Economic Indicators for the Gulf St Vincent Prawn Fishery 2008/09

A report prepared for

Primary Industries and Resources South Australia

Prepared by

econsearch

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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 Gulf St Vincent Prawn Fishery 5
3.1 Gross Value of Production 5
3.2 Cost of Management 7
3.3 Summary of Factors Affecting Costs in the GSV Prawn Fishery 9
3.4 Financial Performance Indicators 9
3.5 Regional Economic Impact 13
3.5.1 Measuring flow-on effects 13
3.5.2 Economic impact 14
3.6 Economic Rent 18
4. Other Indicators 20
4.1 Prawn Exports from South Australia 20
4.2 Factors Influencing the Economic Condition Fishery 23
4.2.1 Biological performance indicators 23
4.2.2 Exchange rates 24
4.2.3 Prawn imports into Australia 25
4.3 Market Prices for Prawns in Domestic Markets 27
References 30
Appendix 1 Economic Impact of the Gulf St Vincent Prawn Fishery, 2007/08 32
Appendix 2 Prawn Exports from South Australia, 1995/96 to 2008/09 33
Appendix 3 Summary Economic Indicators for South Australian Commercial Fisheries 36
Appendix 4 Financial Performance Indicators, 1997/98 to 2005/06 43

Tables

Table 3.1 Prawn catch and value of catch, South Australia, 1990/91 to 2008/09 5

Table 3.2 Costs of management in the Gulf St Vincent prawn fishery, 1996/97 to 2009/10 8

Table 3.3 Factors affecting costs in GSV Prawn fishery, 2007/08 to 2008/09 9

Table 3.4 Financial performance in the Gulf St Vincent prawn fishery, 2006/07 to 2008/09 (average per boat) [a] 10

Table 3.5 Sensitivity of rate of return to changes in licence value, 2008/09 13

Table 3.6 Economic impact of the Gulf St Vincent prawn fishery on the South Australian economy, 2008/09 15

Table 3.7 Economic rent in the Gulf St Vincent prawn fishery, 1997/98 to 2008/09, ($'000) 19

Table 4.1 Biological performance indicators for the Gulf St Vincent prawn fishery, 2003/04 to 2007/08 24

Table 4.2 Average monthly beach prices for western king prawns, South Australia [a], 2995/96 to 2008/09 [b, c] 28

Figures

Figure 3.1 GVP, price and catch indices for the Gulf St Vincent prawn fishery (1993/94 = 100) 6

Figure 3.2 Price indices for Gulf St Vincent prawns (1993/94 = 100) 7

Figure 3.3 Total gross state product and output impact of the Gulf St Vincent prawn fishing industry in SA, 1997/98 to 2008/09 17

Figure 3.4 Total employment and household income impact of the Gulf St Vincent prawn fishing industry in SA, 1997/98 to 2008/09 17

Figure 4.1 Prawn exports from South Australia as a proportion of total South Australian catch [a], 1995/96 to 2008/09 20

Figure 4.2 Prawn exports from South Australia, quantity (t) by category, 1995/96 to 2008/09 21

Figure 4.3 Prawn exports from South Australia, value ($m fob) by category, 1995/96 to 2008/09 21

Figure 4.4 Prawn exports from South Australia, quantity (t) by country of destination, 1995/96 to 2008/09 22

Figure 4.5 Prawn exports from South Australia, value ($m fob) by country of destination, 1995/96 to 2008/09 22

Figure 4.6 Prawn imports into Australia, quantity (t) by country of origin, 2000/01 to 2008/09 26

Figure 4.7 Prawn imports into Australia, value ($m) by country of origin, 2000/01 to 2008/09 26

Figure 4.8 Real prices [a] for imported and South Australian prawns, 2000/01 to 2008/09 27

Figure 4.9 Average monthly beach prices for western king prawns, South Australia, 2003/04 to 2008/09 [a] 29

Figure 4.10 Prices for western king prawns; Melbourne Fish Markets and South Australian beach prices, 2008/09 [a,b] 29

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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
fob	free on board
fte	full time equivalent
GDP	gross domestic product
GRP	gross regional product
GSP	gross state product
GSV	Gulf St Vincent
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 Gulf St Vincent prawn fishery. The first report, prepared for 1997/98, entitled *Economic Indicators for the Gulf St Vincent Prawn Fishery 1997/98* (EconSearch 1999), reported on the results of an initial economic survey of the fishery. The second, third and fourth annual reports, prepared for 1998/99, 1999/00 and 2000/01 respectively, provided an update of the 1997/98 economic indicators (EconSearch 2000, 2001 and 2002). The fifth, sixth and seventh annual reports outlined the fishery's recent economic performance based on the results of an additional survey of licence holders (EconSearch 2003, 2004 and 2005). The eighth report, prepared for 2004/05, reported on the results of a third survey of licence holders conducted in October 2005 (EconSearch 2006). The ninth and tenth reports, prepared for 2005/06 and 2006/07, provided updates of the economic indicators, based on the third licence holder survey (EconSearch 2007 and 2008). The eleventh report prepared for 2007/08, reported on the results of a fourth survey of licence holders conducted in November 2008 (EconSearch 2009a).

The objective of this report, *Economic Indicators for the Gulf St Vincent Prawn Fishery 2008/09*, was to provide an update of the economic indicators based on the results of 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;
- economic rent;
- external factors influencing economic condition of the fishery;
- prawn imports into Australia;
- prawn exports from SA (quantity and value); and
- prices for prawns in domestic markets.

For purposes of comparison, summary economic indicators for all South Australian commercial fisheries, up to 2007/08, are presented in Appendix 3.

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 in 1997/98, 2001/02 and 2004/05[1]. It was drafted by the consultants in consultation with the Industry Extension Officer (Mr Justin Phillips).

In November 2008, all licence holders were sent an introductory letter from the Extension Officer encouraging them to participate in the survey. Licence holders were then contacted and surveys were carried out. A total of 4 licence holders from the fishery completed the survey, which represented 40 per cent of the total licence holders in the fishery. The remaining licence holders were either not contactable or did not wish to participate in the study. Thus, the economic indicators for 2007/08 were survey-based estimates.

2.2 Updating the Indicators, 2008/09

The 2008/09 economic indicators for the Gulf St Vincent Prawn 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 Terms[2]

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, 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)
- bait

[1] Surveys conducted in 1997/98 and 2001/02 are described in EconSearch (2005) and the survey conducted in 2004/05 is described in EconSearch (2008).

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

- ice
- provisions
- crew payments
- fishing equipment, purchase and repairs (nets, pots, lines, etc)
- repairs & maintenance: ongoing (slipping, painting, overhaul 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 TBCR. 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 for, 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 Gulf St Vincent Prawn Fishery

3.1 Gross Value of Production

From 1980/81 to 1984/85 the catch in the Gulf St Vincent (GSV) prawn fishery averaged around 417 tonnes per annum. In the second half of the 1980s the average annual catch fell by almost half to 222 tonnes (GSVPFMC 1997). A catch of just 134 tonnes in 1990/91 triggered a closure of the fishery for the 1991/92 and 1992/93 seasons (Table 3.1). The fishery reopened in 1993/94 and the average annual catch in the subsequent 16 seasons has been 253 tonnes. In 1999/00, the GSV prawn catch reached its highest level (400 tonnes) since the fishery's closure but has since declined and averaged approximately 245 tonnes in the 9 years to 2008/09.

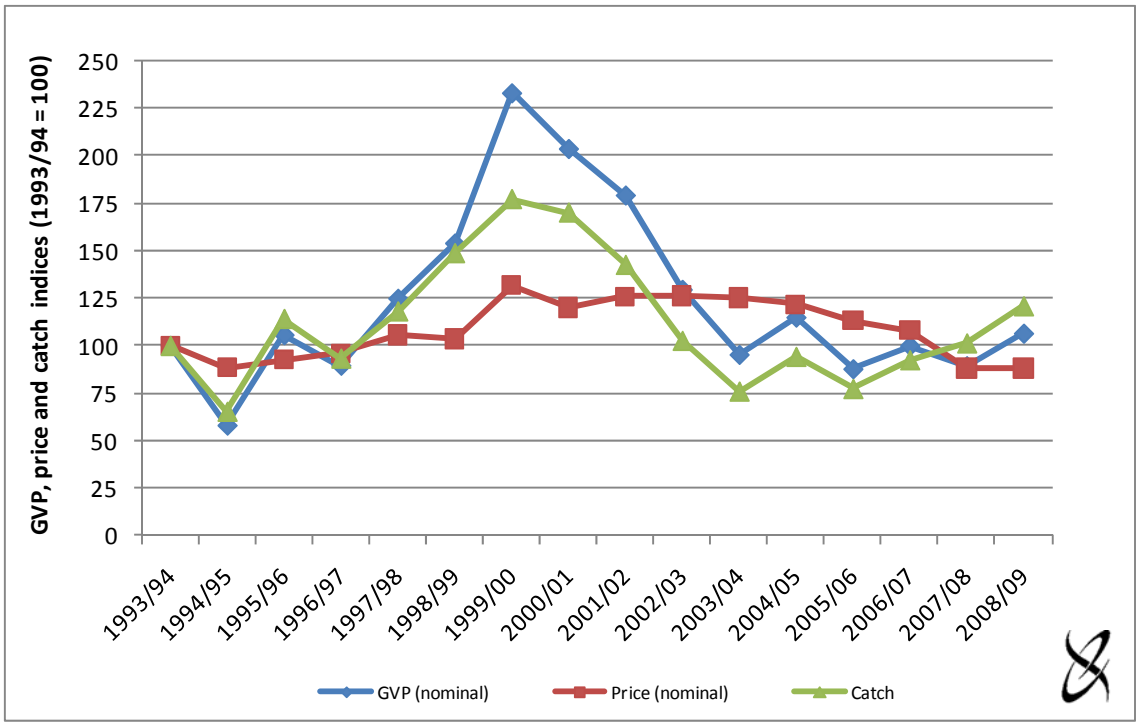
Table 3.1 Prawn catch and value of catch, South Australia, 1990/91 to 2008/09

Year	Gulf St Vincent		Spencer Gulf and West Coast		South Australia	
	(tonnes)	($'000)	(tonnes)	($'000)	(tonnes)	($'000)
1990/91	134	1,725	1,951	19,992	2,085	21,717
1991/92	0	0	2,155	19,653	2,155	19,653
1992/93	0	0	1,645	19,709	1,645	19,709
1993/94	226	3,273	1,693	20,859	1,919	24,132
1994/95	148	1,896	1,911	22,601	2,059	24,497
1995/96	258	3,458	2,013	22,866	2,271	26,324
1996/97	211	2,929	1,813	22,222	2,024	25,151
1997/98	267	4,087	2,492	29,160	2,759	33,247
1998/99	336	5,043	2,425	34,572	2,761	39,615
1999/00	400	7,636	2,016	36,135	2,416	43,771
2000/01	384	6,674	2,603	46,008	2,987	52,682
2001/02	322	5,870	2,288	41,534	2,610	47,404
2002/03	232	4,240	1,518	26,153	1,750	30,393
2003/04	172	3,117	1,958	40,389	2,130	43,506
2004/05	213	3,761	1,960	32,043	2,173	35,804
2005/06	175	2,870	1,870	33,610	2,045	36,480
2006/07	209	3,270	2,024	39,386	2,233	42,656
2007/08	229	2,924	2,088	32,950	2,317	35,874
2008/09	273	3,484	1,915	30,805	2,188	34,289

Source: SARDI Aquatic Sciences

Figure 3.1 illustrates how the value of the fishery has changed over the 15-year period 1993/94 to 2008/09. The nominal value of the prawn catch in 2008/09 was approximately 6 per cent above that in 1993/94. Figure 3.1 shows that the average price of prawns in the GSV prawn fishery peaked at 32 per cent above the 1993/94 price ($19.09/kg) in 1999/00 but was 12 per cent below in 2008/09 ($12.76/kg).

Figure 3.1 GVP, price and catch indices for the Gulf St Vincent prawn fishery (1993/94 = 100)

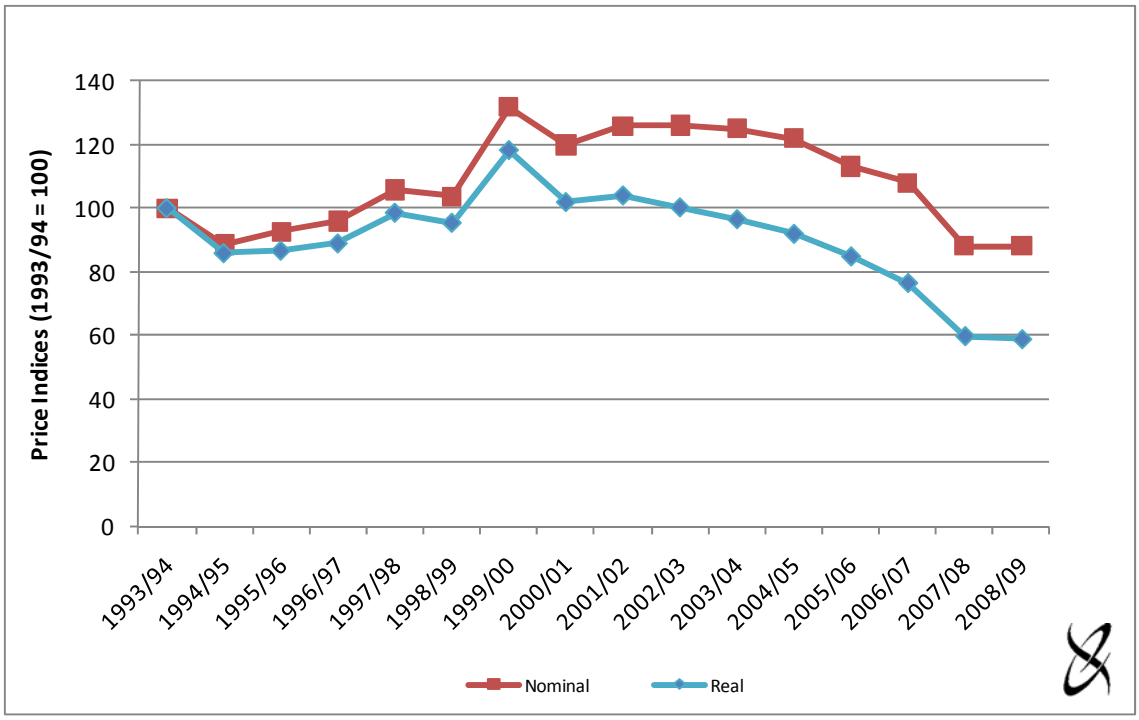


Source: SARDI Aquatic Sciences.

Figure 3.2 shows that, the 12 per cent decrease in the nominal beach price from 1993/94 to 2008/09, equates to a 41 per cent decline in real price[3]. Thus, the value of the prawn catch in the GSV fishery in 2008/09 was 29 per cent lower in real terms than it was in 1993/94 or, as noted above, approximately 6 per cent higher in nominal terms.

[3] 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) for Adelaide has been used to make this adjustment (ABS 2009a). It enables meaningful comparisons of prices to be made between years.

Figure 3.2 Price indices for Gulf St Vincent prawns (1993/94 = 100)



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 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 shows actual licence fee receipts for the fishery for the period 1996/97 to 2009/10.

Table 3.2 Costs of management in the Gulf St Vincent prawn fishery, 1996/97 to 2009/10

	Licence Fee [a] ($'000)	Gross Value of Production ($'000)	Fee/GVP (%)	Catch (tonnes)	Fee/Catch ($/kg)	Licence Holders (No.)	Fee/Licence Holder ($/licence)
1996/97	410	2,929	14.0%	211	$1.94	10	$41,009
1997/98	388	4,087	9.5%	267	$1.45	10	$38,790
1998/99	700	5,043	13.9%	336	$2.08	10	$69,988
1999/00	174	7,636	2.3%	400	$0.44	10	$17,422
2000/01	168	6,674	2.5%	384	$0.44	10	$16,762
2001/02	169	5,870	2.9%	322	$0.52	10	$16,865
2002/03	275	4,240	6.5%	232	$1.18	10	$27,455
2003/04	251	3,117	8.1%	172	$1.46	10	$25,097
2004/05	259	3,761	6.9%	213	$1.22	10	$25,936
2005/06	270	2,870	9.4%	175	$1.54	10	$27,023
2006/07	257	3,270	7.9%	209	$1.23	10	$25,715
2007/08	302	2,924	10.3%	229	$1.32	10	$30,204
2008/09	325	3,484	9.3%	273	$1.19	10	$32,532
2009/10	340	n.a.	-	n.a.	-	10	$34,012

[a] Two Investigator Strait entitlements and four GSV licences were removed from the fishery during the late 1980s. The removal of the licences was effected through a buy-back scheme, funded by borrowing from the State Treasury. Between 1996/97 and 1998/99, the debt was repaid by a surcharge collected as a component of the annual licence fee (GSVPFMC 1997). Licence holders made lump sum payments for the settlement of outstanding debt before the end of the 1998/99 financial year. A breakdown of the surcharge and licence fee is detailed in EconSearch (2005).

Source: PIRSA Fisheries, SARDI Aquatic Sciences

The following can be observed for the fishery between 1999/00 and 2008/09:

- licence fees as a percentage of GVP increased from 2.3 per cent to 9.3 per cent;
- the cost per kilogram of prawns increased from $0.44 to $1.19; and
- the cost per licence holder increased from $17,422 to $32,532.

Between 2008/09 and 2009/10, the licence fees increased by 5 per cent to $34,012 per licence holder.

3.3 Summary of Factors Affecting Costs in the Gulf St Vincent Prawn Fishery

The information in Table 3.3 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 GSV Prawn fishery, 2007/08 to 2008/09

	2007/08	2008/09	Change
Average days fished per boat [a]	269.0	259.0	-3.9%
Price of fuel - Transportation Index [b]	168.6	166.8	-1.0%
Interest charges (%/annum) [c]	9.9%	9.4%	-5.3%
CPI Adelaide [d]	167.6	170.3	1.6%
Labour Price [e]	116.9	121.5	3.8%

[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 GSV prawn fishery for the period 2006/07 to 2008/09 are shown in Table 3.4. Similar data for the years 1997/98 to 2005/06 are provided in Appendix 4 of this report. Financial performance estimates for 2006/07 are based on the November 2005 survey of licence holders. Estimates of financial performance for 2007/08 and 2008/09 are based on the most recent licence holder survey, undertaken in November 2008.

Table 3.4 Financial performance in the Gulf St Vincent prawn fishery, 2006/07 to 2008/09 (average per boat) [a]

		2006/07		2007/08		2008/09	
		Average per boat	Share of TBCC [b]	Average per boat	Share of TBCC [b]	Average per boat	Share of TBCC [b]
(1)	**Total Boat Gross Income**	**$321,842**		**$342,289**		**$407,844**	
	Variable Costs						
	Fuel	$24,800	9%	$42,044	15%	$38,759	13%
	Repairs & Maintenance [c]	$14,126	5%	$13,937	5%	$13,193	4%
	Provisions	$833	0%	$650	0%	$615	0%
	Labour - paid	$96,886	37%	$115,720	41%	$143,308	47%
(2)	- unpaid [d]	$8,024	3%	$8,591	3%	$10,639	3%
	Other	$9,734	4%	$475	0%	$483	0%
(3)	**Total Variable Costs**	**$154,404**	**58%**	**$181,417**	**65%**	**$206,997**	**67%**
	Fixed Costs						
	Licence Fee	$26,915	10%	$30,051	11%	$32,367	11%
	Insurance	$19,498	7%	$19,608	7%	$19,924	6%
(4)	Interest	$31,089	12%	$18,000	6%	$17,091	6%
(5)	Labour - unpaid [d]	$18,299	7%	$12,409	4%	$12,897	4%
	Legal & Accounting	$7,783	3%	$6,562	2%	$6,668	2%
	Telephone etc.	$1,646	1%	$2,550	1%	$2,591	1%
	Slipping & Mooring	$4,860	2%	$4,000	1%	$4,064	1%
	Travel	$196	0%	$431	0%	$437	0%
	Office & Admin	$495	0%	$3,970	1%	$4,034	1%
(6)	**Total Fixed Costs**	**$110,780**	**42%**	**$97,581**	**35%**	**$100,074**	**33%**
(7)	**Total Boat Cash Costs (3 + 6)**	**$265,184**	**100%**	**$278,998**	**100%**	**$307,071**	**100%**
	Boat Gross Margin (1 - 3)	**$167,438**		**$160,872**		**$200,847**	
(8)	**Total Unpaid Labour (2 + 5)**	**$26,323**		**$21,000**		**$23,536**	
	Gross Operating Surplus (1 - 7 + 8)	**$82,981**		**$84,292**		**$124,309**	
(9)	**Boat Cash Income (1 - 7)**	**$56,658**		**$63,292**		**$100,772**	
(10)	**Depreciation**	**$129,847**		**$95,871**		**$104,759**	
(11)	**Boat Business Profit (9 - 10)**	**-$73,189**		**-$32,580**		**-$3,987**	
(12)	**Profit at Full Equity (11 + 4)**	**-$42,100**		**-$14,580**		**$13,104**	
	Boat Capital						
(13)	Fishing Gear & Equip	$960,887		$1,339,625		$1,463,816	
	Licence Value	$2,695,294		$2,425,000		$2,889,432	
(14)	**Total Boat Capital**	**$3,656,181**		**$3,764,625**		**$4,353,248**	
	Rate of Return on Fishing Gear & Equip (12 / 13 * 100)	**-4.4%**		**-1.1%**		**0.9%**	
	Rate of Return on Total Boat Capital (12 / 14 * 100)	**-1.2%**		**-0.4%**		**0.3%**	

[a] Financial performance estimates for 1997/98 to 2000/01 are based on the October 1998 survey of licence holders. Financial performance estimates for the period 2001/02 to 2003/04 are based on the February 2003 survey of licence holders. Financial performance estimates for the period 2004/05 to 2006/07 are based on the November 2005 survey of licence holders. Financial performance estimates for 2007/08 and 2008/09 are based on the November 2008 survey. Financial performance estimates for 1997/98 to 2005/06 are detailed in Appendix 4 of this report.

[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) components based on survey responses.

Source: EconSearch analysis.

Income…

Total recorded prawn catch in the GSV prawn fishery increased by approximately 19 per cent between 2007/08 and 2008/09 and, due to no change in price, gross receipts from the sale of prawns also rose by 19 per cent over the same period (Table 3.1). The estimated average gross income per boat in the fishery was almost $408,000 in 2008/09, compared to around $342,000 in 2007/08, an increase of 19 per cent (Table 3.4).

Costs…

Table 3.4 shows total cash 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 cash costs than fixed costs (33 per cent).

It was estimated that average total boat cash costs rose by approximately 8 per cent between 2007/08 and 2008/09. Notable changes in costs included increases in licence fees and labour costs (Table 3.4).

In 2008/09, for the fishery as a whole, approximately 54 per cent of total boat cash costs were attributable to labour costs, by far the biggest 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 ($23,536 for 2008/09) was divided into variable (fishing and repairs and maintenance ($10,639)) and fixed (management and administration ($12,897)) components based on the 2008 licence holder survey.

The other significant cash costs were fuel (13 per cent), licence fees (11 per cent), insurance (6 per cent), interest (6 per cent) and repairs and maintenance (4 per cent) (Table 3.4).

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 an increase in boat gross margin in 2008/09 ($201,000) compared to the previous year ($161,000) due to the increase in total boat income and despite a rise in total variable costs 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 approximately $124,000, 47 per cent higher than in 2007/08 ($84,000) (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 was almost $101,000 per boat, up from $63,000 in 2007/08.

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 approximately -$4,000, up from -$33,000 in the previous year (Table 3.4).

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 (approximately $14,000) was significantly more than the estimate for the previous year (-$15,000).

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 investment as the capital employed by an average licence holder in the fishery. Capital includes boats, licence/quota, fishing gear, sheds, vehicles and other capital items used as part of the fishing enterprise. It does not include working capital or capital associated with other businesses operated by the licence holder. The return on investment has been calculated as the net profit after depreciation as a percentage of the total capital employed.

The average return on investment for the fishery is reported in Table 3.4. The rate of return to boat capital (i.e. fishing gear and equipment) of 0.9 per cent for 2008/09 was slightly higher than the 2007/08 season (-1.1 per cent) and significantly higher than 2006/07. Prior to 2003/04 the high return to fishing gear and equipment (Appendix 4) was partly attributable to the low value of vessels in the fleet. There was limited boat replacement prior to 2003/04 most likely due to the uncertainty about the status of the fishery. This resulted in the estimated return to fishing gear and equipment being significantly above the level it would be if a normal process of capital replacement had taken place over the past two decades.

The rate of return to total capital was estimated to average around 0.3 per cent in 2008/09, slightly higher than the 2007/08 season (-0.4 per cent) and significantly higher than the years 2003/04 to 2006/07 (Table 3.4 and Appendix 4).

Licence values…

The value of licences represents a significant part of the capital used by each licence holder in the fishery. The reported licence value of $2.9 million for 2008/09 in Table 3.4 was estimated by adjusting the 2007/08 licence value to reflect changes in the gross income per licence holder between 2007/08 and 2008/09.

The PIRSA Fisheries record of licence transfers for 2008/09 indicates no licence transfers over the 12 month period, thus it is difficult to provide an estimate of the actual market value of a licence during that period.

Since there have been limited transfers of licences in recent years and the current market value of licences is uncertain, a sensitivity analysis was undertaken to estimate the rate of return to capital for a range of licence values. The results are presented in Table 3.5. Based on the costs and returns shown for the year 2008/09 in Table 3.4, a licence value of $1.4 million (approximately 50 per cent below the licence value estimated for 2008/09) would mean an annual return to the total asset of 0.45 per cent, while a licence value of $4.3 million (approximately 50 per cent above the licence value estimated for 2008/09) would mean an annual return to the total asset of 0.23 per cent (Table 3.5).

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

Licence Value ($)	$1,444,716	$2,889,432 [a]	$4,334,148
Rate of Return to Total Capital (%)	0.45%	0.30%	0.23%

[a] The licence value estimated for 2008/09.

Source: EconSearch analysis.

3.5 Regional Economic Impact

Estimates of the economic impacts of the GSV prawn fishing industry on the South Australian economy in 2008/09 are outlined below.

3.5.1 Measuring flow-on effects

Estimates of the direct economic impact of the GSV prawn fishery are consistent with the method employed in PIRSA's *Value-added ScoreCard*, 2006/07[4].

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) trade[5].

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 practicable method for measuring economic impacts at regional and state levels.

A single input-output model was used for this study. Economic impacts were based on model for the state economy 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 a financial survey for 2007/08, as described earlier. On an item-by-item basis, the expenditures were allocated between those occurring in South Australia and those goods and services imported from outside the state.

These adjusted data were then incorporated into the state input-output model to estimate the flow-on or indirect economic impacts of the GSV prawn fishery in South Australia in 2008/09.

[4] The relevant information was obtained from Rob Esvelt (PIRSA, pers. comm.).

[5] 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.

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 2008 survey of licence holders.

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

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

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

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

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

Contribution to GSP or GRP is a measure of the net contribution of an activity to the state/regional economy. Contribution to GSP or GRP is measured as value of output less the cost of goods and services (including imports) used in producing the output. In other words, it can 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 impact

Estimates of the economic impact generated in 2008/09 by the GSV prawn fishing industry in South Australia are outlined in Table 3.6.

The direct impact measures fishing and downstream activities (fish 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 effect.

Table 3.6 Economic impact of the Gulf St Vincent prawn fishery on the South Australian economy, 2008/09

Sector	Output		Employment [a]		Household Income		Contribution to GSP	
	($m)	%	(fte jobs)	%	($m)	%	($m)	%
Direct effects								
Fishing	3.5	19.9%	28	25.9%	1.6	29.2%	2.2	24.5%
Processing	0.2	1.2%	1	0.7%	0.0	0.8%	0.1	0.7%
Transport	0.1	0.6%	0	0.4%	0.0	0.4%	0.0	0.5%
Retail	1.2	7.1%	14	12.7%	0.5	8.2%	0.6	7.0%
Food services	2.1	12.0%	15	13.5%	0.5	9.8%	0.9	10.0%
Capital expenditure [b]	0.3	1.5%	2	2.2%	0.1	1.6%	0.1	1.3%
Total Direct [c]	*7.4*	*42.3%*	*60*	*53.0%*	*2.8*	*48.4%*	*4.0*	*42.7%*
Flow-on effects								
Trade	1.6	9.1%	14	12.7%	0.5	9.5%	0.8	8.3%
Manufacturing	2.1	11.8%	7	6.8%	0.5	8.3%	0.7	7.4%
Business Services	1.4	8.2%	6	5.9%	0.5	9.1%	0.7	7.6%
Transport	0.5	3.0%	2	1.8%	0.1	2.2%	0.2	2.5%
Other Sectors	4.5	25.6%	19	17.5%	1.2	20.9%	2.7	30.2%
Total Flow-on [c]	*10.1*	57.7%	*49*	44.8%	*2.8*	50.0%	*5.1*	56.0%
Total [c]	**17.5**	**100.0%**	**109**	**100.0%**	**5.6**	**100.0%**	**9.1**	**100.0%**
Total/Direct	2.4	-	1.8	-	2.0	-	2.3	-
Total/Tonne	$64,100	-	0.40	-	$20,400	-	$33,184	-

[a] Full-time equivalent jobs. Direct employment in the fishing sector was comprised of 10 full-time jobs and 40 part-time jobs, that is, 50 jobs in aggregate, which was estimated to be equal to 28 fte jobs.

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

[c] Totals may not sum due to rounding.

Source: EconSearch analysis.

Value of output...

The value of output generated directly in South Australia by GSV prawn fishing enterprises summed to $3.5 million in 2008/09 (Table 3.6), while output generated in South Australia by associated downstream activities (processing, transport, retail/food services and capital expenditure) summed to $3.9 million.

Flow-ons to other sectors of the state economy added another $10.1 million in output. The sectors most affected were the manufacturing ($2.1 million), trade ($1.6 million) business services ($1.4 million) and transport sectors ($0.5 million). The total output impact (direct plus indirect) was estimated to be $17.5 million in 2008/09.

Employment and household income...

In 2008/09, the GSV prawn fishery was responsible for the direct employment of around 28 full-time equivalent (fte) jobs and downstream activities created employment of around 32 fte jobs state-wide. Flow-on business activity was estimated to generate a further 49 jobs state-wide. These state-wide jobs were concentrated in the trade (14), manufacturing (7) and business services (6) sectors. The total employment impact was estimated to be 109 fte jobs.

Personal income of $1.6 million was earned in the fishing sector (wages of employees and estimated drawings by owner/operators) and $1.2 million in downstream activities in SA. An additional $2.8 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 $5.6 million in 2008/09.

Contribution to GSP...

As noted above, contribution to GSP is measured as value of output less the cost of goods and services (including imports) used in producing the output. In 2008/09, total GSV prawn fishing industry related contribution to GSP in South Australia was $9.1 million, $2.2 million generated by fishing directly, $1.8 million generated by downstream activities and $5.1 million generated in other sectors of the state economy.

Total impacts over time…

Figures 3.3 and 3.4 illustrate the total economic impact of the fishery on the SA economy for the 12 years, 1997/98 to 2008/09. Estimates of economic impact are expressed in nominal terms, which means that no adjustment has been made for inflation.

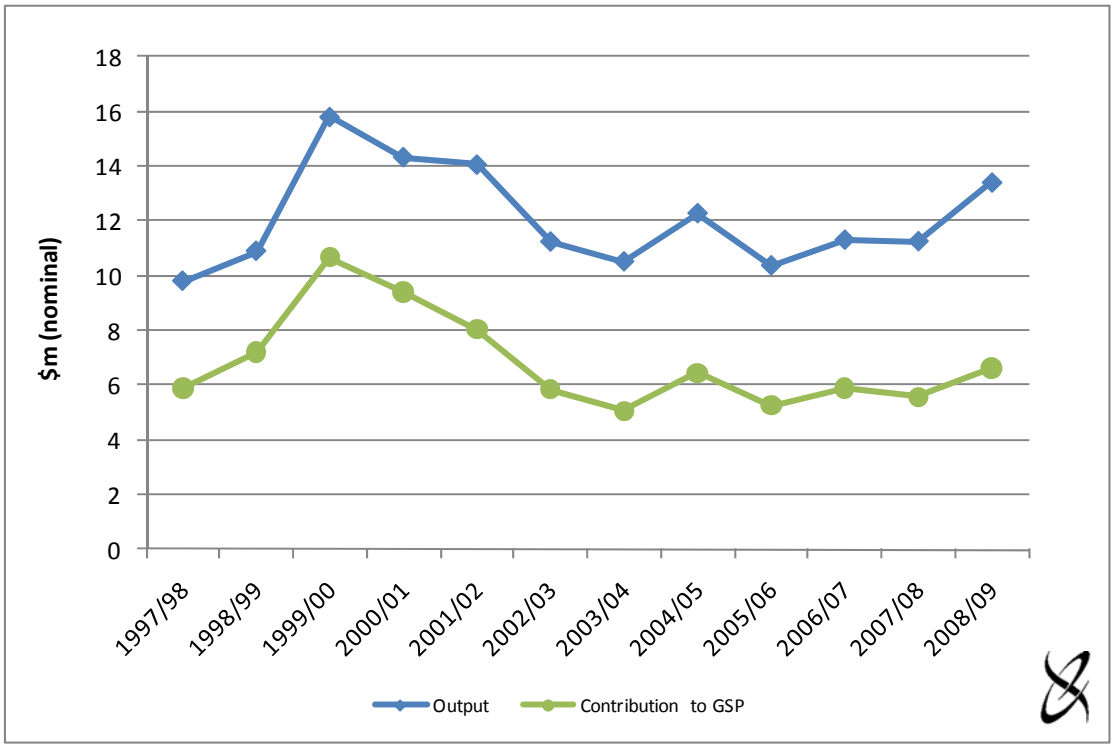
Estimates of economic impact for 1997/98 to 1999/00 are based on the October 1998 survey of licence holders. Estimates for 2000/01 to 2003/04 are based on a second survey of licence holders conducted in September 2001. Estimates for 2004/05 to 2006/07 are based on the survey of licence holders conducted in 2006. Estimates of economic impact for 2007/08 and 2008/09 are based on the most recent licence holder survey conducted in 2008.

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

As economic impact estimates for the years 1997/98 to 2008/09 are based on different survey samples and techniques, some of the variability between years is, therefore, attributable to sampling variability.

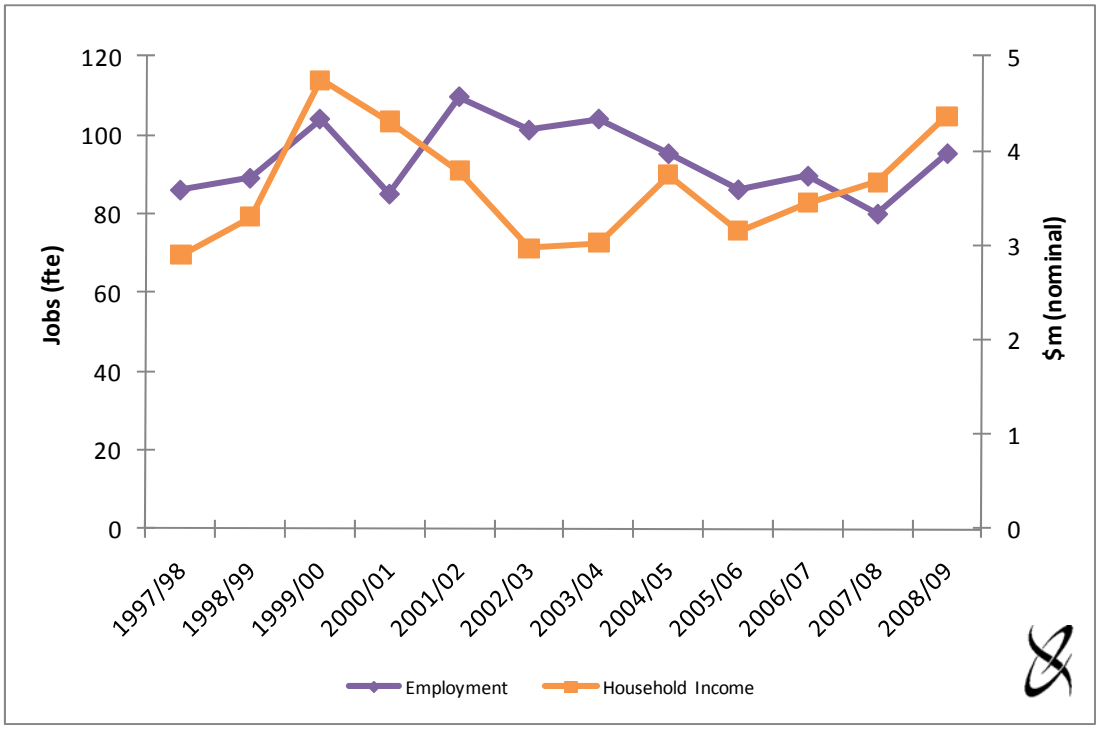
Care should be taken when using value of output as a measure of economic impact as it includes elements of double counting. Using contribution to GSP is the preferred measure of net contribution to the SA economy.

Figure 3.3 Total gross state product and output impact of the Gulf St Vincent prawn fishing industry in SA, 1997/98 to 2008/09



Source: EconSearch (2009c) and EconSearch analysis.

Figure 3.4 Total employment and household income impact of the Gulf St Vincent prawn fishing industry in SA, 1997/98 to 2008/09



Source: EconSearch (2009c) and EconSearch analysis.

3.6 Economic Rent

Economic rent[6] 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 GSV prawn fishery and the good produced is the landed prawn.

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.

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 GSV prawn fishery in 2008/09 was estimated to be approximately -$1.14 million, a slight improvement on the previous year (Table 3.7).

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 was estimated to be $28.9 million (10 licences with an average value of $2.89 million). An annual economic rent of -$1.14 million represents a return of –3.9 per cent to the capital value of the fishery.

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

Table 3.7 Economic rent in the Gulf St Vincent prawn 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	4,087	1,613	821	479	143	**1,031**
1998/99	4,308	1,673	692	414	123	**1,405**
1999/00	6,523	2,471	801	425	127	**2,700**
2000/01	5,701	2,174	800	449	134	**2,144**
2001/02	5,870	1,869	1,710	819	297	**1,175**
2002/03	4,240	1,369	1,675	852	309	**35**
2003/04	3,117	1,025	1,471	1,786	647	**-1,812**
2004/05	3,162	1,187	1,080	1,319	976	**-1,400**
2005/06	2,870	1,121	1,156	1,357	1,004	**-1,769**
2006/07	3,270	1,278	1,127	1,319	976	**-1,430**
2007/08	2,924	1,168	1,062	819	1,144	**-1,269**
2008/09	3,484	1,425	1,052	895	1,250	**-1,139**

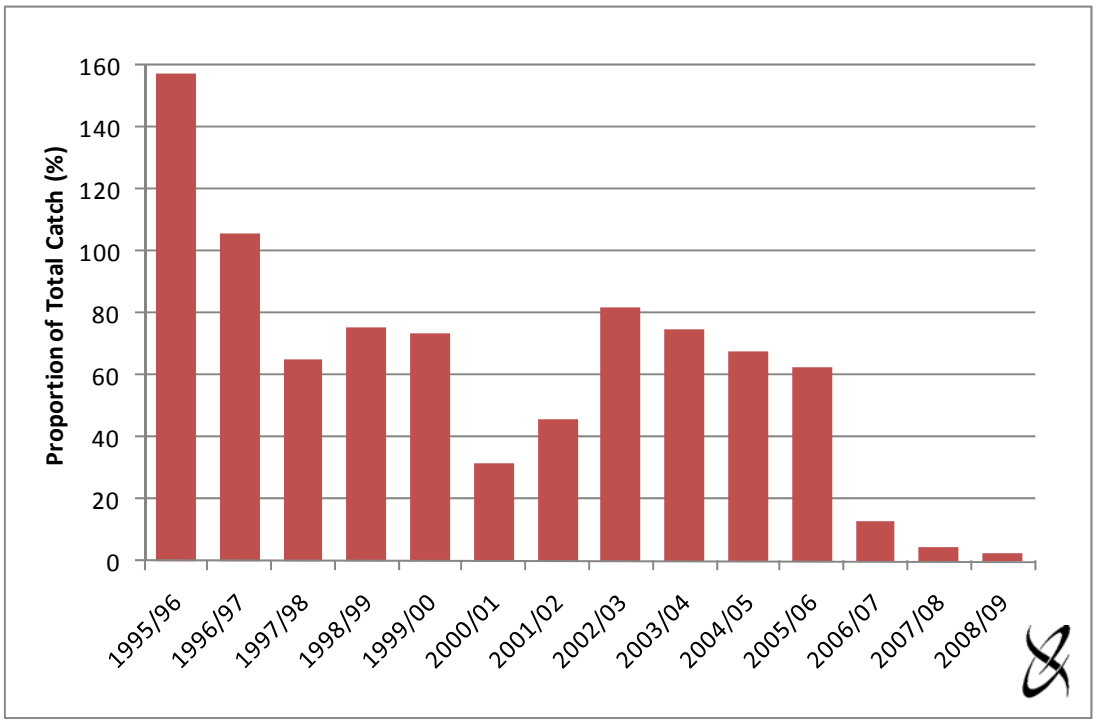
Source: EconSearch analysis.

4. Other Indicators

4.1 Prawn Exports from South Australia

Figures 4.1 to 4.5 and the associated data in Appendix Tables 2.1 to 2.4 provide an historical breakdown of total prawn exports from South Australia, by category and country of destination, for the period 1995/96 to 2008/09. Over this period the total quantity of prawns exported from SA decreased by 99 per cent, from 3,580 tonnes in 1995/96 to 51 tonnes in 2008/09 (Figures 4.2 and 4.4). The total value of these prawn exports decreased by 99 per cent in nominal terms (Figures 4.3 and 4.5). As a proportion of total prawn catch in South Australia, prawn exports from South Australia decreased from 158 per cent in 1995/96 to 2 per cent in 2008/09 (Figure 4.1).

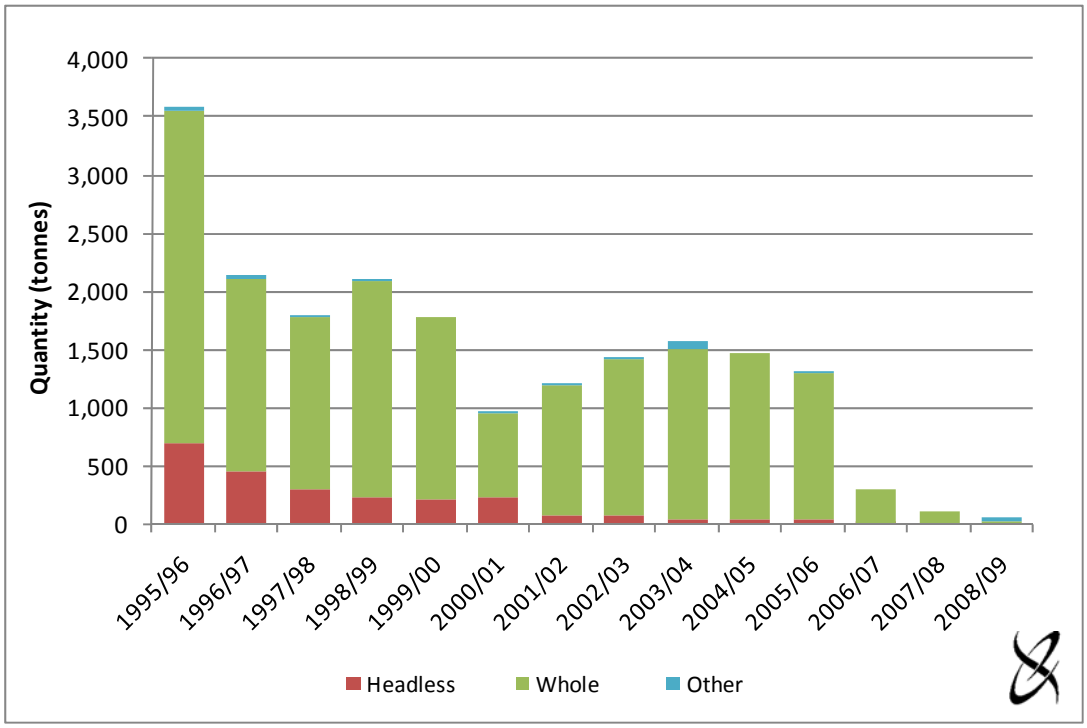
Figure 4.1 Prawn exports from South Australia as a proportion of total South Australian catch [a], 1995/96 to 2008/09



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

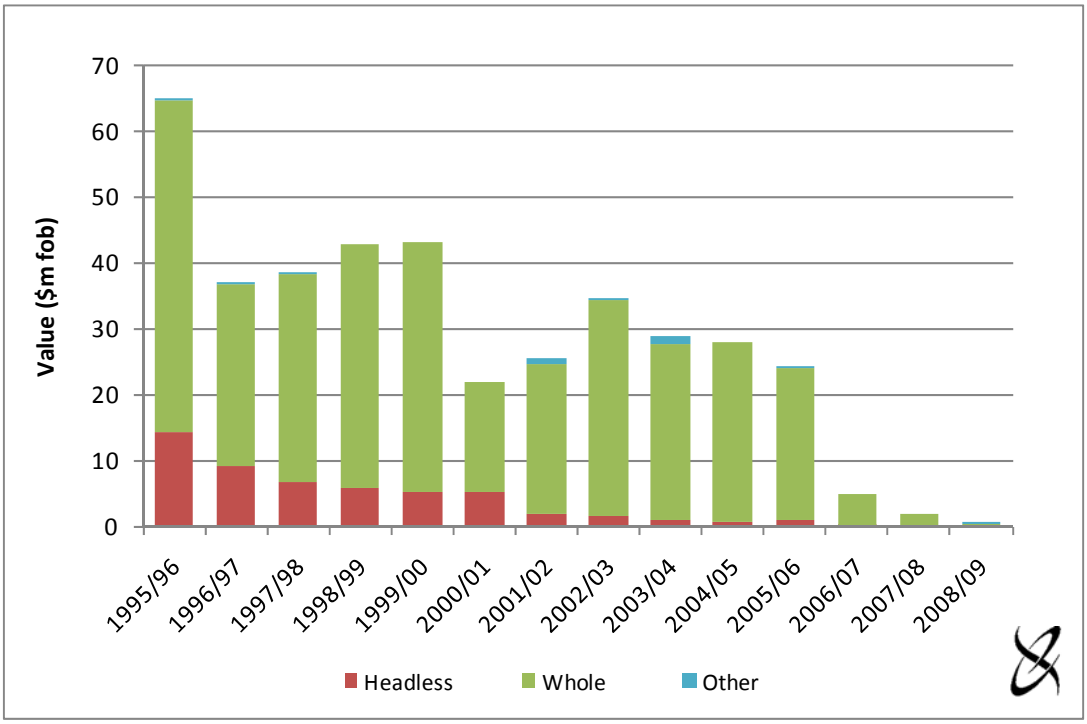
Source: Appendix Table 2.1 and Table 3.1.

Figure 4.2 Prawn exports from South Australia, quantity (t) by category, 1995/96 to 2008/09



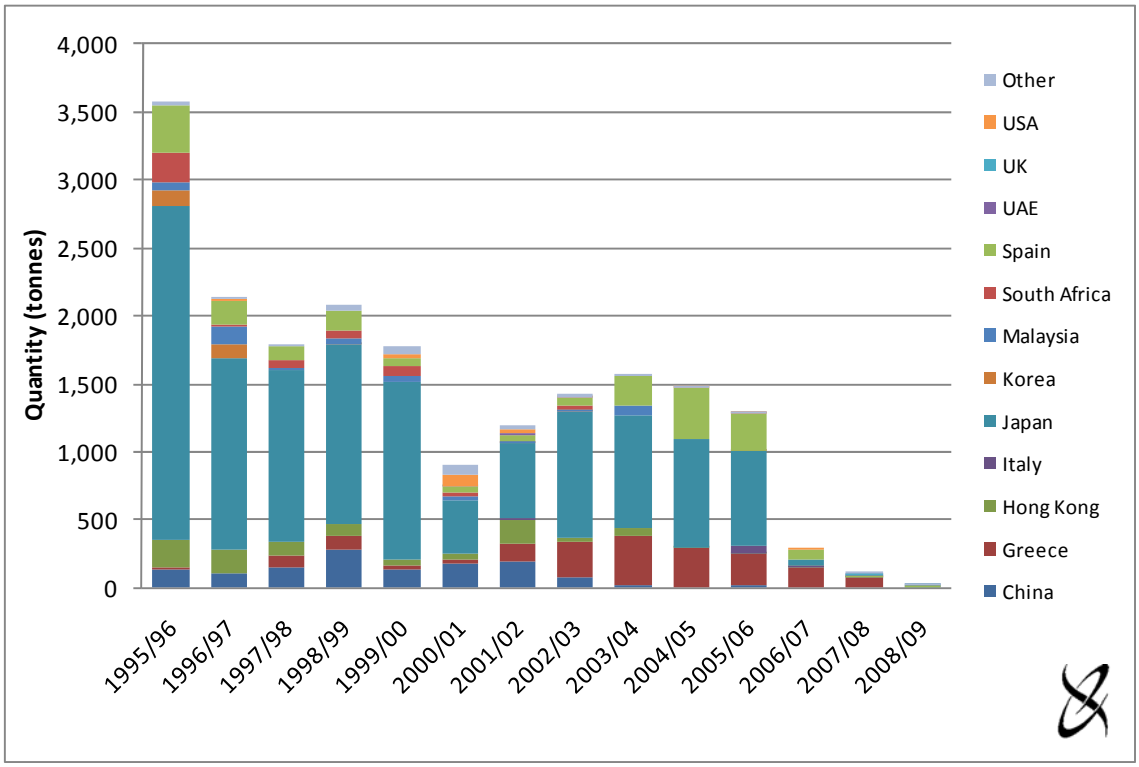
Source: Appendix Table 2.1.

Figure 4.3 Prawn exports from South Australia, value ($m fob) by category, 1995/96 to 2008/09



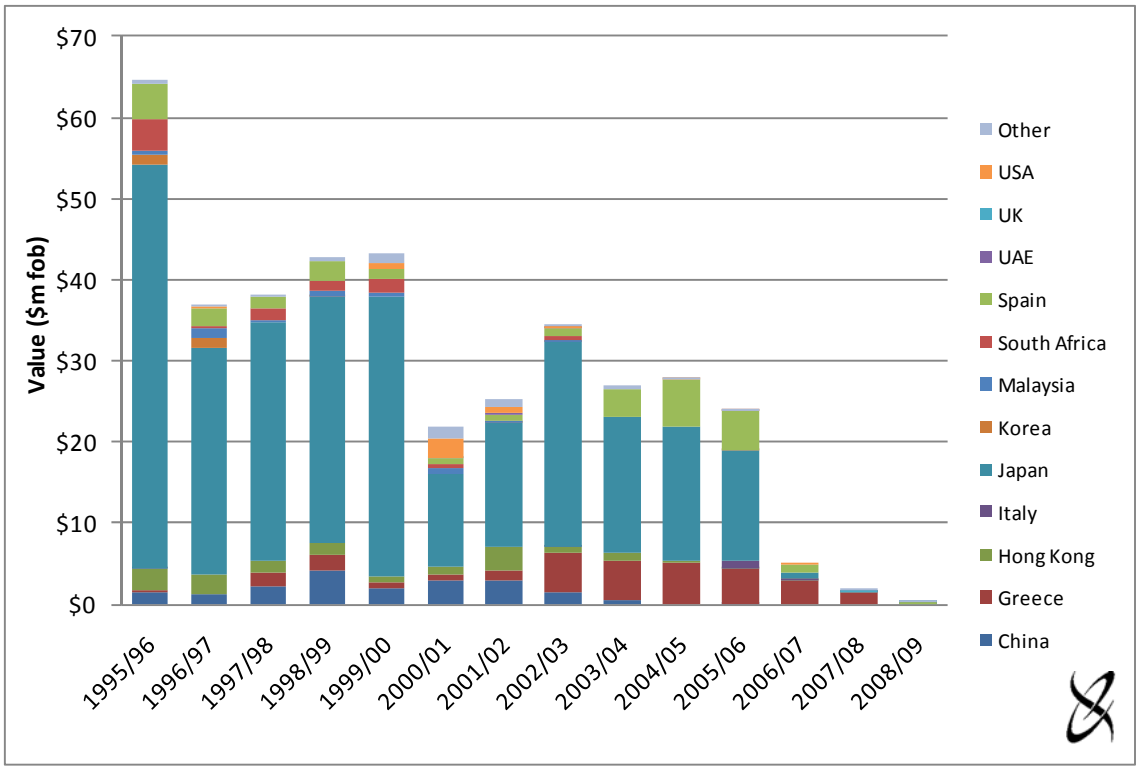
Source: Appendix Table 2.2.

Figure 4.4 Prawn exports from South Australia, quantity (t) by country of destination, 1995/96 to 2008/09



Source: Appendix Table 2.3.

Figure 4.5 Prawn exports from South Australia, value ($m fob) by country of destination, 1995/96 to 2008/09



Source: Appendix Table 2.4.

Whole prawns (fresh, frozen, steamed or boiled) was the most important category of export in most years of the analysis, accounting for, on average, 86 per cent of total exports by quantity and 86 per cent of total exports by value over the period of analysis (Figures 4.2 and 4.3). For a full breakdown of exports by category refer to Appendix Tables 2.1 and 2.2.

Over the 14 years the most significant export destinations were Japan, Spain, Greece and China, accounting on average for 48, 12, 17 and 6 per cent, respectively, of the total quantity of prawn exports from South Australia (Figure 4.4). In 2008/09 the most significant export destinations by volume and value were New Zealand (68 per cent of volume, 48 per cent of value), Spain (26 per cent of volume, 36 per cent of value) and the United Arab Emirates (4 per cent of volume, 13 per cent of value). For a full breakdown of exports by country of destination refer to Appendix Tables 2.3 and 2.4.

4.2 Factors Influencing the Economic Condition of the 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.

4.2.1 Biological performance indicators

The priority of the management of the fishery is to ensure the sustainability of prawn stocks (Zacharin (1997) and Dixon and Sloan (2007)). In order to achieve this, biological indicators have been developed with reference points used as a benchmark of performance against objectives. Reference or trigger points can be used to trigger a management response when required. The biological performance indicators for the GSV prawn fishery relate to:

- catch;
- effort;
- recruitment; and
- size.

These indicators are used to assess the status of the fishery. The biological performance indicators for the seasons 2003/04 to 2007/08 are presented in Table 4.1 below.[7]

[7] Biological performance indicators for the 2008/09 season are not yet available.

Table 4.1 Biological performance indicators for the Gulf St Vincent prawn fishery, 2003/04 to 2007/08

Performance Indicator	Trigger Point	2003/04	2004/05	2005/06	2006/07	2007/08
Catch (tonnes)	N/A	172	213	175	209	229
Trawl Effort (hours)	N/A	2,680	3,236	3,425	2,442	2,657
CPUE (kg/hr)	N/A	64.4	65.8	74.9	94.0	93.6
Effort (commercial nights)	Greater than 38	38	41	33	25	27
Recruitment Index [a]	less than 250 rec/h	N/A	224	334	457	693
Size (Mean)	Within target criteria each harvest period	N/A	N/A	Yes	No	No

[a] The recruitment index measures the number of juvenile fish entering the fishery and is calculated as the number of prawns <35mm carapace length caught during one trawl hour during May surveys. Recruitment index data were not available for the 2003/04 seasons.

Source: Dixon et. al. (2006), Roberts et. al. (2007) and Roberts et al. (2009).

4.2.2 Exchange rates

Up until 2005/06 a significant proportion of the South Australian prawn catch was exported overseas. Prawn imports to Australia are also significant, averaging approximately 22,000 tonnes per annum over the past 5 years (see Section 4.2.3). 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 prawn 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. Other things held equal, a fall in the value of the currency would have the effect of increasing the price of prawns received by Australian exporters between 2007/08 and 2008/09.

A widely used measure of the relationship between two variables, such as price and exchange rate, is the coefficient of correlation. The coefficient of correlation can range in value from 1.0 for a perfect positive correlation to –1.0 for a perfect inverse correlation. The coefficient of correlation between the exchange rate (USD) and the average price in the GSV Prawn fishery for the period 2002/03 to 2008/09 is -0.71. This indicates that there is a strong inverse relationship between the two variables. Thus, when the Australian dollar appreciates, with other factors held constant, there is, generally, a corresponding decline in the average price of prawns.

4.2.3 Prawn imports into Australia

There was concern among those licence holders involved in the 2008 survey regarding the quantity of prawns that are imported from overseas. Licence holders felt that the increasing quantity of imported prawns had a negative impact on the price of local product. Figures 4.6 and 4.7 provide an overview of the quantity and value of total prawn imports into Australia by country of origin, for the period 2000/01 to 2008/09.

The total quantity of prawns imported into Australia increased by 92 per cent between 2000/01 and 2004/05 from approximately 15,600 tonnes to almost 30,000 tonnes, but decline to just under 13,000 tonnes in 2008/09. The decrease in the quantity of prawns imported since they peaked in 2004/05 may be attributable to the quarantine measures on the importation of prawns implemented by Biosecurity Australia in 2007 (Biosecurity Australia 2007).

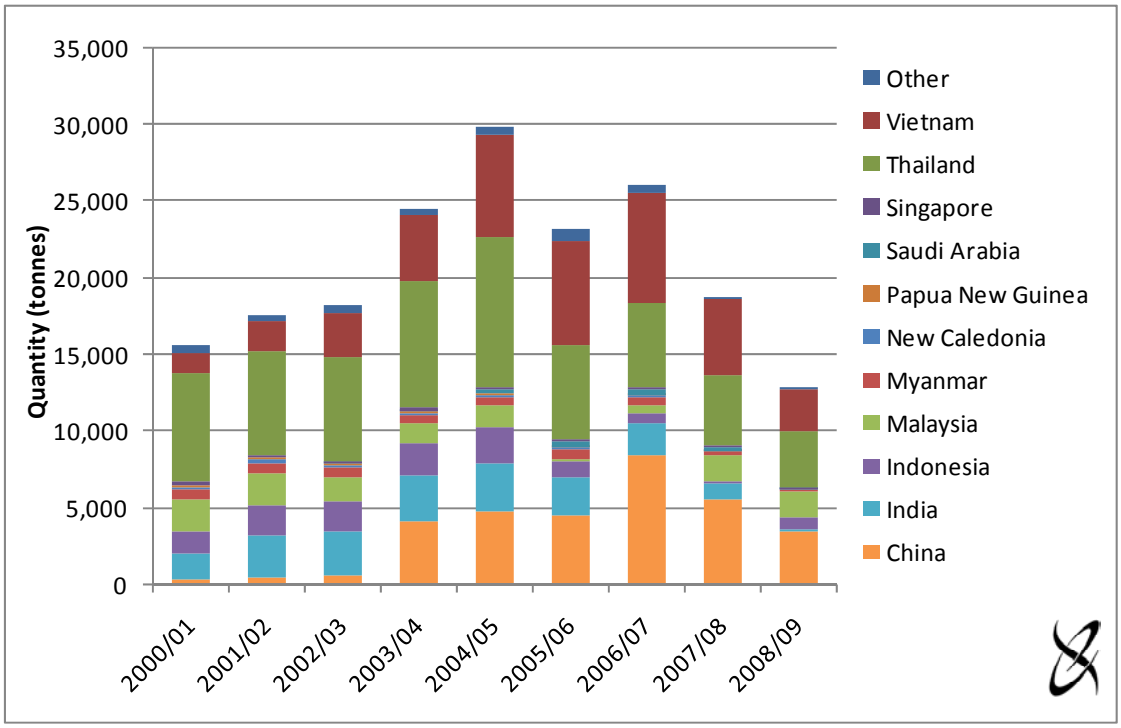
The value (Australian Customs Value)[8] of prawn imports increased by 10 per cent between 2000/01 to 2004/05 from $234 million to $258 million, before decreasing to $135 million in 2008/09. Over the 8-year period the average nominal price of prawn imports fell by approximately 30 per cent, from $15.00 per kg in 2000/01 to $10.52 per kg in 2008/09.

Over the period 2000/01 to 2008/09, the most significant countries of import origin were Thailand, Vietnam, China and India, accounting on average for 31, 21, 17 and 10 per cent, respectively, of the total quantity of prawn imports into Australia. In 2008/09, the most significant import countries of origin by volume and value were Thailand (29 per cent of volume, 26 per cent of value), China (27 per cent of volume, 26 per cent value), Vietnam (21 per cent of volume, 24 per cent of value) and Malaysia (14 per cent of volume, 15 per cent of value) (Figures 4.6 and 4.7).

Figure 4.8 highlights the trends in prices received for prawns caught in the two South Australian prawn fisheries and for prawns imported into Australia from overseas. In order to enable comparison between years, nominal prices have been adjusted using the consumer price index (ABS 2009a) to calculate real prices in terms of 2000/01 dollars. Over the 9 years included in the analysis, 2000/01 to 2008/09, the real price of imported prawns decreased by 45 per cent. The real price received for prawns caught in South Australia also decreased, by 42 per cent in the GSV fishery and by 29 per cent in the Spencer Gulf and West Coast fisheries.

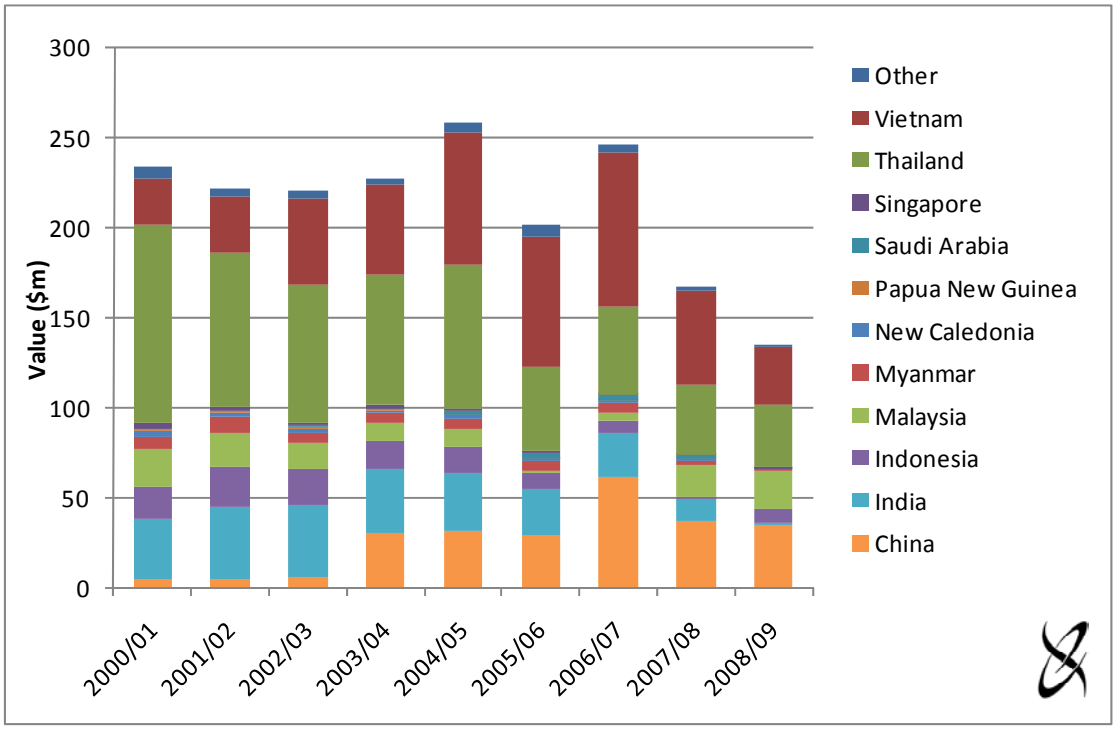
[8] The Australian Customs Value is the value placed on goods imported into Australia based on information advised by the importer. The Customs value is generally an estimate of the transaction value of the goods imported.

Figure 4.6 Prawn imports into Australia, quantity (t) by country of origin, 2000/01 to 2008/09



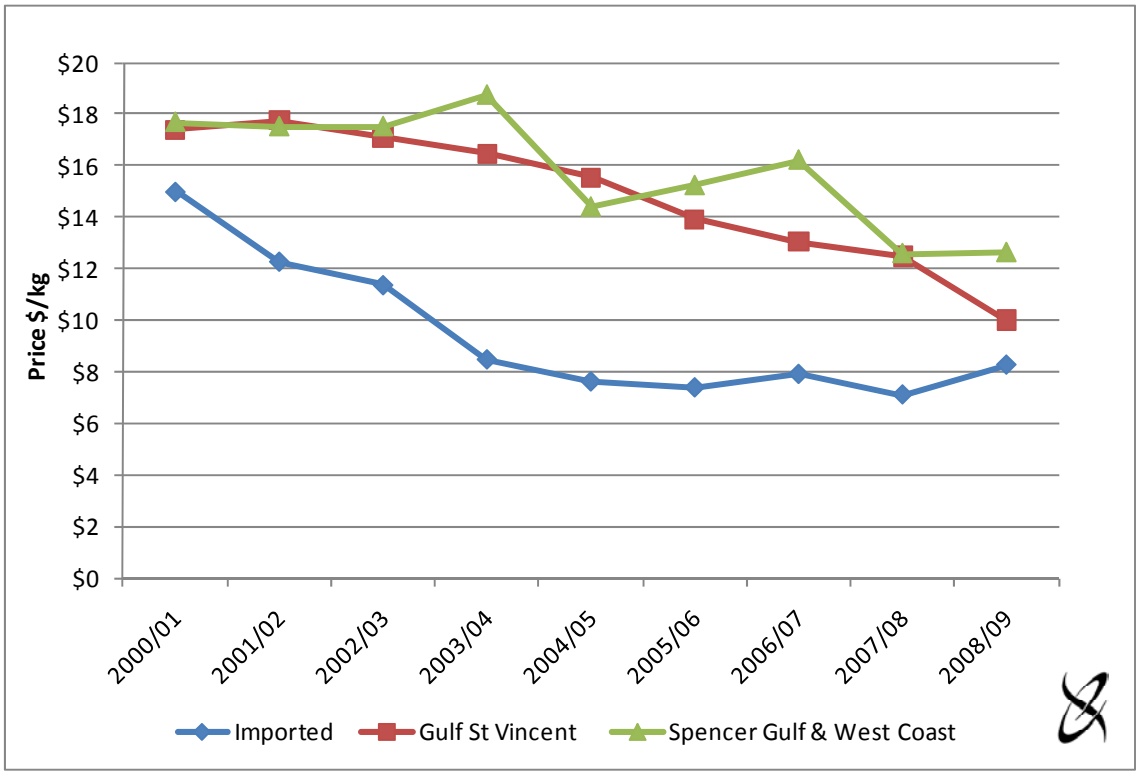
Source: Australian Bureau of Statistics (by request).

Figure 4.7 Prawn imports into Australia, value ($m) by country of origin, 2000/01 to 2008/09



Source: Australian Bureau of Statistics (by request).

Figure 4.8 Real prices [a] for imported and South Australian prawns, 2000/01 to 2008/09



[a] In terms of 200/01 dollars.

Source: ABS (by request), ABS (2009a) and SARDI Aquatic Sciences.

4.3 Market Prices for Prawns in Domestic Markets

This section of the report provides some indication of the seasonality of prices for western king prawns in the local and other domestic markets[9].

Average monthly beach prices for western king prawns in SA

An outline of the seasonality of western king prawn prices in SA (by month) for the period 1995/96 to 2008/09 is provided in Table 4.3 and for the last 6 years in Figure 4.9. Beach prices in SA tend to peak in November and December with strong demand in the Christmas/New Year period and trough in February to May, corresponding with a period of peak supply.

Average monthly price for western king prawns in other domestic markets

The average price of western king prawns sold in the Melbourne and Adelaide fish markets are illustrated on a monthly basis (for 2008/09) in Figure 4.10. Fluctuations in price are similar to those experienced in South Australia with prices peaking in November/December and reaching a low point between February and April.

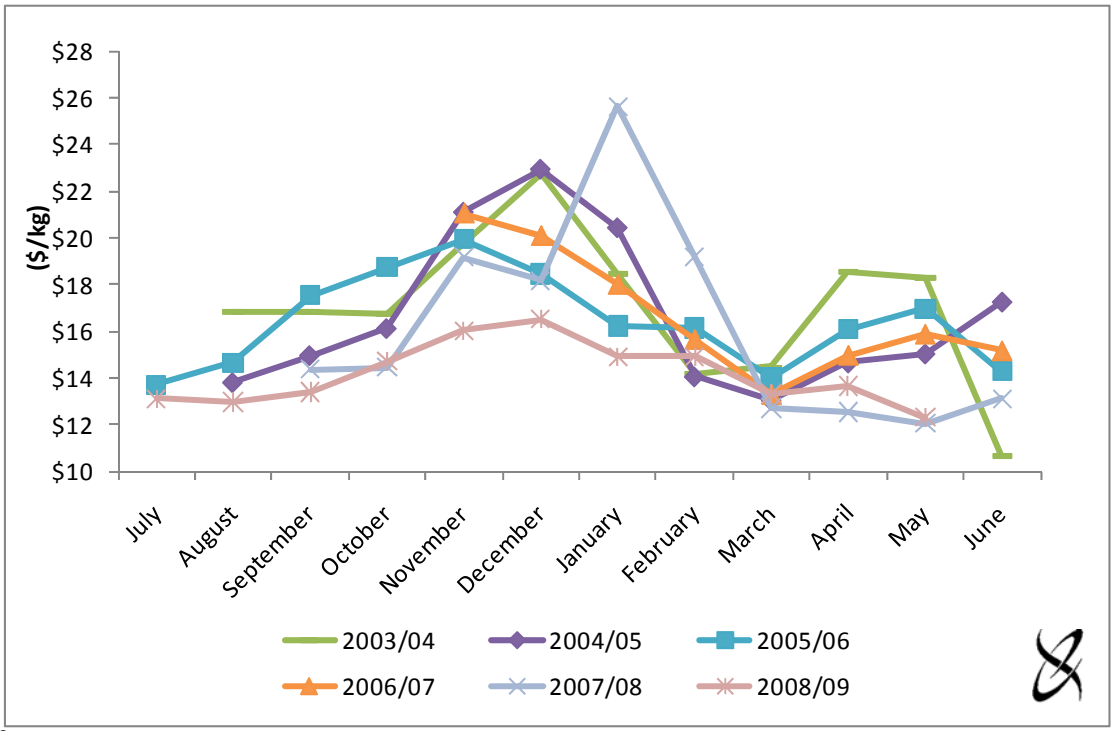
[9] Sydney Fish Market prices were not available for 2009.

Table 4.2 Average monthly beach prices for western king prawns, South Australia [a], 1995/96 to 2008/09 [b, c]

Month	Average Monthly Price ($/kg)													
	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
July	$11.75	$11.42	$11.34	$13.41	$15.05	$17.82	$14.69				$13.70			$13.09
August	$10.47	$10.96	$11.01	$12.72	$14.47	$18.18	$14.80		$16.82	$13.80	$14.66			$12.96
September	$10.36	$11.07	$13.42			$18.06	$15.30				$17.53		$14.35	$13.40
October	$10.92								$16.75	$16.11			$14.45	
November	$12.91	$14.43	$14.56	$15.80	$19.95	$20.00	$18.28	$19.42		$21.07	$19.91	$21.06	$19.16	$16.01
December	$12.58	$14.43	$14.96	$16.23	$20.88	$20.36	$19.42	$19.07	$22.77	$22.91	$18.43	$20.09	$18.16	$16.51
January	$12.06									$20.41		$18.00	$25.61	
February	$10.04	$10.39	$15.96	$14.10	$18.61	$20.51	$15.00		$14.18	$14.05				
March	$11.34	$13.25	$12.94	$14.27	$17.68	$17.77	$17.69	$18.69	$14.46	$13.04	$13.99	$13.28	$12.71	$13.31
April	$11.20	$11.63	$12.32	$14.30	$16.85	$16.83	$17.76	$17.66	$18.54	$14.64	$16.06	$14.97	$12.54	$13.64
May	$10.81	$12.00	$11.49	$12.55	$17.66	$16.26	$17.74	$18.45	$18.26	$15.03	$16.96	$15.87	$12.04	$12.29
June	$11.77	$11.48	$12.34	$14.16	$18.57	$16.64	$16.03	$18.00	$10.61	$17.24	$14.28	$15.16	$13.11	
Weighted Average Price SGWC [d]	$11.36	$12.26	$11.70	$14.26	$17.92	$17.67	$17.99	$18.71	$20.63	$14.90	$17.97	$19.46	$15.78	$16.09
Weighted Average Price GSV [e]	$13.40	$13.88	$15.31	$15.01	$19.09	$17.38	$18.23	$18.28	$18.12	$17.66	$16.40	$15.65	$12.77	$12.76

[a] For all prawn fisheries in South Australia.
[b] Nominal prices.
[c] Blank cells correspond with months in which no returns were received from processors.
[d] Spencer Gulf and West Coast prawn fisheries.
[e] GSV prawn fishery.
Source: SARDI Aquatic Sciences.

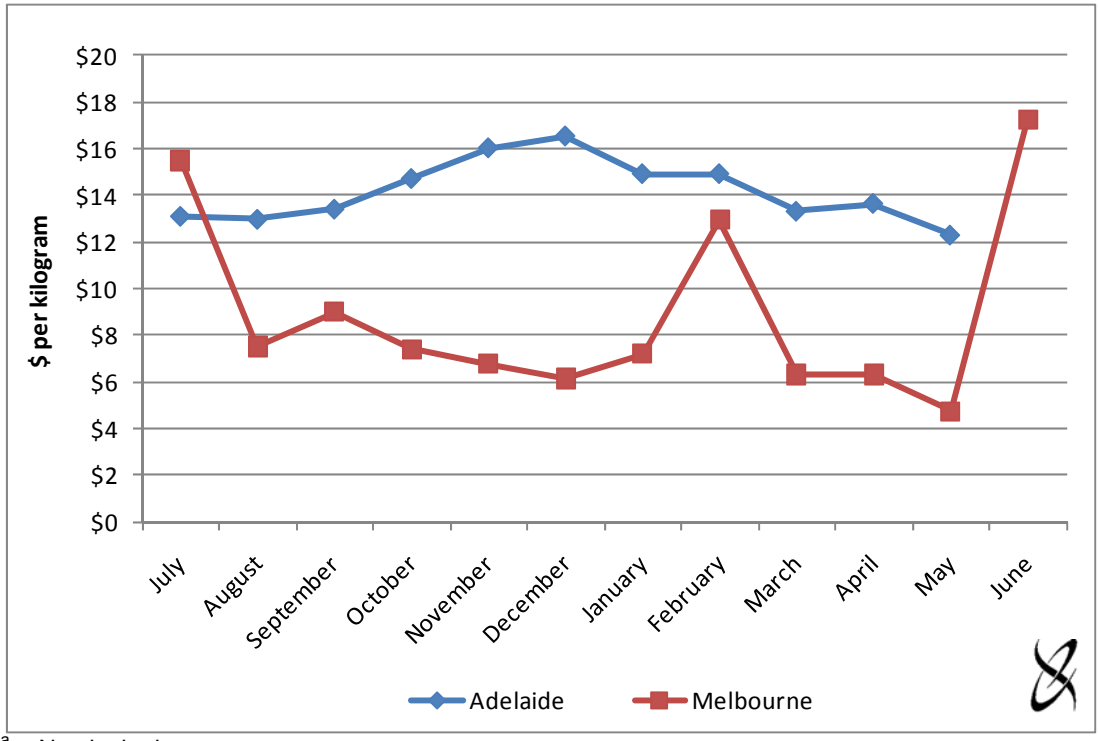
Figure 4.9 Average monthly beach prices for western king prawns, South Australia, 2003/04 to 2008/09 [a]



[a] Nominal prices for all prawn fisheries in South Australia.

Source: SARDI Aquatic Sciences.

Figure 4.10 Prices for western king prawns; Melbourne Fish Markets and South Australian beach prices, 2008/09 [a,b]



[a] Nominal prices.

[b] Sydney Fish Market prices were not available for 2009.

Source: SARDI Aquatic Sciences and Tim Rieniets (Melbourne Wholesale Fish Markets, pers. comm.).

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Appendix 1 Economic Impact of the Gulf St Vincent Prawn Fishery, 2007/08[10]

Appendix Table 1.1 Economic impact of Gulf St Vincent prawn fishery, 2007/08 [a]

Sector	Output		Employment [a]		Household Income		Contribution to GSP	
	($m)	%	(fte jobs)	%	($m)	%	($m)	%
Direct effects								
Fishing	2.9	26.0%	28	35.3%	1.4	37.3%	1.6	29.6%
Processing	0.1	0.7%	0	0.3%	0.0	0.3%	0.0	0.3%
Transport	0.1	0.8%	0	0.5%	0.0	0.8%	0.0	0.7%
Retail	0.4	3.6%	6	7.2%	0.2	4.7%	0.2	3.7%
Food services	1.1	10.1%	9	11.5%	0.3	8.0%	0.4	8.0%
Capital expenditure [b]	0.3	2.3%	3	3.6%	0.1	2.5%	0.1	2.1%
Total Direct [c]	*4.9*	*43.6%*	*47*	*54.8%*	*2.0*	*51.0%*	*2.5*	*42.4%*
Flow-on effects								
Trade	0.9	8.0%	10	12.2%	0.3	9.3%	0.4	7.6%
Manufacturing	1.3	11.6%	4	4.9%	0.2	5.2%	0.3	5.5%
Business Services	0.8	6.8%	4	5.4%	0.3	7.6%	0.4	6.5%
Transport	0.3	2.8%	1	1.8%	0.1	2.8%	0.2	2.7%
Other Sectors	3.1	27.2%	14	17.4%	0.8	21.6%	1.8	33.2%
Total Flow-on [c]	*6.3*	56.4%	*33*	41.6%	*1.7*	46.5%	*3.1*	55.6%
Total [c]	**11.3**	**100.0%**	**80**	**100.0%**	**3.7**	**100.0%**	**5.6**	**100.0%**
Total/Direct	2.3	-	1.7	-	1.9	-	2.3	-
Total/Tonne	$49,100	-	0.35	-	$16,000	-	$24,294	-

[a] Full-time equivalent jobs. Direct employment in the fishing sector was comprised of 10 full-time jobs and 40 part-time jobs, that is, 50 jobs in aggregate and 28 fte jobs.

[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 (2009a).

[10] Estimates of economic impact prepared for this and other commercial fisheries in South Australia (except Lakes and Coorong) for the period 1997/98 to 2002/03 do not include the impact of local retail and food service trade. The economic impact of the Gulf St Vincent prawn 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 1999/00 to 2007/08.

Appendix 2 Prawn Exports from South Australia, 1995/96 to 2008/09

Appendix Table 2.1 Prawn exports from South Australia, quantity (kg) by category, 1995/96 to 2008/09

Category	Year													
	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Headless	691,133	450,771	291,570	215,962	202,791	217,877	76,131	63,059	39,933	30,211	36,144	5,688	0	0
Whole	2,856,778	1,658,189	1,488,560	1,864,243	1,578,792	728,597	1,105,396	1,346,174	1,463,315	1,438,900	1,249,734	281,054	105,167	16,412
Other [a]	31,841	32,950	9,850	20	0	3,018	26,460	13,000	72,980	0	1,465	0	0	34,600
Total	3,579,752	2,141,910	1,789,980	2,080,225	1,781,583	949,492	1,207,987	1,422,233	1,576,228	1,469,111	1,287,343	286,742	105,167	51,012

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

Source: Australian Bureau of Statistics (by request)

Appendix Table 2.2 Prawn exports from South Australia, value ($'000 fob) by category, 1995/96 to 2008/09

Category	Year													
	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Headless	14,186	9,220	6,591	5,832	5,056	5,301	1,794	1,551	1,000	725	871	83	0	0
Whole	50,323	27,432	31,600	36,923	38,115	16,590	22,736	32,774	26,692	27,071	22,930	4,873	1,764	307
Other [a]	23	174	4	0	0	0	810	184	1,116	0	27	0	0	279
Total	64,532	36,827	38,195	42,754	43,171	21,891	25,340	34,509	28,808	27,796	23,827	4,956	1,764	585

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

Source: Australian Bureau of Statistics (by request).

Appendix Table 2.3 Prawn exports from South Australia, quantity (tonnes) by country of destination, 1995/96 to 2008/09

Country of Destination	Year													
	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
China	132	104	146	274	129	175	188	76	25	0	13	0	0	0
Greece	13	0	92	107	37	34	134	267	354	293	242	156	82	0
Hong Kong	203	179	95	88	48	39	173	31	57	6	0	0	2	1
Italy	0	0	0	0	0	0	11	0	0	0	50	13	0	0
Japan	2,463	1,415	1,265	1,316	1,302	391	561	928	830	799	699	43	0	0
Korea	113	94	0	13	0	0	0	1	0	0	0	0	0	0
Malaysia	53	128	15	34	38	39	12	15	76	0	0	0	0	0
New Zealand	0	0	0	3	0	0	7	0	3	0	1	0	0	35
South Africa	222	19	63	66	74	20	0	21	0	0	0	0	0	0
Spain	354	175	101	147	68	46	48	59	219	369	280	74	14	13
UAE	0	0	0	0	0	0	10	3	0	0	0	0	0	2
UK	0	0	0	0	0	0	0	0	0	0	0	0	7	0
USA	0	7	0	0	26	84	26	4	0	0	1	1	0	0
Other	27	12	13	31	48	76	38	16	12	1	1	0	0	0
Total	3,580	2,133	1,790	2,079	1,771	905	1,208	1,422	1,576	1,469	1,287	287	105	51

Source: Australian Bureau of Statistics (by request).

Appendix Table 2.4 Prawn exports from South Australia, value ($'000) by country of destination, 1995/96 to 2008/09

Country of Destination	Year													
	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
China	1,474	1,321	2,271	4,038	1,931	3,000	2,956	1,493	365	0	107	0	0	0
Greece	191	0	1,646	2,158	819	690	1,234	4,886	4,866	5,215	4,303	2,858	1,482	0
Hong Kong	2,756	2,276	1,430	1,403	763	879	2,926	556	1,015	132	1	14	50	16
Italy	19	0	0	0	0	0	0	154	0	0	889	253	3	0
Japan	49,644	27,902	29,480	30,217	34,330	11,569	15,243	25,280	16,868	16,605	13,731	757	0	0
Korea	1,321	1,352	0	159	0	0	2	21	0	0	0	0	0	0
Malaysia	474	1,193	239	554	649	583	233	148	0	0	0	0	0	4
New Zealand	0	0	0	37	0	0	105	7	45	4	23	0	0	279
South Africa	3,880	327	1,280	1,366	1,495	534	0	519	0	0	9	0	0	0
Spain	4,418	2,172	1,630	2,401	1,312	795	789	980	3,473	5,806	4,718	1,060	33	208
UAE	0	0	0	0	0	0	199	73	0	0	0	0	1	75
UK	0	0	0	0	0	2	0	0	0	0	0	0	193	0
USA	0	160	0	0	801	2,274	700	73	0	10	17	14	0	0
Other	354	124	218	422	1,072	1,566	952	138	291	25	29	0	3	3
Total	64,532	36,827	38,195	42,754	43,171	21,891	25,340	34,326	26,923	27,796	23,827	4,956	1,764	585

Source: Australian Bureau of Statistics (by request).

Appendix 3 Summary Economic Indicators for South Australian Commercial Fisheries

Appendix Table 3.1 Commercial fisheries catch, South Australia, 1990/91 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	29692	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 3.2 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 2007/08Excludes 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 3.3 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 3.4 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 3.5 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 3.6 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 3.7 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).

Appendix 4 Financial Performance Indicators, 1997/98 to 2005/06

Appendix Table 4.1 Financial performance in the Gulf St Vincent prawn fishery, 1997/98 to 1999/00 (average per boat) [a]

		1997/98		1998/99		1999/00	
		Average per boat	Share of TBCC [b]	Average per boat	Share of TBCC [b]	Average per boat	Share of TBCC [b]
(1)	**Total Boat Gross Income**	**$408,700**		**$504,300**		**$763,600**	
	Variable Costs						
	Fuel	$15,610	6%	$13,885	5%	$24,397	6%
	Repairs & Maintenance [c]	$21,197	9%	$20,295	7%	$24,365	6%
	Provisions	$233	0%	$223	0%	$268	0%
	Labour - paid	$125,748	51%	$155,162	56%	$234,942	61%
(2)	- unpaid [d]	$21,488	9%	$26,515	10%	$40,148	10%
	Other	$6,655	3%	$6,743	2%	$6,913	2%
(3)	**Total Variable Costs**	**$190,932**	**78%**	**$222,823**	**80%**	**$331,033**	**86%**
	Fixed Costs						
	Licence Fee	$18,818	8%	$20,018	7%	$17,448	5%
	Insurance	$6,714	3%	$6,802	2%	$6,973	2%
(4)	Interest	$1,731	1%	$1,598	1%	$1,769	0%
(5)	Labour - unpaid [d]	$14,112	6%	$14,112	5%	$14,112	4%
	Legal & Accounting	$9,084	4%	$9,203	3%	$9,435	2%
	Telephone etc.	$1,178	0%	$1,193	0%	$1,223	0%
	Slipping & Mooring	$1,571	1%	$1,592	1%	$1,632	0%
	Travel	$246	0%	$249	0%	$255	0%
	Office & Admin	$818	0%	$829	0%	$850	0%
(6)	**Total Fixed Costs**	**$54,271**	**22%**	**$55,596**	**20%**	**$53,697**	**14%**
(7)	**Total Boat Cash Costs (3 + 6)**	**$245,203**	**100%**	**$278,418**	**100%**	**$384,730**	**100%**
	Boat Gross Margin (1 - 3)	**$217,768**		**$281,477**		**$432,567**	
(8)	**Total Unpaid Labour (2 + 5)**	**$35,600**		**$40,626**		**$54,260**	
	Gross Operating Surplus (1 - 7 + 8)	**$199,097**		**$266,508**		**$433,130**	
(9)	**Boat Cash Income (1 - 7)**	**$163,497**		**$225,882**		**$378,870**	
(10)	**Depreciation**	**$47,876**		**$48,506**		**$49,727**	
(11)	**Boat Business Profit (9 - 10)**	**$115,621**		**$177,376**		**$329,144**	
(12)	**Profit at Full Equity (11 + 4)**	**$117,352**		**$178,974**		**$330,913**	
	Boat Capital						
(13)	Fishing Gear & Equip	$142,667		$144,544		$148,181	
	Licence Value	$1,205,441		$1,838,423		$3,399,151	
(14)	**Total Boat Capital**	**$1,348,107**		**$1,982,967**		**$3,547,332**	
	Rate of Return on Fishing Gear & Equip (12 / 13 * 100)	**82.3%**		**123.8%**		**223.3%**	
	Rate of Return on Total Boat Capital (12 / 14 * 100)	**8.7%**		**9.0%**		**9.3%**	

[a] Financial performance estimates for 1997/98 to 1999/00 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) components based on survey responses.

Source: EconSearch analysis.

Appendix Table 4.2 Financial performance in the Gulf St Vincent prawn fishery, 2000/01 to 2002/03 (average per boat) [a]

		2000/01		2001/02		2002/03	
		Average per boat	Share of TBCC [b]	Average per boat	Share of TBCC [b]	Average per boat	Share of TBCC [b]
(1)	**Total Boat Gross Income**	**$667,400**		**$595,443**		**$430,099**	
	Variable Costs						
	Fuel	$23,992	7%	$31,447	9%	$35,272	11%
	Repairs & Maintenance [c]	$23,793	7%	$42,807	12%	$48,579	16%
	Provisions	$262	0%	$210	0%	$238	0%
	Labour - paid	$205,344	59%	$171,039	47%	$123,544	40%
(2)	- unpaid [d]	$35,090	10%	$11,659	3%	$8,422	3%
	Other	$7,307	2%	$25,761	7%	$26,794	9%
(3)	**Total Variable Costs**	**$295,787**	**85%**	**$284,185**	**78%**	**$244,282**	**79%**
	Fixed Costs						
	Licence Fee	$16,787	5%	$42,983	12%	$27,455	9%
	Insurance	$7,371	2%	$19,707	5%	$20,497	7%
(4)	Interest	$1,579	0%	$1,475	0%	$1,456	0%
(5)	Labour - unpaid [d]	$14,112	4%	$6,917	2%	$6,917	2%
	Legal & Accounting	$9,973	3%	$3,339	1%	$3,473	1%
	Telephone etc.	$1,293	0%	$1,830	1%	$1,903	1%
	Slipping & Mooring	$1,725	0%	$1,342	0%	$1,396	0%
	Travel	$270	0%	$404	0%	$420	0%
	Office & Admin	$898	0%	$2,351	1%	$2,445	1%
(6)	**Total Fixed Costs**	**$54,007**	**15%**	**$80,347**	**22%**	**$65,962**	**21%**
(7)	**Total Boat Cash Costs (3 + 6)**	**$349,795**	**100%**	**$364,533**	**100%**	**$310,244**	**100%**
	Boat Gross Margin (1 - 3)	**$371,613**		**$311,258**		**$185,817**	
(8)	**Total Unpaid Labour (2 + 5)**	**$49,202**		**$18,576**		**$15,338**	
	Gross Operating Surplus (1 - 7 + 8)	**$366,807**		**$249,487**		**$135,194**	
(9)	**Boat Cash Income (1 - 7)**	**$317,605**		**$230,911**		**$119,855**	
(10)	**Depreciation**	**$52,561**		**$83,109**		**$86,441**	
(11)	**Boat Business Profit (9 - 10)**	**$265,044**		**$147,802**		**$33,415**	
(12)	**Profit at Full Equity (11 + 4)**	**$266,623**		**$149,276**		**$34,870**	
	Boat Capital						
(13)	Fishing Gear & Equip	$156,628		$301,168		$313,241	
	Licence Value	$2,738,760		$2,500,000		$1,805,792	
(14)	**Total Boat Capital**	**$2,895,388**		**$2,801,168**		**$2,119,033**	
	Rate of Return on Fishing Gear & Equip (12 / 13 * 100)	**170.2%**		**49.6%**		**11.1%**	
	Rate of Return on Total Boat Capital (12 / 14 * 100)	**9.2%**		**5.3%**		**1.6%**	

[a] Financial performance estimates for 2000/01 are based on the October 1998 survey of licence holders. Financial performance estimates for the period 2001/02 to 2002/03 are based on the February 2003 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) components based on survey responses.

Source: EconSearch analysis.

Appendix Table 4.3 Financial performance in the Gulf St Vincent prawn fishery, 2003/04 to 2005/06 (average per boat) [a]

		2003/04		2004/05		2005/06	
		Average per boat	Share of TBCC [b]	Average per boat	Share of TBCC [b]	Average per boat	Share of TBCC [b]
(1)	**Total Boat Gross Income**	**$316,183**		**$370,167**		**$282,473**	
	Variable Costs						
	Fuel	$26,805	11%	$35,903	12%	$26,271	10%
	Repairs & Maintenance [c]	$37,408	15%	$20,720	7%	$14,771	6%
	Provisions	$184	0%	$1,221	0%	$871	0%
	Labour - paid	$90,823	36%	$111,434	38%	$85,035	34%
(2)	- unpaid [d]	$6,191	2%	$9,229	3%	$7,043	3%
	Other	$27,602	11%	$9,133	3%	$9,482	4%
(3)	**Total Variable Costs**	**$190,115**	**75%**	**$187,639**	**64%**	**$143,472**	**57%**
	Fixed Costs						
	Licence Fee	$25,097	10%	$27,146	9%	$28,283	11%
	Insurance	$21,115	8%	$18,294	6%	$18,993	8%
(4)	Interest	$1,494	1%	$28,616	10%	$28,475	11%
(5)	Labour - unpaid [d]	$6,917	3%	$18,299	6%	$18,299	7%
	Legal & Accounting	$3,578	1%	$7,302	2%	$7,581	3%
	Telephone etc.	$1,961	1%	$1,544	1%	$1,603	1%
	Slipping & Mooring	$1,438	1%	$4,560	2%	$4,734	2%
	Travel	$433	0%	$184	0%	$191	0%
	Office & Admin	$2,519	1%	$464	0%	$482	0%
(6)	**Total Fixed Costs**	**$64,549**	**25%**	**$106,409**	**36%**	**$108,641**	**43%**
(7)	**Total Boat Cash Costs (3 + 6)**	**$254,664**	**100%**	**$294,048**	**100%**	**$252,113**	**100%**
	Boat Gross Margin (1 - 3)	**$126,069**		**$182,528**		**$139,001**	
(8)	**Total Unpaid Labour (2 + 5)**	**$13,108**		**$27,528**		**$25,342**	
	Gross Operating Surplus (1 - 7 + 8)	**$74,627**		**$103,647**		**$55,701**	
(9)	**Boat Cash Income (1 - 7)**	**$61,519**		**$76,119**		**$30,360**	
(10)	**Depreciation**	**$181,172**		**$154,399**		**$133,534**	
(11)	**Boat Business Profit (9 - 10)**	**-$119,653**		**-$78,280**		**-$103,175**	
(12)	**Profit at Full Equity (11 + 4)**	**-$118,159**		**-$49,664**		**-$74,700**	
	Boat Capital						
(13)	Fishing Gear & Equip	$656,525		$1,142,570		$988,171	
	Licence Value	$1,327,513		$3,100,000		$2,365,594	
(14)	**Total Boat Capital**	**$1,984,038**		**$4,242,570**		**$3,353,766**	
	Rate of Return on Fishing Gear & Equip (12 / 13 * 100)	**-18.0%**		**-4.3%**		**-7.6%**	
	Rate of Return on Total Boat Capital (12 / 14 * 100)	**-6.0%**		**-1.2%**		**-2.2%**	

[a] Financial performance estimates for 2003/04 are based on the February 2003 survey of licence holders. Financial performance estimates for 2004/05 and 2005/06 are based on the November 2005 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) components based on survey responses.

Source: EconSearch analysis.