

Economic Indicators
for the SA Southern Zone
Rock Lobster Fishery
2005/06

A report prepared for
Primary Industries and Resources South Australia

Prepared by



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Abbreviations

ABARE	Australian Bureau of Agricultural and Resource Economics
ABS	consumer price index
EBIT	earnings before interest and tax
EMS	Environmental Management System
FMC	Fishery Management Committee
FRDC	Fisheries Research and Development Corporation
fob	free on board
fte	full time equivalent
GDP	gross domestic product
GRP	gross regional product
GSP	gross state product
GVP	gross value of production
MCCN	Marine and Coastal Community Network
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
SZRL	Southern Zone Rock Lobster
TAC	total allowable catch

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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 20 of the *Fisheries Act 1982*.

This report is the ninth annual economic indicators report for the SA Southern Zone Rock Lobster (SZRL) fishery. The first report, prepared for 1997/98, entitled *Economic Indicators for the SA Southern Zone Rock Lobster Fishery 1997/98* (EconSearch 1999a), reported on the results of an initial economic survey of the SA Southern Zone Rock Lobster fishery. The second and third annual reports, prepared for 1998/99 and 1999/00 respectively, provided an update of the 1997/98 economic indicators (EconSearch 1999b and 2001). The fourth annual report outlined the fishery's economic performance in 2000/01 based on the results of a second survey of licence holders (EconSearch 2002). The fifth, sixth and seventh reports, prepared for 2001/02, 2002/03 and 2003/04 respectively, provided an update of the 2000/01 economic indicators based on the second survey of licence holders (EconSearch 2003, 2004, and 2005a). The eighth report, prepared for 2004/05, provided an outline of the fishery's economic performance based on a third survey of licence holders, conducted in 2006.

The objective of this report, *Economic Indicators for the SA Southern Zone Rock Lobster Fishery 2005/06*, was to provide an update of the fishery's most recent economic performance based on the results of the third licence holder survey.

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

- gross value of production (catch and price);
- the cost of management of the fishery;
- factors affecting costs in the fishery;
- financial performance indicators (income, costs, profit, and return on investment);
- economic impact of the fishery, both local and state;
- economic rent;
- external factors influencing the economic condition of the fishery; and
- rock lobster exports (quantity and value).

For purposes of comparison, summary economic indicators for all South Australian commercial fisheries, up to 2004/05, are presented in Appendix 3.

2. Method of Analysis and Definition of Terms

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

The questionnaire for the 2004/05 survey was based on the previous survey conducted in 2000/01. It was drafted by the consultants in consultation with the Industry Extension Officer (Mr Roger Edwards).

In February 2006, all licence holders were sent an introductory letter encouraging them to participate in the survey. Licence holders were then contacted and face-to-face surveys were carried out over the period April to May 2006. A total of 95 licence holders participated in the survey, accounting for 54 per cent of total licence holders in the fishery. Thus, the economic indicators for 2004/05 were survey-based estimates.

2.2 Updating the Survey, 2005/06

The 2005/06 economic indicators for the Southern Zone Rock Lobster (SZRL) fishery were derived using a range of primary and secondary data and survey-based 2004/05 indicators. The following information was used to adjust the 2004/05 indicators to reflect the fishery's performance in 2005/06:

- SARDI data were used to reflect changes in catch size and its value between 2004/05 and 2005/06. Catch and value data were used to determine the gross income in the fishery.
- Changes in the number of licences in the fishery were provided by PIRSA. This information was used to present performance indicators on a 'per licence holder' basis.
- Information from SARDI on the change in fishing effort (number of days fished) between 2004/05 and 2005/06 was used to adjust the costs of inputs that were assumed to vary with fishing effort. These inputs included fuel, repairs and maintenance (R&M), bait and provision costs.
- Price information from input suppliers was used to adjust prices that may have changed, for example, fuel and bait.
- The consumer price index (CPI) for Adelaide was used to adjust the cost of inputs to reflect local levels of inflation (ABS 2006).
- Information from PIRSA on new boat registrations in the fishery during 2005/06 and information from the 2004/05 survey on the value of boats were used to compare the value of new capital entering the fishery with the value of capital depreciation in the fishery.

2.3 Definition of Terms¹

Gross value of production (GVP) is the total year's catch for the whole fishery 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.

Cash costs (Total boat variable and fixed 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 to be used to determine the depreciation rate of fishing equipment.²

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 fishery.

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 fishery for those interested in investing in a boat and licence.

¹ Where possible definitions have been kept consistent with those used by Brown (1997) in ABARE's *Australian Fisheries Surveys Report*.

² 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 SA Southern Zone Rock Lobster Fishery

3.1 Catch and Gross Value of Production

The data shown in Table 3.1 for the years between 1990/91 and 2005/06 indicate that the total rock lobster catch in the southern zone has tended to be steady throughout the period, with the exception of a notable rise in catch in 1991/92. The steady catch level in the southern zone in recent years can be attributed to a change in management regime in the fishery, with the introduction of a total allowable catch (TAC) in 1993/94. The TAC in 2005/06 was 1,900 tonnes, catch in the fishery was 1,889 tonnes.

Table 3.1 SA Rock Lobster catch and value of catch, 1990/91 to 2005/06

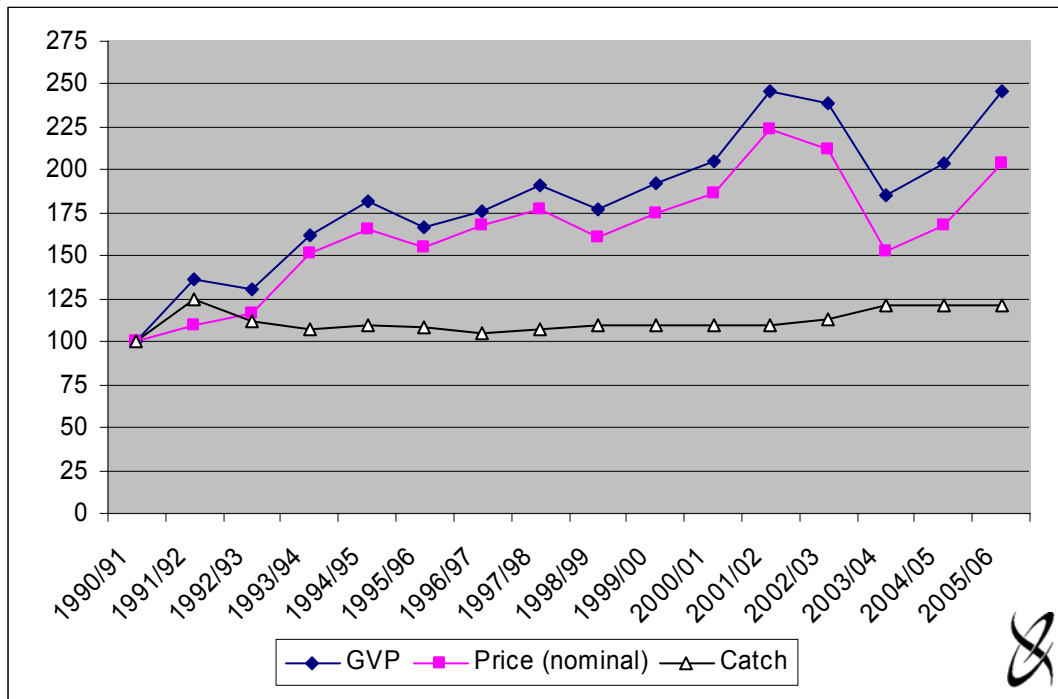
Year	Southern Zone		Northern Zone		South Australia	
	(tonnes)	(\$m)	(tonnes)	(\$m)	(tonnes)	(\$m)
1990/91	1,562	26.7	1,104	18.2	2,666	44.9
1991/92	1,940	36.3	1,222	21.4	3,162	57.8
1992/93	1,754	34.8	1,064	20.5	2,818	55.3
1993/94	1,669	43.2	930	23.4	2,599	66.6
1994/95	1,720	48.6	891	25.5	2,611	74.0
1995/96	1,684	44.6	903	23.8	2,587	68.4
1996/97	1,635	47.0	893	24.4	2,528	71.4
1997/98	1,680	50.9	942	27.7	2,622	78.6
1998/99	1,713	47.2	1,016	26.7	2,729	73.9
1999/00	1,717	51.2	1,001	29.8	2,718	81.0
2000/01	1,716	54.7	846	28.0	2,562	82.7
2001/02	1,717	65.7	675	26.2	2,392	91.9
2002/03	1,766	63.8	595	18.8	2,361	82.7
2003/04	1,896	49.3	504	12.0	2,400	61.4
2004/05	1,897	54.4	446	11.6	2,343	66.0
2005/06	1,889	65.7	476	15.4	2,365	81.2

Source: SARDI Aquatic Sciences

Table 3.1 and Figure 3.1 illustrate how the value of the fishery has changed over the 15-year period 1990/91 to 2005/06. The nominal value of the southern zone catch in 2005/06 was 146 per cent above that in 1990/91. This is the result of a 21 per cent increase in catch between 1990/91 and 2005/06, as well as a substantial increase in lobster price over this period.

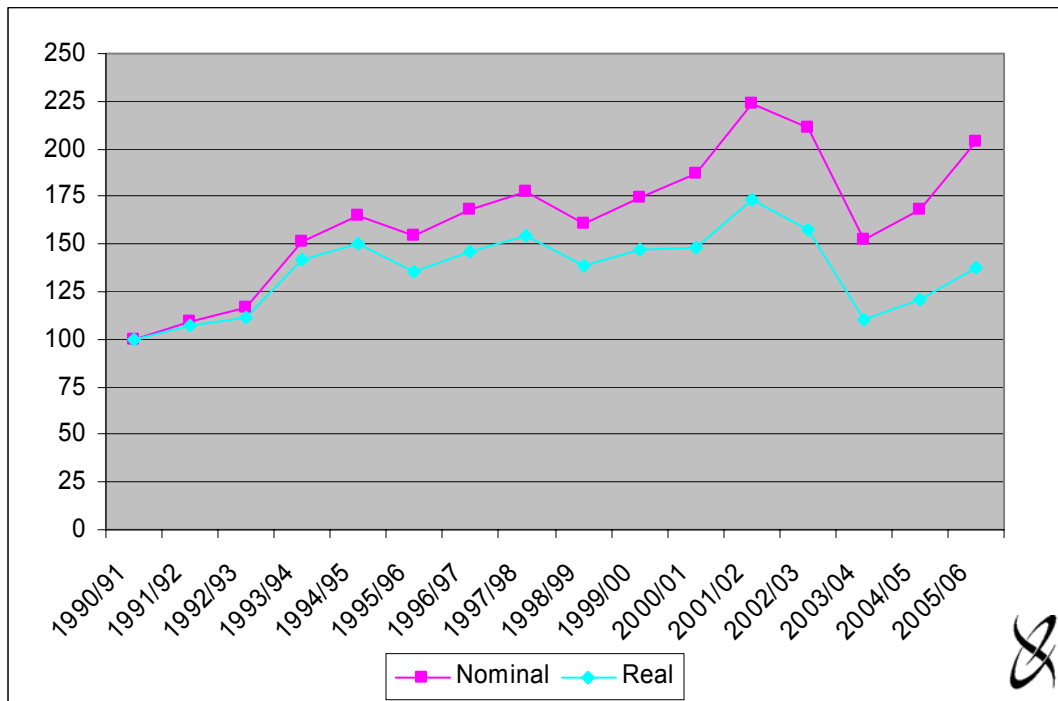
Figures 3.1 and 3.2 show that the average price of lobster in the southern zone has increased over the 15-year period, by 104 per cent in nominal terms.

Figure 3.1 GVP, price and catch indices for the SA Southern Zone Rock Lobster fishery (1990/91=100)



Source: SARDI Aquatic Sciences

Figure 3.2 Price index for the SA Southern Zone Rock Lobster fishery (1990/91=100)



Source: SARDI Aquatic Sciences

The rate of price increase for rock lobster was well above the consumer price index (CPI) for the decade or so up until 2001/02. In the following two years there was a sharp decline in price, although it recovered slightly in 2004/05 and more significantly in 2005/06. Figure 3.2 shows that the nominal price in 2005/06 was 104 per cent above that in 1990/91, which is equivalent to a 37 per cent real price increase. This means that the value of the southern zone catch in 2005/06 was 66 per cent higher in real terms than it was in 1990/91 (146 per cent higher in nominal terms as noted above).

3.2 Costs of Management

South Australian commercial fisheries operate under full cost recovery. Accordingly, licence fees are set to cover the cost of managing the fishery. 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 fishery (Will Zacharin, PIRSA, pers. comm.).

Table 3.2 shows actual licence fee receipts for the fishery for the period 1996/97 to 2006/07.

Since 1996/97, the following trends have emerged.

- Licence fees as a percentage of gross value of production decreased from 4.7 per cent in 1996/97 to 3.4 per cent in 2002/03 and were 3.8 per cent in 2005/06.
- The cost of licence fees per kilogram of landed lobster fell from \$1.35 in 1996/97 to \$1.17 per kilogram in 1999/00 but have since increased to \$1.33 per kilogram.
- The cost per licence holder was relatively steady at around \$12,000 per licence holder from 1996/97 to 2002/03 but has been hovering just under \$14,000 for the past three years.

Fees per licence holder increased from \$13,932 in 2005/06 to \$16,442 in 2006/07, an increase of 18 per cent.

Table 3.2 Costs of management in the SA Southern Zone Rock Lobster fishery, 1996/97 to 2006/07

	Licence Fees (\$,000)	Gross Value of Production (\$,000)	Fees/GVP (%)	Catch (t)	Fee/Catch (\$/kg)	No. Licence Holders (no.)	Fee/Licence Holder (\$/licence)
1996/97	\$2,200	47,003	4.7%	1,635	\$1.35	185	\$11,890
1997/98	\$2,610	50,872	5.1%	1,680	\$1.55	184	\$14,186
1998/99	\$2,145	47,165	4.5%	1,713	\$1.25	184	\$11,659
1999/00	\$2,009	51,163	3.9%	1,717	\$1.17	183	\$10,979
2000/01	\$2,102	54,738	3.8%	1,716	\$1.23	182	\$11,551
2001/02	\$2,211	65,671	3.4%	1,717	\$1.29	180	\$12,283
2002/03	\$2,156	63,838	3.4%	1,766	\$1.22	180	\$11,975
2003/04	\$2,520	49,319	5.1%	1,896	\$1.33	180	\$13,999
2004/05	\$2,497	54,397	4.6%	1,897	\$1.32	180	\$13,870
2005/06	\$2,508	65,737	3.8%	1,889	\$1.33	180	\$13,932
2006/07	\$2,976	n.a.	-	n.a.	-	181	\$16,442

Source: PIRSA Fisheries

3.3 Summary of Factors Affecting Costs in the Fishery

The information outlined in Table 3.3 (and similar data for previous years) was used to adjust the 2004/05 survey based financial performance indicators to reflect costs incurred in the fishery in 2005/06.

Table 3.3 Factors affecting costs in the SA Southern Zone Rock Lobster fishery, 2004/05 and 2005/06

	2004/05	2005/06	Change
Total days fished ^a	16,385	18,230	11.4%
Price of fuel - Transportation index ^b	149.0	158.8	6.6%
Price of bait (c/kg) ^c	85.1	84.0	-1.3%
Interest charges (%/annum) ^d	8.1%	8.2%	1.2%
CPI Adelaide ^e	151.8	157.6	3.8%

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

^b ABS transportation index for Adelaide (ABS 2006)

^c Prices of bait from suppliers

^d RBA indicator lending rate for small business (RBA 2006)

^e Consumer price index for Adelaide (ABS 2006)

- 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.
- Prices of bait from suppliers were used to adjust the cost of bait used in the fishery.
- 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 fishery. 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 of the surveyed boats in the SA SZRL fishery for the years 2001/02 to 2005/06 are shown in Table 3.4. Financial performance estimates for 1997/98 to 1999/00 are based on the October 1998 survey of licence holders³. Estimates for 2000/01 to 2003/04 are based on the October 2001 survey. Financial performance estimates for 2004/05 and 2005/06 are based on the April-May 2006 survey of licence holders.

As a result of the large sample size it was possible to divide the 2004/05 survey responses into four groups (quartiles) according to rate of return to capital. The first quartile comprises the 25 per cent of boats with the lowest rate of return and fourth quartile includes the 25 per cent with the highest rate of return to capital. The financial performance measures for return to capital quartiles for 2005/06 are provided in Table 3.5. These estimates were calculated by updating the 2004/05 survey based results.

In addition, the survey responses were divided into three groups according to the number of licensed pots held. The first group includes those licence holders with less than 60 pots (approximately 25 per cent of survey respondents), the second group includes licence holders with 60 to 79 pots (approximately 50 per cent of survey respondents) and the third group includes licence holders with 80 pots and more (approximately 25 per cent of survey respondents).⁴ The financial performance estimates for the pot groups for 2005/06 are provided in Table 3.6 as an average per boat and in Table 3.7 as an average per pot. These estimates were calculated by updating the 2004/05 survey based results.

³ Financial performance estimates for the years 1997/98 to 2000/01 are provided in Appendix 4 of this report.

⁴ Number of pots was based on pots owned and leased by the licence holders who participated in the 2006 survey of licence holders.

Table 3.4 Financial performance in the SA Southern Zone Rock Lobster fishery, 2001/02 to 2005/06 (average per boat)^a

	2001/02		2002/03		2003/04		2004/05		2005/06	
	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	\$364,660		\$354,481		\$273,860		\$314,212		\$379,715	
Costs										
Fuel	\$13,219	6%	\$13,016	6%	\$15,730	8%	\$18,161	10%	\$21,559	10%
R&M	\$10,953	5%	\$10,912	5%	\$13,362	7%	\$16,624	9%	\$19,228	9%
Bait	\$5,908	3%	\$5,804	3%	\$7,158	4%	\$8,906	5%	\$9,794	5%
Provisions	\$254	0%	\$253	0%	\$310	0%	\$299	0%	\$346	0%
Labour	\$128,743	60%	\$125,150	59%	\$96,686	50%	\$86,990	47%	\$105,124	50%
Licence fee	\$13,215	6%	\$12,884	6%	\$15,061	8%	\$15,762	8%	\$15,832	7%
Insurance	\$4,184	2%	\$4,352	2%	\$4,483	2%	\$6,176	3%	\$6,412	3%
Interest	\$16,201	8%	\$15,993	8%	\$16,408	8%	\$21,683	12%	\$21,951	10%
Admin and Other	\$22,289	10%	\$23,182	11%	\$23,881	12%	\$11,005	6%	\$11,425	5%
Total Cash Costs	\$214,966	100%	\$211,546	100%	\$193,079	100%	\$185,606	100%	\$211,670	100%
Cash Operating Surplus	\$149,693		\$142,936		\$80,781		\$128,606		\$168,045	
Depreciation	\$38,318		\$44,520		\$44,286		\$47,960		\$45,030	
Earnings Before Tax	\$111,375		\$98,415		\$36,494		\$80,646		\$123,015	
Earnings Before Interest & Tax	\$127,576		\$114,408		\$52,902		\$102,330		\$144,966	
Capital										
Fishing Gear & Equipment	\$276,964		\$321,797		\$320,105		\$351,807		\$330,318	
Licence Value	\$3,744,934		\$3,640,406		\$2,812,450		\$2,682,397		\$2,873,997	
Total Capital	\$4,021,898		\$3,962,204		\$3,132,555		\$3,034,204		\$3,204,315	
Rate of Return to Fishing Gear & Equip	46.1%		35.6%		16.5%		29.1%		43.9%	
Rate of Return to Total Capital	3.2%		2.9%		1.7%		3.4%		4.5%	

^a Financial performance estimates for 2000/01 to 2003/04 are based on the October 2001 survey of licence holders. Financial performance estimates for 2004/05 and 2005/06 are based on the April-May 2006 survey of licence holders. Estimates for 1997/98 to 2000/01 are provided in Appendix 4 of this report.

Source: EconSearch analysis.

Table 3.5 Financial performance in the SA Southern Zone Rock Lobster fishery by return to capital quartile, 2005/06 (average per boat)

	Average per boat ^a				
	Lowest 25%	Second Quartile	Third Quartile	Highest 25%	All Boats
Gross Income	\$351,344	\$341,319	\$391,157	\$436,265	\$379,715
Costs					
Fuel	\$26,327	\$19,956	\$22,301	\$17,690	\$21,559
R&M	\$24,940	\$18,330	\$17,556	\$16,201	\$19,228
Bait	\$10,948	\$9,531	\$9,578	\$9,139	\$9,794
Provisions	\$673	\$45	\$516	\$155	\$346
Labour	\$126,794	\$106,388	\$101,394	\$86,033	\$105,124
Licence fee	\$15,738	\$16,259	\$15,280	\$16,058	\$15,832
Insurance	\$7,538	\$5,764	\$6,754	\$5,608	\$6,412
Interest	\$20,979	\$13,557	\$18,931	\$34,855	\$21,951
Admin and Other	\$11,992	\$9,387	\$11,988	\$12,400	\$11,425
Total Cash Costs	\$245,928	\$199,217	\$204,299	\$198,137	\$211,670
Cash Operating Surplus	\$105,417	\$142,102	\$186,858	\$238,128	\$168,045
Depreciation	\$61,057	\$41,933	\$39,936	\$37,566	\$45,030
Earnings Before Tax	\$44,360	\$100,169	\$146,922	\$200,561	\$123,015
Earnings Before Interest & Tax	\$65,339	\$113,725	\$165,853	\$235,416	\$144,966
Capital					
Fishing Gear & Equipment	\$401,360	\$339,208	\$330,477	\$249,815	\$330,318
Licence Value	\$2,669,887	\$2,698,525	\$2,956,460	\$3,175,344	\$2,873,997
Total Capital	\$3,071,247	\$3,037,733	\$3,286,937	\$3,425,159	\$3,204,315
Rate of Return to Fishing Gear & Equip	16.3%	33.5%	50.2%	94.2%	43.9%
Rate of Return to Total Capital	2.1%	3.7%	5.0%	6.9%	4.5%
Average Number of Pots Owned ^b	65	63	70	76	68
Average Number of Pots Leased ^b	0	0	1	1	0
Average Total Pots	66	63	71	76	69

^a Totals may not sum due to rounding.

^b The average number of pots owned and leased by licence holders is based on information from the 2004/05 survey results.

Source: EconSearch analysis.

Table 3.6 Financial performance in the SA Southern Zone Rock Lobster fishery by number of pots, 2005/06 (average per boat)

	Average per boat ^a			
	30 - 59 Pots	60 - 79 Pots	80 + Pots	All Boats
Gross Income	\$258,323	\$386,873	\$479,370	\$379,715
Costs				
Fuel	\$15,856	\$21,504	\$26,896	\$21,559
R&M	\$15,262	\$20,132	\$21,355	\$19,228
Bait	\$8,743	\$9,655	\$10,992	\$9,794
Provisions	\$15	\$214	\$872	\$346
Labour	\$75,949	\$112,606	\$119,396	\$105,124
Licence fee	\$13,598	\$15,658	\$18,180	\$15,832
Insurance	\$5,006	\$6,414	\$7,704	\$6,412
Interest	\$14,401	\$17,471	\$36,422	\$21,951
Admin and Other	\$7,573	\$11,817	\$14,310	\$11,425
Total Cash Costs	\$156,404	\$215,472	\$256,128	\$211,670
Cash Operating Surplus	\$101,919	\$132,061	\$170,723	\$128,606
Depreciation	\$33,637	\$43,847	\$57,500	\$45,030
Earnings Before Tax	\$68,282	\$127,555	\$165,742	\$123,015
Earnings Before Interest & Tax	\$82,683	\$145,026	\$202,164	\$144,966
Capital				
Fishing Gear & Equipment	\$247,589	\$332,302	\$403,096	\$330,318
Licence Value	\$1,975,094	\$2,901,412	\$3,654,931	\$2,873,997
Total Capital	\$2,222,683	\$3,233,714	\$4,058,027	\$3,204,315
Rate of Return to Fishing Gear & Equip	33.4%	43.6%	50.2%	43.9%
Rate of Return to Total Capital	3.7%	4.5%	5.0%	4.5%
Average Number of Pots Owned ^b	48	69	87	68
Average Number of Pots Leased ^b	0	0	1	0
Average Total Pots	48	70	87	69

^a Totals may not sum due to rounding.

^b The average number of pots owned and leased by licence holders is based on information from the 2004/05 survey results.

Source: EconSearch analysis.

Table 3.7 Financial performance in the SA Southern Zone Rock Lobster fishery by number of pots, 2005/06 (average per pot)

	Average per pot ^a			
	30 - 59 Pots	60 - 79 Pots	80 + Pots	All Boats
Gross Income	\$5,436	\$5,563	\$5,479	\$5,511
Costs				
Fuel	\$334	\$309	\$307	\$313
R&M	\$321	\$289	\$244	\$279
Bait	\$184	\$139	\$126	\$142
Provisions	\$0	\$3	\$10	\$5
Labour	\$1,598	\$1,619	\$1,365	\$1,526
Licence fee	\$286	\$225	\$208	\$230
Insurance	\$105	\$92	\$88	\$93
Interest	\$303	\$251	\$416	\$319
Admin and Other	\$159	\$170	\$164	\$166
Total Cash Costs	\$3,291	\$3,098	\$2,927	\$3,072
Cash Operating Surplus	\$2,145	\$1,899	\$1,951	\$1,866
Depreciation	\$708	\$630	\$657	\$654
Earnings Before Tax	\$1,437	\$1,834	\$1,894	\$1,785
Earnings Before Interest & Tax	\$1,740	\$2,085	\$2,311	\$2,104
Capital				
Fishing Gear & Equipment	\$5,210	\$4,778	\$4,607	\$4,794
Licence Value	\$41,562	\$41,718	\$41,772	\$41,710
Total Capital	\$46,772	\$46,496	\$46,379	\$46,504
Rate of Return to Fishing Gear & Equip	33.4%	43.6%	50.2%	43.9%
Rate of Return to Total Capital	3.7%	4.5%	5.0%	4.5%

^a Totals may not sum due to rounding.

Source: EconSearch analysis.

Income...

Total recorded lobster catch decreased by less than 1 per cent between 2004/05 and 2005/06 but, with a 21 per cent increase in price, gross receipts from the sale of rock lobster increased by almost 21 per cent over the same period (Table 3.1). The estimated average gross income per boat in the SZRL fishery was over \$380,000 in 2005/06, compared to just over \$314,000 in 2004/05, an increase of almost 21 per cent (Table 3.4).⁵

In 2005/06, the average gross income for boats in the first quartile was approximately 7.5 per cent below the average, while in the fourth quartile, average gross income was almost 15 per cent above the average recorded for all surveyed boats (Table 3.5).

As expected, the average gross income per boat was positively correlated with the number of pots per boat (Table 3.6), however, the gross income per pot was relatively consistent across all three groups (Table 3.7).

Costs...

In 2005/06, for the fishery as a whole, approximately 50 per cent of total cash costs⁶ were attributable to labour costs, by far the largest individual cost item. The other significant cash costs were interest (10 per cent), fuel (10 per cent), repairs and maintenance (9 per cent) and licence fees (7 per cent) (Table 3.4).

While average income for boats in the first quartile was around 20 per cent below that of boats in the fourth quartile, average total cash costs were 24 per cent higher. The cost items where the largest differences occurred between the first and fourth quartiles were repairs and maintenance (54 per cent higher for boats in the first quartile), fuel (49 per cent higher) and labour (47 per cent). Interest costs, however were 40 per cent greater in the fourth quartile compared to the first quartile (Table 3.5).

As expected, the average total cash costs per boat were positively correlated with the number of pots held (Table 3.6). The average interest cost incurred by the licence holders with 80 or more pots was significantly greater (153 per cent) than those with less than 60 pots. Many of the costs associated with fishing are fixed (overheads such as administration and licence fees), accordingly, the average total cash costs per pot decreased as the number of pots held increased (Table 3.7).

Overall, total cash costs per boat increased by approximately 14 per cent, up from \$185,000 in 2004/05 to \$211,000 in 2005/06. The main drivers of the increase have been the increase in labour costs due to the increase in gross income and the increase in fuel and repairs due to the rise in fuel costs and the increase in effort.

Cash Income and Profit...

As noted elsewhere, the labour costs reported in Table 3.4 to Table 3.7 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.

⁵ Financial performance estimates for 2004/05 and 2005/06 were based on different survey samples to earlier years. Some of the variability between years is, therefore, attributable to sampling variability. Also, while the number of licence holders has remained constant since 2001/02, the number of boats operating in the fishery has declined in recent years. This change has been reflected in the 2004/05 and 2005/06 results only.

⁶ Fixed and variable costs have not been differentiated; therefore Boat Gross Margin has not been calculated. Boat Gross Margin is available upon request.

The estimated average cash operating surplus for boats operating in the SZRL fishery was estimated to be \$168,000 in 2005/06. This is 30 per cent above estimated cash operating surplus in 2004/05 and is simply due to the rate of price increase being greater than the increase in overall costs.

Cash operating surplus and earnings before tax (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 approximately \$123,000 per boat in 2005/06, up from \$81,000 in 2004/05 (Table 3.4).

In 2005/06, the average earnings before tax for boats in the first quartile were just over \$44,000. This is significantly less than that for boats in the fourth quartile (almost \$201,000) (Table 3.5).

Average earnings before tax was positively correlated with the number of pots held on a per boat and per pot basis. The average earnings before tax for licence holders with over 80 pots was approximately \$166,000 in 2005/06. This is significantly greater than that for licence holders with less than 60 pots (\$68,000). On a per pot basis, the average earnings before tax were approximately 30 per cent greater for licence holders with 80 or more pots than for those with less than 60 pots (Tables 3.6 and 3.7).

Average earnings before interest and tax for all boats was estimated to be \$145,000, well above the 2004/05 estimate (\$102,000) and the highest over the past 5 years (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 in the fishery. 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 capital value of fishing gear and equipment per licence holder in 2005/06 was positively correlated with the number of pots held (Table 3.6). On a per pot basis, however, reflecting economies of scale, the value of fishing gear and equipment per pot decreased as number of pots held increased (Table 3.7).

While the rate of return to boat capital (i.e. fishing gear and equipment) for all boats is relatively high (43.9 per cent), the rate of return to total capital was estimated to average only 4.5 per cent in 2005/06. Nevertheless, this was an increase on the 2004/05 estimate of 3.4 per cent (Table 3.4).

The rate of return to total capital is calculated using the average earnings before interest and tax (EBIT) and the average investment in all capital (i.e. fishing gear and equipment and licence value). The average EBIT per boat in the first quartile was just over \$65,000, compared to approximately \$235,000 in the fourth quartile. This significant difference is due to the lower average gross income and higher average cash costs in the first quartile, compared to the fourth quartile. The average investment in fishing gear and equipment was higher in the first quartile (approximately \$402,000 in 2005/06) compared to the fourth quartile (\$250,000). Accordingly, in 2005/06, the average rate of return to total capital was 2.1 per cent in the first quartile and 6.9 per cent in the fourth quartile (Table 3.5).

In 2005/06, licence holders with less than 60 pots earned an average rate of return to total capital of 3.7 per cent. For licence holders with 80 or more pots the average rate of return to total capital was 5.0 per cent (Table 3.6).

Licence values...

The value of licences represents a significant proportion of the capital used by each licence holder in the fishery. The reported licence value of \$2.9 million per boat for all boats (approximately \$42,000 per pot) for 2005/06 represents the licence holders' estimate of the value of their licence, based on the 2004/05 survey responses and updated for changes in the gross value of the fishery.

Licence values are determined by both current earning capacity and expectations about future earnings. There were four licence transfers in 2005/06 and, for confidentiality reasons, the values of these transfers cannot be reported (PIRSA Fisheries licensing section, pers. comm.). There were 63 quota transfers between licence holders in 2005/06. A total of 1,329 quota units were transferred, with each quota unit equivalent to 1 pot.

The number of transfers between licence holders and total number of quota units transferred over the period 2001/02 to 2005/06 are detailed in Figures 3.3 and 3.4, respectively.

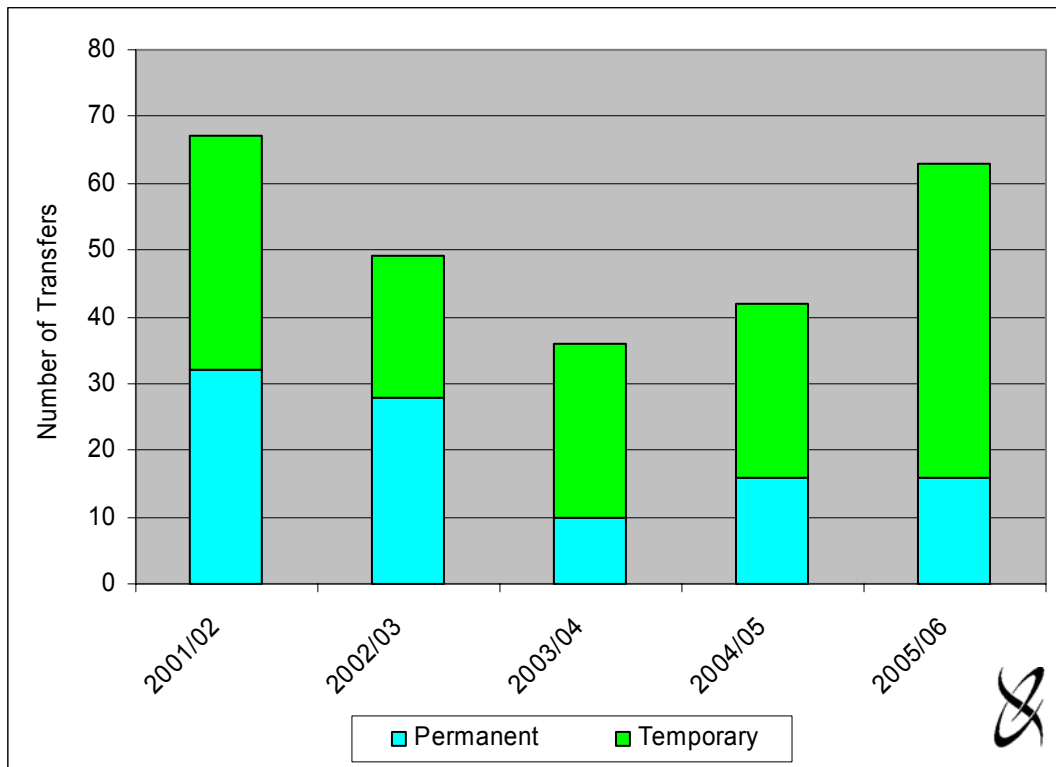
Between 2001/02 and 2003/04 the total number of transfers fell from 67 to 36, a decrease of 46 per cent. This decrease was primarily the result of a decline in the number of permanent transfers between licence holders. The number of quota transfers has increased in subsequent years, however the total number and proportion of permanent transfers still remains lower than the 2001/02 level (Figure 3.3).

The number of quota units transferred declined by approximately 50 per cent between 2001/02 and 2003/04. Over the three years the total number of units transferred fell from 1,374 to 611, comprised of a 71 per cent decrease in permanent units transferred and a 47 per cent decrease in temporary units. The total number of units transferred has increased in subsequent years, but the number of permanent units transferred as a proportion of the total still remains well below the 2001/02 level (Figure 3.4).

Over the 5 years to 2005/06, an average of 1,070 quota units have been traded each year (866 temporary and 203 permanent). This average annual trade comprises 9 per cent of the total quota units in the fishery.

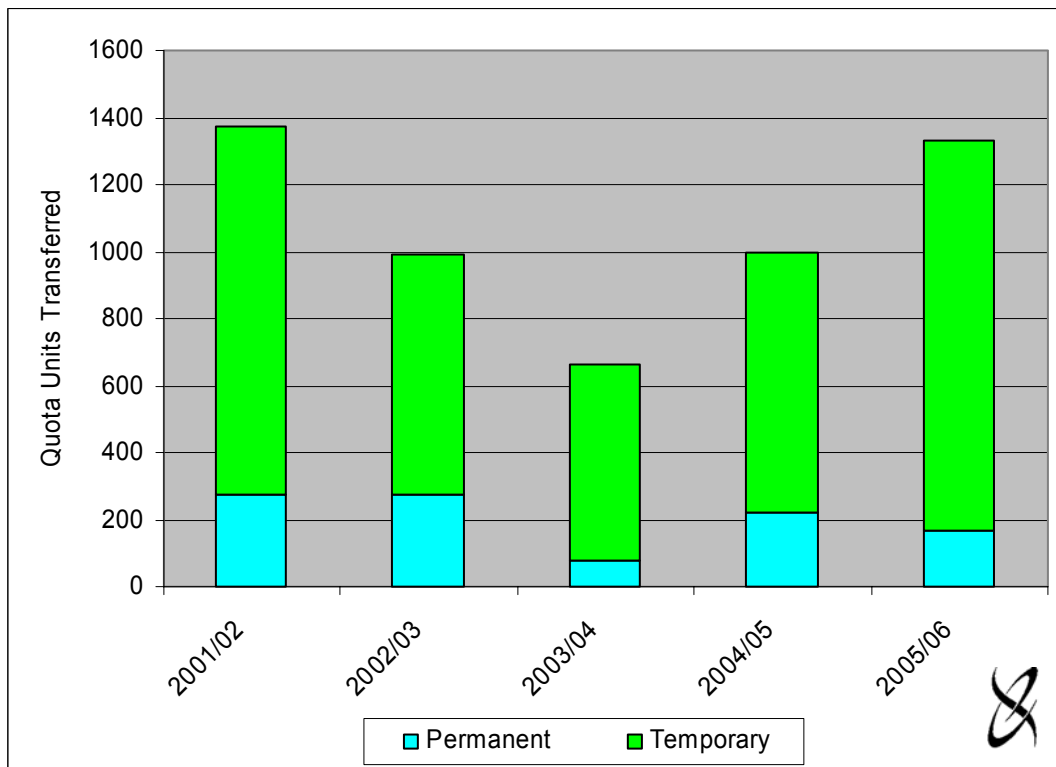
The level of trading activity between licence holders appears to be correlated with the profitability of the fishery (Table 3.4), although whether a causal relationship exists or it is coincidental is uncertain.

Figure 3.3 Number of quota transfers, 2002/03 to 2005/06



Source: PIRSA Fisheries Licensing Section.

Figure 3.4 Number of quota units transferred, 2002/03 to 2005/06



Source: PIRSA Fisheries Licensing Section.

3.5 State and Regional Economic Impact

Estimates of the economic impact of the SZRL fishing industry on the South Australian and regional (South East⁷) economies in 2005/06 are outlined below.

3.5.1 Measuring direct and flow-on effects

Estimates of the direct economic impact of the SZRL fishery are consistent with the method employed in PIRSA's *Food for the Future* value-chain analysis, 2004/05⁸.

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) trade⁹.

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 South East region, respectively, prepared for the Regional Communities Consultative Council, Local Government Association of South Australia and Regional Development SA (EconSearch 2005b).

⁷ The South East region is comprised of the Statistical Division of the South East, as defined by the Australian Bureau of Statistics (ABS).

⁸ The relevant information was obtained from Jack Langberg (PIRSA, pers. comm.).

⁹ 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; these effects have been included in subsequent years.

In order to compile a representative cost structure for the fishing sector, costs per boat were derived from data provided by operators in the fishery in the financial survey for 2004/05 and updated to 2005/06, as described earlier. On an item-by-item basis, the expenditures were allocated between those occurring in the South East 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, 2004/05*) (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 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.

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 2005/06 by the SZRL fishing industry in South Australia and the South East region are outlined in Tables 3.8 and 3.9, 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.

Table 3.8 The economic impact of the SA Southern Zone Rock Lobster fishing industry in South Australia, 2005/06

Sector	Output		Employment ^a		Household Income		Contribution to GSP	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%
Direct effects								
Fishing	65.7	38.6%	421	41.9%	18.9	40.5%	49.7	50.7%
Processing	6.5	3.8%	21	2.1%	1.0	2.0%	1.5	1.6%
Transport	11.1	6.5%	52	5.2%	3.6	7.8%	5.3	5.4%
Retail	1.1	0.7%	16	1.6%	0.5	1.0%	0.6	0.6%
Food services	2.6	1.5%	22	2.2%	0.7	1.4%	1.0	1.0%
Capital expenditure ^b	3.1	1.8%	30	3.0%	1.0	2.1%	1.2	1.3%
Total Direct ^c	90.2	51.1%	563	53.0%	25.6	52.7%	59.4	59.3%
Flow-on effects								
Trade	11.4	6.7%	126	12.6%	4.3	9.2%	5.3	5.4%
Manufacturing	17.2	10.1%	55	5.4%	2.5	5.4%	4.0	4.1%
Business Services	8.7	5.1%	52	5.1%	3.2	6.8%	4.1	4.2%
Transport	4.1	2.4%	19	1.9%	1.3	2.9%	2.0	2.0%
Other Sectors	38.7	22.7%	190	19.0%	9.8	21.0%	23.2	23.7%
Total Flow-on ^c	80.1	47.0%	442	44.0%	21.1	45.2%	38.6	39.4%
Total ^c	170.3	100.0%	1,005	100.0%	46.7	100.0%	98.0	100.0%
Total/Direct	1.9	-	1.8	-	1.8	-	1.7	-
Total/Tonne	\$90,100	-	0.53	-	\$24,700	-	\$51,800	-

^a Full-time equivalent jobs. Direct employment in the fishing sector was comprised of 172 full-time jobs and 432 part-time jobs, that is, 604 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 analysis.

Value of output...

The value of output generated directly in South Australia and the South East region by SZRL fishing enterprises summed to \$65.7 million in 2005/06 (Table 3.8), while output generated in South Australia by associated downstream activities (processing, transport, retail/food services and capital expenditure) summed to \$24.5 million (\$10.8 million in the South East region, Table 3.9).

Flow-ons to other sectors of the state economy added another \$80.1 million in output (\$36.1 million in the regional economy). The sectors most affected were the manufacturing, trade, business services and transport sectors.

Table 3.9 The economic impact of the SA Southern Zone Rock Lobster fishing industry in the South East region, 2005/06

Sector	Output		Employment ^a		Household Income		Contribution to GRP	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%
Direct effects								
Fishing	65.7	58.3%	421	57.9%	18.9	61.5%	49.7	69.1%
Processing	6.5	5.8%	26	3.6%	1.0	3.4%	1.9	2.6%
Transport	2.2	1.9%	15	2.1%	0.8	2.7%	1.1	1.5%
Retail	0.1	0.0%	1	0.1%	0.0	0.1%	0.0	0.0%
Food services	0.1	0.1%	1	0.2%	0.0	0.1%	0.1	0.1%
Capital expenditure ^b	1.9	1.7%	29	4.0%	0.8	2.4%	0.9	1.3%
Total Direct ^c	76.5	66.2%	493	63.9%	21.6	67.7%	53.7	73.4%
Flow-on effects								
Trade	6.6	5.8%	80	11.0%	2.5	8.0%	3.1	4.3%
Manufacturing	6.5	5.8%	26	3.5%	1.0	3.4%	1.9	2.6%
Business Services	2.2	1.9%	14	1.9%	0.8	2.5%	1.0	1.5%
Transport	1.6	1.4%	11	1.5%	0.6	2.0%	0.8	1.1%
Other Sectors	19.3	17.1%	104	14.2%	4.3	13.9%	11.4	15.8%
Total Flow-on ^c	36.1	32.1%	234	32.2%	9.1	29.7%	18.2	25.3%
Total ^c	112.7	100.0%	727	100.0%	30.8	99.9%	71.9	100.0%
Total/Direct	1.5	-	1.5	-	1.4	-	1.3	-
Total/Tonne	\$59,600	-	0.38	-	\$16,200	-	\$38,000	-

^a Full-time equivalent jobs. Direct employment in the fishing sector was comprised of 172 full-time jobs and 432 part-time jobs, that is, 604 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 analysis.

Employment and household income...

In 2005/06, the SZRL fishery was responsible for the direct employment of around 421 full-time equivalents (fte) and downstream activities created employment of around 141 fte jobs state-wide. Flow-on business activity was estimated to generate a further 442 fte jobs state-wide (234 jobs regionally). These state-wide jobs were concentrated in the trade (126), manufacturing (55) and business services (52) sectors.

Personal income of \$18.9 million was earned in the fishing sector (wages of employees and estimated drawings by owner/operators) and \$6.7 million in downstream activities in SA. An additional \$21.1 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 \$46.7 million in SA (\$30.8 million in the South East region).

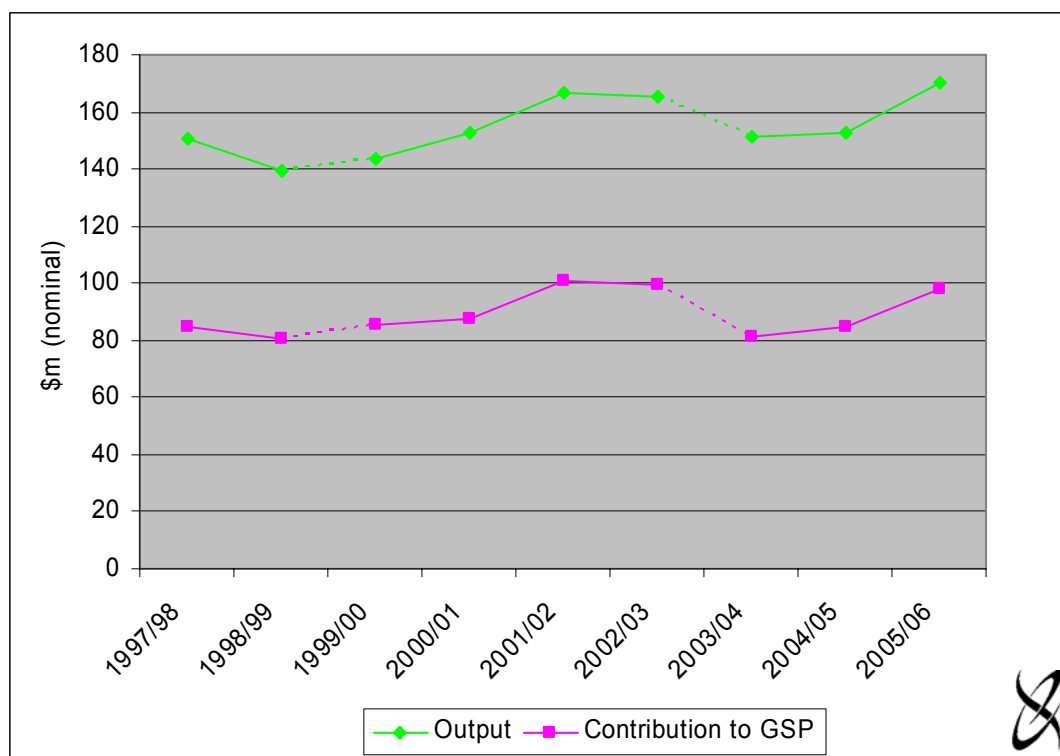
Contribution to GSP and GRP...

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 2005/06, total SZRL fishing industry related contribution to GSP in South Australia was \$98.0 million (\$71.9 million in the South East region), \$49.7 million generated by fishing directly, \$9.7 million generated by downstream activities and \$38.6 million generated in other sectors of the state economy.

Total impacts over time...

Figures 3.3 and 3.4 illustrate the total economic impact of the fishery on the SA economy for the eight-year period, 1997/98 to 2005/06. Estimates of economic impact are expressed in nominal terms, accordingly no adjustment has been made to reflect inflation.

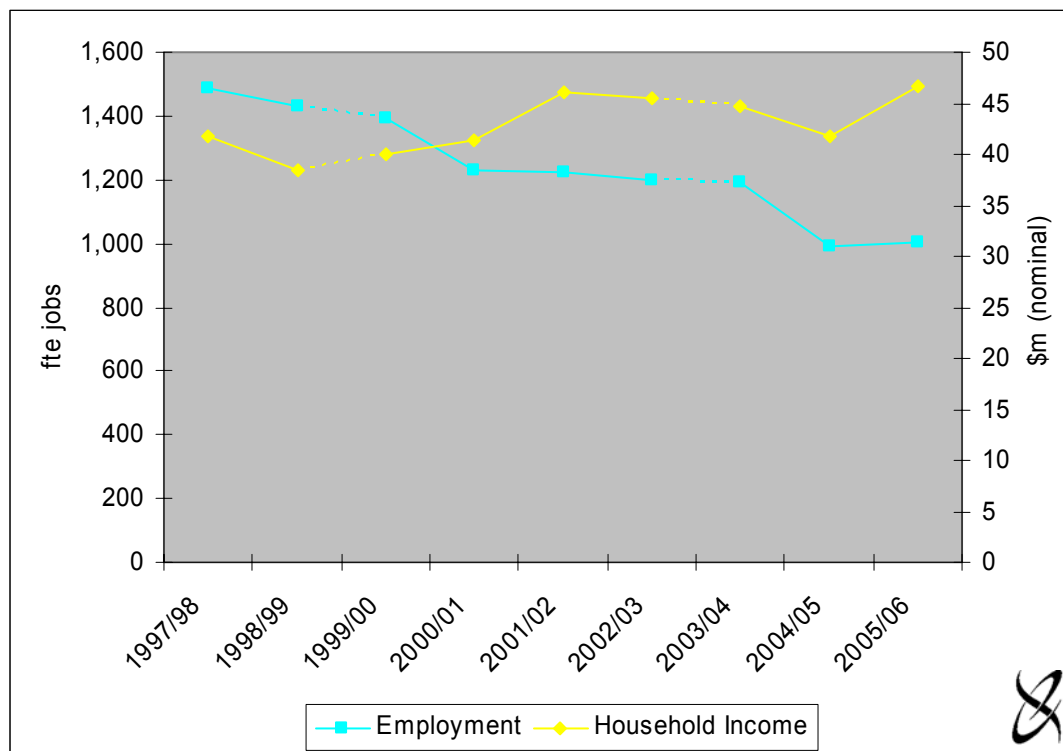
Figure 3.5 Total gross state product and output impact of the SA Southern Zone Rock Lobster fishing industry in SA, 1997/98 to 2005/06 ^a



^a The economic impact of the Southern Zone Rock Lobster fishery 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.

Source: EconSearch (2005a) and EconSearch analysis.

Figure 3.6 Total employment and household income impact of the Southern Zone Rock Lobster fishing industry in SA, 1997/98 to 2005/06 ^a



^a The economic impact of the Southern Zone Rock Lobster fishery 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.

Source: EconSearch (2005a) and EconSearch analysis.

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 and 2005/06 are based on the most recent survey of licence holders conducted in 2006.

The economic impact of the SZRL fishery 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 2005/06 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.

There has been a substantial decline (approximately 33 per cent) in the total employment impact of the fishery between 1997/98 and 2005/06, as illustrated in Figure 3.4. This decrease can be attributed to productivity improvements across all sectors.

3.6 Economic Rent

Economic rent¹⁰ 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 SZRL fishery and the good produced is the landed lobster.

The 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), bait, 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 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 SZRL fishery in 2005/06 was estimated to be approximately \$19.4 million, a significant increase on 2004/05 (Table 3.10).

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 2005/06 aggregate value of licences was estimated to be \$517.3 million (180 licences with an average value of \$2.9 million per licence or \$42,000 per pot). An annual economic rent of \$19.4 million represents a return of 3.7 per cent to the capital value of the fishery.

¹⁰ 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.

Table 3.10 Economic rent^a in the SA Southern Zone Rock Lobster fishery, 1997/98 to 2005/06 (\$'000)

	Gross Income	Less Labour	Less Cash Costs	Less Depreciation	Less Opportunity Cost of Capital (@10%)	Economic Rent
1997/98	50,872	19,495	13,851	4,887	4,285	8,353
1998/99	47,165	18,075	12,051	4,921	4,315	7,804
1999/00	51,163	19,607	11,051	4,981	4,367	11,157
2000/01	54,738	19,325	13,516	7,142	5,162	9,593
2001/02	65,671	23,185	12,610	6,901	4,988	17,987
2002/03	63,838	22,538	12,679	8,018	5,795	14,808
2003/04	49,319	17,412	14,404	7,975	5,765	3,762
2004/05	54,397	15,060	13,319	8,303	6,091	11,625
2005/06	65,737	18,199	14,645	7,796	5,719	19,378

^a Adjusted for sample bias.

Source: EconSearch analysis.

4. Other Indicators

4.1 Factors Influencing the Economic Condition of the Fishery

There are a number of factors in 2005/06 that have impacted on the economic performance of the fishery. Most of these are likely to continue to affect economic outcomes in the future.

Extended Season

The extension of the open season for rock lobster, to include May, was trialled for three years. Following an assessment of this trial, the season has now been permanently extended to include May. Licence holders comments regarding the extended season are reported in Section 4.2.

Stock Assessment

The priority of the management of the fishery is to ensure the sustainability of rock lobster stocks. In order to achieve this, biological indicators have been developed with targets and reference points used as a benchmark of performance against objectives. Reference points can be used to trigger a management response when required. The biological performance indicators for the SZRL fishery relate to:

- biomass;
- total pot lifts;
- total catch;
- exploitation rate;
- recruitment rate; and
- mean size/weight.

The SZRL fishery biological performance indicators for the seasons 2002/03 to 2005/06 are summarised in Table 4.1.

A new management plan for the fishery is currently being developed, which will refine the performance indicators and reference levels. In particular, the draft plan focuses on two key performance indicators, catch rate and pre-recruit index. This plan is expected to be finalised and take effect for the 2007/08 season.

Table 4.1 Biological performance indicators for the SA Southern Zone Rock Lobster fishery, 2002/03 to 2005/06

Indicator	Target	2002/03	2003/04	2004/05	2005/06
Biomass (tonnes)	3,651 – 4,639	6,856	6,835	6,530	5,734
Pot Lifts (no.)	-	854,091	1,042,233	1,051,520	1,183,037
Catch (tonnes)	< 1,900	1,766	1,896	1,897	1,889
Catch Rate (kg/pot lift)	0.94 – 1.14	2.1	1.81	1.80	1.60
Exploitation Rate ^a	0.38 – 0.45	0.25	0.28	0.29	0.33
Pre-recruitment Index ^b	1.19 – 1.59	1.77	1.33	1.31	1.03
Mean Size (kg)	0.79- 0.83	0.85	0.86	0.84	0.84

^a The exploitation rate relates to the level of available lobster taken by the fishery.

^b The pre-recruitment index reflects the mean number of undersize lobsters per pot lift.

Source: Linnane et. al (2004, 2005 and 2006)

Export Markets

Hong Kong, Japan and China are the main export destinations for SA rock lobster exports, as outlined in Section 4.3. Traceability systems and a quality assurance program are being developed to assist in securing other export markets such as in the United States (US) and the European Union (EU). The EU is a rapidly growing export market and has a large consumer base.

The Australian Southern Rock Lobster industry is currently undertaking a market development project in the USA. The project focuses on the development of supply chain, distribution and communication tools to facilitate penetration into the Super-Premium-Fine-Dining (SPFD) sector.

Through product trails and training it is intended that the project will provide an avenue for entry into the USA's SPFD sector through:

- establishing the capacity to guarantee a product to the marketplace in accordance with market values / meeting specifications;
- establishing the capacity to deliver quality product to the marketplace on a consistent basis;
- creating the most effective communication tool to engage the marketplace; and
- trialing the standards based supply chain management system to deliver the "Ultimate Offer and Guarantee" to the SPFD sector at an increased value per lobster.

The project is focused on the supply of larger lobsters, 2kg plus, into the high-end of the USA fine dining market, as opposed to the smaller product currently supplied to the Chinese market.

Exchange Rate

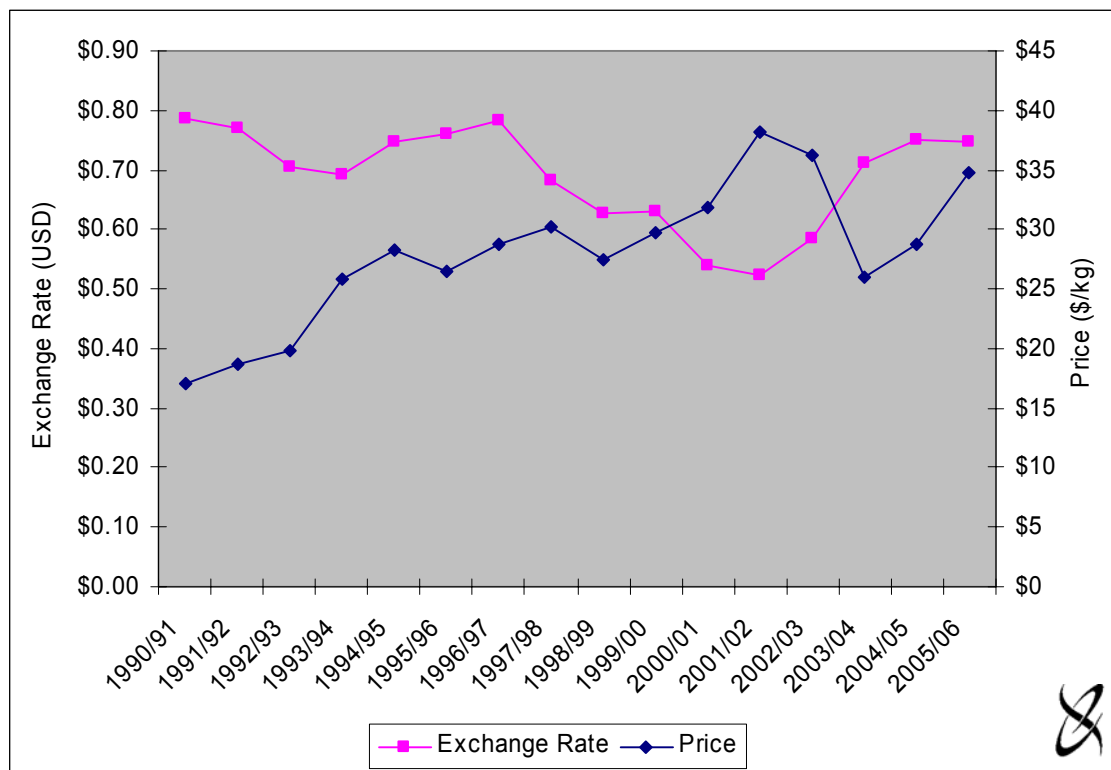
A significant proportion of the South Australian rock lobster catch is exported overseas. Accordingly, the value of the Australian dollar can have a significant impact on the economic performance of the fishery. The value of the Australian dollar influences the price of Australian exports overseas. Significant changes in the value of the Australian dollar have the potential to influence the demand for Australian rock lobster exports. The Australian dollar remained relatively stable throughout 2005/06, ranging between US72 cents and US76 cents. This average rate is slightly lower than 2004/05 when the value of the dollar ranged from US70 cents to US79 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 2005/06 was US74.63 cents compared to US75.45 cents in 2004/05, a decrease of 1 per cent. Other things held equal, a fall in the value of the currency would have the effect of increasing the price of rock lobster received by Australian exporters between 2004/05 and 2005/06.

The most significant export destination for South Australian rock lobster exports in 2005/06 was Hong Kong. Thus it may be useful to consider the value of the Australian dollar compared with the Hong Kong dollar (HKD). The average rate of exchange in 2005/06 was 5.79 HKD and 5.88 HKD in 2004/05, a decrease of 1.5 per cent.

The relationship between the average price in the SZRL fishery and the exchange rate over the past 15 years can be observed in Figure 4.1.

Figure 4.1 Exchange rate (USD) and average price for SA Southern Zone Rock Lobster, 1990/01 to 2005/06



Source: SARDI Aquatic Sciences and RBA (2006) and previous issues.

A widely used measure of the relationship between two variables, such as price and exchange rate, is the coefficient of correlation. The coefficient of correlation can range in value from 1.0 for a perfect positive correlation to -1.0 for a perfect inverse correlation. The coefficient of correlation between the exchange rate (USD) and the average price in the SZRL fishery for the period 1990/91 to 2005/06 is -0.63. This indicates that there is a strong inverse relationship between the two variables. Thus, when the Australian dollar appreciates, as it did between 2001/02 and 2004/05, there is, generally, a corresponding decline in the average price in the SZRL fishery.

4.2 Licence Holder Comments

During the 2006 survey licence holders raised several key issues that have potential to effect the economic performance of the fishery.

Management

A significant number of licence holders who participated in the survey indicated that they thought the fishery was well managed under the current management plan. There were some concerns regarding the new Fisheries Bill and the proposed changes to the management structure of the fishery, particularly in regard to the Fisheries Management Committee (FMC). Many licence holders conceded that the FMC system was ineffective in some fisheries but felt that it was successful in the SZRL fishery.

Several licence holders were unhappy with the current management structure of the fishery and indicated that the fishery was overregulated. Some also welcomed the proposed changes to the management structure under the new Fisheries Bill.

There was some concern among licence holders regarding the level of compliance in the fishery, both in the commercial and recreational sectors. Many felt that more resources needed to be dedicated towards enforcement of existing regulations.

There was criticism of some specific management policies, particularly the requirement for boat operators to contact the compliance officers when landing outside normal port hours.

Prices and Markets

Many of the licence holders who participated in the survey indicated that price fluctuations within and between seasons were of significant concern. The 2004/05 season was “dragged out” for many licence holders due to price fluctuations, as many held off catching their quota to wait for prices to increase.

There were several suggestions from licence holders regarding pricing and how the products of the fishery should be marketed. Many indicated that the products of the fishery needed to be identifiable through labelling and creating brand recognition in markets where the products are sold. It was suggested that branding the product would provide consumers with some quality assurance which would, ideally, increase the price received for the product.

Currently, the most significant export destination for the fishery’s product is Hong Kong where much of the product is transported into China. Significant barriers to direct trade with China exist. Many licence holders were apprehensive regarding the accessibility of the Chinese market.

Stocks

Across the fishery, most licence holders who participated in the survey indicated that the stock of the fishery was healthy and appeared to be improving. There were some concerns regarding the sustainability of the stock of small, red fish, due to the targeting of these fish.

Many licence holders indicated that they target the smaller sized fish, despite an abundance of large fish in the fishery. This is due to the significant difference in price between small fish and large fish. Targeting of small fish has the potential to cause a depletion of these stocks. Several licence holders indicated that, in order to combat depletion of the stock, a market for the large fish needs to be developed.

Licence holders reported a significant price difference between the red coloured fish, found in the shallow waters, and the lighter coloured fish, found in the deeper waters. Several licence holders indicated that the difference in price, and the associated targeting of the red fish, was causing a localised depletion of the stock. Many licence holders expressed concern regarding localised depletion and felt that action needed to be taken before the long-term sustainability of the resource was compromised. One suggestion that was raised by some licence holders was allocating a separate quota for the different coloured fish. Many licence holders indicated that a suitable market for the lighter coloured fish needed to be found to address the disparity in price.

There were concerns raised by many licence holders regarding the stock levels in the fishing area in the most southern part of the fishery, between Black Fellows Caves and the Victorian border. Some licence holders indicated that they were struggling to catch their entire quota, as the area is currently overfished. Many licence holders indicated that the average catch per unit of effort was low in this area. As a result, fishing costs for those operating out of Port MacDonnell, particularly fuel, were considered to be higher than for those licence holders operating out of other ports.

Extended Season

There were mixed opinions among licence holders regarding the extension of the season. Some felt that extending the season was necessary in order to prevent the market from being flooded, therefore improving prices received throughout the season. Others felt that extending the season would be beneficial to the fishing stock as it would distribute the environmental impact of fishing over a greater period of time.

Several licence holders who participated in the survey were against the extended season, some even advocated for closing in November. Some licence holders indicated that extending the season would have a negative impact on the stock of the fishery. Many licence holders were concerned that once the season was extended it would be almost impossible to shorten it again.

Illegal Fishing

Some licence holders who participated in the survey highlighted illegal fishing as a significant threat to the sustainability of the fishery's stocks. The concerns raised were generally in regard to the recreational sector, with many licence holders indicating that this sector was under-regulated. Some licence holders also indicated that compliance was insufficient for both the recreational and commercial sectors.

Many licence holders indicated that they knew of recreational and commercial fishers who were illegally catching and often selling crays. Several licence holders were concerned that this illegal trade may undermine the commercial trade and sustainability of stocks.

Another issue relating to illegal fishing that was raised by several licence holders was that of dual licence holders. This concern relates to licence holders who hold both a Victorian and South Australian fishing licence. Several licence holders who participated in the survey indicated that there had been situations where these dual licence holders had caught fish in South Australia but had included them in their Victorian quota. This practice has the potential to increase the total amount of fish taken from the SA fishery, to a level beyond the limit set by the fisheries management and threaten the economic and environmental sustainability of the fishery.

Marine Parks

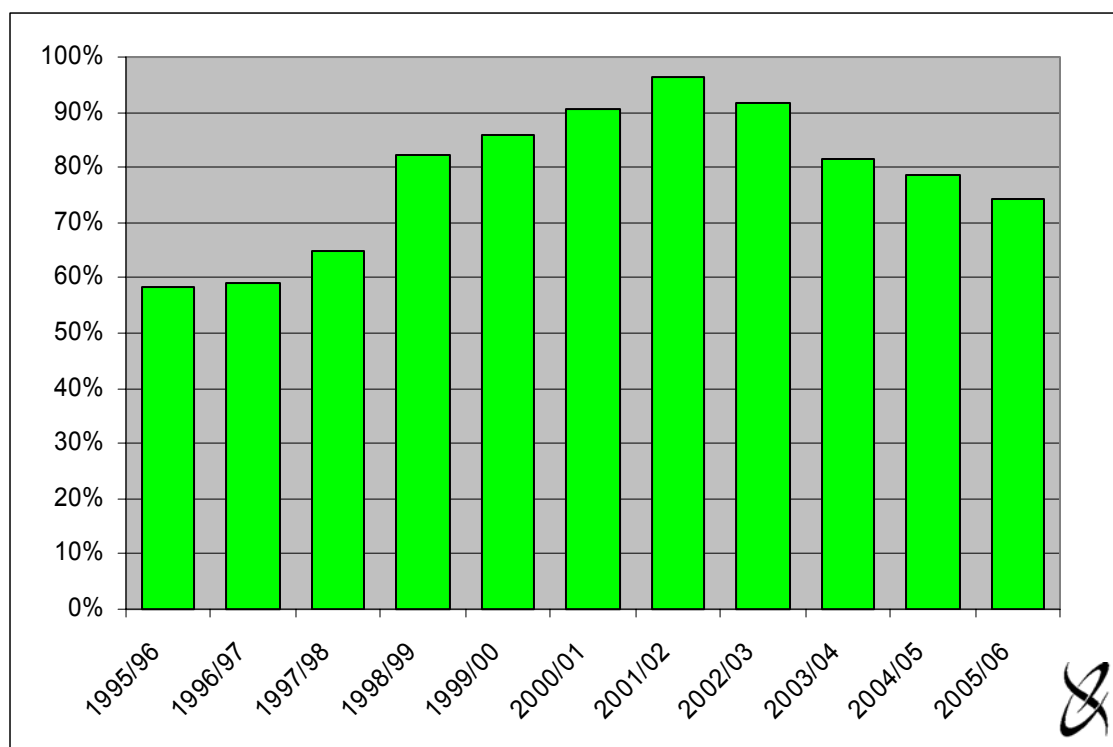
There was concern among many of the licence holders who participated in the survey regarding marine parks and their potential effects on the industry. Many licence holders indicated that the fishery was currently sustainable and the idea of marine parks was contradictory to fisheries management. Some felt that there hadn't been enough consultation with industry regarding the introduction of marine parks.

4.3 Rock Lobster Exports from South Australia

Figures 4.2 to 4.6 and the associated data in Appendix Tables 2.1 to 2.4 provide an historical breakdown of total rock lobster exports from SA, by category and country of destination, for the period 1995/96 to 2005/06¹¹.

As a proportion of total rock lobster catch, rock lobster exports from South Australia increased from 58 per cent in 1995/96 to over 95 per cent in 2001/02. The proportion of catch exported has since declined and was 74 per cent in 2005/06 (Figure 4.2).

Figure 4.2 Rock lobster exports from South Australia as a proportion of total catch, 1995/96 to 2005/06



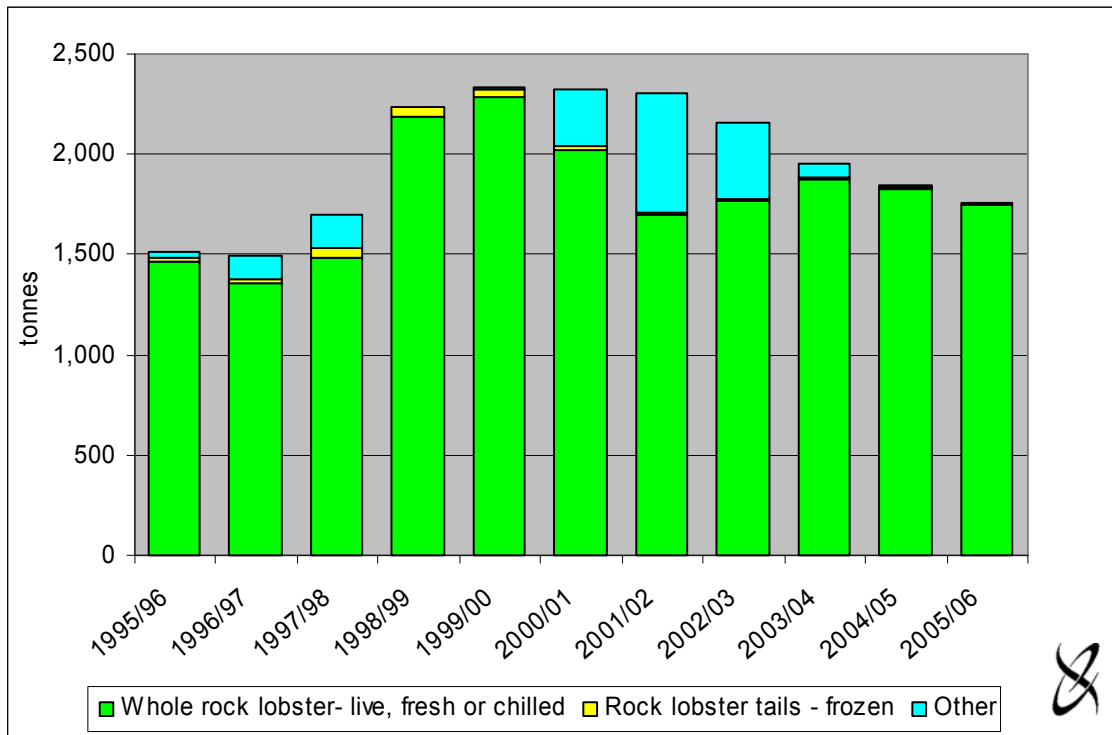
Source: Appendix Table 2.1 and Table 3.1

Between 1995/96 and 2001/02, the total quantity of rock lobster exported from SA increased by approximately 52 per cent. The volume of rock lobster exports has decreased in subsequent years by approximately 24 per cent. The total quantity of rock lobster exported from SA in 2005/06 was approximately 1,760 tonnes. The total value of rock lobster exports increased in nominal terms, by approximately 92 per cent, between 1995/96 and 2001/02 (Figures 4.3 and 4.5).

The value of exports has declined in subsequent years by approximately 30 per cent. In 2005/06, the total value of rock lobster exports from SA was approximately \$78 million (Figures 4.4 and 4.6).

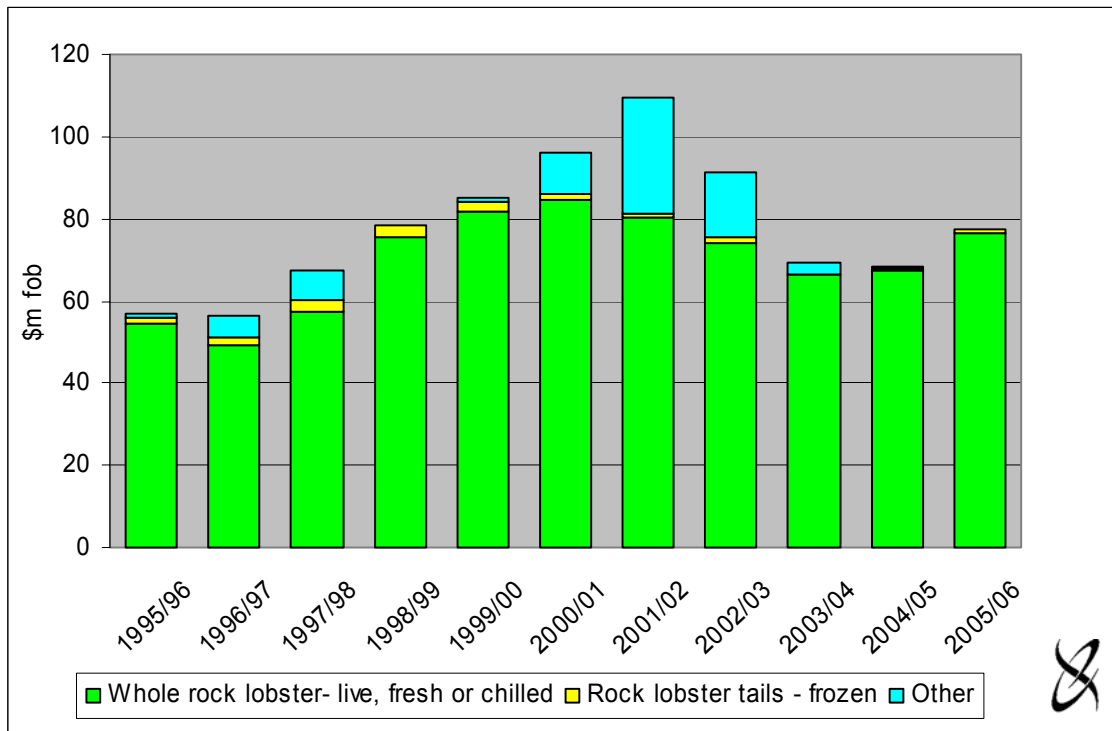
¹¹ That is, exports from the northern and southern rock lobster fisheries in aggregate. These data only include exports direct from South Australia, not product that is shipped interstate and then exported. They could also include product that is shipped from interstate and exported from South Australia.

Figure 4.3 Rock lobster exports from South Australia, quantity (t) by category, 1995/96 to 2005/06



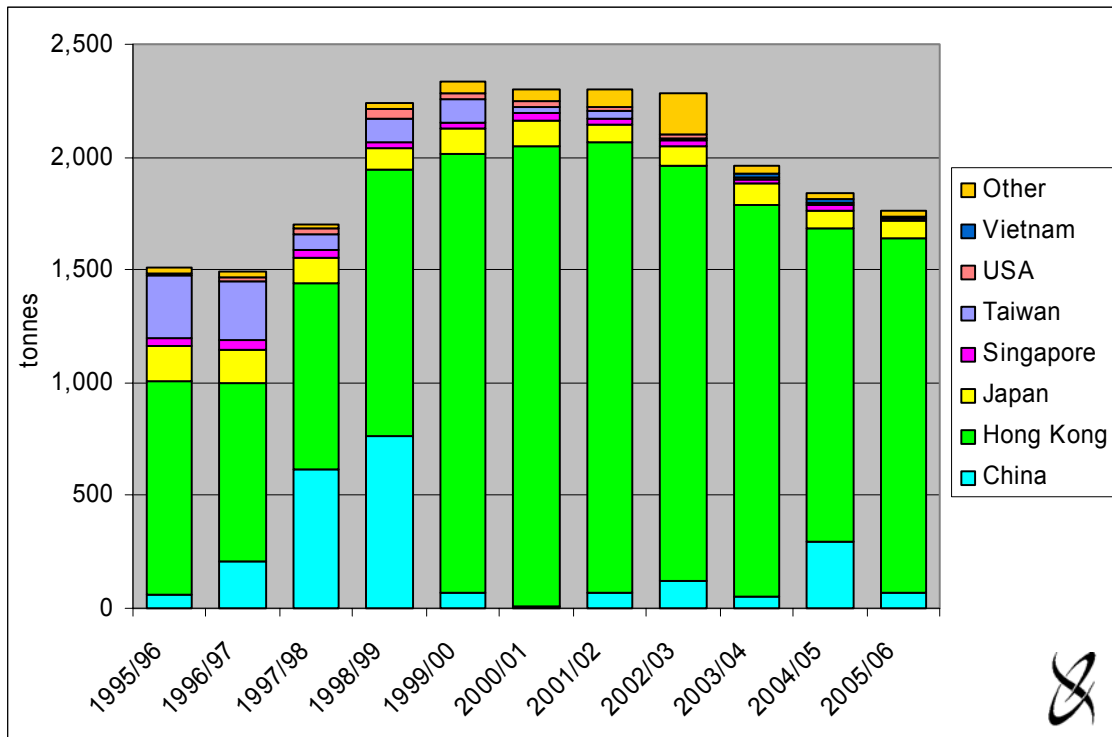
Source: Appendix Table 2.1.

Figure 4.4 Rock lobster exports from South Australia, value (\$m fob) by category, 1995/96 to 2005/06



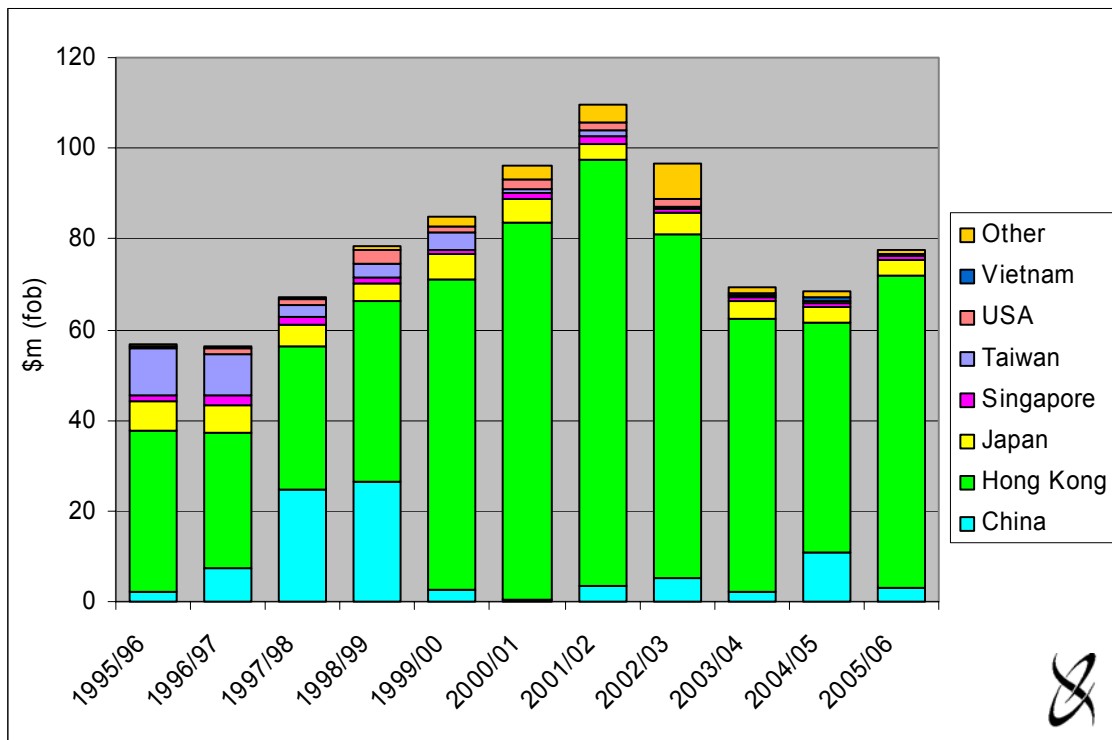
Source: Appendix Table 2.2.

Figure 4.5 Rock lobster exports from South Australia, quantity (t) by country of destination, 1995/96 to 2005/06



Source: Appendix Table 2.3

Figure 4.6 Rock lobster exports from South Australia, value (\$m fob) by country of destination, 1995/96 to 2005/06



Source: Appendix Table 2.4

Whole rock lobster (live, fresh or chilled) was the most important category of export in all years of the analysis, accounting for, on average, 92 per cent of total exports by quantity and 91 per cent of total exports by value over the period of analysis (Figures 4.3 and 4.4). For a full breakdown of exports by category refer to Appendix Tables 2.1 and 2.2.

The most significant export destination over the period 1995/96 to 2005/06 was Hong Kong, accounting on average for 73 per cent of the total quantity and 72 per cent of the total value of exports of rock lobster (Figures 4.5 and 4.6). For a full breakdown of exports by country of destination refer to Appendix Tables 2.3 and 2.4.

The demand for seafood from countries within the EU has increased rapidly over the last decade and it has become the world's leading seafood export destination. The demand for seafood and the consumer base of the EU is likely to continue to grow in the future (MCCN May 2005). Currently rock lobster exports to EU member countries are minimal.

Following trials in London and the Napa Valley, lobster exporters are pushing for increased exports to the United Kingdom (UK) and US. Currently, the majority of lobster exports are to Hong Kong and China (Figures 4.5 and 4.6), a large proportion of the exports to Hong Kong are then transported illegally to China to avoid tariffs. A move away from these destinations towards new markets could lead to a significant increase in the value of exports (MCCN March 2005).

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Appendix 1 Economic Impact of the SA Southern Zone Rock Lobster Fishery, 2004/05¹²

Appendix Table 1.1 The economic impact of the Southern Zone Rock Lobster fishing industry in South Australia, 2004/05

Sector	Output		Employment ^a		Household Income		Contribution to GSP	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%
Direct effects								
Fishing	54.4	35.7%	421	42.4%	15.7	37.5%	39.8	46.8%
Processing	6.6	4.3%	22	2.2%	1.0	2.3%	1.5	1.8%
Transport	11.2	7.3%	55	5.5%	3.6	8.7%	5.4	6.3%
Retail	1.1	0.7%	17	1.7%	0.5	1.1%	0.6	0.7%
Food services	2.6	1.7%	23	2.3%	0.7	1.6%	1.0	1.2%
Capital expenditure ^b	3.0	2.0%	31	3.1%	0.9	2.2%	1.2	1.4%
Total Direct ^c	78.8	49.8%	568	54.1%	22.3	51.2%	49.4	56.8%
Flow-on effects								
Trade	10.3	6.8%	120	12.1%	3.9	9.3%	4.8	5.7%
Manufacturing	15.6	10.3%	52	5.2%	2.3	5.5%	3.7	4.3%
Business Services	8.1	5.3%	51	5.1%	3.0	7.1%	3.9	4.6%
Transport	3.8	2.5%	19	1.9%	1.2	3.0%	1.8	2.2%
Other Sectors	35.6	23.4%	184	18.5%	9.1	21.7%	21.3	25.1%
Total Flow-on ^c	73.6	48.3%	425	42.8%	19.4	46.6%	35.5	41.8%
Total ^c	152.4	100.0%	994	100.0%	41.8	100.0%	84.9	100.0%
Total/Direct	1.9	-	1.7	-	1.9	-	1.7	-
Total/Tonne	\$80,300	-	0.52	-	\$22,000	-	\$44,700	-

^a Full-time equivalent jobs. Direct employment in the fishing sector was comprised of 172 full-time jobs and 432 part-time jobs, that is, 604 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 (2006a).

¹² Estimates of economic impact for the period 1997/98 to 2002/03 are detailed in EconSearch (2005a)

Appendix Table 1.2 The economic impact of the Southern Zone Rock Lobster fishing industry in the South East region, 2004/05

Sector	Output		Employment ^a		Household Income		Contribution to GRP	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%
Direct effects								
Fishing	54.4	55.7%	421	58.9%	15.7	59.0%	39.8	66.2%
Processing	6.6	6.7%	27	3.8%	1.0	3.9%	1.9	3.2%
Transport	2.2	2.2%	16	2.2%	0.8	3.1%	1.1	1.8%
Retail	0.1	0.1%	1	0.1%	0.0	0.1%	0.0	0.0%
Food services	0.1	0.1%	1	0.2%	0.0	0.1%	0.1	0.1%
Capital expenditure ^b	1.9	1.9%	29	4.0%	0.8	2.8%	0.9	1.6%
Total Direct ^c	65.2	64.9%	495	65.2%	18.3	66.2%	43.8	71.3%
Flow-on effects								
Trade	5.8	5.9%	74	10.3%	2.2	8.2%	2.7	4.5%
Manufacturing	5.8	5.9%	24	3.3%	0.9	3.4%	1.7	2.8%
Business Services	2.0	2.1%	13	1.9%	0.7	2.7%	1.0	1.6%
Transport	1.5	1.5%	11	1.5%	0.6	2.1%	0.7	1.2%
Other Sectors	17.4	17.8%	98	13.8%	3.9	14.6%	10.2	17.0%
Total Flow-on ^c	32.4	33.2%	220	30.8%	8.2	31.0%	16.3	27.1%
Total ^c	97.6	100.0%	715	100.0%	26.6	100.0%	60.1	100.0%
Total/Direct	1.5	-	1.4	-	1.4	-	1.4	-
Total/Tonne	\$51,400	-	0.38	-	\$13,900	-	\$31,600	-

^a Full-time equivalent jobs. Direct employment in the fishing sector was comprised of 172 full-time jobs and 432 part-time jobs, that is, 604 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 (2006a).

Appendix 2 Rock Lobster Exports from South Australia, 1995/96 to 2005/06

Appendix Table 2.1 Rock Lobster exports from South Australia, quantity (kg) by category, 1995/96 to 2005/06

Category	Year										
	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
Whole rock lobster - frozen	17,712	254	0	0	0	145,255	24,166	39,382	22,679	5,829	1,177
Whole rock lobster- live, fresh or chilled	1,465,501	1,352,898	1,487,904	2,187,018	2,284,822	2,025,710	1,695,170	1,763,339	1,877,960	1,828,341	1,743,730
Rock lobster tails - frozen	16,624	25,713	40,790	50,833	36,592	18,862	10,187	18,879	3,264	5,044	9,592
Rock lobster tails - fresh or chilled	0	10,244	0	1,190	1,338	941	2,141	1,341	2,681	4,903	2,055
Other	10,685	100,740	168,410	685	15,499	130,230	569,788	338,494	51,378	0	3,015
Total	1,510,522	1,489,849	1,697,104	2,239,726	2,338,251	2,320,998	2,301,452	2,161,435	1,957,962	1,844,117	1,759,569

Source: Australian Bureau of Statistics (by request)

Appendix Table 2.2 Rock Lobster exports from South Australia, value (\$'000 fob) by category, 1995/96 to 2005/06

Category	Year										
	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
Whole rock lobster - frozen	730	14	0	0	0	5,180	1,167	1,864	991	326	114
Whole rock lobster- live, fresh or chilled	54,517	49,154	57,600	75,575	81,678	84,725	80,437	74,221	66,367	67,361	76,611
Rock lobster tails - frozen	1,313	1,914	2,736	2,863	2,586	1,444	1,044	1,466	172	331	750
Rock lobster tails - fresh or chilled	0	918	0	90	100	42	162	130	157	276	90
Other	402	4,443	6,887	22	631	4,597	26,618	13,844	1,580	0	116
Total	56,962	56,443	67,222	78,549	84,995	95,990	109,429	91,525	69,268	68,295	77,681

Source: Australian Bureau of Statistics (by request)

Appendix Table 2.3 Rock Lobster exports from South Australia, quantity (kg) by country of destination, 1995/96 to 2005/06

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
Canada	0	0	0	13	2,180	1,360	110	124,844	0	18	0
China	59,661	208,695	620,032	761,667	70,602	5,284	69,366	124,844	55,805	292,265	70,230
France	0	0	0	6,504	23,763	38,493	34,577	21,899	7,590	3,265	6,799
Germany	0	0	0	300	2,243	0	556	0	0	0	71
Greece	0	0	0	0	0	0	0	0	0	3025	0
Hong Kong	946,297	793,609	818,785	1,178,555	1,941,392	2,042,772	1,995,842	1,833,031	1,732,694	1,387,463	1,574,584
Italy	3,200	5,440	6,130	15,125	14,677	20,950	17,966	15,700	11,070	8,006	5,222
Japan	156,624	140,602	112,604	98,438	119,005	113,411	78,688	89,617	96,529	82,453	74,861
Korea, Republic of	8,975	720	200	2,845	1,525	3,416	3,972	4,888	2,683	1,978	2,244
Malaysia	1,081	2,065	2,282	1,562	2,953	6,624	17,039	8,244	10,041	12,229	4,016
Philippines	117	1,925	959	0	0	0	365	25	40	72	28
Singapore	36,182	50,545	36,043	27,683	24,175	32,710	28,967	26,885	19,502	26,109	11,951
Taiwan	278,819	255,526	72,156	99,460	103,480	28,739	27,983	8,210	806	100	0
Thailand	620	3,944	0	0	2,400	0	9	0	0	0	225
United Arab Emirates	2,460	4,530	1,533	3,865	1,525	1,655	2,934	2,240	1,380	4,670	1,453
United Kingdom	100	0	0	0	300	37	0	0	0	19	385
USA	10,346	22,018	25,630	43,589	27,861	24,595	22,800	22,023	5,979	9,111	7,358
Vietnam	0	0	0	0	0	0	0	0	13,843	13,184	58
Total	1,510,522	1,489,849	1,697,104	2,239,726	2,338,251	2,296,366	2,301,452	2,283,876	1,957,962	1,844,117	1,759,572

Source: Australian Bureau of Statistics (by request)

Appendix Table 2.4 Rock Lobster exports from South Australia, value (\$'000 fob) by country of destination, 1995/96 to 2005/06

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
Canada	0	0	0	1	266	40	7	5,246	0	2	0
China	2,328	7,480	24,525	26,368	2,601	225	3,379	5,246	2,004	10,818	2,900
France	0	0	0	232	889	1,512	1,525	981	266	126	296
Germany	0	0	0	13	70	0	24	0	0	0	7
Greece						0	0	0	0	137	0
Hong Kong	35,350	29,860	31,864	40,067	68,521	83,350	93,882	75,895	60,431	50,669	68,924
Italy	103	166	234	532	566	867	890	816	449	331	238
Japan	6,500	5,977	4,784	3,824	5,374	5,023	3,834	4,465	4,015	3,416	3,648
Korea, Republic of	395	24	11	137	60	160	215	253	125	88	106
Malaysia	42	90	88	62	112	290	843	358	342	466	232
Philippines	5	73	41	0	0	0	19	1	1	2	2
Singapore	1,426	2,073	1,479	1,051	1,014	1,383	1,554	1,173	713	1,024	669
Taiwan	10,085	9,040	2,666	3,346	3,757	1,166	1,234	357	25	12	0
Thailand	22	148	0	0	101	0	1	0	0	0	9
United Arab Emirates	94	190	61	127	62	88	162	108	52	173	62
United Kingdom	3	0	0	0	10	4	0	0	0	2	30
USA	465	1,313	1,444	2,785	1,586	1,842	1,844	1,734	332	500	543
Vietnam						0	0	0	511	522	4
Other	144	10	26	4	6	38	16	64	0	7	12
Total	56,962	56,443	67,222	78,549	84,995	94,144	109,429	96,697	69,268	68,295	77,681

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 – 2004/05 (tonnes)

Year	Abalone	GSV Prawns	SG & WC Prawns	Sth'n Zone Rock Lobster	Nth'n Zone Rock Lobster	Blue Swimmer Crabs	Inland Waters ^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

^a Excludes the River fishery for the years 2003/04 and 2004/05.

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

Source: EconSearch (2006b).

Appendix Table 3.2 Commercial fisheries gross value of production, South Australia, 1990/91 – 2004/05 (\$m)

Year	Abalone	GSV Prawns	SG & WC Prawns	Sth'n Zone Rock Lobster	Nth'n Zone Rock Lobster	Blue Swimmer Crabs	Inland Waters ^a	Sardines	Other Marine Species ^b	Total SA Fisheries ^c
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

^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 and 2003/04.

^b Excludes south east non-trawl, tuna, deep water trawl. SARDI estimates for the years 1990/91 to 2002/03, revalued SARDI estimates for 2003/04 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 (2006b).

Appendix Table 3.3 Cost of management in South Australian commercial fisheries, 2004/05

	Licence Fees (\$'000)	GVP (\$'000)	Fees/ GVP (%)	Catch ('000kg)	Fees/ Catch (\$/kg)	Licence Holders (no.)	Fees/ Licence (\$/licence)
Abalone	2,335	33,821	6.9%	902	\$2.59	35	\$66,715
GSV Prawns	259	3,761	6.9%	213	\$1.22	10	\$25,936
SG & WC Prawns	763	32,043	2.4%	1,960	\$0.39	42	\$18,158
Sth'n Zone Rock Lobster	2,497	54,397	4.6%	1,897	\$1.32	180	\$13,870
Nth'n Zone Rock Lobster	1,076	11,643	9.2%	446	\$2.41	69	\$15,600
Blue Crabs - Pots	206	3,322	6.2%	584	\$0.35	8	\$25,695
Blue Crabs – Marine Scale ^a	49	269	18.1%	47	\$1.03	14	\$3,479
Lakes and Coorong ^b	243	5,495	4.4%	2,198	\$0.11	37	\$6,562
Marine Scalefish	1,469	20,878	7.0%	3,810	\$0.39	394	\$3,728
Sardines	991	28,476	3.5%	56,952	\$0.02	14	\$70,783
Total SA	9,887	194,105	5.1%	69,010	\$0.14	803	\$12,312

^a Excludes the River fishery.

Source: EconSearch (2006b).

Appendix Table 3.4 Financial performance in South Australian commercial fisheries, 2004/05, (\$'000) (average per boat)

	Abalone	GSV Prawns	SG & WC Prawns	Sth'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	1,015.7	370.2	708.1	314.2	222.3	4,164.7	248.6	55.0	2,422.1	163.2
Costs										
Fuel	14.4	35.9	62.4	18.2	45.4	607.8	42.0	6.4	88.8	10.8
R&M	35.9	20.7	53.5	16.6	17.5	538.0	50.1	5.9	173.2	8.1
Labour	259.5	139.0	237.4	87.0	95.5	1,042.3	84.9	31.2	861.4	66.6
Licence fee	65.1	27.1	20.8	15.8	19.4	205.6	48.7	4.3	70.6	6.4
Insurance	6.6	18.3	19.2	6.2	8.4	62.1	9.3	1.8	38.0	1.3
Interest	4.9	28.6	41.3	21.7	31.5	607.1	8.5	0.3	33.4	4.4
Admin & Other	50.5	24.4	53.7	20.2	50.5	278.0	26.1	10.0	80.1	24.3
Total Cash Costs	436.8	294.0	488.3	185.6	268.3	3,340.9	269.5	60.1	1,345.5	122.0
Cash Operating Surplus	578.9	76.1	219.8	128.6	-46.0	823.9	-21.0	-5.1	1,076.6	41.2
Depreciation	54.3	154.4	160.6	48.0	55.4	337.0	48.3	8.9	146.2	19.3
Earnings Before Tax	524.6	-78.3	59.2	80.6	-101.4	486.8	-69.3	-14.0	930.4	21.9
EBIT^c	529.5	-49.7	100.5	102.3	-69.9	1,094.0	-60.8	-13.7	963.8	26.3
Capital										
Fishing Gear & Equipment	272.2	1,142.6	1,455.9	351.8	431.1	3,373.7	407.4	88.2	1,389.1	116.1
Licence Value	8,525.0	3,100.0	4,040.9	2,682.4	1,374.2	21,394.6	1,180.5	94.0	9,123.9	139.0
Total Capital	8,797.2	4,242.6	5,496.9	3,034.2	1,805.2	24,768.3	1,587.9	182.2	10,513.0	255.0
Rate of Return to Gear/Equip	194.5%	-4.3%	6.9%	29.1%	-16.2%	32.4%	-14.9%	-15.5%	69.4%	22.7%
Rate of Return to Capital	6.0%	-1.2%	1.8%	3.4%	-3.9%	4.4%	-3.8%	-7.5%	9.2%	10.3%

^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 3.2. 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 (2006b).

Appendix Table 3.5 Costs as a percentage of total cash costs in South Australian commercial fisheries, 2004/05

	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%	12%	13%	10%	17%	18%	16%	11%	7%	9%
R&M	8%	7%	11%	9%	7%	16%	19%	10%	13%	7%
Labour	59%	47%	49%	47%	36%	31%	32%	52%	64%	55%
Licence fee	15%	9%	4%	8%	7%	6%	18%	7%	5%	5%
Insurance	2%	6%	4%	3%	3%	2%	3%	3%	3%	1%
Interest	1%	10%	8%	12%	12%	18%	3%	0%	2%	4%
Admin & Other	12%	8%	11%	11%	19%	8%	10%	17%	6%	20%
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 (2006b).

Appendix Table 3.6 Economic impacts of South Australian commercial fisheries, 2004/05

	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	33.8	3.8	32.0	54.4	11.6	4.4	20.9	28.5	5.5	194.9
Downstream ^b	5.1	2.0	16.9	24.4	6.2	3.1	11.1	0.8	5.1	74.7
All other sectors (indirect)	29.3	6.5	48.8	73.6	29.9	8.5	45.7	28.2	12.4	282.9
Total	68.2	12.3	97.8	152.4	47.7	16.0	77.7	57.5	23.0	552.5
Total/Direct	1.8	2.1	2.0	1.9	2.7	2.1	2.4	2.0	2.2	2.0
Total/Tonne (\$)	\$75,500	\$57,700	\$49,800	\$80,300	\$107,000	\$25,300	\$20,300	\$1,000	\$10,400	\$12,274
Contribution to GSP (\$m)										
Direct										
Fishing	27.8	2.4	22.9	39.8	2.7	2.4	9.5	22.1	3.6	133.2
Downstream	1.8	0.8	7.0	9.7	2.5	1.0	3.9	0.3	2.0	29.1
All other sectors (indirect)	14.2	3.2	23.3	35.5	14.3	4.0	21.7	13.6	5.9	135.8
Total	43.8	6.4	53.2	84.9	19.5	7.4	35.2	36.0	11.5	298.0
Total/Direct	1.5	2.0	1.8	1.7	3.8	2.1	2.6	1.6	2.1	1.8
Total/Tonne (\$)	\$48,571	\$30,254	\$27,135	\$44,700	\$43,769	\$11,740	\$9,236	\$632	\$5,238	\$6,621
Employment (fte jobs)^c										
Direct										
Fishing	123	37	217	421	185	30	363	52	73	1,501
Downstream	24	21	174	147	41	18	89	7	45	565
All other sectors (indirect)	170	37	288	425	175	50	263	166	74	1,649
Total	317	95	679	994	400	98	715	224	192	3,715
Total/Direct	2.2	1.6	1.7	1.7	1.8	2.0	1.6	3.8	1.6	1.8
Total/Tonne	0.35	0.45	0.35	0.52	0.90	0.15	0.19	0.00	0.09	0.08
Household Income (\$m)										
Direct										
Fishing	9.1	1.4	10.0	15.7	5.7	1.1	9.5	12.1	2.5	67.0
Downstream	1.2	0.6	5.0	6.7	1.7	0.7	2.9	0.2	1.4	20.5
All other sectors (indirect)	7.9	1.7	13.0	19.4	7.9	2.2	12.1	7.3	3.3	75.0
Total	18.2	3.7	28.0	41.8	15.3	4.1	24.5	19.6	7.2	162.5
Total/Direct	1.8	1.9	1.9	1.9	2.1	2.2	2.0	1.6	1.9	1.9
Total/Tonne (\$)	\$20,100	\$17,600	\$14,200	\$22,000	\$34,400	\$6,400	\$6,400	\$300	\$3,200	\$3,609

^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 (2006b).

Appendix Table 3.7 Economic rent in South Australian commercial fisheries, 2004/05 (\$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	35.5	3.8	32.0	54.4	11.6	4.4	20.9	28.5	5.5	196.7
Less Labour	9.1	1.4	10.7	15.1	5.0	1.1	11.9	10.1	2.2	66.7
Less Materials & Services	6.0	1.3	9.5	13.3	7.4	1.9	10.9	5.3	1.7	57.3
Less Depreciation	1.9	1.6	7.3	8.3	2.9	0.4	3.4	1.7	0.6	28.1
Less Opportunity Cost of Capital (@10%)	1.0	1.2	6.6	6.1	2.3	0.4	3.4	1.6	0.4	22.8
Economic Rent	17.6	-1.7	-2.0	11.6	-5.9	0.7	-8.5	9.7	0.5	21.9

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

Source: EconSearch (2006b).

Appendix 4 Financial Performance, 1997/98 to 2000/01

Appendix Table 4.1 Financial performance in the SA Southern Zone Rock Lobster fishery, 1997/98 to 2000/01 (average per boat) ^a

	1997/98		1998/99		1999/00		2000/01	
	All Boats	Share of TCC	All Boats	Share of TCC	All Boats	Share of TCC	All Boats	Share of TCC
Gross Income	\$282,282		\$263,143		\$287,008		\$300,610	
Costs								
Fuel	\$15,486	8%	\$12,657	7%	\$14,367	8%	\$15,502	8%
R&M	\$18,415	9%	\$16,201	9%	\$12,565	7%	\$12,299	6%
Bait	\$9,482	5%	\$8,233	5%	\$6,229	3%	\$7,954	4%
Provisions	\$3,617	2%	\$3,182	2%	\$2,468	1%	\$285	0%
Labour	\$108,178	56%	\$100,843	57%	\$109,989	61%	\$106,131	54%
Licence fee	\$13,152	7%	\$10,810	6%	\$10,179	6%	\$12,427	6%
Insurance	\$4,459	2%	\$3,746	2%	\$3,466	2%	\$4,071	2%
Interest	\$9,274	5%	\$8,560	5%	\$9,478	5%	\$17,239	9%
Admin and Other	\$12,245	6%	\$12,406	7%	\$12,718	7%	\$21,688	11%
Total Cash Costs	\$194,307	100%	\$176,639	100%	\$181,457	100%	\$197,596	100%
Cash Operating Surplus	\$87,976		\$86,504		\$105,551		\$103,014	
Depreciation	\$27,120		\$27,455		\$27,942		\$39,221	
Earnings Before Tax	\$60,856		\$59,049		\$77,608		\$63,793	
Earnings Before Interest & Tax	\$70,130		\$67,609		\$87,086		\$81,032	
Capital								
Fishing Gear & Equipment	\$237,777		\$240,717		\$244,988		\$283,491	
Licence Value ^c	\$1,342,357		\$1,294,110		\$1,666,920		\$2,378,667	
Total Capital	\$1,580,134		\$1,534,827		\$1,911,908		\$2,662,157	
Rate of Return to Fishing Gear & Equip	29.5%		28.1%		35.5%		28.6%	
Rate of Return to Total Capital	4.4%		4.4%		4.6%		3.0%	

^a Financial performance estimates for 1997/98 to 1999/00 are based on the October 1998 survey of licence holders.

Source: EconSearch (1999a-b, 2001 and 2002).