

Economic Indicators
for the South Australian Northern Zone
Rock Lobster Fishery,
2010/11

A report prepared for
Primary Industries and Regions South Australia

Prepared by



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Abbreviations

ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
ABS	Australian Bureau of Statistics
CPI	consumer price index
FRDC	Fisheries Research and Development Corporation
fob	free on board
fte	full time equivalent
GRP	gross regional product
GSP	gross state product
GVP	gross value of production
NZRL	Northern Zone Rock Lobster
PIRSA	Primary Industries and Regions South Australia
RBA	Reserve Bank of Australia
R&M	repairs and maintenance
SA	South Australia
SARDI	South Australian Research and Development Institute
SEPFA	South Eastern Professional Fishermen's Association
TACC	Total allowable commercial catch

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Executive Summary

Catch and Gross Value of Production...

Total catch in the Northern Zone Rock Lobster fishery followed a declining trend between 1997/98 and 2010/11 and was reported to be just 313 tonnes in 2010/11. The value of catch in the fishery fluctuated between years but followed a declining trend between 1997/98 and 2004/05, trended upward between 2004/05 and 2008/09 but has since declined. GVP was estimated to be \$14.3 million in 2010/11.

The nominal average price for Northern Zone Rock Lobster has fluctuated between years but has generally increased over the past two decades. In 2010/11 the nominal average price was 56 per cent higher than in 1997/98. Despite the increase in average price, fishery GVP fell by 48 per cent between 1997/98 and 2010/11 as a result of a 67 per cent reduction in catch.

The 56 per cent increase in nominal average price of Northern Zone Rock Lobster was equivalent to a 4 per cent rise in real price.

Management Costs...

Licence fees as a percentage of GVP have generally followed an increasing trend. The overall increase in licence fees as a proportion of GVP between 1997/98 (4.4 per cent) and 2010/11 (8.2 per cent) is a result of both an increase in the cost of management and a decline in fishery GVP.

The average management cost per licence holder decreased from \$16,208 in 1997/98 to \$9,938 in 2001/02, reflecting a decrease in total management cost (from \$1.2 million to \$0.7 million) and despite a decrease in the number of licence holders. Cost of management per licence holder has increased in subsequent years as a result of the introduction of quota management. It was estimated to be \$17,339 in 2010/11 declining to \$15,673 in 2011/12.

Financial Performance Indicators...

The total number of licence holders decreased from 75 to 69 between 1997/98 and 2000/01 but has changed very little since (falling from 69 to 68 between 2005/06 and 2006/07). However, the number of active boats in the fishery in 2010/11 was just 46. As a result of the significant decrease in GVP and despite the decline in active boats, the average income per boat in the fishery has decreased from almost \$374,000 in 1997/98 to around \$313,000 in 2010/11 (in nominal terms).

In each year of the analysis labour costs accounted for the largest share of total cash costs (34 per cent). Other significant cash costs were interest (12 per cent), fuel (9 per cent), repairs and maintenance (8 per cent), and licence fees (7 per cent) and in recent years leasing (15 per cent).

As noted above, between 1997/98 and 2010/11 the average price of Northern Zone Rock Lobster increased by approximately 56 per cent in nominal terms. The average costs of catching Rock Lobster also followed an increasing trend, and over the same period increased by approximately 96 per cent, significantly more than the increase in price.

Changes in each of the profitability measures for the fishery were closely related to the average income earned. Profitability followed a declining trend between 1997/98 and 2003/04 but has generally increased in subsequent years. In 2010/11 average profit at full equity was estimated to be approximately \$63,700 per boat.

Over the six years to 2003/04 the estimated rate of return on investment followed a sharp declining trend. Since that time it has improved significantly, rising from -5.7 per cent in 2003/04 to 3.5 per cent in 2010/11. The average value of licences in the fishery has fluctuated between years, but was estimated to average around \$1.5 million per boat in 2010/11.

Contribution to SA Economy...

The change in total output and gross state product (GSP) impacts are closely related to changes in price and fishery GVP. In 2010/11 the fishery's contribution to GSP was estimated to be \$23.6 million, well below the almost \$50 million impact of a decade earlier.

There has been an overall decline in direct employment impact of the fishery since 1997/98 due to a decrease in the number of active boats in the fishery. In 2010/11 there were an estimated 271 fte jobs generated by the industry, 95 directly in fishing, 26 in downstream activities and a further 150 in indirect economic activity.

Economic Rent...

Economic rent has fluctuated between years but has generally decreased over the past 14 years. In 1997/98 estimated economic rent in the fishery was \$3.4 million and declined in each year through to 2003/04 when it was estimated to be -\$10.8 million. Since then it has followed an increasing trend and in 2010/11 it was estimated to be -\$0.5 million.

Economic rent represents a return to the value of licences in the fishery. The return to the capital value of the fishery decreased between 1997/98 and 2003/04 but has followed an increasing trend in subsequent years.

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 fourteenth annual economic indicators report for the SA Northern Zone Rock Lobster (NZRL) fishery. The first report, prepared for 1997/98, entitled *Economic Indicators for the SA Northern Zone Rock Lobster Fishery 1997/98* (EconSearch 1999a), reported on the results of an initial economic survey of the South Australian NZRL fishery. The second and third annual reports, prepared for 1998/99 and 1999/00 respectively, provided an update of the 1997/98 economic indicators (EconSearch 1999b and 2001). The fourth annual report outlined the fishery's economic performance in 2000/01 based on the results of a second survey of licence holders (EconSearch 2002). The fifth, sixth and seventh reports, prepared for 2001/02 to 2003/04 respectively, provided an update of the economic indicators based on the second survey of licence holders (EconSearch 2003, 2004 and 2005). The eighth report, prepared for 2004/05, reported the results of a third survey of licence holders, conducted in 2006 (EconSearch 2006). The ninth and tenth reports, prepared for 2005/06 and 2006/07, respectively, provided an update of the economic indicators based on the third survey of licence holders (EconSearch 2007 and 2008). The eleventh, twelfth and thirteenth reports, prepared for 2007/08, 2008/09 and 2009/10, respectively, outlined the fishery's economic performance based on the results of the fourth survey of licence holders conducted in 2009 (EconSearch 2009a, 2010 and 2011).

The objective of this report, *Economic Indicators for the SA Northern Zone Rock Lobster Fishery 2010/11*, is to provide an update of the economic indicators based on the results of the fifth 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;
- financial performance indicators (income, costs, profit, and return on investment);
- economic impact of the fishery, both local and state;
- economic rent;
- external factors influencing the economic condition of the fishery; and
- Rock Lobster exports (quantity and value).

For purposes of comparison, summary economic indicators for all South Australian commercial fisheries, up to 2009/10, are presented in Appendix 3.

2. Method of Analysis and Definition of Terms

2.1 Survey of Licence Holders in the Fishery, 2010/11

The questionnaire for the survey of licences holders in 2012 was based on previous economic indicator surveys. The questionnaire for the survey was drafted and subsequently modified after consultation with the South Eastern Professional Fishermen's Association (SEPFA).

Economic data collected in the survey will also be used in a Seafood CRC funded project to develop bioeconomic models for Southern Rock Lobster fisheries. EconSearch have been included in a consortium of research organisations (including CSIRO, DPI Victoria, SARDI, SARLAC, Southern Rocklobster Ltd and University of Tasmania) to undertake this project. In these models biological and economic data are combined to enable stakeholders to make decisions about their fishery with the goal of enhancing profitability.

Additional questions were later added that were aimed at gathering information to be used in another project, 'Developing and testing social objectives and indicators for fisheries management', which is funded by the Fisheries Research and Development Corporation (FRDC), together with PIRSA Fisheries and the CSIRO Wealth from Oceans Flagship project. This project will identify social objectives relevant to different fisheries contexts, and develop and trial cost-effective indicators for their monitoring.

The sampling frame for the survey included all active licence holders in the NZRL Fishery (48 in total). The time period for which information was sought was the 2010/11 financial year.

In April 2012, all licence holders in the fishery were sent an introductory letter outlining the survey and encouraging them to participate. Licence holders were then contacted and face-to-face surveys were carried out. A total of 22 usable responses were received which represented 46 per cent of the total active licence holders in the fishery.¹

Of the 48 active licence holders in the fishery, 26 did not provide a response to the survey for the following reasons:

- could not be contacted;
- too busy; and
- minimal fishing or not interested in participating in the survey.

¹ A number of licence holders (20 in total) did not fish in 2010/11 and were, therefore, excluded from the sample. A licence holder is considered 'active' if they fished for one day or more during the 2010/11 financial year.

2.2 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, variable costs also increases. 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
- 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): are 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

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

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.

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 stock assessment 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 Northern Zone Rock Lobster Fishery

3.1 Gross Value of Production

The data shown in Table 3.1 for 1990/91 to 2010/11 indicate that the total Rock Lobster catch in the northern zone has decreased significantly over the period. Between 1993/94 to 1996/97 catch was significantly below the catch levels earlier in that decade. This reduced catch level can be largely attributed to a combination of pot reductions, reductions in the number of days available for fishing in the fishery. Since the introduction of quota in 2003/04, reductions in the TACC have also contributed to the low catch levels (Table 3.2). Northern zone catch was 313 tonnes in 2010/11, similar to the previous year, primarily due to the reduction in quota in 2009/10.

Table 3.1 South Australian Rock Lobster catch and value of catch, 1990/91 to 2010/11

	Southern Zone		Northern Zone		South Australia	
	(tonnes)	(\$m)	(tonnes)	(\$m)	(tonnes)	(\$m)
1990/91	1,562	26.7	1,104	18.2	2,666	44.9
1991/92	1,940	36.3	1,222	21.4	3,162	57.8
1992/93	1,754	34.8	1,064	20.5	2,818	55.3
1993/94	1,669	43.2	930	23.4	2,599	66.6
1994/95	1,720	48.6	891	25.5	2,611	74.0
1995/96	1,684	44.6	903	23.8	2,587	68.4
1996/97	1,635	47.0	893	24.4	2,528	71.4
1997/98	1,680	50.9	942	27.7	2,622	78.6
1998/99	1,713	47.2	1,016	26.7	2,729	73.9
1999/00	1,717	51.2	1,001	29.8	2,718	81.0
2000/01	1,716	54.7	846	28.0	2,562	82.7
2001/02	1,717	65.7	675	26.2	2,392	91.9
2002/03	1,766	63.8	595	18.8	2,361	82.7
2003/04	1,896	49.3	504	12.0	2,400	61.4
2004/05	1,897	54.4	446	11.6	2,343	66.0
2005/06	1,889	65.7	476	15.4	2,365	81.2
2006/07	1,894	78.8	492	18.0	2,531	97.5
2007/08	1,850	75.7	459	15.9	2,411	92.2
2008/09	1,407	85.4	403	19.3	1,925	105.4
2009/10	1,243	70.7	310	15.1	1,642	86.4
2010/11	1,244	67.0	313	14.3	1,695	82.4

Source: SARDI Aquatic Sciences

Table 3.2 TACC in the Northern Zone Rock Lobster Fishery, 2003/04 to 2011/12

Year	Total Allowable Commercial Catch (t)
2003/04	625
2004/05	520
2005/06	520
2006/07	520
2007/08	520
2008/09	470
2009/10	310
2010/11	310
2011/12	310

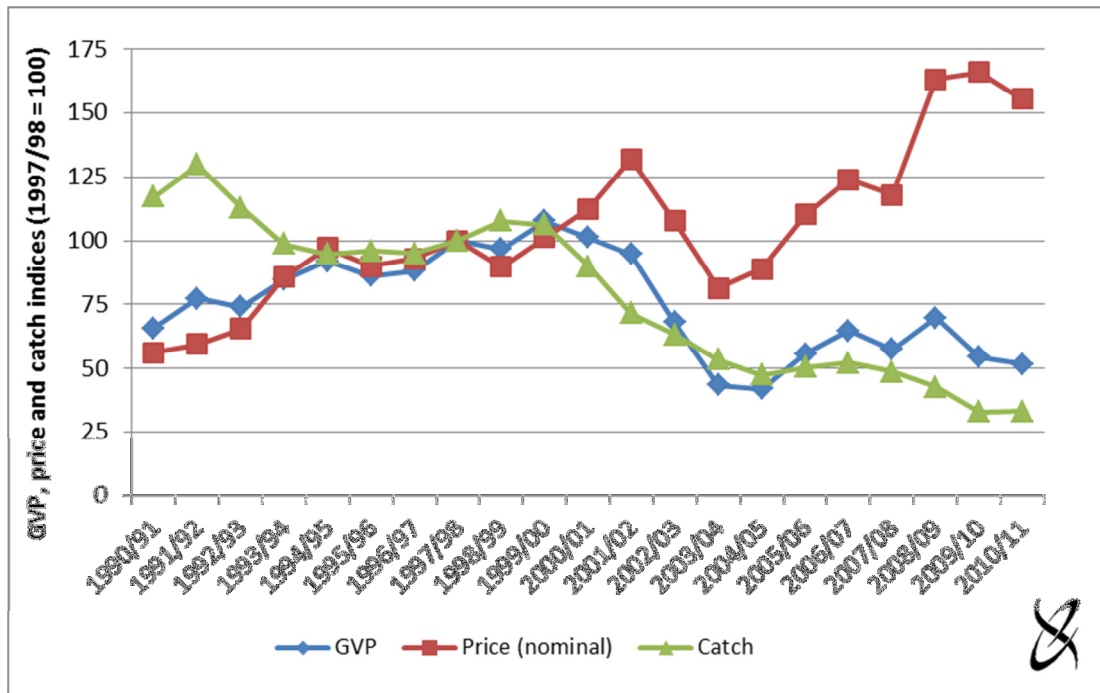
Source: Linnane et al. (2007, 2008, 2009a,b)

The decline in catch since 1998/99 corresponds with a decrease in total effort in the fishery. However, since the introduction of a quota management system in 2003, there have been no direct controls on effort levels. The decline in catch since 1998/99 is also consistent with a decline in lobster abundance which is discussed further in Section 4.1. A quota system was introduced in the fishery in October 2003 for the 2003/04 season, with a TACC of 625 tonnes. The TACC was then reduced for the 2004/05 and 2005/06 seasons to 520 tonnes (Linnane et al. 2006). The total catch in 2006/07 to 2008/09 was well below the TACC for the fishery. For the 2008/09 season, the TACC was reduced to 470 tonnes. Since a TACC of 470 tonnes did not restrain catch in 2008/09 the TACC was further reduced to 310 tonnes for the 2009/10, 2010/11 and 2011/12 seasons (Table 3.2).

Table 3.1 and Figures 3.1 and 3.2 illustrate how the value of the fishery has changed during the 21 years, 1990/01 to 2010/11. The nominal value of the northern zone catch in 2010/11 was 48 per cent below that in 1997/98. This is the result of a significant fall in catch (67 per cent lower than 1997/98) and a substantial increase in price. Figures 3.1 and 3.2 show that the average price of lobster in the northern zone has increased since 1997/98 by 56 per cent in nominal terms.

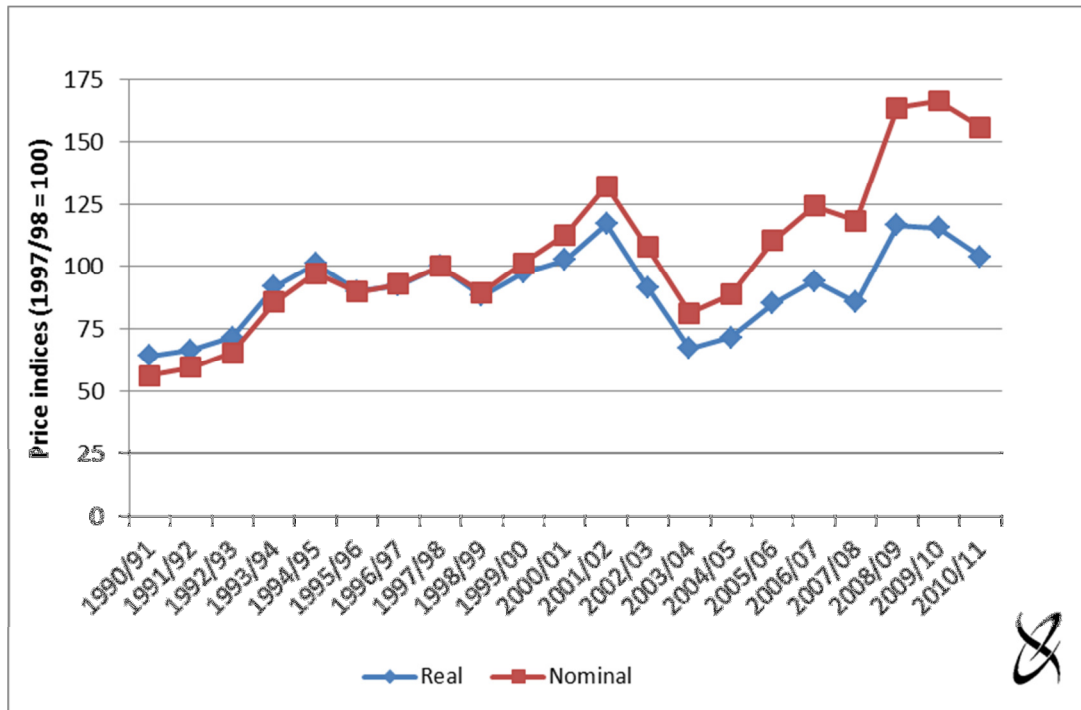
The rate of price increase for Rock Lobster was well above the CPI for the decade or so up until 2001/02. In the following two years there was a sharp decline in price. Part of the reason for this decline in price was the SARS outbreak which affected demand for Rock Lobster from Hong Kong and other Asian export destinations. Between 2003/04 and 2010/11 price followed an increasing trend despite falls in price in 2007/08 and 2010/11. As mentioned above, the nominal price in 2010/11 was 56 per cent above that in 1997/98, which is equivalent to a 4 per cent real price increase (Figure 3.2). However, as a result of the significant fall in catch and despite the price increase, the value of the northern zone catch in 2010/11 was 70 per cent lower in real terms than it was in 1990/91 (48 per cent lower in nominal terms as noted above).

Figure 3.1 GVP, price and catch indices for the SA Northern Zone Rock Lobster fishery (1997/98=100)



Source: SARDI Aquatic Sciences

Figure 3.2 Price index for the SA Northern Zone Rock Lobster fishery (1997/98=100)



Source: SARDI Aquatic Sciences and ABS (2011a)

3.2 Costs of Management

Licence fees from Northern Zone Rock Lobster Fishery licence holders are collected in accordance with the South Australian Government's full cost recovery policy for the management of commercial fisheries. 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 (Mehdi Doroudi, pers. comm.). Table 3.3 shows actual licence fee receipts for the fishery for the period 1996/97 to 2011/12.

Since 1996/97 the following trends have emerged.

- Licence fees as a percentage of gross value of production declined from 3.6 per cent in 1996/97 to 2.5 per cent in 1999/00. Licence fees as a percentage of production have increased significantly since and were 8.2 per cent in 2010/11, as a result of an increase in aggregate fees and a fall in GVP.
- The cost of licence fees per kilogram of landed lobster increased significantly between 1996/97 to 2004/05 from \$0.97 to \$2.41. Despite a small decrease in 2005/06, licence fees per kilogram of landed lobster have increased since and were \$3.77 in 2010/11, reflecting the significantly lower catch.
- The cost per licence holder fell from \$11,278 in 1996/97 to \$9,938 in 2001/02 but has risen in subsequent years reaching \$17,339 in 2010/11.
- Between 2010/11 and 2011/12, licence fees fell by 10 per cent from \$17,339 to \$15,673 per licence holder.

There are three main factors that have contributed to the trends observed from 1996/97 to 2010/11. First, aggregate licence fees have increased by approximately 36 per cent, although this has just kept pace with inflation, at a time when the management services have had to increase to accommodate the change to a quota system. Second, the catch in 2010/11 was approximately 65 per cent below that achieved in 1996/97, while the price was approximately 56 per cent higher in nominal terms. Third, the number of licence holders has fallen by around 12 per cent over the period.

Table 3.3 Costs of management in the SA Northern Zone Rock Lobster fishery, 1996/97 to 2011/12 ^a

	Licence Fees (\$,000)	Gross Value of Production (\$,000)	Fees/GVP (%)	Catch (t)	Fee/Catch (\$/kg)	No. Licence Holders (no.)	Fee/Licence Holder (\$/licence)
1996/97	\$868	24,376	3.6%	893	\$0.97	77	\$11,278
1997/98	\$1,216	27,683	4.4%	942	\$1.29	75	\$16,208
1998/99	\$832	26,743	3.1%	1,016	\$0.82	73	\$11,397
1999/00	\$731	29,802	2.5%	1,001	\$0.73	71	\$10,293
2000/01	\$755	27,988	2.7%	846	\$0.89	69	\$10,945
2001/02	\$686	26,190	2.6%	675	\$1.02	69	\$9,938
2002/03	\$805	18,828	4.3%	595	\$1.35	69	\$11,666
2003/04	\$1,029	12,046	8.5%	504	\$2.04	69	\$14,916
2004/05	\$1,076	11,643	9.2%	446	\$2.41	69	\$15,600
2005/06	\$1,088	15,433	7.0%	476	\$2.29	69	\$15,766
2006/07	\$1,164	17,954	6.5%	492	\$2.37	68	\$17,112
2007/08	\$1,175	15,935	7.4%	459	\$2.56	68	\$17,287
2008/09	\$1,118	19,331	5.8%	403	\$2.78	68	\$16,447
2009/10	\$1,165	15,117	7.7%	310	\$3.76	68	\$17,126
2010/11	\$1,179	14,306	8.2%	313	\$3.77	68	\$17,339
2011/12	\$1,066	n.a.	-	n.a.	-	68	\$15,673

^a A number of Northern Zone Rock Lobster licence holders have marine scalefish entitlements. The costs of managing the marine scalefish fishery are not included in the licence fee information reported above.

Source: PIRSA Fisheries

3.3 Economic Objectives of the Northern Zone Rock Lobster Fishery

According to the management plan for the Northern Zone Rock Lobster fishery (Sloan and Crosthwaite 2007) management of the fishery has four key goals:


1. *Rebuild the stock to ecologically sustainable levels.*
2. *Ensure optimum utilisation and equitable distribution of Rock Lobster stocks.*
3. *Minimise impacts on the ecosystem.*
4. *Cost effective and participative management.*

In order to achieve these goals the management plan sets out specific biological, ecological, social and economic objectives for the fishery. The economic objectives of the Northern Zone Rock Lobster fishery, as described in the management plan, are summarised in Table 3.4.

Table 3.4 Economic objectives of the Northern Zone Rock Lobster fishery

Goal	Objective	Performance Indicator	Description	Limit Reference Point
2. Optimum utilisation and equitable distribution of stocks	Maintain a flow of economic benefit from the fishery to the broader community	GVP	The total catch valued at the landed beach price – used to determine the overall industry value	GVP decreases by 20% or more in one year GVP decreases by 10% or more each year for two consecutive years
		Economic Impact (measured by contribution to GSP)	The total flow on effects associated with the fishery including business turnover, employment, household income and value adding. Used to determine the total impact on the economy	Contribution to GSP drops below \$15 million
		Economic rent	The difference between the market price of Rock Lobster and the unit costs of producing the landed product. Used to determine the value of the natural resource itself	Economic rent decreases for two consecutive years
4. Cost effective and participative management of the fishery	Cost-effective and efficient management of the fishery, in line with the government's cost recovery policy	Management costs	Total annual costs associated with management of the fishery	Management costs as a % of GVP increase for two consecutive years Total management costs increase by 10% or more in one year Total management costs increase by 15% or more in any two consecutive years

 Indicators reported in economic reports.

 Trigger points that can be calculated from reported economic indicators.

Source: (Sloan and Crosthwaite 2007)

3.4 Financial Performance Indicators

The major measures of the financial performance of the surveyed boats in the SA NZRL fishery for the years 2008/09 to 2010/11 are shown in Table 3.5. Estimates for 2008/09 to 2009/10 are based on the 2009 licence holder survey and those estimates for 2010/11 are based on the most recent survey conducted over the period April to July 2012. Financial performance estimates for 1997/98 to 2007/08 are provided in Appendix 4.

As a result of the large sample size it was possible to divide the 2010/11 survey responses into four groups (quartiles) according to rate of return to capital. The first quartile comprises the 25 per cent of boats with the lowest rate of return and fourth quartile includes the 25 per cent with the highest rate of return to capital. The financial performance measures for 'return to capital' quartiles for 2010/11 are provided in Table 3.6.

In addition, the survey responses were divided into two groups according to the number of licensed pots held. The first group includes those licence holders with less than 70 pots (approximately 50 per cent of survey respondents) and the second group includes licence holders with 70 pots or more (approximately 50 per cent of survey respondents)³. The financial performance estimates for the pot groups for 2010/11 are provided in Table 3.7 as an average per boat and in Table 3.8 as an average per pot.

Income...

In the fishery as a whole, total recorded lobster catch increased by 1 per cent between 2009/10 and 2010/11 but as a result of a 6 per cent decrease in price, gross receipts from the sale of Rock Lobster decreased by 5 per cent (Table 3.1). The average gross income per surveyed boat in the NZRL fishery was estimated to be approximately \$313,000 in 2010/11, compared to an average of around \$263,000 per boat in the previous year, an increase of 19 per cent (Table 3.5)⁴.

In 2010/11, the average gross income for boats in the first quartile⁵ was approximately 10 per cent below the average, while in the fourth quartile, average gross income was around 18 per cent above the average recorded for all surveyed boats (Table 3.6).

As expected, the average gross income per boat was positively correlated with the number of pots per boat. Gross income per boat was approximately 50 per cent greater for licence holders with 70 or more pots when compared with those with less than 70 pots (Table 3.7). However, gross income per pot was only 8 per cent greater for licence holders with 70 or more pots when compared with those with less than 70 pots (Table 3.8).

³ Number of pots was based on pots owned and leased by the licence holders who participated in the 2012 survey of licence holders.

⁴ Financial performance estimates for 2010/11 are based on different survey samples to earlier years. Some of the differences between years is, therefore, attributable to sampling variability.

⁵ Quartiles are based on rate of return to total capital.

Table 3.5 Financial performance in the SA Northern Zone Rock Lobster fishery, 2008/09 to 2010/11 (average per boat)^a

	2008/09		2009/10		2010/11	
	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	\$335,778		\$262,581		\$313,318	
Variable Costs						
Fuel	\$40,877	13%	\$23,602	9%	\$24,783	9%
Repairs & Maintenance ^c	\$23,088	7%	\$13,654	5%	\$22,782	8%
Bait/Ice	\$9,166	3%	\$3,333	1%	\$9,335	3%
Provisions	\$11,185	4%	\$6,615	3%	\$2,840	1%
Labour - paid	\$88,984	29%	\$71,534	28%	\$74,325	26%
(2) - unpaid ^d	\$27,745	9%	\$22,304	9%	\$15,174	5%
Other	\$992	0%	\$1,019	0%	\$3,379	1%
(3) Total Variable Costs	\$202,035	65%	\$142,061	55%	\$152,618	54%
Fixed Costs						
Licence Fee	\$19,744	6%	\$20,559	8%	\$20,524	7%
Insurance	\$7,546	2%	\$7,755	3%	\$7,872	3%
(4) Interest	\$40,552	13%	\$46,807	18%	\$33,909	12%
(5) Labour - unpaid ^d	\$9,539	3%	\$7,669	3%	\$5,217	2%
(6) Leasing	\$13,662	4%	\$14,039	5%	\$41,807	15%
Legal & Accounting	\$4,132	1%	\$4,246	2%	\$2,910	1%
Telephone etc.	\$3,130	1%	\$3,216	1%	\$3,086	1%
Slipping & Mooring	\$1,742	1%	\$1,790	1%	\$3,114	1%
Travel	\$3,801	1%	\$3,906	2%	\$1,012	0%
Office & Admin	\$4,420	1%	\$4,542	2%	\$8,517	3%
(7) Total Fixed Costs	\$108,268	35%	\$114,529	45%	\$127,968	46%
(8) Total Boat Cash Costs (3 + 7)	\$310,303	100%	\$256,590	100%	\$280,586	100%
Boat Gross Margin (1 - 3)	\$133,743		\$120,520		\$160,700	
(9) Total Unpaid Labour (2 + 5)	\$37,284		\$29,973		\$20,391	
Gross Operating Surplus (1 - 8 + 9)	\$62,759		\$35,964		\$53,122	
(10) Boat Cash Income (1 - 8)	\$25,475		\$5,992		\$32,731	
(11) Depreciation	\$41,721		\$37,560		\$44,743	
(12) Boat Business Profit (10 - 11)	-\$16,246		-\$31,568		-\$12,011	
(13) Profit at Full Equity (12 + 4 + 6)	\$37,968		\$29,278		\$63,705	
Boat Capital						
(14) Fishing Gear & Equip	\$418,352		\$376,632		\$326,133	
Licence Value	\$1,342,194		\$1,438,065		\$1,519,670	
(15) Total Boat Capital	\$1,760,546		\$1,814,696		\$1,845,804	
Rate of Return on Fishing Gear & Equip (13 / 14 * 100)	9.1%		7.8%		19.5%	
Rate of Return on Total Boat Capital (13 / 15 * 100)	2.2%		1.6%		3.5%	

^a Financial performance estimates for 2008/09 to 2009/10 are based on the 2009 licence holder survey and estimates for 2010/11 are based on the 2012 licence holders survey.

^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

Table 3.6 Financial performance in the SA Northern Zone Rock Lobster fishery by return to capital quartile, 2010/11 (average per boat)

	Average per boat				
	Lowest 25%	Second Quartile	Third Quartile	Highest 25%	All Boats
(1) Total Boat Gross Income	\$283,266	\$314,772	\$272,836	\$370,883	\$313,318
Variable Costs					
Fuel	\$27,893	\$25,465	\$20,800	\$24,942	\$24,783
Repairs & Maintenance ^a	\$23,190	\$28,760	\$20,560	\$19,311	\$22,782
Bait/Ice	\$9,600	\$11,829	\$6,925	\$9,045	\$9,335
Provisions	\$3,070	\$4,158	\$2,700	\$1,667	\$2,840
Labour - paid	\$89,864	\$57,224	\$67,122	\$81,630	\$74,325
(2) - unpaid ^b	\$17,919	\$27,924	\$7,419	\$8,723	\$15,174
Other	\$5,100	\$5,861	\$1,590	\$1,367	\$3,379
(3) Total Variable Costs	\$176,636	\$161,222	\$127,116	\$146,685	\$152,618
Fixed Costs					
Licence Fee	\$19,400	\$22,972	\$19,500	\$20,273	\$20,524
Insurance	\$9,200	\$7,607	\$8,720	\$6,280	\$7,872
(4) Interest	\$5,179	\$9,602	\$71,400	\$46,863	\$33,909
(5) Labour - unpaid ^b	\$6,161	\$9,601	\$2,551	\$2,999	\$5,217
(6) Leasing	\$65,320	\$46,255	\$15,330	\$40,571	\$41,807
Legal & Accounting	\$4,560	\$2,070	\$1,880	\$3,092	\$2,910
Telephone etc.	\$2,560	\$4,900	\$1,280	\$3,518	\$3,086
Slipping & Mooring	\$2,690	\$2,880	\$3,600	\$3,258	\$3,114
Travel	\$1,400	\$1,140	\$1,452	\$217	\$1,012
Office & Admin	\$6,871	\$20,900	\$5,070	\$2,443	\$8,517
(7) Total Fixed Costs	\$123,341	\$127,927	\$130,783	\$129,513	\$127,968
(8) Total Boat Cash Costs (3 + 7)	\$299,978	\$289,149	\$257,899	\$276,197	\$280,586
Boat Gross Margin (1 - 3)	\$106,630	\$153,550	\$145,720	\$224,198	\$160,700
(9) Total Unpaid Labour (2 + 5)	\$24,080	\$37,525	\$9,970	\$11,722	\$20,391
Gross Operating Surplus (1 - 8 + 9)	\$7,368	\$63,149	\$24,907	\$106,407	\$53,122
(10) Boat Cash Income (1 - 8)	-\$16,712	\$25,624	\$14,937	\$94,686	\$32,731
(11) Depreciation	\$56,173	\$35,000	\$66,071	\$25,562	\$44,743
(12) Boat Business Profit (10 - 11)	-\$72,885	-\$9,376	-\$51,134	\$69,124	-\$12,011
(13) Profit at Full Equity (12 + 4 + 6)	-\$2,386	\$46,480	\$35,596	\$156,558	\$63,705
Boat Capital					
(14) Fishing Gear & Equip	\$557,700	\$301,800	\$172,120	\$281,783	\$326,133
Licence Value	\$1,495,529	\$1,546,000	\$1,348,262	\$1,660,686	\$1,519,670
(15) Total Boat Capital	\$2,053,229	\$1,847,800	\$1,520,382	\$1,942,470	\$1,845,804
Rate of Return on Fishing Gear & Equip (13 / 14 * 100)	-0.4%	15.4%	20.7%	55.6%	19.5%
Rate of Return on Total Boat Capital (13 / 15 * 100)	-0.1%	2.5%	2.3%	8.1%	3.5%

^a 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).

^b 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

Table 3.7 Financial performance in the SA Northern Zone Rock Lobster fishery by number of pots, 2010/11 (average per boat)

	Average per boat		
	Less than 70 pots	70 or more pots	All Boats
(1) Total Boat Gross Income	\$247,966	\$372,728	\$313,318
Variable Costs			
Fuel	\$19,396	\$29,680	\$24,783
Repairs & Maintenance ^a	\$24,300	\$21,402	\$22,782
Bait/ice	\$7,755	\$10,772	\$9,335
Provisions	\$2,377	\$3,261	\$2,840
Labour - paid	\$65,537	\$82,315	\$74,325
(2) - unpaid ^b	\$13,294	\$16,883	\$15,174
Other	\$2,655	\$4,037	\$3,379
(3) Total Variable Costs	\$135,313	\$168,350	\$152,618
Fixed Costs			
Licence Fee	\$19,288	\$21,647	\$20,524
Insurance	\$8,493	\$7,307	\$7,872
(4) Interest	\$40,850	\$27,598	\$33,909
(5) Labour - unpaid ^b	\$4,571	\$5,805	\$5,217
(6) Leasing	\$3,610	\$76,532	\$41,807
Legal & Accounting	\$2,840	\$2,973	\$2,910
Telephone etc.	\$2,840	\$3,310	\$3,086
Slipping & Mooring	\$3,875	\$2,423	\$3,114
Travel	\$776	\$1,227	\$1,012
Office & Admin	\$5,716	\$11,064	\$8,517
(7) Total Fixed Costs	\$92,859	\$159,885	\$127,968
(8) Total Boat Cash Costs (3 + 7)	\$228,173	\$328,235	\$280,586
Boat Gross Margin (1 - 3)	\$112,653	\$204,378	\$160,700
(9) Total Unpaid Labour (2 + 5)	\$17,865	\$22,687	\$20,391
Gross Operating Surplus (1 - 8 + 9)	\$37,658	\$67,180	\$53,122
(10) Boat Cash Income (1 - 8)	\$19,793	\$44,493	\$32,731
(11) Depreciation	\$49,686	\$40,248	\$44,743
(12) Boat Business Profit (10 - 11)	-\$29,893	\$4,245	-\$12,011
(13) Profit at Full Equity (12 + 4+ 6)	\$14,567	\$108,375	\$63,705
Boat Capital			
(14) Fishing Gear & Equip	\$290,480	\$358,545	\$326,133
Licence Value	\$1,339,431	\$1,683,524	\$1,519,670
(15) Total Boat Capital	\$1,629,911	\$2,042,070	\$1,845,804
Rate of Return on Fishing Gear & Equip (13 / 14 * 100)	5.0%	30.2%	19.5%
Rate of Return on Total Boat Capital (13 / 15 * 100)	0.9%	5.3%	3.5%
Average Number of Pots ^c	58	81	70

^a 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).

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

^c Average number of pots owned and leased by licence holders in each pot grouping.

Source: EconSearch analysis

Table 3.8 Financial performance in the SA Northern Zone Rock Lobster fishery by number of pots, 2010/11 (average per pot)

	Average per pot		
	Less than 70 pots	70 or more pots	All Boats
(1) Total Boat Gross Income	\$4,253	\$4,602	\$4,464
Variable Costs			
Fuel	\$333	\$366	\$353
Repairs & Maintenance ^a	\$417	\$264	\$325
Bait/Ice	\$133	\$133	\$133
Provisions	\$41	\$40	\$40
Labour - paid	\$1,124	\$1,016	\$1,059
(2) - unpaid ^b	\$228	\$208	\$216
Other	\$46	\$50	\$48
(3) Total Variable Costs	\$2,321	\$2,078	\$2,174
Fixed Costs			
Licence Fee	\$331	\$267	\$292
Insurance	\$146	\$90	\$112
(4) Interest	\$701	\$341	\$483
(5) Labour - unpaid ^b	\$78	\$72	\$74
(6) Leasing	\$62	\$945	\$596
Legal & Accounting	\$49	\$37	\$41
Telephone etc.	\$49	\$41	\$44
Slipping & Mooring	\$66	\$30	\$44
Travel	\$13	\$15	\$14
Office & Admin	\$98	\$137	\$121
(7) Total Fixed Costs	\$1,593	\$1,974	\$1,823
(8) Total Boat Cash Costs (3 + 7)	\$3,914	\$4,052	\$3,997
Boat Gross Margin (1 - 3)	\$1,932	\$2,523	\$2,289
(9) Total Unpaid Labour (2 + 5)	\$306	\$280	\$291
Gross Operating Surplus (1 - 8 + 9)	\$646	\$829	\$757
(10) Boat Cash Income (1 - 8)	\$340	\$549	\$466
(11) Depreciation	\$852	\$497	\$637
(12) Boat Business Profit (10 - 11)	-\$513	\$52	-\$171
(13) Profit at Full Equity (12 + 4 + 6)	\$250	\$1,338	\$908
Boat Capital			
(14) Fishing Gear & Equip	\$4,983	\$4,426	\$4,646
Licence Value	\$22,975	\$20,784	\$21,651
(15) Total Boat Capital	\$27,957	\$25,211	\$26,297
Rate of Return on Fishing Gear & Equip (13 / 14 * 100)	5.0%	30.2%	19.5%
Rate of Return on Total Boat Capital (13 / 15 * 100)	0.9%	5.3%	3.5%

^a 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).

^b 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

Costs...

Tables 3.5 to 3.8 show total costs separated into variable and fixed costs. With reduced catch and effort in 2009/10 and 2010/11, variable costs as a proportion of total cash costs were just 55 per cent and 54 per cent, respectively, compared to 65 per cent in 2008/09. Consequently, fixed costs share of total cash costs increased from 35 per cent in 2008/09 to 45 per cent in 2009/10 and to 46 per cent in 2010/11.

Total average cash costs per boat were estimated to have increased by 9 per cent between 2009/10 to 2010/11. This increase was comprised of a rise in both variable costs (7 per cent) and fixed costs (12 per cent). Notable changes include an increase in bait/ice, leasing, repairs and maintenance costs and a decrease in labour and interest costs (Table 3.5).

While average income for boats in the first quartile was around 24 per cent below that of boats in the fourth quartile, average total cash costs were 9 per cent higher. The cost items where the largest differences occurred between the first and fourth quartiles were interest (89 per cent lower for boats in the first quartile), leasing (61 per cent higher in the first quartile), unpaid labour (105 per cent higher in the first quartile) and insurance (46 per cent higher in the first quartile) (Table 3.6). Many of the licence holders in the survey sample were owner operators (especially those in the first and second quartiles), while some employed both a skipper and deckhand. This accounts for some of the variation in labour costs between quartiles.

As expected, average total cash costs per boat were positively correlated with the number of pots held (Table 3.7). The cost items where the largest differences occurred were leasing (significantly greater for those with 70 or more pots), fuel (53 per cent greater), bait and ice (39 per cent greater) and unpaid labour (27 per cent greater). Interestingly though interest, insurance and repairs and maintenance costs were greater for those boats that held less than 70 pots than those boats that held 70 or more pots. On a per pot basis, however, the differences between the two groups for these items are far less and for cash costs in total, the two groups are virtually the same (Table 3.8).

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). Boat gross margin increased in 2010/11 (around \$160,700) compared to previous year (\$120,500) mainly due to the rise in total boat gross income (Table 3.5).

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 2010/11 was estimated to be approximately \$53,000, a 48 increase compared to the previous year (\$36,000) (Table 3.5).

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 2010/11 was around \$32,700 per boat, a significant increase compared to 2009/10 (\$6,000) (Table 3.5).

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. Average boat business profit was estimated to be around -\$12,000 per boat in 2010/11, compared to -\$32,000 in 2009/10 (Table 3.5).

In 2010/11, the average boat business profit for boats in the first quartile was approximately -\$73,000. This is significantly less than that for boats in the fourth quartile (around \$69,000) (Table 3.6). Boat business profit was positively correlated with the number of pots held on a per boat and per pot basis. The average boat business profit for licence holders with over 70 pots was around \$4,000 in 2010/11. This is significantly greater than that for licence holders with less than 70 pots (-\$30,000) (Table 3.7).

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 2010/11 (approximately \$63,700) was greater than the previous year (around \$29,000).

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 capital value of fishing gear and equipment per boat in 2010/11 was positively correlated with the number of pots held (Table 3.7). On a per pot basis, however, reflecting economies of scale, the value of fishing gear and equipment per pot decreased as number of pots held increased (Table 3.8).

The average return on investment for the fishery is reported in Table 3.5. The rate of return to boat capital (i.e. fishing gear and equipment) was estimated to average 19.5 per cent and the rate of return to total capital was estimated to average 3.5 per cent in 2010/11.

The rate of return to total capital is calculated using the profit at full equity and the average investment in all capital (i.e. fishing gear and equipment and licence value). The average profit at full equity per boat in the first quartile was approximately -\$2,000, compared to around \$157,000 in the fourth quartile. This significant difference is due to the lower average gross income and similar average cash costs in the first quartile, compared to the fourth quartile. The average investment in fishing gear and equipment was higher in the first quartile (approximately \$558,000 in 2010/11) compared to the fourth quartile (\$282,000). Accordingly, in 2010/11, the average rate of return to total capital was -0.1 per cent in the first quartile and 8.1 per cent in the fourth quartile (Table 3.6).

In 2010/11, licence holders with less than 70 pots earned an average rate of return to total capital of 0.9 per cent. For licence holders with 70 or more pots the average rate of return to total capital was 5.3 per cent (Table 3.7).

Licence values...

The value of licences represents a significant proportion of the capital used by each licence holder in the fishery. The reported licence value of almost \$1.5 million per boat for all boats (almost \$22,000 per pot) for 2010/11 represents the licence holders' estimate of the value of their licence, based on the 2012 survey responses. This is a slight increase (6 per cent) on the licence value estimated for 2009/10, \$1.4 million (Table 3.5).

Licence values are determined by both current earning capacity and expectations about future earnings. The PIRSA Fisheries Public Register indicates that there were 5 licence transfers in 2010/11.

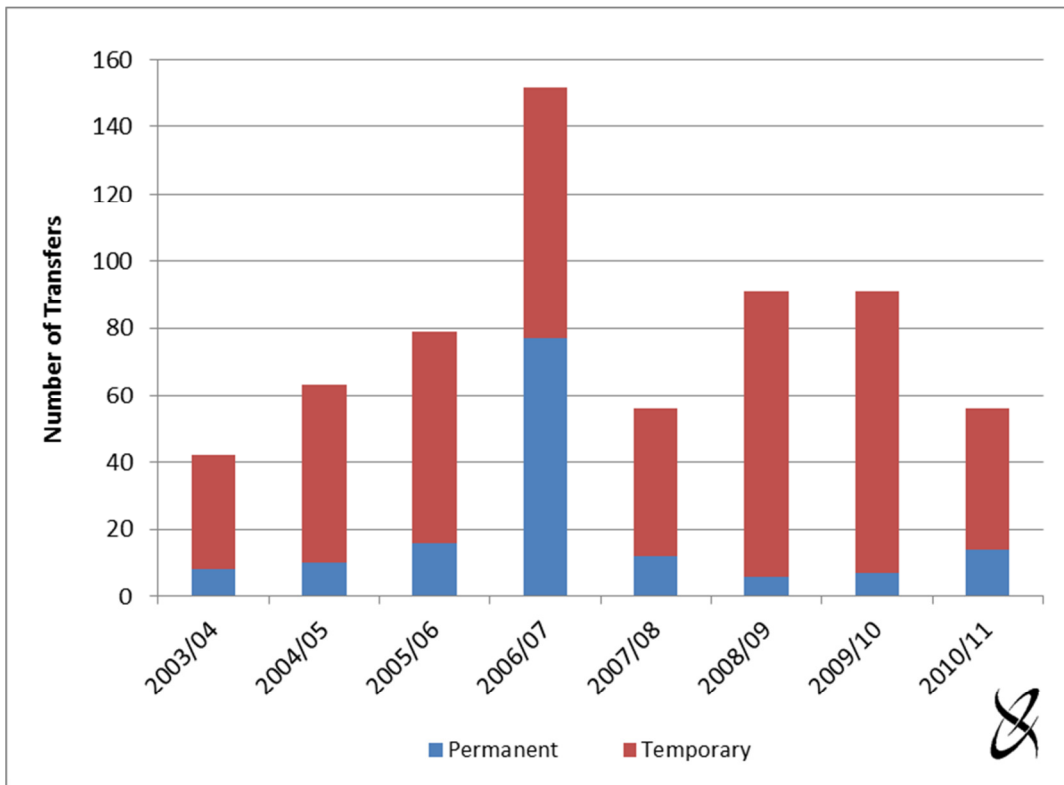
Quotas were introduced in the fishery in October 2003 for the 2003/04 season. A total of 62,500 quota units were allocated at that time with each unit being equivalent to 10kg. In 2004/05 the TAC was reduced to 8.32 kg per unit or 520 tonnes for the fishery as a whole. In 2009/10 the TAC was reduced further to 4.96 kg per unit or 310 tonnes for the fishery. In 2010/11 there were 14 permanent quota transfers between licence holders. There were 42 temporary quota transfers between licence holders in 2010/11, ranging from only a small number of units to full licence allocations (PIRSA Fisheries licensing section).

The number of transfers between licence holders and total number of quota units transferred over the period 2003/04 to 2010/11 are detailed in Figures 3.3 and 3.4, respectively.

Since the initial allocation of quota units in 2003/04 the average number of quota transfers between licence holders has been 79 per annum, comprised of 19 permanent transfers and 60 temporary transfers. In 2010/11 there were 56 quota transfers between licence holders, although the majority (42) were temporary transfers (Figure 3.3).

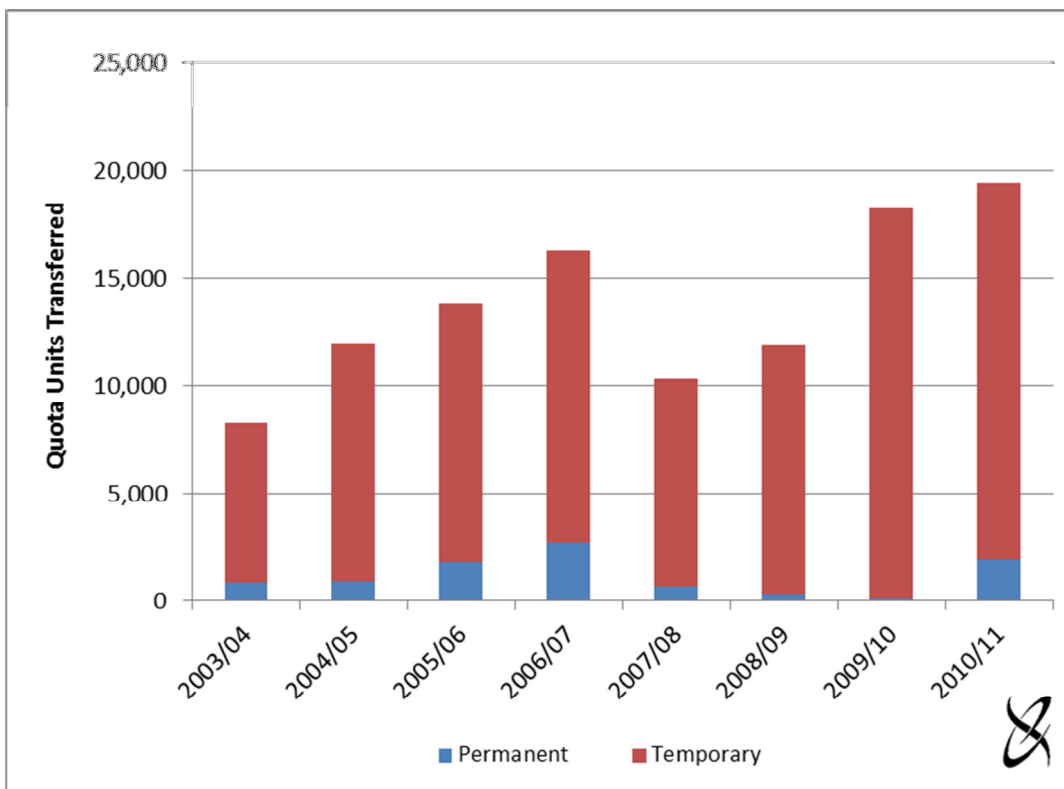
Over the 8 years to 2010/11, an average of 13,782 quota units has been traded each year (1,199 permanent and 12,583 temporary). This average annual trade represents 22 per cent of the total quota units in the fishery. In 2010/11 the total number of quota units transferred was 19,421 which comprised 31 per cent of the total quota units in the fishery (Figure 3.4).

Figure 3.3 Number of quota transfers, 2003/04 to 2010/11



Source: PIRSA Fisheries Licensing Section

Figure 3.4 Number of quota units transferred, 2003/04 to 2010/11



Source: PIRSA Fisheries Licensing Section

3.5 State and Regional Economic Impact

Estimates of the economic impact of the South Australian NZRL fishing industry on the South Australian and regional (Eyre/Western⁶) economies in 2010/11 are outlined below.

3.5.1 Measuring direct and flow-on effects

Estimates of the direct economic impact of the NZRL fishery are consistent with the method employed in PIRSA's *Value-added ScoreCard, 2006/07*⁷.

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

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

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 2009b).

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 2010/11, as 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.

⁶ The Eyre and Western region is consistent with the SA Government Region, as defined by the Department of Planning and Local Government.

⁷ The relevant information was obtained from Rob Esvelt (PIRSA, pers. comm.).

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

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

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

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

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

3.5.2 Economic impacts at the state and regional levels

Estimates of the economic impact generated in 2010/11 by the NZRL fishing industry in South Australia and the Eyre/Western region are outlined in Tables 3.9 and 3.10, 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 Northern Zone Rock Lobster fishing enterprises summed to \$14.3 million in 2010/11 (Tables 3.9 and 3.10), while output generated in South Australia by associated downstream activities (processing, transport, retail/food services and capital expenditure) summed to \$5.4 million (\$2.8 million in the Eyre/Western region, Table 3.10).

Flow-ons to other sectors of the state economy added another \$32.4 million in output (\$15.0 million in the regional economy). The sectors most affected were the manufacturing, trade, business services and transport sectors. The total output impact in SA (direct plus indirect) was estimated to be \$52.2 million in 2010/11 (\$32.0 million in the Eyre/Western region).

Table 3.9 The economic impact of the SA Northern Zone Rock Lobster fishing industry in South Australia, 2010/11

Sector	Output		Employment ^a		Household Income		Contribution to GSP	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%
Direct effects								
Fishing	14.3	27%	95	35%	5.4	34%	5.3	22%
Processing	1.8	3%	6	2%	0.4	3%	0.6	2%
Transport	1.8	4%	7	2%	0.4	3%	0.8	3%
Retail	0.3	1%	3	1%	0.1	1%	0.1	1%
Food services	0.6	1%	4	1%	0.2	1%	0.3	1%
Capital expenditure ^b	0.9	2%	7	2%	0.3	2%	0.4	2%
<i>Total Direct</i> ^c	<i>19.7</i>	<i>36%</i>	<i>121</i>	<i>42%</i>	<i>6.8</i>	<i>41%</i>	<i>7.4</i>	<i>30%</i>
Flow-on effects								
Trade	5.4	10%	43	16%	1.8	11%	2.5	11%
Manufacturing	6.2	12%	28	10%	1.4	9%	2.0	8%
Business Services	4.5	9%	19	7%	1.6	10%	2.1	9%
Transport	1.8	3%	13	5%	0.4	3%	0.8	3%
Other Sectors	14.7	28%	47	17%	3.8	24%	8.7	37%
<i>Total Flow-on</i> ^c	<i>32.4</i>	<i>62%</i>	<i>150</i>	<i>55%</i>	<i>9.0</i>	<i>57%</i>	<i>16.1</i>	<i>68%</i>
Total ^c	52.2	100%	271	100%	15.7	100%	23.6	100%
Total/Direct	2.6	-	2.2	-	2.3	-	3.2	-
Total/Tonne	\$166,600	-	0.87	-	\$50,200	-	\$75,200	-

^a Full-time equivalent jobs. Direct employment in the fishing sector was comprised of 53 full-time jobs and 123 part-time jobs, that is, 176 jobs in aggregate, which was estimated to be equal to 95 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

Employment and household income...

In 2010/11, the Northern Zone Rock Lobster fishery was responsible for the direct employment of around 95 full-time equivalents and downstream activities created employment of around 26 fte jobs state-wide. Flow-on business activity was estimated to generate a further 150 fte jobs state-wide (73 jobs regionally). These state-wide jobs were concentrated in the trade (43), manufacturing (28), business services (19) and transport (13) sectors. The total employment impact in SA was estimated to be 271 fte jobs (180 fte jobs in the Eyre/Western region).

Personal income of \$5.4 million was earned in the fishing sector and \$1.4 million in downstream activities in SA. An additional \$9.0 million was earned by wage earners in other businesses in the state as a result of fishing and associated downstream activities. The total household income impact was \$15.7 million in SA (\$10.0 million in the Eyre/Western region).

Table 3.10 The economic impact of the SA Northern Zone Rock Lobster fishing industry in the Eyre/Western region, 2010/11

Sector	Output		Employment ^a		Household Income		Contribution to GSP	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%
Direct effects								
Fishing	14.3	45%	95	53%	5.4	54%	5.3	38%
Processing	1.8	6%	5	3%	0.4	4%	0.6	4%
Transport	0.4	1%	1	1%	0.1	1%	0.2	1%
Retail	0.0	0%	0	0%	0.0	0%	0.0	0%
Food services	0.0	0%	0	0%	0.0	0%	0.0	0%
Capital expenditure ^b	0.6	2%	6	3%	0.2	2%	0.3	2%
<i>Total Direct</i> ^c	<i>17.1</i>	<i>53%</i>	<i>108</i>	<i>60%</i>	<i>6.1</i>	<i>61%</i>	<i>6.3</i>	<i>45%</i>
Flow-on effects								
Trade	3.3	10%	28	16%	1.1	11%	1.6	12%
Manufacturing	2.3	7%	11	6%	0.5	5%	0.7	5%
Business Services	1.8	6%	8	4%	0.6	6%	0.8	6%
Transport	0.9	3%	5	3%	0.2	2%	0.4	3%
Other Sectors	6.7	21%	21	12%	1.5	15%	4.0	29%
<i>Total Flow-on</i> ^c	<i>15.0</i>	<i>47%</i>	<i>73</i>	<i>40%</i>	<i>3.9</i>	<i>39%</i>	<i>7.5</i>	<i>55%</i>
Total ^c	32.0	100%	180	100%	10.0	100%	13.8	100%
Total/Direct	1.9	-	1.7	-	1.6	-	2.2	-
Total/Tonne	\$102,200	-	0.58	-	\$32,000	-	\$44,100	-

^a Full-time equivalent jobs. Direct employment in the fishing sector was comprised of 53 full-time jobs and 123 part-time jobs, that is, 176 jobs in aggregate, which was estimated to be equal to 95 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

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 2010/11, total Northern Zone Rock Lobster fishing industry related contribution to GSP in South Australia was \$23.6 million (\$13.8 million in the Eyre/Western region), \$5.3 million generated by fishing directly, \$2.2 million generated by downstream activities and \$16.1 million generated in other sectors of the state economy.

Total impacts over time...

Figures 3.5 and 3.6 illustrate the total economic impact of the fishery on the SA economy for the 14 years, 1997/98 to 2010/11. 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 October 2001. Estimates for 2004/05 to 2006/07 are based on the survey of licence holders conducted in March – April 2006. Estimates for 2007/08 and 2009/10 are based on the survey of licence holders conducted in

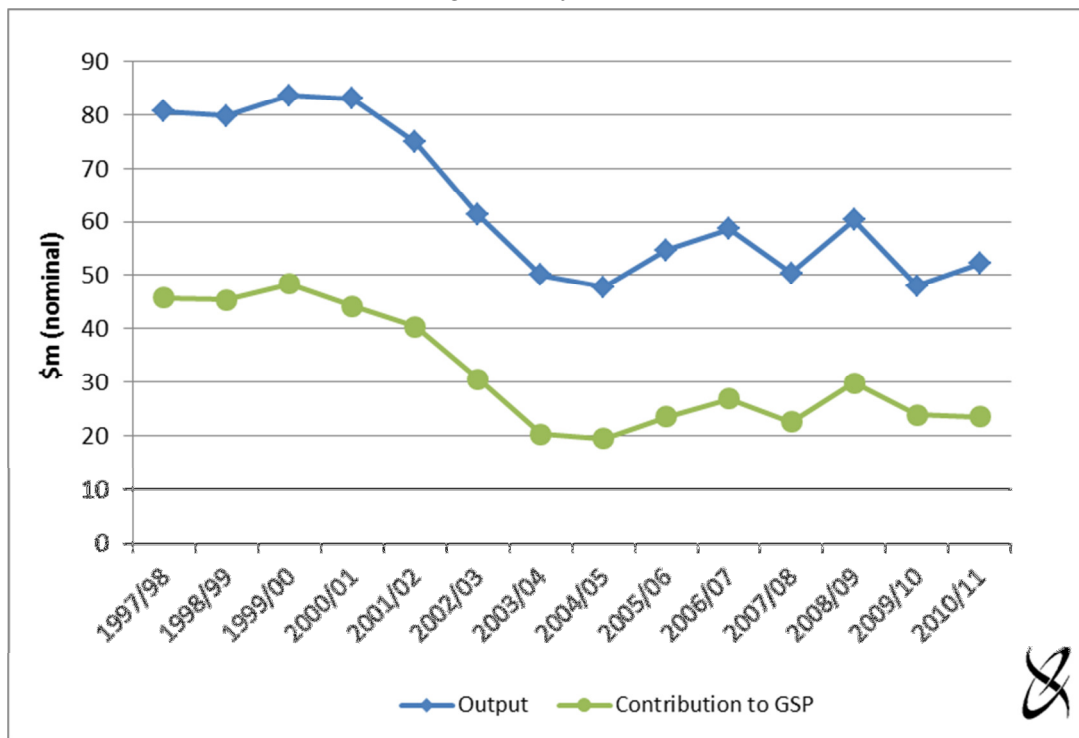
January – February 2009. Those estimates for 2010/11 are based on the most recent licence holder survey conducted in April-July 2012.

As economic impact estimates for the years 1997/98 to 2010/11 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. Contribution to GSP is the preferred measure of net contribution to the SA economy.

The change in total output and GSP impacts are closely related to changes in price and fishery GVP (Figure 5.11). There has been an overall decline in direct employment impact of the fishery since 1997/98, as illustrated in (Figure 5.12). This is due to a decrease in the number of active boats in the fishery.

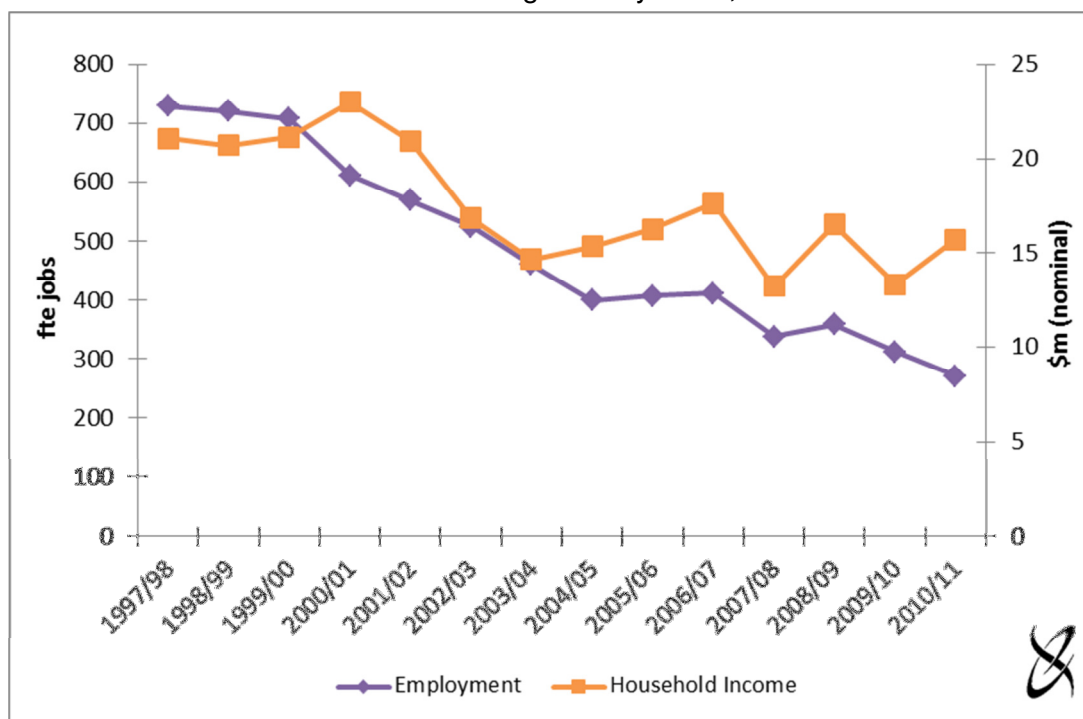
Figure 3.5 Total gross state product and output impact of the SA Northern Zone Rock Lobster fishing industry in SA, 1997/98 to 2010/11 ^a



^a The economic impact of the NZRL 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 (2009b) and EconSearch analysis

Figure 3.6 Total employment and household income impact of the SA Northern Zone Rock Lobster fishing industry in SA, 1997/98 to 2010/11 ^a



^a See note for Figure 3.5.

Source: EconSearch (2009b) and EconSearch analysis

3.6 Economic Rent

Economic rent⁹ is defined as the difference between the price of a good produced using a natural resource and the unit costs of turning that natural resource into the good. In this case the natural resource is the NZRL fishery and the good produced is the landed lobster.

The long-term costs of operating a fishing business 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) and 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

⁹ Economic rent is comprised of three types of rent: entrepreneurial rent, quasi-rent and resource rent. As in any business some operators are more 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.

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

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

What remains after the value of these inputs (labour, capital, materials, services) has been netted out is the value of the natural resource itself. The economic rent generated in the NZRL fishery in 2010/11 was estimated to be approximately -\$489,000 (Table 3.11). 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 2010/11 the aggregate value of licences was estimated to be \$103.3 million (68 licences with an average value of almost \$1.52 million). An annual economic rent of -\$489,000 represents a return of -0.5 per cent to the capital value of the fishery.

Table 3.11 Economic rent ^a in the SA Northern Zone Rock Lobster fishery, 1997/98 to 2010/11 (\$'000)

	Gross Income	Less Labour	Less Cash Costs	Less Depreciation	Less Opportunity Cost of Capital (@10%)	Economic Rent
1997/98	27,683	9,697	8,323	3,357	2,948	3,359
1998/99	26,743	9,659	7,592	3,639	3,196	2,657
1999/00	29,802	11,041	8,871	4,061	3,567	2,262
2000/01	27,988	10,825	9,750	3,977	3,810	-375
2001/02	26,190	10,169	8,897	4,325	4,144	-1,345
2002/03	18,828	7,485	8,206	4,568	4,376	-5,807
2003/04	12,046	5,011	8,844	4,602	4,409	-10,821
2004/05	11,643	5,004	7,396	2,902	2,258	-5,918
2005/06	15,433	6,652	7,400	3,055	2,377	-4,051
2006/07	17,954	7,910	7,327	3,157	2,456	-2,897
2007/08	15,935	5,765	8,714	2,668	2,675	-3,888
2008/09	19,331	7,269	8,260	2,402	2,408	-1,009
2009/10	15,117	5,844	6,233	2,162	2,168	-1,291
2010/11	14,306	4,325	6,939	2,043	1,489	-489

^a Adjusted for sample bias. For example, based on the April-July 2012 survey of licence holders gross income in the fishery for 2010/11 was estimated to be \$21.3 million.

Source: EconSearch analysis

4. Other Indicators

4.1 External Factors Influencing the Economic Condition of the Fishery

There are a number of factors in 2010/11 that have impacted on the economic performance of the NZRL fishery. Most of these are likely to continue to affect economic outcomes in the future.

Status report

In 2011, PIRSA published a report on the current biological status of NZRL fishery in SA (Linnane et al. 2011a). In this report the NZRL fishery is classified as being in a declining state but, despite this, there has been some positive signs for the fishery over the previous two seasons. The report highlighted the need to monitor catch rates closely to determine if the current TACC remains sustainable over the expected period of low recruitment in the coming seasons.

The fishery status report provides a brief overview of information available for the NZRL fishery and assesses the current status of the fishery in relation to the performance indicators outlined in the management plan for the fishery. A more comprehensive report detailing temporal and spatial analyses is available in the stock assessment report.

Stock Assessment

The priority of the management of the fishery is to ensure the sustainability of lobster stocks in South Australia. In order to achieve this, biological indicators have been developed with targets and reference points used as a benchmark of performance against objectives. Reference points can be used to trigger a management response when required. A new management plan for the fishery was introduced in September 2007, which has refined the performance indicators and reference levels. In particular, the management plan focuses on two key performance indicators, catch rate and pre-recruit index.

The NZRL biological performance indicators for the 2004/05 to 2010/11 seasons are summarised in Table 4.1 below. Total catch and catch rate have both declined over this period.

Table 4.1 Biological performance indicators for the SA Northern Zone Rock Lobster fishery, 2004/05 to 2010/11

Indicator	Target	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Catch (tonnes)	520	446	476	492	459	403	310	313
Catch Rate (kg/pot lift)	1.25 – 1.43	0.80	0.81	0.86	0.76	0.68	0.88	n.a.
Pre-recruit Index ^a	0.18 – 0.29	0.11	0.49	0.37	0.29	0.67	0.61	n.a.

^a The pre-recruit index measures the number of juvenile fish entering the fishery.

Source: Linnane et. al. (2005, 2007, 2008, 2009, 2010 and 2011b)

Export Markets

The volume and value of Rock Lobster exports from South Australia have decreased significantly since 2007/08 (59 per cent decrease in volume and 40 per cent decrease in value). Hong Kong, Japan and China remain the main export destinations for SA Rock Lobster exports, as outlined in Section 4.3. However, these markets have seen significant changes, in terms of volume and value of exports, since 2007/08. Exports of SA Rock Lobster to Hong Kong and Japan have fallen significantly (92 per cent and 67 per cent, respectively, by volume). Conversely, exports of SA Rock Lobster to China have risen considerably (volume has increased by 255 per cent) since 2007/08. One possible reason for this is that less Rock Lobster is going to China via Hong Kong to avoid tariffs after a crackdown by Chinese officials in late 2010.

Factors that will continue to impact exports to these markets include the higher Australian dollar (see detail below), economic growth in China, import tariffs and competition from lower-cost product (Southern Rock Lobster from South Africa and Tropical Rock Lobster from Cuba and Vietnam).

Exchange Rate

A significant proportion of the South Australian Rock Lobster catch is exported overseas. Accordingly, the value of the Australian dollar can have a significant impact on the economic performance of the fishery. The value of the Australian dollar influences the price of Australian exports overseas. Significant changes in the value of the Australian dollar have the potential to influence the demand for Australian Rock Lobster exports. The Australian dollar generally followed an increasing trend throughout 2010/11 rising from US87 cents in July 2010 to US106 cents in June 2011.

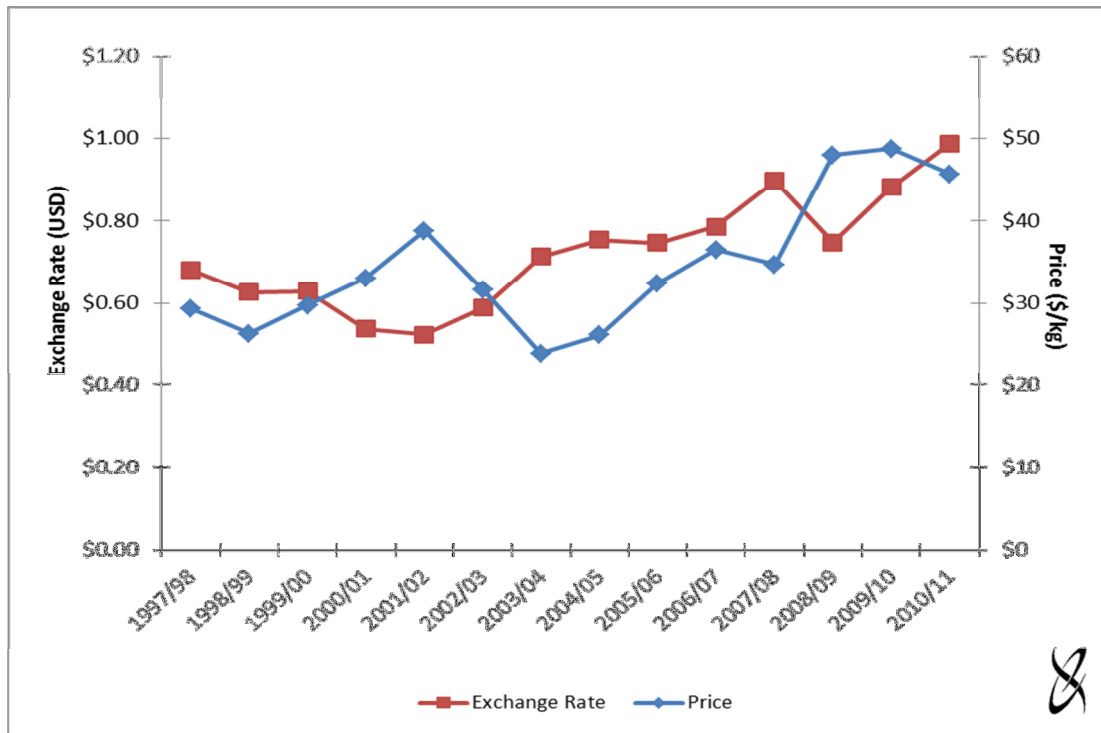
The average exchange rate in 2010/11 was US\$0.98, an increase of 12 per cent compared to the average for the previous year (Figure 4.1). Other things held equal, a rise in the value of the currency would have the effect of decreasing the price of Rock Lobster received by Australian exporters between 2009/10 and 2010/11.

Historically, the most significant export destination for South Australian Rock Lobster exports has been Hong Kong. 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 2009/10 was 6.85 HKD increasing to 7.68 (HKD) in 2010/11.

The relationship between the average price in the NZRL fishery and the exchange rate (USD) between 1997/98 and 2010/11 can be 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 average price in the NZRL fishery for the period 1997/98 to 2010/11 is 0.47. This indicates that there is no obvious inverse relationship between the two variables.

Figure 4.1 Exchange rate (USD) and average price for SA Northern Zone Rock Lobster, 1997/98 to 2010/11



Source: SARDI Aquatic Sciences and RBA (2011) and previous issues

4.2 Licence Holder Comments

During the 2012 survey licence holders raised several key issues that have the potential to affect the economic performance of the fishery.

Marine Parks

A large number of licence holders were concerned about marine parks and the implications for their businesses. Licence holders indicated that the introduction of marine parks would result in them having to move to different fishing grounds. There are costs associated with getting to know new fishing grounds such as time (labour) and fuel.

Management

Despite the price for Rock Lobster recovering somewhat over the last three years some licence holders indicated that the lower quota is making it too hard to continue fishing and making a profit.

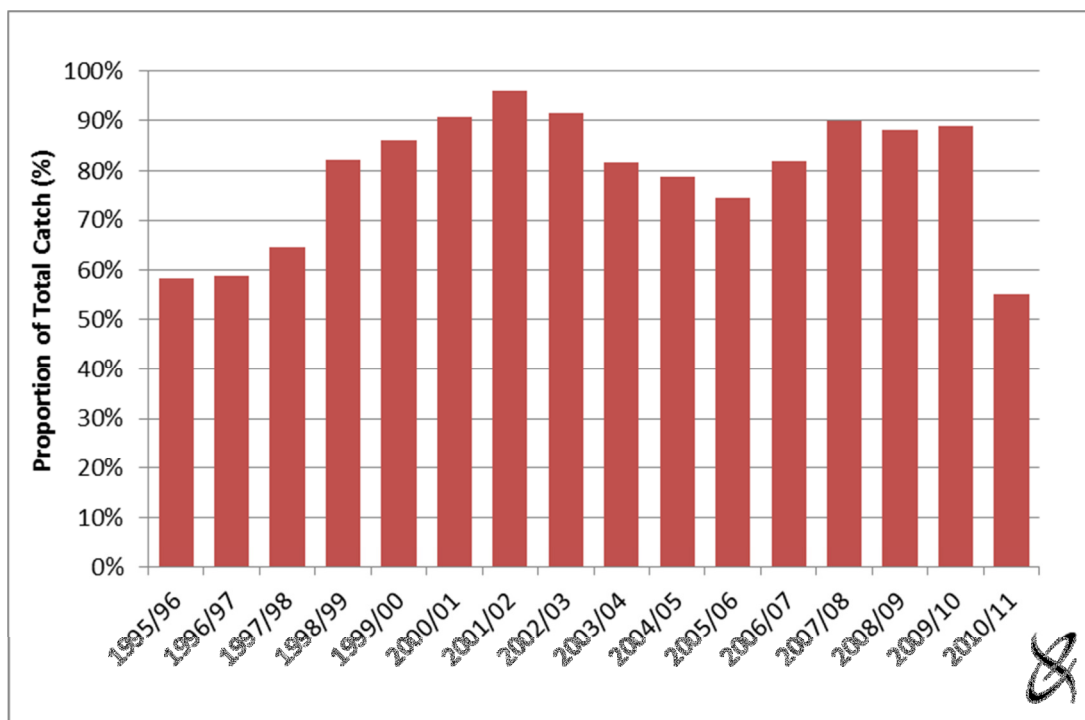
It was also highlighted in the 2012 survey that the impact of quota cuts on the emotional wellbeing of fishers is understated. Significant reductions in quota force difficult business decisions to be made. Those that choose to leave the fishery have difficult obstacles to overcome (e.g. selling licences in an uncertain environment, reskilling and overcome negative feelings associated with that level of change in lifestyle).

4.3 Rock Lobster Exports from South Australia

Figures 4.2 to 4.6 and the associated data in Appendix Tables 2.1 to 2.4 provide a historical breakdown of total Rock Lobster exports from SA, by category and country of destination, for the period 1995/96 to 2010/11¹⁰.

As a proportion of total Rock Lobster catch, Rock Lobster exports from South Australia increased from 58 per cent in 1995/96 to over 95 per cent in 2001/02. The proportion of catch exported declined between 2001/02 and 2004/05 (74 per cent), but increased between 2004/05 and 2009/10 (89 per cent). Exports as a proportion of total Rock Lobster catch from SA fell significantly in 2010/11 to 55 per cent (Figure 4.2).

Figure 4.2 Rock Lobster exports from South Australia as a proportion of total catch, 1995/96 to 2010/11

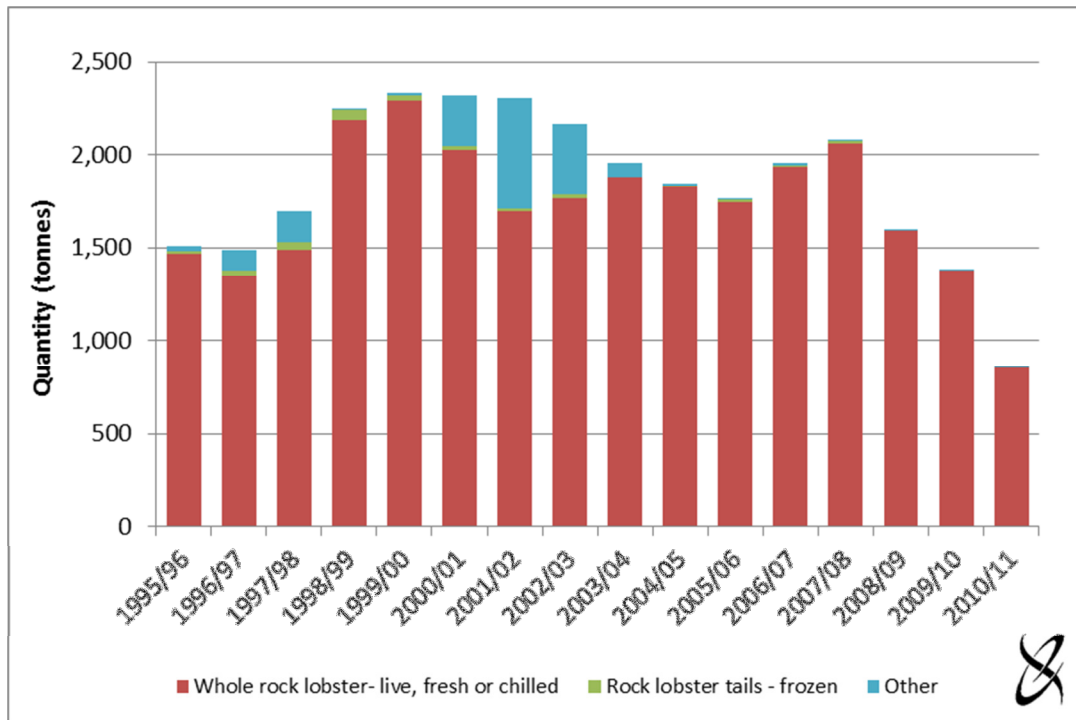


Source: Appendix Table 2.1 and Table 3.1

Between 1995/96 and 2001/02, the total quantity of Rock Lobster exported from SA increased by approximately 52 per cent. The volume of Rock Lobster exports has generally decreased between 2001/02 and 2010/11 despite an upturn in 2006/07 and 2007/08. The total quantity of Rock Lobster exported from SA in 2010/11 was 857 tonnes (Figures 4.3 and 4.5).

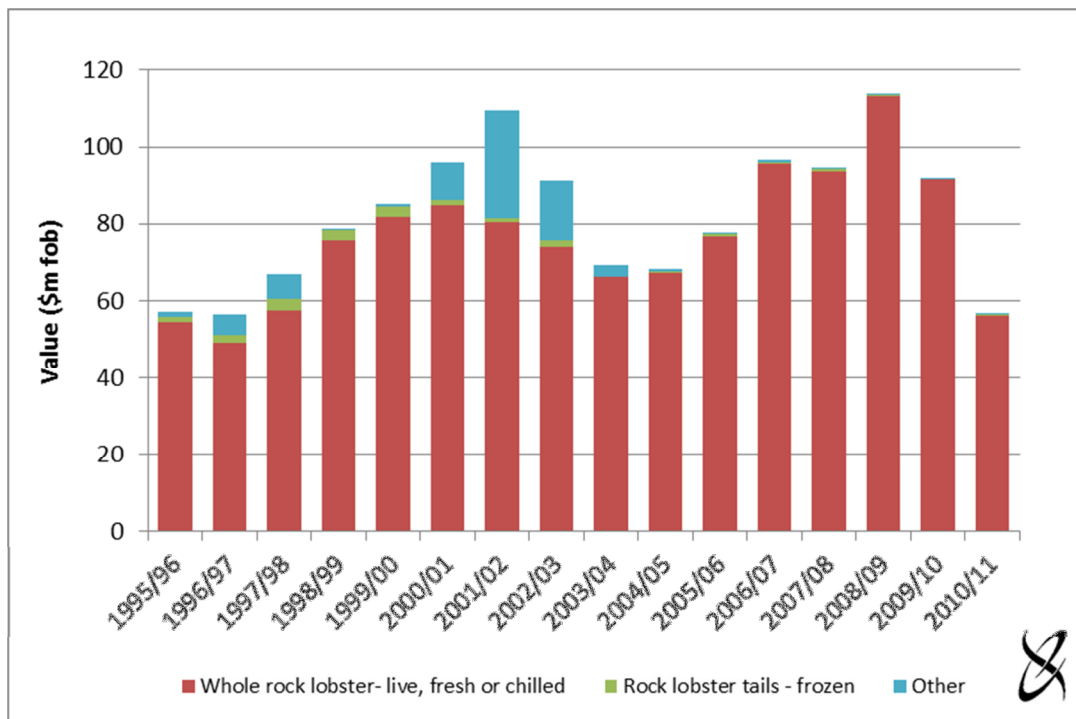
¹⁰ That is, exports from the Northern and Southern Zone Rock Lobster fisheries in aggregate. These data only include exports direct from South Australia, not product that is shipped interstate and then exported. They could also include product that is shipped from interstate and exported from South Australia.

Figure 4.3 Rock Lobster exports from South Australia, quantity (t) by category, 1995/96 to 2010/11



Source: Appendix Table 2.1

Figure 4.4 Rock Lobster exports from South Australia, value (\$m fob) by category, 1995/96 to 2010/11



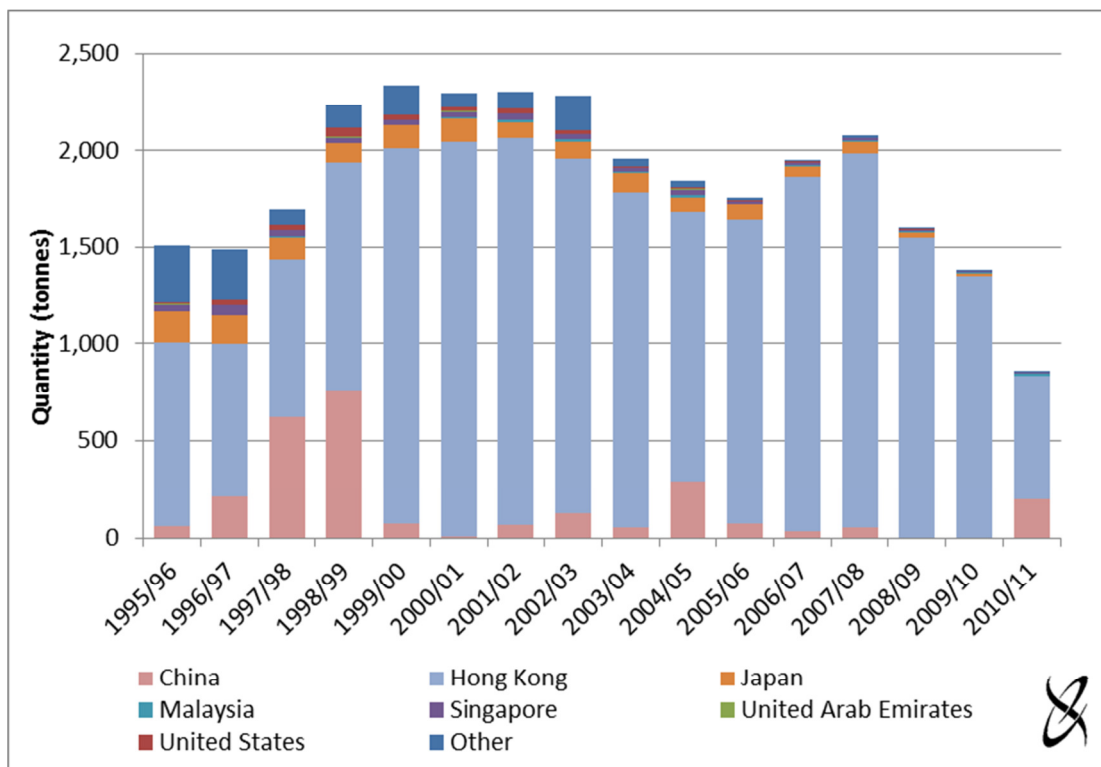
Source: Appendix Table 2.2

The total value of Rock Lobster exports increased in nominal terms by approximately 92 per cent between 1995/96 and 2001/02. The value of exports declined by approximately 38 per cent between 2001/02 and 2004/05. Export value increased between 2004/05 and 2008/09, by around 67 per cent but has decreased in subsequent years. In 2010/11, the total value of Rock Lobster exports from SA decreased and was approximately \$56 million (Figures 4.4 and 4.6).

Whole Rock Lobster (live, fresh or chilled) was the most significant category of export in all years of the analysis, accounting for, on average, 94 per cent of total exports by quantity and 93 per cent of total exports by value over the period of analysis (Figures 4.3 and 4.4). For a full breakdown of exports by category refer to Appendix Tables 2.1 and 2.2.

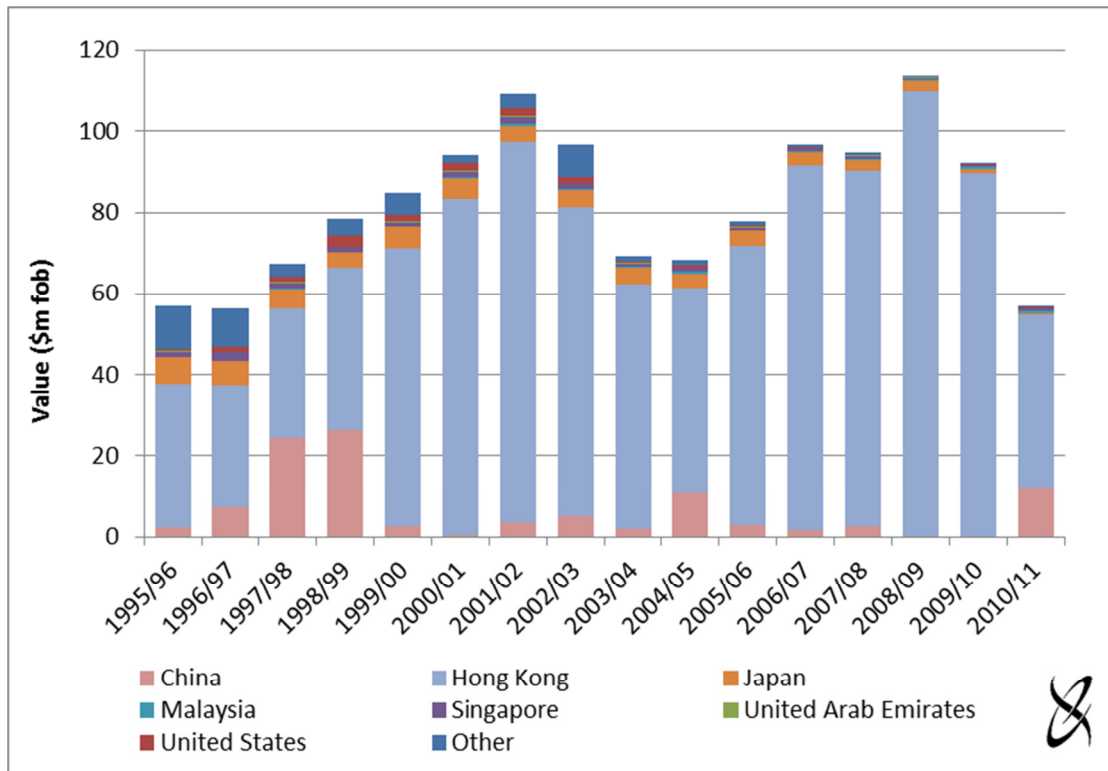
The most significant export destination over the period 1995/96 to 2010/11 was Hong Kong, accounting on average for 79 per cent of the total quantity and 78 per cent of the total value of exports of Rock Lobster (Figures 4.5 and 4.6). However, in 2010/11, whilst Hong Kong was still the most significant destination (74 per cent of quantity and 76 per cent of value), China was accounted for 23 per cent of the total quantity and 22 per cent of the total value. For a full breakdown of exports by country of destination refer to Appendix Tables 2.3 and 2.4.

Figure 4.5 Rock Lobster exports from South Australia, quantity (t) by country of destination, 1995/96 to 2010/11



Source: Appendix Table 2.3.

Figure 4.6 Rock Lobster exports from South Australia, value (\$m fob) by country of destination, 1995/96 to 2010/11



Source: Appendix Table 2.4

5. Summary

Catch and Gross Value of Production...

The data shown in Figure 5.1 indicate that total catch in the fishery followed a declining trend between 1997/98 and 2010/11. The GVP for the Northern Zone Rock Lobster fishery for the period 1997/98 to 2010/11 is illustrated in Figure 5.2. The value of catch in the Northern Zone Rock Lobster fishery fluctuated between years but generally followed a declining trend between 1997/98 and 2004/05, trended upward between 2004/05 and 2008/09 but has since decreased (Figure 5.2).

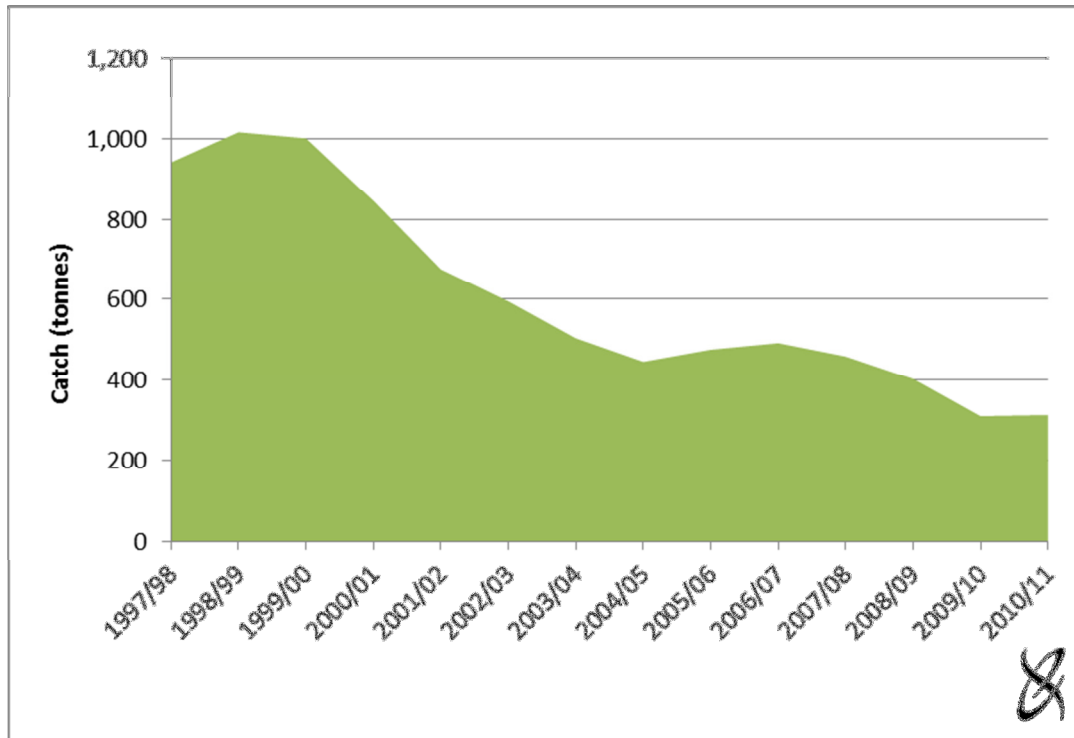
As outlined in Table 3.4 there are two limit reference points relating to the value of catch in the fishery, namely:

- GVP decreases by 20% or more in one year; and
- GVP decreases by 10% or more each year for two consecutive years.

The value of catch was beyond these limit reference points in 2002/03, 2003/04 and 2009/10 when it decreased by 28 per cent, 36 per cent and 22 per cent, respectively (Figure 5.2).

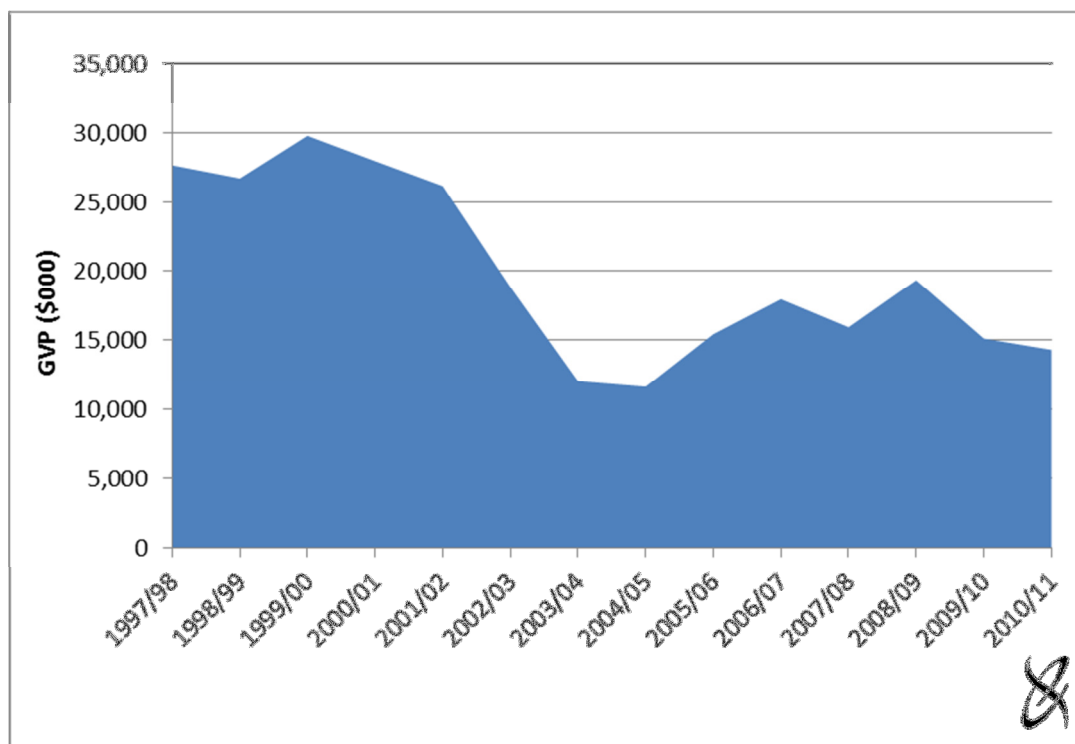
The nominal average price for Northern Zone Rock Lobster fluctuated between years but increased overall. In 2010/11 the nominal average price was 56 per cent higher than in 1997/98. Despite the increase in average price, fishery GVP decreased by 48 per cent between 1997/98 and 2010/11 as a result of a 67 per cent fall in catch.

Figure 5.1 Northern Zone Rock Lobster fishery catch, 1997/98 to 2010/11



Source: See Table 3.1

Figure 5.2 Northern Zone Rock Lobster fishery GVP, 1997/98 to 2010/11

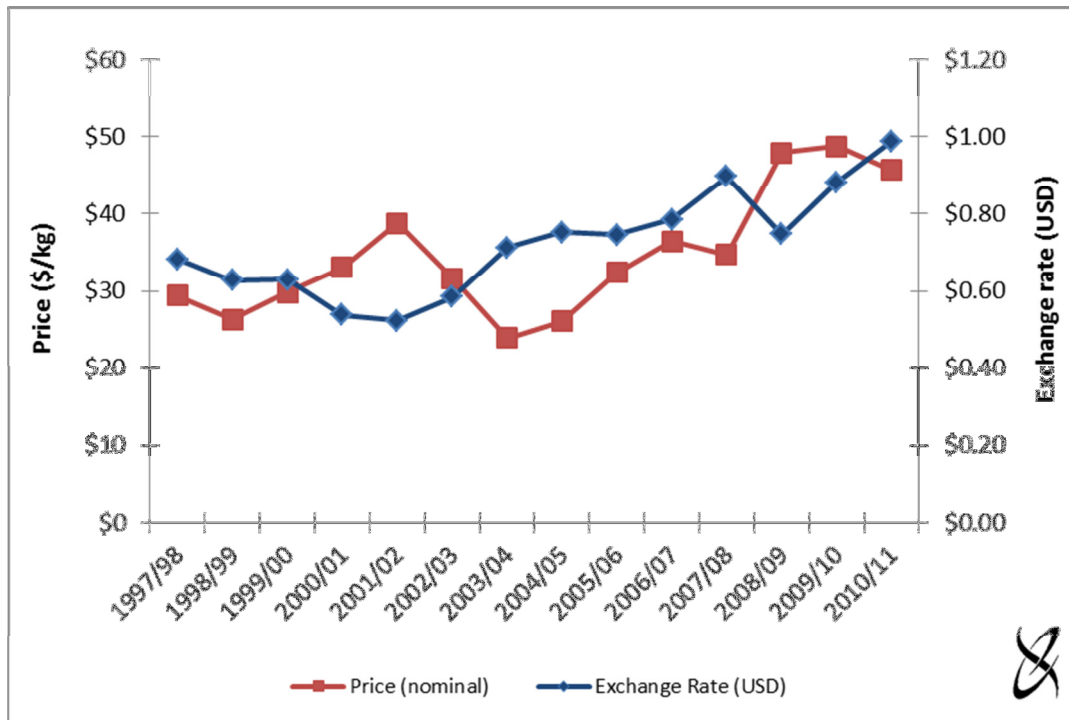


Source: See Table 3.1

A large proportion of SA Rock Lobster catch is exported overseas. Accordingly, the value of the Australian dollar (relative to the US dollar) has had a significant influence on the price of Rock Lobster and the value of catch in the fishery. The relationship between the price of NZRL fishery catch and the exchange rate over the past 14 years can be readily observed in Figure 5.5.

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 positive perfect correlation to -1.0 for a perfect inverse correlation. The coefficient of correlation between the exchange rate (USD) and the nominal price for Rock Lobster for the period 1997/98 to 2010/11 is 0.47. This indicates that there is no obvious inverse relationship between the two variables (Figure 5.5).

Figure 5.3 Exchange rate (USD) and price for Northern Zone Rock Lobster, 1997/98 to 2010/11



Source: See Figure 4.1

Management Costs...

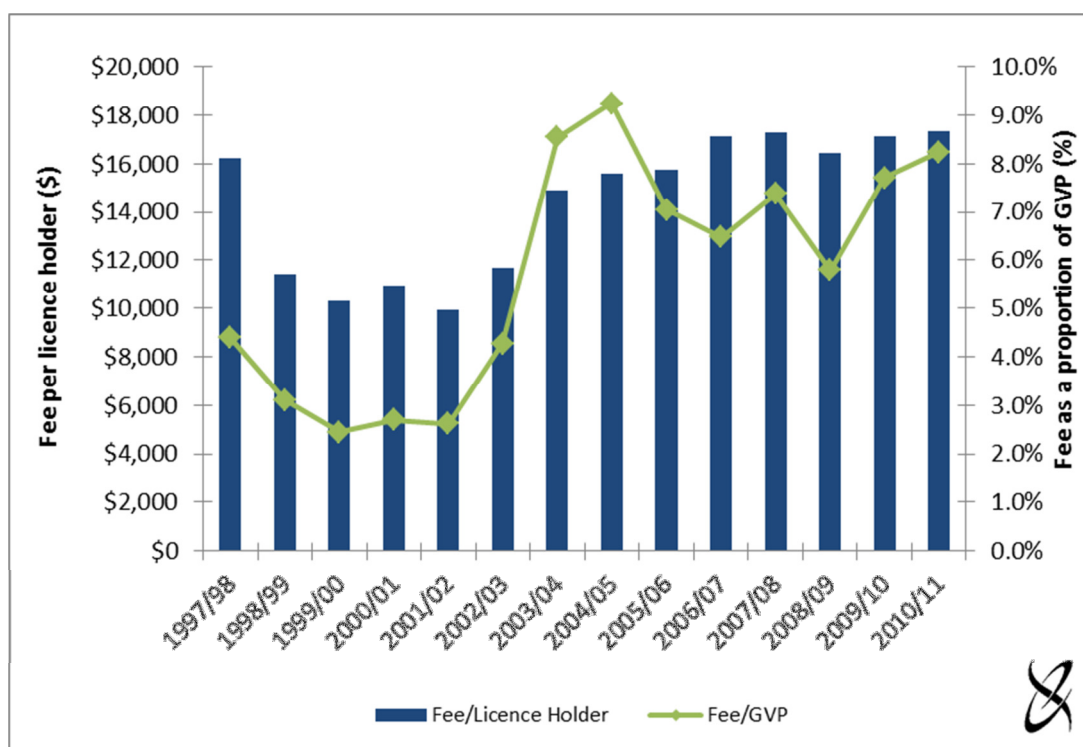
The average management fee per licence holder and the licence fee as a proportion of GVP are illustrated in Figure 5.4. Licence fees as a percentage of GVP have generally followed an increasing trend. The overall increase in licence fees as a proportion of GVP between 1997/98 and 2010/11 is a result on an increase in the cost of management and a decline in fishery GVP (Figure 5.4).

The average management cost per licence holder decreased from \$16,208 in 1997/98 to \$9,938 in 2001/02, reflecting a decrease in total management cost (from \$1.2 million to \$0.7 million) and despite a decrease in the number of licence holders. Cost of management per licence holder has increased in subsequent years as a result of both an increase in the cost of management due to the introduction of quota management and a reduction in the number of licence holders (Figure 5.4).

As outlined in Table 3.4 there are three limit reference points relating to the cost of managing the fishery, namely:

- management cost as a percentage of GVP increases for two consecutive years;
- total management costs increase by 10% or more in one year; and
- total management costs increase by 15% or more in any two consecutive years.

Figure 5.4 Management fee per licence holder and as a proportion of GVP, Northern Zone Rock Lobster fishery, 1997/98 to 2010/11



Source: See Table 3.3

One or more of these limit reference points were triggered:

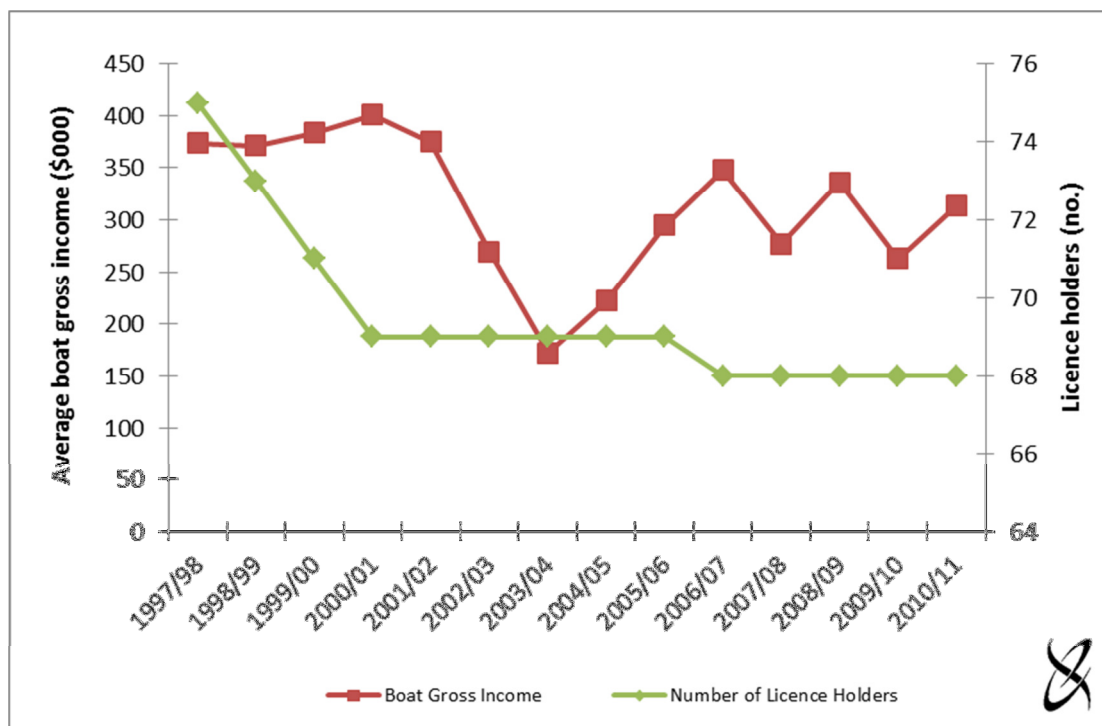
- Between 2001/02 and 2004/05 where the cost of management and the share of GVP increased significantly. Total management costs increased by 17 per cent in 2002/03, 28 per cent in 2003/04 and a further 5 per cent in 2004/05. These increases in management costs corresponded with years when fishery GVP was in decline. Accordingly, management costs as a percentage of GVP also increased over these years.
- Between 2009/10 and 2010/11 where fees as a proportion of GVP increased.

Financial Performance Indicators...

Average income

The average income per boat and total number of licence holders in the fishery for the period 1997/98 to 2010/11 is illustrated in Figure 5.5. The total number of licence holders in the fishery declined from 75 in 1997/98 to 68 in 2010/11. As a result of the decrease in GVP and despite the fall in the number of licence holders, the average income per boat in the fishery has decreased from almost \$374,000 in 1997/98 to around \$313,000 in 2010/11 (in nominal terms) (Figure 5.5).

Figure 5.5 Average income per licence holder in the Northern Zone Rock Lobster fishery, 1997/98 to 2010/11 ^a



^a Estimates of average boat gross income are expressed in nominal terms.

Source: See Tables 3.3 and 3.5 and Appendix Tables 4.1 to 4.4

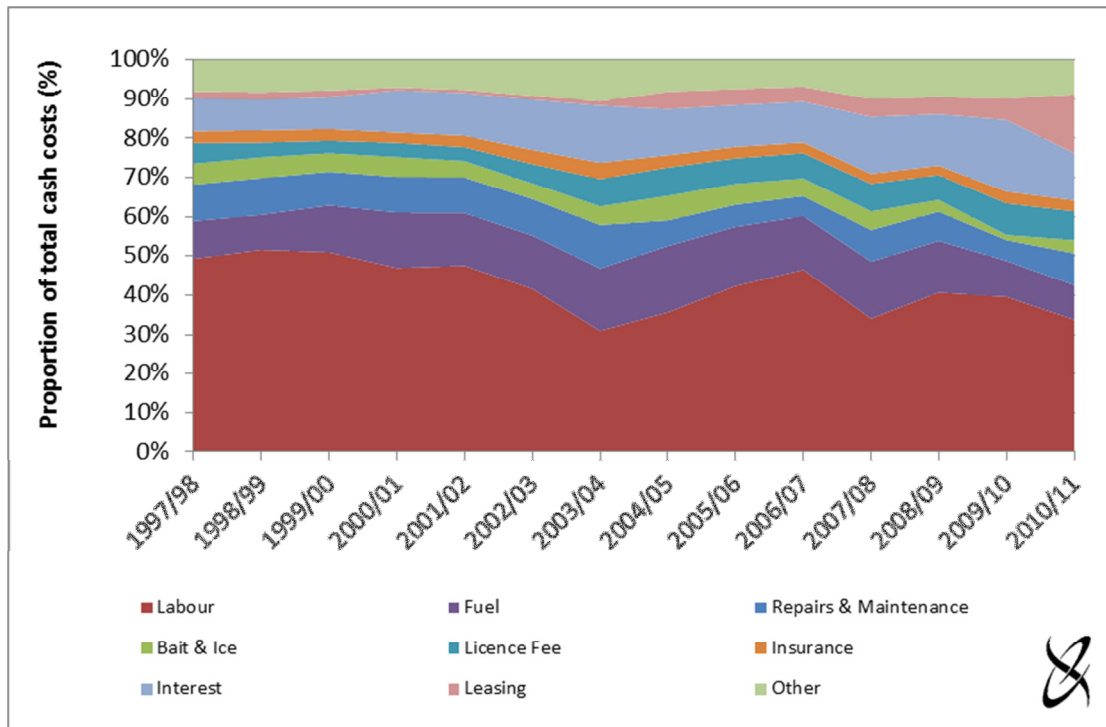
Operating cost trends

A breakdown of major cost items as a proportion of total cash costs is illustrated in Figure 5.6.

In each year of the analysis labour costs accounted for the largest share of total cash costs. The labour costs 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. Other significant cash costs were fuel, repairs and maintenance, interest and licence fees. Additionally, since 2003/04 there has been a significant increase in leasing costs (Figure 5.6).

The cash costs detailed in Figure 5.6 can be categorised as either variable or fixed costs. Total variable costs and total fixed costs are illustrated in Figure 5.7 on an average per boat basis. Total variable costs have fluctuated between years but generally followed a decreasing trend over the period 1997/98 to 2010/11. As would be expected, total fixed costs have fluctuated much less from year to year and followed an increasing trend over time (Figure 5.7).

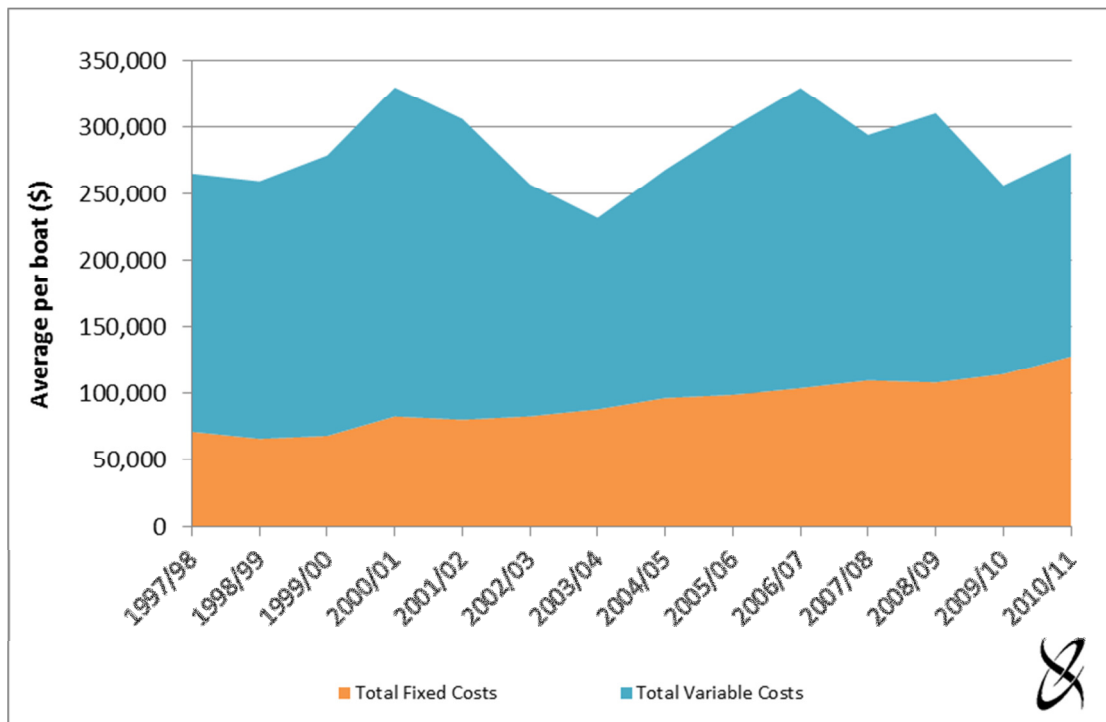
Figure 5.6 Cost shares in the Northern Zone Rock Lobster fishery, 1997/98 to 2010/11 ^a



^a Financial performance estimates were based on different survey samples and techniques. Some of the difference between years is, therefore, attributable to sampling variability.

Source: See Table 3.5 and Appendix Tables 4.1 to 4.4

Figure 5.7 Average total costs in the Northern Zone Rock Lobster fishery 1997/98 to 2010/11 ^a



^a Estimates of average costs are expressed in nominal terms.

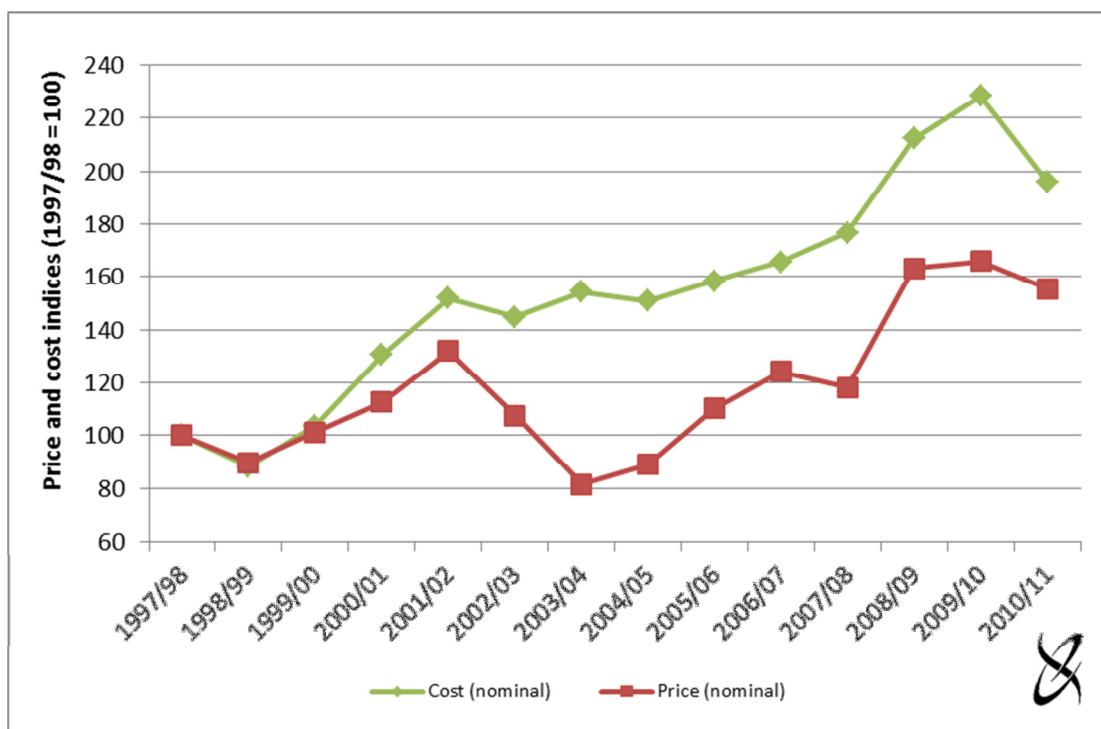
Source: See Table 3.5 and Appendix Tables 4.1 to 4.4

Cost Price Squeeze

Price and cost indices for the Northern Zone Rock Lobster fishery for the years 1997/98 to 2010/11 are summarised in Figure 5.8. These indicators are derived from the average price and average cost per kilogram of catch.

Between 1997/98 and 2010/11 the average price of Northern Zone Rock Lobster increased by approximately 56 per cent in nominal terms (Figure 5.8). The average costs of catching Rock Lobster also followed an increasing trend. Between 1997/98 and 2010/11 the average cost per kilogram increased by approximately 96 per cent significantly more than the increase in price (Figure 5.8).

Figure 5.8 Price and cost indices for the Northern Zone Rock Lobster fishery (1997/98 = 100)



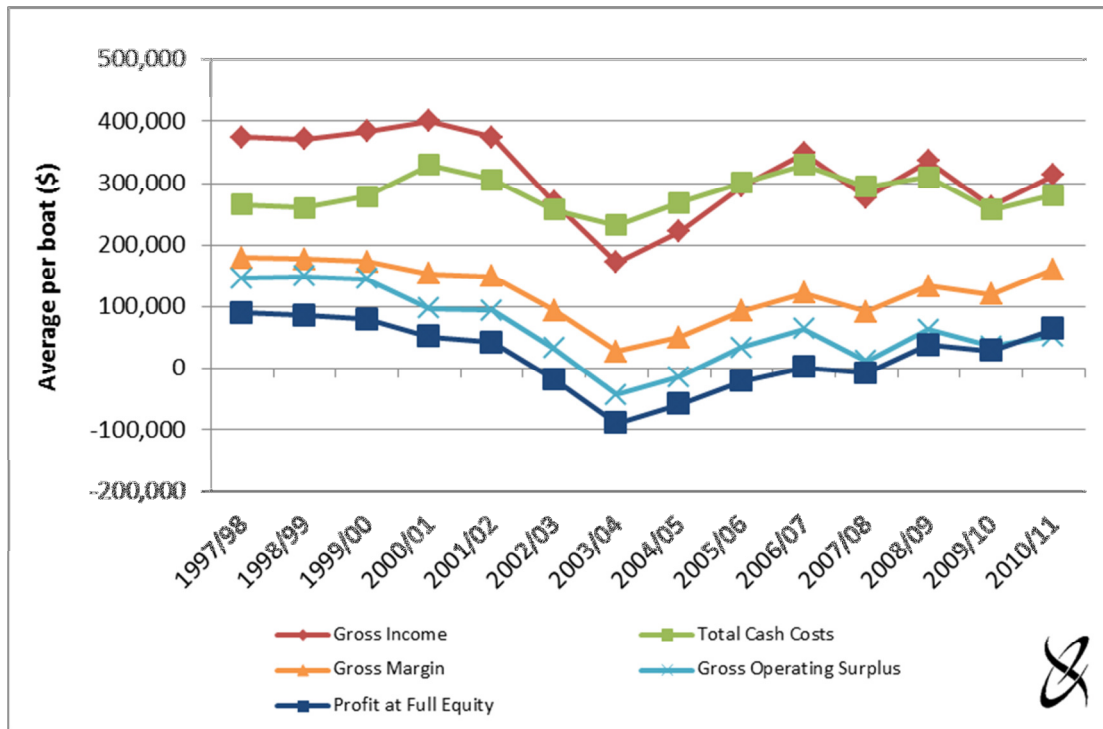
Source: See Figure 3.1, Table 3.5 and Appendix Tables 4.1 to 4.4

Profitability

Selected measures of profitability for the Northern Zone Rock Lobster fishery are summarised in Figure 5.9 for the years 1997/98 to 2010/11.

Changes in each of the profitability measures for the fishery were closely related to the average income earned. Profitability followed a declining trend between 1997/98 and 2003/04 before generally increasing in subsequent years (Figure 5.9).

Figure 5.9 Average income and profit per boat in the Northern Zone Rock Lobster fishery, 1997/98 to 2010/11 ^a



^a Estimates of income and profitability measures are expressed in nominal terms.

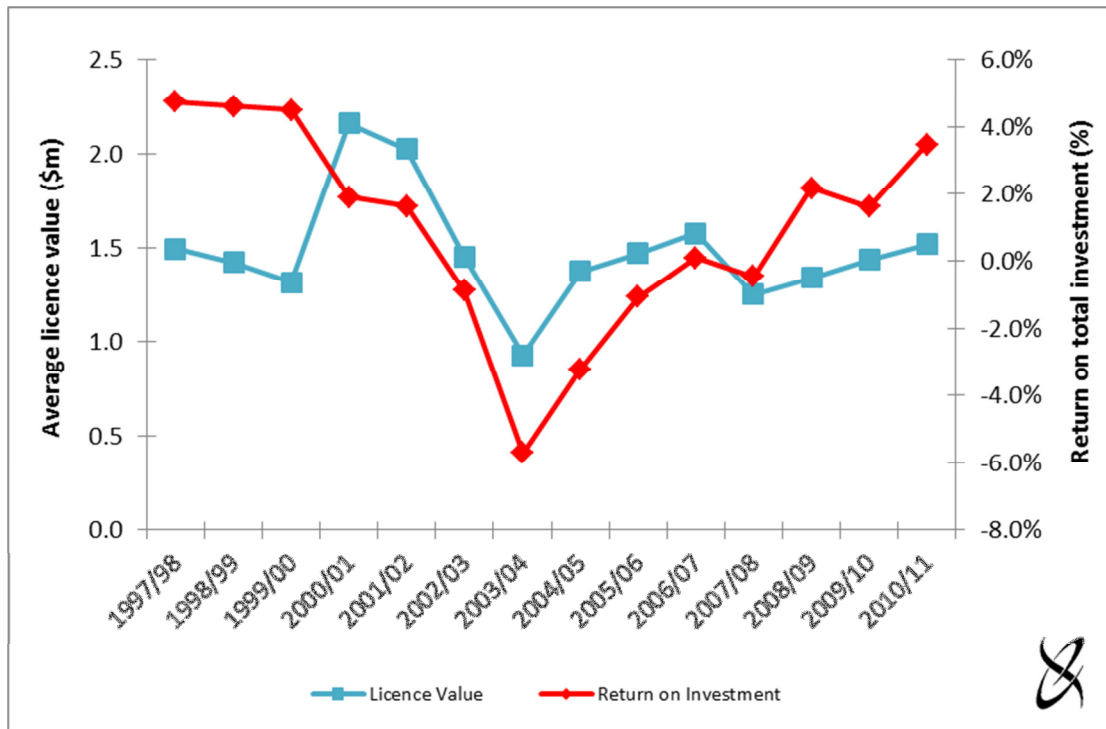
Source: See Table 3.5 and Appendix Tables 4.1 to 4.4

Return on Investment

Estimates of the average licence value and the rate of return to capital are illustrated in Figure 5.10. Capital includes boats, licence/quota, fishing gear, sheds, vehicles and other capital items used as part of the fishing enterprise. Return on investment is calculated to be profit at full equity as a percentage of total capital employed.

Over the six years to 2003/04 the estimated rate of return on investment followed a sharp declining trend. Since that time it has improved significantly, rising from -5.7 per cent in 2003/04 to 3.5 per cent in 2010/11. The average value of licences in the fishery fluctuated between years (Figure 5.10).

Figure 5.10 Return on investment in the Northern Zone Rock Lobster fishery, 1997/98 to 2010/11



Source: See Table 3.5 and Appendix Tables 4.1 to 4.4

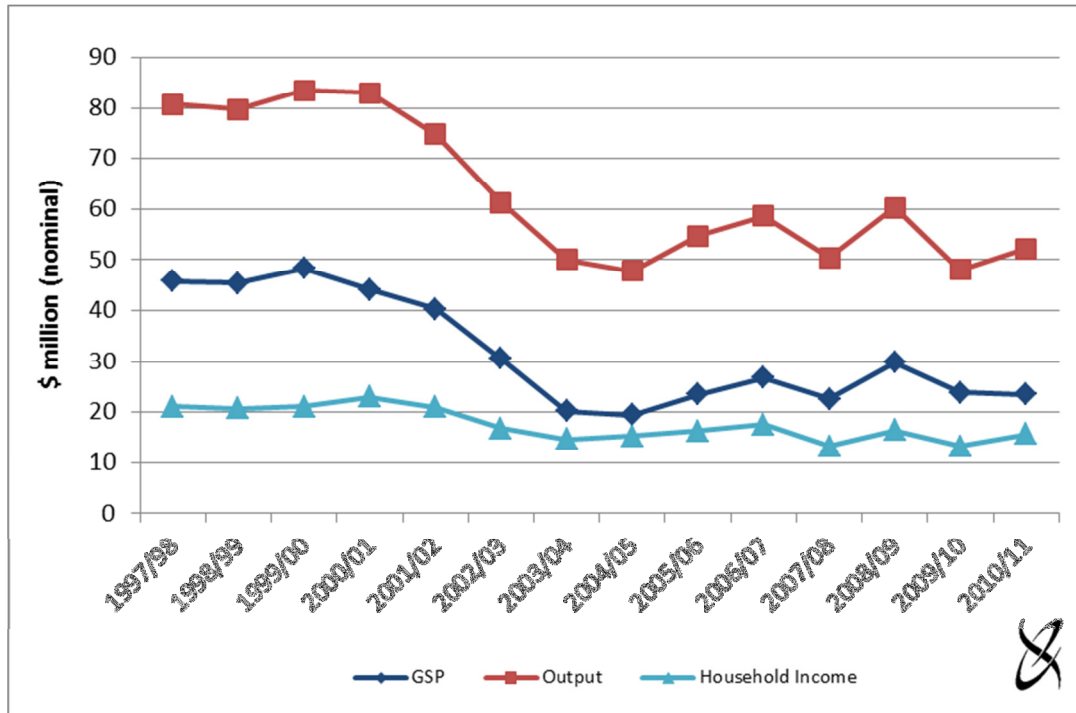
Contribution to SA Economy...

Figures 5.13 and 5.14 illustrate the total economic impact of the fishery on the SA economy for the 14 years, 1997/98 to 2010/11. Total economic impact refers to the direct fishing industry impacts (fishing, processing, etc.) and the indirect impacts on other sectors of the economy.

The change in total output and GSP impacts are closely related to changes in price and fishery GVP (Figure 5.11). There has been an overall decline in direct employment impact of the fishery since 1997/98, as illustrated in (Figure 5.12). This is due to a decrease in the number of active boats in the fishery.

There is a limit reference point in the management plan for the fishery of a decrease in fishery related GSP to less than \$15 million (Table 3.4). The GSP impact for the fishery remained above \$15 million over the entire 14 year period (Figure 5.11).

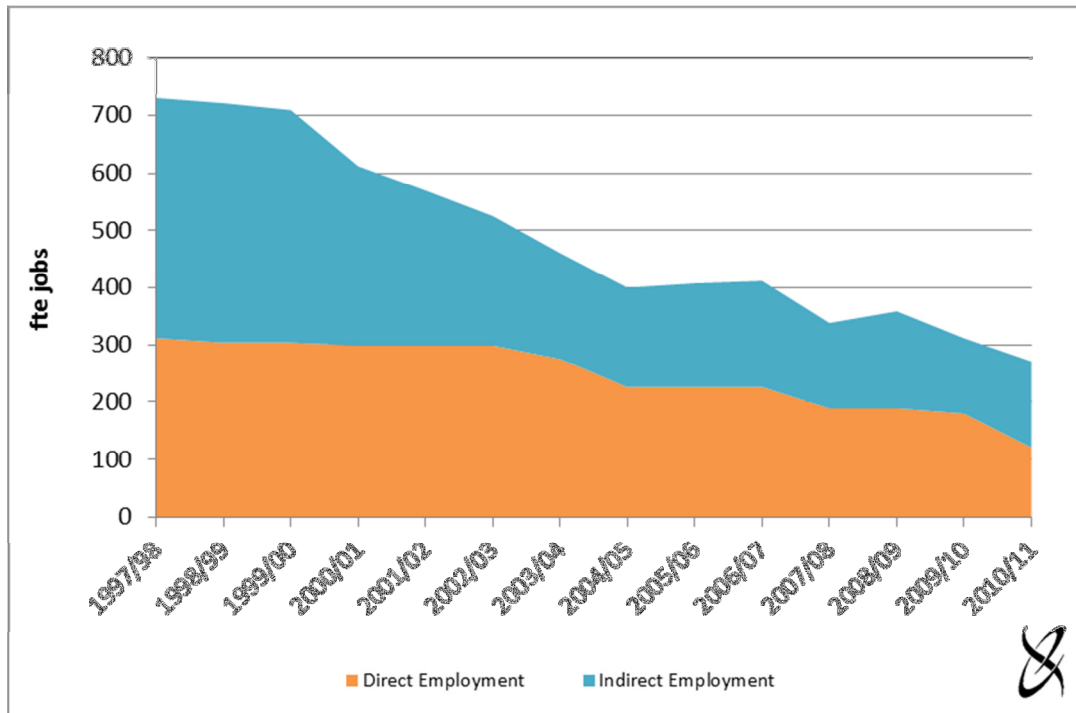
Figure 5.11 Total gross state product, output and household income impact of the Northern Zone Rock Lobster fishery on the SA economy, 1997/98 to 2010/11 ^a



^a Estimates of output, GSP and household income are expressed in nominal terms.

Source: See Table 3.9

Figure 5.12 Total direct and indirect employment impact of the Northern Zone Rock Lobster fishery on the SA economy, 1997/98 to 2010/11



Source: See Table 3.9

Economic Rent...

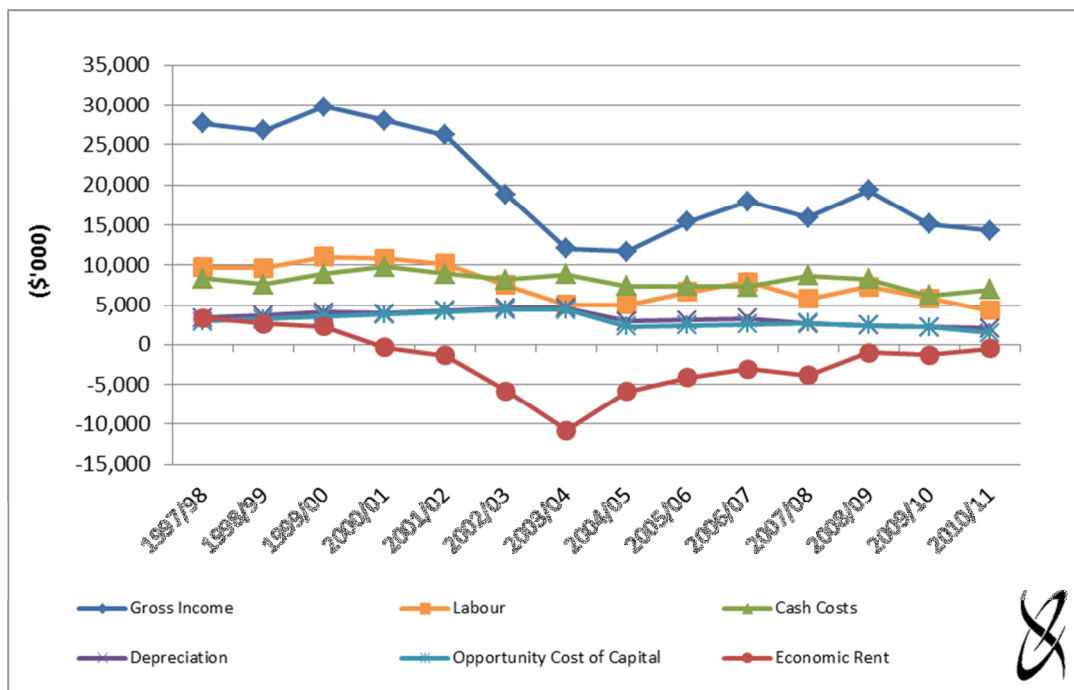
Economic rent is defined as the difference between the price of a good produced using a natural resource and the unit costs of turning that natural resource into the good including the opportunity cost of capital. In this case the natural resource is the Northern Zone Rock Lobster fishery and the good produced is the landed Rock Lobster. Estimates of the economic rent generated in the Northern Zone Rock Lobster fishery are summarised in Figure 5.13 for the period 1997/98 to 2010/11.

The economic rent fluctuated between years but decreased overall. In 1997/98 estimated economic rent in the fishery was \$3.4 million and declined in each year through to 2003/04 when it was estimated to be -\$10.8 million. Since then it has followed an increasing trend and in 2010/11 it was estimated to be -\$0.5 million (Figure 5.13).

Economic rent expressed as a percentage of GDP is a useful indicator for analysing a fishery over time and for comparing different fisheries. This indicator is illustrated in Figure 5.14 and shows a decrease between 1997/98 and 2003/04 before an increase in subsequent years (Figure 5.14).

Economic rent represents a return to the value of licences in the fishery. The aggregate value of licences in the Northern Zone Rock Lobster fishery and the return to capital value of the fishery are illustrated in Figure 5.15. The return to the capital value of the fishery decreased between 1997/98 and 2003/04 and has followed an increasing trend in subsequent years (Figure 5.15).

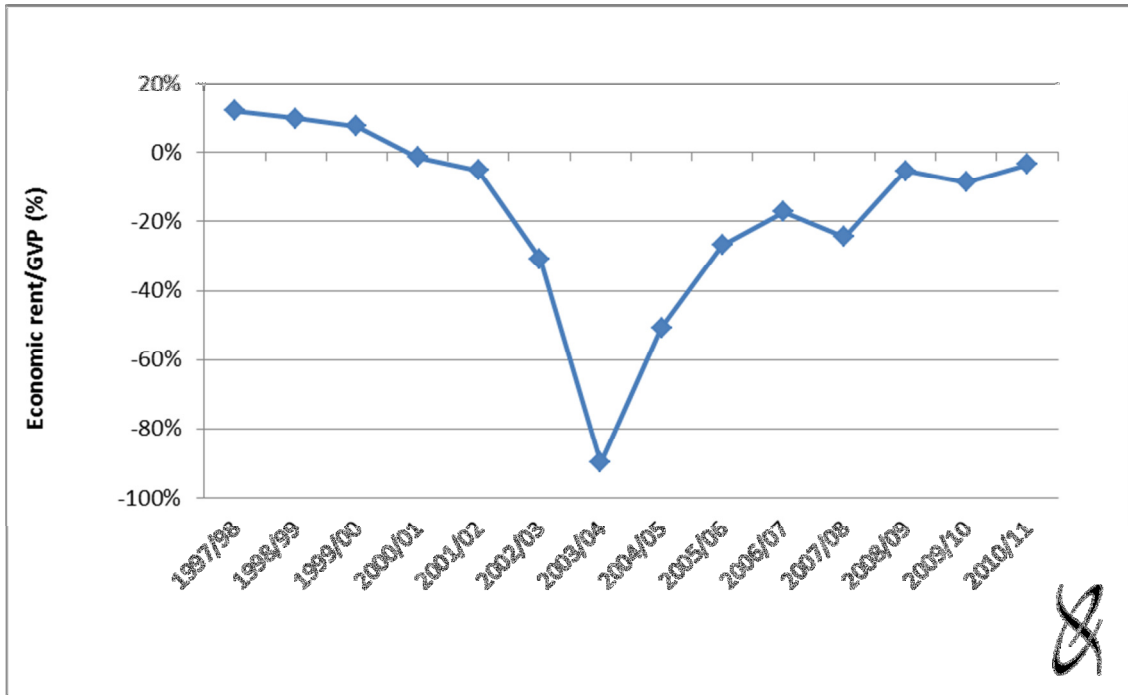
Figure 5.13 Economic rent in the Northern Zone Rock Lobster fishery, 1997/98 to 2010/11 (\$'000) ^a



^a All indicators are expressed in nominal terms.

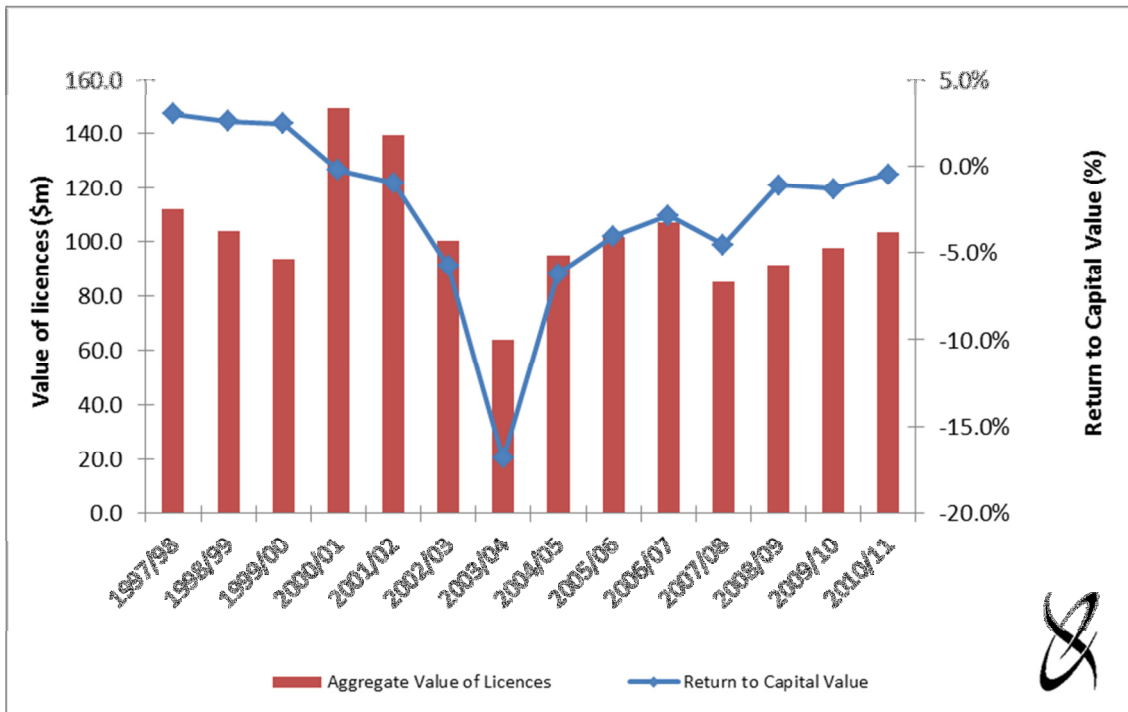
Source: See Table 3.11

Figure 5.14 Economic rent as a proportion of GVP in the Northern Zone Rock Lobster fishery, 1997/98 to 2010/11



Source: See Tables 3.1 and 3.12

Figure 5.15 Aggregate value of licences and return to capital in the Northern Zone Rock Lobster fishery, 1997/98 to 2010/11 ^a



^a The value of licences represents licence holders' estimates of the value of their fishing licence derived from survey responses. Estimates were based on different survey samples and techniques. Some of the difference between years is, therefore, attributable to sampling variability.

Source: See Tables 3.5 and 3.11 and Appendix Tables 4.1 to 4.4

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Appendix 1 Economic Impact of the SA Northern Zone Rock Lobster Fishery, 2009/10

Appendix Table 1.1 The economic impact of the Northern Zone Rock Lobster fishing industry in South Australia, 2009/10

Sector	Output		Employment ^a		Household Income		Contribution to GSP	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%
Direct effects								
Fishing	15.1	32%	153	49%	4.3	32%	8.0	33%
Processing	1.8	4%	6	2%	0.4	3%	0.6	2%
Transport	1.8	4%	7	2%	0.4	3%	0.8	3%
Retail	0.3	1%	3	1%	0.1	1%	0.1	1%
Food services	0.6	1%	4	1%	0.1	1%	0.2	1%
Capital expenditure ^b	0.9	2%	7	2%	0.3	2%	0.4	2%
<i>Total Direct</i> ^c	<i>20.5</i>	<i>41%</i>	<i>180</i>	<i>55%</i>	<i>5.7</i>	<i>40%</i>	<i>10.2</i>	<i>41%</i>
Flow-on effects								
Trade	4.3	9%	36	12%	1.4	11%	2.0	9%
Manufacturing	5.1	11%	25	8%	1.2	9%	1.7	7%
Business Services	3.7	8%	16	5%	1.3	10%	1.8	7%
Transport	1.6	3%	13	4%	0.4	3%	0.7	3%
Other Sectors	12.7	27%	41	13%	3.4	26%	7.6	32%
<i>Total Flow-on</i> ^c	<i>27.5</i>	<i>57%</i>	<i>132</i>	<i>42%</i>	<i>7.7</i>	<i>57%</i>	<i>13.8</i>	<i>58%</i>
Total ^c	48.0	100%	312	100%	13.4	100%	23.9	100%
Total/Direct	2.3	-	1.7	-	2.4	-	2.4	-
Total/Tonne	\$154,700	-	1.01	-	\$43,000	-	\$77,100	-

^a Full-time equivalent jobs. Direct employment in the fishing sector was comprised of 62 full-time jobs and 145 part-time jobs, that is, 207 jobs in aggregate, which was estimated to be equal to 153 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 (2011)

Appendix Table 1.2 The economic impact of the Northern Zone Rock Lobster fishing industry in the Eyre/Western region, 2009/10

Sector	Output		Employment ^a		Household Income		Contribution to GSP	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%
Direct effects								
Fishing	15.1	52%	153	68%	4.3	54%	8.0	54%
Processing	1.8	6%	5	2%	0.4	5%	0.6	4%
Transport	0.4	1%	1	1%	0.1	1%	0.2	1%
Retail	0.0	0%	0	0%	0.0	0%	0.0	0%
Food services	0.0	0%	0	0%	0.0	0%	0.0	0%
Capital expenditure ^b	0.6	2%	7	3%	0.2	3%	0.3	2%
<i>Total Direct</i> ^c	<i>17.9</i>	<i>61%</i>	<i>166</i>	<i>74%</i>	<i>5.0</i>	<i>62%</i>	<i>9.0</i>	<i>60%</i>
Flow-on effects								
Trade	2.5	8%	22	10%	0.8	10%	1.2	8%
Manufacturing	1.7	6%	10	4%	0.4	5%	0.5	4%
Business Services	1.3	4%	6	3%	0.4	5%	0.6	4%
Transport	0.7	2%	4	2%	0.2	2%	0.3	2%
Other Sectors	5.3	18%	17	7%	1.2	15%	3.3	22%
<i>Total Flow-on</i> ^c	<i>11.4</i>	<i>39%</i>	<i>58</i>	<i>26%</i>	<i>3.0</i>	<i>38%</i>	<i>5.9</i>	<i>40%</i>
Total ^c	29.3	100%	224	100%	8.1	100%	14.9	100%
Total/Direct	1.6	-	1.4	-	1.6	-	1.7	-
Total/Tonne	\$94,600	-	0.72	-	\$25,900	-	\$48,100	-

^a Full-time equivalent jobs. Direct employment in the fishing sector was comprised of 62 full-time jobs and 145 part-time jobs, that is, 207 jobs in aggregate, which was estimated to be equal to 153 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 (2011)

Appendix 2 Rock Lobster Exports from South Australia, 1995/96 to 2010/11

Appendix Table 2.1 Rock Lobster exports from South Australia, quantity (kg) by category, 1995/96 to 2010/11

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	2009/10	2010/11
Whole rock lobster - frozen	17,712	254	0	0	0	145,255	24,166	39,382	22,679	5,829	1,177	64	2,827	2,215	1,211	1,402
Whole rock lobster- live, fresh or chilled	1,465,501	1,352,898	1,487,904	2,187,018	2,284,822	2,025,710	1,695,170	1,763,339	1,877,960	1,828,341	1,743,730	1,937,308	2,061,812	1,589,478	1,374,720	851,138
Rock lobster tails - frozen	16,624	25,713	40,790	50,833	36,592	18,862	10,187	18,879	3,264	5,044	9,592	6,734	12,506	4,129	2,709	4,007
Rock lobster tails - fresh or chilled	0	10,244	0	1,190	1,338	941	2,141	1,341	2,681	4,903	2,055	0	0	0	0	0
Other	10,685	100,740	168,410	685	15,499	130,230	569,788	338,494	51,378	0	3,015	9,901	23	0	978	8
Total	1,510,522	1,489,849	1,697,104	2,239,726	2,338,251	2,320,998	2,301,452	2,161,435	1,957,962	1,844,117	1,759,569	1,954,007	2,077,168	1,595,822	1,379,618	856,555

Source: Australian Bureau of Statistics (by request)

Appendix Table 2.2 Rock Lobster exports from South Australia, value (\$'000 fob) by category, 1995/96 to 2010/11

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	2009/10	2010/11
Whole rock lobster - frozen	730	14	0	0	0	5,180	1,167	1,864	991	326	114	8	214	173	42	34
Whole rock lobster- live, fresh or chilled	54,517	49,154	57,600	75,575	81,678	84,725	80,437	74,221	66,367	67,361	76,611	95,617	93,805	113,262	91,614	56,074
Rock lobster tails - frozen	1,313	1,914	2,736	2,863	2,586	1,444	1,044	1,466	172	331	750	540	713	350	228	367
Rock lobster tails - fresh or chilled	0	918	0	90	100	42	162	130	157	276	90	0	0	0	0	0
Other	402	4,443	6,887	22	631	4,597	26,618	13,844	1,580	0	116	534	1	0	81	1
Total	56,962	56,443	67,222	78,549	84,995	95,990	109,429	91,525	69,268	68,295	77,681	96,698	94,732	113,785	91,965	56,476

Source: Australian Bureau of Statistics (by request)

Appendix Table 2.3 Rock Lobster exports from South Australia, quantity (kg) by country of destination, 1995/96 to 2010/11

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	2009/10	2010/11
Canada	0	0	0	13	2,180	1,360	110	124,844	0	18	0	0	0	0	0	0
China	59,661	208,695	620,032	761,667	70,602	5,284	69,366	124,844	55,805	292,265	70,230	35,193	56,250	2,946	113	199,839
Denmark	0	0	0	0	0	0	0	0	0	0	33	54	0	67	0	0
France	0	0	0	6,504	23,763	38,493	34,577	21,899	7,590	3,265	6,799	4,577	3,513	250	600	0
Germany	0	0	0	300	2,243	0	556	0	0	0	71	0	0	95	0	0
Hong Kong	946,297	793,609	818,785	1,178,555	1,941,392	2,042,772	1,995,842	1,833,031	1,732,694	1,387,463	1,574,584	1,832,744	1,932,782	1,543,665	1,348,669	631,809
Italy	3,200	5,440	6,130	15,125	14,677	20,950	17,966	15,700	11,070	8,006	5,222	2,619	1,971	200	0	0
Japan	156,624	140,602	112,604	98,438	119,005	113,411	78,688	89,617	96,529	82,453	74,861	54,075	55,550	28,255	14,976	4,471
Korea, Republic of	8,975	720	200	2,845	1,525	3,416	3,972	4,888	2,683	1,978	2,244	1,101	2,160	0	0	0
Malaysia	1,081	2,065	2,282	1,562	2,953	6,624	17,039	8,244	10,041	12,229	4,016	5,389	5,865	4,696	7,623	9,977
Philippines	117	1,925	959	0	0	0	365	25	40	72	28	0	23	25	15	9
Russian Federation	0	0	0	0	0	0	0	0	0	0	0	0	47	347	0	0
Singapore	36,182	50,545	36,043	27,683	24,175	32,710	28,967	26,885	19,502	26,109	11,951	10,292	12,414	8,605	5,567	9,304
Taiwan	278,819	255,526	72,156	99,460	103,480	28,739	27,983	8,210	806	100	0	395	0	0	0	0
Thailand	620	3,944	0	0	2,400	0	9	0	0	0	225	0	0	0	0	0
United Arab Emirates	2,460	4,530	1,533	3,865	1,525	1,655	2,934	2,240	1,380	4,670	1,453	2,398	2,886	2,179	441	556
United Kingdom	100	0	0	0	300	37	0	0	0	19	385	20	200	39	0	0
USA	10,346	22,018	25,630	43,589	27,861	24,595	22,800	22,023	5,979	9,111	7,358	5,117	2,441	4,123	1,614	590
Vietnam	0	0	0	0	0	0	0	0	13,843	13,184	58	0	76	0	0	0
Total	1,510,522	1,489,849	1,697,104	2,239,726	2,338,251	2,296,366	2,301,452	2,283,876	1,957,962	1,844,117	1,759,572	1,954,007	2,077,168	1,595,822	1,379,618	856,555

Source: Australian Bureau of Statistics (by request)

Appendix Table 2.4 Rock Lobster exports from South Australia, value (\$'000 fob) by country of destination, 1995/96 to 2010/11

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	2009/10	2010/11
Canada	0	0	0	1	266	40	7	5,246	0	2	0	0	0	0	0	0
China	2,328	7,480	24,525	26,368	2,601	225	3,379	5,246	2,004	10,818	2,900	1,760	2,460	201	7	12,148
Denmark	0	0	0	0	0	0	0	0	0	0	4	6	0	9	0	0
France	0	0	0	232	889	1,512	1,525	981	266	126	296	296	226	17	29	0
Germany	0	0	0	13	70	0	24	0	0	0	7	0	0	4	0	0
Hong Kong	35,350	29,860	31,864	40,067	68,521	83,350	93,882	75,895	60,431	50,669	68,924	90,050	87,886	109,957	89,657	42,653
Italy	103	166	234	532	566	867	890	816	449	331	238	145	78	12	0	0
Japan	6,500	5,977	4,784	3,824	5,374	5,023	3,834	4,465	4,015	3,416	3,648	3,074	2,785	2,287	1,192	371
Korea, Republic of	395	24	11	137	60	160	215	253	125	88	106	64	91	0	0	0
Malaysia	42	90	88	62	112	290	843	358	342	466	232	267	281	287	548	645
Philippines	5	73	41	0	0	0	19	1	1	2	2	0	1	2	2	1
Russian Federation	0	0	0	0	0	0	0	0	0	0	0	0	3	44	0	0
Singapore	1,426	2,073	1,479	1,051	1,014	1,383	1,554	1,173	713	1,024	669	533	584	550	397	574
Taiwan	10,085	9,040	2,666	3,346	3,757	1,166	1,234	357	25	12	0	16	0	0	0	0
Thailand	22	148	0	0	101	0	1	0	0	0	9	0	0	0	0	0
United Arab Emirates	94	190	61	127	62	88	162	108	52	173	62	130	137	169	30	43
United Kingdom	3	0	0	0	10	4	0	0	0	2	30	2	21	5	0	0
USA	465	1,313	1,444	2,785	1,586	1,842	1,844	1,734	332	500	543	351	143	196	105	41
Vietnam	0	0	0	0	0	0	0	0	511	522	4	0	3	0	0	0
Total	56,962	56,443	67,222	78,549	84,995	94,144	109,429	96,697	69,268	68,295	77,681	96,698	94,732	113,785	91,965	56,476

Source: Australian Bureau of Statistics (by request)

Appendix 3 Summary Economic Indicators for SA Commercial Fisheries

Appendix Table 3.1 Commercial fisheries catch, South Australia, 1997/98 to 2009/10 (tonnes) ^a

Year	Abalone	GSV Prawns	SG & WC Prawns	Sth'n Zone Rock Lobster	Nth'n Zone Rock Lobster	Blue Swimmer Crabs	Lakes and Coorong ^b	Sardines	Other Marine Species	Total SA Fisheries ^c
1997/98	812	267	2,492	1,680	942	469	2,465	6,041	5,594	20,762
1998/99	933	336	2,425	1,713	1,016	501	2,102	4,465	5,036	18,527
1999/00	889	400	2,016	1,717	1,001	467	1,807	3,836	4,869	17,002
2000/01	867	384	2,603	1,716	846	556	2,013	7,368	5,255	21,608
2001/02	850	322	2,309	1,717	675	560	1,640	12,165	4,722	24,960
2002/03	890	232	1,508	1,766	595	583	1,979	21,741	4,175	33,469
2003/04	879	172	1,958	1,896	504	611	2,180	33,160	4,168	45,528
2004/05	902	213	1,960	1,897	446	632	2,258	56,952	3,810	69,070
2005/06	896	175	1,891	1,889	476	649	2,440	28,626	3,186	40,228
2006/07	883	209	2,024	1,895	492	637	2,443	30,355	2,834	41,772
2007/08	889	229	2,088	1,850	459	669	2,146	29,692	2,909	40,931
2008/09	837	273	1,915	1,407	403	658	2,023	27,850	2,972	38,338
2009/10	855	224	2,445	1,243	310	592	1,916	36,573	3,301	47,459

^a Excludes catch from the Charter Boat fishery.

^b The River fishery was closed from July 2003. There are 6 River fishery licences with access to non-native species and their production is included in this table.

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

Source: EconSearch (2012)

Appendix Table 3.2 Commercial fisheries gross value of production, South Australia, 1997/98 to 2009/10 (\$m)

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 ^b	Charter Boat	Total SA Fisheries ^c
1997/98	27	4	29	51	28	2	5	4	17	-	167
1998/99	27	5	35	47	27	2	5	3	18	-	169
1999/00	32	8	36	51	30	2	5	3	20	-	187
2000/01	40	7	46	55	28	3	6	5	21	-	210
2001/02	35	6	42	66	26	3	5	9	19	-	210
2002/03	36	4	28	64	19	4	4	18	21	-	198
2003/04	32	3	40	49	12	4	5	23	23	-	191
2004/05	34	4	32	54	12	4	5	28	21	-	194
2005/06	34	3	34	66	15	5	6	16	17	4	197
2006/07	31	3	39	79	18	5	7	19	19	5	221
2007/08	31	3	33	76	16	6	8	16	20	5	209
2008/09	33	3	31	85	19	5	8	18	22	5	225
2009/10	28	3	29	71	15	4	6	23	23	5	207

^a Revalued SARDI estimates using Baker and Pierce (1998) for the years 1997/98 to 2001/02 and survey based readjustment factors for 2002/03 to 2009/10. Excludes the River fishery for the years 2003/04 to 2009/10.

^b SARDI estimates for the years 1997/98 to 2002/03, revalued SARDI estimates for 2003/04 to 2008/09 using weighted average prices from Sydney and Melbourne fish markets and price data obtained from fishers.

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

Source: EconSearch (2012)

Appendix Table 3.3 Cost of management in South Australian commercial fisheries, 2009/10

	Licence Fees (\$'000)	GVP Fees/ GVP (\$'000)	Fees/ GVP (%)	Catch ('000kg)	Fees/ Catch (\$/kg)	Licence Holders (no.)	Fees/ Licence (\$/licence)
Abalone	2,512	28,068	9.0%	855	\$2.94	35	\$71,782
Charter Boats ^a	244	5,255	4.6%	22	\$11.19	110	\$2,220
GSV Prawns	340	2,573	13.2%	224	\$1.52	10	\$34,012
SG & WC Prawns	945	28,569	3.3%	2,445	\$0.39	42	\$22,508
Sth'n Zone Rock Lobster	2,594	70,720	3.7%	1,243	\$2.09	181	\$14,332
Nth'n Zone Rock Lobster	1,165	15,117	7.7%	310	\$3.76	68	\$17,126
Blue Crabs - Pots	283	4,125	6.9%	539	\$0.53	9	\$31,472
Blue Crabs – Marine Scale	4	332	1.1%	53	\$0.07	4	\$905
Lakes and Coorong ^b	393	6,162	6.4%	1,916	\$0.21	36	\$10,918
Marine Scalefish ^c	1,961	23,251	8.4%	3,301	\$0.59	334	\$4,281
Sardines	656	23,041	2.8%	36,573	\$0.02	14	\$46,860
Total SA	11,097	207,213	5.4%	47,481	\$0.23	843	\$13,164

^a Number of clients (not catch) and Fees/1000 clients.

^b Excludes the River fishery.

^c 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 (2012)

Appendix Table 3.4 Financial performance in South Australian commercial fisheries, 2009/10, (\$'000) (average per boat)

	Abalone	Charter Boats	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
Total Boat Gross Income	793.4	129.4	301.2	645.3	454.5	262.6	4,379.3	93.1	1,449.3	171.2
Variable Costs										
Fuel	15.0	23.9	37.5	93.8	49.1	23.6	469.7	8.9	166.6	10.4
Repairs & Maintenance	22.4	14.7	13.1	36.9	35.2	13.7	449.1	6.9	121.1	7.9
Bait/Ice	0.1	4.1	0.0	0.0	5.5	3.3	72.8	1.9	9.3	2.0
Provisions	9.1	5.6	0.6	8.1	0.9	6.6	0.0	0.7	6.0	0.4
Labour - paid	220.0	24.1	108.8	246.0	107.9	71.3	1,069.8	11.0	457.6	29.6
- unpaid	0.9	12.5	8.1	1.7	22.0	21.6	108.7	21.5	8.3	41.6
Other	5.0	4.1	0.5	17.1	0.7	1.0	138.6	0.0	26.0	18.5
Total Variable Costs	272.4	89.0	168.6	403.6	221.3	141.1	2,308.8	51.0	794.9	110.4
Fixed Costs										
Licence Fee	69.9	2.8	33.8	22.4	19.1	20.6	338.0	6.1	34.0	7.5
Insurance	4.4	3.4	20.5	19.4	6.8	7.8	109.9	1.9	33.2	1.4
Interest	18.8	5.1	19.7	45.6	28.6	46.8	656.8	3.7	67.6	3.7
Labour - unpaid	20.8	7.5	13.3	8.8	8.0	8.6	72.9	3.0	13.1	9.9
Leasing	0.0	0.0	0.0	0.0	8.6	14.0	0.0	0.0	2.1	0.0
Legal & Accounting	8.8	1.4	6.9	10.3	4.0	4.2	24.5	1.1	5.5	2.4
Telephone etc.	3.1	2.4	2.7	3.6	1.9	3.2	30.6	1.0	1.0	3.3
Slipping & Mooring	2.1	1.6	4.2	2.9	3.0	1.8	0.0	0.5	13.3	0.0
Travel	8.4	1.1	0.4	1.5	2.2	3.9	17.4	0.5	0.1	0.4
Office & Admin	9.1	5.8	4.1	6.3	4.2	4.5	47.1	7.6	10.6	7.2
Total Fixed Costs	145.3	31.1	105.6	120.8	86.3	115.5	1,297.3	25.3	180.6	35.8
Total Boat Cash Costs (3 + 7)	417.7	120.1	274.2	524.4	307.6	256.6	3,606.1	76.3	975.5	146.3
Boat Gross Margin (1 - 3)	521.0	40.4	132.6	241.6	233.2	121.5	2,070.5	42.1	654.4	60.7
Total Unpaid Labour (2 + 5)	21.7	20.0	21.3	10.5	30.0	30.2	181.6	24.5	21.4	51.5
Gross Operating Surplus (1 - 8 + 9)	397.4	29.3	48.3	131.4	176.9	36.2	954.8	41.2	495.2	76.4
Boat Cash Income (1 - 8)	375.7	9.3	27.0	120.9	146.9	6.0	773.2	16.8	473.8	24.9
Depreciation	40.7	35.2	97.3	147.7	45.0	37.6	345.0	14.6	150.6	20.8
Boat Business Profit (10 - 11)	335.1	-25.9	-70.3	-26.8	101.8	-31.6	428.2	2.2	323.1	4.1
Profit at Full Equity (12 + 4 + 6)	353.8	-20.8	-50.5	18.8	139.1	29.3	1,085.0	5.9	392.8	7.8
Boat Capital										
Fishing Gear & Equip	288.8	370.1	1,359.1	1,842.5	444.7	376.6	1,868.0	128.8	2,923.4	114.4
Licence Value	7,195.4	34.6	2,133.9	3,199.9	3,756.2	1,438.1	19,263.7	156.9	4,446.7	199.9
Total Boat Capital	7,484.2	404.8	3,493.0	5,042.4	4,200.9	1,814.7	21,131.7	285.7	7,370.1	314.4
Rate of Return on Fishing Gear & Equip (13 / 14 * 100)	122.5%	-5.6%	-3.7%	1.0%	31.3%	7.8%	58.1%	4.6%	13.4%	6.8%
Rate of Return on Total Boat Capital (13 / 15 * 100)	4.7%	-5.1%	-1.4%	0.4%	3.3%	1.6%	5.1%	2.1%	5.3%	2.5%

^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.

Source: EconSearch (2012)

Appendix Table 3.5 Costs as a percentage of total cash costs in South Australian commercial fisheries, 2009/10

	Abalone	Charter Boats	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	4%	20%	14%	18%	16%	9%	13%	12%	17%	7%
Repairs & Maintenance	5%	12%	5%	7%	11%	5%	12%	9%	12%	5%
Bait/Ice	0%	3%	0%	0%	2%	1%	2%	3%	1%	1%
Provisions	2%	5%	0%	2%	0%	3%	0%	1%	1%	0%
Labour - paid	53%	20%	40%	47%	35%	28%	30%	14%	47%	20%
- unpaid	0%	10%	3%	0%	7%	8%	3%	28%	1%	28%
Other	1%	3%	0%	3%	0%	0%	4%	0%	3%	13%
Fixed Costs										
Licence Fee	17%	2%	12%	4%	6%	8%	9%	5%	28%	6%
Insurance	1%	3%	7%	4%	2%	3%	3%	2%	28%	1%
Interest	4%	4%	7%	9%	9%	18%	18%	3%	56%	3%
Labour - unpaid	5%	6%	5%	2%	3%	3%	2%	2%	11%	8%
Leasing	0%	0%	0%	0%	3%	5%	0%	0%	2%	0%
Legal & Accounting	2%	1%	2%	2%	1%	2%	1%	1%	5%	2%
Telephone etc.	1%	2%	1%	1%	1%	1%	1%	1%	1%	3%
Slipping & Mooring	1%	1%	2%	1%	1%	1%	0%	0%	11%	0%
Travel	2%	1%	0%	0%	1%	2%	0%	0%	0%	0%
Office & Admin	2%	5%	2%	1%	1%	2%	1%	6%	9%	6%
Total Variable Costs	65%	74%	61%	77%	72%	55%	64%	67%	81%	76%
Total Fixed Costs	35%	26%	39%	23%	28%	45%	36%	33%	19%	24%
Total Cash Costs	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

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

Source: EconSearch (2012)

Appendix Table 3.6 Economic impacts of South Australian commercial fisheries, 2009/10

	Abalone	Charter Boats	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	28.1	5.3	2.6	28.6	70.7	15.1	4.5	23.3	23.0	6.2	207.2
Downstream ^b	16.2	4.7	3.3	34.5	20.6	5.4	2.7	13.5	3.8	7.3	112.0
All other sectors (indirect)	45.1	14.0	8.8	79.8	101.3	27.5	8.8	59.1	26.0	18.0	388.6
Total	89.4	24.0	14.7	142.9	192.6	48.0	16.0	95.9	52.8	31.5	707.8
Total/Direct	2.0	2.4	2.5	2.3	2.1	2.3	2.2	2.6	2.0	2.3	2.2
Total/Tonne (\$)	\$104,600	\$1,100	\$65,400	\$58,400	\$154,900	\$154,700	\$26,900	\$29,000	\$1,800	\$16,400	\$14,409
Contribution to GSP (\$m)											
Direct											
Fishing	22.4	2.3	1.3	18.8	47.6	8.0	2.7	10.6	17.0	3.9	134.7
Downstream	5.6	2.3	1.5	15.6	7.6	2.2	1.1	5.7	1.5	2.9	45.9
All other sectors (indirect)	22.6	6.9	4.4	39.5	50.5	13.8	4.3	29.2	13.0	9.0	193.1
Total	50.6	11.5	7.2	73.9	105.7	23.9	8.2	45.5	31.4	15.8	373.8
Total/Direct	1.8	2.5	2.6	2.1	1.9	2.4	2.1	2.8	1.7	2.3	2.1
Total/Tonne (\$)	\$59,200	\$500	\$32,097	\$30,200	\$85,500	\$77,100	\$13,700	\$13,774	\$1,129	\$8,239	\$7,633
Employment (fte jobs)											
Direct											
Fishing	90.4	78.5	28.2	184.6	414.1	152.8	28.1	565.6	47.7	62.0	1,652.1
Downstream	61.3	30.6	26.1	272.8	100.5	27.4	14.5	99.5	24.4	42.1	699.2
All other sectors (indirect)	218.1	66.1	41.5	372.2	481.5	131.6	41.4	279.5	122.2	84.8	1,838.8
Total	369.8	175.1	95.8	829.6	996.1	311.7	84.0	944.6	194.2	189.0	4,190.1
Total/Direct	2.4	1.6	1.8	1.8	1.9	1.7	2.0	1.4	2.7	1.8	1.8
Total/Tonne	0.43	0.01	0.43	0.34	0.80	1.01	0.14	0.29	0.01	0.10	0.08
Household Income (\$m)											
Direct											
Fishing	8.5	1.8	1.3	10.8	21.6	4.3	1.3	10.6	6.7	2.9	69.7
Downstream	3.7	1.3	1.0	10.1	5.1	1.4	0.7	4.0	1.1	1.9	30.2
All other sectors (indirect)	12.5	3.8	2.4	21.7	27.7	7.7	2.4	16.2	7.1	4.9	106.4
Total	24.7	6.9	4.7	42.6	54.4	13.4	4.3	30.7	14.8	9.8	206.3
Total/Direct	2.0	2.2	2.1	2.0	2.0	2.4	2.3	2.1	1.9	2.0	2.1
Total/Tonne (\$)	\$28,800	\$300	\$21,000	\$17,400	\$43,700	\$43,000	\$7,300	\$9,300	\$500	\$5,000	\$4,202

^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.

Source: EconSearch (2012)

Appendix Table 3.7 Economic rent in South Australian commercial fisheries, 2009/10 (\$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	27.8	2.6	28.6	70.7	15.1	4.4	23.3	23.0	6.2	201.6
Less Labour	8.5	1.1	11.4	21.5	5.8	1.3	8.9	7.6	2.9	68.9
Less Materials & Services	5.5	1.1	9.8	22.0	6.2	1.7	9.3	6.8	2.2	64.6
Less Depreciation	1.4	0.8	6.5	7.0	2.2	0.3	3.7	2.4	0.7	25.1
Less Opportunity Cost of Capital (@10%)	1.0	1.2	8.2	6.9	2.2	0.2	3.2	4.6	0.4	27.9
Economic Rent	11.4	-1.6	-7.3	13.4	-1.3	0.9	-1.7	1.6	-0.1	15.2

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

Source: EconSearch (2012)

Appendix 4 Financial Performance Indicators, 1997/98 to 2007/08

Appendix Table 4.1 Financial performance in the SA Northern Zone Rock Lobster fishery, 1997/98 to 1999/00 (average per boat) ^a

	1997/98		1998/99		1999/00	
	Average per Boat	Share of TBCC	Average per Boat	Share of TBCC	Average per Boat	Share of TBCC
(1) Total Boat Gross Income	\$373,813		\$371,014		\$383,627	
Variable Costs						
Fuel	\$25,302	10%	\$23,099	9%	\$33,275	12%
Repairs & Maintenance ^b	\$24,816	9%	\$24,386	9%	\$24,003	9%
Bait/Ice	\$14,161	5%	\$13,735	5%	\$13,187	5%
Provisions	\$7,337	3%	\$7,209	3%	\$7,096	3%
Labour - paid	\$93,550	35%	\$95,681	37%	\$101,743	36%
(2) - unpaid ^c	\$27,209	10%	\$27,828	11%	\$29,592	11%
Other	\$1,856	1%	\$1,881	1%	\$1,928	1%
(3) Total Variable Costs	\$194,231	73%	\$193,820	75%	\$210,823	76%
Fixed Costs						
Licence Fee	\$13,881	5%	\$9,761	4%	\$8,816	3%
Insurance	\$8,040	3%	\$8,040	3%	\$8,243	3%
(4) Interest	\$22,135	8%	\$20,432	8%	\$22,621	8%
(5) Labour - unpaid ^c	\$10,178	4%	\$10,488	4%	\$10,786	4%
(6) Leasing	\$4,644	2%	\$4,706	2%	\$4,824	2%
Legal & Accounting	\$2,608	1%	\$2,643	1%	\$2,709	1%
Telephone etc.	\$1,762	1%	\$1,786	1%	\$1,830	1%
Slipping & Mooring	\$3,146	1%	\$3,187	1%	\$3,267	1%
Travel	\$2,235	1%	\$2,264	1%	\$2,321	1%
Office & Admin	\$2,593	1%	\$2,627	1%	\$2,693	1%
(7) Total Fixed Costs	\$71,223	27%	\$65,934	25%	\$68,111	24%
(8) Total Boat Cash Costs (3 + 7)	\$265,455	100%	\$259,754	100%	\$278,934	100%
Boat Gross Margin (1 - 3)	\$179,582		\$177,194		\$172,803	
(9) Total Unpaid Labour (2 + 5)	\$37,387		\$38,317		\$40,378	
Gross Operating Surplus (1 - 8 + 9)	\$145,746		\$149,576		\$145,070	
(10) Boat Cash Income (1 - 8)	\$108,359		\$111,260		\$104,692	
(11) Depreciation	\$45,324		\$50,487		\$52,275	
(12) Boat Business Profit (10 - 11)	\$63,034		\$60,773		\$52,417	
(13) Profit at Full Equity (12 + 4 + 6)	\$89,814		\$85,911		\$79,863	
Boat Capital						
(14) Fishing Gear & Equip	\$398,105		\$443,451		\$459,157	
Licence Value	\$1,494,667		\$1,425,097		\$1,316,879	
(15) Total Boat Capital	\$1,892,772		\$1,868,548		\$1,776,036	
Rate of Return on Fishing Gear & Equip (13 / 14 * 100)	22.6%		19.4%		17.4%	
Rate of Return on Total Boat Capital (13 / 15 * 100)	4.7%		4.6%		4.5%	

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

^b 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).

^c 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 Northern Zone Rock Lobster fishery, 2000/01 to 2002/03 (average per boat) ^a

	2000/01		2001/02		2002/03	
	Average per Boat	Share of TBCC	Average per Boat	Share of TBCC	Average per Boat	Share of TBCC
(1) Total Boat Gross Income	\$400,432		\$374,708		\$269,377	
Variable Costs						
Fuel	\$46,473	14%	\$41,059	13%	\$35,025	14%
Repairs & Maintenance ^b	\$30,069	9%	\$27,744	9%	\$23,946	9%
Bait/Ice	\$16,666	5%	\$12,825	4%	\$10,233	4%
Provisions	\$4,566	1%	\$4,213	1%	\$3,636	1%
Labour - paid	\$128,122	39%	\$119,891	39%	\$86,190	33%
(2) - unpaid ^c	\$17,905	5%	\$16,755	5%	\$12,045	5%
Other	\$3,309	1%	\$3,400	1%	\$3,537	1%
(3) Total Variable Costs	\$247,108	75%	\$225,887	74%	\$174,612	68%
Fixed Costs						
Licence Fee	\$11,906	4%	\$10,810	4%	\$12,690	5%
Insurance	\$8,717	3%	\$8,958	3%	\$9,317	4%
(4) Interest	\$35,464	11%	\$33,328	11%	\$32,901	13%
(5) Labour - unpaid ^c	\$8,850	3%	\$8,850	3%	\$8,850	3%
(6) Leasing	\$2,333	1%	\$2,398	1%	\$2,494	1%
Legal & Accounting	\$4,045	1%	\$4,157	1%	\$4,323	2%
Telephone etc.	\$2,612	1%	\$2,685	1%	\$2,792	1%
Slipping & Mooring	\$3,336	1%	\$3,428	1%	\$3,566	1%
Travel	\$1,587	0%	\$1,631	1%	\$1,697	1%
Office & Admin	\$3,878	1%	\$3,986	1%	\$4,146	2%
(7) Total Fixed Costs	\$82,728	25%	\$80,231	26%	\$82,775	32%
(8) Total Boat Cash Costs (3 + 7)	\$329,836	100%	\$306,118	100%	\$257,387	100%
Boat Gross Margin (1 - 3)	\$153,324		\$148,820		\$94,765	
(9) Total Unpaid Labour (2 + 5)	\$26,755		\$25,605		\$20,895	
Gross Operating Surplus (1 - 8 + 9)	\$97,351		\$94,194		\$32,885	
(10) Boat Cash Income (1 - 8)	\$70,596		\$68,589		\$11,990	
(11) Depreciation	\$56,905		\$61,880		\$65,355	
(12) Boat Business Profit (10 - 11)	\$13,691		\$6,709		-\$53,365	
(13) Profit at Full Equity (12 + 4 + 6)	\$51,489		\$42,435		-\$17,970	
Boat Capital						
(14) Fishing Gear & Equip	\$545,164		\$592,833		\$626,123	
Licence Value	\$2,160,000		\$2,021,238		\$1,453,068	
(15) Total Boat Capital	\$2,705,164		\$2,614,071		\$2,079,192	
Rate of Return on Fishing Gear & Equip (13 / 14 * 100)	9.4%		7.2%		-2.9%	
Rate of Return on Total Boat Capital (13 / 15 * 100)	1.9%		1.6%		-0.9%	

^a Financial performance estimates for 2000/01 and 2002/03 are based on the October 2001 survey of licence holders.

^b 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).

^c 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 4.3 Financial performance in the SA Northern Zone Rock Lobster fishery, 2003/04 to 2005/06 (average per boat) ^a

	2003/04		2004/05		2005/06	
	Average per Boat	Share of TBCC	Average per Boat	Share of TBCC	Average per Boat	Share of TBCC
(1) Total Boat Gross Income	\$172,345		\$222,293		\$294,654	
Variable Costs						
Fuel	\$36,964	16%	\$45,445	17%	\$45,355	15%
Repairs & Maintenance ^b	\$25,607	11%	\$17,466	7%	\$16,983	6%
Bait/Ice	\$11,021	5%	\$16,750	6%	\$15,877	5%
Provisions	\$3,888	2%	\$4,609	2%	\$4,482	1%
Labour - paid	\$55,143	24%	\$63,406	24%	\$87,213	29%
(2) - unpaid ^c	\$7,706	3%	\$19,077	7%	\$26,240	9%
Other	\$3,643	2%	\$5,052	2%	\$5,245	2%
(3) Total Variable Costs	\$143,973	62%	\$171,806	64%	\$201,395	67%
Fixed Costs						
Licence Fee	\$16,225	7%	\$19,382	7%	\$19,588	7%
Insurance	\$9,598	4%	\$8,439	3%	\$8,761	3%
(4) Interest	\$33,755	15%	\$31,500	12%	\$31,889	11%
(5) Labour - unpaid ^c	\$8,850	4%	\$13,065	5%	\$13,557	5%
(6) Leasing	\$2,569	1%	\$11,870	4%	\$12,323	4%
Legal & Accounting	\$4,454	2%	\$2,738	1%	\$2,842	1%
Telephone etc.	\$2,876	1%	\$2,421	1%	\$2,514	1%
Slipping & Mooring	\$3,673	2%	\$2,410	1%	\$2,503	1%
Travel	\$1,748	1%	\$1,048	0%	\$1,088	0%
Office & Admin	\$4,270	2%	\$3,583	1%	\$3,720	1%
(7) Total Fixed Costs	\$88,018	38%	\$96,456	36%	\$98,786	33%
(8) Total Boat Cash Costs (3 + 7)	\$231,992	100%	\$268,262	100%	\$300,180	100%
Boat Gross Margin (1 - 3)	\$28,372		\$50,488		\$93,259	
(9) Total Unpaid Labour (2 + 5)	\$16,556		\$32,142		\$39,797	
Gross Operating Surplus (1 - 8 + 9)	-\$43,090		-\$13,827		\$34,270	
(10) Boat Cash Income (1 - 8)	-\$59,646		-\$45,968		-\$5,527	
(11) Depreciation	\$65,843		\$55,412		\$59,249	
(12) Boat Business Profit (10 - 11)	-\$125,489		-\$101,380		-\$64,775	
(13) Profit at Full Equity (12 + 4 + 6)	-\$89,165		-\$58,010		-\$20,563	
Boat Capital						
(14) Fishing Gear & Equip	\$630,795		\$431,090		\$460,939	
Licence Value	\$929,661		\$1,374,153		\$1,472,307	
(15) Total Boat Capital	\$1,560,457		\$1,805,243		\$1,933,245	
Rate of Return on Fishing Gear & Equip (13 / 14 * 100)	-14.1%		-13.5%		-4.5%	
Rate of Return on Total Boat Capital (13 / 15 * 100)	-5.7%		-3.2%		-1.1%	

^a Financial performance estimates for 2003/04 are based on the October 2001 survey of licence holders. Financial performance estimates for 2004/05 and 2005/06 are based on the March-April 2006 survey of licence holders.

^b 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).

^c 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 4.4 Financial performance in the SA Northern Zone Rock Lobster fishery, 2006/07 to 2007/08 (average per boat) ^a

	2006/07		2007/08	
	Average per Boat	Share of TBCC ^b	Average per Boat	Share of TBCC ^b
(1) Total Boat Gross Income	\$347,827		\$276,790	
Variable Costs				
Fuel	\$44,870	14%	\$42,855	15%
Repairs & Maintenance ^b	\$16,864	5%	\$23,574	8%
Bait/Ice	\$14,829	5%	\$13,963	5%
Provisions	\$4,450	1%	\$11,421	4%
Labour - paid	\$106,978	32%	\$70,301	24%
(2) - unpaid ^c	\$32,186	10%	\$21,357	7%
Other	\$5,335	2%	\$976	0%
(3) Total Variable Costs	\$225,511	68%	\$184,447	63%
Fixed Costs				
Licence Fee	\$21,261	6%	\$20,752	7%
Insurance	\$8,911	3%	\$7,427	3%
(4) Interest	\$34,222	10%	\$42,709	15%
(5) Labour - unpaid ^c	\$14,087	4%	\$8,486	3%
(6) Leasing	\$12,535	4%	\$13,445	5%
Legal & Accounting	\$2,891	1%	\$4,066	1%
Telephone etc.	\$2,557	1%	\$3,080	1%
Slipping & Mooring	\$2,545	1%	\$1,714	1%
Travel	\$1,107	0%	\$3,741	1%
Office & Admin	\$3,784	1%	\$4,350	1%
(7) Total Fixed Costs	\$103,901	32%	\$109,770	37%
(8) Total Boat Cash Costs (3 + 7)	\$329,412	100%	\$294,218	100%
Boat Gross Margin (1 - 3)	\$122,316		\$92,343	
(9) Total Unpaid Labour (2 + 5)	\$46,273		\$29,843	
Gross Operating Surplus (1 - 8 + 9)	\$64,688		\$12,416	
(10) Boat Cash Income (1 - 8)	\$18,415		-\$17,428	
(11) Depreciation	\$63,035		\$46,342	
(12) Boat Business Profit (10 - 11)	-\$44,620		-\$63,770	
(13) Profit at Full Equity (12 + 4 + 6)	\$2,137		-\$7,616	
Boat Capital				
(14) Fishing Gear & Equip	\$490,396		\$464,695	
Licence Value	\$1,577,472		\$1,252,714	
(15) Total Boat Capital	\$2,067,867		\$1,717,409	
Rate of Return on Fishing Gear & Equip (13 / 14 * 100)	0.4%		-1.6%	
Rate of Return on Total Boat Capital (13 / 15 * 100)	0.1%		-0.4%	

^a Financial performance estimates for 2006/07 are based on the March-April 2006 survey of licence holders. Estimates for 2007/08 are based on the January-February 2009 licence holder survey.

^b 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).

^c 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