

Economic Indicators
for the Spencer Gulf and
West Coast Prawn Fisheries
2006/07

A report prepared for
Primary Industries and Resources South Australia

Prepared by



17 June 2008

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Acknowledgements

EconSearch has relied heavily on the voluntary cooperation of fishing operators in providing data for the 1997/98, 2000/01 and 2004/05 surveys of the fisheries. Without this assistance, the compilation and estimation of the 1997/98, 2000/01 and 2004/05 economic indicators would not have been possible. Similarly, in the task of updating the indicators, EconSearch is indebted to various individuals and institutions for providing the necessary information. The continuing advice provided by industry representatives and the Spencer Gulf and West Coast Fishery Management Committee is also greatly appreciated. PIRSA and SARDI officers provided assistance, were supportive of the data collection and offered valuable advice.

Abbreviations

ABARE	Australian Bureau of Agricultural and Resource Economics
ABS	Australian Bureau of Statistics
CPI	consumer price index
FMC	Fishery Management Committee
FRDC	Fisheries Research and Development Corporation
fte	full time equivalent
GDP	gross domestic product
GRP	gross regional product
GSP	gross state product
GVP	gross value of production
PIRSA	Primary Industries and Resources South Australia
RBA	Reserve Bank of Australia
R&M	repairs and maintenance
SA	South Australia
SARDI	South Australian Research and Development Institute
SFM	Sydney Fish Market

Document History and Status

Doc Ver	Doc Status	Issued To	Qty elec	Qty hard	Date	Reviewed	Approved
1	DRAFT	Cameron Dixon Karen Hollamby	1	-	1/5/08	JBM	JBM
2	DRAFT	Sean Sloan	1	-	29/5/08	JBM	JBM
3	FINAL	Sean Sloan Shane Roberts Karen Hollamby	1	5	17/16/08	JBM	JBM

Printed: 17/06/2008 3:30:00 PM
 Last Saved: 17/06/2008 3:24:00 PM
 File Name: S:\1_Projects\Current\0426_Economic Indicators\2007\SG&WCPrawns\Reports\SGWCPrawn_Final Report_080617.doc
 Project Manager: Julian Morison
 Principal Author/s: Elizabeth Clark, Matthew Ferris, Julian Morison and Lisa Rippin
 Name of Client: Primary Industries and Resources South Australia
 Name of Project: Economic Indicators for the Spencer Gulf and West Coast Prawn Fisheries, 2006/07
 Document Version: 3
 Job Number: 0426

1. Introduction

All the major fisheries in South Australia (SA) operate in accordance with fishery management plans that determine the primary management objectives of the fishery. Economic performance indicators are a feature of these plans and annual reports on them are required for the Minister for Agriculture, Food and Fisheries to meet the obligations of section 7 of the *Fisheries Management Act 2007*.

This report is the tenth annual economic indicators report for the Spencer Gulf and West Coast prawn fisheries. The first report, prepared for 1997/98, entitled *Economic Indicators for the Spencer Gulf and West Coast Prawn Fishery 1997/98*, (EconSearch 1999), reported on the results of an initial economic survey of the two fisheries. The second and third annual reports, prepared for 1998/99 and 1999/00 respectively, provided an update of the 1997/98 economic indicators (EconSearch 2000 and 2001). The fourth annual report outlined the fisheries economic performance based on the results of an additional survey of licence holders (EconSearch 2002). The fifth to seventh reports, prepared for 2001/02 to 2003/04, provided an update of the economic indicators based on the second survey of licence holders (EconSearch 2003, 2004 and 2005a). The eighth report, prepared for 2004/05, outlined the fisheries economic performance based on the results of a third survey of licence holders conducted in November 2005 (EconSearch 2006). The ninth report, prepared for 2005/06, provided an update of the economic indicators, based on the third licence holder survey (EconSearch 2007a).

The objective of this report, *Economic Indicators for the Spencer Gulf and West Coast Prawn Fisheries 2006/07*, was to provide an update of the economic indicators based on the third licence holder survey.

The aim of all the studies is to present a set of economic performance indicators for the fisheries as well as to develop a consistent time series of economic information to aid management of the fisheries in future years. The economic indicators detailed in this report include:

- gross value of production (catch and price);
- the cost of management of the fisheries;
- a summary of factors affecting costs in the fisheries;
- financial performance indicators (income, costs, profit, and return on investment);
- economic impact of the fisheries, both local and state;
- economic rent;
- external factors that influence the economic condition of the fisheries;
- prawn imports into Australia;
- prawn exports from SA (quantity and value); and
- prices for prawns in domestic markets.

The economic indicators detailed in this report represent an aggregate of the Spencer Gulf and West Coast prawn fisheries. Despite significant differences between these two fisheries, for confidentiality reasons, it is not possible to report the indicators separately. For purposes of comparison, summary economic indicators for all South Australian commercial fisheries, up to 2005/06, are presented in Appendix 3.

2. Method of Analysis and Definition of Terms

2.1 Survey of Licence Holders in the Fisheries, 2004/05

The questionnaire for the November 2005 survey of licence holders was based on the previous surveys conducted in 1997/98 and 2000/01¹. It was drafted by the consultants in consultation with the industry Extension Officer (Mr Martin Smallridge).

In November 2005, all licence holders in the fisheries were sent an introductory letter outlining the survey and encouraging them to participate. Licence holders were then contacted and face-to-face surveys were carried out. A total of 2 licence holders from the West Coast fishery and 20 from the Spencer Gulf fishery completed the survey, which represented 52 per cent of total licence holders in both fisheries in aggregate. Thus, the economic indicators for 2004/05 were survey-based estimates.

2.2 Updating the Indicators, 2006/07

The 2005/06 economic indicators for the Spencer Gulf and West Coast prawn fisheries (EconSearch 2007a) were derived using a range of primary and secondary data and survey-based 2004/05 indicators. The following information was used to adjust the 2005/06 indicators to reflect the fisheries performance in 2006/07:

- SARDI data were used to reflect changes in catch size and its value between 2005/06 and 2006/07. Catch and value data were used to determine the gross income in the fisheries.
- Information on the change in fishing effort (number of days fished) between 2005/06 and 2006/07 was used to adjust the costs of inputs that were assumed to vary with fishing effort. These inputs included fuel and repairs and maintenance (R&M) costs.
- Price information from input suppliers was used to adjust prices that had changed, for example, fuel.
- The consumer price index (CPI) for Adelaide was used to adjust the cost of inputs to reflect local levels of inflation (ABS 2007).

2.3 Definition of Terms²

Gross value of production (GVP) is the total year's catch for the fisheries valued at the landed beach price.

Gross income (Total boat cash receipts) is the income received by the individual licence holder from the sale of fish prior to any deductions for freight and selling charges.

¹ Surveys conducted in 1997/98 and 2000/01 are described in EconSearch (2005a).

² Where possible, definitions have been kept consistent with those used by Brown (1997) in ABARE's *Australian Fisheries Survey Report*.

Cash costs (Total boat fixed and variable costs) include the payments for hired labour and materials and services (including payments on capital items subject to leasing, rent, interest, licence fees and repairs and maintenance). If family or other labour were unpaid, an estimate of the cost of labour was made based on the time spent on fishing business related activity.

Cash operating surplus (Boat cash income) is the difference between gross income and total cash costs. It has been calculated with the imputed value of unpaid labour included in cash costs.

Depreciation is a non-cash cost representing the wear and tear on capital items during the year. It has been calculated using information on the age, current value and current replacement cost of each item. This was used to determine the depreciation rate for each item.³

Earnings before tax is defined as cash operating surplus less depreciation.

Earnings before interest and tax (Boat business profit) is defined as cash operating surplus less depreciation plus interest.

Capital is defined as the value placed on assets employed by the fishing business. It includes the total gross value of the boat, including the value of the hull, engine and other on-board and shore based plant, equipment and structures. Estimates are also reported for the value of licences.

Rate of return to fishing gear and equipment is calculated by expressing earnings before interest and tax as a percentage of the capital value of fishing gear and equipment. The rate of return to fishing gear and equipment provides an indication of the impact of management changes on the fisheries.

Rate of return to total capital is calculated by expressing earnings before interest and tax as a percentage of total capital. This gives a measure of the economic performance of the fisheries for those interested in investing in a boat and licence.

³ An allowance for depreciation of a capital item was estimated using the formula $(R-C)/A$ where R = replacement cost of the item, C = current value of the item and A = age of the item in years

3. Economic Indicators for the Spencer Gulf and West Coast Prawn Fisheries

3.1 Gross Value of Production

Catch levels in the Spencer Gulf prawn fishery increased by approximately 8 per cent between 2005/06 and 2006/07. The catch in 2006/07 was almost 5 per cent above the average catch for the 16-year period 1990/91 to 2006/07 (1,936 tonnes). The West Coast fishery was closed in 2006/07, therefore, no catch was reported (Table 3.1).

Table 3.1 Spencer Gulf and West Coast prawn catch and value of catch, 1990/91 to 2006/07 ^a

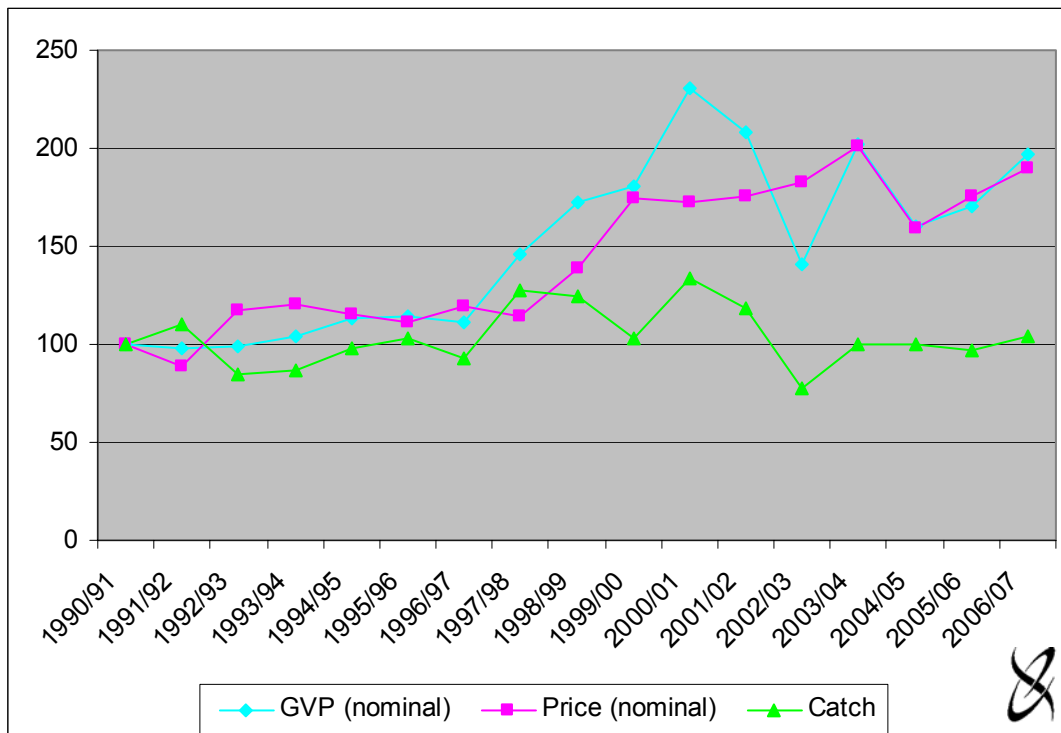
Year	West Coast		Spencer Gulf		Spencer Gulf and West Coast	
	(tonnes)	(\$'000)	(tonnes)	(\$'000)	(tonnes)	(\$'000)
1990/91	184	2,113	1,767	17,879	1,951	19,992
1991/92	83	932	2,072	18,721	2,155	19,653
1992/93	0	0	1,645	19,709	1,645	19,709
1993/94	12	166	1,681	20,693	1,693	20,859
1994/95	104	1,226	1,807	21,375	1,911	22,601
1995/96	201	2,234	1,812	20,632	2,013	22,866
1996/97	166	1,833	1,647	20,389	1,813	22,222
1997/98	192	2,301	2,300	26,859	2,492	29,160
1998/99	110	1,498	2,315	33,074	2,425	34,572
1999/00	106	1,937	1,910	34,198	2,016	36,135
2000/01	81	1,490	2,522	44,518	2,603	46,008
2001/02	127	1,661	2,182	39,873	2,309	41,534
2002/03	29	538	1,479	27,681	1,508	28,219
2003/04	15	218	1,943	40,171	1,958	40,389
2004/05	21	284	1,939	31,759	1,960	32,043
2005/06	21	358	1,870	33,610	1,891	33,968
2006/07	0	0	2,024	39,386	2,024	39,386

^a The West Coast prawn fishery was closed during 1992/93 and 2006/07.

Source: SARDI Aquatic Sciences.

Figure 3.1 overleaf illustrates how the values of the fisheries have changed over the period 1990/91 to 2006/07. The nominal value of the Spencer Gulf prawn fishery catch in 2006/07 was 120 per cent above that in 1990/91, despite only a 15 per cent increase in catch, accordingly, the average price of prawns in the Spencer Gulf prawn fishery increased over the 16-year period by 92 per cent in nominal terms (i.e. from \$10.12/kg in 1990/91 to \$19.46/kg in 2006/07). The nominal price increased by approximately 8 per cent in 2006/07 compared to the previous year. Due to the closure of the fishery the value of catch in the West Coast prawn fishery was zero in 2006/07.

Figure 3.1 GVP, price and catch indices for the Spencer Gulf and West Coast prawn fisheries (1990/91=100) ^a

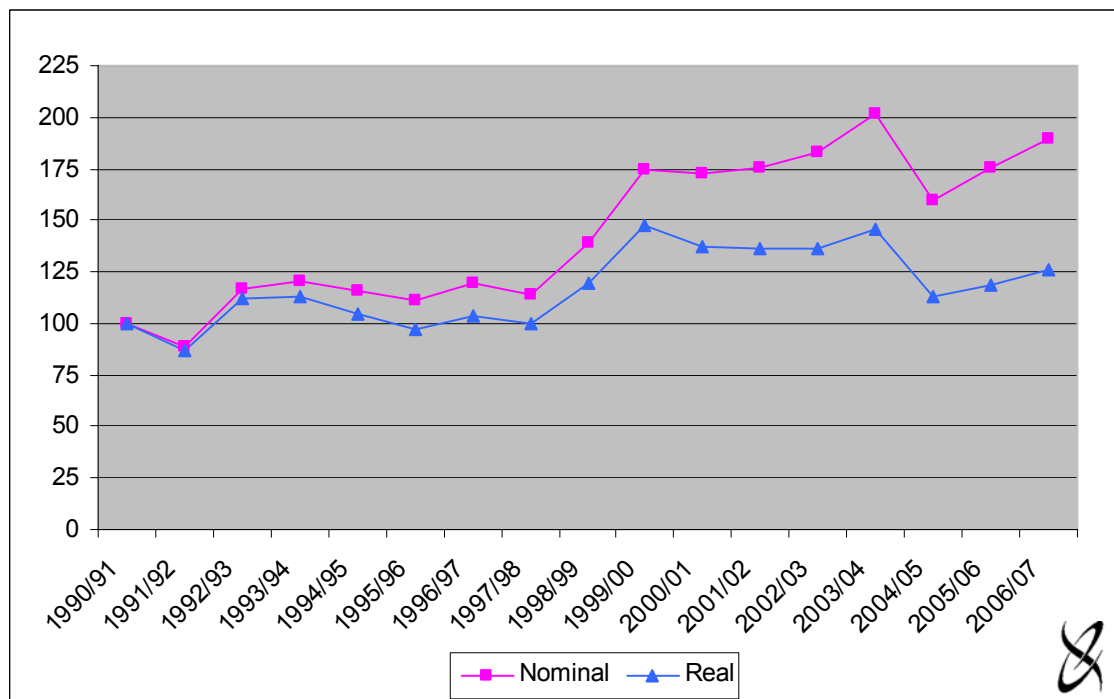


^a GVP, price and catch indices are for the Spencer Gulf and West Coast fisheries in aggregate for 1990/91, 1991/92 and 1993/94 to 2005/06. Zero catch and value were reported in the West Coast prawn fishery for 1992/93 and 2006/07.

Source: SARDI Aquatic Sciences.

Figure 3.2 shows that from 1990/91 to 2006/07, the 92 per cent increase in nominal price was equivalent to a 27 per cent increase in the real price of prawns. This means that the value of the prawn catch in the Spencer Gulf prawn fishery in 2006/07 was 47 per cent higher in real terms than it was in 1990/91 (120 per cent higher in nominal terms as noted above).

Figure 3.2 Price indices for the Spencer Gulf and West Coast prawn fisheries (1990/91=100) ^{a, b}



^a Nominal price refers to the beach price in the current year's dollars. Real price is the nominal price adjusted for the purchasing power of money. The CPI (consumer price index) has been used to make this adjustment (ABS 2006). It enables meaningful comparisons of prices to be made between years.

^b Price indices are for the Spencer Gulf and West Coast fisheries in aggregate for 1990/91, 1991/92 and 1993/94 to 2005/06. Zero catch and value were reported in the West Coast prawn fishery for 1992/93 and 2006/07.

Source: SARDI Aquatic Sciences and ABS (2007).

3.2 Cost of Management

South Australian commercial fisheries operate under full cost recovery. Accordingly, licence fees are set to cover the cost of managing the fisheries. Management services include:

- annual reports on biological and economic indicators;
- policy and management services;
- regulatory/legislation and licensing services;
- compliance services;
- directorate services;
- extension services;
- research services, including the Fisheries Research and Development Corporation (FRDC) levy; and
- the services of various committees.

For the purpose of this analysis, the cost of providing these management services has been assumed to be equal to the gross receipts from licence fees in the fisheries (Will Zacharin, pers. comm.).

Table 3.2 shows actual licence fee receipts for the period 1996/97 to 2007/08 for each of the fisheries and an aggregate of both.

For the fisheries in aggregate, between 1996/97 and 2006/07:

- licence fees as a percentage of gross value of production decreased from 3.1 per cent in 1996/97 to 1.4 per cent in 2000/01, but have increased in subsequent years reaching 2.5 per cent in 2005/06 before decreasing slightly to 2.3 per cent in 2006/07;
- the cost of licence fees per kilogram of landed prawns decreased from \$0.38 in 1996/97 to \$0.25 in 2000/01, mostly due to an increase in catch. The cost per kilogram has increased in subsequent years and was \$0.45 in 2006/07; and
- the cost per licence holder decreased from \$16,536 in 1996/97 to \$14,527 in 2001/02, solely due to a decrease in aggregate licence fees. The average fee per licence holder has since increased and was \$21,761 in 2006/07.

The total number of licence holders in the West Coast and Spencer Gulf has remained unchanged over the entire 12 years.

Between 2006/07 and 2007/08, the licence fees increased by 12 per cent to \$24,334 per licence holder.

Table 3.2 Cost of management in the Spencer Gulf and West Coast prawn fisheries, 1996/97 to 2007/08

	Licence Fees (\$'000)	Gross Value of Production (\$'000)	Fees/GVP (%)	Catch (tonnes)	Fee/Catch (\$/kg)	Licence Holders (no)	Fee/Licence Holder (\$/licence)
West Coast							
1996/97	47	1,833	2.6%	166	\$0.28	3	\$15,670
1997/98	88	2,301	3.8%	192	\$0.46	3	\$29,428
1998/99	56	1,498	3.8%	110	\$0.51	3	\$18,800
1999/00	51	1,937	2.6%	106	\$0.48	3	\$17,058
2000/01	47	1,490	3.1%	81	\$0.57	3	\$15,508
2001/02	42	1,661	2.6%	127	\$0.33	3	\$14,139
2002/03	47	538	8.7%	29	\$1.61	3	\$15,557
2003/04	21	218	9.8%	15	\$1.43	3	\$7,136
2004/05	28	284	10.0%	21	\$1.35	3	\$9,468
2005/06	31	358	8.7%	21	\$1.48	3	\$10,332
2006/07	15	0	-	0	-	3	\$4,969
2007/08	10	n.a.	-	n.a.	-	3	\$3,209
Spencer Gulf							
1996/97	648	20,389	3.2%	1,647	\$0.39	39	\$16,603
1997/98	916	26,859	3.4%	2,300	\$0.40	39	\$23,490
1998/99	732	33,074	2.2%	2,315	\$0.32	39	\$18,775
1999/00	653	34,198	1.9%	1,910	\$0.34	39	\$16,739
2000/01	605	44,518	1.4%	2,522	\$0.24	39	\$15,508
2001/02	568	39,873	1.4%	2,182	\$0.26	39	\$14,557
2002/03	671	27,681	2.4%	1,479	\$0.45	39	\$17,193
2003/04	753	40,171	1.9%	1,943	\$0.39	39	\$19,316
2004/05	734	31,759	2.3%	1,939	\$0.38	39	\$18,826
2005/06	803	33,610	2.4%	1,870	\$0.43	39	\$20,587
2006/07	899	39,386	2.3%	2,024	\$0.44	39	\$23,053
2007/08	1,012	n.a.	-	n.a.	-	39	\$25,959
Total Fisheries							
1996/97	695	22,222	3.1%	1,813	\$0.38	42	\$16,536
1997/98	1,004	29,160	3.4%	2,492	\$0.40	42	\$23,914
1998/99	789	34,572	2.3%	2,425	\$0.33	42	\$18,777
1999/00	704	36,135	1.9%	2,016	\$0.35	42	\$16,762
2000/01	651	46,008	1.4%	2,603	\$0.25	42	\$15,508
2001/02	610	41,534	1.5%	2,309	\$0.26	42	\$14,527
2002/03	717	28,219	2.5%	1,508	\$0.48	42	\$17,076
2003/04	775	40,389	1.9%	1,958	\$0.40	42	\$18,446
2004/05	763	32,043	2.4%	1,960	\$0.39	42	\$18,158
2005/06	834	33,968	2.5%	1,891	\$0.44	42	\$19,855
2006/07	914	39,386	2.3%	2,024	\$0.45	42	\$21,761
2007/08	1,022	n.a.	-	n.a.	-	42	\$24,334

Source: PIRSA Fisheries and SARDI Aquatic Sciences.

3.3 Summary of Factors Affecting Costs in the Fisheries

The information outlined in Table 3.3 (and similar data for previous years) was used to adjust the 2005/06 financial performance indicators to reflect the costs incurred in the fisheries in 2006/07.

Table 3.3 Factors affecting costs in the Spencer Gulf and West Coast prawn fisheries, 2005/06 to 2006/07

	2005/06	2006/07	Change
Average days fished per boat ^a	47.0	47.2	0.5%
Price of fuel - Transportation Index ^b	158.8	160.9	1.3%
Interest charges (%/annum) ^c	8.2%	8.8%	7.3%
CPI Adelaide ^d	157.6	160.3	1.7%

^a SARDI Aquatic Sciences (Angelo Tsolos pers. comm.).

^b ABS transportation index for Adelaide (ABS 2007).

^c RBA indicator lending rate for small business (RBA 2007).

^d Consumer price index for Adelaide (ABS 2007).

- Information from SARDI on the change in fishing effort (total days fished) was used to adjust costs that vary depending on the amount of time spent fishing. These costs include the cost of fuel, repairs and maintenance, bait and provisions.
- The ABS transportation index for Adelaide was used to adjust the cost of fuel.
- Interest charges incurred were adjusted in accordance with the Reserve Bank of Australia indicator lending rate (i.e. weighted average interest rate for small businesses with outstanding credit).
- The CPI for Adelaide was used to adjust other costs incurred in the fisheries. Other costs include, legal and accounting costs, office and administration, telephone expenses, mooring costs and other incidental costs.

3.4 Financial Performance Indicators

The major measures of the financial performance per boat in the Spencer Gulf and West Coast prawn fisheries for the period 2002/03 to 2006/07 are shown in Table 3.4⁴. Financial performance estimates for 1997/98 to 1999/00 are based on the October 1998 survey of licence holders. Estimates for 2000/01 to 2003/04 are based on the February 2002 licence holder survey. Financial performance estimates for 2004/05 to 2006/07 are based on the most recent survey, carried out in November 2005.

Estimates of financial performance for the Spencer Gulf and West Coast fisheries are presented as an average of both fisheries in aggregate. Despite significant differences between the two fisheries, the limited number of licence holders in the West Coast fishery prevents reporting each fishery separately for confidentiality reasons.

⁴ Estimates of financial performance for 1997/98 to 2001/02 are detailed in Appendix 4 of this report.

Table 3.4 Financial performance in the Spencer Gulf and West Coast prawn fisheries, 2002/03 to 2006/07 (average per boat)^{a, b}

	2002/03		2003/04		2004/05		2005/06		2006/07	
	All Boats	Share of TCC	All Boats	Share of TCC	All Boats	Share of TCC	All Boats	Share of TCC	All Boats	Share of TCC
Gross Income	\$616,249		\$882,019		\$708,081		\$750,619		\$870,345	
Costs										
Fuel	\$42,537	10%	\$43,921	9%	\$62,440	13%	\$56,862	11%	\$57,885	11%
R&M	\$39,529	10%	\$41,356	8%	\$53,514	11%	\$47,481	10%	\$48,514	9%
Provisions	\$5,366	1%	\$5,614	1%	\$3,875	1%	\$3,438	1%	\$3,513	1%
Labour	\$234,097	57%	\$335,056	65%	\$237,426	49%	\$251,689	51%	\$291,835	54%
Licence fee	\$16,620	4%	\$17,953	3%	\$20,805	4%	\$22,750	5%	\$24,934	5%
Insurance	\$11,905	3%	\$12,264	2%	\$19,179	4%	\$19,911	4%	\$20,252	4%
Interest	\$14,812	4%	\$15,197	3%	\$41,275	8%	\$41,784	8%	\$44,842	8%
Admin and Other	\$42,448	10%	\$43,727	8%	\$49,797	10%	\$51,700	10%	\$52,585	10%
Total Cash Costs	\$407,315	100%	\$515,088	100%	\$488,310	100%	\$495,615	100%	\$544,360	100%
Cash Operating Surplus	\$208,935		\$366,931		\$219,771		\$255,004		\$325,985	
Depreciation	\$117,102		\$123,805		\$160,582		\$142,871		\$142,233	
Earnings Before Tax	\$91,833		\$243,126		\$59,189		\$112,133		\$183,752	
Earnings Before Interest & Tax	\$106,645		\$258,323		\$100,464		\$153,918		\$228,594	
Capital										
Fishing Gear & Equipment	\$1,199,577		\$1,268,242		\$1,455,947		\$1,295,365		\$1,289,579	
Licence Value	\$2,228,454		\$3,189,519		\$4,040,909		\$4,283,669		\$4,966,927	
Total Capital	\$3,428,031		\$4,457,761		\$5,496,856		\$5,579,034		\$6,256,506	
Rate of Return to Fishing Gear & Equip	8.9%		20.4%		6.9%		11.9%		17.7%	
Rate of Return to Total Capital	3.1%		5.8%		1.8%		2.8%		3.7%	

^a Estimates of financial performance for the years 1997/98 to 1999/00 are based on the October 1998 survey of licence holders. Financial performance estimates for 2000/01 to 2003/04 are based on the February 2002 survey of licence holders. Financial performance estimates for 2004/05 and 2006/07 are based on the November 2005 survey of licence holders. Financial performance estimates for 1997/98 to 2000/01 are detailed in Appendix 4 of this report.

^b Financial performance estimates are for the Spencer Gulf and West Coast fisheries in aggregate. In 2006/07 the West Coast prawn fishery was closed, however, for confidentiality reasons financial performance estimates have not been reported separately.

Source: EconSearch analysis.

Income...

Total recorded prawn catch in the Spencer Gulf and West Coast fisheries increased by approximately 7 per cent between 2005/06 and 2006/07 and, with an 8 per cent increase in price, gross receipts from the sale of prawns increased by 16 per cent over the same period (Table 3.1). The estimated average gross income per surveyed boat in the fisheries was approximately \$870,000 in 2006/07, compared to around \$750,000 in 2005/06, an increase of 16 per cent (Table 3.4).

Costs...

In 2006/07 about 54 per cent of total cash costs⁵ were attributable to labour costs, by far the largest individual cost item. Labour costs include an imputed wage to operators and family members who are not paid a wage directly by the business. The average imputed unpaid labour cost for the fishery in 2006/07 was almost \$32,000. The other significant cash costs were fuel (11 per cent), repairs and maintenance (9 per cent) and interest (8 per cent) (Table 3.4).

Overall, total cash costs per boat increased by approximately 10 per cent, up from almost \$496,000 in 2005/06 to approximately \$544,000 in 2006/07.

Cash Income and Profit...

As noted elsewhere, the labour costs reported in Table 3.4 are comprised of payments to skippers and crew as well as an imputed wage to operators and other family members who are not paid a wage directly by the business. Accordingly, cash operating surplus was calculated by including imputed wages as part of cash costs. The cash operating surplus in 2006/07 was estimated to be almost \$326,000, an increase of 28 per cent compared to the previous year.

Cash operating surplus and earnings before tax or business profit give an indication of the capacity of the operator to remain in the fishery in the short to medium term. Average earnings before tax were estimated to be almost \$184,000 in 2006/07, up from approximately \$112,000 in 2005/06 (Table 3.4).

Return on Investment...

There are a number of interpretations of the concept of return on investment. For the purpose of this analysis it is appropriate to consider the investment as the capital employed by an average licence holder. Capital includes boats, licence/quota, fishing gear, sheds, vehicles and other capital items used as part of the fishing enterprise. It does not include working capital or capital associated with other businesses operated by the licence holder. The return on investment has been calculated as the net profit after depreciation as a percentage of the total capital employed.

The average return on investment for the fisheries is reported in Table 3.4. The rate of return to boat capital (i.e. fishing gear and equipment) was estimated to be 17.7 per cent and the rate of return to total capital was estimated to average 3.7 per cent in 2006/07. The rates of return for 2006/07 were slightly higher than those reported for 2005/06.

⁵ Fixed and variable costs have not been differentiated; therefore Boat Gross Margin has not been calculated. Boat Gross Margin is available upon request.

Licence values...

The value of licences represents a significant proportion of the capital used by each licence holder. The reported licence value of \$4,967,000 for 2006/07 in Table 3.4 represents the licence holders' estimate of the value of their licence based on the 2005 survey responses and updated for changes in gross income in the fisheries.

The PIRSA Fisheries record of licence transfers for 2006/07 indicates no licences were transferred in either fishery over the 12 month period.

Since there have been limited transfers of licences in recent years and the current market value of licences is uncertain, a sensitivity analysis was undertaken to estimate the rate of return to capital for a range of licence values. The results are presented in Table 3.5. Based on the costs and returns shown for the year 2006/07 in Table 3.4, a licence value of \$2.48 million (approximately 50 per cent below the licence value estimated for 2006/07) would mean an annual return to the total asset of 6.1 per cent, while a licence value of \$7.45 million (approximately 50 per cent above the licence value estimated for 2006/07) would mean an annual return to the total asset of 2.6 per cent.

Table 3.5 Sensitivity of rate of return to changes in licence value, 2006/07

Licence Value (\$)	\$2,483,464	\$4,966,927 ^a	\$7,450,391
Rate of Return to Total Capital (%)	6.1%	3.7%	2.6%

^a The licence value estimated for 2006/07.

Source: EconSearch analysis.

3.5 Regional Economic Impact

Estimates of the economic impact of the Spencer Gulf and West Coast prawn fishing industry on the South Australian and regional (Eyre⁶) economies in 2006/07 are outlined below.

3.5.1 Measuring direct and flow-on effects

Estimates of the direct economic impact of the Spencer Gulf and West Coast prawn fisheries are consistent with the method employed in PIRSA's *Food for the Future* value-chain analysis, 2004/05⁷.

The following stages in the marketing chain have, therefore, been included in the quantifiable economic impact:

- the landed beach value of production; and
- downstream impacts, including the:
 - net value of local (state and regional) processing;
 - value of local transport services at all stages of the marketing chain; and
 - net value of local retail and food service (e.g. hotels & restaurants) trade⁸.

⁶ The Eyre region is comprised of the Statistical Division of Eyre as defined by the Australian Bureau of Statistics.

⁷ The relevant information was obtained from Jack Langberg (PIRSA, pers. comm.).

Each of these activities generates flow-on effects to other sectors through purchases of inputs and the employment of labour. These flow-on effects have been estimated using input-output analysis. Input-output analysis is widely used in economic impact analysis and is a practical method for measuring economic impacts at regional and state levels.

Economic impacts at the state and regional levels were based on models for the state as a whole and for the Eyre region, respectively, prepared for the Regional Communities Consultative Council, Local Government Association of South Australia and Regional Development SA (EconSearch 2005b).

In order to compile a representative cost structure for the fishing sector, costs per boat were derived from data provided by operators in the fisheries in the financial survey for 2004/05 and updated to 2006/07, as described earlier. On an item-by-item basis, the expenditures were allocated between those occurring in the Eyre region, those occurring in South Australia and those goods and services imported from outside the state.

Estimates of the net value of local (i.e. regional and state) processing margins and retail and food service trade margins were derived from PIRSA's *Food for the Future* value-chain analysis (*Seafood Scorecard, 2005/06*) (Jack Langberg, PIRSA, pers. comm.). Estimates of the net value of local transport margins and capital expenditure per licence holder were derived from the survey of licence holders.

Economic impacts have been specified in terms of the following economic indicators:

- value of output;
- employment;
- household income; and
- contribution to gross state or regional product.

Value of output is a measure of the gross revenue of goods and services produced by commercial organisations plus gross expenditure by government agencies. This indicator needs to be used with care as it includes elements of double counting.

Employment is a measure of the number of working proprietors, managers, directors and other employees, in terms of the number of full-time equivalent (fte) jobs.

Household income is a component of Gross State Product (GSP) and Gross Regional Product (GRP) and is a measure of wages and salaries, drawings by owner operators and other payments to labour including overtime payments and income tax, but excluding payroll tax

⁸ Estimates of economic impact prepared for this and other commercial fisheries in South Australia (except Lakes and Coorong) for the period 1997/98 to 2002/03 do not include the impact of local retail and food service trade.

Contribution to GSP or GRP is a measure of the net contribution of an activity to the state/regional economy. Contribution to GSP or GRP is measured as value of output less the cost of goods and services (including imports) used in producing the output. It can also be measured as household income plus other value added (gross operating surplus and all taxes, less subsidies). It represents payments to the primary inputs of production (labour, capital and land). Using contribution to GSP or GRP as a measure of economic impact avoids the problem of double counting that may arise from using value of output for this purpose.

3.5.2 Economic impacts at the state and regional levels

Estimates of the economic impact generated in 2006/07 by the Spencer Gulf and West Coast prawn fishing industry in South Australia and the Eyre region are outlined in Tables 3.6 and 3.7, respectively.

For each measure of economic activity, the impacts at the state level are greater than regional level impacts. This is to be expected, as the regional impact is simply a component, albeit a significant one, of the total state impact.

The direct impact measures fishing and downstream activities (i.e. processing, transport, retail/food services and capital expenditure). The flow-on impact measures the economic effects in other sectors of the economy (trade, manufacturing, etc.) generated by the fishing industry activities, that is, the multiplier effects.

Value of output...

The value of output generated directly in South Australia and the Eyre region by Spencer Gulf and West Coast prawn fishing enterprises summed to \$39.4 million in 2006/07 (Table 3.6 and 3.7), while output generated in South Australia by associated downstream activities (processing, transport, retail/food services and capital expenditure) summed to \$17.5 million (Table 3.6), \$2.7 million of which occurred in the Eyre region, (Table 3.7).

Flow-ons to other sectors of the state economy added another \$52.4 million in output (\$15.7 million in the regional economy). The sectors most affected were the trade, manufacturing, business services and transport sectors.

Employment and household income...

In 2006/07, the Spencer Gulf and West Coast prawn fisheries were responsible for direct employment of around 217 full-time equivalent (fte) jobs and downstream activities created employment of around 167 fte jobs state-wide. Flow-on business activity was estimated to generate a further 289 fte jobs state-wide (109 regionally). These state-wide jobs were concentrated in the trade (89), business services (38) and manufacturing (36) sectors.

Personal income of \$12.3 million was earned in the fishing sector (wages of employees and estimated drawings by owner/operators) and \$5.2 million in downstream activities in SA. An additional \$14.0 million was earned by wage earners in other businesses in the state as a result of fishing and associated downstream activities. The total household income impact was \$31.4 million in SA (\$17.6 million in the Eyre region).

Table 3.6 The economic impact of the Spencer Gulf and West Coast prawn fishing industry in South Australia, 2006/07 ^a

Sector	Output		Employment ^b		Household Income		Contribution to GSP	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%
Direct effects								
Fishing	39.4	36.0%	217	32.3%	12.3	39.0%	30.3	48.3%
Processing	0.7	0.7%	2	0.3%	0.1	0.3%	0.2	0.3%
Transport	0.8	0.7%	4	0.5%	0.2	0.8%	0.4	0.6%
Retail	3.6	3.3%	53	7.9%	1.5	4.8%	1.8	2.9%
Food services	10.1	9.2%	85	12.6%	2.6	8.2%	3.9	6.3%
Capital expenditure ^c	2.3	2.1%	23	3.5%	0.7	2.3%	0.9	1.5%
Total Direct ^d	56.9	52.0%	385	53.6%	17.4	53.2%	37.5	58.3%
Flow-on effects								
Trade	7.9	7.2%	89	13.2%	3.0	9.5%	3.7	5.9%
Manufacturing	11.6	10.6%	36	5.4%	1.7	5.4%	2.7	4.3%
Business Services	6.4	5.8%	38	5.6%	2.3	7.4%	3.0	4.8%
Transport	2.5	2.3%	12	1.7%	0.8	2.6%	1.2	1.9%
Other Sectors	24.1	22.0%	114	16.9%	6.1	19.6%	14.6	23.2%
Total Flow-on ^d	52.4	48.0%	289	42.9%	14.0	44.5%	25.2	40.2%
Total ^d	109.3	100.0%	673	100.0%	31.4	100.0%	62.8	100.0%
Total/Direct	1.9	-	1.8	-	1.8	-	1.7	-
Total/Tonne	\$54,000	-	0.33	-	\$15,500	-	\$31,000	-

^a Estimates of economic impact are for the Spencer Gulf and West Coast fisheries in aggregate.

^b Full-time equivalent jobs. Direct employment in the fisheries was comprised of 48 full-time jobs and 197 part-time jobs, that is, 244 jobs in aggregate.

^c Capital expenditure includes expenditure on boats, fishing gear and equipment, sheds and buildings, motor vehicles and other equipment.

^d Totals may not sum due to rounding.

Source: EconSearch analysis.

Contribution to GSP and GRP...

As noted above, contribution to GSP or GRP is measured as value of output less the cost of goods and services (including imports) used in producing the output. In 2006/07, total Spencer Gulf and West Coast prawn fishing industry related contribution to GSP in South Australia was \$62.8 million (\$39.8 million in the Eyre region), \$30.3 million generated by fishing directly, \$7.2 million generated by downstream activities and \$25.2 million generated in other sectors of the state economy.

Table 3.7 The economic impact of the Spencer Gulf and West Coast prawn fishing industry in the Eyre region, 2006/07

Sector	Output		Employment ^b		Household Income		Contribution to GRP	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%
Direct effects								
Fishing	39.4	68.1%	217	60.2%	12.3	69.6%	30.3	76.0%
Processing	0.2	0.3%	1	0.2%	0.0	0.2%	0.1	0.1%
Transport	0.4	0.7%	2	0.6%	0.1	0.7%	0.2	0.5%
Retail	0.2	0.3%	3	0.8%	0.1	0.4%	0.1	0.2%
Food services	0.5	0.9%	5	1.4%	0.1	0.7%	0.2	0.5%
Capital expenditure ^c	1.5	2.6%	24	6.5%	0.6	3.4%	0.8	1.9%
Total Direct ^d	42.1	70.3%	252	63.2%	13.2	71.7%	31.6	77.4%
Flow-on effects								
Trade	3.3	5.7%	43	12.0%	1.2	7.0%	1.6	4.0%
Manufacturing	2.2	3.8%	10	2.8%	0.4	2.3%	0.6	1.5%
Business Services	1.2	2.1%	8	2.3%	0.4	2.5%	0.6	1.5%
Transport	0.8	1.4%	5	1.3%	0.3	1.6%	0.4	1.0%
Other Sectors	8.2	14.1%	43	11.9%	2.0	11.6%	5.1	12.7%
Total Flow-on ^d	15.7	27.1%	109	30.2%	4.4	24.9%	8.3	20.7%
Total ^d	57.8	100.0%	361	100.0%	17.6	100.0%	39.8	100.0%
Total/Direct	1.4	-	1.4	-	1.3	-	1.3	-
Total/Tonne	\$28,500	-	0.18	-	\$8,700	-	\$19,600	-

^a Estimates of economic impact are for the Spencer Gulf and West Coast fisheries in aggregate.

^b Full-time equivalent jobs. Direct employment in the fisheries was comprised of 48 full-time jobs and 197 part-time jobs, that is, 244 jobs in aggregate.

^c Capital expenditure includes expenditure on boats, fishing gear and equipment, sheds and buildings, motor vehicles and other equipment.

^d Totals may not sum due to rounding.

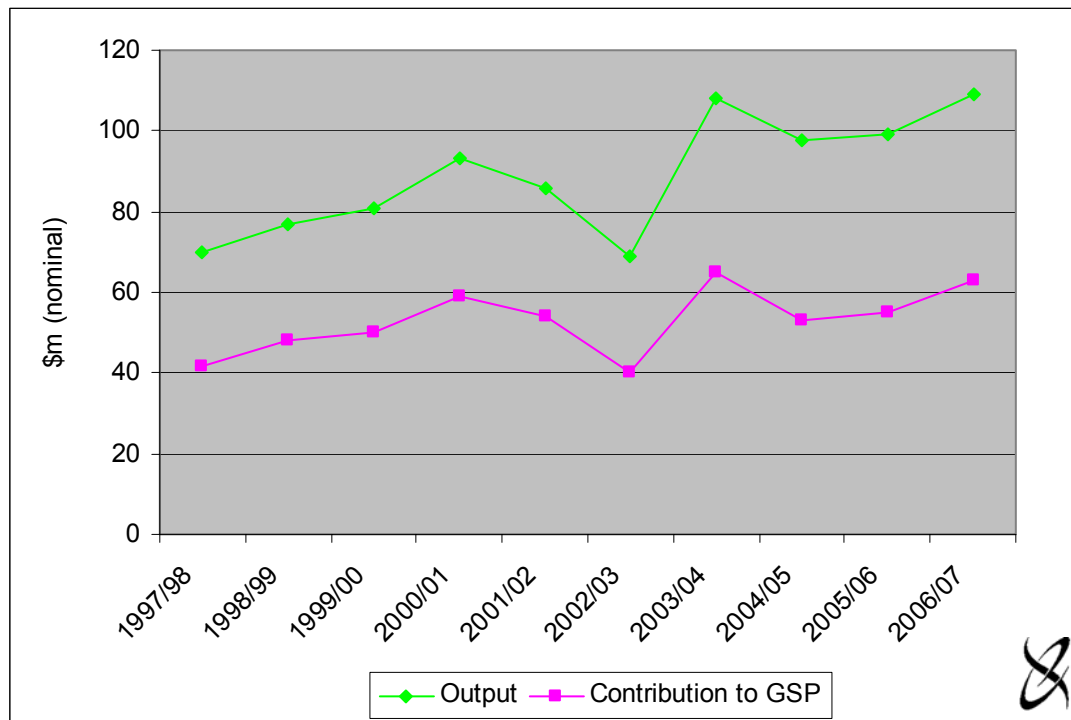
Source: EconSearch analysis.

Total impacts over time...

Figures 3.3 and 3.4 illustrate the total economic impact of the fisheries on the SA economy for the nine-year period, 1997/98 to 2006/07. Estimates of economic impact are expressed in nominal terms, accordingly no adjustment has been made to reflect inflation.

Estimates of economic impact for 1997/98 to 1999/00 are based on the October 1998 survey of licence holders. Estimates for 2000/01 to 2003/04 are based on a second survey of licence holders conducted in September 2001. Estimates for 2004/05 to 2006/07 are based on the most recent survey of licence holders conducted in November 2005.

Figure 3.3 Total gross state product and output impact of the Spencer Gulf and West Coast prawn fishing industry in SA, 1997/98 to 2006/07^{a, b}



^a The economic impact of the Spencer Gulf and West Coast prawn fisheries in 1997/98 and 1998/99 does not include the direct and flow-on effects of estimated capital expenditure by licensees; these effects have been included in subsequent years. Estimates of economic impact for the period 1997/98 to 2002/03 do not include the impact of local retail and food service trade; these effects have been included in subsequent years.

^b Estimates of economic impact are for the Spencer Gulf and West Coast fisheries in aggregate.

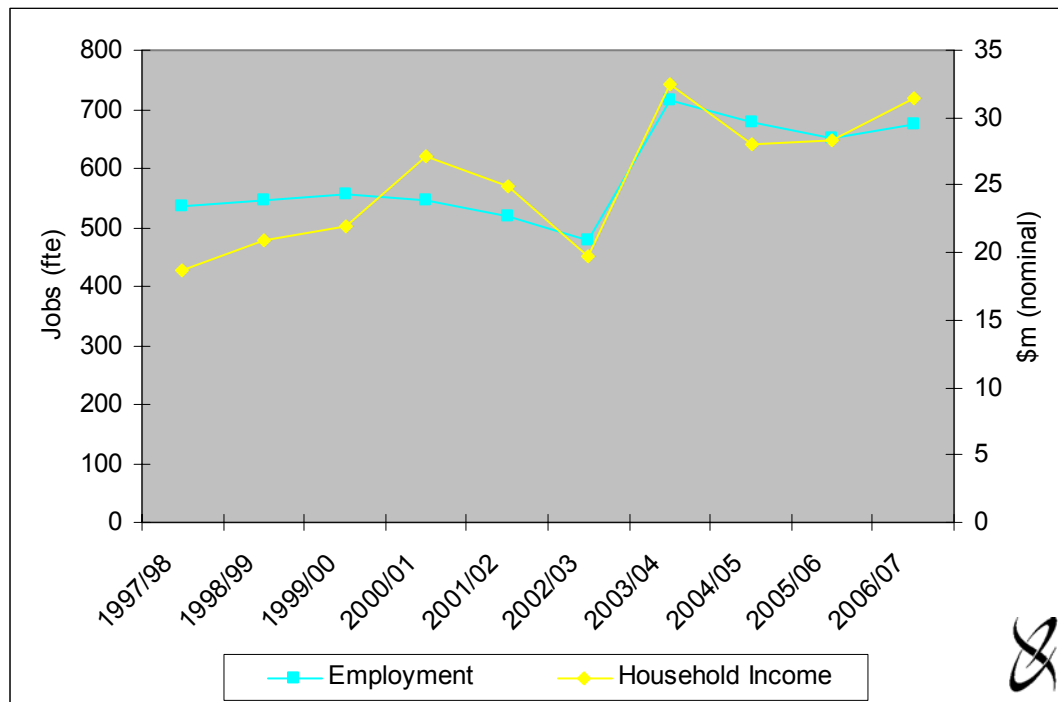
Source: EconSearch (2005a) and EconSearch analysis.

The economic impact of the Spencer Gulf and West Cost prawn fisheries in 1997/98 and 1998/99 does not include the direct and flow-on effects of estimated capital expenditure by licensees; these effects have been included in subsequent years. Estimates of economic impact for the period 1997/98 to 2002/03 do not include the impact of local retail and food service trade; these effects have been included in subsequent years.

As economic impact estimates for the years 1997/98 to 2006/07 are based on different survey samples and techniques, some of the variability between years, is therefore, attributable to sampling variability.

Care should be taken when using value of output as a measure of economic impact as it includes elements of double counting. Using contribution to GSP is the preferred measure of net contribution to the SA economy.

Figure 3.4 Total employment and household income impact of the Spencer Gulf and West Coast prawn fishing industry in SA, 1997/98 to 2006/07^{a, b}



^a The economic impact of the Spencer Gulf and West Coast prawn fisheries in 1997/98 and 1998/99 does not include the direct and flow-on effects of estimated capital expenditure by licensees; these effects have been included in subsequent years. Estimates of economic impact for the period 1997/98 to 2002/03 do not include the impact of local retail and food service trade; these effects have been included in subsequent years.

^b Estimates of economic impact are for the Spencer Gulf and West Coast fisheries in aggregate.

Source: EconSearch (2005a) and EconSearch analysis.

3.6 Economic Rent

Economic rent⁹ is defined as the difference between the price of a good produced using a natural resource and the unit costs of turning that natural resource into the good. In this case the natural resource is the Spencer Gulf and West Coast prawn fisheries and the good produced is the landed prawns.

The unit costs or long term costs all need to be covered if the licence holder is to remain in the fishery. These long-term costs include direct operating costs such as fuel, labour (including the opportunity cost of a self employed fisher's own labour), overheads such as administration and licences and the cost of capital invested in the boat and gear (excluding licence). Capital cost includes depreciation and the

⁹ Economic rent is comprised of three types of rent: entrepreneurial rent, quasi-rent and resource rent. As in any business some operators are more skilful than others and will therefore earn more profit. These profits, which are one component of economic rent, are *entrepreneurial rents*. In the short-term fishers may earn large surpluses over costs, which may provide prima facie evidence of substantial resource rents. However, there are some circumstances where such surpluses can occur but they are not true rents. These are referred to as *quasi-rents*. One example is where a fishery is developing or recovering and there may be under-investment in the fishery. Another example is where there is a short-term but unsustainable increase in price due to, for example, exchange rate fluctuations. However, some profits will be obtained because the natural resource being used (i.e. the fishery) has a value. These profits are described as *resource rents* and are also a component of economic rent.

opportunity cost of the capital applied to the fishery. The opportunity cost is equivalent to what the fisher's investment could have earned in the next best alternative use.

Determining the opportunity cost of capital involves an assessment of the degree of financial risk involved in the activity. For a risk-free operation, an appropriate opportunity cost of capital might be the long-term real rate of return on government bonds. The greater the risks involved, the greater is the necessary return on capital to justify the investment in that particular activity. For this analysis, the long-term (10 year) real rate of return on government (treasury) bonds of 5 per cent has been used and a risk premium of 5 per cent has been applied.

Given the relatively high-risk nature of the industry (weak property rights therefore short time horizons, exposure to exchange rate fluctuations, general price volatility, problems of resource sustainability and political risk in export countries) an argument could be made for a higher required rate of return.

What remains after the value of these inputs (labour, capital, materials, services) has been netted out is the value of the natural resource itself. The economic rent generated in the Spencer Gulf and West Coast prawn fisheries in 2006/07 was estimated to be approximately \$4.5 million, an increase on 2005/06 when the returns were approximately \$1.1 million (Table 3.8).

Table 3.8 Economic rent in the Spencer Gulf and West Coast prawn fisheries, 1997/98 to 2006/07 (\$'000) ^a

	Gross Income	Less Labour	Less Cash Costs ^b	Less Depreciation	Less Opportunity Cost of Capital (@10%)	Economic Rent
1997/98	29,160	10,006	7,371	2,645	3,741	5,398
1998/99	34,572	11,863	7,112	3,207	4,536	7,855
1999/00	36,135	12,399	7,899	2,847	4,028	8,962
2000/01	45,467	17,272	7,642	4,462	4,570	11,522
2001/02	41,534	15,778	7,360	4,828	4,946	8,622
2002/03	28,219	10,720	7,254	5,362	5,493	-610
2003/04	40,389	15,343	7,548	5,669	5,807	6,022
2004/05	32,043	10,744	9,486	7,267	6,589	-2,042
2005/06	33,968	11,390	9,148	6,465	5,862	1,103
2006/07	39,386	13,206	9,398	6,436	5,836	4,509

^a Estimates of economic rent are for the Spencer Gulf and West Coast fisheries in aggregate.

^b Excludes interest and labour costs.

Source: EconSearch analysis.

When an economic rent is generated in a fishery and there are transferable licences, the rent represents a return to the value of the licences. The aggregate value of licences for both fisheries in 2006/07 was estimated to be approximately \$208.6 million (42 licences with an average value of \$4.97 million). An annual economic rent of \$4.5 million represents a return of 2.2 per cent to the capital value of the fisheries.

4. Other Indicators¹⁰

4.1 Prawn Exports from South Australia

Figures 4.1 to 4.5 and the associated data in Appendix Tables 2.1 to 2.4 provide an historical breakdown of total prawn exports from South Australia¹¹, by category and country of destination, for the period 1995/96 to 2006/07. Over this period the total quantity of prawns exported from SA decreased by 92 per cent, from 3,580 tonnes in 1995/96 to 287 tonnes in 2006/07 (Figures 4.2 and 4.4). The total value of these prawn exports decreased by 92 per cent in nominal terms (Figures 4.3 and 4.5). As a proportion of total prawn catch in South Australia, prawn exports from South Australia decreased from 158 per cent in 1995/96 to 13 per cent in 2006/07 (Figure 4.1).

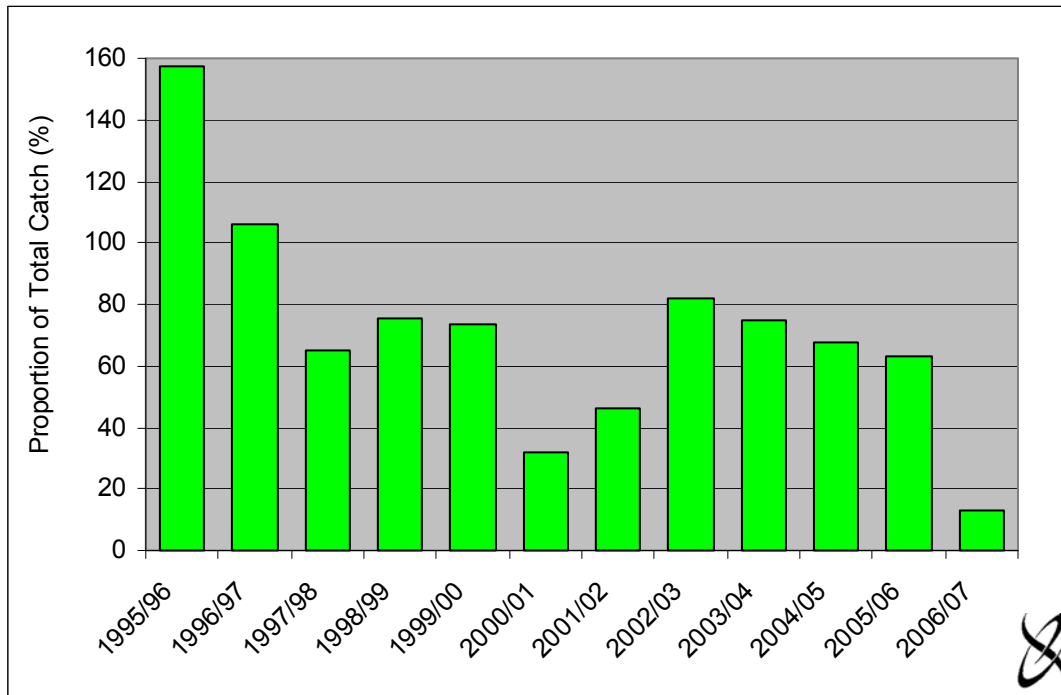
Whole prawns (fresh, frozen, steamed or boiled) was the most important category of export in all years of the analysis, accounting for, on average, 89 per cent of total exports by quantity and 88 per cent of total exports by value over the period of analysis (Figures 4.2 and 4.3). For a full breakdown of exports by category refer to Appendix Tables 2.1 and 2.2.

Over the eleven-year period 1995/96 to 2006/07 the most significant export destinations were Japan, Spain, Greece and China, accounting on average for 56, 11, 13 and 7 per cent, respectively, of the total quantity of prawn exports from South Australia (Figure 4.4). In 2006/07 the most significant export destinations by volume and value were Greece (54 per cent of volume, 58 per cent of value), Spain (26 per cent of volume, 21 per cent of value) and Japan (15 per cent of volume, 15 per cent of value), and. For a full breakdown of exports by country of destination refer to Appendix Tables 2.3 and 2.4.

¹⁰ As a part of the 2005 survey, licence holders were asked to provide some general comments on the economic performance of the fishery. These comments were reported in the Economic Indicators report for 2004/05 (EconSearch 2006a)

¹¹ That is, exports from the Gulf St Vincent, Spencer Gulf and West Coast prawn fisheries in aggregate. These data include product that has been shipped from interstate (for processing) and then exported from South Australia. Therefore, in addition to Western King prawns caught in SA fisheries, these data could include other prawn species caught in other Australian fisheries. The data do not include product that is shipped interstate from SA and then exported from other ports.

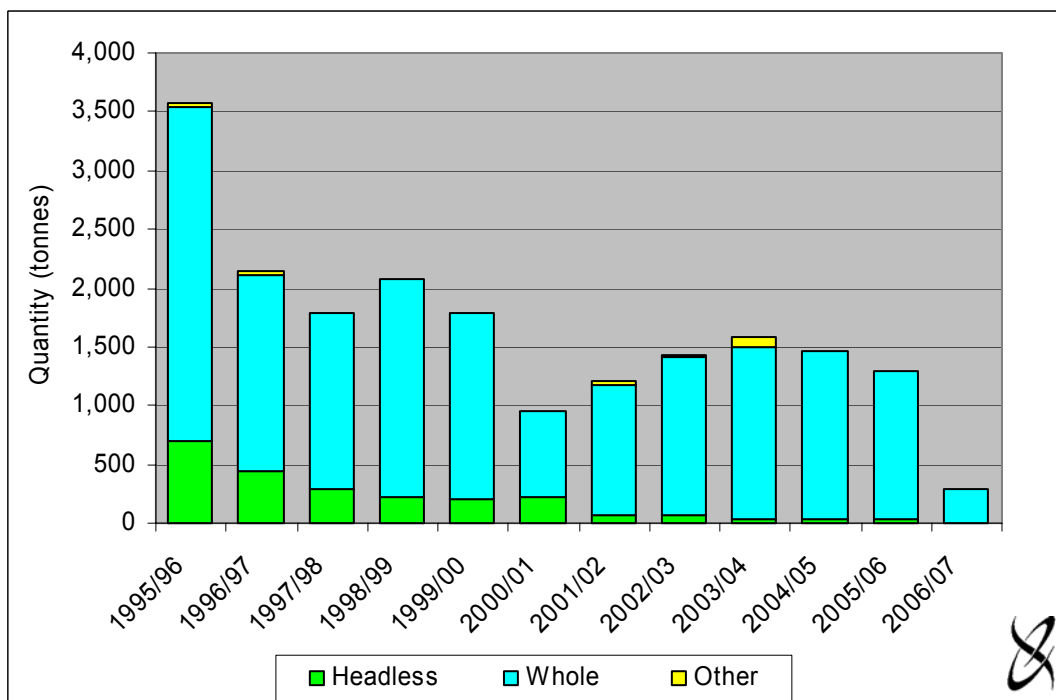
Figure 4.1 Prawn exports from South Australia as a proportion of total South Australian catch ^a, 1995/96 to 2006/07



^a Exports from the Gulf St Vincent, Spencer Gulf and West Coast prawn fisheries in aggregate. These data could include product that has been shipped from interstate (for processing) and then exported from South Australia. Therefore, in addition to Western King prawns caught in SA fisheries, these data could include other prawn species caught in other Australian fisheries, accordingly proportion of total catch has the potential to be greater than 100 per cent. The data do not include product that is shipped interstate from SA and then exported from other ports.

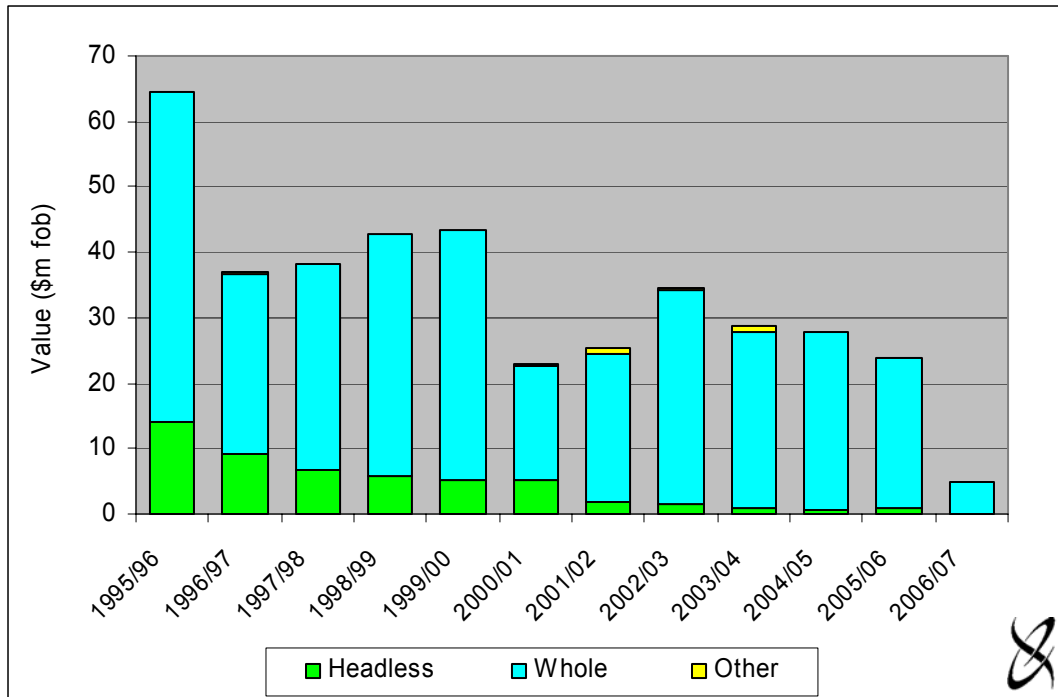
Source: Appendix Table 2.1 and Table 3.1.

Figure 4.2 Prawn exports from South Australia, quantity (t) by category, 1995/96 to 2006/07



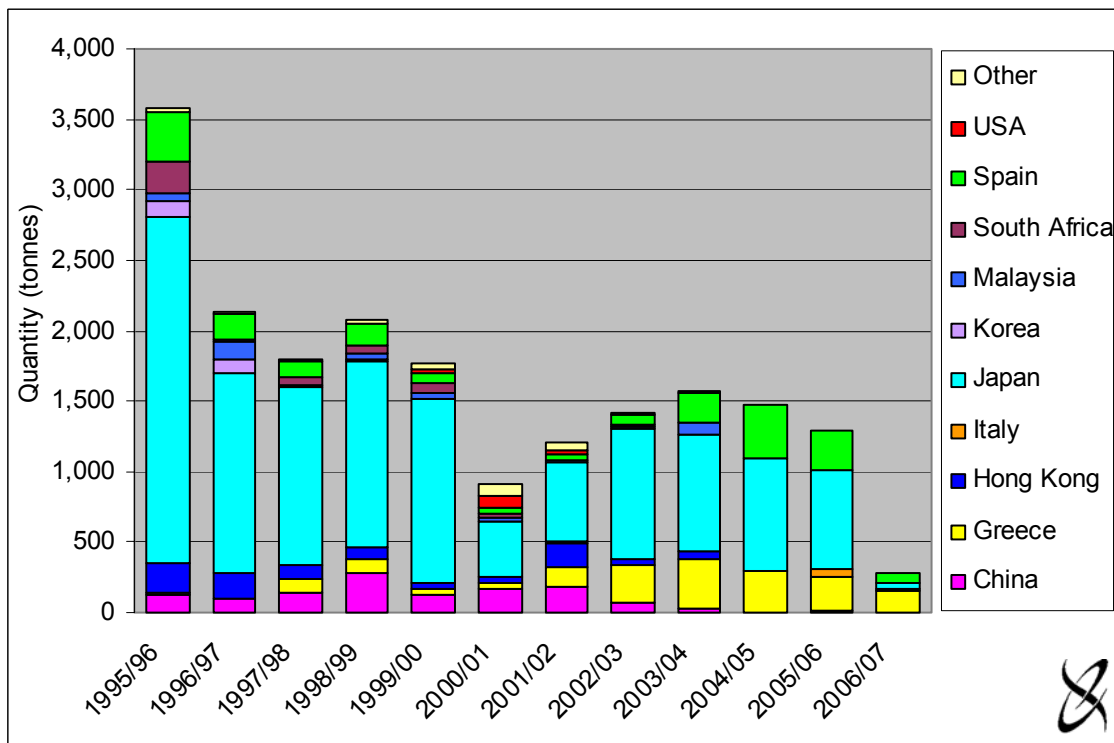
Source: Appendix Table 2.1.

Figure 4.3 Prawn exports from South Australia, value (\$m fob) by category, 1995/96 to 2006/07



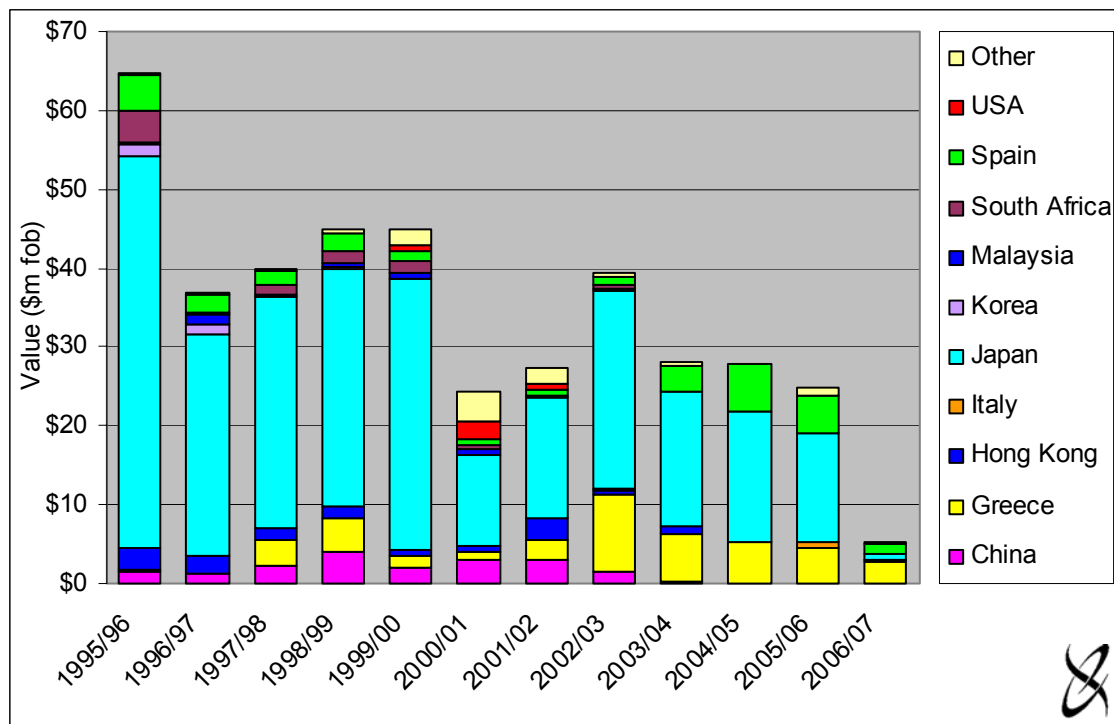
Source: Appendix Table 2.2.

Figure 4.4 Prawn exports from South Australia, quantity (t) by country of destination, 1995/96 to 2006/07



Source: Appendix Table 2.3.

Figure 4.5 Prawn exports from South Australia, value (\$m fob) by country of destination, 1995/96 to 2006/07



Source: Appendix Table 2.4.

4.2 External Factors Influencing the Economic Condition of the Fisheries

There are a number of factors in 2006/07 that have impacted on the economic performance of the Spencer Gulf and West Coast prawn fisheries. Most of these are likely to continue to affect economic outcomes in the future.

4.2.1 Biological Performance Indicators

The priority of the management of the fisheries is to ensure the sustainability of prawn stocks (MacDonald 1998 and Dixon and Sloan 2007). In order to achieve this, biological indicators have been developed with reference points used as a benchmark of performance against objectives. Reference or trigger points can be used to trigger a management response when required. The biological performance indicators for the Spencer Gulf and West Coast prawn fisheries relate to:

- catch and effort;
- catch per unit of effort (CPUE);
- exploitation;
- recruitment; and
- size.

The Spencer Gulf fishery biological performance indicators for the seasons 2002/03 to 2006/07 are summarised in Table 4.1 below.

Table 4.1 Biological performance indicators for the Spencer Gulf prawn fishery, 2002/03 to 2006/07

Performance Indicator	Trigger Point	2002/03	2003/04	2004/05	2005/06	2006/07
Catch (tonnes)	Less than 1,800 t	1,489	1,943	1,939	1,870	2,023 ^a
CPUE (kg/hr)	Less than 80 kg/hr	78.8	96.2	90.8	105.0	109.0
Effort (nights)	Greater than 85	71.8	74.5	80.0	47.0	50.9
Spawning Biomass ^b	Less than 40%	72.7%	57.5%	-	N/A	N/A
Recruitment Index ^b	Less than 35	35.2	41.2	45.6	42.1	47.0
Size (prawns per kg)	Greater than 40	27.5	29.8	30.6	30.9	28.0

^a Provisional production estimates indicate that total catch in 2006/07 was 2,024 tonnes (Table 3.1).

^a Data not available for 2005/06 and 2006/07 fishing seasons.

^b The recruitment index measures changes in the number of juvenile fish entering the fishery.

Source: Cameron Dixon (SARDI Aquatic Sciences, pers. comm.), Angelo Tsolos (SARDI Aquatic Sciences, pers. comm.) and Hooper et. al. (2007).

Spencer Gulf catch in 2006/07 was higher than the previous season, fishing effort was also higher (almost 5 per cent). Catch per unit of effort (CPUE) increased from 105.0 kg/hr in 2005/06 to 109.0 kg/hr in 2006/07. Indicators for effort, recruitment and prawn size were all within their trigger points for the 2006/07 season.

The West Coast fishery biological performance indicators for the seasons 2002/03 to 2005/06 are summarised in Table 4.2¹².

West Coast catch has been extremely low in the last three seasons compared with previous years, although it did increase slightly in the 2005/06 season compared to 2004/05. The increase in effort between 2004/05 and 2005/06 corresponded with a decrease in CPUE over this period. The performance indicator for size was not triggered in the 2003/04 season when the number of prawns per kilogram exceeded the trigger point. The extremely low catch in recent years led management to close the West Coast prawn fishery during the 2006/07 fishing season. Hence, biological performance indicators are not available for this period.

¹² Biological performance indicators for the West Coast fishery for 2006/07 are not yet available.

Table 4.2 Biological performance indicators for the West Coast prawn fishery, 2002 to 2005^a

Performance Indicator	Trigger Point	2002	2003	2004	2005
Catch (tonnes)	N/A	31.4	4.6	13.7	21.3
CPUE (kg/hr)	N/A	40.4	22.9	38.3	32.3
Effort (nights)	Greater than 120	33	18	19	23
Spawning Biomass ^b	Less than 40%	N/A	N/A	N/A	N/A
Recruitment Index ^c	Less than 35	N/A	N/A	N/A	N/A
Size (prawns per kg) ^d	Greater than 40	29.9	31.1	36.3	N/A

^a Biological Performance Indicators for the West Coast fishery are reported in calendar years in stock assessment and status reports

^b Spawning biomass data were not analysed for the 2002/03 to 2005/06 seasons.

^c The recruitment index measures the change in the number of juvenile fish entering the fishery. Recruitment index data were not available for the 2002/03 to 2005/06 seasons.

^d Prawn size data were not analysed for the 2002/03 and 2005/06 seasons.

Source: SARDI Aquatic Sciences and Roberts (2007)

4.2.2 Exchange Rates

A significant proportion of the South Australian prawn catch is exported overseas. Accordingly, the value of the Australian dollar can have a significant impact on the economic performance of the fisheries. The value of the Australian dollar influences the price of Australian exports overseas. Significant changes in the value of the Australian dollar have the potential to influence the demand for Australian prawn exports. The Australian dollar remained relatively stable throughout 2006/07, ranging between US75 cents and US84 cents. This average rate is slightly higher than 2005/06 when the value of the dollar ranged from US72 cents to US76 cents. There has been incremental growth in the value of the AUD since 2000/01 when the dollar fell to around US50 cents.

The average exchange rate in 2006/07 was US78.63 cents compared to US74.63 cents in 2005/06, an increase of 5 per cent. Other things held equal, a rise in the value of the currency had the effect of increasing the price of prawns received by Australian exporters between 2005/06 and 2006/07.

The most significant export destination for South Australian prawn exports in 2006/07 was Japan, thus it may be useful to consider the value of the Australian dollar against the Japanese yen. The average rate of exchange in 2005/06 was 85.9JPY and 93.2JPY in 2006/07, an increase of 9 per cent.

The appreciation of the Australian dollar against the Japanese yen, would have contributed to the increase in the average beach price of GSV prawns of 5 per cent between 2005/06 and 2006/07. The Australian dollar's appreciation also means that imported prawns are cheaper for Australian consumers, putting further downward pressure on the price of Spencer Gulf and West Coast prawns in the domestic market.

4.2.3 Prawn Imports into Australia

There was concern among those licence holders involved in the 2005 survey regarding the quantity of prawns that are imported from overseas. Licence holders felt that the increasing quantity of imported prawns had a negative impact on the price of local product. Figures 4.6 and 4.7 provide an overview of the quantity and value of total prawn imports into Australia by country of origin, for the period 2000/01 to 2006/07.

The total quantity of prawns imported into Australia increased by 92 per cent between 2000/01 and 2004/05 from approximately 15,600 tonnes to almost 30,000 tonnes, but decreased significantly to just under 2,000 tonnes in 2006/07. The substantial decrease in the quantity of prawns imported during 2006/07 was due to the quarantine measures on the importation of prawns implemented by Biosecurity Australia in 2007 (Biosecurity Australia 2007).

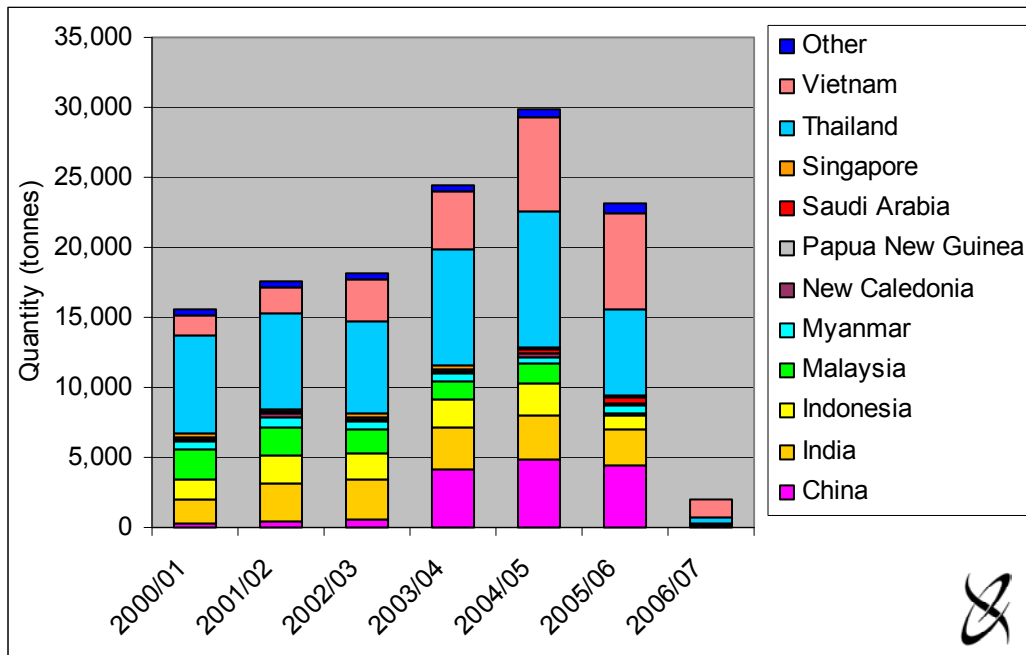
The value (Australian Customs Value)¹³ of prawn imports increased by 10 per cent between 2000/01 to 2004/05 from \$234 million to \$258 million, before decreasing to \$20 million in 2006/07. Over the six-year period the average nominal price of prawn imports fell by approximately 31 per cent, from \$15.00 per kg in 2000/01 to \$10.43 per kg in 2006/07.

Over the period 2000/01 to 2006/07, the most significant countries of import origin were Thailand, Vietnam, China and India, accounting on average for 35, 19, 12 and 12 per cent, respectively, of the total quantity of prawn imports into Australia. In 2006/07, the most significant import countries of origin by volume and value were Vietnam (65 per cent of volume, 71 per cent value), Thailand (24 per cent of volume, 21 per cent of value), and China (10 per cent of volume, 7 per cent of value) (Figures 4.6 and 4.7).

Figure 4.8 highlights the trends in prices received for prawns caught in the two South Australian prawn fisheries and for prawns imported into Australia from overseas. In order to enable comparison between years, nominal prices have been adjusted using the consumer price index (ABS 2007) to calculate real prices in terms of 2000/01 dollars. Over the 7 years included in the analysis, 2000/01 to 2006/07, the real price of imported prawns decreased by 42 per cent. The real price received for prawns caught in South Australia also decreased, by 25 per cent in the Gulf St Vincent fishery and by 8 per cent in the Spencer Gulf and West Coast fisheries.

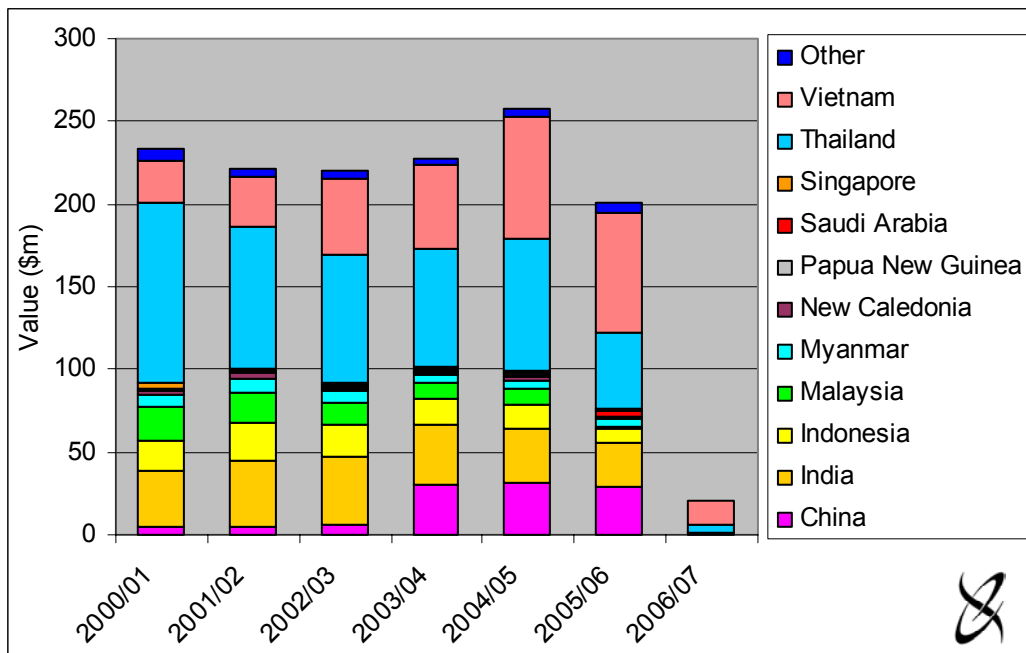
¹³ The Australian Customs Value is the value placed on goods imported into Australia based on information advised by the importer. The Customs value is generally an estimate of the transaction value of the goods imported.

Figure 4.6 Prawn imports into Australia, quantity (t) by country of origin, 2000/01 to 2006/07



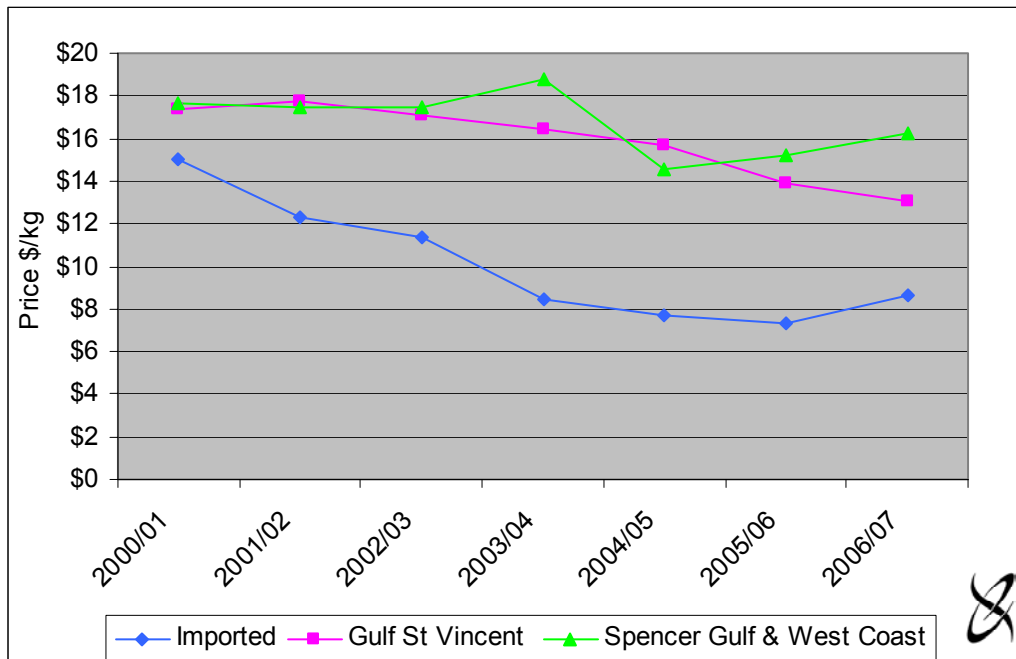
Source: Australian Bureau of Statistics (by request).

Figure 4.7 Prawn imports into Australia, value (\$m) by country of origin, 2000/01 to 2006/07



Source: Australian Bureau of Statistics (by request).

Figure 4.8 Real prices ^a for imported and South Australian prawns, 2000/01 to 2006/07



^a In terms of 200/01 dollars.

Source: ABS (by request) and SARDI Aquatic Sciences.

4.3 Market Prices for Prawns in Domestic Markets

This section of the report provides some indication of the seasonality of prices for western king prawns in the local and other domestic markets.

Average monthly beach prices for western king prawns in SA

An outline of the seasonality of western king prawn prices in SA (by month) for the period 1997/98 to 2006/07 is provided in Table 4.3 and Figure 4.9. Beach prices in SA tend to peak in November and December with strong demand in the Christmas/New Year period and trough in February to May, corresponding with a period of peak supply.

Table 4.3 Average monthly beach prices for western king prawns, South Australia ^a, 1997/98 to 2006/07 ^{b, c}

Month	Average Monthly Price (\$/kg)									
	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07
July	\$11.34	\$13.41	\$15.05	\$17.82	\$14.69				\$13.70	
August	\$11.01	\$12.72	\$14.47	\$18.18	\$14.80		\$16.82	\$13.80	\$14.66	
September	\$13.42			\$18.06	\$15.30				\$17.53	
October							\$16.75	\$16.11		
November	\$14.56	\$15.80	\$19.95	\$20.00	\$18.28	\$19.42		\$21.07	\$19.91	\$21.06
December	\$14.96	\$16.23	\$20.88	\$20.36	\$19.42	\$19.07	\$22.77	\$22.91	\$18.43	\$20.09
January								\$20.41		\$18.00
February	\$15.96	\$14.10	\$18.61	\$20.51	\$15.00		\$14.18	\$14.05		
March	\$12.94	\$14.27	\$17.68	\$17.77	\$17.69	\$18.69	\$14.46	\$13.04	\$13.99	\$13.28
April	\$12.32	\$14.30	\$16.85	\$16.83	\$17.76	\$17.66	\$18.54	\$14.64	\$16.06	\$14.97
May	\$11.49	\$12.55	\$17.66	\$16.26	\$17.74	\$18.45	\$18.26	\$15.03	\$16.96	\$15.87
June	\$12.34	\$14.16	\$18.57	\$16.64	\$16.03	\$18.00	\$10.61	\$17.24	\$14.28	\$15.16
Weighted Average Price SGWC ^d	\$11.70	\$14.26	\$17.92	\$17.67	\$17.99	\$18.71	\$20.63	\$14.90	\$17.97	\$19.46
Weighted Average Price GSV ^e	\$15.31	\$15.01	\$19.09	\$17.38	\$18.23	\$18.28	\$18.12	\$17.66	\$16.43	\$15.65

^a For all prawn fisheries in South Australia.

^b Nominal prices.

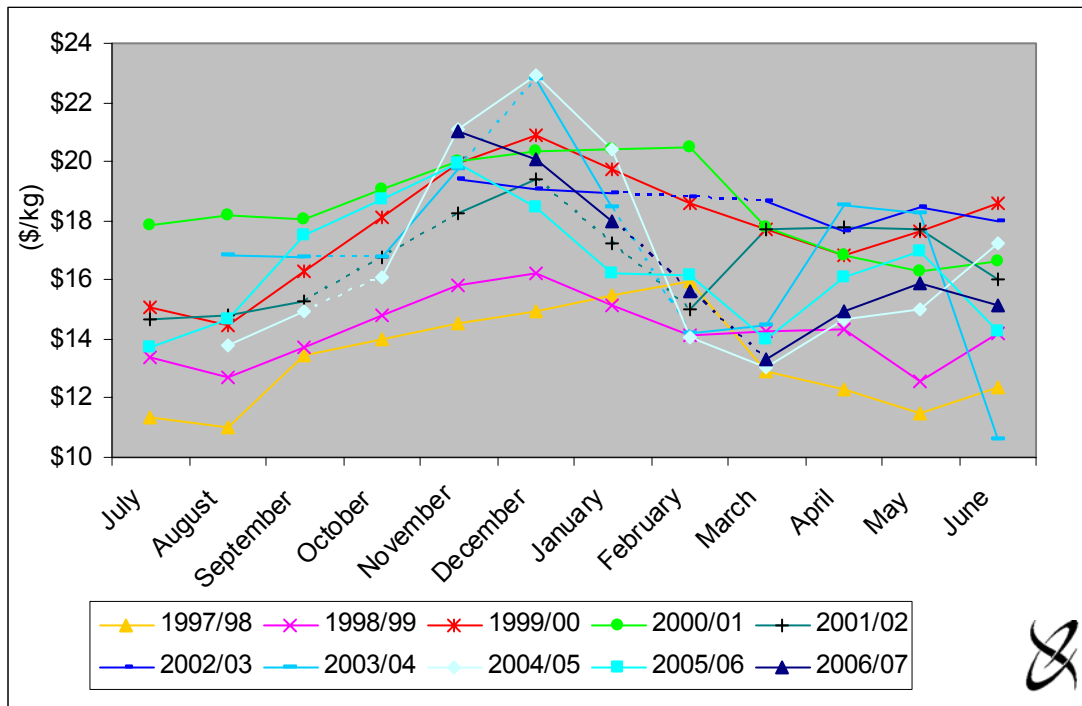
^c Blank cells correspond with months in which no returns were received from processors.

^d Spencer Gulf and West Coast prawn fisheries.

^e Gulf St Vincent prawn fishery.

Source: SARDI Aquatic Sciences.

Figure 4.9 Average monthly beach prices for western king prawns, South Australia, 1997/98 to 2006/07 ^a



NB: Data within the broken lines correspond with months in which no returns were received from processors. These values have been imputed (for graphical purposes) on the basis of a simple average of the previous and subsequent months' returns.

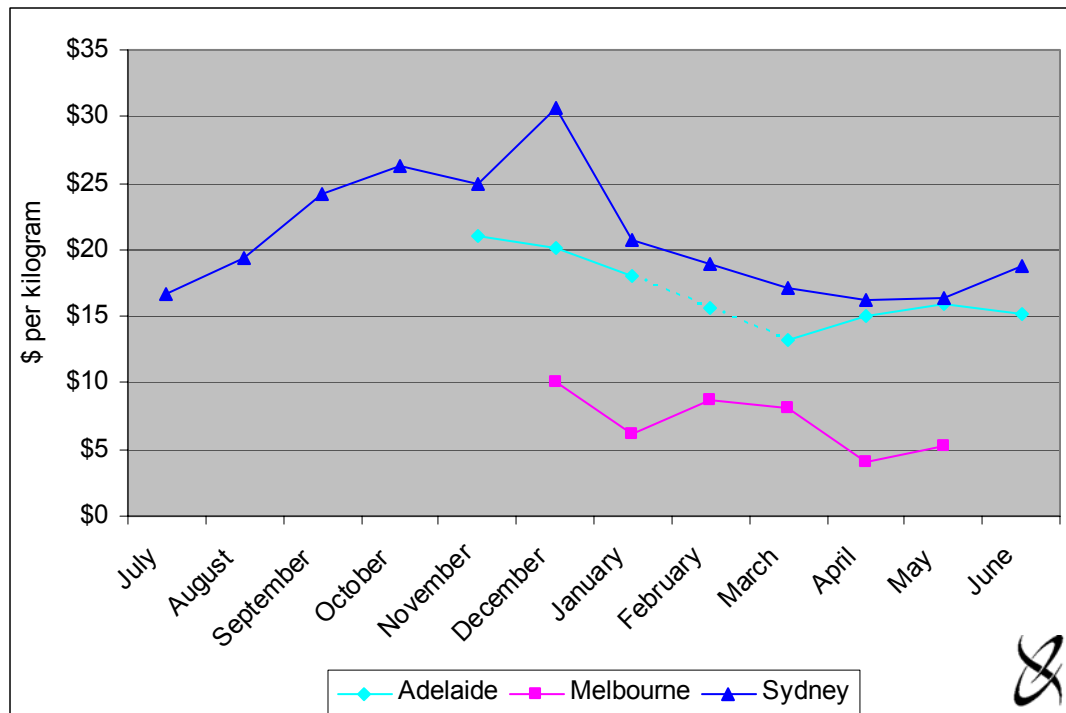
^a Nominal prices for all prawn fisheries in South Australia.

Source: SARDI Aquatic Sciences.

Average monthly price for western king prawns in other domestic markets

The average price of western king prawns sold in the Sydney and Melbourne fish markets is illustrated on a monthly basis (for 2006/07) in Figure 4.10. Fluctuations in price are similar to those experienced in South Australia with prices peaking in November/December and reaching a low point between February and April.

Figure 4.10 Prices for western king prawns; Sydney Fish Markets, Melbourne Fish Markets and South Australian beach prices, 2006/07^a



^a All prices reported from Sydney and Melbourne Fish Markets are wholesale, that is, before commission is taken into account. Currently, Sydney Fish Markets charges 9 per cent commission plus an environmental levy of 0.025 per cent. Melbourne Fish Market charges 11 per cent commission. Sydney and Melbourne market prices are for product from all sources.

N.B. Data with broken lines correspond with months in which no fish were sold or prices were unavailable. These values have been imputed (for graphical purposes) on the basis of a simple average of the previous and subsequent months prices.

Source: SARDI Aquatic Sciences, Tim Rieniets (Melbourne Wholesale Fish Markets, pers. comm.) and Samantha Dawes (DPI – NSW Fisheries, pers. comm.)

References

- Australian Bureau of Statistics (ABS) 2007, *Consumer Price Index, Australia*, Cat. No. 6401.0.
- Baker, D. and Pierce, B. 1998, *Reassessment of the Gross Economic Value of the South Australian Inland Fisheries Harvest*, SARDI Aquatic Sciences
- Biosecurity Australia 2007, *Biosecurity Australia Memorandum Policy 2007/16*, Importation of Prawn and Prawn Products – Revised Interim Quarantine Measures, July.
- Brown, D. 1997, *Australian Fisheries Surveys Report: Physical and Financial Performance in Selected Australian Fisheries 1994-95 to 1996-97*, ABARE Report, Canberra.
- Carrick, N. 2003, *Spencer Gulf Prawn Fishery*, report to PIRSA Fisheries and the Prawn Fisheries Management Committee, South Australia, March.
- Dixon, C.D. Roberts, S.D. and Hooper, G.E. 2007, *Spencer Gulf Prawn Fishery 2005/06*, Fishery Assessment Report to PIRSA Fisheries, September.
- Dixon, C.D. and Sloan, S. 2007, *Management Plan for the South Australian Spencer Gulf Prawn Fishery*, prepared for PIRSA Fisheries, September.
- EconSearch Pty Ltd 1999, *Economic Indicators for the Spencer Gulf and West Coast Prawn Fishery 1997/98*, report prepared for Primary Industries and Resources South Australia, PIRSA, Adelaide, March 1999.
- EconSearch Pty Ltd 2000, *Economic Indicators for the Spencer Gulf and West Coast Prawn Fishery 1998/99*, report prepared for Primary Industries and Resources South Australia, PIRSA, Adelaide, February 2000.
- EconSearch Pty Ltd 2001, *Economic Indicators for the Spencer Gulf and West Coast Prawn Fishery 1999/00*, report prepared for Primary Industries and Resources South Australia, PIRSA, Adelaide, May 2001.
- EconSearch Pty Ltd 2002, *Economic Indicators for the Spencer Gulf and West Coast Prawn Fishery 2000/01*, report prepared for Primary Industries and Resources South Australia, PIRSA, Adelaide, June 2002.
- EconSearch Pty Ltd 2003, *Economic Indicators for the Spencer Gulf and West Coast Prawn Fishery 2001/02* report prepared for Primary Industries and Resources South Australia, PIRSA, Adelaide, March.
- EconSearch Pty Ltd 2004, *Economic Indicators for the Spencer Gulf and West Coast Prawn Fishery 2002/03* report prepared for Primary Industries and Resources South Australia, PIRSA, Adelaide, March.
- EconSearch Pty Ltd 2005a, *Economic Indicators for the Spencer Gulf and West Coast Prawn Fishery 2003/04* report prepared for Primary Industries and Resources South Australia, PIRSA, Adelaide, August.
- EconSearch Pty Ltd 2005b, *Quantifying the Economic Contribution of Regional South Australia*, report prepared for Regional Communities Consultative Council, Local Government Association of SA and Regional Development SA, May.
- EconSearch Pty Ltd 2006, *Economic Indicators for the Spencer Gulf and West Coast Prawn Fishery 2004/05* report prepared for Primary Industries and Resources South Australia, PIRSA, Adelaide, April.

EconSearch Pty Ltd 2007a, *Economic Indicators for the Spencer Gulf and West Coast Prawn Fishery 2005/06* report prepared for Primary Industries and Resources South Australia, PIRSA, Adelaide, May.

EconSearch Pty Ltd 2007b, *Economic Indicators for the Commercial Fisheries of South Australia, Summary Report, 2005/06*, report prepared for Primary Industries and Resources South Australia, May.

Hooper, G.E. Dixon, C.D. and Roberts, S.D. 2007, *Spencer Gulf Fishery Status Report*, Fisheries Status Report to PIRSA Fisheries, December.

MacDonald, N. 1998, *Management Plan for the Spencer Gulf and West Coast Prawn Fisheries*, prepared by the Spencer Gulf and West Coast Prawn Fisheries Management Committee for PIRSA Fisheries, July.

Roberts, S.D. 2007, *West Coast Prawn Fishery Status Report*, Fisheries Status Report to PIRSA Fisheries.

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Appendix 1 Economic Impact of the Spencer Gulf and West Coast Prawn Fisheries, 2005/06¹⁴

Appendix Table 1.1 Economic impact of the Spencer Gulf and West Coast prawn fisheries in South Australia, 2005/06^a

Sector	Output		Employment ^b		Household Income		Contribution to GSP	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%
Direct effects								
Fishing	34.0	34.3%	217	33.5%	10.6	37.2%	25.1	45.5%
Processing	0.7	0.7%	2	0.3%	0.1	0.3%	0.2	0.3%
Transport	0.7	0.7%	3	0.5%	0.2	0.8%	0.3	0.6%
Retail	3.4	3.4%	50	7.8%	1.4	5.0%	1.7	3.1%
Food services	9.4	9.5%	81	12.4%	2.4	8.5%	3.7	6.7%
Capital expenditure ^c	2.3	2.3%	23	3.6%	0.7	2.5%	0.9	1.7%
Total Direct^d	50.4	50.9%	378	54.5%	15.4	51.9%	31.9	56.1%
Flow-on effects								
Trade	7.3	7.4%	83	12.8%	2.8	9.7%	3.4	6.2%
Manufacturing	10.8	10.9%	35	5.3%	1.6	5.6%	2.5	4.6%
Business Services	6.0	6.0%	36	5.5%	2.2	7.7%	2.8	5.1%
Transport	2.4	2.4%	11	1.7%	0.8	2.7%	1.1	2.1%
Other Sectors	22.1	22.3%	107	16.4%	5.7	19.9%	13.4	24.2%
Total Flow-on^d	48.6	49.1%	272	41.8%	13.0	45.6%	23.3	42.2%
Total^d	99.0	100.0%	649	100.0%	28.4	100.0%	55.2	100.0%
Total/Direct	2.0	-	1.7	-	1.8	-	1.7	-
Total/Tonne	\$52,300	-	0.34	-	\$15,000	-	\$29,200	-

^a Full-time equivalent jobs. Direct employment in the fisheries was comprised of 48 full-time jobs and 197 part-time jobs, that is, 244 jobs in aggregate.

^b Capital expenditure includes expenditure on boats, fishing gear and equipment, sheds and buildings, motor vehicles and other equipment.

^c Totals may not sum due to rounding.

Source: EconSearch (2007a).

¹⁴ Estimates of economic impact prepared for this and other commercial fisheries in South Australia (except Lakes and Coorong) for the period 1997/98 to 2002/03 do not include the impact of local retail and food service trade. The economic impact of the Spencer Gulf and West Coast prawn fisheries in 1997/98 and 1998/99 does not include the direct and flow-on effects of estimated capital expenditure by licensees; these effects have been included for the period 1999/00 to 2002/03.

Appendix Table 1.2 Economic impact of the Spencer Gulf and West Coast prawn fisheries in the Eyre region, 2005/06 ^a

Sector	Output		Employment ^b		Household Income		Contribution to GRP	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%
Direct effects								
Fishing	34.0	66.5%	217	61.5%	10.6	68.0%	25.1	74.1%
Processing	0.2	0.3%	1	0.2%	0.0	0.2%	0.0	0.1%
Transport	0.4	0.7%	2	0.6%	0.1	0.8%	0.2	0.5%
Retail	0.2	0.3%	3	0.8%	0.1	0.4%	0.1	0.3%
Food services	0.5	0.9%	5	1.3%	0.1	0.8%	0.2	0.5%
Capital expenditure ^c	1.5	2.9%	24	6.7%	0.6	3.8%	0.7	2.2%
Total Direct ^d	36.6	68.8%	252	64.4%	11.5	70.2%	26.4	75.5%
Flow-on effects								
Trade	3.1	6.0%	40	11.4%	1.1	7.3%	1.5	4.3%
Manufacturing	2.1	4.1%	10	2.8%	0.4	2.5%	0.6	1.7%
Business Services	1.2	2.3%	8	2.3%	0.4	2.6%	0.6	1.6%
Transport	0.8	1.5%	4	1.3%	0.3	1.7%	0.4	1.2%
Other Sectors	7.4	14.5%	40	11.2%	1.9	11.9%	4.6	13.5%
Total Flow-on ^d	14.4	28.3%	102	28.9%	4.1	26.0%	7.6	22.3%
Total ^d	51.0	100.0%	354	100.0%	15.6	100.0%	33.9	100.0%
Total/Direct	1.4	-	1.4	-	1.4	-	1.3	-
Total/Tonne	\$26,900	-	0.19	-	\$8,200	-	\$17,900	-

^a Full-time equivalent jobs. Direct employment in the fisheries was comprised of 48 full-time jobs and 197 part-time jobs, that is, 244 jobs in aggregate.

^b Capital expenditure includes expenditure on boats, fishing gear and equipment, sheds and buildings, motor vehicles and other equipment.

^c Totals may not sum due to rounding.

Source: EconSearch (2007a).

Appendix 2 Prawn Exports from South Australia, 1995/96 to 2006/07

Appendix Table 2.1 Prawn exports from South Australia, quantity (kg) by category, 1995/96 to 2006/07

Category	Year											
	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07
Headless	691,133	450,771	291,570	215,962	202,791	217,877	76,131	63,059	39,933	30,211	36,144	5,688
Whole	2,856,778	1,649,101	1,488,560	1,863,355	1,567,796	687,420	1,105,396	1,346,174	1,463,315	1,438,900	1,249,734	281,054
Other ^a	31,841	32,950	9,850	0	0	0	26,460	13,000	72,980	0	1,465	0
	3,579,752	2,132,822	1,789,980	2,079,317	1,770,587	905,297	1,207,987	1,422,233	1,576,228	1,469,111	1,287,343	286,742

^a Other prawns includes prawn cutlets and prawn meat etc.; excluding headless and whole.

Source: Australian Bureau of Statistics (by request)

Appendix Table 2.2 Prawn exports from South Australia, value (\$'000 fob) by category, 1995/96 to 2006/07

Category	Year											
	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07
Headless	\$14,186	\$9,220	\$6,591	\$5,832	\$5,056	\$5,301	\$1,794	\$1,551	\$1,000	\$725	\$871	\$83
Whole	\$50,323	\$27,432	\$31,600	\$36,923	\$38,115	\$16,590	\$22,736	\$32,774	\$26,692	\$27,071	\$22,930	\$4,873
Other ^a	\$23	\$174	\$4	\$0	\$0	\$0	\$810	\$184	\$1,116	\$0	\$27	\$0
	\$64,532	\$36,827	\$38,195	\$42,754	\$43,171	\$21,891	\$25,340	\$34,509	\$28,808	\$27,796	\$23,827	\$4,956

^a Other prawns includes prawn cutlets and prawn meat etc.; excluding headless and whole.

Source: Australian Bureau of Statistics (by request).

Appendix Table 2.3 Prawn exports from South Australia, quantity (kg) by country of destination, 1995/96 to 2006/07

Country of Destination	Year											
	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07
China	132,113	103,600	146,127	274,383	128,654	175,258	187,598	75,696	25,073	0	13,295	0
Greece	12,686	0	91,641	106,669	37,250	34,200	133,980	266,562	353,753	293,287	242,095	156,125
Hong Kong	203,455	179,159	95,057	88,112	48,291	39,286	173,492	31,342	57,240	5,800	25	473
Japan	2,463,229	1,414,565	1,264,749	1,316,495	1,302,040	391,217	560,535	928,331	829,819	799,259	698,714	42,894
Korea	113,189	94,479	0	13,000	0	0	75	1,200	0	0	0	0
Malaysia	52,927	128,185	15,300	33,745	38,400	39,440	12,401	15,401	76,180	0	0	0
South Africa	221,942	19,176	63,496	65,571	73,662	19,982	0	20,548	0	0	400	0
Spain	353,651	174,856	100,610	146,563	68,272	45,880	48,316	59,152	219,171	369,084	279,650	73,600
USA	0	6,741	0	0	25,561	84,432	25,773	4,439	0	396	845	650
Other	26,560	12,061	13,000	34,779	48,457	75,602	54,567	19,562	14,992	1,285	2,070	0
Total	3,579,752	2,132,822	1,789,980	2,079,317	1,770,587	905,297	1,196,737	1,422,233	1,576,228	1,469,111	1,237,094	273,742

Source: Australian Bureau of Statistics (by request).

Appendix Table 2.4 Prawn exports from South Australia, value (\$'000) by country of destination, 1995/96 to 2006/07

Country of Destination	Year											
	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07
China	1,474	1,321	2,271	4,038	1,931	3,000	2,956	1,493	365	0	107	0
Greece	382	0	3,293	4,316	1,638	941	2,467	9,771	5,982	5,215	4,303	2,858
Hong Kong	2,756	2,276	1,430	1,403	763	879	2,926	556	1,015	132	1	14
Japan	49,644	27,902	29,480	30,217	34,330	11,569	15,243	25,280	16,868	16,605	13,731	757
Korea	1,321	1,352	0	159	0	0	2	21	0	0	0	0
Malaysia	474	1,193	239	554	649	583	233	148	0	0	0	0
South Africa	3,880	327	1,280	1,366	1,495	534	0	519	0	0	9	0
Spain	4,418	2,172	1,630	2,401	1,312	795	789	980	3,473	5,806	4,718	1,060
USA	0	160	0	0	801	2,274	700	73	0	10	17	14
Other	374	284	218	459	1,873	3,841	1,956	444	336	39	959	267
Total	64,723	36,987	39,841	44,912	44,791	24,416	27,273	39,284	28,039	27,806	23,845	4,970

Source: Australian Bureau of Statistics (by request).

Appendix 3 Summary Economic Indicators for South Australian Commercial Fisheries

Appendix Table 3.1 Commercial fisheries catch, South Australia, 1990/91 – 2005/06 (tonnes)

Year	Abalone	GSV Prawns	SG & WC Prawns	Sth'n Zone Rock Lobster	Nth'n Zone Rock Lobster	Blue Swimmer Crabs	Lakes and Coorong ^a	Sardines	Other Marine Species	Total SA Fisheries ^b
1990/91	863	134	1,951	1,562	1,104	434	2,442	n.a.	7,108	15,598
1991/92	885	0	2,155	1,940	1,222	425	3,143	145	7,750	17,665
1992/93	869	0	1,645	1,754	1,064	511	2,640	1,230	7,499	17,212
1993/94	802	226	1,693	1,669	930	544	2,992	2,377	6,719	17,952
1994/95	851	148	1,911	1,720	891	608	2,884	2,803	9,744	21,560
1995/96	902	258	2,013	1,684	903	655	2,720	3,708	6,301	19,144
1996/97	903	211	1,813	1,635	893	464	2,657	3,428	6,507	18,511
1997/98	812	267	2,492	1,680	942	469	2,595	6,041	5,526	20,824
1998/99	933	336	2,425	1,713	1,016	501	2,355	4,465	4,964	18,708
1999/00	889	400	2,016	1,717	1,001	549	1,995	3,836	4,840	17,243
2000/01	867	384	2,603	1,716	846	556	2,293	7,368	5,132	21,765
2001/02	850	322	2,288	1,717	675	559	1,875	12,165	4,644	25,095
2002/03	890	232	1,508	1,766	595	583	2,030	21,741	4,048	33,393
2003/04	879	172	1,958	1,896	504	611	2,120	33,160	3,712	45,012
2004/05	902	213	1,960	1,897	446	632	2,198	56,952	3,810	69,010
2005/06	896	179	1,891	1,889	476	648	2,352	28,626	3,186	40,143

^a Excludes the River fishery for the years 2003/04 to 2006/07.

^b Excludes aquaculture, south east non-trawl, tuna, deep water trawl.

Source: EconSearch (2007b)

Appendix Table 3.2 Commercial fisheries gross value of production, South Australia, 1990/91 – 2005/06 (\$m)

Year	Abalone	GSV Prawns	SG & WC Prawns	Sth'n Zone Rock Lobster	Nth'n Zone Rock Lobster	Blue Swimmer Crabs ^a	Inland Waters ^b	Sardines	Other Marine Species ^c	Total SA Fisheries ^d
1990/91	14.0	1.7	20.0	26.7	18.2	1.6	2.3	na	17.8	102.4
1991/92	15.1	0.0	19.7	36.3	21.4	1.4	2.6	0.2	21.3	117.9
1992/93	23.7	0.0	19.7	34.8	20.5	1.6	5.3	0.8	20.3	126.7
1993/94	27.2	3.3	20.9	43.2	23.4	1.8	5.6	1.4	19.2	146.0
1994/95	22.8	1.9	22.6	48.6	25.5	2.2	6.3	1.6	24.5	156.1
1995/96	22.5	3.5	22.9	44.6	23.8	2.5	6.0	2.5	21.8	150.1
1996/97	25.2	2.9	22.2	47.0	24.4	2.1	6.3	2.2	20.6	152.9
1997/98	26.9	4.1	29.2	50.9	27.7	2.2	5.5	3.8	16.7	166.9
1998/99	27.2	5.0	34.6	47.2	26.7	2.2	6.3	2.5	18.0	169.7
1999/00	32.4	7.6	36.1	51.2	29.8	2.5	7.5	2.7	19.2	189.1
2000/01	40.0	6.7	46.0	55.1	28.0	3.1	7.8	5.2	20.2	212.0
2001/02	34.8	5.9	41.5	65.7	26.2	3.5	6.0	8.5	18.5	210.5
2002/03	36.3	4.2	28.2	63.8	18.8	3.6	5.1	17.8	20.4	198.3
2003/04	31.6	3.1	40.4	49.3	12.0	3.6	5.4	22.5	21.9	189.9
2004/05	33.8	3.8	32.0	54.4	11.6	3.6	5.5	28.5	20.9	194.1
2005/06	33.9	2.9	34.0	65.7	15.4	5.2	5.9	16.0	17.4	196.6

^a SARDI estimates for the years 1990/91 and 1991/92, revalued SARDI estimates using Baker and Pierce (1998) for the years 1992/93 to 2001/02 and survey based readjustment factors for 2002/03 to 2004/05. Excludes the River fishery for the years 2003/04 to 2006/07.

^b SARDI estimates for the years 1990/91 to 2002/03, revalued SARDI estimates for 2003/04 and 2004/05 using weighted average prices from Sydney and Melbourne fish markets and price data obtained from fishers.

^c Excludes aquaculture, south east non-trawl, tuna, deep water trawl.

Source: EconSearch (2007b).

Appendix Table 3.3 Cost of management in South Australian commercial fisheries, 2005/06

	Licence Fees (\$'000)	GVP (\$'000)	Fees/ GVP (%)	Catch ('000kg)	Fees/ Catch (\$/kg)	Licence Holders (no.)	Fees/ Licence (\$/licence)
Abalone	2,323	33,859	6.9%	896	\$2.59	35	\$66,359
GSV Prawns	270	2,941	9.2%	179	\$1.51	10	\$27,023
SG & WC Prawns	834	33,968	2.5%	1,891	\$0.44	42	\$19,855
Sth'n Zone Rock Lobster	2,508	65,737	3.8%	1,889	\$1.33	180	\$13,932
Nth'n Zone Rock Lobster	1,088	15,433	7.0%	476	\$2.29	69	\$15,766
Blue Crabs - Pots	240	4,966	4.8%	600	\$0.40	8	\$29,965
Blue Crabs – Marine Scale	55	270	20.4%	48	\$1.15	11	\$5,004
Lakes and Coorong ^a	265	5,924	4.5%	2,352	\$0.11	37	\$7,175
Marine Scalefish	1,547	17,446	8.9%	3,186	\$0.49	384	\$4,028
Sardines	1,005	16,031	6.3%	28,626	\$0.04	14	\$71,814
Total SA	10,135	196,575	5.2%	40,143	\$0.25	790	\$12,829

^a Excludes the River fishery.

Source: EconSearch (2007b).

Appendix Table 3.4 Financial performance in South Australian commercial fisheries, 2005/06, (\$'000) (average per boat)

	Abalone	GSV Prawns	SG & WC Prawns	St'n Zone Rock Lob	Nth'n Zone Rock Lob	Blue Crabs Pot Sector ^a	Blue Crabs MS Sector ^a	Marine Scalefish ^b	Sardines	Lakes and Coorong
Gross Income	1,016.8	289.5	750.6	379.7	294.7	4,965.8	270.0	47.1	1,149.5	192.5
Costs										
Fuel	15.3	26.3	56.9	21.6	45.4	643.3	29.9	6.2	201.9	13.9
R&M	37.2	14.8	47.5	19.2	17.1	554.8	34.8	5.6	92.1	6.4
Labour	259.7	108.7	251.7	105.1	126.7	1,242.8	92.2	29.5	476.8	70.5
Licence fee	65.4	28.3	22.7	15.8	19.6	239.7	55.0	4.0	71.6	8.7
Insurance	6.9	19.0	19.9	6.4	8.8	64.4	9.7	1.9	30.5	1.6
Interest	5.0	28.5	41.8	22.0	31.9	630.3	8.8	0.3	88.3	4.9
Admin & Other	52.5	24.9	55.1	21.6	50.9	288.1	22.5	10.1	94.1	27.4
Total Cash Costs	442.0	250.4	495.6	211.7	300.4	3,663.4	253.0	57.7	1,055.4	133.4
Cash Operating Surplus	574.8	39.1	255.0	168.0	-5.7	1,302.4	17.0	-10.5	94.1	59.2
Depreciation	66.0	133.5	142.9	45.0	58.0	334.3	38.9	8.8	194.2	59.2
Earnings Before Tax	508.9	-94.5	112.1	123.0	-63.7	968.1	-21.8	-19.4	-100.1	0.0
EBIT^c	513.9	-66.0	153.9	145.0	-31.8	1,598.5	-13.1	-19.1	-11.8	4.9
Capital										
Fishing Gear & Equipment	331.0	988.2	1,295.4	330.3	451.2	3,346.5	327.6	87.9	2,621.4	121.9
Licence Value	8,534.6	2,424.1	4,283.7	2,874.0	1,472.3	25,509.9	1,282.3	146.6	3,042.9	177.5
Total Capital	8,865.6	3,412.3	5,579.0	3,204.3	1,923.5	28,856.4	1,609.9	234.4	5,664.3	299.4
Rate of Return to Gear/Equip	155.3%	-6.7%	11.9%	43.9%	-7.1%	47.8%	-4.0%	-21.7%	0.3%	4.0%
Rate of Return to Capital	5.8%	-1.9%	2.8%	4.5%	-1.7%	5.5%	-0.8%	-8.1%	0.1%	1.6%

^a Estimates of financial performance for the blue crab fishery have been presented on a whole of sector basis. The survey estimate of gross income for the blue crab – pot sector is higher than the SARDI estimate of \$3.32 million for 2004/05 presented in Appendix Table 2.2. The reason for the difference is likely to be that the SARDI estimate is based on Adelaide prices only, whereas licence holders are selling to the higher priced Sydney and Melbourne markets as well.

^b Excludes the Commonwealth managed fisheries: south east non-trawl, tuna, deep water trawl.

^c Earnings before interest and tax.

Source: EconSearch (2007b).

Appendix Table 3.5 Costs as a percentage of total cash costs in South Australian commercial fisheries, 2005/06

	Abalone	GSV Prawns	SG & WC Prawns	Sth'n Zone Rock Lob	Nth'n Zone Rock Lob	Blue Crabs Pot Sector	Blue Crabs MS Sector	Marine Scalefish ^a	Sardines	Lakes & Coorong
Fuel	3%	10%	11%	10%	15%	18%	12%	11%	19%	10%
R&M	8%	6%	10%	9%	6%	15%	14%	10%	9%	5%
Labour	59%	43%	51%	50%	42%	34%	36%	51%	45%	53%
Licence fee	15%	11%	5%	7%	7%	7%	22%	7%	7%	6%
Insurance	2%	8%	4%	3%	3%	2%	4%	3%	3%	1%
Interest	1%	11%	8%	10%	11%	17%	3%	0%	8%	4%
Admin & Other	12%	10%	11%	10%	17%	8%	9%	18%	9%	21%
Total Cash Costs	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

^a Excludes Commonwealth managed fisheries: south east non-trawl, tuna, deep water trawl.

Source: EconSearch (2007b).

Appendix Table 3.6 Economic impacts of South Australian commercial fisheries, 2005/06

	Abalone	GSV Prawns	SG & WC Prawns	Sth'n Zone Rock Lob	Nth'n Zone Rock Lob	Blue Crabs	Marine Scalefish	Sardines	Lakes and Coorong	All Fisheries ^a
Output (\$m)										
Direct										
Fishing	33.9	2.9	34.0	65.7	15.4	5.2	17.4	16.0	5.9	196.6
Downstream ^b	5.1	1.8	16.5	24.5	6.6	3.1	9.5	3.3	5.8	76.2
All other sectors (indirect)	29.6	5.6	48.6	80.1	32.6	9.0	39.2	24.6	13.7	283.1
Total	68.6	10.4	99.0	170.3	54.7	17.4	66.1	43.9	25.5	555.8
Total/Direct	1.8	2.2	2.0	1.9	2.5	2.1	2.5	2.3	2.2	2.0
Total/Tonne (\$)	\$76,500	\$57,900	\$52,300	\$90,100	\$114,800	\$26,700	\$20,700	\$1,500	\$10,800	\$12,348
Contribution to GSP (\$m)										
Direct										
Fishing	27.6	1.8	25.1	49.7	5.2	3.2	6.7	8.9	3.7	131.9
Downstream	1.8	0.7	6.8	9.7	2.6	1.1	3.4	1.5	2.3	29.9
All other sectors (indirect)	14.4	2.8	23.3	38.6	15.6	4.2	18.5	11.7	6.6	135.8
Total	43.8	5.3	55.2	98.0	23.5	8.4	28.6	22.0	12.7	297.6
Total/Direct	1.5	2.1	1.7	1.7	3.0	2.0	2.8	2.1	2.1	1.8
Total/Tonne (\$)	\$48,900	\$29,351	\$29,200	\$51,800	\$49,300	\$13,000	\$8,986	\$769	\$5,382	\$6,612
Employment (fte jobs) ^c										
Direct										
Fishing	123	37	217	421	185	27	354	63	74	1,501
Downstream	23	18	160	141	41	17	74	21	46	542
All other sectors (indirect)	164	31	272	442	182	49	216	139	77	1,572
Total	310	86	649	1,005	408	93	644	222	197	3,615
Total/Direct	2.1	1.6	1.7	1.8	1.8	2.1	1.5	2.7	1.6	1.8
Total/Tonne	0.35	0.48	0.34	0.53	0.86	0.14	0.20	0.01	0.08	0.08
Household Income (\$m)										
Direct										
Fishing	9.1	1.1	10.6	18.9	5.8	1.3	6.7	6.7	2.6	62.8
Downstream	1.2	0.5	4.9	6.7	1.8	0.7	2.5	1.0	1.7	21.0
All other sectors (indirect)	8.0	1.5	13.0	21.1	8.6	2.4	10.4	6.4	3.7	75.1
Total	18.3	3.2	28.4	46.7	16.3	4.4	19.5	14.1	8.0	158.9
Total/Direct	1.8	1.9	1.8	1.8	2.1	2.1	2.1	1.8	1.9	1.9
Total/Tonne (\$)	\$20,400	\$17,600	\$15,000	\$24,700	\$34,200	\$6,800	\$6,100	\$400	\$3,300	\$3,530

^a Excludes the River fishery and the Commonwealth managed fisheries: south-east non-trawl, tuna and deep water trawl.

^b Downstream activities include net value of processing, transport services and retail/food services trade.

^c Full time equivalent jobs. Direct employment in the fishing sector was comprised of 655 full-time and 1,399 part-time, that is, 2,054 jobs in total.

Source: EconSearch (2007b).

Appendix Table 3.7 Economic rent in South Australian commercial fisheries, 2005/06 (\$m)

	Abalone	GSV Prawns	SG & WC Prawns	Sth'n Zone Rock Lob	Nth'n Zone Rock Lob	Blue Crabs	Marine Scalefish	Sardines	Lakes and Coorong	All Fisheries ^a
Gross Income	35.6	2.9	34.0	65.7	15.4	5.2	17.4	16.0	5.9	198.3
Less Labour	9.1	1.1	11.4	18.2	6.6	1.3	10.9	6.7	2.2	67.5
Less Materials & Services	6.2	1.2	9.1	14.6	7.4	1.9	10.3	6.6	1.8	59.2
Less Depreciation	2.3	1.4	6.5	7.8	3.0	0.4	3.3	2.7	0.6	27.9
Less Opportunity Cost of Capital (@10%)	1.2	1.0	5.9	5.7	2.4	0.4	3.3	3.7	0.4	23.8
Economic Rent	16.8	-1.7	1.1	19.4	-4.0	1.2	-10.3	-3.5	1.0	20.0

^a Excludes the River fishery and the Commonwealth managed fisheries: south east non-trawl, tuna, deep water trawl.

Source: EconSearch (2007b).

Appendix 4 Financial Performance, 1997/98 to 2001/02

Appendix Table 4.1 Financial performance in the SA Spencer Gulf and West Coast prawn fisheries, 1997/98 to 2001/02 (average per boat)^{a,b}

	1997/98		1998/99		1999/00		2000/01		2001/02	
	All Boats	Share of TCC	All Boats	Share of TCC	All Boats	Share of TCC	All Boats	Share of TCC	All Boats	Share of TCC
Gross Income	\$701,111		\$823,143		\$860,357		\$1,004,727		\$907,024	
Costs										
Fuel	\$40,667	9%	\$37,282	8%	\$55,412	11%	\$51,494	9%	\$46,173	9%
R&M	\$58,778	13%	\$58,003	12%	\$58,905	12%	\$45,286	8%	\$42,408	8%
Provisions	\$9,916	2%	\$9,785	2%	\$9,937	2%	\$6,148	1%	\$5,757	1%
Labour	\$240,569	54%	\$282,441	60%	\$295,210	58%	\$381,669	68%	\$344,554	66%
Licence fee	\$19,785	4%	\$15,534	3%	\$13,867	3%	\$15,093	3%	\$14,139	3%
Insurance	\$13,988	3%	\$14,172	3%	\$14,528	3%	\$11,138	2%	\$11,447	2%
Interest	\$24,211	5%	\$22,348	5%	\$22,911	5%	\$14,600	3%	\$15,005	3%
Admin and Other	\$34,100	8%	\$34,548	7%	\$35,418	7%	\$39,711	7%	\$40,812	8%
Total Cash Costs	\$442,011	100%	\$474,113	100%	\$506,188	100%	\$565,139	100%	\$520,294	100%
Cash Operating Surplus	\$259,100		\$349,030		\$354,169		\$439,589		\$386,729	
Depreciation	\$63,586		\$76,353		\$67,793		\$98,591		\$105,436	
Earnings Before Tax	\$195,514		\$272,676		\$286,376		\$340,997		\$281,294	
Earnings Before Interest & Tax	\$219,724		\$295,025		\$309,286		\$355,598		\$296,298	
Capital										
Fishing Gear & Equipment	\$899,472		\$1,080,070		\$958,982		\$1,009,955		\$1,080,070	
Licence Value	\$1,727,778		\$2,319,895		\$2,432,040		\$3,936,364		\$3,279,940	
Total Capital	\$2,627,250		\$3,399,965		\$3,391,021		\$4,946,318		\$4,360,010	
Rate of Return to Fishing Gear & Equip	24.4%		27.3%		32.3%		35.2%		27.4%	
Rate of Return to Total Capital	8.4%		8.7%		9.1%		7.2%		6.8%	

^a Financial performance estimates for 1997/98 to 1999/00 were based on the October 1998 survey of licence holders. Financial performance estimates for 2000/01 and 2001/02 are based on the February 2002 survey of licence holders.

^b Estimates of financial performance are for the Spencer Gulf and West Coast fisheries in aggregate.

Source: EconSearch (1999, 2000, 2001, 2002 and 2003).