

Economic Indicators
for the South Australian
Abalone Fishery
2008/09

A report prepared for
Primary Industries and Resources South Australia

Prepared by



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Contents

Tables	iv
Figures.....	iv
Acknowledgments.....	v
Abbreviations	v
Document History and Status	vi
1. Introduction	1
2. Method of Analysis and Definition of Terms	2
2.1 Survey of Licence Holders in the Fishery, 2007/08	2
2.2 Updating the Indicators, 2008/09	2
2.3 Definition of Terms.....	2
3. Economic Indicators for the SA Abalone Fishery	5
3.1 Catch and Gross Value of Production.....	5
3.2 Cost of Management.....	7
3.3 Summary of Factors Affecting Costs in the SA Abalone Fishery	9
3.4 Financial Performance Indicators	10
3.5 State and Regional Economic Impact.....	13
3.5.1 Measuring direct and flow-on effects	13
3.5.2 Economic impacts at state and regional levels	15
3.5.3 Additional expenditures and impacts	19
3.6 Economic Rent.....	21
4. Other Economic Indicators	23
4.1 Factors Influencing the Economic Condition of the Abalone Fishery.....	23
4.1.1 Illegal, unregulated and unreported Abalone fishing activity	23
4.1.2 Stock assessment	24
4.1.3 Exchange rates	26
4.2 Licence Holder Comments.....	27
4.3 Abalone Exports from South Australia	28
References	30
Appendix 1 Economic Impact of the South Australian Abalone Fishery, 2007/08	32
Appendix 2 Abalone Exports from South Australia, 2008/09	34
Appendix 3 Financial Performance Indicators, 1997/98 to 2005/06	36
Appendix 4 Summary Economic Indicators for South Australian Commercial Fisheries	39

Tables

Table 3.1	SA Abalone catch and value of catch, 1990/91 to 2008/09	5
Table 3.2	Cost of management in the SA Abalone fishery, 1996/97 to 2009/10	8
Table 3.3	Factors affecting costs in SA Abalone fishery, 2007/08 to 2008/09	9
Table 3.4	Financial performance in the SA Abalone fishery, 2006/07 to 2008/09 (average per licence) ^a	11
Table 3.5	Sensitivity of rate of return to changes in licence value, 2008/09 ^a	13
Table 3.6	The economic impact of the Abalone fishing industry in South Australia, 2008/09	16
Table 3.7	The economic impact of the Abalone fishing industry in the Eyre/Western region, 2008/09	17
Table 3.8	Average annual local investment expenditures by licence holders in the SA Abalone fishery, 2003/04 to 2007/08	20
Table 3.9	Regional economic impact of local investment expenditures in new enterprises by licence holders in the SA Abalone fishery, 2007/08 ^a	20
Table 3.10	Economic rent in the SA Abalone fishery, 1997/98 to 2008/09 (\$'000)	22
Table 4.1	Biological performance indicators, Western Zone Abalone, region A	24
Table 4.2	Biological performance indicators, Western Zone Abalone, region B	24
Table 4.3	Biological performance indicators, Central Zone Abalone	25
Table 4.4	Biological performance indicators, Southern Zone Abalone	26
Table 4.5	Abalone exports from SA, by country of destination, 2006/07 to 2008/09	29
Table 4.6	Abalone exports from SA, by product type, 2006/07 to 2008/09	29

Figures

Figure 3.1	GVP, price and catch indices for the SA Abalone fishery (1990/91=100)	6
Figure 3.2	Price indices for the SA Abalone fishery (1990/91=100) ^a	7
Figure 3.3	Total gross state product and output impact of the SA Abalone fishery on the SA economy, 1997/98 to 2008/09 ^a	18
Figure 3.4	Total employment and household income impact of the SA Abalone fishery on the SA economy, 1997/98 to 2008/09 ^a	19
Figure 4.1	Exchange rate (USD) and price for SA Abalone, 1990/91 to 2008/09	27

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Abbreviations

ABARE	Australian Bureau of Agricultural and Resource Economics
ABS	Australian Bureau of Statistics
CPI	consumer price index
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

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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 7 of the *Fisheries Management Act 2007*.

This report is the twelfth annual economic indicators report for the South Australian Abalone fishery. The first report, prepared for 1997/98, entitled *Economic Indicators for the South Australian Abalone Fishery 1997/98* (EconSearch 1999), reported on the results of an initial economic survey of the 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 2000 and 2001). The fourth annual report, prepared for 2000/01 outlined the fishery's economic performance 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, 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, provided an outline of the fishery's economic performance based on the results of a third licence holder survey, conducted in 2006 (EconSearch 2006). The ninth and tenth reports, prepared for 2005/06 and 2006/07, provided updates of the 2004/05 survey based indicators (EconSearch 2007 and 2008). The eleventh report, prepared for 2007/08, provided an outline of the fishery's economic performance based on the results of a fourth licence holder survey, conducted in 2008 (EconSearch 2009a)

The objective of this report, *Economic Indicators for the South Australian Abalone Fishery 2008/09*, was to provide an update of the economic indicators based on the fourth survey of licence holders.

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
- abalone exports from SA (quantity and value).

For purposes of comparison, summary economic indicators for all SA commercial fisheries, up to 2007/08, are presented in Appendix 4.

2. Method of Analysis and Definition of Terms

2.1 Survey of Licence Holders in the Fishery, 2007/08

The questionnaire for the 2007/08 survey was based on the previous surveys conducted for 1997/98, 2000/01 and 2004/05.¹ It was drafted by the consultants in consultation with the President of Abalone Management SA (Mr Bob Pennington) and the Executive Officer of the Abalone Industry Association of South Australia (Mr Michael Tokley).

In November 2008 all licence holders were sent a letter from the consultant seeking their participation in the survey. Licence holders were then contacted by phone to arrange a convenient time to complete a face-to-face interview. Interviews were conducted with 15 of the fishery's 35 licence holders. The majority of the remaining licence holders were either not contactable or were unavailable at the time of the interviews. The 15 completed responses represented 43 per cent of licence holders in the fishery. Thus, the economic indicators for 2007/08 are survey-based estimates.

2.2 Updating the Indicators, 2008/09

The 2008/09 economic indicators for the South Australian Abalone fishery were derived using a range of primary and secondary data and survey-based 2007/08 indicators. The following information was used to adjust the 2007/08 indicators to reflect the fishery's performance in 2008/09.

- SARDI data were used to reflect changes in catch size and its value between 2007/08 and 2008/09. Catch and value data were used to determine the gross income in the fishery.
- Information on change in fishing effort (number of days fished) between 2007/08 and 2008/09 was used to adjust the cost of inputs that were assumed to vary with fishing effort. These inputs included fuel, repairs and maintenance, ice and provisions.
- 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 2009a).

2.3 Definition of Terms²

Total Boat Income (TBI): refers to the cash receipts received by an individual firm and is expressed in dollar terms. Total boat income is calculated as catch (kg) multiplied by 'beach price' (\$/kg). Total boat income is the contribution of an individual licence holder to the GVP of a fishing sector or fishery.

Total Boat Variable Costs: are costs which are dependent upon the level of catch or, more commonly, the amount of time spent fishing. As catch or fishing time increases,

¹ Surveys conducted for 1997/98 and 2000/01 are described in EconSearch (2005a). The 2004/05 survey is described in EconSearch (2008a).

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

variable costs also increase. Variable costs are measured in current dollar terms and include the following individual cost items:

- fuel, oil and grease for the boat (net of diesel fuel rebate)
- ice
- provisions
- crew payments
- fishing equipment, purchase and repairs
- repairs & maintenance: ongoing (slipping, painting, motor)

Boat Gross Margin: is defined as *Total Boat Income* less *Total Boat Variable Costs*. This is a basic measure of profit which assumes that capital has no alternative use and that as fishing activity (days fished) varies there is no change in capital or fixed costs.

Total Boat Fixed Costs: are costs that remain fixed regardless of the level of catch or the amount of time spent fishing. As such these costs, measured in current dollar terms, are likely to remain relatively constant from one year to the next. Examples of fixed cost include:

- insurance
- licence and industry fees
- office & business administration (communication, stationery, accountancy fees)
- interest on loan repayments and overdraft
- leasing

Total Boat Cash Costs (TBCC): defined as *Total Boat Variable Costs* plus *Total Boat Fixed Costs*

Gross Operating Surplus: (GOS) is defined as *Total Boat Income* less *Total Boat Cash Costs* and is expressed in current dollar terms. GOS may be used interchangeably with the term Gross Boat Profit. A GOS value of zero represents a breakeven position for the business, where TBCC equals TBI. If GOS is a negative value the firm is operating at a cash loss and if positive the firm is making a cash profit. GOS does not include a value for owner/operator wages, unpaid family work, or depreciation.

Owner-operator and Unpaid Family Labour: in many fishing businesses there is a component of labour that does not draw a direct wage or salary from the business. This will generally include owner/operator labour and often also include some unpaid family labour. The value of this labour needs to be accounted which involves imputing a labour cost based on the amount of time and equivalent wages rate. In the above calculations this labour cost can be included simply as another cost so that Gross Operating Surplus takes account of this cost. Alternatively, it can be deducted from GOS to give a separate indicator called Boat Cash Income. Owner-operator and unpaid family labour is separated into variable labour (fishing and repairs and maintenance) and overhead labour (management and administration).

Boat Cash Income: is defined as *Gross Operating Surplus* less *imputed wages for owner-operator and unpaid family labour*.

Boat Capital: includes capital items that are required by the licence holder to earn the boat income. It includes boat hull, engine, electronics and other permanent fixtures and tender boats. Other capital items such as motor vehicles, sheds, cold-rooms, and

jetty/moorings can be included to the extent that they are used in the fishing business. The fishing licence/permit value is included in total boat capital.

Depreciation: Depreciation refers to the annual reduction in the value of boat capital due to general wear and tear or the reduction in value of an item over time.

Boat Business Profit: is defined as *GOS less Depreciation less Owner-operator and Unpaid Family Labour*. Boat Business Profit represents a more complete picture of the actual financial status of an individual firm, compared with GOS, which represents the cash in-cash out situation only.

Profit at Full Equity: is calculated as *Boat Business Profit plus rent, interest and lease payments*. Profit at Full Equity represents the profitability of an individual licence holder, assuming the licence holder has full equity in the operation, i.e. there is no outstanding debt associated with the investment in boat capital. Profit at Full Equity is a useful absolute measure of the economic performance of fishing firms.

Rate of Return to Capital: is calculated as *Profit at Full Equity* divided by *Boat Capital* multiplied by 100. This measure is expressed in percentage terms and is calculated for an individual licence holder. It refers to the economic return to the total investment in capital items, and is a useful relative measure of the performance of individual firms. Rate of return to capital is useful to compare the performance of various licence holders, and to compare the performance of other types of operators, and with other industries.

Gross value of production (GVP): refers to the value of the total annual catch for individual fisheries, fishing sectors or the fishing industry as a whole, and is measured in dollar terms. GVP, generally reported on an annual basis, is the quantity of catch for the year multiplied by the average monthly landed beach prices.

Beach price: refers to the price received by commercial fishers at the "port level" for their catch, and is generally expressed in terms of \$/kg. Processing costs are not included in the beach price, as processing operations are assumed to occur further along the value chain. The use of beach prices also removes the effect of transfer pricing by the firm if it is vertically integrated into the value chain.

Cost of management services: in a commercial fishery management services will generally include biological monitoring and reporting; policy, regulation and legislation development; compliance and enforcement services; licensing services; and research. Where a commercial fishery operates under full cost recovery, licence fees will be set to cover the cost of managing the fishery or at least the commercial sector's share of the resource.

In fisheries where there is full cost recovery, it can be assumed that the cost of providing these management services to the commercial sector will be equal to the gross receipts from licence fees in the fishery. With information on licence fee receipts, GVP, catch and the number of commercial fishers in the fishery, the following indicators can be readily calculated:

- aggregate licence fee receipts for the fishery (\$)
- licence fee/GVP (%)
- licence fee/catch (\$/kg)
- licence fee/licence holder (\$/licence holder)

3. Economic Indicators for the SA Abalone Fishery

3.1 Catch and Gross Value of Production

The data shown in Table 3.1 indicate that the total catch of abalone in SA has remained relatively steady during the period 1990/91 to 2008/09. This is due to the quota management arrangements for the fishery. However, the value of the fishery has increased significantly over the same period. The catch in 2008/09 (837 tonnes) was 3 per cent less than that in 1990/91 (863 tonnes), but the value of the catch has more than doubled in nominal terms, increasing from \$14.0 million in 1990/91 to \$30.0 million in 2008/09.

Table 3.1 SA Abalone catch and value of catch, 1990/91 to 2008/09

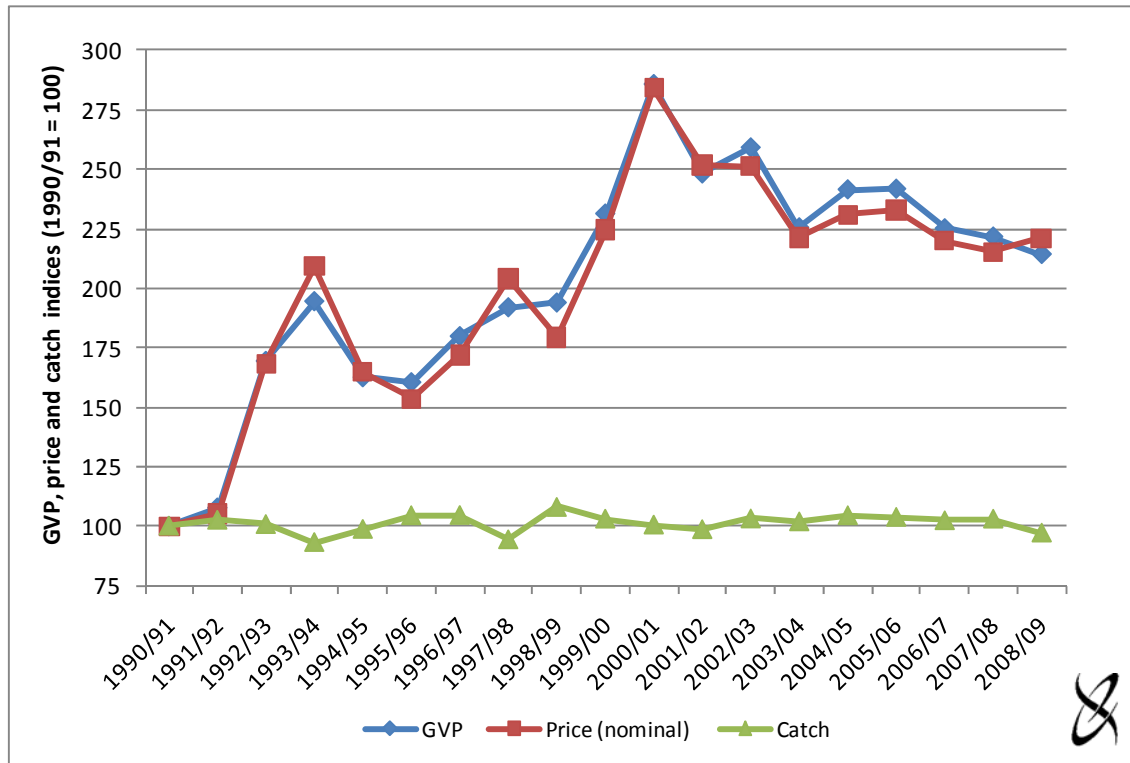
Year	Southern Zone		Central Zone		Western Zone		South Australia	
	(tonnes)	(\$m)	(tonnes)	(\$m)	(tonnes)	(\$m)	(tonnes)	(\$m)
1990/91	121	2.0	187	3.0	555	9.1	863	14.0
1991/92	131	2.2	191	3.3	563	9.5	885	15.1
1992/93	176	4.0	168	4.9	525	14.9	869	23.7
1993/94	141	5.4	151	5.1	510	16.8	802	27.2
1994/95	154	4.4	205	5.5	492	12.8	851	22.8
1995/96	155	3.8	177	4.5	570	14.1	902	22.5
1996/97	146	3.8	195	5.7	562	15.7	903	25.2
1997/98	123	4.0	180	5.7	509	17.2	812	26.9
1998/99	171	4.7	170	5.0	592	17.4	933	27.2
1999/00	149	5.2	190	7.2	550	20.0	889	32.4
2000/01	145	6.7	188	9.1	534	24.1	867	40.0
2001/02	141	5.9	193	9.0	516	19.9	850	34.8
2002/03	146	5.8	171	8.0	573	22.5	890	36.3
2003/04	143	4.3	177	6.6	559	20.6	879	31.6
2004/05	157	5.9	180	7.4	565	20.5	902	33.8
2005/06	136	5.1	181	7.2	579	21.5	896	33.9
2006/07	164	6.1	168	6.2	551	19.3	883	31.5
2007/08	146	4.5	193	7.0	550	19.6	889	31.0
2008/09	151	4.8	151	5.7	535	19.6	837	30.0

Source: SARDI Aquatic Sciences

This significant increase in the value of the fishery over the 18-year period 1990/91 to 2008/09 is illustrated in Figure 3.1. As noted above, the nominal value of the abalone catch in 2008/09 was 114 per cent above that in 1990/91. This is principally as a result of a substantial increase in price during the 1990s. Figure 3.1 shows that the average price of abalone in SA has increased over the 18-year period by 121 per cent in

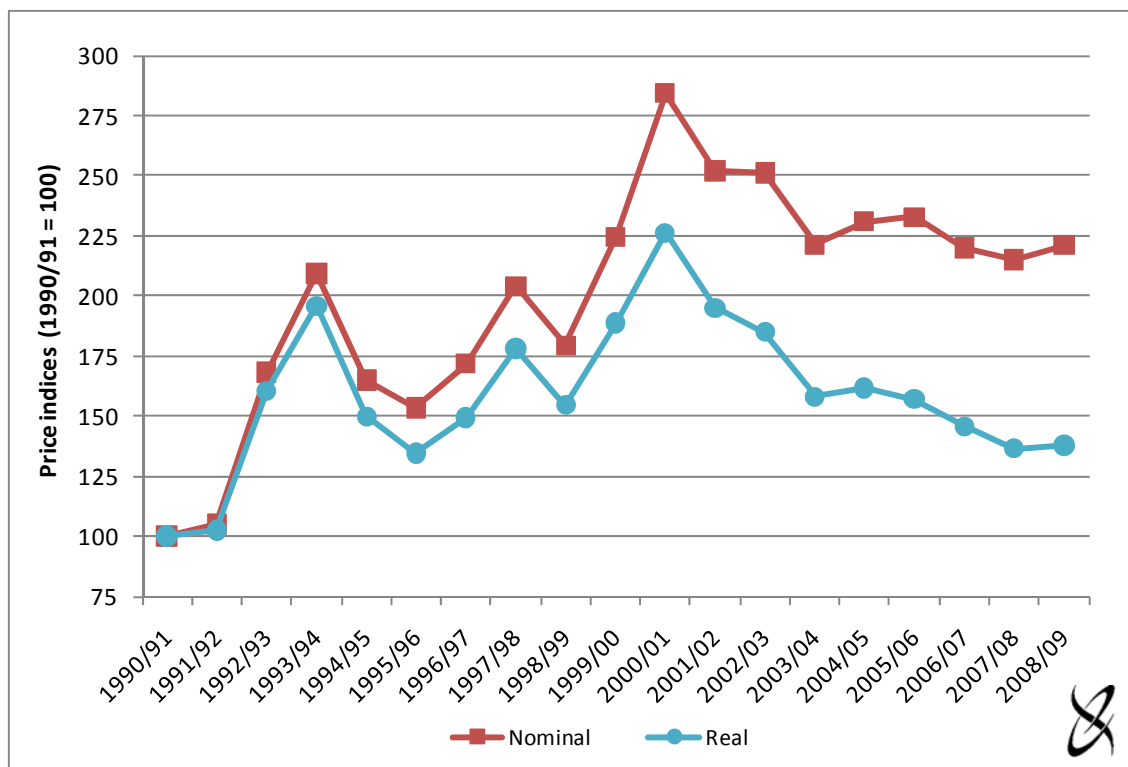
nominal terms, despite decreasing in 2006/07 and 2007/08. Because total catch has remained relatively steady throughout the period, variations in gross value of production have closely followed changes in average price. The nominal price of abalone peaked at \$46.15/kg in 2000/01 but declined to \$35.86/kg in 2008/09.

Figure 3.1 GVP, price and catch indices for the SA Abalone fishery (1990/91=100)



Source: SARDI Aquatic Sciences

In a period of low inflation, the rate of price increase for abalone has been well above the CPI. Figure 3.2 shows that the 121 per cent increase in nominal price was equivalent to a 38 per cent real price increase between 1990/91 and 2008/09. This means that the value of the abalone catch in South Australia in 2008/09 was 34 per cent higher in real terms than it was in 1990/91 (114 per cent higher in nominal terms as noted above). However, since the price peak in 2000/01, the real price of abalone has fallen 39 per cent and, in nominal terms, GVP is 25 per cent lower.

Figure 3.2 Price indices for the SA Abalone fishery (1990/91=100) ^a

^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 2009a). It enables meaningful comparisons of prices to be made between years.

Source: SARDI Aquatic Sciences and ABS (2009a)

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 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; and
- research services, including the Fisheries Research and Development Corporation (FRDC) levy.

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, pers. comm.).

Table 3.2 Cost of management in the SA Abalone fishery, 1996/97 to 2009/10

	Licence Fee (\$'000)	GVP (\$'000)	Fee/GVP (%)	Catch (tonnes)	Fee/Catch (\$/kg)	Licence Holders (No.)	Fee/Licence Holder (\$/licence)
Southern							
1996/97	368	3,824	9.6%	146	\$2.52	6	\$61,276
1997/98	446	3,978	11.2%	123	\$3.63	6	\$74,391
1998/99	341	4,682	7.3%	171	\$1.99	6	\$56,854
1999/00	406	5,215	7.8%	149	\$2.73	6	\$67,696
2000/01	274	6,736	4.1%	145	\$1.89	6	\$45,641
2001/02	294	5,873	5.0%	141	\$2.08	6	\$48,985
2002/03	311	5,757	5.4%	146	\$2.13	6	\$51,888
2003/04	359	4,329	8.3%	143	\$2.51	6	\$59,827
2004/05	400	5,914	6.8%	157	\$2.55	6	\$66,621
2005/06	397	5,144	7.7%	136	\$2.92	6	\$66,134
2006/07	409	6,076	6.7%	164	\$2.49	6	\$68,142
2007/08	432	4,453	9.7%	146	\$2.96	6	\$72,061
2008/09	433	4,792	9.0%	151	\$2.87	6	\$72,178
2009/10	430	n.a.	-	n.a.	-	6	\$71,663
Central							
1996/97	456	5,659	8.1%	195	\$2.34	6	\$75,931
1997/98	513	5,726	9.0%	180	\$2.85	6	\$85,470
1998/99	426	5,032	8.5%	170	\$2.51	6	\$71,036
1999/00	437	7,152	6.1%	190	\$2.30	6	\$72,839
2000/01	277	9,140	3.0%	188	\$1.47	6	\$46,188
2001/02	297	8,961	3.3%	193	\$1.54	6	\$49,545
2002/03	345	8,046	4.3%	171	\$2.02	6	\$57,539
2003/04	389	6,618	5.9%	177	\$2.20	6	\$64,859
2004/05	406	7,402	5.5%	180	\$2.26	6	\$67,702
2005/06	403	7,241	5.6%	181	\$2.23	6	\$67,189
2006/07	414	6,164	6.7%	168	\$2.46	6	\$68,974
2007/08	437	6,957	6.3%	193	\$2.27	6	\$72,867
2008/09	436	5,659	7.7%	151	\$2.89	6	\$72,688
2009/10	434	n.a.	-	n.a.	-	6	\$72,314
Western							
1996/97	1,394	15,701	8.9%	562	\$2.48	23	\$60,593
1997/98	1,649	17,179	9.6%	509	\$3.24	23	\$71,696
1998/99	1,122	17,447	6.4%	592	\$1.90	23	\$48,800
1999/00	938	20,027	4.7%	550	\$1.71	23	\$40,789
2000/01	1,053	24,135	4.4%	534	\$1.97	23	\$45,767
2001/02	1,128	19,921	5.7%	516	\$2.19	23	\$49,037
2002/03	1,192	22,486	5.3%	573	\$2.08	23	\$51,810
2003/04	1,350	20,635	6.5%	559	\$2.42	23	\$58,695
2004/05	1,529	20,505	7.5%	565	\$2.71	23	\$66,482
2005/06	1,523	21,474	7.1%	579	\$2.63	23	\$66,202
2006/07	1,569	19,289	8.1%	551	\$2.85	23	\$68,225
2007/08	1,660	19,634	8.5%	550	\$3.02	23	\$72,193
2008/09	1,656	19,566	8.5%	535	\$3.10	23	\$72,018
2009/10	1,649	n.a.	-	n.a.	-	23	\$71,675
Total Fishery							
1996/97	2,217	25,184	8.8%	903	\$2.46	35	\$63,339
1997/98	2,608	26,883	9.7%	812	\$3.21	35	\$74,519
1998/99	1,890	27,161	7.0%	933	\$2.03	35	\$53,993
1999/00	1,781	32,394	5.5%	889	\$2.00	35	\$50,896
2000/01	1,604	40,011	4.0%	867	\$1.85	35	\$45,817
2001/02	1,719	34,755	4.9%	850	\$2.02	35	\$49,115
2002/03	1,848	36,289	5.1%	890	\$2.08	35	\$52,805
2003/04	2,098	31,582	6.6%	879	\$2.39	35	\$59,946
2004/05	2,335	33,821	6.9%	902	\$2.59	35	\$66,715
2005/06	2,323	33,859	6.9%	896	\$2.59	35	\$66,359
2006/07	2,392	31,529	7.6%	883	\$2.71	35	\$68,339
2007/08	2,530	31,044	8.1%	889	\$2.85	35	\$72,286
2008/09	2,526	30,017	8.4%	837	\$3.02	35	\$72,160
2009/10	2,512	n.a.	-	n.a.	-	35	\$71,782

Source: PIRSA Fisheries and SARDI Aquatic Sciences

Table 3.2 shows actual licence fee receipts for the SA Abalone fishery for the period 1996/97 to 2009/10 for each of the zones and for the fishery as a whole. For the fishery as a whole:

- licence fees as a percentage of gross value of production decreased between 1996/97 and 2000/01 from 8.8 per cent to 4.0 per cent but have increased in subsequent years to be 8.4 per cent in 2008/09;
- the cost of licence fees per kilogram of landed abalone decreased from \$2.46 in 1996/97 to \$1.85 in 2000/01 but has increased since reaching \$3.02 in 2008/09;
- the cost per licence holder peaked at \$74,519 in 1997/98 and then fell to \$45,817 in 2000/01. Since 2000/01, the cost per licence holder has increased, and was \$72,160 in 2008/09; and
- the total number of licence holders in each of the zones has not changed over the entire period across all of the zones.

Between 2008/09 and 2009/10, the cost per licence holder decreased marginally from \$72,160 to \$71,782 per licence holder.

3.3 Summary of Factors Affecting Costs in the SA Abalone Fishery

The information in Table 3.3 (and similar data for previous years) was used to adjust the 2007/08 financial performance indicators to reflect the costs incurred in the fishery in 2008/09.

Table 3.3 Factors affecting costs in SA Abalone fishery, 2007/08 to 2008/09

	2007/08	2008/09	Change
Total Days Fished ^a	1,928	1,857	-3.7%
Price of Fuel - Transportation Index ^b	168.6	166.8	-1.0%
Interest charges (%/annum) ^c	9.9%	9.4%	-5.1%
Labour price index ^d	116.9	121.5	3.9%
CPI Adelaide ^e	167.6	170.3	1.6%

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

^b ABS transportation index for Adelaide (ABS 2009a)

^c RBA indicator lending rate for small business (RBA 2009a)

^d ABS Labour price index for SA (ABS 2009b)

^e Consumer price index for Adelaide (ABS 2009a)

- 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 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 Labour Price index was used to adjust the cost of labour.

- The CPI for Adelaide was used to adjust other costs. Other costs associated with operating in the fishery include, legal and accounting costs, office and administration, telephone expenses and other incidental costs.

3.4 Financial Performance Indicators

The major measures of the financial performance of the surveyed boats in the SA Abalone fishery are shown in Table 3.4 for the period 2006/07 to 2008/09.³

Income...

Total recorded abalone catch decreased by 6 per cent from 2007/08 to 2008/09. Gross receipts from the sale of abalone decreased by 3 per cent over the same period (Table 3.1). The estimated average gross income per boat in the SA Abalone fishery was almost \$849,000 in 2008/09, down from \$878,000 per boat in the previous year⁴ (Table 3.4).

Costs...

Table 3.4 shows total costs separated into variable and fixed costs. Variable costs (67 per cent of total boat cash costs in 2008/09) represented a significantly greater proportion of total boat cash costs than fixed costs (33 per cent).

It was estimated that average total boat cash costs decreased by approximately 2 per cent between 2007/08 and 2008/09. This decrease was the net result of a 2.5 per cent decline in variable costs (e.g. fuel, repairs and maintenance and paid labour) and a slight increase in fixed costs. Notable changes include a significant decline in paid labour, reflecting a decrease in value of catch, a reduction in interest payments of approximately 5 per cent and an increase in repairs and maintenance costs (Table 3.4)⁴.

In 2008/09, for the fishery as a whole, approximately 60 per cent of total boat costs were attributable to fixed and variable labour costs (over \$256,000 including unpaid labour), by far the largest individual cost item. The labour costs reported in Table 3.4 are comprised of payments to licence owners and crew as well as an imputed wage to those licence owners and other family members who are not paid a wage directly by the business. Imputed unpaid labour (\$21,146 per licence for 2008/09) was divided into variable (fishing and repairs and maintenance) and fixed (management and administration) components based on the 2008 licence holder survey.

The other significant cash costs were licence fees (16 per cent), repairs and maintenance (5 per cent), interest (4 per cent) and fuel (3 per cent) (Table 3.4).

³ Similar data for the years 1997/98 to 2005/06 are provided in Appendix 3 of this report.

⁴ Financial performance estimates for 2007/08 and 2008/09 were based on different survey samples to earlier years. Some of the difference between years is, therefore, attributable to sampling variability.

Table 3.4 Financial performance in the SA Abalone fishery, 2006/07 to 2008/09
(average per licence) ^a

	2006/07		2007/08		2008/09	
	Average per Licence	Share of TBCC ^b	Average per Licence	Share of TBCC ^b	Average per Licence	Share of TBCC ^b
(1) Total Boat Gross Income	\$946,859		\$877,572		\$848,540	
Variable Costs						
Fuel	\$15,848	3%	\$14,517	3%	\$14,523	3%
Repairs & Maintenance ^c	\$39,047	8%	\$20,576	5%	\$21,136	5%
Bait/Ice	\$305	0%	\$133	0%	\$137	0%
Provisions	\$9,544	2%	\$8,341	2%	\$8,568	2%
Labour - paid	\$263,618	55%	\$243,287	56%	\$235,238	55%
(2) - unpaid ^d	\$4,331	1%	\$923	0%	\$927	0%
Other	\$10,775	2%	\$4,766	1%	\$4,843	1%
(3) Total Variable Costs	\$343,468	72%	\$292,542	67%	\$285,372	67%
Fixed Costs						
Licence Fee	\$67,360	14%	\$70,361	16%	\$70,239	16%
Insurance	\$7,054	1%	\$4,245	1%	\$4,313	1%
(4) Interest	\$5,347	1%	\$17,112	4%	\$16,248	4%
(5) Labour - unpaid ^d	\$18,882	4%	\$19,453	4%	\$20,219	5%
Legal & Accounting	\$15,162	3%	\$8,384	2%	\$8,519	2%
Telephone etc.	\$3,773	1%	\$2,945	1%	\$2,992	1%
Slipping & Mooring	\$765	0%	\$2,022	0%	\$2,055	0%
Travel	\$4,438	1%	\$8,073	2%	\$8,203	2%
Office & Admin	\$9,310	2%	\$8,708	2%	\$8,849	2%
(6) Total Fixed Costs	\$132,092	28%	\$141,304	33%	\$141,637	33%
(7) Total Boat Cash Costs (3 + 6)	\$475,560	100%	\$433,846	100%	\$427,009	100%
Boat Gross Margin (1 - 3)	\$603,391		\$585,030		\$563,168	
(8) Total Unpaid Labour (2 + 5)	\$23,213		\$20,376		\$21,146	
Gross Operating Surplus (1 - 7 + 8)	\$494,512		\$464,102		\$442,677	
(9) Boat Cash Income (1 - 7)	\$471,299		\$443,726		\$421,531	
(10) Depreciation	\$66,314		\$38,839		\$39,737	
(11) Boat Business Profit (9 - 10)	\$404,985		\$404,887		\$381,794	
(12) Profit at Full Equity (11 + 4)	\$410,332		\$421,999		\$398,042	
Boat Capital						
(13) Fishing Gear & Equip	\$332,732		\$275,803		\$282,182	
Licence Value	\$7,947,273		\$7,958,286		\$7,695,009	
(14) Total Boat Capital	\$8,280,005		\$8,234,088		\$7,977,191	
Rate of Return on Fishing Gear & Equip (12 / 13 * 100)	123.3%		153.0%		141.1%	
Rate of Return on Total Boat Capital (12 / 14 * 100)	5.0%		5.1%		5.0%	

^a Financial performance estimates for 2006/07 are based on the February - March 2006 survey of licence holders. Financial performance estimates for 2007/08 and 2008/09 are based on the most recent survey of licence holders.

^b Total boat cash costs.

^c Repairs and maintenance costs have been classified as a variable cost although it is noted that some of these costs may be fixed (e.g. regulated maintenance).

^d Unpaid labour was divided between variable (time spent fishing and on repairs and maintenance) and fixed (management and administrative duties) based on survey responses.

Source: EconSearch analysis

Cash Income and Profit...

The separation of variable and fixed costs from total cash costs enables the calculation of boat gross margin (total boat income less total boat variable costs) as a basic measure of profit (assuming that capital has no alternative use and that as fishing activity varies there is no change in capital or fixed costs). There was a slight decrease in boat gross margin in 2008/09 (\$563,000) compared to previous years mainly due to the decline in boat gross income in 2008/09.

Gross operating surplus (GOS) was calculated excluding imputed wages for operator and family members as a cost item. The average GOS of all boats in 2008/09 was estimated to be almost \$443,000, 5 per cent lower than in 2007/08 (Table 3.4).

Boat cash income is measured as gross operating surplus with imputed wages (unpaid labour) included as cash costs. The estimated average boat cash income in 2008/09 is approximately \$421,000 per boat.

Gross operating surplus and boat business profit give an indication of the capacity of the operator to remain in the fishery in the short to medium term. In 2008/09, the average boat business profit was almost \$382,000, 6 per cent less than the previous year.

Profit at full equity is a measure of the profitability of an individual licence holder, assuming the licence holder has full equity in the operation. It is a useful absolute measure of the economic performance of fishing firms. Profit at full equity in 2008/09 (\$398,000) was 6 per cent less than the previous year (\$422,000).

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 profit at full equity as a percentage of the total capital employed.

The average total investment in fishing gear and licence in the Abalone Fishery in 2008/09 was estimated to be almost \$8.0 million per licence holder. This included the licence holder's estimate of the value of their licence (\$7.7 million) and estimated investment in boats and fishing gear (approximately \$282,000 per licence).

The average return on investment for the fishery for the period 2006/07 to 2008/09 is reported in Table 3.4. While the rate of return to boat capital (i.e. fishing gear and equipment) is high (141.1 per cent in 2008/09), the rate of return to total capital was estimated to be 5.0 per cent, similar to the estimate for 2006/07 and 2007/08.

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 for 2008/09 in Table 3.4 represents the licence holders' estimate of the value of their licence based on the 2008 survey responses.

There was a large degree of variability in the licence holders estimates of licence value. Survey respondents estimates of licence value ranged from approximately \$5 million to \$11 million.

The PIRSA Fisheries Public Register indicates that there were no licence transfers in 2008/09. 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.

Table 3.5 Sensitivity of rate of return to changes in licence value, 2008/09 ^a

Licence Value	\$3,847,505	\$7,695,009	\$11,542,514
Rate of Return to Total Capital (%)	9.6%	5.0%	3.4%

^a Based on the licence value estimated for 2008/09 and values 50 per cent above and below this estimate.

Source: EconSearch analysis

Based on the costs and returns shown for the year 2008/09 in Table 3.4, a licence value of \$3.8 million (approximately 50 per cent below the licence value estimated for 2008/09) would mean an annual return to the total asset of 9.6 per cent, while a licence value of \$11.5 million (approximately 50 per cent above the licence value estimated for 2008/09) would mean an annual return to the total asset of 3.4 per cent (Table 3.5).

3.5 State and Regional Economic Impact

Estimates of the economic impact of the SA Abalone fishing industry on the South Australian and regional (Eyre/Western⁵) economies in 2008/09 are outlined below.

3.5.1 Measuring direct and flow-on effects

Estimates of the direct economic impact of the SA Abalone fishery are consistent with the method employed in PIRSA's *Value-added ScoreCard, 2006/07*⁶.

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) trade⁷.

⁵ The Eyre and Western region is consistent with the SA Government Region, as defined by the Department of Planning and Local Government.

⁶ The relevant information was obtained from Rob Esvelt (PIRSA, pers. comm.).

⁷ 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.

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/Western region, respectively, prepared for the Department of Trade and Economic Development (EconSearch 2009c).

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 2007/08, described earlier. On an item-by-item basis, the expenditures were allocated between those occurring in the Eyre/Western 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 *value-added ScoreCard (Seafood Scorecard, 2006/07)* (Rob Esvelt, 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.

Output (value of) 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.

Gross state product (GSP) or Gross regional product (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 state and regional levels

Estimates of the economic impact generated in 2008/09 by the SA Abalone fishing industry in South Australia and the Eyre/Western 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/Western region by Abalone fishing enterprises summed to \$30.0 million in 2008/09 (Tables 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 \$15.9 million (Table 3.6), \$13.3 million of which occurred in the Eyre/Western region (Table 3.7).

Flow-ons to other sectors of the state economy added another \$45.2 million in output (\$20.3 million in the regional economy). The sectors most affected were the manufacturing, trade, business services and transport sectors.

Employment and household income...

In 2008/09, the SA Abalone fishery was responsible for the direct employment of around 90 full-time equivalents (fte) and downstream activities created employment of around 62 fte jobs state-wide. Flow-on business activity was estimated to generate a further 225 fte jobs state-wide (102 fte jobs regionally). These state-wide jobs were concentrated in the manufacturing (79), trade (60), business services (26) and transport (18) sectors.

Personal income of \$9.0 million was earned in the fishing sector (wages of employees and estimated drawings by owner/operators) and \$3.6 million in downstream activities in SA. An additional \$12.5 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 \$25.1 million in SA (\$17.2 million in the Eyre/Western region).

Table 3.6 The economic impact of the Abalone fishing industry in South Australia, 2008/09

Sector	Output		Employment ^a		Household Income		Contribution to GSP	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%
Direct effects								
Fishing	30.0	33%	90	24%	9.0	36%	24.5	47%
Processing	12.4	14%	45	12%	2.8	11%	4.0	8%
Transport	2.1	2%	8	2%	0.5	2%	0.9	2%
Retail	0.0	0%	0	0%	0.0	0%	0.0	0%
Food services	0.7	1%	5	1%	0.2	1%	0.3	1%
Capital expenditure ^b	0.7	1%	4	1%	0.2	1%	0.3	1%
Total Direct ^c	45.9	50%	152	39%	12.6	49%	30.0	56%
Flow-on effects								
Trade	7.0	8%	60	16%	2.3	9%	3.3	6%
Manufacturing	9.1	10%	79	21%	2.0	8%	3.0	6%
Business Services	5.9	6%	26	7%	2.1	8%	2.8	5%
Transport	2.7	3%	18	5%	0.6	2%	1.1	2%
Other Sectors	20.5	23%	42	11%	5.5	22%	12.5	24%
Total Flow-on ^c	45.2	50%	225	60%	12.5	50%	22.7	43%
Total ^c	91.1	100%	377	100%	25.1	100%	52.7	100%
Total/Direct	2.0	-	2.5	-	2.0	-	1.8	-
Total/Tonne	\$108,800	-	0.45	-	\$30,000	-	\$62,900	-

^a Full-time equivalent jobs. Direct employment in the fishing sector was comprised of 78 full-time and 37 part-time jobs, that is, 115 jobs in aggregate, which was estimated to be equal to 90 fte.

^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.

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 2008/09, total Abalone fishing industry related contribution to GSP in South Australia was \$52.7 million (\$39.2 million in the Eyre/Western region), \$24.5 million generated by fishing directly, \$5.5 million generated by downstream activities and \$22.7 million generated in other sectors of the state economy.

Table 3.7 The economic impact of the Abalone fishing industry in the Eyre/Western region, 2008/09

Sector	Output		Employment ^a		Household Income		Contribution to GRP		Population	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%	(no.)	%
Direct effects										
Fishing	30.0	47%	90	39%	9.0	52%	24.5	63%	129	38%
Processing	12.4	19%	36	15%	2.7	16%	3.9	10%	53	16%
Transport	0.5	1%	2	1%	0.1	1%	0.2	1%	3	1%
Retail	0.0	0%	0	0%	0.0	0%	0.0	0%	0	0%
Food services	0.0	0%	0	0%	0.0	0%	0.0	0%	0	0%
Capital expenditure ^b	0.4	1%	3.2	1%	0.1	1%	0.2	0%	5	1%
Total Direct ^c	43.4	67%	131	55%	12.0	69%	28.8	73%	190	54%
Flow-on effects										
Trade	3.9	6%	36	15%	1.3	8%	1.9	5%	53	16%
Manufacturing	4.2	7%	48	20%	0.9	5%	1.3	3%	18	5%
Business Services	2.1	3%	10	4%	0.7	4%	1.0	2%	15	4%
Transport	1.6	3%	8	4%	0.4	2%	0.7	2%	10	3%
Other Sectors	8.5	13%	0	0%	2.0	11%	5.6	14%	56	16%
Total Flow-on ^c	20.3	32%	102	44%	5.3	31%	10.4	27%	152	44%
Total ^c	63.7	100%	233	100%	17.2	100%	39.2	100%	342	100%
Total/Direct	1.5	-	1.8	-	1.4	-	1.4	-	1.8	-
Total/Tonne	\$76,000	-	0.28	-	\$20,500	-	\$46,800	-	0.41	-

^a Full-time equivalent jobs. Direct employment in the fishing sector was comprised of 78 full-time and 37 part-time jobs, that is, 115 jobs in aggregate, which was estimated to be equal to 90 fte.

^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.

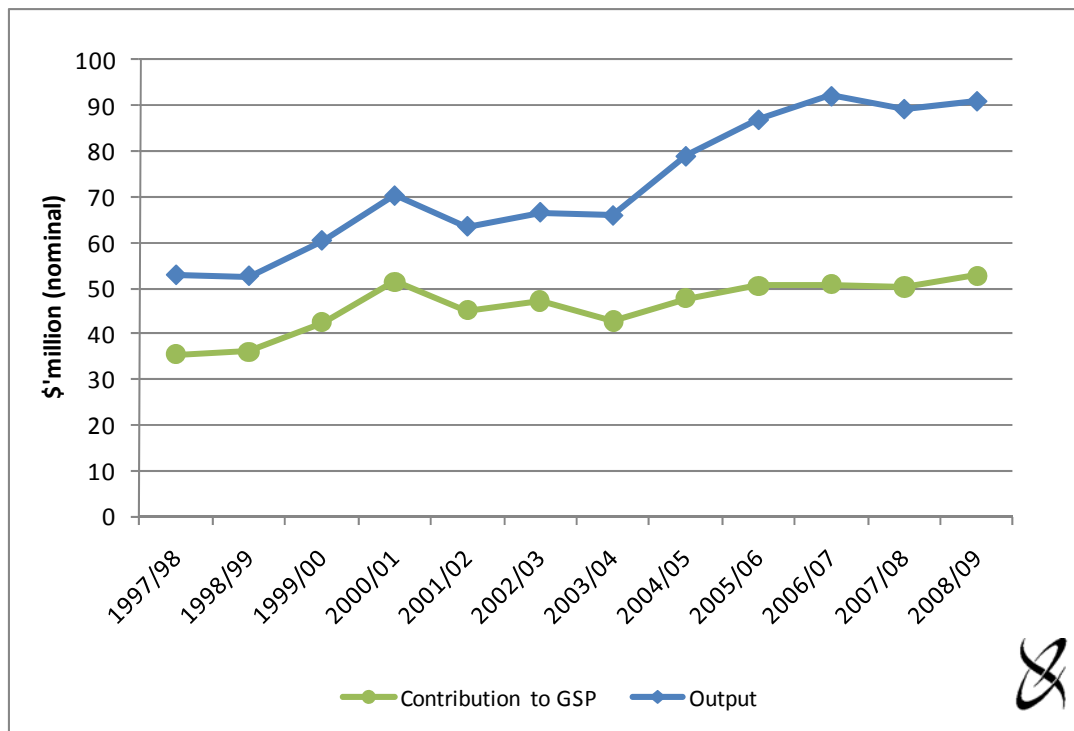
Total impacts over time...

Figures 3.3 and 3.4 illustrate the total economic impact of the fishery on the SA economy for the 12 years, 1997/98 to 2008/09. Estimates of economic impact are expressed in nominal terms. 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 April 2002. Estimates for 2004/05 to 2006/07 are based on the third survey of licence holders conducted in February - March 2006. Estimates of economic impact for 2007/08 and 2008/09 are based on the most recent survey of licence holders conducted in early 2009.

The economic impact of the SA Abalone 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. Estimates of economic impact for the period 2003/04 to 2007/08 have been revised based on updated margins and prices in the 2006/07 PIRSA *ScoreCard (Seafood Scorecard, 2006/07)*.

Figure 3.3 Total gross state product and output impact of the SA Abalone fishery on the SA economy, 1997/98 to 2008/09 ^a



^a The economic impact of the SA Abalone 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.

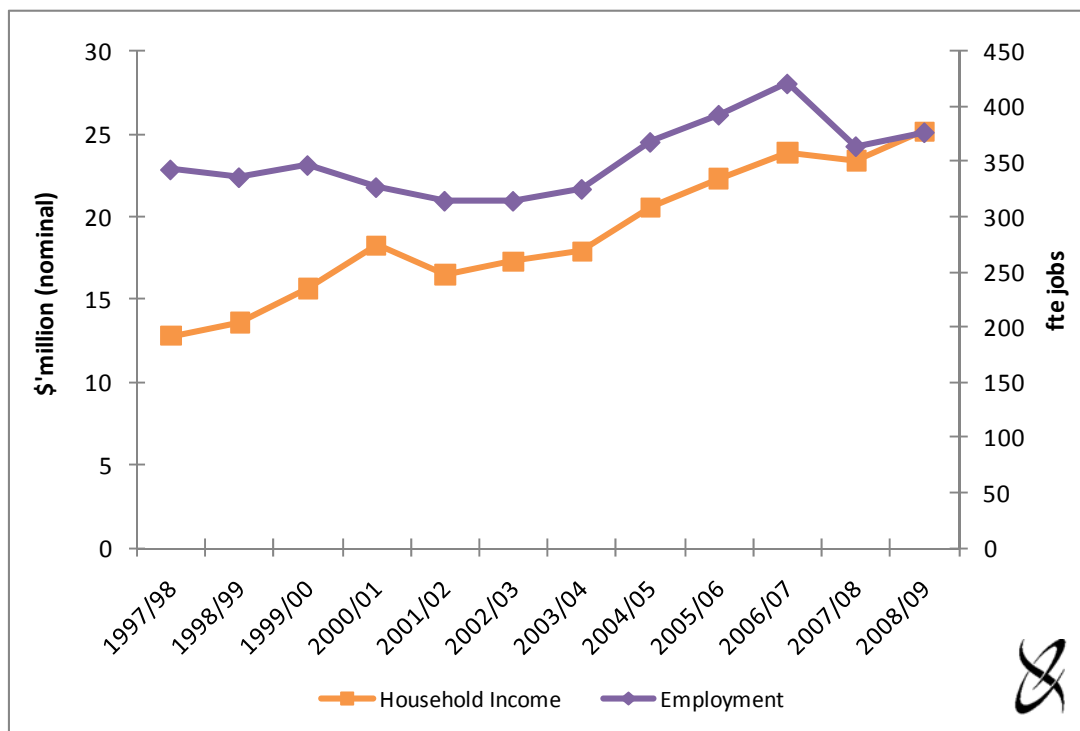
Source: EconSearch (2009a) and EconSearch analysis

As economic impact estimates for the years 1997/98 to 2008/09 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 an increase in the total employment impact of the fishery between 1997/98 and 2008/09, as illustrated in Figure 3.4.

Figure 3.4 Total employment and household income impact of the SA Abalone fishery on the SA economy, 1997/98 to 2008/09 ^a



^a See footnote for Figure 3.3.

Source: EconSearch (2009a) and EconSearch analysis

3.5.3 Additional expenditures and impacts

In addition to the impacts generated by recurrent expenditures in the abalone industry (as detailed in Table 3.6 and 3.7), further regional economic impacts are generated by the investment of abalone profits in new, local ventures by abalone licence holders.

In principle, for any new venture to succeed it must eventually be producing goods or services at a price sufficient to cover the cost of production and yield a return on the initial investment. By that stage, the impact generated by the “new” venture can be attributed to the venture itself and the demand for the goods or services it produces.

However, for many businesses the time period from initial investment to self-sufficiency can take several years (e.g. a vineyard taking three to four years before the first commercial harvest). It is during this establishment phase that the impacts of the new venture can be attributed to the source of the investment.

Anecdotal evidence from the survey suggested that profits generated in the abalone industry have been and continue to be used to finance new ventures. The 2009 licence-holder survey indicated that substantial local investment has been made in new ventures and existing businesses or assets in recent years. Average annual investment expenditures in new and existing enterprises are reported in Table 3.8.

Table 3.8 Average annual local investment expenditures by licence holders in the SA Abalone fishery, 2003/04 to 2007/08

	Existing Businesses/ Assets (e.g. motels, farms, shares, real estate) (\$m)	New Enterprises (e.g. aquaculture, horticulture, property development) (\$m)	Total (\$m)
Estimated Average Annual Expenditure per Licence Holder ^a	0.129	0.104	0.233
Estimated Aggregate Annual Expenditure for the Abalone Fishery ^b	4.499	3.656	8.155

^a Based on survey respondents' estimated investment expenditures over the 5 years, 2003/04 to 2007/08.

^b These estimates are based on a sample (15) of licence holders. Given the 'lumpy' nature of investment expenditure they may or may not be representative of all licence holders.

Source: EconSearch analysis

While investment in existing businesses has the potential to add significantly to local economic activity, the approach taken to estimate the regional economic impact was to focus solely on investment in new, local enterprises as these investments are unquestionably a net addition to local economic activity. The impacts of local investment expenditure in new enterprises are reported in Table 3.9.

Table 3.9 Regional economic impact of local investment expenditures in new enterprises by licence holders in the SA Abalone fishery, 2007/08^a

Sector	Investment/ Turnover (\$m)	Employment (fte jobs)	Household income (\$m)	Contribution to GRP (\$m)
Investment Sectors (direct)	3.66	21	0.70	1.50
All other sectors ^a (indirect)	1.70	13	0.50	0.86
Total	5.35	34	1.20	2.36

^a 'All other sectors' refers to the other industry sectors in the regional economy such as manufacturing, trade, business and property services, transport and finance.

Source: EconSearch analysis

The estimated impacts of local investment by abalone licence holders in 2007/08, shown in Table 3.9, indicate the extent to which such investments add to the already significant regional contribution of the industry.

3.6 Economic Rent

Economic rent⁸ 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 abalone fishery and the good produced is the landed abalone.

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), 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, potential 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 abalone fishery was estimated to have decreased from \$13.8 million in 2007/08 to \$12.9 million in 2008/09 (Table 3.10). In nominal terms, the economic rent in 2008/09 was just below that estimated in the first year of the series (\$13.5 million in 1997/98) but well below the peak year estimate of \$23.1 million in 2000/01.

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 in 2008/09 was estimated to be approximately \$269.3 million (35 licences with an average value of approximately \$7.7 million). An annual economic rent of \$12.9 million represents a return of 4.8 per cent to the capital value of the fishery.

⁸ Economic rent is comprised of three types of rent: entrepreneurial rent, quasi-rent and resource rent. As in any business some operators are more skillful 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 in the SA Abalone fishery, 1997/98 to 2008/09 (\$'000)

	Gross Income	Less Labour	Less Cash Costs	Less Depreciation	Less Opportunity Cost of Capital (@10%)	Economic Rent
1997/98	26,883	7,764	4,551	643	419	13,506
1998/99	27,161	8,074	3,923	637	415	14,112
1999/00	32,394	9,849	3,879	653	426	17,587
2000/01	40,011	11,284	3,879	1,223	567	23,059
2001/02	34,755	10,753	4,049	1,257	583	18,113
2002/03	36,289	12,213	4,317	1,308	606	17,846
2003/04	31,582	11,573	4,605	1,347	624	13,433
2004/05	35,549	9,081	6,036	1,899	953	17,581
2005/06	35,589	9,908	6,228	2,309	1,158	15,986
2006/07	33,140	10,039	6,386	2,314	1,161	13,240
2007/08	30,715	9,228	5,357	1,359	965	13,805
2008/09	29,699	8,973	5,403	1,391	988	12,944

Source: EconSearch analysis

4. Other Economic Indicators

4.1 Factors Influencing the Economic Condition of the Abalone Fishery

There are a number of factors in 2008/09 that have impacted on the economic performance of the fishery. Most of these are likely to continue to affect economic outcomes in the future.

4.1.1 Illegal, unregulated and unreported Abalone fishing activity

Illegal, unregulated and unreported abalone fishing activity is an ongoing problem that has the potential to cost the industry millions of dollars in lost income. It undermines the existing management systems that are in place to ensure the sustainability of the resource. This practice also undercuts the economic benefits received by legitimate abalone fishers.

It is difficult to determine the actual level of illegal, unregulated or unreported catch of abalone in South Australia. Between 2004/05 to 2007/08, PIRSA Fisheries received 242 Information Reports (IRs) relating to illegal take of abalone in the southern zone of the fishery. Some of the IRs indicated that significant quantities of abalone were being taken, however there is no way of validating to total weight of abalone taken illegally (Mayfield et. al. 2009).

During 2007/08, PIRSA Fisheries identified 728 abalone that were taken illegally in the western zone fishery (Chick et al. 2009). PIRSA Fisheries have estimated total illegal catch of abalone in the western zone to be approximately 11 tonnes in 2007/08 (Chick et al. 2009).

PIRSA Fisheries identified that 26,840 individual abalone may have been taken illegally in the central zone fishery in 2007 (Mayfield et. al. 2008). Based on the assumption that the average weight of abalone taken illegally was equivalent to the legal minimum weight (113g) the total illegal harvest in the central zone is estimated to be approximately 3 tonnes (Mayfield et. al. 2008).

To illustrate the ongoing nature of the problem, in May 2008, two men were charged with offences relating to illegal abalone fishing and possession. A significant amount of illegally harvested and undersize abalone was recovered (MCCN 2008a). In April 2008, two men were charged with a number of abalone related fisheries offences. Charges included taking over the bag limit of abalone and taking undersize abalone (MCCN 2008b). In early 2010 Fisheries and SA Police Officers caught five men allegedly involved in the illegal taking and possession of more than 450 abalone (PIRSA 2010a). At Cape Elizabeth, two men were found taking 32 abalone, of which 26 were undersized. At Parsons Beach, three men were reported for taking 631 abalone, of which only two were of legal size (PIRSA 2010b).

Illegal, unregulated and unreported abalone fishing was raised as a concern by many licence holders who participated in the 2009 survey and is discussed in Section 4.2.

4.1.2 Stock assessment

Western Zone

The western zone is divided into two regions, region A and region B. The assessment of the stock within the regions is based upon commercial catch per unit of effort (CPUE) data and some limited information that is available on the size composition of the catch. There are two species harvested in the western zone, greenlip and blacklip abalone. Catch and effort and size indicators, for the years 2004 to 2008, are detailed for region A and B in Tables 4.1 and 4.2, respectively.

Table 4.1 Biological performance indicators, Western Zone Abalone, region A

Indicator	CPUE (kg/hr)					Mean size (mm)				
	2004	2005	2006	2007	2008	2004	2005	2006	2007	2008
Blacklip Abalone										
Area 4	81.1	77.1	92.2	75.8	76.7	151.2	147.5	157.4	150.3	146.5
Area 5	80.1	77.1	77.2	77.4	76.5	147.8	151.3	154.3	151.5	149.0
Area 6	86.4	97.1	91.6	73.8	73.5	161.1	153.1	164.1	153.1	n.a.
Area 9	87.0	87.8	75.9	71.3	71.1	150.5	152.7	153.6	154.3	152.2
Area 11	97.2	96.7	99.0	90.6	91.6	143.7	150.0	149.0	153.1	149.6
Area 12	75.6	73.6	89.4	79.7	77.5	146.6	143.3	144.5	150.9	n.a.
Area 14	63.8	72.7	76.7	79.7	71.7	145.3	150.1	147.3	147.2	155.9
Greenlip Abalone										
Area 8	96.1	79.0	87.7	103.0	94.0	170.7	160.0	158.8	163.6	165.0
Area 9	75.8	82.0	74.3	72.8	66.4	168.6	169.1	165.3	169.2	169.4
Area 14	99.6	91.0	92.1	92.5	86.2	163.4	167.4	160.8	161.8	166.3
Area 18	74.7	80.2	73.2	74.9	67.8	172.6	167.2	170.5	171.7	175.0
Area 19	80.3	84.5	74.6	77.0	77.5	167.0	167.4	170.2	171.4	167.3

Source: Chick et al. (2009)

Table 4.2 Biological performance indicators, Western Zone Abalone, region B

Indicator	Greenlip Abalone					Blacklip Abalone				
	2002	2003	2004	2005	2006	2002	2003	2004	2005	2006
CPUE (kg/hr)	51.0	55.1	50.8	46.4	44.1	62.2	56.2	48.3	54.4	56.8
Mean size (mm)	n.a.	n.a.	163.7	169.8	164.9	n.a.	n.a.	145.1	150.3	148.7

Source: Chick et al. (2007)

Central Zone

There are two species harvested in the central zone, blacklip and greenlip abalone. The assessment of the status of both species in the central zone is reliant upon catch and effort data and measurements of average size of abalone harvested. The total allowable commercial catch (TACC) for blacklip abalone in the central zone was reduced from 42.3 tonnes in 2004 to 29.0 tonnes in 2005. The TACC for greenlip abalone has remained unchanged at 143.1 tonnes (Mayfield et al. 2008). Catch and effort and size indicators, for the years 2003 to 2007, are detailed in Table 4.3.

Table 4.3 Biological performance indicators, Central Zone Abalone

Indicator	CPUE (kg/hr)					Mean size (mm)				
	2003	2004	2005	2006	2007	2003	2004	2005	2006	2007
Greenlip Abalone										
Area 21	94.6	96.2	80.4	91.7	86.0	146.8	147.1	147.9	145.7	145.9
Area 24	52.0	56.8	63.0	68.8	59.1	157.0	153.1	154.5	-	148.9
Blacklip Abalone										
Area 26	74.4	79.1	72.6	73.6	81.9	147.5	147.6	147.2	147.2	149.3
Area 27	70.4	80.5	81.0	61.4	63.3	148.9	147.0	142.8	146.0	147.2

Source: Mayfield et al. (2008)

Southern Zone

Blacklip abalone comprises approximately 98 per cent of the total catch from the southern zone of the abalone fishery. As a result there is little information available regarding the status of the greenlip species in this area. Stock assessment of blacklip abalone in the southern zone relies upon catch and effort data and measurements of average size of abalone harvested.

In 2003 the southern zone fishery was separated into fish-down and non-fish-down areas. Within the fish-down areas the abalone generally have a smaller maximum size or a slower growth rate than the other areas of the fishery (Mayfield et al. 2005d). Catch and effort and size indicators for both fish-down and non-fish-down areas, for the years 2004 to 2008, are detailed in Table 4.4.

Table 4.4 Biological performance indicators, Southern Zone Abalone

Indicator	CPUE (kg/hr)					Mean size (mm)				
	2004	2005	2006	2007	2008	2004	2005	2006	2007	2008
Blacklip Abalone (non fish-down areas)										
Area 35	98.2	111.9	89.2	90.5	91.5	138.7	143.7	141.0	137.2	142.2
Area 36	119.8	137.5	99.8	96.5	91.6	n.a.	141.5	139.5	138.3	137.8
Area 37	110.9	116.6	108.1	93.9	102.9	135.9	137.2	137.6	135.8	138.2
Area 39	96.8	105.2	95.4	93.01	87.3	137.4	134.4	136.8	136.6	136.4
Area 40	97.7	101.5	114.7	111.6	99.4	137.8	n.a.	133.7	136.9	136.3
Blacklip Abalone (fish-down areas)										
FDA 1	89.0	115.1	109.9	108.8	104.0	126.3	135.9	124.9	126.0	133.9
FDA 2	65.5	69.6	n.a.	69.9	n.a.	119.2	128.3	n.a.	129.4	n.a.
FDA 3	114.0	110.5	111.3	121.3	112.2	130.4	123.5	128.0	128.3	130.4
FDA 4	104.0	101.3	86.3	89.1	90.1	129.5	130.0	128.8	129.7	125.3

Source: Mayfield et al. (2009)

4.1.3 Exchange rates

A large proportion of the South Australian abalone catch is exported overseas (Section 4.3). 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 abalone exports. The Australian dollar generally followed a sharp decreasing trend for the first half of 2008/09 falling from US94 cents in July 2008 to US64 cents in January 2009. The value of the Australian dollar increased in the latter half of 2008/09 reaching US81 cents by June 2009.

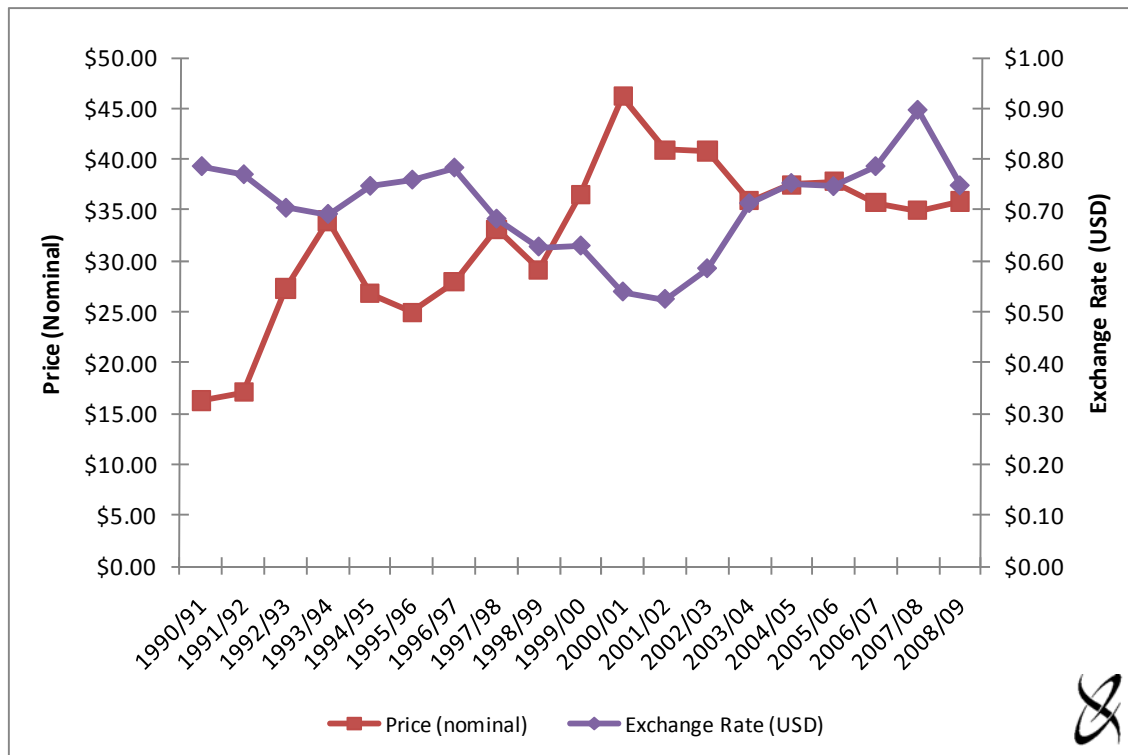
The average exchange rate in 2008/09 was US\$0.75, a decrease of 17 per cent compared to the average for the previous year (Figure 4.1). Other things held equal, a fall in the value of the currency would have the effect of increasing the price of abalone received by Australian exporters between 2007/08 and 2008/09.

The most significant export destination for South Australian abalone in 2008/09 was Hong Kong (Table 4.5). Thus it may be useful to compare the value of the Australian dollar with the Hong Kong dollar (HKD). The average rate of exchange in 2007/08 was 6.99 HKD decreasing to 5.81 (HKD) in 2008/09.

The relationship between the price of abalone and the exchange rate over the past 19 years can be readily observed in Figure 4.1. 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 price for SA abalone for the period 1990/91 to 2008/09 is -0.52 . This indicates that there is a strong inverse relationship between the two variables. Thus, when the Australian dollar appreciates, as it did between 2000/01 and 2007/08, there is, generally, a corresponding decline in the average price of SA abalone.

Figure 4.1 Exchange rate (USD) and price for SA Abalone, 1990/91 to 2008/09



Source: SARDI Aquatic Sciences and RBA (2009b and previous issues)

4.2 Licence Holder Comments

In the 2008 survey licence holders highlighted some key issues that have the potential to affect the economic performance of the fishery.

Exchange rates

Many licence holders highlighted the impact of exchange rate fluctuations on the value of their catch. As noted in the previous section, there is a strong inverse relationship between the value of the AUD (compared to USD) and the price for abalone in South Australia. As the majority of South Australian abalone is exported, the price of abalone is strongly influenced by the value of the Australian dollar. Licence holders indicated that a higher exchange rate in 2007/08 meant that they received lower prices for exported abalone.

Fisheries management

A number of licence holders indicated that they felt the licence fees paid were too high compared to other fisheries. Some licence holders suggested that some of the fisheries management activities could be outsourced to reduce the costs of management.

A summer closure of the fishery was suggested as abalone weigh less during the summer months. Fishing in the summer results in more fish being taken per kilogram compared to fishing in the winter time.

There was some concern among licence holders regarding the level of illegal activity in the fishery. Illegal, unregulated and unreported abalone fishing is an ongoing problem in the fishery that has the potential to cause significant environmental and economic problems, as mentioned in Section 4.1.

Competition from aquaculture

There was some concern among licence holders regarding competition from abalone aquaculture. Some licence holders indicated that abalone aquaculture developments had been financially unviable and therefore hadn't impacted on the market for wild catch abalone.

Other comments

A number of licence holders indicated that they are now contracting out services such as diving and boat maintenance rather than employing labour or undertaking these tasks themselves.

One licence holder indicated that the value of the fishing licence is unlikely to continue to increase rapidly unless there is a significant increase in the value of the product.

Licence holders indicated that the industry needed to look at marketing and market development to improve the value of the product.

4.3 Abalone Exports from South Australia

The total quantity of abalone products exported in 2008/09 represented approximately 53 per cent of total South Australian abalone catch, compared 81 per cent in the previous year.⁹

The total value of abalone products exported is approximately 38 per cent greater than the estimated GVP for the fishery as a whole (Tables 4.5 and 3.1). The estimate of GVP reported in Table 3.1 reflects the beach price of landed abalone. The value of exports reflects the free on board (fob) price of processed and packaged abalone. The value of abalone exports, therefore, include processing, transport and trade margins.

⁹ Export data only include product that is exported directly from South Australia. Therefore, product that is shipped interstate prior to export is not included. Export data could also include abalone grown in aquaculture in addition to wild caught abalone.

Table 4.5 and the associated data in Appendix Tables 2.1 and 2.2 provide a breakdown of total abalone exports from SA by country of destination for 2006/07 to 2008/09. The most significant export destination in 2008/09 was Hong Kong, accounting for 72 per cent of the total quantity and 79 per cent of the total value of exports.

Table 4.5 Abalone exports from SA, by country of destination, 2006/07 to 2008/09

Destination	2006/07		2007/08		2008/09	
	Quantity (kg)	Value (\$'000)	Quantity (kg)	Value (\$'000)	Quantity (kg)	Value (\$'000)
Canada	11,246	1,457	27,005	1,909	13,864	1,397
China	1,835	397	1,679	313	1,859	584
Hong Kong	382,190	40,880	515,617	34,708	317,571	32,614
Japan	86,948	5,022	103,297	3,553	51,466	2,137
Malaysia	4,095	433	11,265	619	15,597	965
Singapore	20,337	1,882	18,590	1,565	18,796	1,714
Taiwan	4,319	481	6,490	312	2,610	204
USA	21,821	2,782	34,546	2,180	17,742	1,593
Other	15,275	806	5,100	251	1,739	168
Total	548,064	54,141	723,589	45,410	441,244	41,377

Source: ABS data (unpublished)

Table 4.6 and the associated data in Appendix Tables 2.1 and 2.2 provide a breakdown of total abalone exports from SA by product type. The most significant product exported was preserved abalone, accounting for 65 per cent of the total quantity and 54 per cent of the total value of total exports in 2008/09.

Table 4.6 Abalone exports from SA, by product type, 2006/07 to 2008/09

Product	2006/07		2007/08		2008/09	
	Quantity (kg)	Value (\$'000)	Quantity (kg)	Value (\$'000)	Quantity (kg)	Value (\$'000)
Preserved	290,225	29,347	467,724	23,436	286,314	22,424
Live	0	0	4,945	160	1,747	103
Frozen Meat	146,582	18,064	148,583	15,547	98,806	14,046
Frozen Whole on Shell	77,288	3,786	82,836	3,004	44,299	1,737
Dried	10,485	1,513	2,639	2,165	3,205	2,638
Parboiled - Whole	9,190	352	4,336	227	4,450	173
Other	14,294	1,079	12,526	871	2,423	256
Total	548,064	54,141	723,589	45,410	441,244	41,377

^a Weight of preserved abalone is based on the number or cartons exported and on the assumption that the average weight per carton is 6.5kg (David Pickles, Dover Fisheries Pty Ltd, pers. comm.).

Source: ABS data (unpublished)

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Appendix 1 Economic Impact of the South Australian Abalone Fishery, 2007/08

Appendix Table 1.1 The economic impact of the Abalone fishing industry in South Australia, 2007/08

Sector	Output		Employment ^a		Household Income		Contribution to GSP	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%
Direct effects								
Fishing	31.0	34.7%	90	24.8%	9.2	39.5%	25.6	50.9%
Processing	13.2	14.7%	39	10.8%	1.9	8.2%	3.1	6.1%
Transport	2.2	2.5%	10	2.7%	0.7	3.1%	1.1	2.1%
Retail	0.0	0.0%	0	0.0%	0.0	0.0%	0.0	0.0%
Food services	0.3	0.4%	3	0.7%	0.1	0.4%	0.1	0.3%
Capital expenditure ^b	0.7	0.8%	5	1.3%	0.2	0.9%	0.3	0.6%
Total Direct ^c	47.5	52.3%	147	39.0%	12.2	51.1%	30.1	59.4%
Flow-on effects								
Trade	5.9	6.6%	60	16.5%	2.2	9.4%	2.7	5.5%
Manufacturing	8.6	9.6%	26	7.0%	1.3	5.4%	2.0	4.0%
Business Services	4.9	5.4%	27	7.5%	1.8	7.6%	2.3	4.6%
Transport	2.3	2.6%	10	2.8%	0.8	3.2%	1.1	2.2%
Other Sectors	20.2	22.7%	95	26.0%	5.2	22.4%	11.9	23.8%
Total Flow-on ^c	41.9	46.9%	217	59.7%	11.2	48.0%	20.1	40.0%
Total ^c	89.4	100.0%	364	100.0%	23.4	100.0%	50.2	100.0%
Total/Direct	1.9	-	2.5	-	1.9	-	1.7	-
Total/Tonne	\$100,500	-	0.41	-	\$26,300	-	\$56,500	-

^a Full-time equivalent jobs. Direct employment in the fishing sector was comprised of 78 full-time and 37 part-time jobs, that is, 115 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

Appendix Table 1.2 The economic impact of the Abalone fishing industry in the Eyre region, 2007/08

Sector	Output		Employment ^a		Household Income		Contribution to GRP	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%
Direct effects								
Fishing	31.0	48.8%	90	33.2%	9.2	54.2%	25.6	65.3%
Processing	13.2	20.7%	58	21.1%	2.4	14.3%	3.7	9.4%
Transport	0.5	0.8%	3	1.0%	0.2	1.0%	0.3	0.7%
Retail	0.0	0.0%	0	0.0%	0.0	0.0%	0.0	0.0%
Food services	0.0	0.0%	0	0.1%	0.0	0.0%	0.0	0.0%
Capital expenditure ^b	0.4	0.7%	4	1.6%	0.2	0.9%	0.2	0.6%
Total Direct ^c	45.2	70.3%	155	55.4%	12.0	69.5%	29.7	75.4%
Flow-on effects								
Trade	3.3	5.1%	38	14.0%	1.2	7.1%	1.5	3.9%
Manufacturing	2.1	3.3%	9	3.4%	0.4	2.3%	0.6	1.5%
Business Services	1.5	2.3%	9	3.4%	0.5	3.0%	0.7	1.8%
Transport	1.3	2.1%	7	2.7%	0.5	2.7%	0.7	1.7%
Other Sectors	10.2	16.1%	53	19.5%	2.5	14.6%	5.9	15.0%
Total Flow-on ^c	18.4	29.0%	117	43.0%	5.0	29.6%	9.4	24.0%
Total ^c	63.6	100.0%	273	100.0%	17.0	100.0%	39.1	100.0%
Total/Direct	1.4	-	1.8	-	1.4	-	1.3	-
Total/Tonne	\$71,500	-	0.31	-	\$19,100	-	\$44,000	-

^a Full-time equivalent jobs. Direct employment in the fishing sector was comprised of 78 full-time and 37 part-time jobs, that is, 115 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

Appendix 2 Abalone Exports from South Australia, 2008/09

Appendix Table 2.1 Abalone exports from South Australia, quantity (kg), 2008/09

	Preserved ^a	Live	Frozen Meat	Frozen Whole on Shell	Dried	Parboiled - Whole	Other	Total
Canada	9,649	0	4,215	0	0	0	0	13,864
China	214	0	900	0	745	0	0	1,859
France	0	0	0	0	0	0	0	0
Hong Kong	219,429	1,597	90,602	1,950	2,090	500	1,403	317,571
Japan	5,273	0	0	42,243	0	3950	0	51,466
Macau	1,714	0	0	0	15	0	0	1,729
Malaysia	15,341	140	0	6	110	0	0	15,597
Singapore	17,121	0	410	0	245	0	1,020	18,796
Taiwan	2,610	0	0	0	0	0	0	2,610
Thailand	0	0	0	0	0	0	0	0
USA	14,963	0	2,679	100	0	0	0	17,742
Total	286,314	1,747	98,806	44,299	3,205	4,450	2,423	441,244

^a Based on the assumption that the average weight per carton is 6.5kg (David Pickles, Dover Fisheries pers. comm.).

Source: ABS data (unpublished)

Appendix Table 2.2 Abalone exports from South Australia, value (\$'000 fob), 2008/09

	Preserved	Live	Frozen Meat	Frozen Whole on Shell	Dried	Parboiled - Whole	Other	Total
Canada	790	0	607	0	0	0	0	1,397
China	12	0	129	0	444	0	0	584
France	0	0	0	0	0	0	0	0
Hong Kong	17,557	96	12,859	116	1,807	16.85	162	32,614
Japan	364	0	0	1,616	0	156.576	0	2,137
Macau	154	0	0	0	14	0	0	167
Malaysia	817	6	0	0	142	0	0	965
Singapore	1,334	0	54	0	232	0	94	1,714
Taiwan	204	0	0	0	0	0	0	204
Thailand	0	0	0	0	0	0	0	0
USA	1,192	0	397	4	0	0	0	1,593
Total	22,424	103	14,046	1,737	2,638	173	256	41,377

Source: ABS data (unpublished)

Appendix 3 Financial Performance Indicators, 1997/98 to 2005/06

Appendix Table 4.1 Financial performance in the SA Abalone fishery, 1997/98 to 1999/00 (average per licence) ^a

	1997/98		1998/99		1999/00	
	Average per Licence	Share of TBCC ^b	Average per Licence	Share of TBCC ^b	Average per Licence	Share of TBCC ^b
(1) Total Boat Gross Income	\$751,286		\$776,029		\$925,543	
Variable Costs						
Fuel	\$11,483	3%	\$11,808	3%	\$15,420	4%
Repairs & Maintenance ^c	\$21,524	6%	\$23,824	7%	\$21,257	5%
Bait/Ice	\$176	0%	\$195	0%	\$174	0%
Provisions	\$1,532	0%	\$1,696	0%	\$1,513	0%
Labour - paid	\$196,954	55%	\$209,643	59%	\$257,135	64%
(2) - unpaid ^d	\$12,463	3%	\$13,266	4%	\$16,271	4%
Other	\$3,909	1%	\$3,960	1%	\$4,060	1%
(3) Total Variable Costs	\$248,041	70%	\$264,392	75%	\$315,830	78%
Fixed Costs						
Licence Fee	\$66,294	19%	\$48,033	14%	\$45,278	11%
Insurance	\$4,375	1%	\$4,433	1%	\$4,544	1%
(4) Interest	\$11,969	3%	\$11,048	3%	\$12,232	3%
(5) Labour - unpaid ^d	\$7,547	2%	\$7,777	2%	\$7,998	2%
Legal & Accounting	\$5,056	1%	\$5,123	1%	\$5,252	1%
Telephone etc.	\$2,926	1%	\$2,965	1%	\$3,039	1%
Slipping & Mooring	\$355	0%	\$360	0%	\$369	0%
Travel	\$2,953	1%	\$2,992	1%	\$3,067	1%
Office & Admin	\$6,605	2%	\$6,692	2%	\$6,860	2%
(6) Total Fixed Costs	\$108,080	30%	\$89,422	25%	\$88,639	22%
(7) Total Boat Cash Costs (3 + 6)	\$356,121	100%	\$353,813	100%	\$404,470	100%
Boat Gross Margin (1 - 3)	\$503,245		\$511,637		\$609,712	
(8) Total Unpaid Labour (2 + 5)	\$20,010		\$21,043		\$24,269	
Gross Operating Surplus (1 - 7 + 8)	\$415,175		\$443,258		\$545,342	
(9) Boat Cash Income (1 - 7)	\$395,165		\$422,215		\$521,073	
(10) Depreciation	\$17,971		\$18,207		\$18,665	
(11) Boat Business Profit (9 - 10)	\$377,194		\$404,008		\$502,408	
(12) Profit at Full Equity (11 + 4)	\$389,163		\$415,056		\$514,640	
Boat Capital						
(13) Fishing Gear & Equip	\$117,138		\$118,679		\$121,665	
Licence Value	\$3,741,667		\$3,990,620		\$4,948,080	
(14) Total Boat Capital	\$3,858,804		\$4,109,299		\$5,069,745	
Rate of Return on Fishing Gear & Equip (12 / 13 * 100)	332.2%		349.7%		423.0%	
Rate of Return on Total Boat Capital (12 / 14 * 100)	10.1%		10.1%		10.2%	

^a Financial performance estimates are based on the October 1998 survey of licence holders

^b Total boat cash costs.

^c Repairs and maintenance costs have been classified as a variable cost although it is noted that some of these costs may be fixed (e.g. regulated maintenance).

^d Unpaid labour was divided between variable (time spent fishing and on repairs and maintenance) and fixed (management and administrative duties) based on survey responses.

Source: EconSearch analysis

Appendix Table 4.2 Financial performance in the SA Abalone fishery, 2000/01 to 2002/03 (average per licence)^a

	2000/01		2001/02		2002/03	
	Average per Licence	Share of TBCC ^b	Average per Licence	Share of TBCC ^b	Average per Licence	Share of TBCC ^b
(1) Total Boat Gross Income	\$1,143,171		\$993,000		\$1,036,829	
Variable Costs						
Fuel	\$10,862	2%	\$10,764	3%	\$11,478	2%
Repairs & Maintenance ^c	\$24,315	6%	\$25,164	6%	\$27,151	6%
Bait/Ice	\$126	0%	\$130	0%	\$141	0%
Provisions	\$944	0%	\$977	0%	\$1,054	0%
Labour - paid	\$294,424	67%	\$280,039	66%	\$320,791	68%
(2) - unpaid ^d	\$12,583	3%	\$11,295	3%	\$12,252	3%
Other	\$3,217	1%	\$3,306	1%	\$3,439	1%
(3) Total Variable Costs	\$346,471	79%	\$331,675	78%	\$376,305	79%
Fixed Costs						
Licence Fee	\$45,441	10%	\$48,712	11%	\$52,372	11%
Insurance	\$4,568	1%	\$4,694	1%	\$4,882	1%
(4) Interest	\$3,189	1%	\$2,997	1%	\$2,958	1%
(5) Labour - unpaid ^d	\$15,382	4%	\$15,896	4%	\$15,896	3%
Legal & Accounting	\$5,953	1%	\$6,118	1%	\$6,363	1%
Telephone etc.	\$3,057	1%	\$3,142	1%	\$3,268	1%
Slipping & Mooring	\$437	0%	\$449	0%	\$467	0%
Travel	\$4,723	1%	\$4,854	1%	\$5,049	1%
Office & Admin	\$7,178	2%	\$7,377	2%	\$7,673	2%
(6) Total Fixed Costs	\$89,928	21%	\$94,240	22%	\$98,929	21%
(7) Total Boat Cash Costs (3 + 6)	\$436,400	100%	\$425,915	100%	\$475,234	100%
Boat Gross Margin (1 - 3)	\$796,700		\$661,325		\$660,524	
(8) Total Unpaid Labour (2 + 5)	\$27,964		\$27,192		\$28,148	
Gross Operating Surplus (1 - 7 + 8)	\$734,736		\$594,277		\$589,743	
(9) Boat Cash Income (1 - 7)	\$706,771		\$567,085		\$561,595	
(10) Depreciation	\$34,950		\$35,919		\$37,359	
(11) Boat Business Profit (9 - 10)	\$671,821		\$531,166		\$524,236	
(12) Profit at Full Equity (11 + 4)	\$675,010		\$534,163		\$527,194	
Boat Capital						
(13) Fishing Gear & Equip	\$161,955		\$166,443		\$173,116	
Licence Value	\$5,700,000		\$4,951,226		\$5,169,761	
(14) Total Boat Capital	\$5,861,955		\$5,117,669		\$5,342,876	
Rate of Return on Fishing Gear & Equip (12 / 13 * 100)	416.8%		320.9%		304.5%	
Rate of Return on Total Boat Capital (12 / 14 * 100)	11.5%		10.4%		9.9%	

^a Financial performance estimates are based on the April 2002 survey of licence holders

^{b-d} See notes for Appendix Table 4.1.

Source: EconSearch analysis

Appendix Table 4.3 Financial performance in the SA Abalone fishery, 2003/04 to 2005/06 (average per licence)^a

	2003/04		2004/05		2005/06	
	Average per Licence	Share of TBCC ^b	Average per Licence	Share of TBCC ^b	Average per Licence	Share of TBCC ^b
(1) Total Boat Gross Income	\$902,343		\$1,015,691		\$1,016,832	
Variable Costs						
Fuel	\$11,436	2%	\$14,369	3%	\$15,470	3%
Repairs & Maintenance ^c	\$27,410	6%	\$35,867	8%	\$37,974	8%
Bait/Ice	\$142	0%	\$280	0%	\$297	0%
Provisions	\$1,064	0%	\$8,767	2%	\$9,282	2%
Labour - paid	\$303,678	65%	\$236,945	54%	\$259,742	56%
(2) - unpaid ^d	\$12,252	3%	\$4,309	1%	\$4,476	1%
Other	\$3,542	1%	\$10,109	2%	\$10,593	2%
(3) Total Variable Costs	\$359,525	77%	\$310,645	71%	\$337,833	72%
Fixed Costs						
Licence Fee	\$59,454	13%	\$65,060	15%	\$65,408	14%
Insurance	\$5,030	1%	\$6,618	2%	\$6,935	1%
(4) Interest	\$3,035	1%	\$4,922	1%	\$4,983	1%
(5) Labour - unpaid ^d	\$15,896	3%	\$18,196	4%	\$18,882	4%
Legal & Accounting	\$6,555	1%	\$14,226	3%	\$14,907	3%
Telephone etc.	\$3,367	1%	\$3,540	1%	\$3,709	1%
Slipping & Mooring	\$481	0%	\$718	0%	\$752	0%
Travel	\$5,201	1%	\$4,164	1%	\$4,364	1%
Office & Admin	\$7,904	2%	\$8,735	2%	\$9,153	2%
(6) Total Fixed Costs	\$106,922	23%	\$126,179	29%	\$129,093	28%
(7) Total Boat Cash Costs (3 + 6)	\$466,447	100%	\$436,825	100%	\$466,927	100%
Boat Gross Margin (1 - 3)	\$542,818		\$705,046		\$678,999	
(8) Total Unpaid Labour (2 + 5)	\$28,148		\$22,505		\$23,358	
Gross Operating Surplus (1 - 7 + 8)	\$464,044		\$601,371		\$573,263	
(9) Boat Cash Income (1 - 7)	\$435,896		\$578,866		\$549,905	
(10) Depreciation	\$38,485		\$54,250		\$66,117	
(11) Boat Business Profit (9 - 10)	\$397,411		\$524,616		\$483,788	
(12) Profit at Full Equity (11 + 4)	\$400,446		\$529,538		\$488,771	
Boat Capital						
(13) Fishing Gear & Equip	\$178,332		\$272,202		\$331,745	
Licence Value	\$4,499,198		\$8,525,000		\$8,534,578	
(14) Total Boat Capital	\$4,677,530		\$8,797,202		\$8,866,323	
Rate of Return on Fishing Gear & Equip (12 / 13 * 100)	224.6%		194.5%		147.3%	
Rate of Return on Total Boat Capital (12 / 14 * 100)	8.6%		6.0%		5.5%	

^a Financial performance estimates for 2003/04 are based on the April 2002 survey of licence holders, estimates for 2004/05 and 2005/06 are based on the February-March 2006 survey of licence holders.

^{b-d} See notes for Appendix Table 4.1.

Source: EconSearch analysis

Appendix 4 Summary Economic Indicators for South Australian Commercial Fisheries

Appendix Table 4.1 Commercial fisheries catch, South Australia, 1990/91 to 2007/08 (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
2006/07	883	209	2,024	1,894	492	637	2,443	30,355	2,978	41,915
2007/08	889	229	2,088	1,850	459	668	2,146	29,692	3,002	41,023

^a Excludes the River fishery for the years 2003/04 to 2007/08.

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

Source: EconSearch (2009b)

Appendix Table 4.2 Commercial fisheries gross value of production, South Australia, 1990/91 – 2007/08 (\$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
2006/07	31.5	3.3	39.4	78.8	18.0	5.6	7.1	18.5	19.8	222.1
2007/08	31.0	2.9	33.0	75.7	15.9	5.7	5.9	16.3	20.9	207.5

^a SARDI estimates for the years 1990/91 to 2004/05, revalued SARDI estimates using average monthly processor prices for 2007/08.

^b 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 2007/08 Excludes the River fishery for the years 2003/04 to 2007/08

^c SARDI estimates for the years 1990/91 to 2002/03, revalued SARDI estimates for 2003/04 to 2007/08 using weighted average prices from Sydney and Melbourne fish markets and price data obtained from fishers.

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

Source: EconSearch (2009b)

Appendix Table 4.3 Cost of management in South Australian commercial fisheries, 2007/08

	Licence Fees (\$'000)	GVP (\$'000)	Fees/ GVP (%)	Catch ('000kg)	Fees/ Catch (\$/kg)	Licence Holders (no.)	Fees/ Licence (\$/licence)
Abalone	2,530	31,044	8.1%	889	\$2.85	35	\$72,286
GSV Prawns	302	2,924	10.3%	229	\$1.32	10	\$30,204
SG & WC Prawns	1,022	32,950	3.1%	2,088	\$0.49	42	\$24,334
Sth'n Zone Rock Lobster	2,628	75,731	3.5%	1,850	\$1.42	181	\$14,518
Nth'n Zone Rock Lobster	1,175	15,935	7.4%	459	\$2.56	68	\$17,287
Blue Crabs - Pots	228	5,423	4.2%	618	\$0.37	8	\$28,490
Blue Crabs – Marine Scale	11	314	3.4%	50	\$0.21	5	\$2,126
Lakes and Coorong ^a	282	7,544	3.7%	2,146	\$0.13	37	\$7,614
Marine Scalefish	2,010	20,917	12.3%	3,002	\$0.86	343	\$5,968
Sardines	690	16,331	4.2%	29,692	\$0.02	14	\$49,317
Total SA	10,879	209,113	5.2%	41,023	\$0.27	743	\$14,641

^a Excludes the River fishery.

^b Licence fees include access/entitlement fees paid by rock lobster and lakes and Coorong licence holders. Number of licence holders and average fee per licence holder relates only to marine scalefish licence holders and excludes access/entitlement holders from other fisheries.

Source: EconSearch (2009b)

Appendix Table 4.4 Financial performance in South Australian commercial fisheries, 2007/08, (\$'000) (average per boat)

	Abalone	GSV Prawns	SG & WC Prawns	Sth'n Zone Rock Lob	Nth'n Zone Rock Lob	Blue Crabs ^a	Marine Scalefish ^b	Sardines	Lakes and Coorong
(1) Total Boat Gross Income	877.6	342.3	744.2	486.7	276.8	5,563.6	103.1	1,160.6	228.5
Variable Costs									
Fuel	14.5	42.0	93.6	39.5	42.9	734.7	11.8	200.7	14.8
Repairs & Maintenance ^b	20.6	13.9	35.0	26.9	23.6	610.2	9.1	99.2	6.8
Bait/Ice	0.1	0.0	0.0	18.8	14.0	75.2	2.9	2.3	1.4
Provisions	8.3	0.7	7.7	0.7	11.4	0.0	0.0	8.2	0.2
Labour - paid	243.3	115.7	265.5	108.1	70.3	1,299.7	13.8	465.0	33.2
(2) - unpaid ^c	0.9	8.6	1.9	22.1	21.4	124.6	28.3	2.9	41.7
Other	4.8	0.5	16.3	0.7	1.0	132.8	0.0	35.0	16.9
(3) Total Variable Costs	292.5	181.4	420.0	216.7	184.4	2,977.1	65.9	813.3	115.0
Fixed Costs									
Licence Fee	70.4	30.1	24.2	19.3	20.8	279.7	7.1	48.4	9.2
Insurance	4.2	19.6	18.6	6.5	7.4	105.3	1.9	32.0	1.7
(4) Interest	17.1	18.0	41.6	26.1	42.7	629.1	5.1	97.7	5.9
(5) Labour - unpaid ^c	19.5	12.4	8.2	7.5	8.5	68.2	4.9	10.2	7.3
(6) Leasing	0.0	0.0	0.0	6.2	13.4	0.0	0.0	21.1	0.0
Legal & Accounting	8.4	6.6	9.9	3.8	4.1	23.5	1.3	8.2	2.1
Telephone etc.	2.9	2.6	3.5	1.8	3.1	29.3	1.4	1.8	2.3
Slipping & Mooring	2.0	4.0	2.7	2.8	1.7	0.0	0.8	17.8	0.1
Travel	8.1	0.4	1.4	2.2	3.7	16.7	0.5	0.9	1.0
Office & Admin	8.7	4.0	6.1	4.0	4.3	45.1	5.1	6.6	5.2
(7) Total Fixed Costs	141.3	97.6	116.2	80.2	109.8	1,196.9	28.2	244.7	34.7
(8) Total Boat Cash Costs (3 + 7)	433.8	279.0	536.2	296.9	294.2	4,174.0	94.1	1,058.0	149.8
Boat Gross Margin (1 - 3)	585.0	160.9	324.2	270.0	92.3	2,586.5	37.2	347.3	113.5
(9) Total Unpaid Labour (2 + 5)	20.4	21.0	10.1	29.6	29.8	192.8	33.2	13.2	49.1
Gross Operating Surplus	464.1	84.3	218.1	219.4	12.4	1,582.4	42.2	115.7	127.8
(10) Boat Cash Income (1 - 8)	443.7	63.3	208.0	189.8	-17.4	1,389.6	9.0	102.6	78.7
(11) Depreciation	38.8	95.9	141.5	42.4	46.3	552.0	18.1	217.5	24.8
(12) Boat Business Profit (10 - 11)	404.9	-32.6	66.5	147.4	-63.8	837.7	-9.2	-114.9	53.9
(13) Profit at Full Equity (12 + 4 + 6)	422.0	-14.6	108.1	179.7	-7.6	1,466.7	-4.1	3.9	59.8
Boat Capital									
(14) Fishing Gear & Equip	275.8	1,339.6	1,765.6	418.6	464.7	2,907.6	129.0	2,839.2	167.3
Licence Value	7,958.3	2,425.0	3,690.6	3,272.1	1,252.7	24,255.2	196.3	2,926.9	226.0
(15) Total Boat Capital	8,234.1	3,764.6	5,456.3	3,690.7	1,717.4	27,162.9	325.3	5,766.1	393.3
Rate of Return on Fishing Gear & Equip (13 / 14 * 100)	153.0%	-1.1%	6.1%	42.9%	-1.6%	50.4%	-3.2%	0.1%	35.8%
Rate of Return on Total Boat Capital (13 / 15 * 100)	5.1%	-0.4%	2.0%	4.9%	-0.4%	5.4%	-1.3%	0.1%	15.2%

^a Estimates of financial performance for the blue crab fishery have been presented on a whole of fishery basis.

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

^c Earnings before interest and tax.

Source: EconSearch (2009b)

Appendix Table 4.5 Costs as a percentage of total cash costs in South Australian commercial fisheries, 2007/08

	Abalone	GSV Prawns	SG & WC Prawns	Sth'n Zone Rock Lob	Nth'n Zone Rock Lob	Blue Crabs	Marine Scalefish ^a	Sardines	Lakes and Coorong
Variable Costs									
Fuel	3%	15%	17%	13%	15%	18%	13%	19%	10%
Repairs & Maintenance	5%	5%	7%	9%	8%	15%	10%	9%	5%
Bait/Ice	0%	0%	0%	6%	5%	2%	3%	0%	1%
Provisions	2%	0%	1%	0%	4%	0%	0%	1%	0%
Labour - paid	56%	41%	50%	36%	24%	31%	15%	44%	22%
- unpaid	0%	3%	0%	7%	7%	3%	30%	0%	28%
Other	1%	0%	3%	0%	0%	3%	0%	3%	11%
Fixed Costs									
Licence Fee	16%	11%	5%	7%	7%	7%	8%	5%	6%
Insurance	1%	7%	3%	2%	3%	3%	2%	3%	1%
Interest	4%	6%	8%	9%	15%	15%	5%	9%	4%
Labour - unpaid	4%	4%	2%	3%	3%	2%	5%	1%	5%
Leasing	0%	0%	0%	2%	5%	0%	0%	2%	0%
Legal & Accounting	2%	2%	2%	1%	1%	1%	1%	1%	1%
Telephone etc.	1%	1%	1%	1%	1%	1%	1%	0%	2%
Slipping & Mooring	0%	1%	1%	1%	1%	0%	1%	2%	0%
Travel	2%	0%	0%	1%	1%	0%	1%	0%	1%
Office & Admin	2%	1%	1%	1%	1%	1%	5%	1%	3%
Total Variable Costs	67%	65%	78%	73%	63%	71%	70%	77%	77%
Total Fixed Costs	33%	35%	22%	27%	37%	29%	30%	23%	23%
Total Cash Costs	100%	100%	100%	100%	100%	100%	100%	100%	100%

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

Source: EconSearch (2009b)

Appendix Table 4.6 Economic impacts of South Australian commercial fisheries, 2007/08

	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	31.0	2.9	32.0	75.7	15.9	5.7	20.9	16.3	7.5	208.2
Downstream ^b	16.4	2.0	16.5	23.5	6.0	3.3	9.6	3.5	5.4	86.3
All other sectors (indirect)	41.9	6.3	50.6	92.1	15.9	9.3	45.5	24.4	14.0	300.2
Total	89.4	11.3	99.1	191.3	37.9	18.4	76.1	44.2	26.9	594.6
Total/Direct	1.9	2.3	2.0	1.9	2.3	2.0	2.5	2.2	2.1	2.0
Total/Tonne (\$)	\$100,500	\$49,100	\$50,500	\$103,400	\$109,800	\$27,500	\$25,300	\$1,400	\$12,500	\$13,210
Contribution to GSP (\$m)										
Direct										
Fishing	25.6	1.6	22.5	54.0	6.7	3.7	5.9	9.3	5.2	134.6
Downstream	4.6	0.8	6.9	9.4	2.4	1.1	3.5	1.5	2.1	32.4
All other sectors (indirect)	20.1	3.1	24.3	44.1	13.5	4.4	21.3	11.6	6.8	149.1
Total	50.2	5.6	53.6	107.5	22.6	9.2	30.8	22.5	14.1	316.1
Total/Direct	1.7	2.3	1.8	1.7	2.5	1.9	3.3	2.1	1.9	1.9
Total/Tonne (\$)	\$56,500	\$24,294	\$27,300	\$58,000	\$49,200	\$13,700	\$10,244	\$740	\$6,578	\$7,022
Employment (fte jobs) ^c										
Direct										
Fishing	90	28	185	414	155	28	531	63	74	1,569
Downstream	56	18	149	130	34	17	70	20	40	535
All other sectors (indirect)	217	33	265	480	150	48	234	127	74	1,628
Total	364	80	598	1,025	339	93	835	211	188	3,732
Total/Direct	2.5	1.7	1.8	1.9	1.8	2.0	1.4	2.5	1.6	1.8
Total/Tonne	0.41	0.35	0.31	0.55	0.74	0.14	0.28	0.01	0.09	0.08
Household Income (\$m)										
Direct										
Fishing	9.2	1.4	11.6	21.4	4.0	1.5	5.9	6.7	3.0	64.8
Downstream	2.9	0.6	4.9	6.5	1.7	0.8	2.6	1.0	1.5	22.5
All other sectors (indirect)	11.2	1.7	13.5	24.2	7.5	2.4	12.0	6.4	3.8	82.7
Total	23.4	3.7	30.0	52.1	13.3	4.7	20.5	14.1	8.4	170.0
Total/Direct	1.9	1.9	1.8	1.9	2.3	2.1	2.4	1.8	1.8	1.9
Total/Tonne (\$)	\$26,300	\$16,000	\$15,200	\$28,100	\$28,800	\$7,000	\$6,800	\$400	\$3,800	\$3,777

^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 625 full-time and 1,161 part-time, that is, 1,786 jobs in total.

Source: EconSearch (2009b)

Appendix Table 4.7 Economic rent in South Australian commercial fisheries,
2007/08 (\$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	30.7	2.9	33.0	75.7	15.9	5.6	20.9	16.3	7.5	208.6
Less Labour	9.2	1.2	12.2	21.3	5.8	1.5	9.5	6.7	2.7	70.2
Less Materials & Services	5.4	1.1	9.7	20.7	8.7	2.1	8.7	6.5	2.0	64.8
Less Depreciation	1.4	0.8	6.3	6.6	2.7	0.6	3.7	3.1	0.8	25.8
Less Opportunity Cost of Capital (@10%)	1.0	1.1	7.8	6.5	2.7	0.3	2.6	4.0	0.6	26.6
Economic Rent	13.8	-1.3	-3.0	20.6	-3.9	1.2	-3.6	-3.9	1.4	21.3

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

Source: EconSearch (2009b)