometre, while the lowest is the West Coast which has just 1.4 people per square kilometre. The median age is 33.0 years. Marlborough has the highest median age of 36.1 years largely due to the large number of retirees migrating to the region. Regions with large Maori populations such as Northland tend to have a lower age structure due to the higher fertility rate of Maori compared to other ethnic groups.

Regions with larger urban areas are generally much more ethnically diverse than predominantly rural regions. Overall, 83.1 percent of New Zealanders identify with European ethnicity, 15.1 percent with Maori, 5.8 percent with Pacific Islands and 5.0 percent with Asian ethnicity. Auckland has the greatest ethnic diversity, while Tasman is the most homogenous region with 96.8 percent of the population of European ethnicity.

Total employment in New Zealand in 1998 was approximately 1,498,000 full-time equivalents (FTEs). The national economy generated employment growth at an annual average rate of 4.1 percent in the years 1993 – 1998. On a per capita basis this equates to growth of 2.1 percent.

The wholesale and retail industry is the nation's largest employer, with 253,100 FTEs, 16.9 percent of New Zealand's total employment in 1998. Other large employers include health and community services (126,500 FTEs), business services (116,000 FTEs) and education (111,600 FTEs). In general, employment in regions with large urban centres such as Auckland and Wellington is dominated by high order service industries, while predominantly rural regions rely more heavily on primary industries.

Fishing and seafood processing businesses employ about 10,400 FTEs. This is about 0.7 percent of New Zealand's total FTEs. The 2,100 business units in the industry average 5.0 FTEs each. Average FTEs per business unit tend to be much higher in regions where fish and shellfish processing plants are located. For example Nelson has an average of 12.9 FTEs per business unit compared to just 2.3 in Northland, where fishing rather than processing is the more important part of the industry.

4.3 ECONOMIC STRUCTURE

4.3.1 OVERVIEW

New Zealand's economy generated approximately \$98.2 billion of value-added in 1998. GDP growth averaged 3.5 percent between 1993 and 1998, or 2.1 percent on a per capita basis.

Wholesale and retail trade is the largest single industry in New Zealand, with GDP of about \$12.1 billion in 1998. Although historically primary industries dominated the economy, particularly agriculture, service industries now account for almost 69 percent of GDP. Business services, finance, real estate and communications each contribute in excess of \$4 billion value added annually.

The largest extractive and manufacturing industries include dairy farming which has \$1.8 billion annual GDP (1.8 percent of total GDP), printing, publishing and allied industries (\$1.2 billion or 1.2 percent of GDP), sheep farming (\$1.2 billion), forestry (\$1.2 billion) and livestock slaughtering and processing (\$1.2 billion). The seafood industry, comprising ocean and coastal fishing and fishing consultants, fishing in inland waters and fish farming and fish and shellfish processing, has an annual output of about \$1.8 billion. This directly adds around \$541.5 million of value to the economy (0.6 percent of total GDP). Seafood processing comprises the larger part of the industry, accounting for almost 55 percent of the sector's value added.

Table 4.1: Selected New Zealand Industries

Source: McDermott Fairgray Group

Industry	FTEs	GDP (\$millions)	GDP Share of Total
<i>Services</i>			
Wholesale and Retail Trade	253,120	12,144	12.4%
Health and Community Services	126,550	5,773	5.9%
Business Services	116,060	4,754	4.8%
Finance	27,710	4,621	4.7%
Real Estate	18,280	4,158	4.2%
Communications Services	26,520	4,135	4.2%
<i>Extractive and Manufacturing</i>			
Dairy Farming	38,870	1,761	1.8%
Printing Publishing and Allied Industries	21,470	1,213	1.2%
Sheep Farming	28,210	1,207	1.2%
Forestry	5,440	1,172	1.2%
Livestock Slaughtering and Meat Process	21,620	1,164	1.2%
<i>Fishing and Seafood Processing</i>	10,390	542	0.6%
<i>Seafood Processing</i>	5,740	297	0.3%

4.3.2 SEAFOOD INDUSTRY DIRECT IMPACTS

The direct impact of the seafood industry is obtained by measuring the additional business activity in terms of value added and employment that is generated solely by the seafood industry. The industry comprises ocean and coastal fishing and fishing consultants, fishing in inland waters and fish farming and fish and shellfish processing. Results are summarised in Table 4.2.

Ocean and Coastal Fishing and Fishing Consultants

The direct impact of ocean and coastal fishing and fishing consultants is \$239.2 million in value added, generated from industry output of \$674.0 million. This represents 44.2 percent of total seafood industry GDP. The industry employs about 3,710 FTEs. Value added per FTE is \$64,500, compared to the overall seafood industry average of \$57,900.

Fishing in Inland Waters and Fish Farming

Fishing in inland waters and fish farming has a direct impact of just \$4.9 million in value added, or 0.9 percent of total seafood industry value added. Total output is \$26.3 million nationally, and employment is about 940 FTEs. This section is by far the smallest component of the seafood industry with value added per FTE averaging only \$5,200.

Fish and Shellfish Processing

Fish and Shellfish processing is the largest part of the seafood industry, adding 54.9 percent (\$297.5 million) of total industry GDP. Employment is about 5,740 FTEs. Value added per FTE is \$51,800, close to the industry average of \$52,100.

Table 4.2: Direct Impacts of Seafood Industry

Source: McDermott Fairgray Group Ltd.

	Ocean and Coastal Fishing and Fishing Consultants	Fishing in Inland Waters and Fish Farming	Fish and Shellfish Processing
Output (\$000)	673,990	26,280	1,098,630
Value Added (\$000)	239,180	4,880	297,460
Employment (FTEs)	3,710	940	5,740

4.3.3 SEAFOOD INDUSTRY MULTIPLIER IMPACTS

In addition to the direct economic impact, the seafood industry also generates indirect and induced impacts. **Indirect impacts** arise because businesses servicing the seafood industry require goods, materials and services from other businesses. **Induced impacts** are generated by the additional economic activity associated with spending by people employed in businesses impacted either directly or indirectly by the seafood industry. The direct and indirect impacts generate wages and salaries for

these people, and therefore sustains their household spending throughout the economy.

This section analyses the indirect and induced value added and employment effects of the backward linkages that exist between the seafood industry and other industries in the economy. Table 4.3 presents the multipliers used to calculate indirect and induced value added and employment impacts.

Table 4.3: Seafood Industry Multipliers

Source: McDermott Fairgray Group Ltd.

	Ocean and Coastal Fishing and Fishing Consultants	Fishing in Inland Waters and Fish Farming	Fish and Shellfish Processing
<i>Value Added Impacts</i>			
Type I Multiplier	1.97	4.52	3.02
Type II Multiplier	2.36	6.08	3.77
<i>Employment Impacts</i>			
Type I Multiplier	1.65	1.29	2.49
Type II Multiplier	2.00	1.41	3.04

Ocean and Coastal Fishing and Fishing Consultants

The majority of output from ocean and coastal fishing and fishing consultants (62.5 percent) goes directly into fish and shellfish processing. Indirect and induced impacts from this portion are calculated as part of fish and shellfish processing impacts, otherwise double-counting would occur. Most of the remaining output is exported directly (Table 4.4).

Table 4.4: Consumption of Ocean and Coastal Fishing and Fishing Consultants' Output

Source: McDermott Fairgray Group Ltd.

Industry Description	Output (\$000)	% of Total
Fish and Shellfish Processing	421,570	62.5%
International Exports	186,650	27.7%
Fruit and Vegetable Processing	22,180	3.3%
Motels, Hotels, Guest Houses, Camps and other Accommodation	10,560	1.6%
Other	33,020	4.9%
TOTAL	673,990	100.0%

The indirect and induced impacts of ocean and coastal fishing and fishing consultants amount to \$325.3 million of value added. This level of activity generates employment equivalent to an additional 3,710 FTEs (Table 4.7).

Fishing in Inland Waters and Fish Farming

A large proportion of the output of fishing in inland waters and fish farming (30.4 percent) goes directly to fish and shellfish processing and therefore cannot be included in multiplier analysis of this section of the industry. However it can legitimately be applied to the remaining 59.6 percent of the industry, which mostly comprises exports.

Table 4.5: Consumption of Fishing in Inland Waters and Fish Farming Output

Source: McDermott Fairgray Group Ltd.

Industry Description	Output (\$000)	% of Total
International Exports	18,030	68.6%
Fish and Shellfish Processing	7,990	30.4%
Other	260	1.0%
TOTAL	26,280	100.0%

The indirect impact is estimated at some \$17.2 million. An additional \$7.6 million is generated by the induced impact, for a total of \$24.8 million value added. The employment impact is an additional 380 FTEs (Table 4.7).

Fish and Shellfish Processing

About 79 percent of fish and shellfish processing output is exported. Restaurants, cafes and eateries consume 5.5 percent, and over \$40.7 million of output (3.7 percent) flows back into the fish and shellfish processing industry itself (Table 4.6). Smaller amounts are utilised by the accommodation and cropping industries (2.5 percent and 1.8 percent of processing output respectively).

Table 4.6: Consumption of Fish and Shellfish Processing Output

Source: McDermott Fairgray Group Ltd.

Industry Description	Output (\$000)	% of Total
International Exports	868,430	79.0%
Restaurants, Cafes and other Eating and Drinking Places	60,880	5.5%
Fish and Shellfish Processing	40,730	3.7%
Motels, Hotels, Guest Houses, Camps and other Accommodation	27,750	2.5%
Cropping	19,840	1.8%
Other	81,000	7.4%
TOTAL	1,098,630	100.0%

The indirect and induced economic impacts of fish and shellfish processing are substantial, totalling \$824.0 million value added or 0.8 percent of New Zealand's total GDP. This is larger than the total *direct* impact of the entire seafood industry (\$541.5 million). The employment impact is 11,710 FTEs, 3,160 of which result from induced impacts (Table 4.7).

Table 4.7: Seafood Industry Value Added and Employment Impacts

Source: McDermott Fairgray Group Ltd.

	Ocean and Coastal Fishing and Fishing Consultants	Fishing in Inland Waters and Fish Farming	Fish and Shellfish Processing
<i>Value Added (\$000)</i>			
Direct	239,180	4,880	297,460
Indirect	232,000	17,190	600,880
Induced	93,280	7,620	223,100
Total	564,450	29,700	1,121,440
% of Total GDP	0.57%	0.03%	1.14%
<i>Employment (FTEs)</i>			
Direct	3,710	940	5,740
Indirect	2,410	270	8,550
Induced	1,300	110	3,160
Total	7,420	1,330	17,440
% of Total Employment	0.50%	0.09%	1.16%

4.3.4 FORWARD LINKAGES

A small portion of fishing sector output (comprising ocean and coastal fishing and fishing consultants, and fishing in inland waters and fish farming, but not fish and shellfish processing) is consumed neither as final demand nor flows on to fish and shellfish processing. This portion has direct, indirect and induced impacts which must also be examined in order to fully capture the total economic impact of the seafood industry.

The only nationally significant forward linkage of the fishing sector of the seafood industry not already captured by fish and shellfish processing occurs in the fruit and vegetable processing industry. Approximately 3.1 percent (\$22.2 million) of the fruit and vegetable industry's output is directly attributable to activity in the fishing sector of the seafood industry. This equates to almost \$4.9 million of value added (Table 4.8).

It is likely that this forward linkage impact is due to classification issues with Input-Output sectors in the national accounts. Business units may produce output in more than one sector. In the case of fruit and vegetable processing, some business units which predominantly process fruit and vegetables also process significant quantities of seafood. This shows up in the Input-Output table as an intermediate input from the seafood industry to the fruit and vegetable processing industry.

Table 4.8: Major Direct Impacts of Fishing on Other Industries

Source: McDermott Fairgray Group Ltd.

Fruit and Vegetable Processing	
Output (\$000)	719,530
Value Added (\$000)	158,110
Employment (FTEs)	4,160
<i>Estimated Seafood Industry Share</i>	
Output (\$000)	22,210
Value Added (\$000)	4,880
Employment (FTEs)	130

The indirect and induced impacts on value added resulting from the share of fruit and vegetable processing attributable to the seafood industry amount to \$13.4 million of value added. This level of activity sustains employment for some 290 FTEs (Table 4.9).

Table 4.9: Major Value Added and Employment Impacts on Other Industries

Source: McDermott Fairgray Group Ltd.

Fruit and Vegetable Processing	
<i>Value Added (\$000)</i>	
Direct	4,880
Indirect	9,370
Induced	4,000
Total	18,250
<i>% of Total GDP</i>	
	0.02%
<i>Employment (FTEs)</i>	
Direct	130
Indirect	220
Induced	80
Total	420
<i>% of Total Employment</i>	
	0.03%

4.3.5 EXPORTS AND IMPORTS

The seafood industry is strongly export-oriented. International exports totalled some \$1.24 billion in 1998 (NZ Seafood Industry Council Ltd). This equates to about 5.6 percent of total merchandise exports. Finfish exports comprise about 69.6 percent (\$861.3 million) of total seafood exports. Processed exports total 20.5 percent or \$253.4 million. Seafood imports in the same year were about \$68 million (Statistics NZ

Imports by Port), resulting in a trade surplus of approximately \$1.17 billion for the industry as a whole.

4.3.6 TOTAL SEAFOOD INDUSTRY IMPACTS

Total direct, indirect and induced impacts of the seafood industry amount to some \$1.7 billion of value added and 26,620 FTEs (Table 4.10). Almost 65 percent of the total impact is attributable to the processing sector of the industry. However it is important to note that the indirect and induced impacts of the fishing sector are understated due to their 'downstream' inclusion in the fish and shellfish processing impact. These impacts are netted out of the fishing sector in order to avoid double-counting for the seafood industry as a whole.

Indirect and induced value added impacts outweigh direct impacts by \$641.0 million. This implies a value added multiplier of 3.17. The corresponding employment multiplier is 2.53.

Table 4.10: Seafood Industry Impact Summary

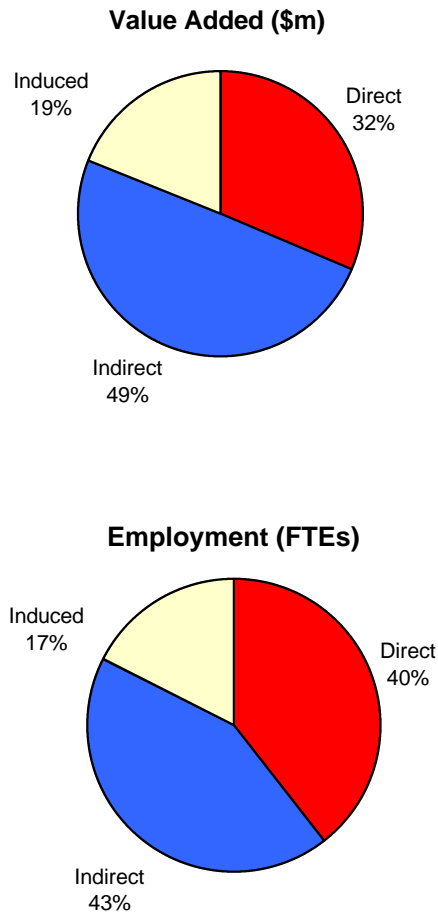
Source: McDermott Fairgray Group Ltd.

	Fishing Impacts	Fish & Shellfish Processing Impacts	Forward Linkage Impacts	TOTAL
<i>Value Added (\$m)</i>				
Direct	244.1	297.5	4.9	546.4
Indirect	249.2	600.9	9.4	859.4
Induced	100.9	223.1	4.0	328.0
Total	594.2	1,121.4	18.3	1,733.8
<i>Employment (FTEs)</i>				
Direct	4,650	5,740	130	10,520
Indirect	2,680	8,550	220	11,450
Induced	1,410	3,160	80	4,650
Total	8,740	17,450	430	26,620

Direct impacts account for 32 percent of total value added impacts and 40 percent of employment impacts (Figure 4.1 overleaf).

Figure 4.1: Direct, Indirect and Induced Value Added and Employment Impacts

Source: McDermott Fairgray Group Ltd.



4.4 ECONOMIC OUTLOOK

The national economic outlook appears favourable. New Zealand's status as a small, open trading economy means that the country's economic fortunes respond quickly to conditions in principal export markets. These conditions are currently favourable, with the south-east Asian economies rebounding faster than expected from the 1997-98 financial crisis and continued strong growth in Australia and the United States. The weak \$NZ also bolsters export demand.

The economy's reliance on commodity and commodity based exports makes it somewhat vulnerable to external economic shocks. The seafood industry is typical of New Zealand's 'export basket', with a high degree of primary exports and fewer secondary, processed exports. However, the NZIER predicts strong medium term growth in export demand for seafood. The industry's robust linkage's with other sectors of the economy mean that it is potentially an important driver of economic growth.

5 REGIONAL SUMMARY

5.1 INTRODUCTION AND OVERVIEW

Detailed accounts of the regional economic impacts of the seafood industry on each region are provided in the accompanying appendices. This chapter provides a brief synopsis of these impacts, by region.

Impacts are classified as direct, indirect or induced. **Direct** impacts are additional business activity (in terms of value added and employment) generated solely by the seafood industry. **Indirect impacts** arise because businesses servicing the seafood industry require goods, materials and services from other businesses. **Induced impacts** are generated by the additional economic activity associated with spending by people employed in businesses impacted either directly or indirectly by the seafood industry. Direct and indirect impacts generate wages and salaries for these people, and therefore sustains their household spending throughout the economy.

The economic importance of the seafood industry varies widely between regions. Seafood industry activity is concentrated in several areas, most notably Nelson, Canterbury, Auckland and Marlborough.

The upper South Island, comprising Nelson, Marlborough and Tasman regions, is of particular industry significance. These regions generate about 38 percent (\$588 million) of total seafood industry direct, indirect and induced value added and 30 percent (9,030 FTEs) of employment (Tables 5.1 and 5.2).

The value of the seafood industry's contribution to the New Zealand economy is enhanced by its concentration in regions with the fastest growing populations (Nelson, Marlborough, Bay of Plenty and Auckland) and in economically depressed regions such as Southland.

Table 5.1: Regional Contributions to Seafood Industry

Source: McDermott Fairgray Group

Region	Output (\$m)				Value Added (\$m)				Employment (FTEs)			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
Northland	65	53	16	135	22	31	7	60	450	280	130	860
Auckland	186	170	58	414	56	78	25	160	1,080	980	430	2,490
Waikato	60	25	9	94	19	10	4	33	450	160	70	680
Bay of Plenty	79	67	23	169	25	40	10	75	450	380	180	1,010
Gisborne	25	14	4	42	8	7	2	16	130	90	20	240
Hawke's Bay	40	28	10	79	13	19	5	37	230	150	90	470
Taranaki	10	6	2	18	3	4	1	8	60	30	20	110
Manawatu-Wanganui	43	17	7	67	12	7	3	22	220	110	50	380
Wellington	89	71	21	181	27	28	9	64	490	380	160	1,030
Marlborough	161	163	35	359	46	72	16	133	1,100	950	280	2,330
Nelson	398	411	110	919	117	217	49	383	2,160	2,410	870	5,440
Tasman	120	71	15	205	35	30	7	71	650	490	120	1,260
West Coast	55	55	10	120	17	20	4	41	310	270	80	660
Canterbury	301	346	104	752	89	152	45	286	1,590	2,050	790	4,430
Chatham Islands	31	24	2	57	10	8	1	19	170	90	10	270
Otago	80	65	20	165	24	35	9	68	430	410	160	1,000
Southland	95	78	21	194	32	44	9	84	540	440	160	1,140
Total	1,838	1,665	466	3,969	555	801	205	1,561	10,510	9,670	3,620	23,800
New Zealand	1,821	1,963	683	4,468	546	859	328	1,734	10,520	11,450	4,650	30,090

* Direct regional impacts do not sum exactly to NZ totals due to rounding.

**The leakage from individual regions (which is influenced by inter-regional and international imports) sums to more than the leakage from the nation as a whole (which is based only on international imports). Consequently, national level multipliers are larger than the regional multipliers, leading to greater estimates of total impacts.

Table 5.2: Regional Percentage Shares of Seafood Industry

Source: McDermott Fairgray Group

Region	Output				Value Added				Employment			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
Northland	3.5	3.2	3.5	3.4	3.9	3.9	3.5	3.9	4.3	2.9	3.6	3.6
Auckland	10.1	10.2	12.4	10.4	10.1	9.8	12.3	10.2	10.3	10.1	11.9	10.5
Waikato	3.3	1.5	1.9	2.4	3.4	1.3	1.9	2.1	4.3	1.7	1.9	2.9
Bay of Plenty	4.3	4.0	5.0	4.2	4.5	5.0	4.9	4.8	4.3	3.9	5.0	4.2
Gisborne	1.3	0.8	0.8	1.1	1.4	0.9	0.8	1.0	1.2	0.9	0.6	1.0
Hawke's Bay	2.2	1.7	2.2	2.0	2.4	2.4	2.2	2.4	2.2	1.6	2.5	2.0
Taranaki	0.5	0.4	0.5	0.5	0.6	0.5	0.5	0.5	0.6	0.3	0.6	0.5
Manawatu-Wanganui	2.3	1.0	1.6	1.7	2.1	0.9	1.5	1.4	2.1	1.1	1.4	1.6
Wellington	4.9	4.3	4.4	4.6	4.9	3.4	4.4	4.1	4.7	3.9	4.4	4.3
Marlborough	8.8	9.8	7.4	9.0	8.3	9.0	7.6	8.5	10.5	9.8	7.7	9.8
Nelson	21.7	24.7	23.6	23.2	21.1	27.1	23.9	24.5	20.6	24.9	24.0	22.9
Tasman	6.5	4.3	3.1	5.2	6.3	3.7	3.3	4.6	6.2	5.1	3.3	5.3
West Coast	3.0	3.3	2.1	3.0	3.0	2.5	2.1	2.6	2.9	2.8	2.2	2.8
Canterbury	16.4	20.8	22.3	18.9	16.1	18.9	21.9	18.3	15.1	21.2	21.8	18.6
Chatham Islands	1.7	1.5	0.4	1.4	1.9	1.0	0.4	1.2	1.6	0.9	0.3	1.1
Otago	4.4	3.9	4.3	4.2	4.3	4.4	4.3	4.4	4.1	4.2	4.4	4.2
Southland	5.2	4.7	4.5	4.9	5.7	5.4	4.5	5.4	5.1	4.6	4.4	4.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The structure of the seafood industry also differs greatly between regions. On average, the processing sector of the industry generates about 62 percent of total direct, indirect and induced value added. However this varies from 94 percent in Manawatu-Wanganui, to just 13 percent in Northland where the industry is dominated by small ocean and coastal fishing operations (Table 5.3).

The relative rather than the absolute size of the seafood industry is a better indicator of the importance of the industry to each region's economy. For example, although the Auckland seafood industry generates total direct, indirect and induced value added of \$160 million, this represents just 0.5 percent of regional GDP, whereas the \$133 million generated by the Marlborough industry represents 13.3 percent of regional GDP (Table 5.3). The industry is most integral to the economies of Nelson and Marlborough, and least integral to the Wellington economy.

Table 5.3: Seafood Industry Composition and Comparison to Regional Economies

Source: McDermott Fairgray Group

Region	Total GDP (\$bn)	Total Seafood Industry GDP (\$m)	Seafood Industry Share of Total GDP	Fishing Contribution	Processing Contribution
Northland	3.3	60	1.8%	87%	13%
Auckland	31.7	160	0.5%	47%	53%
Waikato	8.8	33	0.4%	56%	44%
Bay of Plenty	5.6	75	1.3%	58%	42%
Gisborne	1.0	16	1.6%	49%	51%
Hawke's Bay	3.5	37	1.1%	71%	29%
Taranaki	3.2	8	0.3%	71%	29%
Manawatu-Wanganui	5.3	22	0.4%	6%	94%
Wellington	12.3	64	0.5%	45%	55%
Marlborough	1.0	133	13.3%	29%	71%
Nelson	1.2	383	31.9%	30%	70%
Tasman	0.9	71	7.9%	22%	78%
West Coast	0.8	41	5.1%	42%	58%
Canterbury*	12.6	305	2.4%	28%	72%
Otago	4.4	68	1.5%	35%	65%
Southland	2.6	84	3.2%	75%	25%
Total	98.2	1,561	1.6%	38%	62%

*Includes Chatham Islands

5.2 IMPACTS BY REGION

5.2.1 NORTHLAND

Northland's annual GDP is estimated at approximately \$3.3 billion. The seafood industry plays a relatively minor role in the regional economy, with a total direct impact of about \$22 million in value added (0.7 percent) and 450 FTEs (1.0 percent). The dairy industry is one of the region's largest employers, although in terms of value added the petroleum refinery at Marsden Point is easily the largest industry, generating fully 12.7 percent of the region's GDP.

Ocean and coastal fishing is by far the largest part of the seafood industry in Northland. It represents almost 90 percent of direct value added and employment, with the balance comprising a small processing industry. The industry is characterised by small independent operators. The 197 business units therefore average just 2.3 FTEs each compared to 5.0 nationally.

Table 5.4: Seafood Industry Economic Impacts on Northland Region

Source: McDermott Fairgray Group

	Fishing Impacts	Fish & Shellfish Processing Impacts	TOTAL
<i>Output (\$m)</i>			
Direct	55.5	9.4	64.9
Indirect	43.9	9.5	53.4
Induced	13.9	2.4	16.3
Total	113.3	21.2	134.5
<i>Value Added (\$m)</i>			
Direct	19.2	2.5	21.7
Indirect	26.8	4.4	31.2
Induced	6.2	1.0	7.2
Total	52.1	8.0	60.1
<i>Employment (FTEs)</i>			
Direct	400	50	450
Indirect	220	60	280
Induced	110	20	130
Total	730	130	860

5.2.2 AUCKLAND

The seafood industry in Auckland generates direct, indirect and induced impacts of almost \$160 million in value added annually. Direct value added of \$57 million represents about 10 percent of the industry's total GDP, the third largest contribution of all regions. However in the context of by far the largest regional economy in New Zealand with annual GDP of \$31.7 billion (32 percent of total NZ GDP), the industry is relatively minor. It accounts for just 0.5 percent of regional GDP and employment (2,490 FTEs).

The seafood industry in Auckland is roughly evenly split between fishing activity and seafood processing. Seafood processing directly contributes more than \$30 million of value added, in addition to the \$26 million of fishing impacts. The region's strategic position makes its harbours important bases for fishing fleets operating in the Tasman Sea, the Hauraki Gulf and surrounding waters.

Table 5.5: Seafood Industry Economic Impacts on Auckland Region

Source: McDermott Fairgray Group

	Fishing Impacts	Fish & Shellfish Processing Impacts	TOTAL
<i>Output (\$m)</i>			
Direct	74.5	111.8	186.3
Indirect	80.5	89.6	170.1
Induced	25.5	32.1	57.6
Total	180.6	233.5	414.1
<i>Value Added (\$m)</i>			
Direct	25.9	30.3	56.2
Indirect	38.4	39.8	78.2
Induced	11.2	14.0	25.2
Total	75.4	84.2	159.6
<i>Employment (FTEs)</i>			
Direct	500	580	1,080
Indirect	420	560	980
Induced	190	240	430
Total	1,110	1,380	2,490

5.2.3 WAIKATO

The seafood industry in Waikato generates direct, indirect and induced impacts of almost \$34 million value added and 680 FTEs. This equates to 0.4 percent of total regional GDP and 0.5 percent of employment. Large industries in the region include dairy, education and business services.

The industry is fairly evenly divided between fish catching and fish processing operations. Although direct fishing impacts are almost twice those of fish and shellfish processing, the latter has stronger multiplier impacts. Seafood industry operators in the Waikato region are typically small in scale, averaging 3.0 FTEs per business unit compared to 5.0 nationally.

Table 5.6: Seafood Industry Economic Impacts on Waikato Region

Source: McDermott Fairgray Group

	Fishing Impacts	Fish & Shellfish Processing Impacts	TOTAL
<i>Output (\$m)</i>			
Direct	35.9	24.5	60.4
Indirect	10.3	14.4	24.7
Induced	4.2	4.7	9.0
Total	50.4	43.7	94.0
<i>Value Added (\$m)</i>			
Direct	12.1	6.6	18.7
Indirect	4.3	5.8	10.1
Induced	1.8	2.0	3.8
Total	18.2	14.5	32.7
<i>Employment (FTEs)</i>			
Direct	320	130	450
Indirect	60	100	160
Induced	30	40	70
Total	410	270	680

5.2.4 BAY OF PLENTY

The Bay of Plenty seafood industry has annual direct, indirect and induced value added estimated at \$75 million, about 1.3 percent of the region's \$5.6 billion GDP. The industry's employment impacts total 1,010 FTEs or 1.2 percent of total employment. Although not large, the seafood industry plays an important role in diversifying economic activity in the Bay of Plenty, which is heavily reliant on forestry, horticulture and related industries.

The Port of Tauranga is the most important port between East Cape and the Coromandel Peninsula, and is home to a sizeable ocean and coastal fishing fleet. About 30.6 percent of their output supports the local seafood processing industry which directly employs about 180 FTEs and generates \$9.3 million of value added.

Table 5.7: Seafood Industry Economic Impacts on Bay of Plenty Region

Source: McDermott Fairgray Group

	Fishing Impacts	Fish & Shellfish Processing Impacts	TOTAL
<i>Output (\$m)</i>			
Direct	44.2	34.5	78.6
Indirect	30.4	36.4	66.8
Induced	12.9	10.2	23.1
Total	87.5	81.1	168.5
<i>Value Added (\$m)</i>			
Direct	15.5	9.3	24.9
Indirect	22.4	17.7	40.0
Induced	5.6	4.5	10.1
Total	43.5	31.5	75.0
<i>Employment (FTEs)</i>			
Direct	270	180	450
Indirect	160	220	380
Induced	100	80	180
Total	530	480	1,010

5.2.5 GISBORNE

Gisborne is one of the smallest of New Zealand's regional economies, with annual GDP of slightly less than \$1 billion. The seafood industry contributes 1.6 percent or about \$16 million (including indirect and induced impacts) to this. The region suffers from high unemployment, making the 240 FTEs supported by the local seafood industry particularly valuable.

Fishing operations comprise the majority of the seafood industry in Gisborne. However the processing part of the industry has stronger indirect impacts so that in terms of employment, the two sectors of the industry are roughly of equal importance.

Table 5.8: Seafood Industry Economic Impacts on Gisborne Region

Source: McDermott Fairgray Group

	Fishing Impacts	Fish & Shellfish Processing Impacts	TOTAL
<i>Output (\$m)</i>			
Direct	12.5	12.1	24.6
Indirect	4.4	9.2	13.6
Induced	1.5	2.1	3.6
Total	18.4	23.3	41.7
<i>Value Added (\$m)</i>			
Direct	4.5	3.2	7.7
Indirect	2.9	4.1	6.9
Induced	0.7	0.9	1.6
Total	8.0	8.2	16.2
<i>Employment (FTEs)</i>			
Direct	70	60	130
Indirect	20	70	90
Induced	10	10	20
Total	100	140	240

*Fish and shellfish processing impacts include forward linkage impacts on fruit and vegetable processing industry

5.2.6 HAWKE'S BAY

The total direct, indirect and induced impact of the seafood industry in Hawke's Bay amounts to slightly more than \$37 million in value added and 470 FTEs. This represents 1.1 percent and 0.9 percent of GDP and employment respectively. The seafood industry is typical of economic activity in Hawke's Bay; a large primary sector supporting a smaller processing sector. The industry is therefore not of great strategic importance in terms of diversification.

The seafood industry in Hawke's Bay is dominated by ocean and coastal fishing, which accounts for about 73 percent of total direct industry value added and 65 percent of employment. The smaller processing industry generates direct, indirect and induced impacts of about \$7 million value added and 100 FTEs.

Table 5.9: Seafood Industry Economic Impacts on Hawke's Bay Region

Source: McDermott Fairgray Group

	Fishing Impacts	Fish & Shellfish Processing Impacts	TOTAL
<i>Output (\$m)</i>			
Direct	27.4	12.7	40.1
Indirect	16.4	12.1	28.4
Induced	7.2	3.3	10.5
Total	50.9	28.1	79.0
<i>Value Added (\$m)</i>			
Direct	9.7	3.5	13.2
Indirect	13.4	6.0	19.4
Induced	3.1	1.4	4.6
Total	26.2	10.9	37.1
<i>Employment (FTEs)</i>			
Direct	160	70	230
Indirect	80	70	150
Induced	60	30	90
Total	300	170	470

*Fish and shellfish processing impacts include forward linkage impacts on fruit and vegetable processing industry

5.2.7 TARANAKI

The seafood industry in Taranaki is small, directly employing just 60 people and with GDP of \$3.2 million. This is just 0.1 percent of regional GDP. The region's economy is dominated by dairy and oil and gas exploration and extraction.

The majority of the seafood industry in Taranaki comprises ocean and coastal fishing operations, with total impacts of \$5.8 million in value added and 70 FTEs. Very little processing occurs in the region.

Table 5.10: Seafood Industry Economic Impacts on Taranaki Region

Source: McDermott Fairgray Group

	Fishing Impacts	Fish & Shellfish Processing Impacts	TOTAL
<i>Output (\$m)</i>			
Direct	6.1	4.0	10.1
Indirect	4.0	2.0	6.0
Induced	1.5	0.7	2.3
Total	11.6	6.7	18.4
<i>Value Added (\$m)</i>			
Direct	2.1	1.1	3.2
Indirect	3.0	1.0	4.0
Induced	0.7	0.3	1.0
Total	5.8	2.4	8.2
<i>Employment (FTEs)</i>			
Direct	40	20	60
Indirect	20	10	30
Induced	10	10	20
Total	70	40	110

5.2.8 MANAWATU-WANGANUI

Total value added attributable to the Manawatu-Wanganui Region seafood industry is equivalent to 0.4 percent (\$22 million) of the region's annual GDP. The region's economic mainstays include agriculture, education and central government services (there are three military bases in the region). Therefore the seafood industry, although not large, plays a valuable role in diversifying the local economy.

Actual fishing activity in the Manawatu-Wanganui region is very minor, directly employing just 20 FTEs. However seafood processing has a more substantial presence, generating direct, indirect and induced impacts of almost \$21 million value added and 360 FTEs. The average size of the seafood industry operators is 11.4 FTEs, much higher than the national average of 5.0. This reflects the dominance of the processing sector of the industry, which operates in an environment with stronger economies of scale than the extractive sector of the industry.

Table 5.11: Seafood Industry Economic Impacts on Manawatu-Wanganui Region

Source: McDermott Fairgray Group

	Fishing Impacts	Fish & Shellfish Processing Impacts	TOTAL
<i>Output (\$m)</i>			
Direct	2.8	40.0	42.9
Indirect	0.5	16.6	17.1
Induced	0.3	7.1	7.4
Total	3.6	63.7	67.3
<i>Value Added (\$m)</i>			
Direct	1.0	10.9	11.9
Indirect	0.2	6.9	7.2
Induced	0.1	3.0	3.2
Total	1.3	20.9	22.2
<i>Employment (FTEs)</i>			
Direct	20	200	220
Indirect	0	110	110
Induced	0	50	50
Total	20	360	380

*Fish and shellfish processing impacts include forward linkage impacts on fruit and vegetable processing industry

5.2.9 WELLINGTON

Total value added attributable to the Wellington Region seafood industry is equivalent to 0.5 percent (\$64 million) of the region's annual GDP. The region's economic mainstays include financial, business and communications services, and central government. Therefore the seafood industry, although not large, gives the local economy a greater degree of diversification.

The Wellington seafood industry is split roughly equally between fish and shellfish processing and substantial ocean and coastal fishing operations. The processing sector of the industry directly employs 260 FTEs, comparable to the 230 FTEs attributable to fish catching operations. However the multiplier effects of processing are stronger, and generate an additional \$22 million value added and 340 FTEs.

Table 5.12: Seafood Industry Economic Impacts on Wellington Region

Source: McDermott Fairgray Group

	Fishing Impacts	Fish & Shellfish Processing Impacts	TOTAL
<i>Output (\$m)</i>			
Direct	39.1	50.4	89.5
Indirect	31.1	39.9	71.0
Induced	8.1	12.6	20.7
Total	78.3	102.8	181.1
<i>Value Added (\$m)</i>			
Direct	13.8	13.6	27.4
Indirect	11.3	16.3	27.6
Induced	3.5	5.5	9.0
Total	28.6	35.4	64.0
<i>Employment (FTEs)</i>			
Direct	230	260	490
Indirect	140	240	380
Induced	60	100	160
Total	430	600	1,030

5.2.10 MARLBOROUGH

The seafood industry is one of the Marlborough region's economic mainstays. It directly contributes about \$46 million (4.4 percent) of the region's total GDP, while indirect and induced impacts total slightly more than \$87 million (9 percent). The only larger industries in Marlborough are horticulture, other food manufacturing, central government services and wholesale and retail trade.

The Marlborough seafood industry is geared towards fish and shellfish processing, although substantial ocean and coastal fishing activity also occurs. The processing sector of the industry has a direct employment impact of 590 FTEs, compared to 500 FTEs attributable to fish catching operations. However the multiplier effects of processing are much stronger, estimated at \$63 million value added and 930 FTEs.

Table 5.13: Seafood Industry Economic Impacts on Marlborough

Region

Source: McDermott Fairgray Group

	Fishing Impacts	Fish & Shellfish Processing Impacts	TOTAL
<i>Output (\$m)</i>			
Direct	46.1	115.1	161.2
Indirect	38.5	124.5	163.0
Induced	9.6	25.0	34.6
Total	94.2	264.5	358.7
<i>Value Added (\$m)</i>			
Direct	15.0	31.1	46.0
Indirect	18.8	52.9	71.7
Induced	4.3	11.2	15.6
Total	38.1	95.2	133.3
<i>Employment (FTEs)</i>			
Direct	500	600	1,100
Indirect	200	750	950
Induced	80	200	280
Total	780	1,550	2,330

*Fish and shellfish processing impacts include forward linkage impacts on fruit and vegetable processing industry

5.2.11 NELSON

The seafood industry in Nelson is second only to wholesale and retail trade in size. It directly contributes about \$117 million (10 percent) of the region's \$1.2 billion GDP. When indirect and induced impacts are included, almost a third of Nelson's GDP and employment is attributable to seafood industry activity. Fish and shellfish processing alone directly employs more than 8 percent (1,480 FTEs) of the region's workforce.

Nelson Region's almost entirely urban status means that the seafood industry is the only major primary commodity industry. The large fishing fleet which operates out of Nelson has direct, indirect and induced impacts totalling almost \$116 million of value added and 1,360 FTEs.

Table 5.14: Seafood Industry Economic Impacts on Nelson Region

Source: McDermott Fairgray Group

	Fishing Impacts	Fish & Shellfish Processing Impacts	TOTAL
<i>Output (\$m)</i>			
Direct	115.0	283.4	398.4
Indirect	89.7	321.1	410.8
Induced	31.2	79.0	110.2
Total	235.9	683.5	919.4
<i>Value Added (\$m)</i>			
Direct	40.5	76.7	117.2
Indirect	61.3	155.3	216.6
Induced	13.9	35.2	49.1
Total	115.7	267.2	382.9
<i>Employment (FTEs)</i>			
Direct	680	1,480	2,160
Indirect	440	1,970	2,410
Induced	240	630	870
Total	1,360	4,080	5,440

5.2.12 TASMAN

The seafood industry is one of Tasman region's most important. It directly contributes approximately \$35 million (4 percent) of the region's total GDP, while indirect and induced impacts total \$36 million (also 4 percent). The only larger industries in Tasman are horticulture, wholesale and retail trade, forestry and logging and wood products.

The Tasman seafood industry is geared towards fish and shellfish processing, although substantial ocean and coastal fishing activity also occurs. The processing sector of the industry directly employs 460 FTEs, compared to 190 FTEs attributable to fish catching operations. The multiplier effects of processing are stronger, and generate an estimated \$32 million value added and 540 FTEs.

Table 5.15: Seafood Industry Economic Impacts on Tasman Region

Source: McDermott Fairgray Group

	Fishing Impacts	Fish & Shellfish Processing Impacts	TOTAL
<i>Output (\$m)</i>			
Direct	31.5	88.1	119.5
Indirect	5.7	65.7	71.4
Induced	2.1	12.4	14.5
Total	39.3	166.2	205.5
<i>Value Added (\$m)</i>			
Direct	11.1	23.9	34.9
Indirect	3.4	26.3	29.7
Induced	1.0	5.7	6.7
Total	15.4	55.9	71.3
<i>Employment (FTEs)</i>			
Direct	190	460	650
Indirect	50	440	490
Induced	20	100	120
Total	260	1,000	1,260

5.2.13 WEST COAST

The seafood industry is an important contributor to the West Coast economy. It directly generates almost \$17 million value added and 310 FTEs, while indirect and induced impacts amount to a further \$24 million and 350 FTEs. The total direct, indirect, and induced impact of the industry is equivalent to some 5 percent of the region's GDP.

Fish and shellfish processing comprises the larger part of the West Coast seafood industry, although substantial ocean and coastal fishing activity also occurs. The processing sector of the industry has a direct employment impact of 170 FTEs, compared to 140 FTEs attributable to fish catching operations. However the multiplier effects of processing are much stronger, estimated at more than \$15 million value added and 240 FTEs.

Table 5.16: Seafood Industry Economic Impacts on West Coast Region

Source: McDermott Fairgray Group

	Fishing Impacts	Fish & Shellfish Processing Impacts	TOTAL
<i>Output (\$m)</i>			
Direct	23.6	31.6	55.2
Indirect	20.3	34.3	54.6
Induced	3.7	6.1	9.8
Total	47.7	71.9	119.6
<i>Value Added (\$m)</i>			
Direct	8.3	8.6	16.9
Indirect	7.1	12.7	19.8
Induced	1.7	2.7	4.4
Total	17.1	24.0	41.1
<i>Employment (FTEs)</i>			
Direct	140	170	310
Indirect	80	190	270
Induced	30	50	80
Total	250	410	660

5.2.14 CANTERBURY

Including indirect and induced impacts, the seafood industry makes a substantial \$286 million (2.3 percent) contribution to Canterbury's total GDP of \$12.6 billion. It also provides 2.3 percent (4,430 FTEs) of Canterbury's employment. Canterbury is the second largest regional economy behind Auckland and has a well diversified range of industries, from agriculture and electricity generation to manufacturing and higher order service industries. The seafood industry is therefore not as integral to the region as it is in some others, despite its large size.

The industry in Canterbury is dominated by fish and shellfish processing. It generates 70 percent (\$65 million) of industry GDP and directly employs 1,160 FTEs. There are about 235 operators in the Canterbury seafood industry. They employ an average of 6.5 FTEs each, compared to 5.0 nationally. This reflects the importance of processing, which enjoys stronger scale economies than fishing operations.

Table 5.17: Seafood Industry Economic Impacts on Canterbury Region

Source: McDermott Fairgray Group

	Fishing Impacts	Fish & Shellfish Processing Impacts	TOTAL
<i>Output (\$m)</i>			
Direct	68.8	232.5	301.3
Indirect	72.6	273.6	346.2
Induced	23.8	80.5	104.2
Total	165.2	586.6	751.7
<i>Value Added (\$m)</i>			
Direct	24.1	65.4	89.5
Indirect	34.9	116.7	151.7
Induced	10.3	34.8	45.1
Total	69.4	216.8	286.2
<i>Employment (FTEs)</i>			
Direct	430	1,160	1,590
Indirect	380	1,670	2,050
Induced	180	610	790
Total	990	3,440	4,430

*Fish and shellfish processing impacts include forward linkage impacts on fruit and vegetable processing industry

5.2.15 OTAGO

The Otago seafood industry has annual value added estimated at \$22 million, about 0.5 percent of the region's \$4.4 billion GDP. The industry directly employs 430 FTEs, or 0.6 percent of employment. Indirect and induced employment impacts total 570 FTEs. Although not large, the seafood industry plays a valuable role in diversifying economic activity in the Otago region. Other major industries include education and tourism.

Fish and shellfish processing comprises the larger part of the seafood industry in Otago. About two-thirds of the total direct, indirect and induced impacts attributable to the industry are generated by processing operations.

Table 5.18: Seafood Industry Economic Impacts on Otago Region

Source: McDermott Fairgray Group

	Fishing Impacts	Fish & Shellfish Processing Impacts	TOTAL
<i>Output (\$m)</i>			
Direct	24.9	55.2	80.1
Indirect	16.3	48.8	65.0
Induced	6.2	13.7	19.9
Total	47.3	117.7	165.0
<i>Value Added (\$m)</i>			
Direct	8.8	15.1	23.9
Indirect	11.9	23.3	35.3
Induced	2.7	6.0	8.8
Total	23.5	44.5	68.0
<i>Employment (FTEs)</i>			
Direct	150	280	430
Indirect	100	310	410
Induced	50	110	160
Total	300	700	1,000

*Fish and shellfish processing impacts include forward linkage impacts on fruit and vegetable processing industry

5.2.16 SOUTHLAND

The total direct, indirect and induced impact of the seafood industry in Southland amounts to just over \$84 million in value added and 1,140 FTEs. This represents 3.2 percent and 2.9 percent of GDP and employment respectively. The seafood industry is typical of economic activity in Southland; a large primary sector supporting a smaller processing sector. Other examples include sheep and beef farming supporting several large freezing works and forestry and logging supporting the Maitua paper mill.

The port at Bluff is home to a sizeable ocean and coastal fishing fleet. The Foveaux Strait oyster beds are the region's best-known fisheries resource. Fishing operations are a much larger part of the industry than fish and shellfish processing, directly employing 410 FTEs and generating GDP of around \$25 million.

Table 5.19: Seafood Industry Economic Impacts on Southland Region

Source: McDermott Fairgray Group

	Fishing Impacts	Fish & Shellfish Processing Impacts	TOTAL
<i>Output (\$m)</i>			
Direct	69.8	25.0	94.7
Indirect	52.3	25.8	78.1
Induced	15.3	5.9	21.2
Total	137.4	56.7	194.0
<i>Value Added (\$m)</i>			
Direct	24.6	6.9	31.5
Indirect	31.8	11.8	43.6
Induced	6.7	2.6	9.3
Total	63.1	21.3	84.4
<i>Employment (FTEs)</i>			
Direct	410	130	540
Indirect	280	160	440
Induced	120	40	160
Total	810	330	1,140

*Fish and shellfish processing impacts include forward linkage impacts on fruit and vegetable processing industry