

Economic Indicators
for the SA
Marine Scalefish Fishery
2007/08

A report prepared for
Primary Industries and Resources South Australia

Prepared by



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Contents

Tables.....	iv
Figures.....	v
Acknowledgments.....	vi
Abbreviations.....	vi
Document History and Status.....	vii
Executive Summary.....	viii
1. Introduction.....	1
2. Survey and Definition of Terms.....	3
2.1 Survey of Licence Holders in the Fishery, 2007.....	3
2.2 Updating the Indicators, 2007/08.....	5
2.3 Definition of Terms.....	5
3. Economic Indicators for the SA Marine Scalefish Fishery.....	8
3.1 Gross Value of Production.....	8
3.2 Cost of Management.....	13
3.3 Summary of Factors Affecting Costs in the Fishery.....	14
3.4 Financial Performance Indicators.....	15
3.5 State and Regional Economic Impact.....	25
3.5.1 Measuring direct and flow-on effects.....	25
3.5.2 Economic impact of the fishery.....	27
3.6 Economic Rent.....	33
4. Other Indicators.....	35
4.1 External Factors Influencing the Economic Condition of the Fishery.....	35
4.1.1 Southern Calamari Stock.....	35
4.1.2 King George Whiting Stock.....	35
4.1.3 Snapper Stock.....	35
4.1.4 Net Closures.....	36
4.2 Licence Holder Comments.....	37
4.3 Prices of Marine Scalefish Fishery Catch in Domestic Markets.....	37
4.3.1 Average monthly beach prices for marine scalefish species in SA.....	37
4.3.2 Average monthly prices for marine scalefish species in SA and other domestic markets.....	38
4.4 Contribution to the Community.....	41
4.4.1 Community-support activities.....	41
4.4.2 Local and regional services/businesses.....	43
4.5 Other Indicators.....	45
4.5.1 Time in fishery.....	45
4.5.2 Age of licence holders.....	45
4.5.3 Fishing location.....	46
References.....	47

Appendix 1	Economic Impact of the SA Marine Scalefish Fishery, 2006/07.....	49
Appendix 2	Summary Economic Indicators for South Australian Commercial Fisheries.....	50
Appendix 3	Financial Performance, 1997/98 to 2004/05	57

Tables

Table 2.1	Survey responses by fishing region, 2007.....	3
Table 2.2	Survey of Marine Scalefish Fishery licence holders, 2007	4
Table 3.1	Catch and gross value of production of the SA Marine Scalefish Fishery, 2002/03 to 2007/08.....	9
Table 3.2	Cost of management in the SA Marine Scalefish Fishery, 1996/97 to 2008/09.....	13
Table 3.3	Factors affecting costs in the SA Marine Scalefish Fishery, 2006/07 and 2007/08.....	14
Table 3.4	Financial performance in the SA Marine Scalefish Fishery, 2005/06 to 2007/08 (average per boat) ^a	16
Table 3.5	Financial performance in the SA Marine Scalefish Fishery, by fishing region, 2007/08 (average per boat).....	17
Table 3.6	Financial performance in the SA Marine Scalefish Fishery, by fishing method, 2007/08 (average per boat).....	18
Table 3.7	Financial performance in the SA Marine Scalefish Fishery, by number of days fished, 2007/08 (average per boat).....	19
Table 3.8	Financial performance by line entitlement only licence holders by return to capital quartile, 2007/08 (average per boat)	20
Table 3.9	Financial performance by net licence holders by return to capital quartile, 2007/08 (average per boat)	21
Table 3.10	Economic impact of the SA Marine Scalefish Fishery on the South Australian economy, 2007/08	27
Table 3.11	Economic impact of the SA Marine Scalefish Fishery on the West Coast fishing region, 2007/08.....	28
Table 3.12	Economic impact of the SA Marine Scalefish Fishery on the Spencer Gulf/Coffin Bay fishing region, 2007/08.....	29
Table 3.13	Economic impact of the SA Marine Scalefish Fishery on the Gulf St Vincent/Kangaroo Island fishing region, 2007/08	30
Table 3.14	Economic rent in the SA Marine Scalefish Fishery, 1997/98 to 2007/08, (\$'000)	34
Table 4.1	Average monthly prices for major marine scalefish species, South Australia, 2007/08.....	37
Table 4.2	Average monthly prices for major marine scalefish species, beach prices in South Australia and wholesale prices in Melbourne and Sydney fish markets, 2007/08 ^a	40
Table 4.3	Estimated time per month spent on community-support activities by line entitlement only licence holders, 2006/07	41

Table 4.4	Estimated time per month spent on community-support activities by net licence holders, 2006/07 ^a	42
Table 4.5	Fishery contribution to local and regional services/businesses, 2006/07	44
Table 4.6	Age of marine scalefish licence holders from the survey sample, 2006/07	45

Figures

Figure 1.1	Fishing regions, SA Marine Scalefish Fishery, 2007/08	2
Figure 3.1	Catch of major marine scalefish species, South Australia, 1990/91 to 2007/08	10
Figure 3.2	Gross value of production of major marine scalefish species, South Australia, 1994/95 to 2007/08	11
Figure 3.3	Catch and gross value of production of all marine scalefish species, South Australia, 1994/95 to 2007/08	12
Figure 3.4	Index of average real value of catch per licence holder for the SA Marine Scalefish Fishery (1994/95=100)	12
Figure 3.5	Total gross state product and output impact of the SA Marine Scalefish Fishery on the SA economy, 1997/98 to 2007/08 ^a	31
Figure 3.6	Total employment and household income impact of the SA Marine Scalefish Fishery on the SA economy, 1997/98 to 2007/08	32
Figure 4.1	Average monthly prices for major marine scalefish species, South Australia, 2007/08	38
Figure 4.2	Average price of major marine scalefish species, beach prices for SA and wholesale market prices for Sydney and Melbourne, 2007/08 ^a	38

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Estimation of economic indicators for the SA Marine Scalefish Fishery for 2003/04 to 2005/06 relied heavily on the results of a survey carried out by the Bureau of Rural Sciences (BRS), as a part of a project '*Social Impacts of the South Australian Marine Scalefish Fishery*' (Schirmer and Pickworth 2005).

In the preparation of economic indicators for the period 1997/98 to 2002/03 and 2006/07 to 2007/08, EconSearch has relied heavily on the voluntary cooperation of fishing operators in providing data for the surveys and is indebted to various individuals and institutions for providing the necessary information for updating the indicators between survey years. The continuing advice provided by industry representatives and the support of the South Australian Fishing Industry Council (SAFIC) and the Marine Fishers Association (MFA) is greatly appreciated. In the task of updating the indicators, EconSearch is indebted to various individuals and institutions for providing necessary information. PIRSA and SARDI officers provided assistance, were supportive of the data collection and offered valuable advice.

Abbreviations

ABARE	Australian Bureau of Agricultural and Resource Economics
ABS	Australian Bureau of Statistics
BRS	Bureau of Rural Sciences
CPI	consumer price index
EBIT	earnings before interest and tax
FRDC	Fisheries Research and Development Corporation
fte	full time equivalent
GRP	gross regional product
GSP	gross state product
GVP	gross value of production
PIRSA	Primary Industries and Resources South Australia
R&M	repairs and maintenance
SA	South Australia
SARDI	South Australian Research and Development Institute

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Executive Summary

The objective of this report is to present a set of economic performance indicators for the South Australian (SA) Marine Scalefish Fishery for 2007/08 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 are summarised below.

Gross value of production

- The total catch of marine scalefish species in 2007/08 was 3,002 tonnes, up 1 per cent from the previous year.
- The gross value of production of the Marine Scalefish Fishery in 2007/08 was \$20.9 million, a 7 per cent increase from the previous year.
- The average price per kilogram of marine scalefish species increased between 2006/07 and 2007/08, from \$6.59/kg to \$6.97/kg, a rise of 6 per cent.

The cost of management of the fishery

- Average fees paid per licence holder increased by \$239 per licence holder between 2006/07 and 2007/08.
- Between 2007/08 and 2008/09 average fees per licence holder fell by \$158 to \$4,265 per licence holder.

Financial performance indicators

- Based on the results of a survey of licence holders conducted in 2007 and changes in catch size and value between 2006/07 and 2007/08, it was estimated that the average gross income per surveyed boat in the Marine Scalefish Fishery in 2007/08 was approximately \$103,000, an increase of 8 per cent on the previous year.
- It was estimated that average total boat cash costs increased by 12 per cent between 2006/07 and 2007/08.
- For the Marine Scalefish Fishery as a whole, the average rate of return to total capital was -1.5 per cent in 2007/08 (-1.1 per cent in 2006/07). For fishers with net and line entitlements the rate of return to total capital was 4.1 per cent and for line only fishers it was -6.1 per cent.

Economic impact of the fishery

- Total Marine Scalefish Fishery related contribution to GSP in the SA economy was approximately \$30.8 million in 2007/08; \$5.9 million generated by the Marine Scalefish Fishery directly, \$3.5 million generated by downstream activities and another \$21.3 million generated in other sectors of the economy.
- Total direct employment in the fishery in 2007/08 was estimated to be 531 fte and downstream activities created employment of 70 fte state-wide. Flow-on business activity was estimated to generate a further 234 fte jobs in the state to give total employment of 835 fte jobs state-wide in 2007/08.

Economic rent

- It was estimated that there was no economic rent generated in the SA Marine Scalefish Fishery in 2007/08, with a calculated value of -\$3.6 million (-\$4.5 million in 2006/07).

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 Act 2007*.

This report is the eleventh annual economic indicators report for the South Australian Marine Scalefish Fishery. The first report, *Economic Indicators for the SA Marine Scalefish Fishery 1997/98* (EconSearch 1999), reported on the results of an initial economic survey of the fishery. The second and third annual reports, prepared for 1998/99 and 1999/00 respectively, provided an update of the 1997/98 economic indicators (EconSearch 2000 and 2001). The fourth annual report, prepared for 2000/01, outlined the fishery's economic performance based on the results of an additional survey of licence holders (EconSearch 2002). The fifth and sixth reports, prepared for 2001/02 and 2002/03, provided an update of the 2000/01 economic indicators based on the second survey of licence holders (EconSearch 2003 and 2004). The seventh, eighth and ninth reports outlined the fishery's economic performance from 2003/04 to 2005/06 based on the 2004 Bureau of Rural Sciences survey of licence holders (EconSearch 2006a,b and 2007). The tenth report outlined the fishery's economic performance for 2006/07 derived from a fourth survey of licence holders conducted in 2007 (EconSearch 2008a).

The objective of this report, *Economic Indicators for the SA Marine Scalefish Fishery 2007/08*, was to provide an update of the economic indicators based on the fourth survey of licence holders.

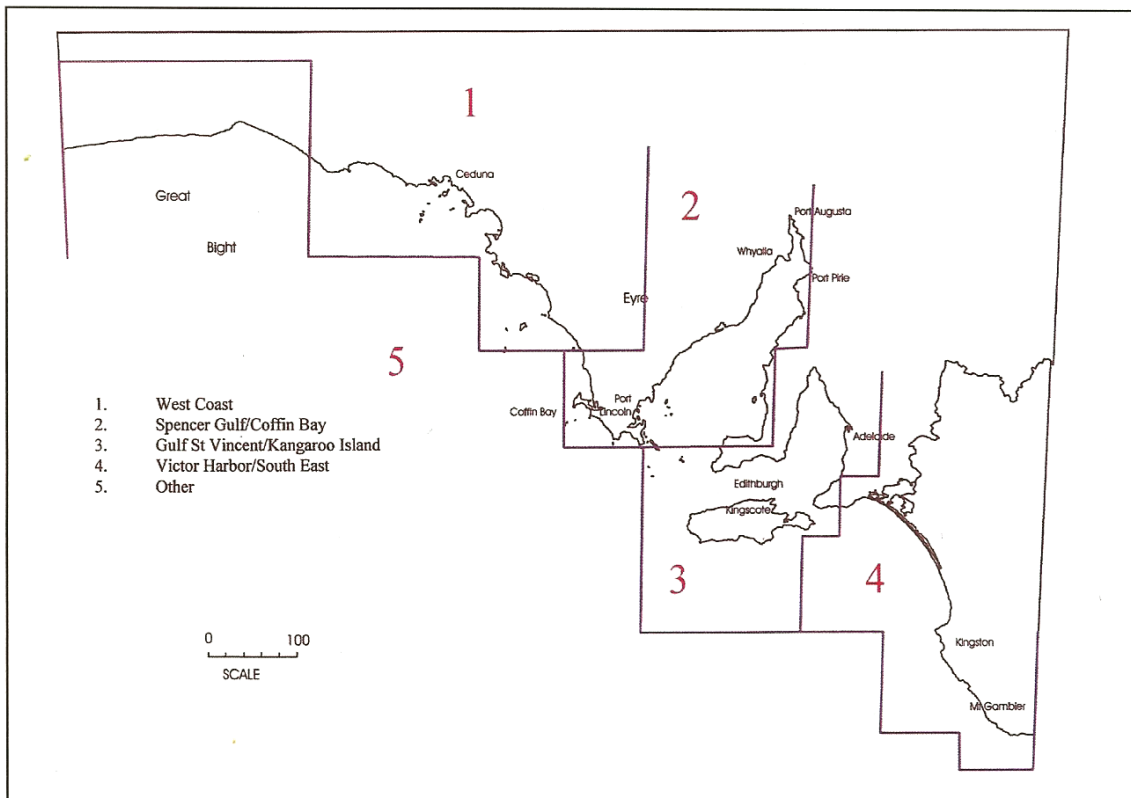
The aim of all the studies is to present a set of economic performance indicators for the fishery as well as to develop a consistent time series of economic information to aid management of the fishery in future years. The economic indicators detailed in this report include:

- gross value of production (catch and price);
- the cost of management of the fishery;
- a summary of factors that affect costs in the fishery;
- financial performance indicators (income, costs, profit and return on investment);
- the economic impact of the fishery;
- economic rent;
- external factors that influence the economic condition of the fishery;
- prices for Marine Scalefish Fishery products in SA and other domestic markets;
- contribution to the community; and
- a range of demographic and other indicators.

For purposes of comparison, summary economic indicators for all South Australian commercial fisheries, up to 2006/07, are presented in Appendix 2.

Financial performance estimates and economic impacts are presented on a regional basis in accordance with SARDI's region classifications. Fishing regions for the SA Marine Scalefish Fishery are illustrated in Figure 1.1.

Figure 1.1 Fishing regions, SA Marine Scalefish Fishery, 2007/08



Source: SARDI Aquatic Sciences

Regional economic indicators have not been reported for fishing regions 4 and 5 as there were insufficient survey responses from these regions. Responses from these regions have, however, been included in the results for the state as a whole.

Financial performance estimates have also been presented as an average for the whole state and by fishing method. Estimates are presented for those licence holders who hold a line entitlement (restricted and non-restricted MS licence) but no net entitlement and for those who hold both a net and line entitlement.

2. Survey and Definition of Terms

2.1 Survey of Licence Holders in the Fishery, 2007

Financial performance indicators for the fishery in 2006/07 were based on the results of two separate surveys. The sample for each survey was based on the entitlements held by the licence holder. Licence holders were divided into two groups:

- line only licence holders (licence holder who owns a line entitlement but no net entitlement); and
- net licence holders (licence holder who holds both a net and line licence).

The survey of line only licence holders was undertaken for the sole purpose of preparing this report. The survey of net licence holders was a part of a broader study undertaken to assess the ecological, social and economic impacts of the net licence buyback and area closures.

The questionnaire used for both net and line only licence holders was based on the previous survey conducted in 2004 by BRS as part of a broader study into the social well-being of people working in the SA Marine Scalefish Fishery.¹

In September 2007, 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 117 usable responses were received; 80 from line only licence holders and 37 from net licence holders. The completed survey responses represented 35 per cent of the total active licence holders in the fishery.²

Responses were obtained from active licence holders from four of the fishing regions, the number of respondents from each region is summarised in Table 2.1.

Table 2.1 Survey responses by fishing region, 2007

Region	Survey Total	Region Total ^a	% of Total
Spencer Gulf/Coffin Bay	63	161	39%
Gulf St Vincent/KI	33	107	31%
West Coast	14	49	29%
Victor Harbor/South East	7	17	41%
Total	117	335	35%

^a Regional totals reflect the number of 'active' licence holders in that region.

¹ The full project report is available from the Bureau of Rural Sciences website, at www.brs.gov.au. A summary of the social issues facing the Marine Scalefish Fishery is provided in EconSearch 2006a.

² A small number of licence holders did not fish in 2006/07 and were, therefore, excluded from the sample. A licence holder is considered 'active' if they fished for one day or more during the 2006/07 financial year.

Of the 335 active licence holders in the fishery, 218 did not provide a response to the survey for the following reasons:

- could not contact (174);
- minimal fishing (22); and
- not interested in participating in the survey (22).

A summary of survey responses and how they are representative of the fishery are summarised in Table 2.2.

Table 2.2 Survey of Marine Scalefish Fishery licence holders, 2007

	Survey Total	Fishery Total	% of Total
Line Entitlement Only			
Catch (tonnes)	968	1,863	52%
Value of Catch (\$m)	5.5	14.2	39%
Days Fished ^a	9,956	n.a.	-
Number of Licence Holders ^b	80	286	28%
Net Entitlement			
Catch (tonnes)	647	1,115	58%
Value of Catch (\$m)	0.0	5.7	0%
Days Fished ^a	5,883	n.a.	-
Number of Licence Holders ^b	37	49	76%
Total Fishery			
Catch (tonnes)	1,614	2,978	54%
Value of Catch (\$m)	5.5	19.8	28%
Days Fished ^a	15,839	30,319	52%
Number of Licence Holders ^b	117	335	35%

^a Measured as the number of 'boat days' fished.

^b Totals reflect the number of active licence holders.

Source: 2007 survey responses, SARDI Aquatic Sciences and PIRSA Fisheries.

The 117 completed responses account for 35 per cent of the total number of licence holders (28 per cent of total licence holders in the line only sector and 76 per cent in the net sector). The high survey response rate for the net sector can be partially attributable to the fact that the responses were collected as a part of the broader study into the social well-being of people working in the SA Marine Scalefish Fishery. Catch by survey respondents accounted for 54 per cent of the total quantity and 47 per cent of the total value of the total marine scale fishery catch (Table 2.2).

2.2 Updating the Indicators, 2007/08

The 2007/08 economic indicators for the Marine Scalefish Fishery were derived using a range of primary and secondary data and survey-based 2006/07 indicators. The following information was used to adjust the 2006/07 indicators to reflect the fishery's performance in 2007/08.

- SARDI data were used to reflect changes in catch size and its value between 2006/07 and 2007/08. Catch and value data were used to determine the gross income in the fishery.
- Information on the change in fishing effort (number of days fished) between 2006/07 and 2007/08 was used to adjust the costs of inputs that were assumed to vary with fishing effort. These inputs included fuel and repairs and maintenance costs.
- Price information from input suppliers was used to adjust prices that had changed, for example, fuel.
- The consumer price index (CPI) for Adelaide was used to adjust the cost of inputs to reflect local levels of inflation (ABS 2008).

2.3 Definition of Terms³

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.

³ Where possible definitions have been kept consistent with those used by Brown (1997) in the *Australian Fisheries Survey Report*.

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

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

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

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

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

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 associated with the investment in boat capital. Profit at Full Equity is a useful absolute measure of the economic performance of fishing firms.

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

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

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

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

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

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

3. Economic Indicators for the SA Marine Scalefish Fishery

3.1 Gross Value of Production

The principal information used to estimate the gross value of production for the SA Marine Scalefish Fishery is derived from the catch and effort database provided by SARDI Aquatic Sciences. Production figures are collated from the monthly fishing returns provided by commercial fishers while average values are based on Adelaide market prices.

Table 3.1 shows the catch of marine scalefish species each year since 2002/03, together with the estimated gross value of production and the average unit values.

Care is required in using the catch and effort database in deriving the gross value of production for the Marine Scalefish Fishery. SARDI's estimates of the GVP of fish harvested from the Marine Scalefish Fishery are potentially underestimated because average values are based on wholesale prices received at the Adelaide market. Survey information indicates that a significant proportion of some species are marketed either at the Sydney or Melbourne markets or locally, where prices received are often higher than can be obtained at the Adelaide market. For the purpose of this study, SARDI's estimates of GVP have been re-valued using weighted average prices from Sydney and Melbourne markets and price data obtained from fishers.

The catch levels and gross values of the major marine scalefish species shown in Table 3.1 represent the catch of all marine scalefish species taken by licence holders in the SA Marine Scalefish Fishery. Adjustments have been made to exclude the catch of blue swimmer crabs and sardines taken by specialist fishers⁴.

The total catch of marine scalefish species in 2007/08 was 3,002 tonnes. This represents a 1 per cent increase compared with the catch in the previous year⁵. The gross value of production of the Marine Scalefish Fishery in 2007/08 was approximately \$20.9 million, a 7 per cent increase from 2006/07. The increase in GVP was principally due to the average price per kilogram of marine scalefish species increasing by 6 per cent (\$6.59/kg in 2006/07 to \$6.97/kg 2007/08).

Estimates of catch and GVP for the Marine Scalefish Fishery for the period 2002/03 to 2003/04 include blue crabs caught by Marine Scalefish licence holders (Table 3.1). To prevent double counting, estimates of catch and GVP for the period 2004/05 to 2007/08 do not include any blue crab catch.

⁴ Separate economic indicators are prepared for the Blue Crab and Sardine fisheries.

⁵ SARDI's estimates of catch for 2004/05 to 2007/08 do not include pilchards or blue crabs. Estimates may include catch taken by licence holders in other fisheries (i.e. Rock Lobster) who have access to marine scalefish gear and equipment.

Table 3.1 Catch and gross value of production of the SA Marine Scalefish Fishery, 2002/03 to 2007/08

Species	2002/03			2003/04 ^a			2004/05 ^a			2005/06 ^a			2006/07 ^a			2007/08 ^a		
	catch	value	avg value	catch	value	avg value	catch	value	avg value	catch	value	avg value	catch	value	avg value	catch	value	avg value
	'000 kg	\$,000	\$/kg	'000 kg	\$,000	\$/kg	'000 kg	\$,000	\$/kg	'000 kg	\$,000	\$/kg	'000 kg	\$,000	\$/kg	'000 kg	\$,000	\$/kg
King George whiting	398	5,476	\$13.76	355	4,239	\$11.94	347	3,507	\$10.11	336	4,033	\$12.00	361	4,707	\$13.04	329	4,536	\$13.79
snapper	533	3,174	\$5.95	413	3,915	\$9.48	504	4,614	\$9.16	529	3,376	\$6.38	644	4,309	\$6.69	741	5,253	\$7.09
southern calamari	346	2,950	\$8.53	303	2,586	\$8.54	504	2,852	\$5.66	311	2,200	\$7.07	297	2,882	\$9.70	303	2,727	\$9.00
garfish	332	1,940	\$5.84	321	2,536	\$7.90	364	2,673	\$7.34	369	2,139	\$5.80	293	1,929	\$6.58	290	2,137	\$7.37
shark	202	573	\$2.84	204	583	\$2.86	190	595	\$3.13	152	585	\$3.85	181	680	\$3.76	203	925	\$4.56
salmon	576	693	\$1.20	158	435	\$2.75	133	360	\$2.71	177	338	\$1.91	157	254	\$1.62	105	174	\$1.66
sand crabs	93	427	\$4.59	96	382	\$3.98	148	534	\$3.61	142	539	\$3.80	83	378	\$4.56	63	275	\$4.37
oceanjacket	202	411	\$2.03	498	1,345	\$2.70	308	980	\$3.18	149	185	\$1.24	54	61	\$1.13	32	40	\$1.25
yellowfin whiting	181	1,067	\$5.90	163	910	\$5.58	138	764	\$5.54	130	805	\$6.19	85	687	\$8.08	82	722	\$8.81
Goolwa cockle	101	117	\$1.16	3	3	\$1.00	37	47	\$1.27	1	1	\$1.00	5	10	\$2.00	2	8	\$4.00
blue crabs	68	417	\$6.13	53	253	\$4.77	0	0	\$0.00	0	0	\$0.00	0	0	na	0	0	na
Australian herring (tommy ruff)	197	289	\$1.47	152	315	\$2.07	183	367	\$2.00	126	318	\$2.52	105	333	\$3.17	122	394	\$3.23
mud cockle	na	na	na	na	na	na	346	1,225	\$3.54	385	1,250	\$3.25	282	1,227	\$4.35	320	1,673	\$5.23
snook	112	263	\$2.35	81	279	\$3.45	83	254	\$3.06	61	171	\$2.80	64	226	\$3.53	82	266	\$3.24
yelloweye mullet	47	119	\$2.53	44	110	\$2.50	50	116	\$2.32	38	100	\$2.63	36	102	\$2.84	29	90	\$3.11
leatherjackets	na	na	na	na	na	na	na	na	na	na	0	na	na	0	na	na	0	na
mulloway	na	na	na	na	na	na	5	32	\$6.40	5	28	\$5.60	5	39	\$7.80	6	45	\$7.50
cuttlefish	na	na	na	na	na	na	9	17	\$1.89	7	21	\$3.00	11	21	\$1.91	6	14	\$2.33
other species	329	1,947	\$5.92	921	4,025	\$4.37	461	1,941	\$4.21	268	1,358	\$5.07	315	1,789	\$5.68	287	1,637	\$5.70
TOTAL^b	4,175	20,994	\$5.03	4,168	21,916	\$5.26	3,810	20,878	\$5.48	3,186	17,446	\$5.48	2,978	19,635	\$6.59	3,002	20,917	\$6.97

^a SARDI estimates of GVP for 2003/04 to 2007/08 have been re-valued to reflect price differentials between Adelaide, interstate and local markets.

^b Does not include sardines. Includes marine scalefish species harvested by all licence holders and could include catch taken by Rock Lobster licence holders who have access to marine scalefish gear. Estimates of catch and GVP for the Marine Scalefish Fishery for the period 1998/99 to 2003/04 include blue crabs caught by marine scale licence holders. To prevent double counting, estimates of catch and GVP for 2004/05 to 2007/08 do not include any blue crab catch.

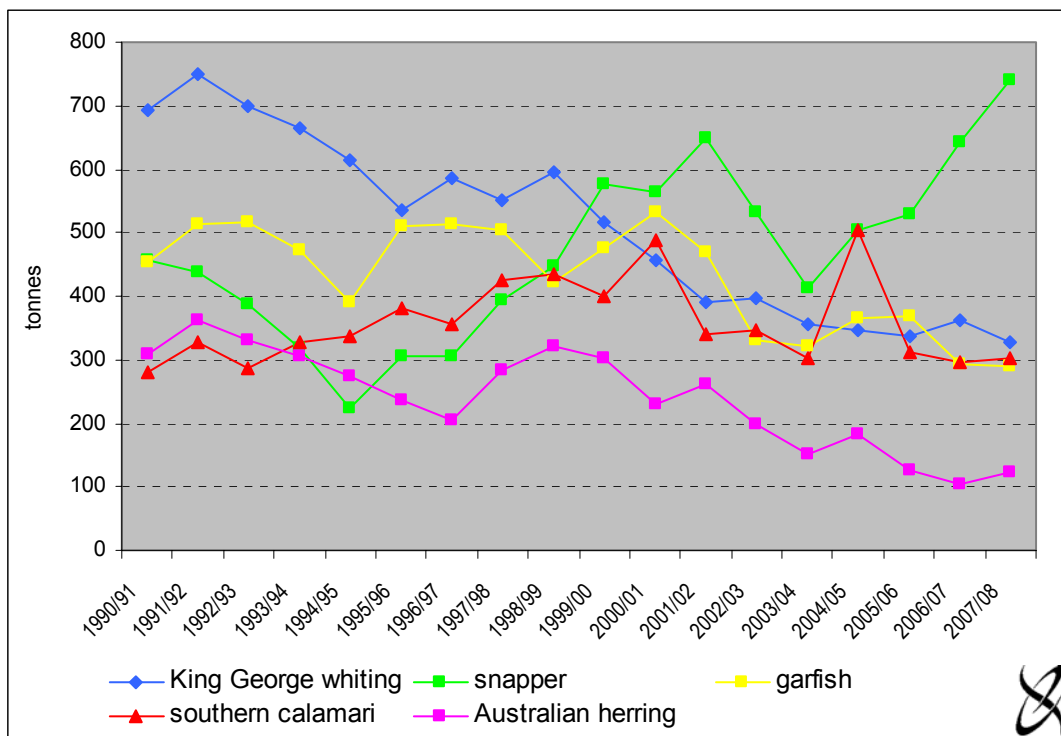
Source: SARDI Aquatic Sciences, PIRSA Fisheries, Samantha Dawes (DPI – NSW pers. comm.), Melbourne Fish Market (Tim Rieniets, Melbourne Wholesale Fish Market, pers. comm.), Alan Suter (Marine Scalefish Licence Holder, pers. comm.) and EconSearch analysis.

The total number of licence holders decreased by 2 per cent between 2006/07 and 2007/08, from 349 to 343. As mentioned previously the GVP of the fishery increased by 7 per cent in 2007/08 compared to the previous year. As a result the average gross value of production per licence holder increased from \$56,260 in 2006/07 to \$60,982 in 2007/08, an increase of 8 per cent.

The long term trends in the catch of five of the main species are shown in Figure 3.1. Notable trends include:

- a steady decrease in King George whiting and Australian herring;
- a considerable increase in the catch of snapper between 1994/95 and 2001/02, a decline over the period 2001/02 and 2003/04 and an increase in catch in subsequent years; and
- significant annual variability in garfish catch, but evidence of long term decline.

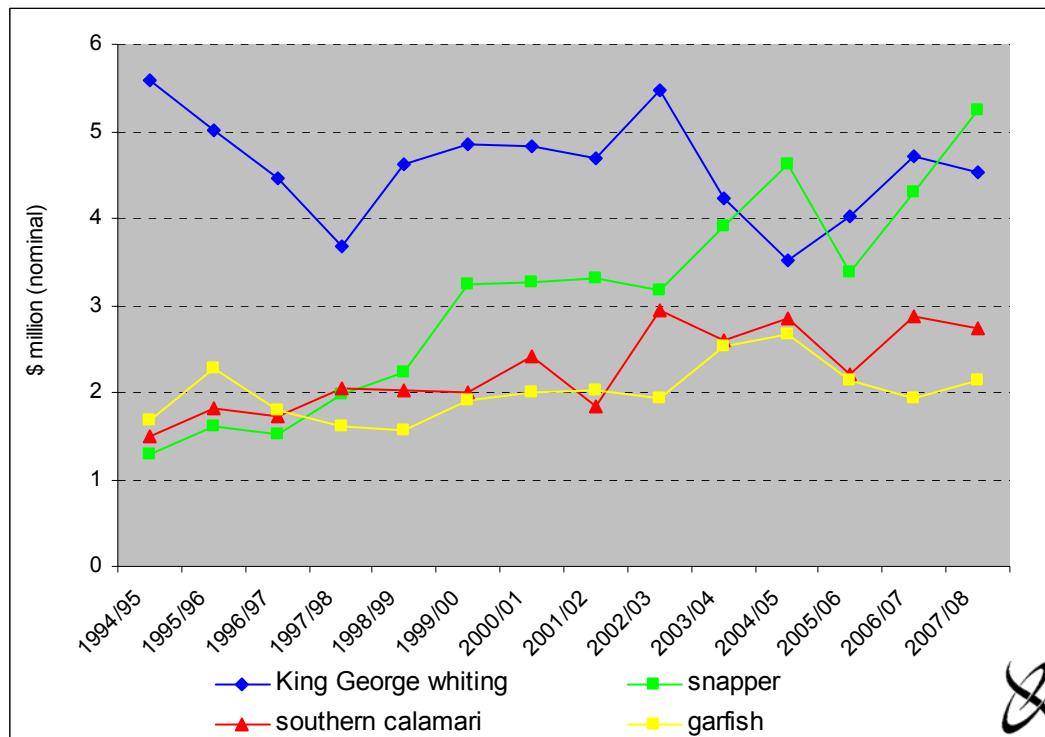
Figure 3.1 Catch of major marine scalefish species, South Australia, 1990/91 to 2007/08



Source: SARDI Aquatic Sciences

Figure 3.2 outlines the gross value of production of the four most important species over the period 1994/95 to 2007/08. King George whiting, snapper, calamari and garfish accounted for approximately 70 per cent of the total value of the SA Marine Scalefish Fishery in 2007/08.

Figure 3.2 Gross value of production of major marine scalefish species, South Australia, 1994/95 to 2007/08

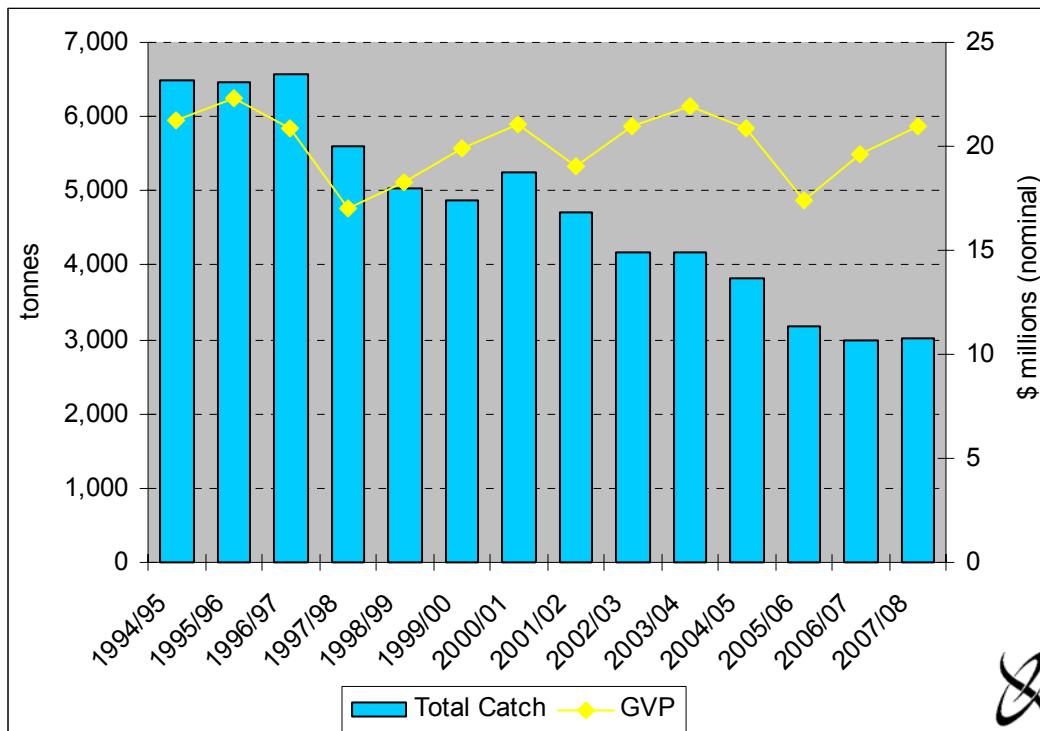


Source: SARDI Aquatic Sciences and EconSearch analysis.

Figure 3.3 shows the total catch and landed value of all marine scalefish species taken by licence holders in the SA Marine Scalefish Fishery since 1994/95. After a sharp decrease in 2005/06, GVP increased by 20 per cent between 2005/06 and 2007/08, due to an increase in price and a small increase in catch.

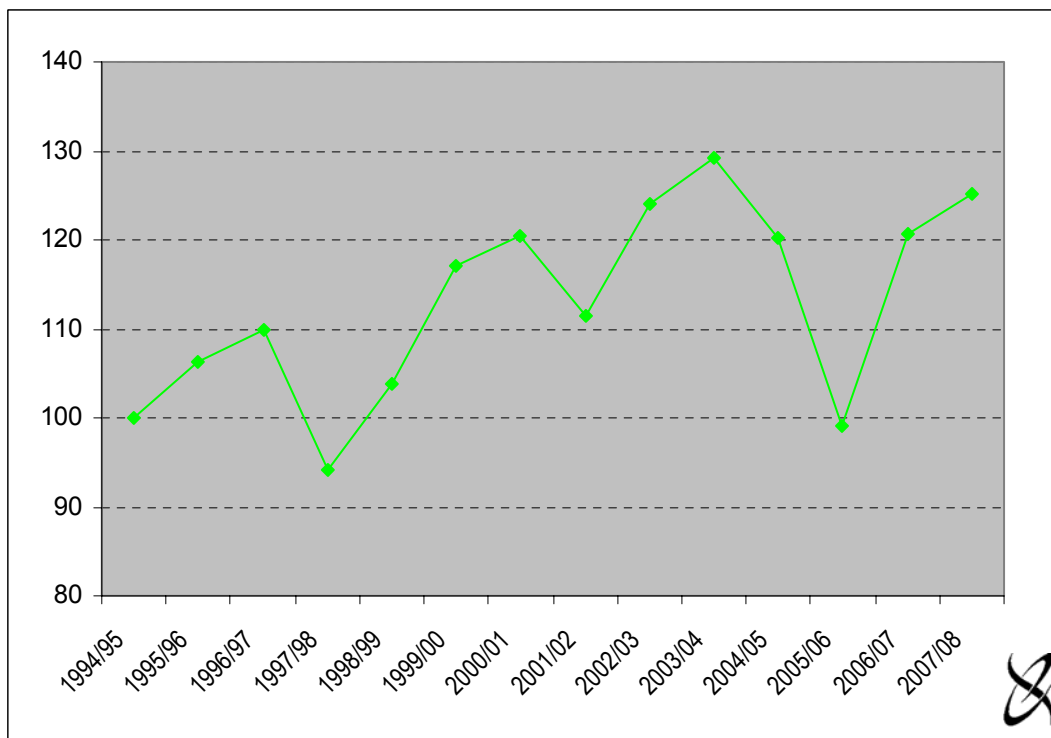
Figure 3.4 illustrates the upward trend in average real value of catch per licence holder over the period 1994/95 to 2003/04 with a decline from 2003/04 to 2005/06. The substantial increase in 2006/07 was principally due to an increase in price and a reduction in the number of licence holders (9 per cent decrease from the previous year). The average real value of catch per licence holder increased in 2007/08 (4 per cent from 2006/07).

Figure 3.3 Catch and gross value of production of all marine scalefish species, South Australia, 1994/95 to 2007/08



Source: SARDI Aquatic Sciences and EconSearch analysis.

Figure 3.4 Index of average real value of catch per licence holder for the SA Marine Scalefish Fishery (1994/95=100)



Source: Derived from information in Table 3.1. Real value of catch calculated using the consumer price index for Adelaide (ABS 2008).

3.2 Cost of Management

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

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

For the purpose of this analysis, the cost of providing these management services has been assumed to be equal to the gross receipts from licence fees in the fishery (Will Zacharin, pers. comm.). Table 3.2 shows actual licence fee receipts for the fishery for the period 1996/97 to 2008/09.

Table 3.2 Cost of management in the SA Marine Scalefish Fishery, 1996/97 to 2008/09

	Licence Fee (\$'000)	Gross Value of Production (\$'000)	Fee/GVP (%)	Catch (tonnes)	Fee/Catch (\$/kg)	Licence Holders (No.)	Fee/Licence Holder (\$/licence)
1996/97	\$1,419	\$20,879	6.8%	6,563	\$0.22	535	\$2,652
1997/98	\$1,646	\$17,049	9.7%	5,594	\$0.29	513	\$3,209
1998/99	\$1,559	\$18,293	8.5%	5,036	\$0.31	492	\$3,169
1999/00	\$1,476	\$19,897	7.4%	4,869	\$0.30	463	\$3,188
2000/01	\$1,460	\$21,042	6.9%	5,255	\$0.28	450	\$3,244
2001/02	\$1,407	\$19,027	7.4%	4,722	\$0.30	428	\$3,287
2002/03	\$1,218	\$20,994	5.8%	4,175	\$0.29	408	\$2,986
2003/04	\$1,398	\$21,916	6.4%	4,168	\$0.34	397	\$3,521
2004/05	\$1,469	\$20,878	7.0%	3,810	\$0.39	394	\$3,728
2005/06	\$1,547	\$17,446	8.9%	3,186	\$0.49	384	\$4,028
2006/07	\$1,460	\$19,635	7.4%	2,978	\$0.49	349	\$4,184
2007/08	\$1,517	\$20,917	7.3%	3,002	\$0.51	343	\$4,423
2008/09	\$1,433	n.a.	-	n.a.	-	336	\$4,265

Source: PIRSA Fisheries, SARDI Aquatic Sciences.

- For 2007/08, the cost of management was \$1.52 million, which is a 4 per cent increase from the previous year. However, the cost of management decreased by 6 per cent between 2007/08 and 2008/09 to approximately \$1.43 million.
- Licence fees as a percentage of gross value of production fell to 7.3 per cent in 2007/08 compared to a rate of 7.4 per cent in the previous year. This reflects an increase in gross value of production in the fishery, despite an increase in total licence fees.
- The management cost per kilogram of fish caught was relatively constant for the period 1997/98 to 2002/03. It has followed an increasing trend since 2002/03 and was \$0.49/kg in 2005/06 and 2006/07. This increasing trend continued in 2007/08 and management cost per kilogram of fish caught was \$0.51/kg. This reflects both an increase in licence fees and fall in catch in the fishery in these latter years.
- Over the period 1996/97 to 2007/08 the number of licence holders in the fishery has declined by 192 (36 per cent) due to natural attrition in the restricted Marine Scalefish Fishery, the licence amalgamation scheme in the transferable Marine Scalefish Fishery and the 2005 voluntary net buyback scheme. Under a system of full cost recovery, this has contributed to an increase in the average fees paid per licence holder for this period. The average fee per licence increased between 2006/07 and 2007/08, from \$4,184 to \$4,423.

The average fee per licence holder decreased by 2 per cent between 2007/08 and 2008/09 from \$4,423 to \$4,265.

3.3 Summary of Factors Affecting Costs in the Fishery

The information in Table 3.3 (and similar data for previous years) was used to adjust the 2006/07 financial performance indicators to reflect the costs incurred in the fishery in 2007/08.

Table 3.3 Factors affecting costs in the SA Marine Scalefish Fishery, 2006/07 and 2007/08

	2006/07	2007/08	Change
Average days fished per boat ^a	86.9	87.3	0.5%
Price of fuel - Transportation Index ^b	160.9	168.6	4.8%
Price of bait ^c	\$2.50	\$3.14	25.8%
Interest charges (%/annum) ^d	8.8%	9.9%	12.5%
Labour Price Index ^e	111.6	116.9	4.7%
CPI Adelaide ^f	160.3	167.6	4.6%

^a SARDI Aquatic Sciences (Angelo Tsolos pers. comm.), adjusted to reflect changes in number of licence holders (Table 3.2).

^b ABS transportation index for Adelaide (ABS 2008).

^c Average price of bony bream and European carp.

^d RBA indicator lending rate for small business (RBA 2008).

^e ABS Labour price index for SA (ABS 2009).

^f Consumer price index for Adelaide (ABS 2008).

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

3.4 Financial Performance Indicators

The major measures of financial performance of licence holders in the SA Marine Scalefish Fishery for the years 2005/06 to 2007/08 are shown in Table 3.4. Financial performance estimates for 1997/98 to 2004/05, are provided in Appendix 3.

The 2005/06 estimates of financial performance were derived from the 2004 BRS survey of licence holders. This survey was carried out as a part of a broader project '*Social Impacts of the South Australian Marine Scalefish Fishery*' (Schirmer and Pickworth 2005). The 2006/07 and 2007/08 estimates of financial performance were derived from the 2007 survey of licence holders.

Estimates of financial performance for 2007/08 are presented for all licence holders, on a regional basis, by fishing method and by number of days fished in Tables 3.4 to 3.7.

As a result of the large sample size it was possible to divide the 2006/07 survey responses for line only licence holders (80 in total) into four groups (quartiles) according to rate of return to capital. Responses from net licence holders (37 in total) were also divided 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 the fourth quartile includes the 25 per cent with the highest return to capital. The financial performance measures for 'return to capital' quartiles were updated for 2007/08 and are detailed in Tables 3.8 and 3.9.

As financial performance estimates for 2005/06 to 2007/08 were based on different survey samples and techniques compared to earlier years, some of the differences between these and earlier years is, therefore, attributable to sampling variability.

Table 3.4 Financial performance in the SA Marine Scalefish Fishery, 2005/06 to 2007/08 (average per boat) ^a

	2005/06		2006/07		2007/08	
	Average per Licence	Share of TBCC ^b	Average per Licence	Share of TBCC ^b	Average per Licence	Share of TBCC ^b
(1) Total Boat Gross Income	\$47,143		\$95,080		\$103,059	
Variable Costs						
Fuel	\$6,237	11%	\$11,172	13%	\$11,764	12%
Repairs & Maintenance ^c	\$5,619	10%	\$8,681	10%	\$9,141	10%
Bait/Ice	\$2,052	4%	\$2,266	3%	\$2,865	3%
Provisions	-	-	\$689	1%	\$724	1%
Labour - paid	\$6,300	11%	\$12,169	14%	\$13,762	15%
(2) - unpaid ^d	\$17,433	31%	\$25,061	30%	\$28,341	30%
(3) Total Variable Costs	\$37,641	67%	\$60,039	71%	\$66,597	70%
Fixed Costs						
Licence Fee	\$4,028	7%	\$5,012	6%	\$7,149	8%
Insurance	\$1,892	3%	\$1,864	2%	\$1,949	2%
(4) Interest	\$266	0%	\$4,518	5%	\$5,083	5%
(5) Labour - unpaid ^d	\$4,009	7%	\$4,743	6%	\$4,883	5%
Legal & Accounting	\$1,219	2%	\$1,243	1%	\$1,299	1%
Telephone etc.	\$1,095	2%	\$1,329	2%	\$1,389	1%
Slipping & Mooring	\$84	0%	\$807	1%	\$844	1%
Travel	\$2,555	5%	\$513	1%	\$536	1%
Office & Admin	\$3,131	6%	\$4,849	6%	\$5,070	5%
(6) Total Fixed Costs	\$18,278	33%	\$24,878	29%	\$28,203	30%
(7) Total Boat Cash Costs (3 + 6)	\$55,919	100%	\$84,916	100%	\$94,800	100%
Boat Gross Margin (1 - 3)	\$9,501		\$35,041		\$36,462	
(8) Total Unpaid Labour (2 + 5)	\$21,442		\$29,804		\$33,224	
Gross Operating Surplus (1 - 7 + 8)	\$12,665		\$39,967		\$41,483	
(9) Boat Cash Income (1 - 7)	-\$8,777		\$10,163		\$8,260	
(10) Depreciation	\$8,814		\$18,286		\$18,137	
(11) Boat Business Profit (9 - 10)	-\$17,591		-\$8,122		-\$9,877	
(12) Profit at Full Equity (11 + 4)	-\$17,325		-\$3,605		-\$4,795	
Boat Capital						
(13) Fishing Gear & Equip	\$87,851		\$130,077		\$129,018	
Licence Value ^e	\$146,565		\$184,227		\$196,255	
(14) Total Boat Capital	\$234,415		\$314,305		\$325,273	
Rate of Return on Fishing Gear & Equip (12 / 13 * 100)	-19.7%		-2.8%		-3.7%	
Rate of Return on Total Boat Capital (12 / 14 * 100)	-7.4%		-1.1%		-1.5%	

^a Financial performance estimates for 2005/06 are based on the 2004 BRS survey of licence holders. Financial performance estimates for 2006/07 and 2007/08 are based on the 2007 survey of licence holders. Estimates for 1997/98 to 2004/05 are provided in Appendix 3 of this report.

^b Total boat cash costs.

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

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

^e The 2005/06 estimated licence value was based on information provided by Rob Field (Elders, pers. comm.) on the value of licence traded in 2005/06. The 2006/07 and 2007/08 estimated licence value was derived from the fisher's estimate of the value of their licence in the 2007 survey.

Source: Schirmer and Pickworth (2005) and EconSearch analysis.

Table 3.5 Financial performance in the SA Marine Scalefish Fishery, by fishing region, 2007/08 (average per boat)

	West Coast		Spencer Gulf/Coffin Bay		Gulf St Vincent/KI		South Australia	
	Average per Licence	Share of TBCC ^a	Average per Licence	Share of TBCC ^a	Average per Licence	Share of TBCC ^a	Average per Licence	Share of TBCC ^a
(1) Total Boat Gross Income	\$86,265		\$114,813		\$92,990		\$103,059	
Variable Costs								
Fuel	\$8,830	14%	\$14,790	13%	\$8,182	10%	\$11,764	12%
Repairs & Maintenance ^b	\$3,223	5%	\$11,229	10%	\$7,931	10%	\$9,141	10%
Bait/Ice	\$1,923	3%	\$3,716	3%	\$1,892	2%	\$2,865	3%
Provisions	\$358	1%	\$1,083	1%	\$295	0%	\$724	1%
Labour - paid	\$937	2%	\$17,884	16%	\$11,753	15%	\$13,762	15%
(2) - unpaid^c	\$27,843	45%	\$31,411	28%	\$24,213	31%	\$28,341	30%
(3) Total Variable Costs	\$43,114	69%	\$80,115	71%	\$54,266	69%	\$66,597	70%
Fixed Costs								
Licence Fee	\$5,384	9%	\$6,980	6%	\$8,003	10%	\$7,149	8%
Insurance	\$942	2%	\$2,663	2%	\$1,191	2%	\$1,949	2%
(4) Interest	\$1,994	3%	\$7,242	6%	\$2,783	4%	\$5,083	5%
(5) Labour - unpaid^c	\$4,333	7%	\$4,977	4%	\$4,766	6%	\$4,883	5%
Legal & Accounting	\$940	2%	\$1,341	1%	\$1,357	2%	\$1,299	1%
Telephone etc.	\$597	1%	\$1,419	1%	\$1,609	2%	\$1,389	1%
Slipping & Mooring	\$368	1%	\$1,357	1%	\$217	0%	\$844	1%
Travel	\$737	1%	\$500	0%	\$527	1%	\$536	1%
Office & Admin	\$4,029	6%	\$5,758	5%	\$4,397	6%	\$5,070	5%
(6) Total Fixed Costs	\$19,323	31%	\$32,238	29%	\$24,849	31%	\$28,203	30%
(7) Total Boat Cash Costs (3 + 6)	\$62,437	100%	\$112,353	100%	\$79,115	100%	\$94,800	100%
Boat Gross Margin (1 - 3)	\$43,151		\$34,698		\$38,724		\$36,462	
(8) Total Unpaid Labour (2 + 5)	\$32,176		\$36,388		\$28,979		\$33,224	
Gross Operating Surplus (1 - 7 + 8)	\$56,004		\$38,848		\$42,854		\$41,483	
(9) Boat Cash Income (1 - 7)	\$23,828		\$2,461		\$13,875		\$8,260	
(10) Depreciation	\$9,822		\$21,395		\$15,689		\$18,137	
(11) Boat Business Profit (9 - 10)	\$14,006		-\$18,935		-\$1,815		-\$9,877	
(12) Profit at Full Equity (11 + 4)	\$16,000		-\$11,693		\$968		-\$4,795	
Boat Capital								
(13) Fishing Gear & Equip	\$101,564		\$159,557		\$90,067		\$129,018	
Licence Value	\$135,088		\$162,152		\$275,108		\$196,255	
(14) Total Boat Capital	\$236,652		\$321,709		\$365,176		\$325,273	
Rate of Return on Fishing Gear & Equip (12 / 13 * 100)	15.8%		-7.3%		1.1%		-3.7%	
Rate of Return on Total Boat Capital (12 / 14 * 100)	6.8%		-3.6%		0.3%		-1.5%	

^a Total boat cash costs.

^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.

Table 3.6 Financial performance in the SA Marine Scalefish Fishery, by fishing method, 2007/08 (average per boat)

	Line		Line & Net		South Australia	
	Average per Licence	Share of TBCC ^a	Average per Licence	Share of TBCC ^a	Average per Licence	Share of TBCC ^a
(1) Total Boat Gross Income	\$70,620		\$164,731		\$103,059	
Variable Costs						
Fuel	\$10,430	13%	\$14,650	12%	\$11,764	12%
Repairs & Maintenance ^b	\$6,873	9%	\$14,045	11%	\$9,141	10%
Bait/Ice	\$2,468	3%	\$3,722	3%	\$2,865	3%
Provisions	\$820	1%	\$516	0%	\$724	1%
Labour - paid	\$8,195	10%	\$25,800	21%	\$13,762	15%
(2) - unpaid ^c	\$26,129	33%	\$33,122	27%	\$28,341	30%
(3) Total Variable Costs	\$54,914	70%	\$91,855	74%	\$66,597	70%
Fixed Costs						
Licence Fee	\$4,106	5%	\$7,838	6%	\$7,149	8%
Insurance	\$1,882	2%	\$2,095	2%	\$1,949	2%
(4) Interest	\$5,671	7%	\$3,809	3%	\$5,083	5%
(5) Labour - unpaid ^c	\$4,624	6%	\$5,443	4%	\$4,883	5%
Legal & Accounting	\$1,023	1%	\$1,898	2%	\$1,299	1%
Telephone etc.	\$879	1%	\$2,493	2%	\$1,389	1%
Slipping & Mooring	\$886	1%	\$753	1%	\$844	1%
Travel	\$550	1%	\$507	0%	\$536	1%
Office & Admin	\$3,797	5%	\$7,822	6%	\$5,070	5%
(6) Total Fixed Costs	\$23,419	30%	\$32,658	26%	\$28,203	30%
(7) Total Boat Cash Costs (3 + 6)	\$78,333	100%	\$124,513	100%	\$94,800	100%
Boat Gross Margin (1 - 3)	\$15,705		\$72,876		\$36,462	
(8) Total Unpaid Labour (2 + 5)	\$30,753		\$38,565		\$33,224	
Gross Operating Surplus (1 - 7 + 8)	\$23,040		\$78,783		\$41,483	
(9) Boat Cash Income (1 - 7)	-\$7,713		\$40,218		\$8,260	
(10) Depreciation	\$14,567		\$25,855		\$18,137	
(11) Boat Business Profit (9 - 10)	-\$22,280		\$14,363		-\$9,877	
(12) Profit at Full Equity (11 + 4)	-\$16,609		\$18,172		-\$4,795	
Boat Capital						
(13) Fishing Gear & Equip	\$123,066		\$141,886		\$129,018	
Licence Value	\$148,850		\$299,171		\$196,255	
(14) Total Boat Capital	\$271,916		\$441,057		\$325,273	
Rate of Return on Fishing Gear & Equip (12 / 13 * 100)	-13.5%		12.8%		-3.7%	
Rate of Return on Total Boat Capital (12 / 14 * 100)	-6.1%		4.1%		-1.5%	

^a Total boat cash costs.

^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.

Table 3.7 Financial performance in the SA Marine Scalefish Fishery, by number of days fished, 2007/08 (average per boat)

	< 50 Days		51-150 Days		>150 Days		South Australia	
	Average per Licence	Share of TBCC ^a	Average per Licence	Share of TBCC ^a	Average per Licence	Share of TBCC ^a	Average per Licence	Share of TBCC ^a
(1) Total Boat Gross Income	\$76,082		\$94,934		\$119,845		\$103,059	
Variable Costs								
Fuel	\$5,189	7%	\$11,057	12%	\$14,371	14%	\$11,764	12%
Repairs & Maintenance ^b	\$8,815	12%	\$9,450	10%	\$8,869	8%	\$9,141	10%
Bait/Ice	\$1,033	1%	\$2,882	3%	\$3,340	3%	\$2,865	3%
Provisions	\$605	1%	\$884	1%	\$568	1%	\$724	1%
Labour - paid	\$283	0%	\$15,639	17%	\$15,223	14%	\$13,762	15%
(2) - unpaid ^c	\$27,399	38%	\$24,885	27%	\$32,628	31%	\$28,341	30%
(3) Total Variable Costs	\$43,324	61%	\$64,798	70%	\$74,999	71%	\$66,597	70%
Fixed Costs								
Licence Fee	\$5,652	8%	\$6,884	7%	\$7,864	7%	\$7,149	8%
Insurance	\$2,589	4%	\$2,365	3%	\$1,291	1%	\$1,949	2%
(4) Interest	\$9,747	14%	\$4,471	5%	\$4,533	4%	\$5,083	5%
(5) Labour - unpaid ^c	\$4,803	7%	\$4,362	5%	\$5,720	5%	\$4,883	5%
Legal & Accounting	\$1,129	2%	\$1,125	1%	\$1,550	1%	\$1,299	1%
Telephone etc.	\$735	1%	\$1,297	1%	\$1,674	2%	\$1,389	1%
Slipping & Mooring	\$887	1%	\$1,118	1%	\$513	0%	\$844	1%
Travel	\$229	0%	\$583	1%	\$1,674	2%	\$536	1%
Office & Admin	\$2,504	3%	\$5,042	5%	\$5,798	5%	\$5,070	5%
(6) Total Fixed Costs	\$28,275	39%	\$27,247	30%	\$30,615	29%	\$28,203	30%
(7) Total Boat Cash Costs (3 + 6)	\$71,599	100%	\$92,045	100%	\$105,615	100%	\$94,800	100%
Boat Gross Margin (1 - 3)	\$32,758		\$30,136		\$44,846		\$36,462	
(8) Total Unpaid Labour (2 + 5)	\$32,202		\$29,247		\$38,347		\$33,224	
Gross Operating Surplus (1 - 7 + 8)	\$36,685		\$32,136		\$52,578		\$41,483	
(9) Boat Cash Income (1 - 7)	\$4,483		\$2,889		\$14,230		\$8,260	
(10) Depreciation	\$19,209		\$18,859		\$17,004		\$18,137	
(11) Boat Business Profit (9 - 10)	-\$14,726		-\$15,969		-\$2,774		-\$9,877	
(12) Profit at Full Equity (11 + 4)	-\$4,979		-\$11,498		\$1,759		-\$4,795	
Boat Capital								
(13) Fishing Gear & Equip	\$140,706		\$138,047		\$115,318		\$129,018	
Licence Value	\$147,502		\$188,035		\$219,050		\$196,255	
(14) Total Boat Capital	\$288,207		\$326,082		\$334,368		\$325,273	
Rate of Return on Fishing Gear & Equip (12 / 13 * 100)	-3.5%		-8.3%		1.5%		-3.7%	
Rate of Return on Total Boat Capital (12 / 14 * 100)	-1.7%		-3.5%		0.5%		-1.5%	

^a Total boat cash costs.

^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.

Table 3.8 Financial performance by line entitlement only licence holders by return to capital quartile, 2007/08 (average per boat)

	Average per Boat				
	Lowest 25%	Second Quartile	Third Quartile	Highest 25%	All Boats
(1) Total Boat Gross Income	\$35,541	\$53,499	\$102,589	\$102,496	\$70,620
Variable Costs					
Fuel	\$10,170	\$10,458	\$12,711	\$8,380	\$10,430
Repairs & Maintenance ^a	\$6,927	\$9,258	\$8,677	\$2,631	\$6,873
Bait/Ice	\$2,649	\$1,919	\$2,542	\$2,764	\$2,468
Provisions	\$605	\$561	\$1,447	\$351	\$820
Labour - paid	\$5,842	\$3,977	\$15,832	\$7,127	\$8,195
(2) - unpaid ^b	\$24,260	\$26,412	\$30,413	\$23,883	\$26,129
(3) Total Variable Costs	\$50,453	\$52,586	\$71,622	\$45,137	\$54,914
Fixed Costs					
Licence Fee	\$3,970	\$4,061	\$4,170	\$4,224	\$4,106
Insurance	\$2,174	\$1,809	\$2,606	\$938	\$1,882
(4) Interest	\$6,381	\$6,541	\$7,014	\$2,748	\$5,671
(5) Labour - unpaid ^b	\$4,253	\$4,630	\$5,331	\$4,187	\$4,624
Legal & Accounting	\$1,431	\$1,073	\$846	\$741	\$1,023
Telephone etc.	\$1,385	\$795	\$869	\$467	\$879
Slipping & Mooring	\$819	\$906	\$1,647	\$172	\$886
Travel	\$613	\$555	\$584	\$447	\$550
Office & Admin	\$3,767	\$3,578	\$4,037	\$3,808	\$3,797
(6) Total Fixed Costs	\$24,793	\$23,948	\$27,104	\$17,733	\$23,419
(7) Total Boat Cash Costs (3 + 6)	\$75,246	\$76,533	\$98,725	\$62,870	\$78,333
Boat Gross Margin (1 - 3)	-\$14,911	\$913	\$30,967	\$57,359	\$15,705
(8) Total Unpaid Labour (2 + 5)	\$28,512	\$31,042	\$35,744	\$28,070	\$30,753
Gross Operating Surplus (1 - 7 + 8)	-\$11,192	\$8,008	\$39,608	\$67,696	\$23,040
(9) Boat Cash Income (1 - 7)	-\$39,705	-\$23,035	\$3,863	\$39,627	-\$7,713
(10) Depreciation	\$17,910	\$18,799	\$12,285	\$9,274	\$14,567
(11) Boat Business Profit (9 - 10)	-\$57,614	-\$41,834	-\$8,421	\$30,352	-\$22,280
(12) Profit at Full Equity (11 + 4)	-\$51,233	-\$35,292	-\$1,407	\$33,101	-\$16,609
Boat Capital					
(13) Fishing Gear & Equip	\$106,567	\$180,417	\$116,771	\$88,510	\$123,066
Licence Value	\$130,458	\$158,053	\$160,704	\$143,939	\$148,850
(14) Total Boat Capital	\$237,026	\$338,470	\$277,475	\$232,449	\$271,916
Rate of Return on Fishing Gear & Equip (12 / 13 * 100)	-48.1%	-19.6%	-1.2%	37.4%	-13.5%
Rate of Return on Total Boat Capital (12 / 14 * 100)	-21.6%	-10.4%	-0.5%	14.2%	-6.1%

^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 3.9 Financial performance by net licence holders by return to capital quartile, 2007/08 (average per boat)

	Average per Boat				
	Lowest 25%	Second Quartile	Third Quartile	Highest 25%	All Boats
(1) Total Boat Gross Income	\$118,900	\$105,813	\$143,831	\$277,815	\$164,731
Variable Costs					
Fuel	\$20,277	\$11,929	\$12,954	\$13,562	\$14,650
Repairs & Maintenance ^a	\$27,290	\$7,908	\$10,477	\$10,861	\$14,045
Bait/Ice	\$7,262	\$1,989	\$1,560	\$4,040	\$3,722
Provisions	\$690	\$128	\$768	\$482	\$516
Labour - paid	\$24,033	\$28,775	\$20,820	\$29,193	\$25,800
(2) - unpaid ^b	\$46,962	\$24,407	\$30,797	\$29,703	\$33,122
(3) Total Variable Costs	\$126,514	\$75,135	\$77,376	\$87,840	\$91,855
Fixed Costs					
Licence Fee	\$7,809	\$7,315	\$7,352	\$8,772	\$7,838
Insurance	\$3,257	\$1,724	\$1,167	\$2,218	\$2,095
(4) Interest	\$5,375	\$4,945	\$3,538	\$1,623	\$3,809
(5) Labour - unpaid ^b	\$8,091	\$4,205	\$5,306	\$5,117	\$5,443
Legal & Accounting	\$2,948	\$1,001	\$1,143	\$2,439	\$1,898
Telephone etc.	\$3,126	\$1,379	\$1,512	\$3,809	\$2,493
Slipping & Mooring	\$1,298	\$620	\$530	\$583	\$753
Travel	\$528	\$158	\$1,233	\$149	\$507
Office & Admin	\$15,003	\$3,254	\$5,943	\$7,162	\$7,822
(6) Total Fixed Costs	\$47,434	\$24,600	\$27,724	\$31,872	\$32,658
(7) Total Boat Cash Costs (3 + 6)	\$173,948	\$99,736	\$105,100	\$119,712	\$124,513
Boat Gross Margin (1 - 3)	-\$7,614	\$30,678	\$66,455	\$189,975	\$72,876
(8) Total Unpaid Labour (2 + 5)	\$55,053	\$28,612	\$36,103	\$34,820	\$38,565
Gross Operating Surplus (1 - 7 + 8)	\$5	\$34,689	\$74,834	\$192,923	\$78,783
(9) Boat Cash Income (1 - 7)	-\$55,048	\$6,078	\$38,731	\$158,103	\$40,218
(10) Depreciation	\$38,828	\$16,602	\$19,633	\$28,108	\$25,855
(11) Boat Business Profit (9 - 10)	-\$93,877	-\$10,524	\$19,098	\$129,995	\$14,363
(12) Profit at Full Equity (11 + 4)	-\$88,502	-\$5,579	\$22,637	\$131,617	\$18,172
Boat Capital					
(13) Fishing Gear & Equip	\$216,153	\$110,262	\$83,586	\$155,976	\$141,886
Licence Value	\$304,947	\$367,259	\$275,318	\$254,162	\$299,171
(14) Total Boat Capital	\$521,100	\$477,521	\$358,903	\$410,138	\$441,057
Rate of Return on Fishing Gear & Equip (12 / 13 * 100)	-40.9%	-5.1%	27.1%	84.4%	12.8%
Rate of Return on Total Boat Capital (12 / 14 * 100)	-17.0%	-1.2%	6.3%	32.1%	4.1%

^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.

Income...

Total recorded gross receipts from the sale of catch increased by 7 per cent between 2006/07 and 2007/08 as a result of an increase in total catch of 1 per cent and an increase in average price of 6 per cent (Table 3.1). The total number of licence holders in the fishery decreased from 349 in 2006/07 to 343 in 2007/08 (Table 3.2). The average gross income per boat in the South Australian Marine Scalefish Fishery in 2007/08 was just over \$103,000, approximately 8 per cent higher compared to the previous year's estimated average (\$95,000) (Table 3.4).

There was some variation in gross income between regions. Estimated mean gross income ranged from approximately \$86,000 in the West Coast (WC) region to almost \$115,000 in the Spencer Gulf/Coffin Bay (SG/CB) region (Table 3.5).

Financial performance estimates by method highlight the significant difference in average gross income between fishing methods. The average gross income for fishers with a line entitlement only was estimated to be almost \$71,000 in 2007/08, while fishers with both a line and net entitlement were estimated to have an average income of almost \$165,000 (Table 3.6).

Estimates of financial performance by number of days fished show average gross income increased as the number of days fished increased. The average gross income for fishers who fished 50 days or less was estimated to be approximately \$76,000 in 2007/08, while fishers who fished for more than 150 days had an average gross income of almost \$120,000 (Table 3.7).

In 2007/08, the average income for boats with line entitlements only in the first quartile was approximately 50 per cent below the average, while in the fourth quartile, average gross income was approximately 45 per cent above the average recorded for line entitled surveyed boats (Table 3.8). The average gross income for boats with net entitlements in the first quartile was approximately 28 per cent below the average, while in the fourth quartile, average gross income was approximately 69 per cent above the average recorded for net entitled boats (Table 3.9).

Costs...

Tables 3.4 to 3.9 show total costs separated into variable and fixed costs. Variable costs (70 per cent of total boat cash costs for all boats in 2007/08) represent a significantly greater proportion of total boat cash costs than fixed costs (30 per cent).

Total average cash costs per boat were estimated to have increased by approximately 12 per cent from 2006/07 to 2007/08. This increase comprised of an 11 per cent increase in variable costs and a 13 per cent increase in fixed costs. Notable changes include a 26 per cent increase in bait and ice costs, a 13 per cent increase both in variable paid labour and variable unpaid labour and a 13 per cent increase in interest costs (Table 3.4).

Average total cash costs per boat were significantly higher in the SG/CB region when compared to the other fishing regions in SA. In 2007/08 total cash costs in the SG/CB region were estimated to be approximately \$112,000, 19 per cent higher than the fishery average (Table 3.5).

Average total cash costs per boat for fishers with both a net and line entitlement were 31 per cent higher than the fishery average. In 2007/08, average total cash costs for fishers with both a net and line entitlement were estimated to be almost \$125,000 and for line entitlement only fishers total cash costs were approximately \$78,000 (Table 3.6).

Average total cash costs for fishers who fished more than 150 days were 11 per cent higher than the fishery average. For fishers who fished more than 150 days average total cash costs per boat in 2007/08 were estimated to be almost \$106,000, 48 per cent higher than for those fishers who fished for 50 days or less (almost \$72,000) (Table 3.7).

While for line only licence holders average income for boats in the first quartile was around 65 per cent below that of boats in the fourth quartile, average total cash costs were around 20 per cent higher. The cost items where the largest differences occurred between the first and fourth quartiles were repairs and maintenance (163 per cent higher in the first quartile), interest (132 per cent), insurance (132 per cent) and fuel (21 per cent) (Table 3.8).

While for net licence holders average income for boats in the first quartile was around 50 per cent below that of boats in the fourth quartile, average total cash costs were around 45 per cent higher. The cost items where the largest differences occurred between the first and fourth quartiles were interest (231 per cent higher in the first quartile), repairs and maintenance (151 per cent), bait and ice (80 per cent) and fuel (50 per cent) (Table 3.9).

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 slightly in 2007/08 (over \$36,000) compared to the previous year (approximately \$35,000) mainly due to the increase in total boat gross income in 2007/08 (Table 3.4).

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 2007/08 was estimated to be approximately \$41,000, a 4 per cent increase compared to the previous year (Table 3.4).

Boat cash income is measured as gross operating surplus with imputed wages for operator and family members as a cost item. The estimated average boat cash income in 2007/08 was almost \$8,000 (Table 3.4).

Gross operating surplus and boat business profit give an indication of the capacity of the operator to remain in the fishery in the short term. Average boat business profit was estimated to be almost -\$10,000 (Table 3.4).

For 2007/08 the average boat business profit was greatest in the West Coast (WC) fishing region at approximately \$14,000. The lowest average boat business profit was in the Spencer Gulf/Coffin Bay (SG/CB) region, approximately -\$19,000 in 2007/08 (Table 3.5).

In 2007/08, fishers with a line entitlement only reported an average boat business profit of approximately -\$22,000 which was 56 per cent lower than for the fishery as a whole. Fishers with both a net and line entitlement reported an average boat business profit that was significantly greater than the fishery average, over \$14,000 for 2007/08 (Table 3.6).

The average boat business profit for fishers who fished 50 days or less was estimated to be almost -\$15,000 in 2007/08, 33 per cent lower than for the fishery as a whole (approximately -\$10,000). For fishers who fished more than 150 days in 2007/08 boat business profit was estimated to be almost -\$3,000, significantly greater than the fishery average (Table 3.7).

In 2007/08, the average boat business profit for boats with line entitlement only in the first quartile was approximately -\$58,000. This is significantly less than the average profit for boats in the fourth quartile (approximately \$30,000 in 2007/08) (Table 3.8).

The average boat business profit for boats with net and line entitlements in the first quartile was almost -\$94,000. This is considerably less than the average cash operating surplus for boats in the fourth quartile (approximately \$130,000 in 2007/08) (Table 3.9).

Profit at full equity is a measure of the profitability of an individual licence holder, assuming the licence holder has full equity in his operation. It is a useful absolute measure of the economic performance of fishing firms. For all boats profit at full equity in 2007/08 (approximately -\$4,800) was slightly less than the previous year (-\$3,600) (Table 3.4).

Return on Investment...

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

The average capital value of fishing gear and licence per boat in the SA Marine Scalefish Fishery in 2007/08 was estimated to be approximately \$325,000 per fisher. An estimate of the 2007/08 licence value (\$196,000) was updated based on the fishers own estimates of the value of their licence provided in the 2007 survey of licence holders and the value of catch in the fishery in 2007/08.

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). For the SA Marine Scalefish Fishery as a whole, the average rate of return to total capital was estimated to be -1.5 per cent in 2007/08 (Table 3.4).

The rate of return to total capital was greatest in the West Coast region, 6.8 per cent. The lowest rate of return to total capital was in the Spencer Gulf/Coffin Bay region, -3.6 per cent (Table 3.5). For fishers with net and line entitlements the average rate of return to total capital was 4.1 per cent, whereas for line entitlement only fishers it was -6.1 per cent (Table 3.6).

The average rate of return to total capital was greatest for fishers who fished more than 150 days, 0.5 per cent. The average rate of return to total capital for fishers who fished

50 days or less was -1.7 per cent in 2007/08. Licence holders who fish for 50 days or less are likely to be “lifestyle” fishers and may not rely on fishing activities as their primary source of income (Table 3.7).

The average rate of return to total capital for line entitlement only fishers was estimated to be -21.6 per cent in the first quartile and 14.2 per cent in the fourth quartile (Table 3.8). The average rate of return to total capital for net fishers was estimated to be -17.0 per cent in the first quartile and 32.1 per cent in the fourth quartile (Table 3.9).

Licence Values...

The value of licences represents a significant proportion of the total capital used by each licence holder in the fishery. The reported average licence value of approximately \$196,000 for 2007/08 for all licence types was based on the fishers own estimates of the value of their licence provided in the 2007 survey of licence holders. The value of each individual licence varies depending on the number of fishing points allocated to the licence and, more importantly, the endorsements and entitlements on the licence (Rob Field, Elders Fisheries and Aquaculture Broker, pers. comm.). The PIRSA Fisheries record of licence transfers for 2007/08 indicates that there were 44 licence transfers over the 12-month period. However, the value of these transfers was unavailable and, therefore, cannot be used for comparison.

3.5 State and Regional Economic Impact

Estimates of the economic impact of the SA Marine Scalefish fishing industry on the South Australian and regional economies in 2007/08 are outlined below.

3.5.1 Measuring direct and flow-on effects

Estimates of the direct economic impact of the SA Marine Scalefish Fishery are consistent with the method employed in PIRSA's *Food for the Future* value-chain analysis, 2004/05⁶.

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

- the landed beach value of production; and
- downstream impacts, including the:
 - net value of local (state and regional) processing;
 - value of local transport services at all stages of the marketing chain; and
 - net value of local retail and food service (e.g. hotels & restaurants) trade⁷.

⁶ The relevant information was obtained from Jack Langberg (PIRSA, pers. comm.).

⁷ Estimates of economic impact prepared for this and other commercial fisheries in South Australia (except Lakes and Coorong) for the period 1997/98 to 2002/03 do not include the impact of local retail and food service trade.

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

Economic impacts at the state and regional levels were based on input-output models prepared for the Regional Communities Consultative Committee, Local Government Association of South Australia and Regional Development SA (EconSearch 2005).

In order to compile a representative cost structure for the fishing sector, costs per boat were derived from data provided by operators in the fishery in a financial survey for 2006/07 and updated to 2007/08, as described earlier. On an item-by-item basis, the expenditures were allocated between those occurring in the fishing region, those occurring in South Australia and those goods and services imported from outside the state.

These adjusted data were then incorporated into the state and regional input-output models to estimate the flow-on or indirect economic impacts of the Marine Scalefish Fishery in South Australia and individual fishing regions in 2007/08.

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

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

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

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

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

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

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 impact of the fishery

Estimates of the economic impact generated in 2007/08 by the SA Marine Scalefish fishing industry in South Australia and in the West Coast, Spencer Gulf/Coffin Bay and Gulf St Vincent/Kangaroo Island regions are outlined in Tables 3.10 to 3.13, respectively.

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

Some interpretation of the results of the impact analysis at the state level (Table 3.10) is provided below. Interpretation of the results at the regional level (Tables 3.11 to 3.13) is similar to that at the state level.

Table 3.10 Economic impact of the SA Marine Scalefish Fishery on the South Australian economy, 2007/08

Sector	Output		Employment ^a		Household Income		Contribution to GSP	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%
Direct effects								
Fishing	20.9	27.5%	531	63.6%	5.9	28.9%	5.9	19.2%
Processing	3.6	4.8%	11	1.3%	0.5	2.6%	0.8	2.8%
Transport	0.5	0.7%	2	0.3%	0.2	0.8%	0.2	0.8%
Retail	2.2	3.0%	31	3.7%	0.9	4.6%	1.1	3.7%
Food services	1.1	1.4%	9	1.0%	0.3	1.4%	0.4	1.4%
Capital expenditure ^b	2.2	2.8%	17	2.0%	0.7	3.2%	0.9	2.9%
Total Direct ^c	30.5	37.3%	601	69.9%	8.5	38.2%	9.4	27.8%
Flow-on effects								
Trade	6.6	8.6%	66	7.9%	2.4	11.9%	3.0	9.9%
Manufacturing	10.7	14.1%	32	3.8%	1.6	7.7%	2.5	8.1%
Business Services	5.1	6.7%	28	3.4%	1.9	9.1%	2.4	7.9%
Transport	2.6	3.4%	11	1.3%	0.8	4.1%	1.2	4.0%
Other Sectors	20.6	27.1%	97	11.6%	5.3	26.0%	12.1	39.4%
Total Flow-on ^c	45.5	59.8%	234	28.1%	12.0	58.6%	21.3	69.3%
Total ^c	76.1	100.0%	835	100.0%	20.5	100.0%	30.8	100.0%
Total/Direct	2.5	-	1.4	-	2.4	-	3.3	-
Total/Tonne	\$25,300	-	0.28	-	\$6,800	-	\$10,244	-

^a Full-time equivalent jobs. Direct employment in the fishing sector was comprised of 130 full-time jobs and 288 part-time jobs, that is, 418 jobs in aggregate.

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

^c Totals may not sum due to rounding.

Source: EconSearch analysis.

Table 3.11 Economic impact of the SA Marine Scalefish Fishery on the West Coast fishing region, 2007/08

Sector	Output		Employment ^a		Household Income		Contribution to GRP	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%
Direct effects								
Fishing	2.6	54.6%	36	71.2%	1.4	70.4%	1.4	56.6%
Processing	0.2	3.4%	1	1.4%	0.0	1.5%	0.0	1.8%
Transport	0.0	0.9%	0	0.5%	0.0	0.7%	0.0	0.9%
Retail	0.0	0.2%	0	0.3%	0.0	0.2%	0.0	0.2%
Food services	0.0	0.1%	0	0.1%	0.0	0.1%	0.0	0.1%
Capital expenditure ^b	0.1	1.8%	1	1.7%	0.0	1.5%	0.0	1.7%
Total Direct^c	2.9	61.0%	38	73.5%	1.5	72.9%	1.6	59.6%
Flow-on effects								
Trade	0.4	8.4%	5	9.9%	0.2	7.5%	0.2	7.6%
Manufacturing	0.2	4.0%	1	1.7%	0.0	1.8%	0.1	2.1%
Business Services	0.2	3.1%	1	1.9%	0.1	2.6%	0.1	2.8%
Transport	0.1	1.9%	0	1.0%	0.0	1.5%	0.0	1.8%
Other Sectors	1.0	21.5%	5	10.3%	0.2	12.3%	0.6	24.3%
Total Flow-on^c	1.9	39.0%	12	24.8%	0.5	25.7%	1.0	38.7%
Total^c	4.8	100.0%	50	100.0%	2.0	100.0%	2.5	100.0%
Total/Direct	1.7	-	1.4	-	1.4	-	1.7	-
Total/Tonne	\$17,900	-	0.19	-	\$7,500	-	\$9,400	-

^a Full-time equivalent jobs. Direct employment in the fishing sector was comprised of 9 full-time jobs and 43 part-time jobs, that is, 52 jobs in aggregate.

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

^c Totals may not sum due to rounding.

Source: EconSearch analysis.

Table 3.12 Economic impact of the SA Marine Scalefish Fishery on the Spencer Gulf/Coffin Bay fishing region, 2007/08

Sector	Output		Employment ^a		Household Income		Contribution to GRP	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%
Direct effects								
Fishing	10.7	47.6%	266	77.6%	1.5	32.2%	1.5	21.9%
Processing	1.0	4.3%	4	1.2%	0.2	3.8%	0.3	3.9%
Transport	0.3	1.2%	1	0.4%	0.1	1.9%	0.1	1.9%
Retail	0.1	0.3%	1	0.3%	0.0	0.5%	0.0	0.4%
Food services	0.0	0.1%	0	0.1%	0.0	0.2%	0.0	0.2%
Capital expenditure ^b	0.9	4.2%	10	2.9%	0.3	7.1%	0.5	6.8%
Total Direct ^c	12.9	57.7%	283	82.5%	2.2	45.7%	2.4	35.1%
Flow-on effects								
Trade	1.9	8.4%	21	6.2%	0.7	14.6%	0.9	12.7%
Manufacturing	1.8	8.1%	8	2.3%	0.3	7.1%	0.5	7.3%
Business Services	0.8	3.6%	5	1.5%	0.3	6.2%	0.4	5.6%
Transport	0.6	2.7%	3	0.9%	0.2	4.3%	0.3	4.3%
Other Sectors	4.4	19.5%	22	6.5%	1.0	22.1%	2.4	34.9%
Total Flow-on ^c	9.5	42.3%	60	17.5%	2.6	54.3%	4.5	64.9%
Total ^c	22.4	100.0%	343	100.0%	4.7	100.0%	6.9	100.0%
Total/Direct	1.9	-	1.3	-	2.6	-	3.6	-
Total/Tonne	\$14,000	-	0.21	-	\$2,900	-	\$4,300	-

^a Full-time equivalent jobs. Direct employment in the fishing sector was comprised of 94 full-time jobs and 110 part-time jobs, that is, 205 jobs in aggregate.

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

^c Totals may not sum due to rounding.

Source: EconSearch analysis.

Table 3.13 Economic impact of the SA Marine Scalefish Fishery on the Gulf St Vincent/Kangaroo Island fishing region, 2007/08

Sector	Output		Employment ^a		Household Income		Contribution to GRP	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%
Direct effects								
Fishing	7.1	49.7%	204	80.5%	2.9	60.7%	2.9	46.0%
Processing	0.6	4.5%	3	1.1%	0.1	2.1%	0.2	2.6%
Transport	0.2	1.2%	1	0.5%	0.1	1.3%	0.1	1.4%
Retail	0.0	0.3%	1	0.3%	0.0	0.3%	0.0	0.3%
Food services	0.0	0.1%	0	0.1%	0.0	0.1%	0.0	0.1%
Capital expenditure ^b	0.4	2.8%	6	2.2%	0.2	3.2%	0.2	3.2%
Total Direct ^c	8.3	58.6%	214	84.5%	3.2	67.8%	3.3	53.6%
Flow-on effects								
Trade	1.1	8.1%	14	5.6%	0.4	8.9%	0.5	8.6%
Manufacturing	1.2	8.4%	5	2.0%	0.2	4.0%	0.3	4.8%
Business Services	0.4	3.0%	3	1.1%	0.1	3.1%	0.2	3.3%
Transport	0.2	1.7%	2	0.6%	0.1	1.9%	0.1	1.9%
Other Sectors	2.9	20.2%	16	6.1%	0.7	14.3%	1.7	27.8%
Total Flow-on ^c	5.9	41.4%	39	15.5%	1.5	32.2%	2.9	46.4%
Total ^c	14.2	100.0%	253	100.0%	4.7	100.0%	6.3	100.0%
Total/Direct	1.8	-	1.2	-	1.6	-	2.0	-
Total/Tonne	\$13,400	-	0.24	-	\$4,400	-	\$5,900	-

^a Full-time equivalent jobs. Direct employment in the fishing sector was comprised of 23 full-time jobs and 122 part-time jobs, that is, 145 jobs in aggregate.

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

^c Totals may not sum due to rounding.

Source: EconSearch analysis.

Value of output...

The value of output generated directly in South Australia by marine scalefish fishing enterprises summed to \$20.9 million in 2007/08 (Table 3.10), while output generated in South Australia by associated downstream activities (processing, transport, retail/food services and capital expenditure) summed to \$9.6 million.

Flow-ons to other sectors of the state economy added another \$45.5 million in output. The sectors most affected were the manufacturing (\$10.7 million), trade (\$6.6 million) business services (\$5.1 million) and transport sectors (\$2.6 million).

Employment and household income...

In 2007/08, the Marine Scalefish Fishery was responsible for the direct employment of around 531 full-time equivalents (fte) and downstream activities created employment of around 70 fte jobs state-wide. Flow-on business activity was estimated to generate a further 234 fte jobs state-wide. These state-wide jobs were concentrated in the trade (66), manufacturing (32), business services (28) and transport (11) sectors.

Personal income of \$5.9 million was earned in the fishing sector (wages of employees and estimated drawings by owner/operators) and \$2.6 million in downstream activities in SA. An additional \$12.0 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 \$20.5 million in South Australia.

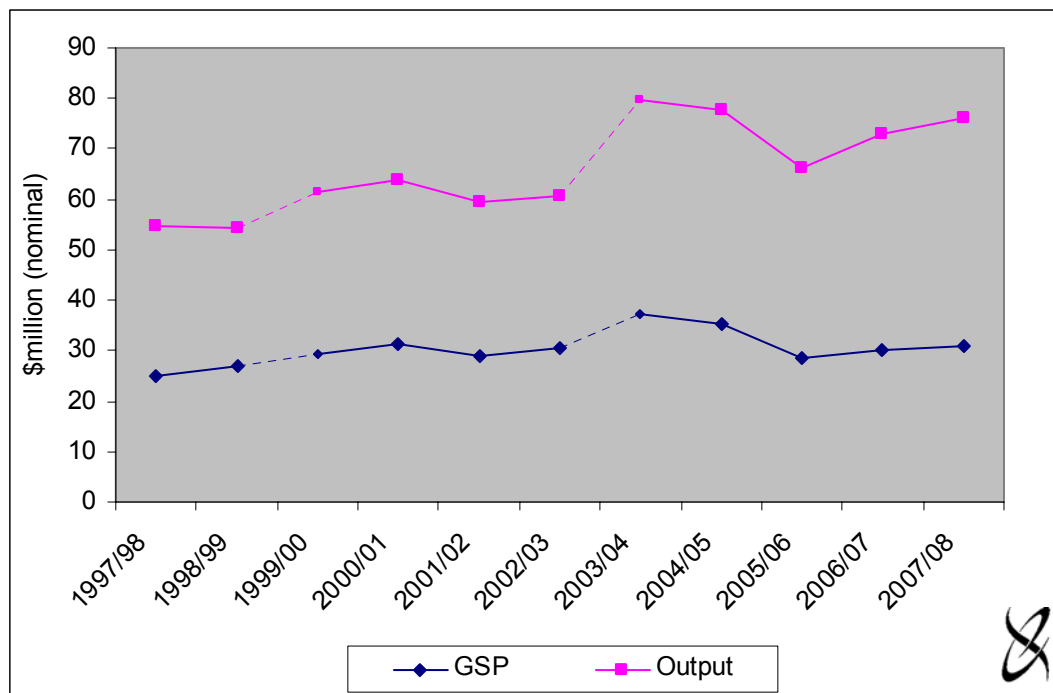
Contribution to GSP and GRP...

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 2007/08, total marine scalefish fishing industry related contribution to GSP in South Australia was \$30.8 million, \$5.9 million generated by fishing directly, \$3.5 million generated by downstream activities and \$21.3 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 ten-year period, 1997/98 to 2007/08. Estimates of economic impact are expressed in nominal terms. No adjustment has been made to reflect inflation.

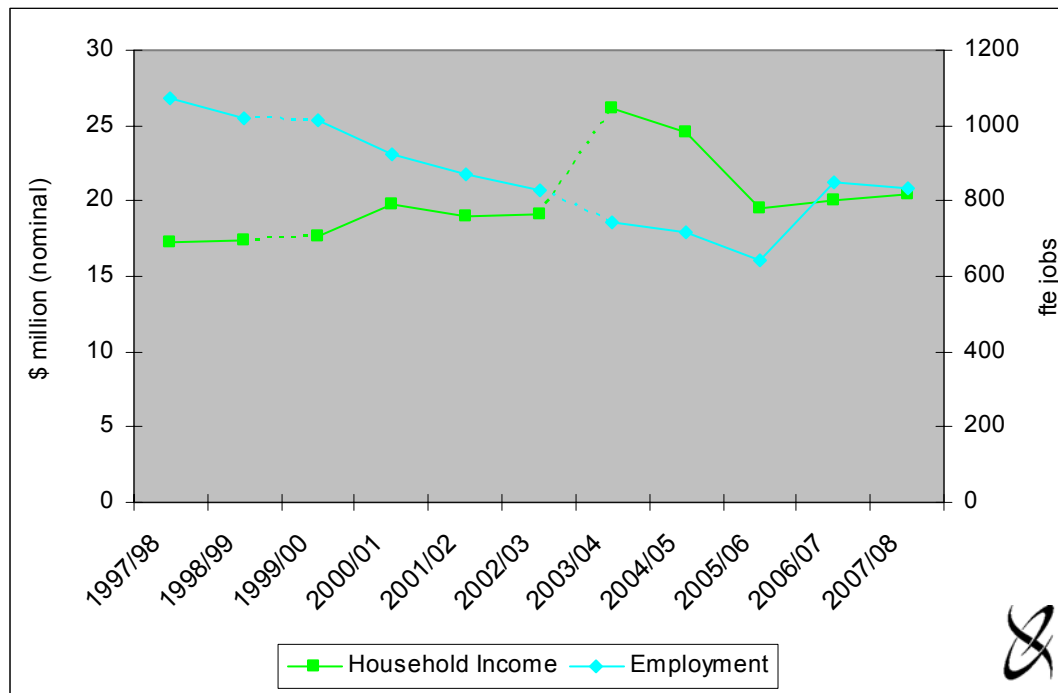
Figure 3.5 Total gross state product and output impact of the SA Marine Scalefish Fishery on the SA economy, 1997/98 to 2007/08 ^a



^a The economic impact of the SA Marine Scalefish 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 (2008a) and EconSearch analysis.

Figure 3.6 Total employment and household income impact of the SA Marine Scalefish Fishery on the SA economy, 1997/98 to 2007/08



^a See footnote for Figure 3.5.

Source: EconSearch (2008a) and EconSearch analysis.

Estimates of economic impact for 1997/98 to 1999/00 are based on the October 1998 survey of licence holders. Estimates for 2000/01 to 2002/02 are based on a second survey of licence holders conducted in May 2002. Estimates for 2003/04 to 2005/06 are based on the survey of licence holders conducted by BRS in 2004. Estimates for 2006/07 and 2007/08 are based on the most recent survey of licence holders conducted in 2007.

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

As economic impact estimates for the years 1997/98 to 2007/08 are based on different survey samples and techniques, some of the variability between years, is therefore, attributable to sampling variability.

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

There has been a significant decrease in the total employment impact of the fishery between 1997/98 and 2005/06 as illustrated in Figure 3.6. This reflects the reduction in the number of licence holders (direct employment) in the fishery (see Table 3.2) and potentially some productivity improvements in other sectors of the economy, which results in a reduction of indirect employment. In 2006/07, total employment increased significantly in response to an increase in output but decreased slightly in 2007/08.

3.6 Economic Rent

Economic rent⁸ is defined as the difference between the price of a good produced using a natural resource and the unit costs of turning that natural resource into the good. In this case the natural resource is the Marine Scalefish Fishery and the good produced is the landed fish.

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

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

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

What remains after the value of these inputs (labour, capital, materials, and services) has been netted out is the value of the natural resource itself. It was estimated that there was no economic rent generated in the SA Marine Scalefish Fishery in 2007/08 (calculated value of -\$3.6 million), nor in the period 1997/98 to 2006/07 (Table 3.14).

⁸ Economic rent is comprised of three types of rent: entrepreneurial rent, quasi-rent and resource rent. As in any business some operators are more skilful than others and will therefore earn more profit. These profits, which are one component of economic rent, are *entrepreneurial rents*. In the short-term fishers may earn large surpluses over costs, which may provide prima facie evidence of substantial resource rents. However, there are some circumstances where such surpluses can occur but they are not true rents. These are referred to as *quasi-rents*. One example is where a fishery is developing or recovering and there may be under-investment in the fishery. Another example is where there is a short-term but unsustainable increase in price due to, for example, exchange rate fluctuations. However, some profits will be obtained because the natural resource being used (i.e. the fishery) has a value. These profits are described as *resource rents* and are also a component of economic rent.

Table 3.14 Economic rent in the SA Marine Scalefish Fishery, 1997/98 to 2007/08, (\$'000)

	Gross Income	Less Labour	Less Cash Costs ^a	Less Depreciation	Less Opportunity Cost of Capital (@10%)	Economic Rent
1997/98	16,711	8,542	10,858	3,770	3,016	-9,475
1998/99	18,293	9,538	9,948	3,668	2,934	-7,795
1999/00	19,897	10,587	10,845	3,654	2,923	-8,112
2000/01	21,042	9,547	10,232	3,314	2,651	-4,702
2001/02	19,027	8,654	9,829	3,239	2,591	-5,286
2002/03	20,994	9,484	9,740	3,212	2,569	-4,011
2003/04	21,916	11,701	10,548	3,310	3,299	-6,943
2004/05	20,878	11,596	10,852	3,361	3,350	-8,281
2005/06	17,446	10,267	10,329	3,262	3,251	-9,663
2006/07	19,635	8,668	8,996	3,776	2,686	-4,491
2007/08	20,917	9,536	8,673	3,681	2,619	-3,592

^a Cash costs include costs of materials and services and exclude labour and interest costs.

Source: EconSearch analysis.

4. Other Indicators

4.1 External Factors Influencing the Economic Condition of the Fishery

There are a number of factors in 2007/08 that may have impacted on the economic performance of the fishery. Most of these are likely to continue to affect economic outcomes in the future.

4.1.1 Southern Calamari Stock

Comparison of the 2007/08 catch and effort data did not differ greatly from those from previous years. There were no breaches of reference points for the calamari fishery for 2007/08 (Fowler et al. 2008). The reference points breached in 2005/06 were mostly due to record catches and catch rates observed for 2005/06 (Steer et al. 2006a).

Significant fluctuations in calamari catch have been recorded in the fishery over the last 22 years. Similar fluctuations experienced in other squid fisheries worldwide have been linked to environmental variation (Steer et al. 2006a).

4.1.2 King George Whiting Stock

King George whiting is one of the most significant species caught in the Marine Scalefish Fishery in terms of contribution to the gross value of production (GVP) (Table 3.1). King George whiting catch has fallen slightly over the last 6 years; in 2007/08 catch was 329 tonnes compared to 390 tonnes in 2001/02 (Table 3.1). This decline in catch corresponds with a decrease in the number of days spent fishing for the species. This is most likely due to fishers targeting other more abundant species or the reduction in net licences and net endorsements as a result of the net buyback in 2005.

There were two breaches of limit reference points for King George whiting relating to the general decline in commercial catch since 1992, which is associated with an increasing trend of catch per unit effort (CPUE). CPUE provides an indication of the abundance and fishable biomass of King George Whiting in South Australia. Fishers generally target 3 year old fish as they grow past 30cm⁹. The CPUE constitutes an estimate of the strength of a particular year-class. There were declining trends in CPUE over the period 1999 to 2002. This trend was thought to have been the result of recruitment overfishing. The increases in CPUE in since 2002 indicate that the declining trend has been reversed (McGarvey et al. 2005 and Fowler et al. 2008).

Catch and effort data for 2007/08 indicate that statewide commercial catch of the species has reached a record low, despite a small increase in catch for 2006/07. Recent stock assessment indicates that catch rates have been at their highest ever recorded level (Fowler et al. 2008).

4.1.3 Snapper Stock

Snapper is also one of the most significant species caught in the Marine Scalefish Fishery in terms of contribution to GVP, along with King George whiting (Table 3.1).

⁹ The legal size limit for King George whiting is 30cm for areas west of Port Lincoln and 31cm for the remainder of South Australia (Andrew Sullivan PIRSA Fisheries, pers. comm.).

Catch of snapper declined significantly in the 2002/03 and 2003/04 seasons although catch has since followed an increasing trend. In 2001/02 catch was 648 tonnes but fell to only 413 tonnes in 2003/04. Snapper catch in 2007/08 was 741 tonnes (Table 3.1). Prior to the decline over the period 2001/02 to 2003/04, there had been an increasing trend in catch levels (Fowler et al. 2007a).

In order to assess the status of snapper in South Australia focus is directed towards the catch and effort data provided by fishers and biomass estimates derived from the fishery model 'SnapEst', which takes into consideration fishery independent data.

Some key points to note from the most recent catch and effort data and 'SnapEst' estimates are summarised below.

- Catch and catch rates in the Northern Spencer Gulf were indicative of a high biomass of fish.
- In the Southern Spencer Gulf there was a significant increase in catch and CPUE in the late 1990's and early 2000's. In 2002/03, however, estimates of catch and CPUE declined considerably.
- Estimated biomass for the Gulf St Vincent has been relatively stable, although it is significantly lower than the Spencer Gulf estimates.

For 2006/07 there were numerous breaches of the limit reference points that indicate a switch in the significance of the handline and long line fishers (Fowler et al. 2007b).

For 2007/08 there were six breaches of reference points including, one relating to the record level of catch attained in 2007/08 and the others related to simultaneous increases in both longline and handline CPUE (Fowler et al. 2008).

4.1.4 Net Closures

A voluntary net buyback scheme was undertaken in the fishery in 2005. At this time 24 full licences were surrendered and 37 licence holders surrendered their net endorsements. The overall result was a reduction of net endorsements on 61 licences out of a total 113 licences.

As a result of the buyback, in August 2005, three permanent netting closures were introduced:

- West Coast;
- Tumby Bay to Dutton Bay; and
- waters surrounding Yorke Peninsula.

Licence holders who traditionally fished in these areas and did not participate in the buyback scheme were given additional time to adjust their fishing operations to the closures. Potential impacts on affected licence holders include increased travelling time to reach fishing grounds and costs associated with adjusting fishing operations to new grounds and different target species (i.e. fuel and labour) (Andrew Sullivan, PIRSA Fisheries, pers. comm.). The impact of the netting closures are highlighted in the results of the 2007 licence holder survey (EconSearch 2008a).

4.2 Licence Holder Comments

A number of licence holders, who participated in the November 2007 survey, raised several key issues that they felt affected the economic performance of their individual operations and the performance of the Marine Scalefish Fishery as a whole. Licence holder comments relate to the following issues:

- business viability;
- management;
- area closures; and
- environmental issues.

The specific comments provided by licence holders on each of these issues are summarised in the previous years report (EconSearch 2008a).

4.3 Prices of Marine Scalefish Fishery Catch in Domestic Markets

This section of the report provides further analysis of prices for marine scalefish species in the Adelaide, Melbourne and Sydney domestic markets. It provides some indication of:

- the seasonality of prices; and
- price differentials between Adelaide, Melbourne and Sydney.

4.3.1 Average monthly beach prices for marine scalefish species in SA

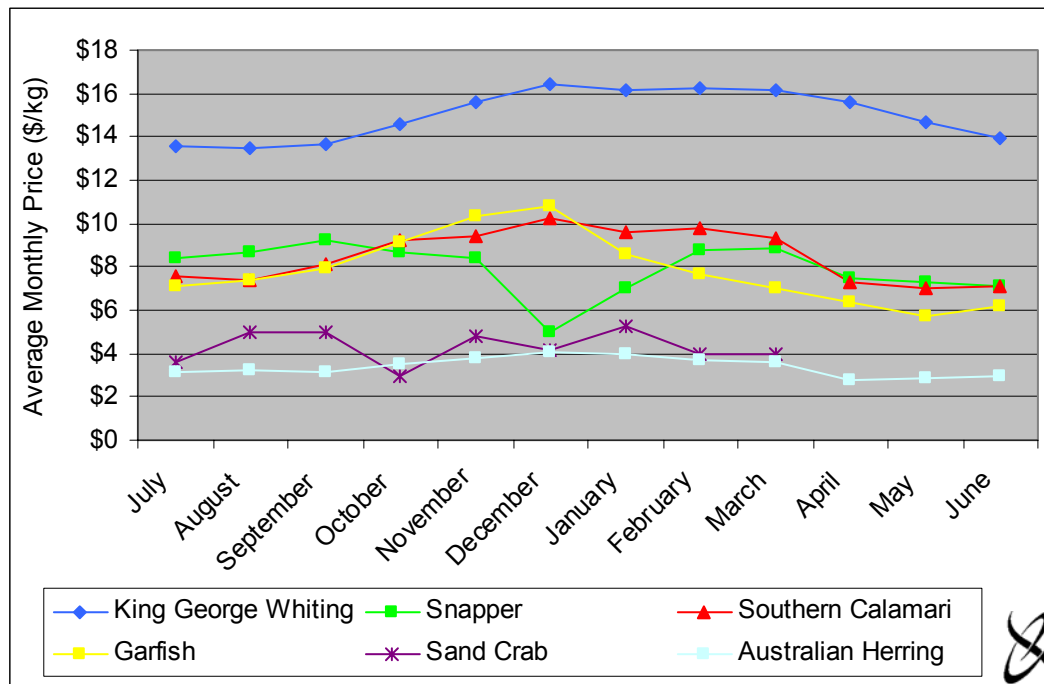
An outline of the seasonality of prices in SA (by month) for 2007/08 is provided in Table 4.1 and Figure 4.1. Across the species, beach prices in SA tend to peak in the warmer months from November to February and be at their lowest in June/July.

Table 4.1 Average monthly prices for major marine scalefish species, South Australia, 2007/08

Month	Average Monthly Price (\$/kg)					
	King George Whiting	Snapper	Southern Calamari	Garfish	Sand Crab	Australian Herring
July	\$13.58	\$8.44	\$7.61	\$7.12	-	\$3.14
August	\$13.52	\$8.66	\$7.39	\$7.43	\$3.57	\$3.21
September	\$13.64	\$9.25	\$8.13	\$7.90	\$5.00	\$3.15
October	\$14.55	\$8.64	\$9.19	\$9.10	\$4.94	\$3.51
November	\$15.57	\$8.40	\$9.41	\$10.37	\$3.00	\$3.76
December	\$16.44	\$5.03	\$10.27	\$10.79	\$4.78	\$4.04
January	\$16.11	\$7.01	\$9.63	\$8.62	\$4.15	\$4.01
February	\$16.27	\$8.73	\$9.75	\$7.65	\$5.22	\$3.67
March	\$16.16	\$8.85	\$9.33	\$7.05	\$4.00	\$3.55
April	\$15.57	\$7.50	\$7.33	\$6.33	\$3.96	\$2.79
May	\$14.68	\$7.33	\$7.05	\$5.74	-	\$2.84
June	\$13.93	\$7.12	\$7.08	\$6.23	-	\$3.00
Average	\$15.00	\$7.91	\$8.51	\$7.86	\$4.29	\$3.39

Source: SARDI Aquatic Sciences

Figure 4.1 Average monthly prices for major marine scalefish species, South Australia, 2007/08



Source: SARDI Aquatic Sciences

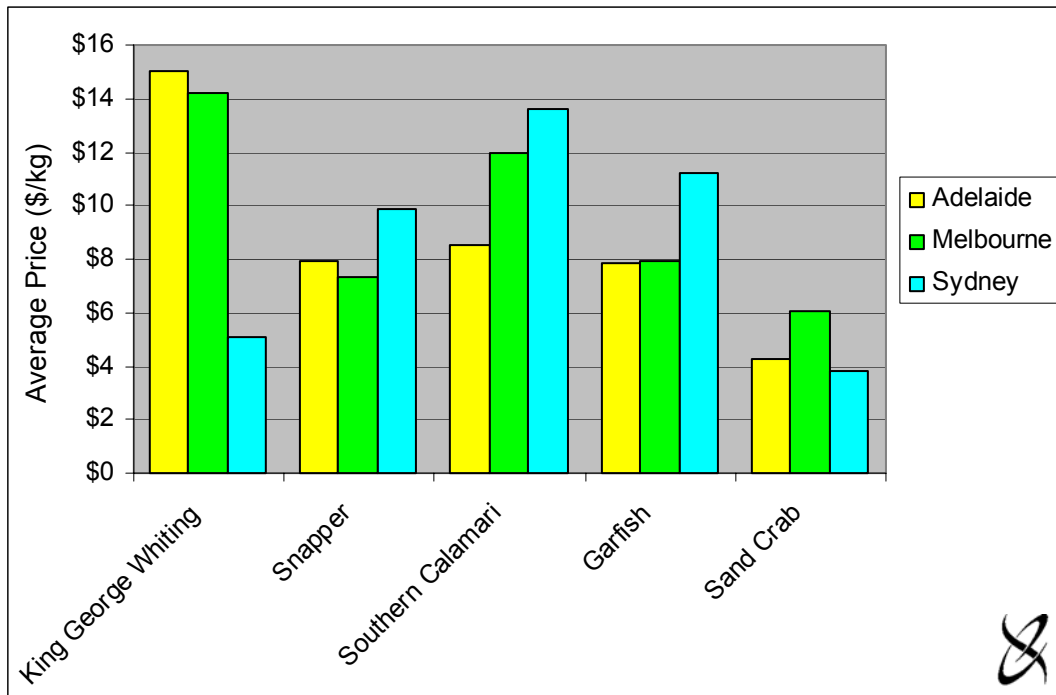
4.3.2 Average monthly prices for marine scalefish species in SA and other domestic markets

The value of marine scale catch data sourced from SARDI Aquatic Sciences are estimated on the basis of information provided by processors in South Australia. Many species caught in the Marine Scalefish Fishery are sold in the Melbourne and Sydney markets. The average price of any particular species varies between the different markets.

The price differentials between the beach price in SA and the wholesale market prices in Sydney¹⁰ and Melbourne are illustrated in Figure 4.2 and (on a monthly basis) in Table 4.2.

Figure 4.2 Average price of major marine scalefish species, beach prices for SA and wholesale market prices for Sydney and Melbourne, 2007/08 ^a

¹⁰ Sydney Fish Market data were only available until December 2007.



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

Source: SARDI Aquatic Sciences, Samantha Dawes (NSW Department of Primary Industries pers. comm.) and Melbourne Fish Market (Tim Rieniets, Melbourne Wholesale Fish Market, pers. comm.).

Table 4.2 Average monthly prices for major marine scalefish species, beach prices in South Australia and wholesale prices in Melbourne and Sydney fish markets, 2007/08 ^a

	King George Whiting			Snapper			Southern Calamari			Garfish			Sand Crab			Yellowfin Whiting		
	Adelaide	Melbourne	Sydney	Adelaide	Melbourne	Sydney	Adelaide	Melbourne	Sydney	Adelaide	Melbourne	Sydney	Adelaide	Melbourne	Sydney	Adelaide	Melbourne	Sydney
July	\$13.58	\$13.40	\$4.59	\$8.44	\$6.66	\$10.03	\$7.61	\$10.52	\$10.12	\$7.12	\$7.27	\$12.08	-	\$6.66	\$3.16	\$7.89	\$12.17	\$10.48
August	\$13.52	\$12.94	\$5.07	\$8.66	\$6.91	\$10.57	\$7.39	\$11.27	\$13.51	\$7.43	\$8.75	\$11.58	\$3.57	\$6.53	\$3.67	\$9.05	\$7.80	\$14.12
September	\$13.64	\$13.56	\$5.51	\$9.25	\$7.37	\$9.96	\$8.13	\$10.44	\$13.46	\$7.90	\$8.11	\$11.08	\$5.00	\$4.82	\$6.93	\$9.79	\$12.00	\$14.53
October	\$14.55	\$15.80	\$5.38	\$8.64	\$7.94	\$10.25	\$9.19	\$12.80	\$14.76	\$9.10	\$11.28	\$13.33	\$4.94	\$7.68	\$1.70	\$10.42	\$15.00	\$13.52
November	\$15.57	\$12.76	\$4.96	\$8.40	\$6.87	\$9.36	\$9.41	\$11.08	\$14.08	\$10.37	\$7.60	\$9.59	\$3.00	\$7.05	\$4.67	\$10.23	-	\$11.21
December	\$16.44	\$11.66	\$4.88	\$5.03	\$5.64	\$9.12	\$10.27	\$13.28	\$15.84	\$10.79	\$8.15	\$9.46	\$4.78	\$5.46	\$2.93	\$10.00	\$4.00	\$12.37
January	\$16.11	\$13.74	-	\$7.01	\$8.14	-	\$9.63	\$15.28	-	\$8.62	\$8.73	-	\$4.15	\$8.20	-	\$10.65	-	-
February	\$16.27	\$17.68	-	\$8.73	\$8.57	-	\$9.75	\$14.18	-	\$7.65	\$8.91	-	\$5.22	\$6.55	-	\$9.43	-	-
March	\$16.16	\$18.95	-	\$8.85	\$7.36	-	\$9.33	\$13.91	-	\$7.05	\$10.15	-	\$4.00	\$2.96	-	\$9.42	\$2.69	-
April	\$15.57	\$14.39	-	\$7.50	\$7.26	-	\$7.33	\$10.72	-	\$6.33	\$5.70	-	\$3.96	\$5.94	-	\$9.06	-	-
May	\$14.68	\$13.08	-	\$7.33	\$7.48	-	\$7.05	\$9.88	-	\$5.74	\$5.46	-	-	\$3.67	-	\$7.52	-	-
June	\$13.93	\$12.82	-	\$7.12	\$7.96	-	\$7.08	\$10.07	-	\$6.23	\$4.88	-	-	\$7.09	-	\$7.13	\$2.50	-

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

Source: SARDI Aquatic Sciences, Samantha Dawes (NSW Department of Primary Industries pers. comm.) and Melbourne Fish Market (Tim Rieniets, Melbourne Wholesale Fish Market, pers. comm.).

4.4 Contribution to the Community

In addition to the economic contribution made to the regional and state economies (Section 3.5), the Marine Scalefish Fishery also contributes to the social, environmental and heritage values of the various fishing regions around the state, through involvement in community-support activities and contribution to the provision, maintenance and expansion of local and regional services and businesses.

4.4.1 Community-support activities

The estimated time spent on community-support activities by licence holders (including licence holders' family members and employees) in 2006/07 is summarised for line and net licence holders in Tables 4.3 and 4.4, respectively.

On average, each line only licence holder (including family members and employees) spent approximately 7 hours per month on community-support activities. Approximately 1 hour per month was spent on attending fishing related meetings, seminars and workshops. Marine Scalefish Fishery line licence holders, as a whole, spent a minimum of 2,063 hours per month on community-support activities.

On average, each net licence holder (including family members and employees) spent over 2 days (18 hours) per month on community-support activities. Almost 4 hours per month were spent on attending fishing related meetings, seminars and workshops. Net licence holders, as a whole, spent a minimum of 862 hours per month on community-support activities.

Table 4.3 Estimated time per month spent on community-support activities by line entitlement only licence holders, 2006/07

Community Activity	Hours per month	
	Average Per Licence Holder	All Licence Holders ^a
Conservation activities (e.g. bird watch, water watch)	0.3	72
Marine rescue and recovery	0.1	25
Attending meetings, seminars, workshops	1.0	280
Compiling fishing-related information for research purposes	0.4	115
Provision of technical advice to committees, panels	0.0	7
Volunteering for community services (e.g. CFS, SES)	0.8	217
Other	4.7	1,349
Total^b	7.2	2,063

^a Calculation based on scaling up average hours per month per line licence holder for all 286 line licences.

^b Totals may not sum due to rounding.

Source: 2007 survey response.

Table 4.4 Estimated time per month spent on community-support activities by net licence holders, 2006/07 ^a

Community Activity	Hours per month	
	Average Per Licence Holder	All Licence Holders ^b
Sports group/ club	10.4	510
Civic group	0.5	26
Religious group	1.2	57
Cultural association	0.2	8
School committee	0.6	28
Neighbourhood watch	0.0	0
Hobby group	0.0	0
Emergency services	0.0	0
Environmental group	0.0	0
Attending fishing related meetings, seminars, workshops	3.8	185
Other	1.0	48
Total ^c	17.6	862

^a Different surveys for net and line licence holders resulted in different community activity categories.

^b Calculation based on scaling up average hours per month per line licence holder for all 49 net licences.

^c Totals may not sum due to rounding.

Source: 2007 survey response.

Assuming the value of time foregone is approximately \$20 per hour ¹¹, the average value of each line licence holder's time spent on community-support activities was approximately \$144 per month or \$1,728 for the full year (2006/07). For all the line licence holders, the aggregate value of time spent on community-support activities was almost \$41,300 per month or around \$495,000 for the full year. The average value of each net licence holder's time spent on community-support activities was around \$352 per month or \$4,224 per year (2006/07). For all the net licence holders, the aggregate value if time spent on community support-activities was around \$17,200 per month or almost \$207,000 for the full year.

In addition to the above mentioned community-support activities, licence holders indicated that there are a number of other ways that the Marine Scalefish Fishery contributes to social, environmental and heritage values of the local community including:

- assisting local sporting clubs (e.g. coaching, fundraising, social events);
- donating fish to community groups for fundraising;
- caring for the elderly (e.g. cooking, donating fish, Meals on Wheels);

¹¹ Valuation of time is a difficult concept. The key question is whether one should use the value of time in work to value time spent on leisure or other non-work related activities. The use of \$20 per hour is an approximation of the opportunity cost of time in work for the average person (i.e. an approximation of the average wage rate). The Australian Bureau of Statistics used 3 methods to value volunteers' time and produced a range of estimates from \$19.29/hr to \$22.51/hr in 2006 dollars (inflated from 1997 estimates (Ironmonger 2002, p. 3)).

- reporting illegal fishing activities to PIRSA, police and National Parks and Wildlife Service;
- assisting local schools (i.e. taking on work experience students, assisting with reading programs, donating fish for camps), etc.;
- assisting government agencies and university students undertaking research into the fishery;
- identifying aboriginal sites;
- office bearer/member of local associations (i.e. Town Hall, sporting clubs, Local Council, Parents and Friends Committee); and
- passing on valuable knowledge and information regarding the South Australian coastal environment and the fishing industry to local residents from outside the fishing community, tourists and recreational fishers.

4.4.2 Local and regional services/businesses

The operation of the Marine Scalefish Fishery (and the employment the fishery generates and the households it maintains) has either directly or indirectly contributed to the provision, maintenance and expansion of a number of local and regional services and businesses. A summary of the Marine Scalefish Fishery's contribution to various services and businesses is provided in Table 4.5.

Note that some of the fishery's contribution to the community is quantified in section 3.4, but the need for services (e.g. schools, police etc.) and the contributions to various organisations (e.g. hospitals) means the fishery contributes to the community in more ways than just generating income and the direct purchase of goods and services.

While it was difficult to quantify the contribution the fishery makes to local and regional services and businesses, an estimate was made of the number of children from fishing families and fishing families' employees that attended local schools.

Of those who participated in the survey there were 201 children (under the age of 18) who were members of fishing families and fishing families' employees in 2006/07. There were 121 children who belonged to licence holder families and 62 were children of employees. Of these 201 children, 175 of them attended local schools. Ninety-eight children assisted with fishing operations.

Table 4.5 Fishery contribution to local and regional services/businesses, 2006/07

Service/Business	Location	Fishery Contribution
Service stations	Adelaide, Port Augusta, Whyalla, Crystal Brook, Kingscote, Port Lincoln, Wallaroo, Port Hughes, Ceduna, Streaky Bay, Yorke Peninsula, Cowell, Elliston, Cape Jervis	Purchase fuel and service vehicles
Hotels, fish/seafood shops	Adelaide, Port Augusta, Whyalla, Port Wakefield, Wallaroo, Kingscote, Port Pirie, Port Lincoln, Cowell, Ceduna, Cape Jervis	Supply fish
Marine shops	Adelaide, Port Augusta, Whyalla, Port Hughes, Ceduna, Streaky Bay, Yorke Peninsula, Cowell, Elliston, Cape Jervis	Purchase ice, bait, tackle, nets, motors, service boats
Local clubs/sporting groups	Whyalla, Port Pirie, Ceduna	Supply and donate fish
Fish Factory processor	Adelaide	Supply fish
Fish buyers/processors	Adelaide, Port Pirie, Port Lincoln, Thevenard, Streaky Bay	Supply fish and employ people
Transport	Port Lincoln, Yorke Peninsula, Kingscote, Elliston	Transport fish to markets
Local food providers	Port Parham, Port Clinton, Port Lincoln, Kingscote, Cowell, Ceduna, Yorke Peninsula, Port Neill, Cape Jervis	Purchase food
Local community groups	Port Wakefield	Donations
Local charter companies	Cowell, Cleve, Whyalla, Port Lincoln	Supply bait
Star of the sea	Semaphore, Glenelg, Brighton	Donations
Other fishers	Port Hughes	Supply bait
Bait shops	Port Hughes	Supply bait
Tourism	Kangaroo Island	Provision and promotion of local product
Boat/vehicle dealers	Port Lincoln, Whyalla	Purchase boats and vehicles

Source: 2007 survey responses.

4.5 Other Indicators

In addition to financial information, a range of other information was collected from licence holders during the 2007 survey regarding their fishing operations.

4.5.1 Time in fishery

The number of years that line only licence holders in the Marine Scalefish Fishery had owned fishing licences ranged from 1 year to 55 years, with an average length of ownership by individual licence holders of 18 years. The number of years that net licence holders in the Marine Scalefish Fishery had owned fishing licences ranged from 7 years to 49 years, with an average length of ownership by individual licence holders of 25 years. For the fishery as a whole the average length of ownership was 21 years.

Several fishing families have had family members working in commercial fishing for a number of generations. The number of generations involved in commercial fishing ranged from 1 to 5, with an average number of almost 2.

4.5.2 Age of licence holders

The majority of line licence holders were aged between 41 and 55 years at the time of the survey, with the highest number of licence holders in the 41-45 year and 51-55 year age bracket (20 per cent in each) (Table 4.6).

The majority of net licence holders were aged between 31 and 55 years at the time of the survey with the highest number of licence holders in the 51-55 year age bracket (19 per cent) (Table 4.6).

Table 4.6 Age of marine scalefish licence holders from the survey sample, 2006/07

Age Bracket (Years)	Net Licence Holders		Line Licence Holders		All Respondents	
	Number of respondents	% of Total	Number of respondents	% of Total	Number of respondents	% of Total
Under 25	0	0%	0	0%	0	0%
26-30	1	3%	3	4%	4	3%
31-35	5	14%	2	3%	7	6%
36-40	6	16%	9	11%	15	13%
41-45	4	11%	16	20%	20	17%
46-50	5	14%	13	16%	18	15%
51-55	7	19%	16	20%	23	20%
56-60	2	5%	7	9%	9	8%
61-65	4	11%	5	6%	9	8%
Over 65	3	8%	9	11%	12	10%
Total	37	100%	80	100%	117	100%

Source: 2007 survey response.

In the younger age brackets (40 or less) there is a higher proportion of net fishers (33 per cent) than line fishers (18 per cent).

In the middle age brackets (41 to 55) there is a higher proportion of line fishers (56 per cent) than net fishers (44 per cent).

In the older age brackets (56 or more) there is a similar proportion of line and net fishers (26 and 24 per cent, respectively).

Across the whole Marine Scalefish Fishery 54 per cent of licence holders were 50 years or younger at the time of the survey. This indicates an average lower than that for South Australian owner/managers of broad acre and livestock properties, which was 53 years in 2004/05 (ABARE 2006).

4.5.3 Fishing location

Survey respondents fished in four locations: the West Coast (i.e. the west coast of Eyre Peninsula to the Western Australian boarder), Spencer Gulf, Gulf St Vincent and Victor Harbor/South East. Some licence holders (approximately 30 per cent) indicated that they fished in more than one of these locations during the 2006/07 season. This included 37 per cent of net licence holders and 26 per cent of line entitlement only licence holders fishing in more than one fishing location.

In 2006/07, the Spencer Gulf was the most popular location fished. Sixty-four per cent of survey respondents (26 net licence holders and 49 line only licence holders, 75 in total) indicated that they fished in the Spencer Gulf, 46 per cent (24 net licence holders and 30 line only licence holders, 54 in total) fished in the Gulf St Vincent and 23 per cent fished on the West Coast (5 net licence holders and 22 line only licence holders, 27 in total).

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Appendix 1 Economic Impact of the SA Marine Scalefish Fishery, 2006/07¹²

Appendix Table 1.1 Economic impact of the SA Marine Scalefish Fishery, 2006/07

	West Coast	Spencer Gulf / Coffin Bay	Gulf St Vincent / Kangaroo Island	South Australia
Output (\$m)				
Direct				
Fishing	2.8	11.0	5.9	19.8
Downstream ^c	0.3	2.4	1.3	9.5
All other sectors (indirect)	2.0	10.0	5.4	43.4
Total	5.1	23.4	12.5	72.8
Total/Direct	1.7	1.9	1.9	2.5
Total/Tonne (\$)	\$16,900	\$13,200	\$13,900	\$24,400
Contribution to GSP (\$m) ^d				
Direct				
Fishing	1.5	1.7	0.5	6.1
Downstream	0.1	1.0	0.5	3.5
All other sectors (indirect)	1.0	4.8	2.5	20.4
Total	2.7	7.5	3.5	30.0
Total/Direct	1.7	3.4	5.1	3.1
Total/Tonne (\$)	\$9,000	\$4,200	\$3,900	\$10,066
Employment (fte jobs) ^e				
Direct				
Fishing	40.1	294.4	292.6	540.2
Downstream	2.3	19.2	12.2	72.9
All other sectors (indirect)	13.6	66.1	37.0	235.1
Total	56.0	379.8	341.9	848.2
Total/Direct	1.4	1.3	1.2	1.4
Total/Tonne	\$0	\$0	\$0	\$0
Household Income (\$m)				
Direct				
Fishing	1.5	1.7	0.5	6.1
Downstream	0.1	0.7	0.4	2.5
All other sectors (indirect)	0.5	2.7	1.4	11.4
Total	2.1	5.1	2.2	20.1
Total/Direct	1.4	2.5	3.6	2.3
Total/Tonne (\$)	\$7,000	\$2,900	\$2,500	\$6,700

Source: EconSearch (2008a)

¹² Estimates of economic impact for the period 1997/98 to 2005/06 are detailed in EconSearch (2007).

Appendix 2 Summary Economic Indicators for South Australian Commercial Fisheries

Appendix Table 2.1 Commercial fisheries catch, South Australia, 1990/91 – 2006/07 (tonnes)

Year	Abalone	GSV Prawns	SG & WC Prawns	Sth'n Zone Rock Lobster	Nth'n Zone Rock Lobster	Blue Swimmer Crabs	Lakes and Coorong ^a	Sardines	Other Marine Species	Total SA Fisheries ^b
1990/91	863	134	1,951	1,562	1,104	434	2,442	n.a.	7,108	15,598
1991/92	885	0	2,155	1,940	1,222	425	3,143	145	7,750	17,665
1992/93	869	0	1,645	1,754	1,064	511	2,640	1,230	7,499	17,212
1993/94	802	226	1,693	1,669	930	544	2,992	2,377	6,719	17,952
1994/95	851	148	1,911	1,720	891	608	2,884	2,803	9,744	21,560
1995/96	902	258	2,013	1,684	903	655	2,720	3,708	6,301	19,144
1996/97	903	211	1,813	1,635	893	464	2,657	3,428	6,507	18,511
1997/98	812	267	2,492	1,680	942	469	2,595	6,041	5,526	20,824
1998/99	933	336	2,425	1,713	1,016	501	2,355	4,465	4,964	18,708
1999/00	889	400	2,016	1,717	1,001	549	1,995	3,836	4,840	17,243
2000/01	867	384	2,603	1,716	846	556	2,293	7,368	5,132	21,765
2001/02	850	322	2,288	1,717	675	559	1,875	12,165	4,644	25,095
2002/03	890	232	1,508	1,766	595	583	2,030	21,741	4,048	33,393
2003/04	879	172	1,958	1,896	504	611	2,120	33,160	3,712	45,012
2004/05	902	213	1,960	1,897	446	632	2,198	56,952	3,810	69,010
2005/06	896	179	1,891	1,889	476	648	2,352	28,626	3,186	40,143
2006/07	883	209	2,024	1,894	492	637	2,443	30,355	2,978	41,915

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

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

Source: EconSearch (2008b).

Appendix Table 2.2 Commercial fisheries gross value of production, South Australia, 1990/91 – 2006/07 (\$m)

Year	Abalone	GSV Prawns	SG & WC Prawns	Sth'n Zone Rock Lobster	Nth'n Zone Rock Lobster	Blue Swimmer Crabs ^a	Inland Waters ^b	Sardines	Other Marine Species	Total SA Fisheries ^c
1990/91	14.0	1.7	20.0	26.7	18.2	1.6	2.3	na	17.8	102.4
1991/92	15.1	0.0	19.7	36.3	21.4	1.4	2.6	0.2	21.3	117.9
1992/93	23.7	0.0	19.7	34.8	20.5	1.6	5.3	0.8	20.3	126.7
1993/94	27.2	3.3	20.9	43.2	23.4	1.8	5.6	1.4	19.2	146.0
1994/95	22.8	1.9	22.6	48.6	25.5	2.2	6.3	1.6	24.5	156.1
1995/96	22.5	3.5	22.9	44.6	23.8	2.5	6.0	2.5	21.8	150.1
1996/97	25.2	2.9	22.2	47.0	24.4	2.1	6.3	2.2	20.6	152.9
1997/98	26.9	4.1	29.2	50.9	27.7	2.2	5.5	3.8	16.7	166.9
1998/99	27.2	5.0	34.6	47.2	26.7	2.2	6.3	2.5	18.0	169.7
1999/00	32.4	7.6	36.1	51.2	29.8	2.5	7.5	2.7	19.2	189.1
2000/01	40.0	6.7	46.0	55.1	28.0	3.1	7.8	5.2	20.2	212.0
2001/02	34.8	5.9	41.5	65.7	26.2	3.5	6.0	8.5	18.5	210.5
2002/03	36.3	4.2	28.2	63.8	18.8	3.6	5.1	17.8	20.4	198.3
2003/04	31.6	3.1	40.4	49.3	12.0	3.6	5.4	22.5	21.9	189.9
2004/05	33.8	3.8	32.0	54.4	11.6	3.6	5.5	28.5	20.9	194.1
2005/06	33.9	2.9	34.0	65.7	15.4	5.2	5.9	16.0	17.4	196.6
2006/07	31.5	3.3	39.4	78.8	18.0	5.6	7.1	18.5	19.8	222.1

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

^b Excludes south east non-trawl, tuna, deep water trawl. SARDI estimates for the years 1990/91 to 2002/03, revalued SARDI estimates for 2003/04 using weighted average prices from Sydney and Melbourne fish markets and price data obtained from fishers.

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

Source: EconSearch (2008b).

Appendix Table 2.3 Cost of management in South Australian commercial fisheries, 2006/07

	Licence Fees (\$'000)	GVP (\$'000)	Fees/ GVP (%)	Catch ('000kg)	Fees/ Catch (\$/kg)	Licence Holders (no.)	Fees/ Licence (\$/licence)
Abalone	2,392	31,529	7.6%	883	\$2.71	35	\$68,339
GSV Prawns	257	3,270	7.9%	209	\$1.23	10	\$25,715
SG & WC Prawns	914	39,386	2.3%	2,024	\$0.45	42	\$21,761
Sth'n Zone Rock Lobster	2,976	78,791	3.8%	1,894	\$1.57	181	\$16,442
Nth'n Zone Rock Lobster	1,164	17,954	6.5%	492	\$2.37	68	\$17,112
Blue Crabs - Pots	267	5,328	5.0%	595	\$0.45	8	\$33,325
Blue Crabs – Marine Scale	25	301	8.2%	42	\$0.59	6	\$4,125
Lakes and Coorong ^a	299	7,143	4.2%	2,443	\$0.12	37	\$8,094
Marine Scalefish	1,460	19,847	7.4%	2,978	\$0.49	349	\$4,184
Sardines	804	18,517	4.3%	30,355	\$0.03	14	\$57,410
Total SA	10,557	222,066	4.8%	41,915	\$0.25	750	\$14,077

^a Excludes the River fishery.

Source: EconSearch (2008b).

Appendix Table 2.4 Financial performance in South Australian commercial fisheries, 2006/07, (\$'000) (average per boat)

	Abalone	GSV Prawns	SG & WC Prawns	Sth'n Zone Rock Lob	Nth'n Zone Rock Lob	Blue Crabs ^a	Marine Scalefish ^b	Sardines	Lakes and Coorong
(1) Total Boat Gross Income	946.9	321.8	870.3	452.6	347.8	5,628.8	95.1	1,315.9	216.3
Variable Costs									
Fuel	15.8	24.8	57.9	23.9	44.9	600.7	11.2	199.5	14.8
Repairs & Maintenance	38.7	14.0	48.5	21.4	16.9	533.3	8.7	98.8	6.8
Bait/Ice	0.3	0.0	0.0	10.9	14.8	66.9	2.3	2.3	1.4
Provisions	9.5	0.8	3.5	0.4	4.4	11.1	0.0	8.1	0.2
Labour - paid	263.6	96.9	296.0	91.7	107.0	1,280.3	12.2	527.3	33.2
(2) - unpaid	4.3	8.0	7.7	32.4	32.2	211.6	25.1	3.3	41.8
Other	10.7	9.6	21.8	0.7	5.3	18.5	0.0	33.5	16.2
(3) Total Variable Costs	342.9	154.2	435.4	181.5	225.5	2,722.5	59.3	872.8	114.5
Fixed Costs									
Licence Fee	67.4	26.9	24.9	18.7	21.3	291.4	5.0	56.4	9.8
Insurance	7.0	19.3	20.3	6.5	8.9	75.4	1.9	30.6	1.6
(4) Interest	5.3	31.1	44.8	23.6	34.2	650.1	4.5	84.9	5.3
(5) Labour - unpaid	18.9	18.3	8.9	7.6	14.1	44.4	4.7	10.2	7.0
(6) Leasing	0.0	0.0	0.0	1.9	12.5	0.0	0.0	23.4	0.0
Legal & Accounting	15.0	7.7	8.0	2.6	2.9	43.8	1.2	7.8	2.0
Telephone etc.	3.7	1.6	6.0	1.7	2.6	22.1	1.3	1.7	2.2
Slipping & Mooring	0.8	4.8	6.4	1.7	2.5	32.2	0.8	17.0	0.1
Travel	4.4	0.2	2.8	0.8	1.1	28.0	0.5	0.8	1.0
Office & Admin	9.2	0.5	7.5	2.7	3.8	86.5	4.8	6.3	4.9
(7) Total Fixed Costs	131.7	110.5	129.7	67.8	103.9	1,273.9	24.9	239.2	33.8
(8) Total Boat Cash Costs (3 + 7)	474.6	264.6	565.2	249.3	329.4	3,996.4	84.2	1,112.0	148.3
Boat Gross Margin (1 - 3)	603.9	167.7	434.9	271.1	122.3	2,906.3	35.7	443.1	101.8
(9) Total Unpaid Labour (2 + 5)	23.2	26.3	16.6	40.0	46.3	256.1	29.8	13.6	48.8
Gross Operating Surplus	495.4	83.5	321.8	243.4	64.7	1,888.5	40.7	217.5	116.9
(10) Boat Cash Income (1 - 8)	472.2	57.2	305.2	203.3	18.4	1,632.4	10.9	203.9	68.0
(11) Depreciation	66.3	129.8	142.2	47.9	63.0	349.3	18.3	211.7	22.0
(12) Boat Business Profit (10 - 11)	405.9	-72.6	163.0	155.4	-44.6	1,283.1	-7.4	-7.8	46.1
(13) Profit at Full Equity (12 + 4 + 6)	411.3	-41.6	207.8	180.9	2.1	1,933.1	-2.9	100.5	51.3
Boat Capital									
(14) Fishing Gear & Equip	332.7	960.9	1,289.6	351.5	490.4	3,468.5	130.1	2,763.6	148.1
Licence Value	7,947.3	2,695.3	4,966.9	3,079.3	1,577.5	28,798.6	184.2	3,318.7	214.0
(15) Total Boat Capital	8,280.0	3,656.2	6,256.5	3,430.8	2,067.9	32,267.1	314.3	6,082.3	362.1
Rate of Return on Fishing Gear & Equip (13 / 14 * 100)	123.6%	-4.3%	16.1%	51.5%	0.4%	55.7%	-2.2%	3.6%	34.7%
Rate of Return on Total Boat Capital (13 / 15 * 100)	5.0%	-1.1%	3.3%	5.3%	0.1%	6.0%	-0.9%	1.7%	14.2%

^a Financial performance for blue crab are on a whole fishery basis.

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

Source: EconSearch (2008b).

Appendix Table 2.5 Costs as a percentage of total cash costs in South Australian commercial fisheries, 2006/07

	Abalone	GSV Prawns	SG & WC Prawns	Sth'n Zone Rock Lob	Nth'n Zone Rock Lob	Blue Crabs	Marine Scalefish ^a	Sardines	Lakes and Coorong
Variable Costs									
Fuel	3%	9%	10%	10%	14%	15%	13%	18%	10%
Repairs & Maintenance	8%	5%	9%	9%	5%	13%	10%	9%	5%
Bait/Ice	0%	0%	0%	4%	5%	2%	3%	0%	1%
Provisions	2%	0%	1%	0%	1%	0%	0%	1%	0%
Labour - paid	56%	37%	52%	37%	32%	32%	14%	47%	22%
- unpaid	1%	3%	1%	13%	10%	5%	30%	0%	28%
Other	2%	4%	4%	0%	2%	0%	0%	3%	11%
Fixed Costs									
Licence Fee	14%	10%	4%	7%	6%	7%	6%	5%	7%
Insurance	1%	7%	4%	3%	3%	2%	2%	3%	1%
Interest	1%	12%	8%	9%	10%	16%	5%	8%	4%
Labour - unpaid	4%	7%	2%	3%	4%	1%	6%	1%	5%
Leasing	0%	0%	0%	1%	4%	0%	0%	2%	0%
Legal & Accounting	3%	3%	1%	1%	1%	1%	1%	1%	1%
Telephone etc.	1%	1%	1%	1%	1%	1%	2%	0%	2%
Slipping & Mooring	0%	2%	1%	1%	1%	1%	1%	2%	0%
Travel	1%	0%	0%	0%	0%	1%	1%	0%	1%
Office & Admin	2%	0%	1%	1%	1%	2%	6%	1%	3%
Total Variable Costs	72%	58%	77%	73%	68%	68%	70%	78%	77%
Total Fixed Costs	28%	42%	23%	27%	32%	32%	30%	22%	23%
Total Cash Costs	100%	100%	100%	100%	100%	100%	100%	100%	100%

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

Source: EconSearch (2008b).

Appendix Table 2.6 Economic impacts of South Australian commercial fisheries, 2006/07

	Abalone	GSV Prawns	SG & WC Prawns	Sth'n Zone Rock Lob	Nth'n Zone Rock Lob	Blue Crabs	Marine Scalefish	Sardines	Lakes and Coorong	All Fisheries ^a
Output (\$m)										
Direct										
Fishing	31.5	3.3	39.4	78.8	18.0	5.6	19.8	18.5	7.3	222.3
Downstream ^b	5.1	2.0	17.5	24.6	6.8	3.1	9.5	3.3	5.9	77.7
All other sectors (indirect)	29.8	6.0	52.4	88.3	18.0	8.9	43.4	24.6	14.8	286.2
Total	66.4	11.3	109.3	191.6	42.7	17.6	72.8	46.4	28.1	586.2
Total/Direct	1.8	2.1	1.9	1.9	2.4	2.0	2.5	2.1	2.1	2.0
Total/Tonne (\$)	\$75,100	\$54,100	\$54,000	\$101,100	\$119,200	\$27,600	\$24,400	\$1,500	\$11,700	\$13,023
Contribution to GSP (\$m)										
Direct										
Fishing	25.2	2.1	30.3	61.1	7.8	3.7	6.1	11.4	5.0	152.6
Downstream	1.8	0.8	7.2	9.7	2.7	1.1	3.5	1.5	2.3	30.6
All other sectors (indirect)	14.5	2.9	25.2	42.6	16.3	4.2	20.4	11.7	7.1	145.0
Total	41.5	5.9	62.8	113.4	26.9	8.9	30.0	24.5	14.5	328.3
Total/Direct	1.5	2.0	1.7	1.6	2.5	1.9	3.1	1.9	2.0	1.8
Total/Tonne (\$)	\$46,900	\$28,200	\$31,000	\$59,800	\$54,500	\$13,900	\$10,066	\$807	\$6,096	\$7,293
Employment (fte jobs) ^c										
Direct										
Fishing	123	37	217	424	185	29	540	63	74	1,692
Downstream	23	20	167	140	41	17	73	20	46	547
All other sectors (indirect)	163	33	289	479	186	48	235	134	82	1,647
Total	308	89	673	1,043	412	93	848	217	201	3,885
Total/Direct	2.1	1.6	1.8	1.8	1.8	2.0	1.4	2.6	1.7	1.7
Total/Tonne	0.35	0.43	0.33	0.55	0.84	0.15	0.28	0.01	0.08	0.09
Household Income (\$m)										
Direct										
Fishing	9.1	1.2	12.3	22.7	6.7	1.5	6.1	6.7	3.2	69.5
Downstream	1.2	0.6	5.2	6.7	1.9	0.7	2.5	1.0	1.7	21.5
All other sectors (indirect)	8.0	1.6	14.0	23.2	9.0	2.3	11.4	6.4	4.0	80.1
Total	18.4	3.4	31.4	52.6	17.6	4.5	20.1	14.1	8.9	171.1
Total/Direct	1.8	1.9	1.8	1.8	2.0	2.1	2.3	1.8	1.8	1.9
Total/Tonne (\$)	\$20,700	\$16,500	\$15,500	\$27,700	\$35,800	\$7,100	\$6,700	\$400	\$3,700	\$3,801

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

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

^c Full time equivalent jobs. Direct employment in the fishing sector was comprised of 642 full-time and 1,375 part-time, that is, 2,017 jobs in total.

Source: EconSearch (2008b).

Appendix Table 2.7 Economic rent in South Australian commercial fisheries,
2006/07 (\$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	33.1	3.3	39.4	78.8	18.0	5.6	19.8	18.5	7.1	223.7
Less Labour	8.5	1.2	13.2	21.8	7.7	1.4	8.8	7.6	2.8	73.0
Less Materials & Services	6.4	1.1	9.5	16.2	7.3	1.8	9.1	6.5	2.0	60.0
Less Depreciation	2.3	1.3	6.4	8.0	3.1	0.3	3.8	3.0	0.7	29.1
Less Opportunity Cost of Capital (@10%)	1.2	1.0	5.8	5.9	2.4	0.3	2.7	3.9	0.5	23.7
Economic Rent	14.8	-1.4	4.5	26.9	-2.6	1.7	-4.5	-2.5	1.1	37.9

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

Source: EconSearch (2008b).

Appendix 3 Financial Performance, 1997/98 to 2004/05

Appendix Table 3.1 Financial performance in the Marine Scalefish Fishery, 1997/98 to 1999/00 (average per boat) ^a

	1997/98		1998/99		1999/00	
	Average per Licence	Share of TBCC	Average per Licence	Share of TBCC	Average per Licence	Share of TBCC
(1) Total Boat Gross Income	\$35,658		\$40,656		\$45,498	
Variable Costs						
Fuel	\$4,847	12%	\$4,307	10%	\$6,535	13%
Repairs & Maintenance ^b	\$6,443	15%	\$6,161	14%	\$6,390	13%
Bait/Ice	\$698	2%	\$659	2%	\$667	1%
Provisions	\$706	2%	\$676	2%	\$701	1%
Labour - paid	\$2,103	5%	\$2,471	6%	\$2,843	6%
(2) - unpaid ^c	\$14,630	35%	\$17,189	40%	\$19,783	40%
Other	\$2,109	5%	\$2,136	5%	\$2,190	4%
(3) Total Variable Costs	\$31,536	76%	\$33,599	77%	\$39,109	79%
Fixed Costs						
Licence Fee	\$3,418	8%	\$3,169	7%	\$3,188	6%
Insurance	\$806	2%	\$806	2%	\$826	2%
(4) Interest	\$1,701	4%	\$1,570	4%	\$1,738	4%
(5) Labour - unpaid ^c	\$1,493	4%	\$1,539	4%	\$1,583	3%
Legal & Accounting	\$423	1%	\$429	1%	\$440	1%
Telephone etc.	\$557	1%	\$564	1%	\$578	1%
Slipping & Mooring	\$338	1%	\$343	1%	\$351	1%
Travel	\$181	0%	\$183	0%	\$188	0%
Office & Admin	\$1,231	3%	\$1,247	3%	\$1,279	3%
(6) Total Fixed Costs	\$10,148	24%	\$9,849	23%	\$10,170	21%
(7) Total Boat Cash Costs (3 + 6)	\$41,684	100%	\$43,449	100%	\$49,280	100%
Boat Gross Margin (1 - 3)	\$4,122		\$7,057		\$6,389	
(8) Total Unpaid Labour (2 + 5)	\$16,123		\$18,728		\$21,366	
Gross Operating Surplus (1 - 7 + 8)	\$10,098		\$15,936		\$17,585	
(9) Boat Cash Income (1 - 7)	-\$6,026		-\$2,792		-\$3,781	
(10) Depreciation	\$8,045		\$8,151		\$8,356	
(11) Boat Business Profit (9 - 10)	-\$14,071		-\$10,944		-\$12,138	
(12) Profit at Full Equity (11 + 4)	-\$12,371		-\$9,374		-\$10,399	
Boat Capital						
(13) Fishing Gear & Equip	\$64,364		\$65,211		\$66,852	
Licence Value	\$34,578		\$37,101		\$40,354	
(14) Total Boat Capital	\$98,942		\$102,312		\$107,205	
Rate of Return on Fishing Gear & Equip (12 / 13 * 100)	-19.2%		-14.4%		-15.6%	
Rate of Return on Total Boat Capital (12 / 14 * 100)	-12.5%		-9.2%		-9.7%	

^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 3.2 Financial performance in the Marine Scalefish Fishery, 2000/01 to 2002/03 (average per boat) ^a

	2000/01		2001/02		2002/03	
	Average per Licence	Share of TBCC ^a	Average per Licence	Share of TBCC ^a	Average per Licence	Share of TBCC ^a
(1) Total Boat Gross Income	\$48,915		\$46,504		\$53,827	
Variable Costs						
Fuel	\$5,818	13%	\$5,690	14%	\$6,048	13%
Repairs & Maintenance ^b	\$4,355	10%	\$4,448	11%	\$4,783	10%
Bait/Ice	\$1,666	4%	\$1,666	4%	\$1,870	4%
Provisions	\$1,166	3%	\$1,190	3%	\$1,280	3%
Labour - paid	\$6,728	15%	\$3,400	8%	\$7,403	15%
(2) - unpaid ^c	\$14,408	32%	\$13,840	33%	\$15,855	33%
Other	\$787	2%	\$808	2%	\$841	2%
(3) Total Variable Costs	\$34,927	78%	\$31,042	74%	\$38,081	79%
Fixed Costs						
Licence Fee	\$3,596	8%	\$3,644	9%	\$3,310	7%
Insurance	\$1,774	4%	\$1,823	4%	\$1,896	4%
(4) Interest	\$269	1%	\$253	1%	\$250	1%
(5) Labour - unpaid ^c	\$1,056	2%	\$1,757	4%	\$1,056	2%
Legal & Accounting	\$550	1%	\$565	1%	\$588	1%
Telephone etc.	\$622	1%	\$639	2%	\$665	1%
Slipping & Mooring	\$311	1%	\$320	1%	\$333	1%
Travel	\$155	0%	\$159	0%	\$166	0%
Office & Admin	\$1,576	4%	\$1,619	4%	\$1,684	4%
(6) Total Fixed Costs	\$9,910	22%	\$10,780	26%	\$9,948	21%
(7) Total Boat Cash Costs (3 + 6)	\$44,837	100%	\$41,823	100%	\$48,030	100%
Boat Gross Margin (1 - 3)	\$13,988		\$15,462		\$15,746	
(8) Total Unpaid Labour (2 + 5)	\$15,465		\$15,597		\$16,912	
Gross Operating Surplus (1 - 7 + 8)	\$19,542		\$20,278		\$22,709	
(9) Boat Cash Income (1 - 7)	\$4,077		\$4,682		\$5,797	
(10) Depreciation	\$7,704		\$7,917		\$8,235	
(11) Boat Business Profit (9 - 10)	-\$3,626		-\$3,236		-\$2,437	
(12) Profit at Full Equity (11 + 4)	-\$3,357		-\$2,983		-\$2,188	
Boat Capital						
(13) Fishing Gear & Equip	\$61,630		\$63,338		\$65,877	
Licence Value	\$84,223		\$80,072		\$92,681	
(14) Total Boat Capital	\$145,853		\$143,410		\$158,558	
Rate of Return on Fishing Gear & Equip (12 / 13 * 100)	-5.4%		-4.7%		-3.3%	
Rate of Return on Total Boat Capital (12 / 14 * 100)	-2.3%		-2.1%		-1.4%	

^a Financial performance estimates for 2000/01 to 2002/03 are based on the May 2002 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 3.3 Financial performance in the Marine Scalefish Fishery, 2003/04 to 2004/05 (average per boat) ^a

	2003/04		2004/05	
	Average per Licence	Share of TBCC ^a	Average per Licence	Share of TBCC ^a
(1) Total Boat Gross Income	\$57,280		\$54,984	
Variable Costs				
Fuel	\$6,135	11%	\$6,433	11%
Repairs & Maintenance ^b	\$5,822	10%	\$5,949	10%
Bait/Ice	\$1,241	2%	\$2,256	4%
Provisions	-	-	-	-
Labour - paid	\$7,128	12%	\$7,081	12%
(2) - unpaid ^c	\$19,722	34%	\$19,594	33%
(3) Total Variable Costs	\$40,048	70%	\$41,313	70%
Fixed Costs				
Licence Fee	\$4,092	7%	\$4,332	7%
Insurance	\$1,781	3%	\$1,823	3%
(4) Interest	\$256	0%	\$263	0%
(5) Labour - unpaid ^c	\$3,732	6%	\$3,863	7%
Legal & Accounting	\$1,147	2%	\$1,174	2%
Telephone etc.	\$1,031	2%	\$1,055	2%
Slipping & Mooring	\$79	0%	\$81	0%
Travel	\$2,406	4%	\$2,461	4%
Office & Admin	\$2,947	5%	\$3,016	5%
(6) Total Fixed Costs	\$17,472	30%	\$18,066	30%
(7) Total Boat Cash Costs (3 + 6)	\$57,520	100%	\$59,380	100%
Boat Gross Margin (1 - 3)	\$17,232		\$13,671	
(8) Total Unpaid Labour (2 + 5)	\$23,455		\$23,457	
Gross Operating Surplus (1 - 7 + 8)	\$23,216		\$19,061	
(9) Boat Cash Income (1 - 7)	-\$239		-\$4,396	
(10) Depreciation	\$8,652		\$8,852	
(11) Boat Business Profit (9 - 10)	-\$8,891		-\$13,248	
(12) Profit at Full Equity (11 + 4)	-\$8,635		-\$12,985	
Boat Capital				
(13) Fishing Gear & Equip	\$86,235		\$88,229	
Licence Value	\$98,627		\$93,957	
(14) Total Boat Capital	\$184,862		\$182,186	
Rate of Return on Fishing Gear & Equip (12 / 13 * 100)	-10.0%		-14.7%	
Rate of Return on Total Boat Capital (12 / 14 * 100)	-4.7%		-7.1%	

^a Financial performance estimates for 2003/04 to 2004/05 are based on the 2004 Bureau of Rural Sciences 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.