

Economic Indicators
for the SA
Marine Scalefish Fishery
2005/06

A report prepared for
Primary Industries and Resources South Australia

Prepared by



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Acknowledgments

Estimation of economic indicators for the SA Marine Scalefish Fishery for 2003/04 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, 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 SA Marine Scalefish Fishery Management Committee 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
FMC	Fishery Management Committee
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 Marine Scalefish Fishery for 2005/06 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 2005/06 was 3,186 tonnes, down 16 per cent from the previous year.
- The gross value of production of the Marine Scalefish Fishery in 2005/06 was just over \$17.4 million, a 16 per cent decrease from the previous year.
- The average price per kilogram of marine scalefish species did not change between 2004/05 and 2005/06 remaining at \$5.48 per kilogram.

The cost of management of the fishery

- Average fees paid per licence holder increased by just over \$300 per licence holder between 2004/05 and 2005/06.
- Average fees increased by \$156 per licence holder to \$4,184 per licence holder in 2006/07.

Financial performance indicators

- Based on the results of a survey of licence holders conducted in 2004 by BRS, it was estimated that the average gross income per surveyed boat in the Marine Scalefish Fishery in 2005/06 was \$47,143 a decrease of 14.3 per cent from the previous year.
- It was estimated that average total cash costs per boat decreased by 3.0 per cent between 2004/05 and 2005/06.
- For the Marine Scalefish Fishery as a whole, the average rate of return to total capital was -8.1 per cent in 2005/06 (-7.2 per cent in 2004/05). For fishers with net and line entitlements the rate of return to total capital was 2.6 per cent and for line only fishers it was -9.0 per cent.

Economic impact of the fishery

- Total Marine Scalefish Fishery related contribution to GSP in the South Australian economy was approximately \$28.5 million in 2005/06; \$6.7 million generated by the Marine Scalefish Fishery directly, \$3.4 million generated by downstream activities and another \$18.6 million generated in other sectors of the economy.
- Total direct employment in the fishery in 2005/06 was estimated to be 354 fte and downstream activities created employment of 74 fte state-wide. Flow-on business activity was estimated to generate a further 217 fte jobs in the state to give total employment of 645 fte jobs state-wide in 2005/06.

Economic rent

- It was estimated that there was no economic rent generated in the South Australian Marine Scalefish Fishery in 2005/06, with a calculated value of -\$10.3 million (-\$8.6 million in 2004/05).

1. Introduction

All the major fisheries in South Australia (SA) operate in accordance with fishery management plans that determine the primary management objectives of the fishery. Economic performance indicators are a feature of these plans and annual reports on them are required for the Minister for Agriculture, Food and Fisheries to meet the obligations of section 20 of the *Fisheries Act 1982*.

This report is the ninth annual economic indicators report for the 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 outlined the fishery's recent 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 the fishery (EconSearch 2003 and 2004). The seventh and eighth reports outlined the fishery's economic performance in 2003/04 and 2004/05 based on the 2004 Bureau of Rural Sciences survey of licence holders (EconSearch 2006a).

The objective of this report, *Economic Indicators for the SA Marine Scalefish Fishery 2005/06*, was to provide an update of the economic indicators derived from the 2004 Bureau of Rural Sciences (BRS) 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:

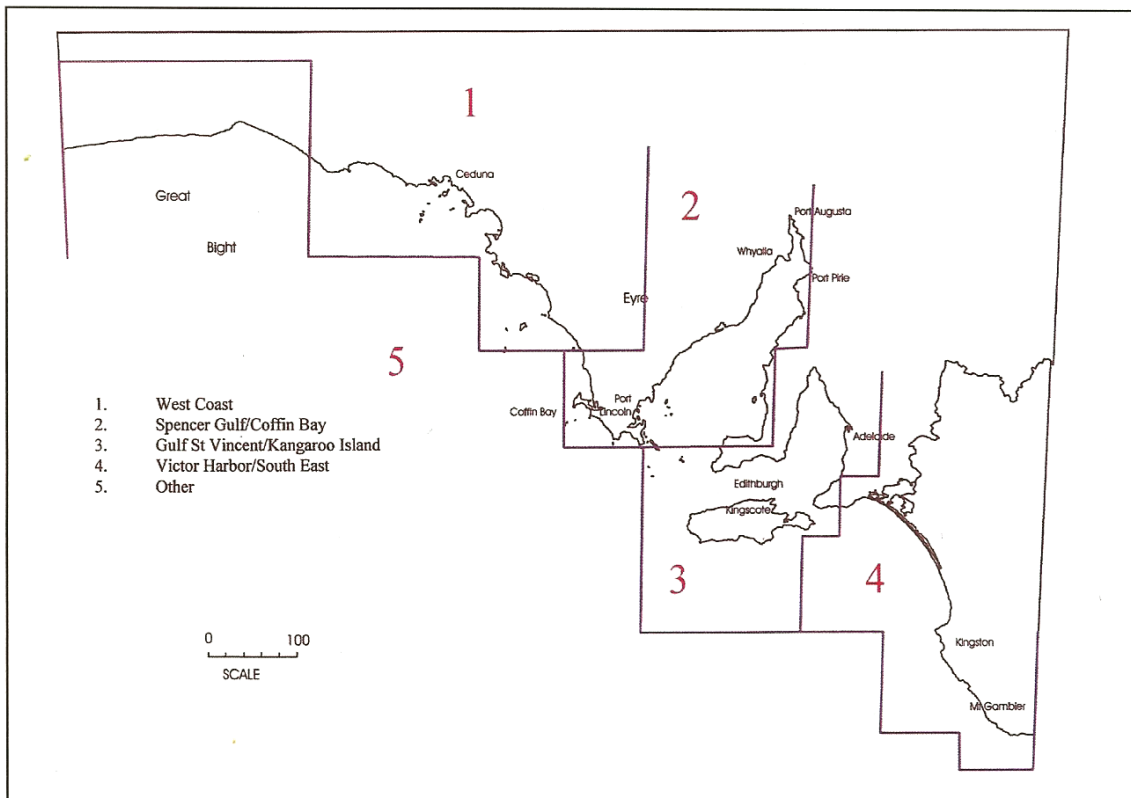
- gross value of production (catch and price);
- the cost of management of the fishery;
- a summary of factors that affect costs in the fishery;
- financial performance indicators (income, costs, profit and return on investment);
- the economic impact of the fishery;
- economic rent;
- external factors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

The report also includes a brief discussion of social issues in the fishery based on BRS' social assessment of the fishery completed in 2005.

For purposes of comparison, summary economic indicators for all South Australian commercial fisheries, up to 2004/05, 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, 2005/06



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, 2003/04

Financial performance indicators for the fishery in 2003/04 were based on the results of a survey conducted by the Bureau of Rural Sciences (BRS) in October and November 2004. The survey was part of a broader study into the social well-being of people working in the South Australian Marine Scalefish Fishery.¹ Data for the study was gathered via a questionnaire that was distributed to all licence holders in the fishery via mail and through a series of workshops held in various locations across South Australia. Completed questionnaires were received from 59 per cent of licence holders in the fishery.

2.2 Updating the Results, 2005/06

The 2005/06 economic indicators for the South Australian Marine Scalefish Fishery were derived using a range of primary and secondary data and survey-based 2003/04 indicators. The following information was used to adjust the 2004/05 indicators to reflect the fishery's performance in 2005/06:

- SARDI data were used to reflect changes in catch size and its value between 2004/05 and 2005/06. Catch and value data were used to determine the gross income in the fishery.
- Information on the change in fishing effort² (number of days fished) between 2004/05 and 2005/06 was used to adjust the costs of inputs that were assumed to vary with fishing effort. These inputs included labour, fuel, repairs and maintenance (R&M), bait and provisions.
- Price information from input suppliers was used to adjust prices that had changed, for example fuel.
- The consumer price index (CPI) for Adelaide was used to adjust the cost of inputs to reflect local levels of inflation.
- Estimates of licence values were adjusted to reflect the change in average gross income per licence holder between 2004/05 and 2005/06.

2.3 Definition of Terms³

Gross value of production (GVP) is the total year's catch for the whole fishery valued at the landed beach price.

Gross income (Total boat cash receipts) is the income received by the individual licence holder from the sale of fish prior to any deductions for freight and selling charges.

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 Fishing effort data from SARDI Aquatic Sciences were adjusted to reflect the change in the number of licence holders in the fishery.

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

Cash costs (Total boat variable and fixed costs) include the payments for hired labour and materials and services (including payments on capital items subject to leasing, rent, interest, licence fees and repairs and maintenance). If family or other labour were unpaid, an estimate of the cost of labour was made based on the time spent on fishing business related activity.

Cash operating surplus (Boat cash income) is the difference between gross income and total cash costs. It has been calculated both with and without the imputed value of unpaid labour included in cash costs.

Depreciation is a non-cash cost representing the wear and tear on capital items during the year. Participants in the 2004 survey were asked for information on the age and current value. This was to be used to determine the depreciation rate of fishing equipment⁴.

Earnings before tax is defined as cash operating surplus less depreciation.

Earnings before interest and tax (Boat business profit) is defined as cash operating surplus less depreciation plus interest.

Capital is defined as the value placed on assets employed by the fishing business. It includes the total gross value of the boat, including the value of the hull, engine and other on-board and shore based plant, equipment and structures. Estimates are also reported for the value of licences although these data were not collected as part of the BRS survey.

Rate of return to fishing gear and equipment is calculated by expressing earnings before interest and tax as a percentage of the capital value of fishing gear and equipment. The rate of return to fishing gear and equipment provides an indication of the impact of management changes on the fishery.

Rate of return to total capital is calculated by expressing earnings before interest and tax as a percentage of total capital. This gives a measure of the economic performance of the fishery for those interested in investing in a boat and licence.

⁴ An allowance for depreciation of a capital item was estimated using the formula $(R-C)/A$ where R = replacement cost of the item, C = current value of the item and A = age of the item in years

3. Economic Indicators for the SA Marine Scalefish Fishery

3.1 Gross Value of Production

The principal information used to estimate the gross value of production for the South Australian 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 1998/99, 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 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 sardine fishers⁵.

The total catch of marine scalefish species in 2005/06 was 3,186 tonnes. This represents a 16 per cent decrease compared with the catch in the previous year⁶. The gross value of production of the Marine Scalefish Fishery in 2005/06 was approximately \$17.4 million, a 16 per cent decrease from 2004/05. The average price per kilogram of marine scalefish species did not change between 2004/05 and 2005/06 remaining at \$5.48 per kg.

Estimates of catch and GVP for the Marine Scalefish Fishery for the period 1998/99 to 2003/04 include blue crabs caught by Marine Scalefish licence holders. To prevent double counting, estimates of catch and GVP for 2004/05 and 2005/06 do not include any blue crab catch.

⁵ Separate economic indicators are prepared for the Blue Crab and Sardine fisheries.

⁶ SARDI's estimates of catch for 2004/05 and 2005/06 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, 1998/99 to 2005/06

Species	1998/99			1999/00			2000/01			2001/02			2002/03			2003/04 ^a			2004/05 ^a			2005/06 ^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	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	'000 kg	\$,000	\$/kg	'000 kg	\$,000	\$/kg
King George whiting	594	4,629	\$7.79	516	4,849	\$9.40	456	4,835	\$10.60	390	4,684	\$12.01	398	5,476	\$13.76	355	4,239	\$11.94	347	3,507	\$10.11	336	4,033	\$12.00
snapper	447	2,238	\$5.01	576	3,247	\$5.64	563	3,263	\$5.80	648	3,314	\$5.11	533	3,174	\$5.95	413	3,915	\$9.48	504	4,614	\$9.16	529	3,376	\$6.38
southern calamari	435	2,022	\$4.65	401	1,990	\$4.96	488	2,421	\$4.96	340	1,839	\$5.41	346	2,950	\$8.53	303	2,586	\$8.54	504	2,852	\$5.66	311	2,200	\$7.07
garfish	421	1,572	\$3.73	477	1,906	\$4.00	532	1,995	\$3.75	470	2,028	\$4.31	332	1,940	\$5.84	321	2,536	\$7.90	364	2,673	\$7.34	369	2,139	\$5.80
shark	451	1,268	\$2.81	351	1,030	\$2.93	343	1,099	\$3.20	203	544	\$2.68	202	573	\$2.84	204	583	\$2.86	190	595	\$3.13	152	585	\$3.85
salmon	524	668	\$1.27	457	564	\$1.23	578	767	\$1.33	455	550	\$1.21	576	693	\$1.20	158	435	\$2.75	133	360	\$2.71	177	338	\$1.91
sand crabs	129	620	\$4.81	148	522	\$3.53	163	532	\$3.26	127	437	\$3.44	93	427	\$4.59	96	382	\$3.98	148	534	\$3.61	142	539	\$3.80
oceanjacket	330	512	\$1.55	316	579	\$1.83	260	501	\$1.93	395	583	\$1.48	202	411	\$2.03	498	1,345	\$2.70	308	980	\$3.18	149	185	\$1.24
yellowfin whiting	84	391	\$4.65	112	556	\$4.96	152	719	\$4.73	148	863	\$5.83	181	1,067	\$5.90	163	910	\$5.58	138	764	\$5.54	130	805	\$6.19
Goolwa cockle	341	339	\$0.99		671	\$2.04	376	423	\$1.13	302	292	\$0.97	101	117	\$1.16	3	3	\$1.00	37	47	\$1.27	1	1	\$1.00
blue crabs	72	321	\$4.46	51	233	\$4.57	87	479	\$5.51	79	486	\$6.15	68	417	\$6.13	53	253	\$4.77	0	0	\$0.00	0	0	\$0.00
Australian herring (tommy ruff)	322	314	\$0.98	303	360	\$1.19	229	302	\$1.32	262	328	\$1.25	197	289	\$1.47	152	315	\$2.07	183	367	\$2.00	126	318	\$2.52
mud cockle	153	276	\$1.80	153	276	\$1.80	158	326	\$2.06	227	467	\$2.06	na	na	na	na	na	na	346	1,225	4	385	1,250	\$3.25
snook	117	240	\$2.05	94	224	\$2.38	107	233	\$2.18	99	242	\$2.44	112	263	\$2.35	81	279	\$3.45	83	254	\$3.06	61	171	\$2.80
yelloweye mullet	68	114	\$1.68	74	147	\$1.99	72	194	\$2.69	57	141	\$2.47	47	119	\$2.53	44	110	\$2.50	50	116	\$2.32	38	100	\$2.63
leatherjackets	37	52	\$1.41	37	52	\$1.41	38	53	\$1.39	27	43	\$1.59	na	na	na	na	na	na	na	na	na	na	0	na
mulloway	9	37	\$4.11	9	37	\$4.11	9	42	\$4.67	5	24	\$4.80	na	na	na	na	na	na	5	32	6	5	28	\$5.60
cuttlefish	15	23	\$1.53	15	23	\$1.53	19	29	\$1.53	27	27	\$1.00	na	na	na	na	na	na	9	17	2	7	21	\$3.00
other species	487	2,657	\$5.46	450	2,631	\$5.85	625	2,829	\$4.53	461	2,135	\$4.63	728	2,884	\$3.96	921	4,025	\$4.37	461	1,941	\$4.21	268	1,358	\$5.07
TOTAL^b	5,036	18,293	\$3.63	4,869	19,897	\$4.09	5,255	21,042	\$4.00	4,722	19,027	\$4.03	4,116	20,800	\$5.05	3,765	21,916	\$5.82	3,810	20,878	\$5.48	3,186	17,446	\$5.48
No. Licence Holders	492			463			450			428			408			397			394			384		
Average per Licence Holder	10,236	\$37,181		10,516	\$42,974		11,678	\$46,760		11,033	\$44,456		10,088	\$50,980		9,484	\$55,203		9,670	\$52,990		8,297	\$45,433	

^a SARDI estimates of GVP for 2003/04 to 2005/06 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 and 2005/06 do not include any blue crab catch.

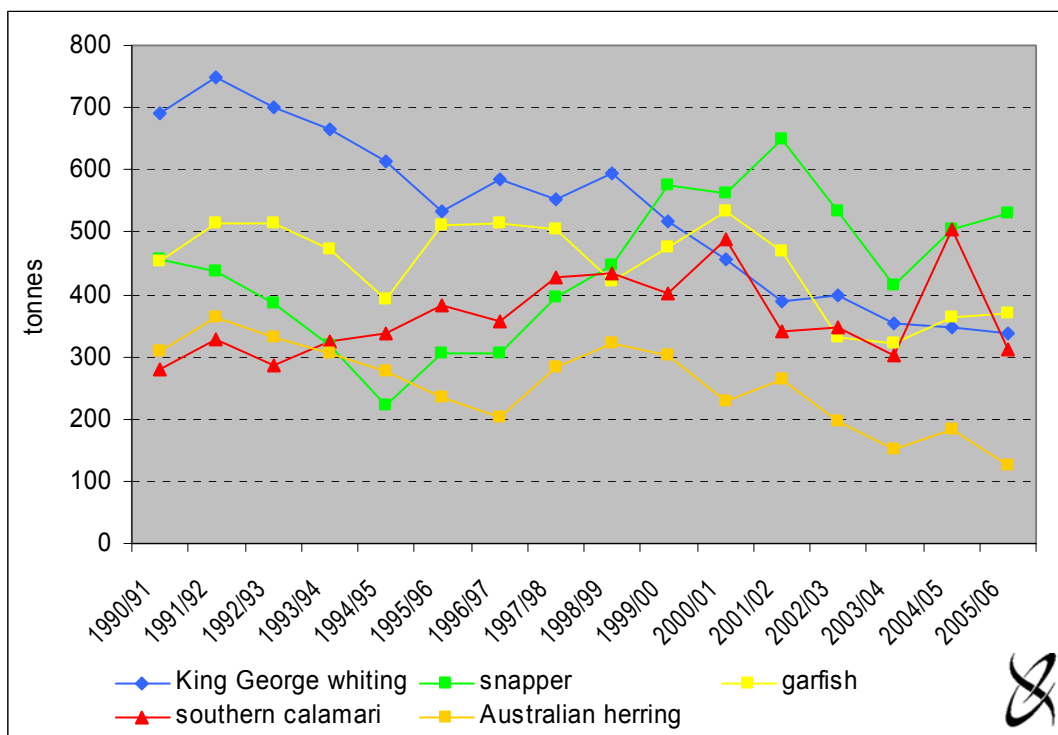
Source: SARDI Aquatic Sciences, PIRSA Fisheries, Samantha Dawes (DPI – NSW pers. comm.), Melbourne Fish Market (Tim Rieniets, Melbourne Wholesale Fish Market, pers. comm.), Alan Suter (Marine Scalefish Licence Holder, pers. comm.) and EconSearch analysis.

Despite there being fewer commercial licences in the Marine Scalefish Fishery (3 per cent decline between 2004/05 and 2005/06) the average gross value of production per licence holder decreased from \$52,990 in 2004/05 to \$45,433 in 2005/06, a decrease of 14 per cent.

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

- a steady decrease in the amount of King George whiting and Australian herring taken over the fifteen-year period; and
- 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.

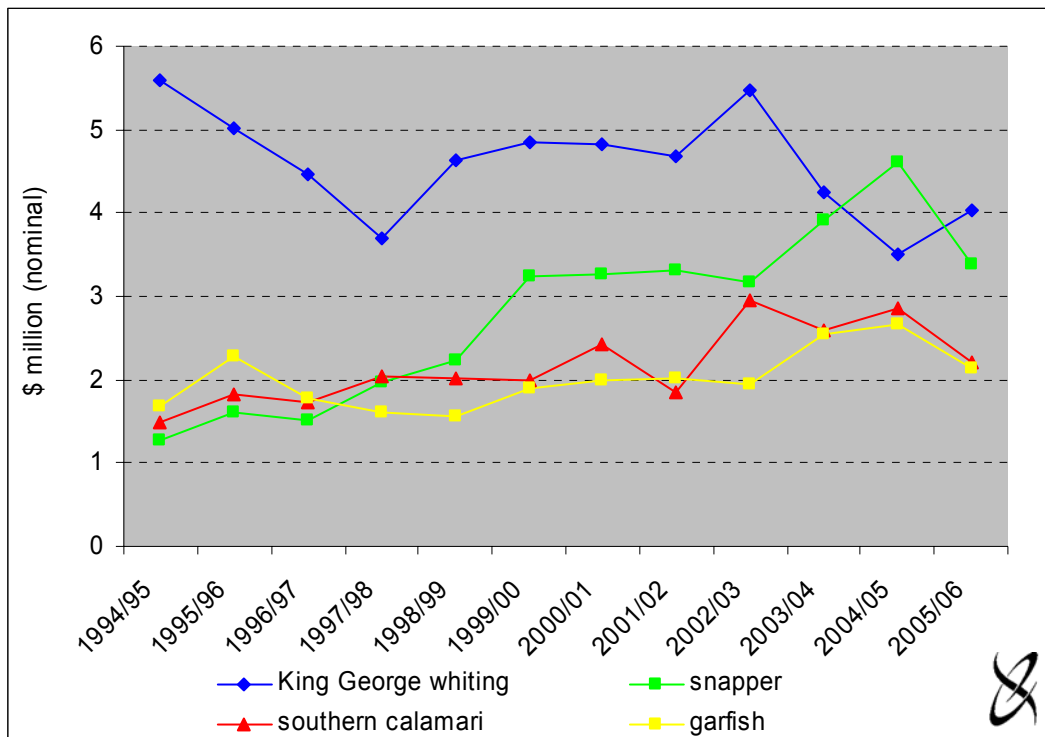
Figure 3.1 Catch of major marine scalefish species, South Australia, 1990/91 to 2005/06



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 2005/06. King George whiting, snapper, calamari and garfish accounted for approximately 67 per cent of the total value of the SA Marine Scalefish Fishery in 2005/06.

Figure 3.2 Gross value of production of major marine scalefish species, South Australia, 1994/95 to 2005/06

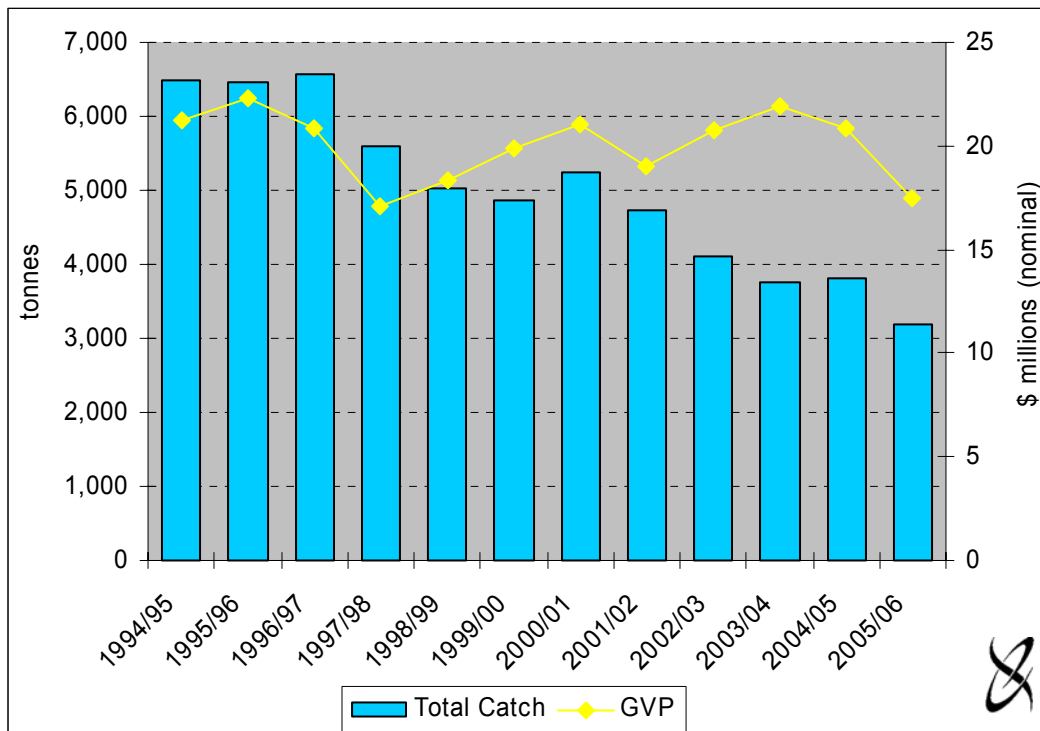


Source: SARDI Aquatic Sciences and EconSearch analysis.

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 over the eleven-year period since 1994/95.

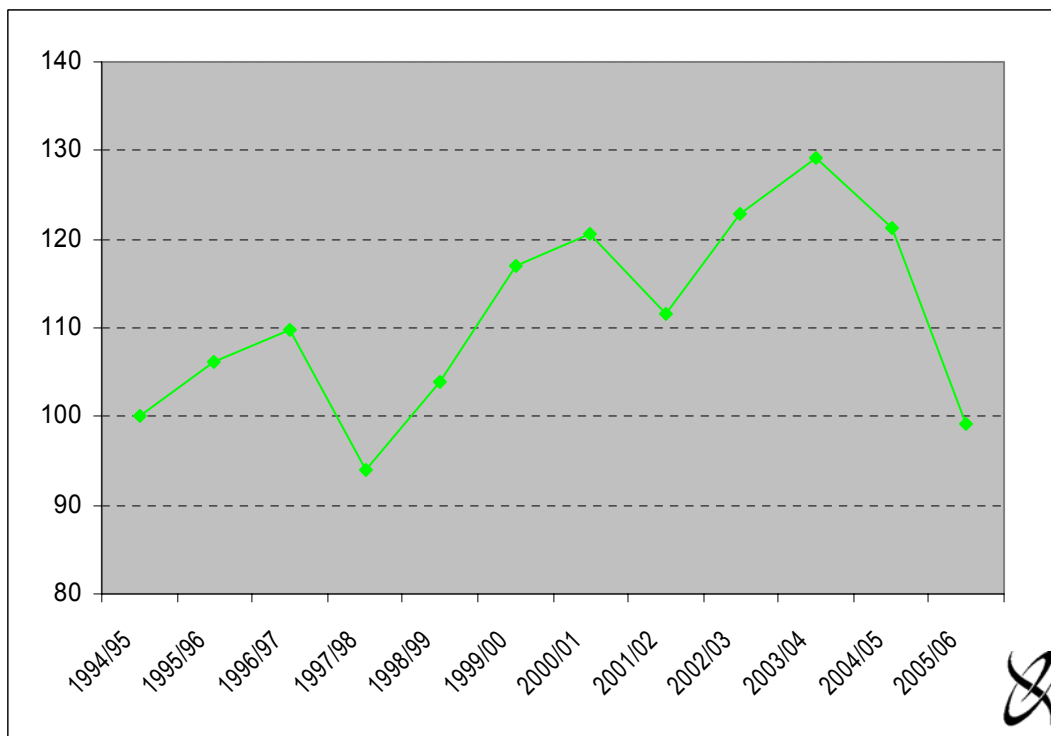
Figure 3.4 illustrates the upward trend in average real value of catch per licence holder over the period 1994/95 to 2003/04 but has declined in subsequent years.

Figure 3.3 Catch and gross value of production of all marine scalefish species, South Australia, 1994/95 to 2005/06



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 2006).

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 2006/07.

Table 3.2 Cost of management in the SA Marine Scalefish Fishery, 1996/97 to 2006/07

	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	\$20,800	5.9%	4,116	\$0.30	408	\$2,986
2003/04	\$1,398	\$21,916	6.4%	3,765	\$0.37	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	n.a.	-	n.a.	-	349	\$4,184

Source: PIRSA Fisheries, SARDI Aquatic Sciences.

- For 2005/06, the cost of management was almost \$1.55 million, which is a 5.3 per cent increase from the previous year. The cost of management decreased by 5.6 per cent between 2005/06 and 2006/07 to approximately \$1.46 million.

- Licence fees as a percentage of gross value of production increased in 2005/06 to 8.9 per cent compared to a rate of 7.0 per cent the previous year. This reflects both an increase in total licence fees and a decrease in gross value of production in the fishery.
- The management cost per kilogram of fish caught has been relatively constant for the period 1997/98 to 2002/03, but increased from 2003/04 reaching \$0.49/kg in 2005/06. 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 2005/06 the number of licence holders in the fishery has declined by 151 (28 per cent) due to natural attrition in the restricted Marine Scalefish Fishery and the licence amalgamation scheme in the transferable Marine Scalefish Fishery. 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 2004/05 and 2005/06, from \$3,728 to \$4,028.

The average fee per licence holder increased a further 4 per cent between 2005/06 and 2006/07 from \$4,028 to \$4,184.

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 2004/05 financial performance indicators to reflect the costs incurred in the fishery in 2005/06.

Table 3.3 Factors affecting costs in the SA Marine Scalefish Fishery, 2004/05 to 2005/06

	2004/05	2005/06	Change
Average days fished per boat ^a	85	77	-9.0%
Price of fuel - Transportation Index ^b	149.0	158.8	6.6%
Price of bait ^c	\$1.99	\$1.99	0.0%
Interest charges (%/annum) ^d	8.1%	8.2%	1.2%
CPI Adelaide ^e	151.8	157.6	3.8%

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

^b ABS transportation index for Adelaide (ABS 2006).

^c RBA indicator lending rate for small business (RBA 2006).

^d Consumer price index for Adelaide (ABS 2006).

- Information from SARDI on the change in fishing effort (total days fished) was used to adjust costs that vary depending on the amount of time spent fishing. These costs include the cost of fuel, repairs and maintenance, bait and provisions.
- The ABS transportation index for Adelaide was used to adjust the cost of fuel.
- 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 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 2001/02 to 2005/06 are shown in Table 3.4. Estimates for 2001/02 to 2002/03 were imputed based on the 2000/01 survey results. Financial performance estimate for 1997/98 to 1999/00 are based on the October 1998 survey results and these estimates, along with estimates for 2000/01, are provided in Appendix 3.

The 2003/04 to 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).

Estimates of financial performance are presented on a regional basis and by fishing method for 2005/06 in Tables 3.5 and 3.6, respectively.

As financial performance estimates for 2003/04 to 2005/06 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.

Income...

Total recorded catch and gross receipts from the sale of catch decreased by 16 per cent between 2004/05 and 2005/06 (Table 3.1). The total number of licence holders in the fishery decreased from 394 in 2004/05 to 384 in 2005/06. Accordingly, the average gross income per boat in the South Australian Marine Scalefish Fishery in 2005/06 was just over \$47,000, a decrease of 14 per cent from the previous year (Table 3.4).

There was some variation in gross income between regions. Estimated mean gross income ranged from approximately \$42,200 in the Gulf St Vincent/Kangaroo Island (GSV/KI) region to just over \$54,600 in the West Coast (WC) region (Table 3.5).

Financial performance estimates by method (Table 3.6) highlight the significant difference in average gross income between fishing methods. The average gross income for fishers with a line entitlement was estimated to be almost \$32,700 in 2005/06, while fishers with both a line and net entitlement were estimated to have an average income of approximately \$130,500 (Table 3.6).

Costs...

In 2005/06, for the fishery as a whole, approximately 51 per cent of total cash costs were attributable to labour costs (in 2005/06), by far the largest individual cost item. Labour costs include an imputed wage to operators and other family members who are not paid a wage directly by the business. The average imputed unpaid labour costs for the fishery in 2005/06 was approximately \$22,600⁷.

⁷ That is, the difference between cash operating surplus excluding labour and cash operating surplus including unpaid labour in Table 3.3.

Table 3.4 Financial performance in the SA Marine Scalefish Fishery, 2001/02 to 2005/06 (average per boat) ^a

	2001/02		2002/03		2003/04		2004/05		2005/06	
	All Boats	Share of TCC	All Boats	Share of TCC	All Boats	Share of TCC	All Boats	Share of TCC	All Boats	Share of TCC
Gross Income	\$46,504		\$53,330		\$57,280		\$54,984		\$47,143	
Costs										
Fuel	\$5,690	12%	\$6,048	12%	\$6,135	11%	\$6,433	11%	\$6,237	11%
R&M	\$4,448	9%	\$4,783	10%	\$5,822	10%	\$5,949	10%	\$5,619	10%
Bait	\$1,666	4%	\$1,870	4%	\$2,130	4%	\$2,256	4%	\$2,052	4%
Provisions	\$1,190	3%	\$1,280	3%	n.a.	-	n.a.	-	n.a.	-
Labour	\$22,666	48%	\$24,377	49%	\$30,582	52%	\$31,247	53%	\$29,515	51%
Licence fee	\$3,644	8%	\$3,310	7%	\$4,092	7%	\$3,728	6%	\$4,028	7%
Insurance	\$1,823	4%	\$1,896	4%	\$1,781	3%	\$1,823	3%	\$1,892	3%
Interest ^b	\$253	1%	\$250	1%	\$256	0%	\$263	0%	\$266	0%
Admin and Other	\$5,562	12%	\$5,785	12%	\$7,610	13%	\$7,786	13%	\$8,083	14%
Total Cash Costs	\$46,942	100%	\$49,599	100%	\$58,409	100%	\$59,483	100%	\$57,692	100%
Cash Operating Surplus (excl unpaid labour)	\$15,357		\$20,717		\$22,326		\$19,465		\$12,086	
Cash Operating Surplus (incl unpaid labour)	-\$437		\$3,730		-\$1,129		-\$4,500		-\$10,550	
Depreciation	\$7,917		\$8,235		\$8,652		\$8,852		\$8,814	
Earnings Before Tax	-\$8,355		-\$4,504		-\$9,781		-\$13,352		-\$19,364	
Earnings Before Interest & Tax	-\$8,102		-\$4,255		-\$9,524		-\$13,089		-\$19,098	
Capital										
Fishing Gear & Equipment	\$63,338		\$65,877		\$86,235		\$88,229		\$87,851	
Licence Value ^c	\$80,072		\$91,824		\$98,627		\$93,957		\$146,565	
Total Capital	\$143,410		\$157,702		\$184,862		\$182,186		\$234,415	
Rate of Return to Fishing Gear & Equip	-12.8%		-6.5%		-11.0%		-14.8%		-21.7%	
Rate of Return to Total Capital	-5.6%		-2.7%		-5.2%		-7.2%		-8.1%	

^a Financial performance estimates for 2001/02 and 2002/03 are based on the May 2002 survey of licence holders. Financial performance estimates for 2003/04 to 2005/06 are based on the 2004 BRS survey of licence holders. Estimates for 1997/98 to 2000/01 are provided in Appendix 3 of this report. To incorporate revised effort and licence holder numbers the 2004/05 estimates (reported in EconSearch 2006a) have been revised.

^b Interest costs were not itemised in the 2004 survey data. Estimates for 2003/04 to 2005/06 were calculated using the 2002 licence holder survey data and adjusted for changes in the ABS indicator lending rate.

^c An estimate of the licence value for 2001/02 to 2004/05 was derived from the fisher's estimate of the value of their licence in the May 2002 survey and adjusted for changes in the average gross income per licence holder between 2000/01 and 2004/05. 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.

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

Table 3.5 Financial performance in the SA Marine Scalefish Fishery, by fishing region, 2005/06 (average per boat)

	West Coast		Spencer Gulf / Coffin Bay		Gulf St Vincent / Kangaroo Island		South Australia	
	All Boats	Share of TCC	All Boats	Share of TCC	All Boats	Share of TCC	All Boats	Share of TCC
Gross Income	\$54,613		\$48,814		\$42,230		\$47,143	
Costs								
Fuel	\$6,779	13%	\$7,771	11%	\$4,619	9%	\$6,237	11%
R&M	\$3,816	8%	\$4,967	7%	\$8,569	16%	\$5,619	10%
Bait and Ice	\$1,794	4%	\$3,394	5%	\$1,380	3%	\$2,052	4%
Labour	\$23,719	47%	\$39,043	54%	\$27,173	50%	\$29,515	51%
Licence fee	\$3,927	8%	\$5,194	7%	\$3,997	7%	\$4,028	7%
Insurance	\$1,362	3%	\$1,719	2%	\$2,406	4%	\$1,892	3%
Interest ^a	\$219	0%	\$315	0%	\$235	0%	\$266	0%
Admin and Other	\$8,744	17%	\$9,934	14%	\$5,612	10%	\$8,083	14%
Total Cash Costs	\$50,360	100%	\$72,336	100%	\$53,992	100%	\$57,692	100%
Cash Operating Surplus (excl unpaid labour)	\$26,382		\$5,522		\$8,118		\$12,086	
Cash Operating Surplus (incl unpaid labour)	\$4,253		-\$23,522		-\$11,761		-\$10,550	
Depreciation	\$8,855		\$10,710		\$7,090		\$8,814	
Earnings Before Tax	-\$4,602		-\$34,232		-\$18,851		-\$19,364	
Earnings Before Interest & Tax	-\$4,383		-\$33,917		-\$18,616		-\$19,098	
Capital								
Fishing Gear & Equipment	\$76,493		\$107,509		\$68,903		\$87,851	
Licence Value ^b	\$146,565		\$146,565		\$146,565		\$146,565	
Total Capital	\$223,058		\$254,074		\$215,468		\$234,415	
Rate of Return to Fishing Gear & Equip	-5.7%		-31.5%		-27.0%		-21.7%	
Rate of Return to Total Capital	-2.0%		-13.3%		-8.6%		-8.1%	

^a Interest costs were not itemised in the 2004 survey data. Estimates for 2004/05 and 2005/06 were calculated using the 2002 licence holder survey data and adjusted for changes in the ABS indicator lending rate.

^b 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.

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

Table 3.6 Financial performance in the SA Marine Scalefish Fishery, by fishing method, 2005/06 (average per boat) ^a

	Line Entitlement Only		Net and Line Entitlement		South Australia, All Methods	
	All Boats	Share of TCC	All Boats	Share of TCC	All Boats	Share of TCC
Gross Income	\$32,697		\$130,512		\$47,143	
Costs						
Fuel	\$4,391	11%	\$13,361	12%	\$6,237	11%
R&M	\$2,349	6%	\$17,628	16%	\$5,619	10%
Bait and Ice	\$1,073	3%	\$6,571	6%	\$2,052	4%
Labour	\$22,449	54%	\$54,302	48%	\$29,515	51%
Licence fee	\$3,212	8%	\$6,168	5%	\$4,028	7%
Insurance	\$1,149	3%	\$3,424	3%	\$1,892	3%
Interest ^b	\$233	1%	\$341	0%	\$266	0%
Admin and Other	\$6,615	16%	\$11,103	10%	\$8,083	14%
Total Cash Costs	\$41,472	100%	\$112,899	100%	\$57,692	100%
Cash Operating Surplus (excl unpaid labour)	\$11,604		\$46,439		\$12,086	
Cash Operating Surplus (incl unpaid labour)	-\$8,775		\$17,613		-\$10,550	
Depreciation	\$7,742		\$10,617		\$8,814	
Earnings Before Tax	-\$16,517		\$6,996		-\$19,364	
Earnings Before Interest & Tax	-\$16,284		\$7,337		-\$19,098	
Capital						
Fishing Gear & Equipment	\$77,830		\$103,239		\$87,851	
Licence Value ^c	\$103,021		\$175,133		\$146,565	
Total Capital	\$180,851		\$278,372		\$234,415	
Rate of Return to Fishing Gear & Equip	-20.9%		7.1%		-21.7%	
Rate of Return to Total Capital	-9.0%		2.6%		-8.1%	

^a To capture the effects of the net buyback scheme implemented in August 2005, estimates of financial performance have been adjusted by changes in commercial catch, effort and number of licence holders by gear type. To take account of these adjustments and to incorporate revised effort and licence holder numbers, the 2004/05 estimates (reported in EconSearch 2006a) have been revised. These revised estimates have not been included in this report but are available on request.

^b Interest costs were not itemised in the 2004 survey data. Estimates for 2004/05 and 2005/06 were calculated using the 2002 licence holder survey data and adjusted for changes in the ABS indicator lending rate.

^c 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.

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

Average total cash costs were significantly higher in the Spencer Gulf/Coffin Bay (SG/CB) region when compared to the other fishing regions in SA. In 2005/06 total cash costs in the SG/CB region were estimated to be just over \$72,300, 24 per cent higher than the fishery average (Table 3.5).

Average total cash costs for fishers with both a net and line entitlement were almost double than the fishery average. In 2005/06, average total cash costs for fishers with both a net and line entitlement were estimated to be approximately \$112,900 and for line only fishers was almost \$41,500 (Table 3.6).

Overall, total cash costs per boat decreased by approximately 3.0 per cent, down from \$59,500 in 2004/05 to \$57,700 in 2005/06. The main driver of the decrease has been the decrease in labour costs due to the fall in both gross income and fishing effort (Table 3.4).

Cash Income and Profit...

Cash operating surplus was calculated using two methods. First, excluding imputed wages for operator and family members, the average cash operating surplus of all boats for 2005/06 was estimated to be \$12,100. If the imputed wages were included as cash costs, the estimated average cash operating surplus for all boats in 2005/06 was estimated to be approximately -\$10,600 per boat (Table 3.4).

For 2005/06 the average cash operating surplus excluding imputed wages for operator and family members was greatest in the WC fishing region at almost \$26,400 (\$4,300, including unpaid labour). The lowest cash operating surplus was in the SG/CB region, \$5,500 (-\$23,500 including unpaid labour) in 2005/06 (Table 3.5).

In 2005/06, fishers with a line entitlement only reported an average cash operating surplus of approximately \$11,600 (-\$8,800 including unpaid labour) which was 4 per cent lower than for the fishery as a whole. Fishers with both a net and line entitlement reported a cash operating surplus that was almost three times the fishery average, just over \$46,400 (\$17,600 if unpaid labour is included) for 2005/06 (Table 3.6).

Cash operating surplus and earnings before tax (business profit) gives an indication of the capacity of the operator to remain in the fishery in the short to medium term. On average it appears that the line only fishers are most likely "lifestyle" fishers. The results of the 2004 BRS survey indicate that a large proportion of fishers either rely on other sources of family income or are struggling financially to 'make ends meet'.

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 average total investment in fishing gear and licence in the SA Marine Scalefish Fishery in 2005/06 was estimated to be approximately \$234,000 per fisher. An estimate of the 2005/06 licence value (\$146,600) was based on information provided by Rob Field (Fisheries and Aquaculture Broker, pers. comm.) and the PIRSA Fisheries Licensing Section on the value of transfers in 2005/06.

For the SA Marine Scalefish Fishery as a whole, the average rate of return to total capital was estimated to be –8.1 per cent in 2005/06 (Table 3.4). For fishers with net and line entitlements the rate of return to total capital was 2.6 per cent, for line only fishers it was –9.0 per cent (Table 3.6).

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 \$146,600 for 2005/06 was based on information provided by Rob Field (Elders Fisheries and Aquaculture Broker, pers. comm.) and the PIRSA Fisheries Licensing Section on the value of transfers in 2005/06. The value of each individual licence varies depending on the number of fishing points allocated to the licence and more importantly the endorsements on the licence (Rob Field, Elders Fisheries and Aquaculture Broker, pers. comm.).

The PIRSA Fisheries record of licence transfers for 2005/06 indicates that there were 45 licence transfers over the 12-month period, the average value of these trades (all licence types) was approximately \$143,000⁸.

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 2005/06 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, 2004/05⁹.

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) trade¹⁰.

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.

⁸ The average value of trades in 2005/06 was significantly greater than the estimated licence value for 2005/06. One explanation for this is that many licence trades and accordingly the value of the trade, includes vessels, gear and equipment.

⁹ The relevant information was obtained from Jack Langberg (PIRSA, pers. comm.).

¹⁰ Estimates of economic impact prepared for this and other commercial fisheries in South Australia (except Lakes and Coorong) for the period 1997/98 to 2002/03 do not include the impact of local retail and food service trade.

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 2003/04 and updated to 2005/06, 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 2005/06.

Estimates of the net value of local (i.e. regional and state) processing margins and retail and food service trade margins were derived from PIRSA's *Food for the Future* value-chain analysis (*Seafood Scorecard, 2004/05*) (Jack Langberg, PIRSA, pers. comm.). Estimates of the net value of local transport margins and capital expenditure per licence holder were derived from the survey of licence holders.

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

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

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

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

Household income is a 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 2005/06 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 3.7 to 3.10, 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 3.7) is provided below. Interpretation of the results at the regional level (Tables 3.8 to 3.10) is similar to that at the state level.

Table 3.7 Economic impact of the SA Marine Scalefish Fishery on the South Australian economy, 2005/06

Sector	Output		Employment ^a		Household Income		Contribution to GSP	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%
Direct effects								
Fishing	17.4	26.4%	354	55.0%	6.7	34.3%	6.7	23.4%
Processing	3.8	5.8%	12	1.9%	0.6	2.9%	0.9	3.1%
Transport	0.5	0.8%	2	0.4%	0.2	0.9%	0.3	0.9%
Retail	2.4	3.6%	35	5.5%	1.0	5.1%	1.2	4.2%
Food services	1.2	1.8%	10	1.5%	0.3	1.5%	0.5	1.6%
Capital expenditure ^b	1.6	2.4%	14	2.2%	0.5	2.3%	0.6	2.1%
Total Direct ^c	27.0	38.4%	428	64.2%	9.2	44.7%	10.1	33.2%
Flow-on effects								
Trade	5.5	8.3%	60	9.3%	2.0	10.5%	2.6	8.9%
Manufacturing	8.7	13.1%	27	4.3%	1.3	6.5%	2.0	7.1%
Business Services	4.5	6.8%	27	4.2%	1.6	8.4%	2.1	7.5%
Transport	2.3	3.5%	11	1.7%	0.8	3.9%	1.1	3.9%
Other Sectors	18.2	27.5%	91	14.2%	4.6	23.8%	10.7	37.4%
Total Flow-on ^c	39.2	59.2%	216	33.5%	10.4	53.0%	18.5	64.7%
Total ^c	66.1	100.0%	644	100.0%	19.5	100.0%	28.6	100.0%
Total/Direct	2.5	-	1.5	-	2.1	-	2.8	-
Total/Tonne	\$20,700	-	0.20	-	\$6,100	-	\$8,986	-

^a Full-time equivalent jobs. Direct employment in the fishing sector was comprised of 146 full-time jobs and 323 part-time jobs, that is, 468 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 3.8 Economic impact of the SA Marine Scalefish Fishery on the West Coast fishing region, 2005/06

Sector	Output		Employment ^a		Household Income		Contribution to GRP	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%
Direct effects								
Fishing	2.4	52.1%	48	74.9%	1.0	61.9%	1.0	48.3%
Processing	0.2	4.0%	1	1.3%	0.0	2.1%	0.1	2.5%
Transport	0.1	1.1%	0	0.5%	0.0	1.1%	0.0	1.3%
Retail	0.0	0.3%	0	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	0.1	2.4%	2	2.9%	0.0	2.8%	0.1	2.7%
Total Direct^c	2.7	60.0%	51	77.1%	1.1	65.5%	1.1	52.4%
Flow-on effects								
Trade	0.4	8.1%	5	7.4%	0.1	8.6%	0.2	8.5%
Manufacturing	0.2	5.0%	1	1.7%	0.0	2.6%	0.1	3.1%
Business Services	0.1	3.3%	1	1.6%	0.1	3.3%	0.1	3.5%
Transport	0.1	2.9%	1	1.2%	0.0	2.8%	0.1	3.2%
Other Sectors	0.9	20.7%	5	8.2%	0.2	14.4%	0.5	26.5%
Total Flow-on^c	1.8	40.0%	13	20.1%	0.5	31.7%	0.9	44.9%
Total^c	4.5	100.0%	64	100.0%	1.6	100.0%	2.0	100.0%
Total/Direct	1.7	-	1.3	-	1.5	-	1.9	-
Total/Tonne	\$14,900	-	0.21	-	\$5,200	-	\$6,700	-

^a Full-time equivalent jobs. Direct employment in the fishing sector was comprised of 11 full-time jobs and 52 part-time jobs, that is, 63 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 3.9 Economic impact of the SA Marine Scalefish Fishery on the Spencer Gulf/Coffin Bay fishing region, 2005/06

Sector	Output		Employment ^a		Household Income		Contribution to GRP	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%
Direct effects								
Fishing	9.3	48.4%	180	71.2%	2.5	47.7%	2.5	35.3%
Processing	1.1	5.5%	5	1.9%	0.2	3.7%	0.3	4.1%
Transport	0.3	1.5%	2	0.7%	0.1	1.9%	0.1	2.0%
Retail	0.1	0.3%	1	0.4%	0.0	0.5%	0.0	0.5%
Food services	0.0	0.2%	0	0.1%	0.0	0.2%	0.0	0.2%
Capital expenditure ^b	0.5	2.7%	9	3.4%	0.2	4.0%	0.3	3.6%
Total Direct ^c	11.2	58.6%	197	77.7%	3.1	57.8%	3.3	45.7%
Flow-on effects								
Trade	1.7	8.9%	21	8.3%	0.6	11.8%	0.8	11.2%
Manufacturing	1.1	5.7%	5	2.0%	0.2	3.8%	0.3	4.2%
Business Services	0.8	4.0%	5	2.1%	0.3	5.2%	0.4	5.2%
Transport	0.4	2.3%	3	1.0%	0.2	2.8%	0.2	3.1%
Other Sectors	3.9	20.5%	22	8.9%	1.0	18.5%	2.2	30.6%
Total Flow-on ^c	7.9	41.4%	56	22.3%	2.2	42.2%	3.9	54.3%
Total ^c	19.2	100.0%	253	100.0%	5.3	100.0%	7.2	100.0%
Total/Direct	1.8	-	1.3	-	1.9	-	2.4	-
Total/Tonne	\$11,000	-	0.15	-	\$3,000	-	\$4,100	-

^a Full-time equivalent jobs. Direct employment in the fishing sector was comprised of 113 full-time jobs and 132 part-time jobs, that is, 245 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 3.10 Economic impact of the SA Marine Scalefish Fishery on the Gulf St Vincent/Kangaroo Island fishing region, 2005/06

Sector	Output		Employment ^a		Household Income		Contribution to GRP	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%
Direct effects								
Fishing	5.7	48.5%	119	73.2%	2.4	60.8%	2.4	46.2%
Processing	0.7	5.8%	3	1.9%	0.1	2.8%	0.2	3.4%
Transport	0.2	1.6%	1	0.8%	0.1	1.7%	0.1	1.8%
Retail	0.0	0.4%	1	0.5%	0.0	0.4%	0.0	0.4%
Food services	0.0	0.2%	0	0.1%	0.0	0.1%	0.0	0.2%
Capital expenditure ^b	0.2	1.8%	4	2.3%	0.1	2.2%	0.1	2.1%
Total Direct ^c	6.9	58.2%	128	78.8%	2.6	68.1%	2.8	54.1%
Flow-on effects								
Trade	0.9	7.6%	12	7.3%	0.3	8.5%	0.4	8.2%
Manufacturing	1.2	10.4%	5	3.3%	0.2	5.0%	0.3	6.0%
Business Services	0.3	2.6%	2	1.4%	0.1	2.8%	0.2	2.9%
Transport	0.3	2.2%	2	1.1%	0.1	2.3%	0.1	2.4%
Other Sectors	2.2	18.9%	13	8.1%	0.5	13.4%	1.3	26.3%
Total Flow-on ^c	4.9	41.8%	34	21.2%	1.2	31.9%	2.3	45.9%
Total ^c	11.8	100.0%	162	100.0%	3.9	100.0%	5.1	100.0%
Total/Direct	1.8	-	1.3	-	1.5	-	1.9	-
Total/Tonne	\$10,400	-	0.14	-	\$3,400	-	\$4,500	-

^a Full-time equivalent jobs. Direct employment in the fishing sector was comprised of 25 full-time jobs and 132 part-time jobs, that is, 157 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 \$17.4 million in 2005/06 (Table 3.7), while output generated in South Australia by associated downstream activities (processing, transport, retail/food services and capital expenditure) summed to \$9.5 million.

Flow-ons to other sectors of the state economy added another \$39.2 million in output. The sectors most affected were the manufacturing (\$8.7 million), trade (\$5.5 million) business services (\$4.5 million) and transport sectors (\$2.3 million).

Employment and household income...

In 2005/06, the Marine Scalefish Fishery was responsible for the direct employment of around 354 full-time equivalents (fte) and downstream activities created employment of around 74 fte jobs state-wide. Flow-on business activity was estimated to generate a further 216 fte jobs state-wide. These state-wide jobs were concentrated in the trade (60), manufacturing (27), business services (27) and transport (11) sectors.

Personal income of \$6.7 million was earned in the fishing sector (wages of employees and estimated drawings by owner/operators) and \$2.5 million in downstream activities in SA. An additional \$10.4 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 \$19.5 million in South Australia.

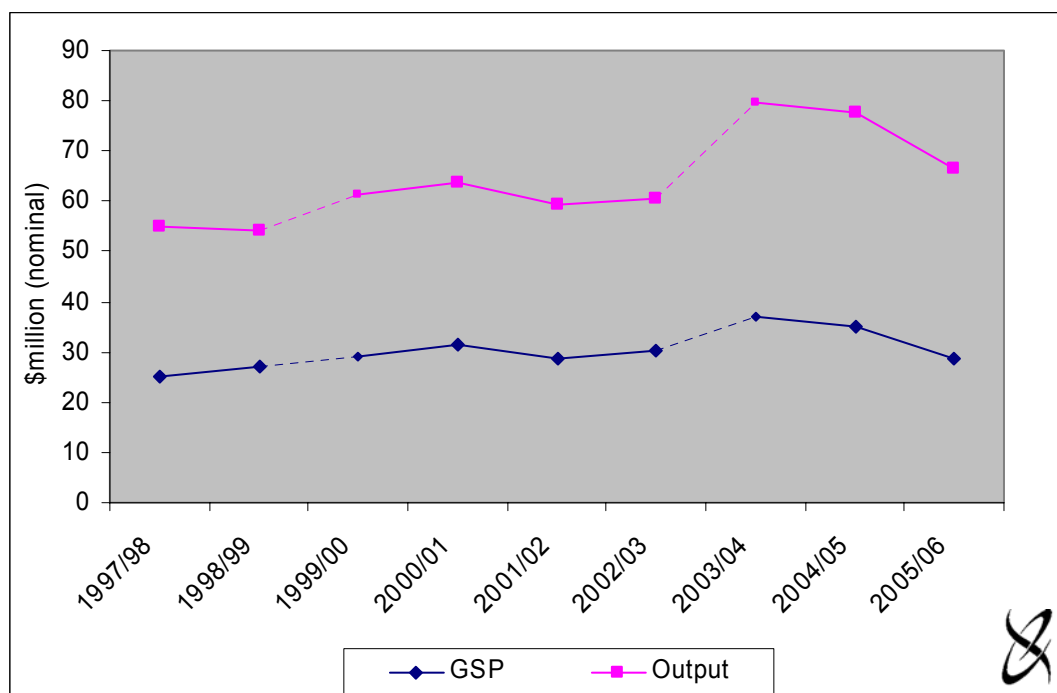
Contribution to GSP and GRP...

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 2005/06, total marine scalefish fishing industry related contribution to GSP in South Australia was \$28.6 million, \$6.7 million generated by fishing directly, \$3.4 million generated by downstream activities and \$18.5 million generated in other sectors of the state economy

Total impacts over time...

Figure 3.5 and 3.6 illustrate the total economic impact of the fishery on the SA economy for the nine-year period, 1997/98 to 2005/06. Estimates of economic impact are expressed in nominal terms, accordingly no adjustment has been made to reflect inflation.

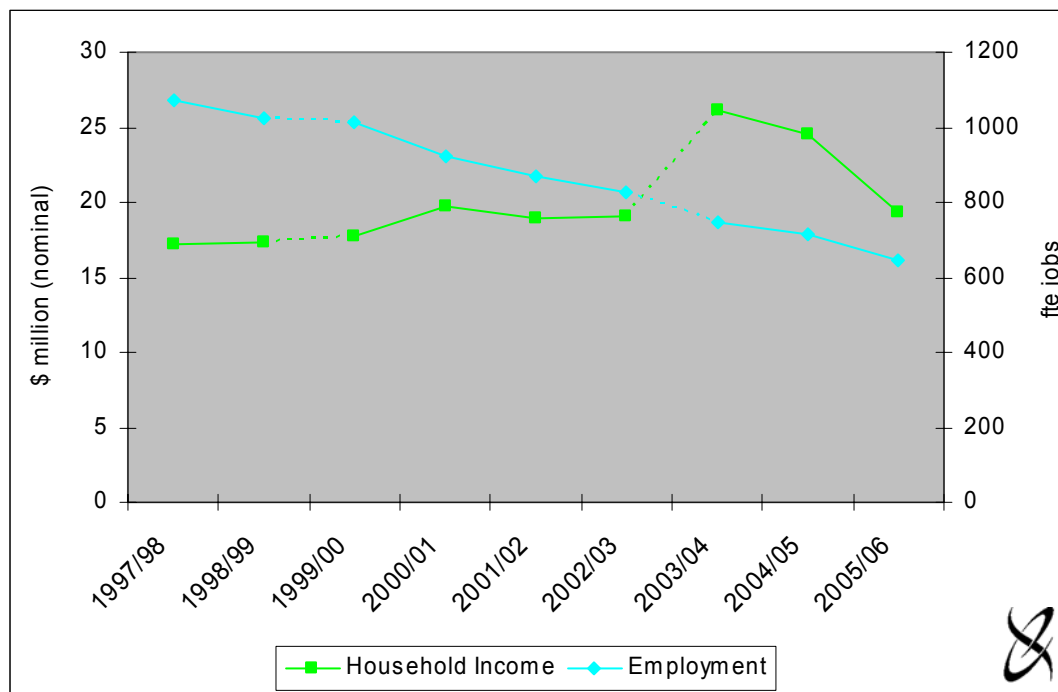
Figure 3.5 Total gross state product and output impact of the SA Marine Scalefish Fishery on the SA economy, 1997/98 to 2005/06 ^a



^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 (2006a)

Figure 3.6 Total employment and household income impact of the SA Marine Scalefish Fishery on the SA economy, 1997/98 to 2005/06



^a See footnote for Figure 3.5.

Source: EconSearch (2006a)

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 and 2005/06 are based on the most recent survey of licence holders conducted by BRS in 2004.

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 2005/06 are based on different survey samples and techniques, some of the variability between years, is therefore, attributable to sampling variability.

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

There has been a 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.

3.6 Economic Rent

Economic rent¹¹ 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, 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 2005/06 (calculated value of -\$10.3 million), nor in the period 1997/98 to 2004/05 (Table 3.11).

¹¹ 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 3.11 Economic rent in the SA Marine Scalefish Fishery, 1997/98 to 2005/06, (\$'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	7,843	9,948	3,668	2,934	-6,100
1999/00	19,897	7,905	10,845	3,654	2,923	-5,431
2000/01	21,042	9,547	10,232	3,314	2,651	-4,702
2001/02	19,027	9,274	9,829	3,239	2,591	-5,906
2002/03	20,800	9,508	9,740	3,212	2,569	-4,229
2003/04	21,916	11,701	10,548	3,310	3,299	-6,943
2004/05	20,878	11,865	10,852	3,361	3,350	-8,550
2005/06	17,446	10,923	10,329	3,262	3,251	-10,319

^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 2005/06 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.

Southern Calamary Stock

Comparison of the 2005/06 catch and effort data against the prescribed performance indicators for the species identified several breaches of limit reference points. All of these breaches favour the calamary fishery (Steer et al 2006a). 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 calamary 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).

King George Whiting Stock

King George whiting is 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 dropped significantly over the last 5 years; in 2005/06 catch was 336 tonnes compared to 594 tonnes in 1998/99 (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 competition for the resource from non-commercial operators.

The biological performance indicators for the King George whiting fishery are:

- catch, effort and catch per unit of effort (CPUE) reported by commercial fishermen;
- population age structure from fishery independent monitoring; and
- estimated recruitment and biomass from fishery model 'WhitEst'.

All three of these performance indicators showed either no change or a marginal increase in 2003 and 2004 (McGarvey et al. 2005).

Although catch of King George whiting has decreased significantly, estimates of statewide CPUE increased marginally in 2003 and 2004. 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 30cm¹². 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 may have been the result of recruitment overfishing. The increases in CPUE in 2003 and 2004 indicate that the declining trend has been reversed (McGarvey et al. 2005).

¹² 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 and effort data for 2005/06 indicate that statewide commercial catch of the species has reached a record low. A full stock assessment of the species will be undertaken in 2007/08 to determine whether there has been a change in the stock structure of the species (Steer et. al. 2006b).

Snapper Stock

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

Catch of snapper declined significantly in the 2002/03 and 2003/04 seasons when compared to previous seasons although there was some recovery in 2004/05 and 2005/06. In 2001/02 catch was 648 tonnes, this decreased to only 413 tonnes in 2003/04. Snapper catch in 2005/06 was approximately 329 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. 2005).

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 have been relatively stable, although are significantly lower than the Spencer Gulf estimates.

Net Closures

A voluntary net buyback scheme was undertaken in the fishery in 2005. Out of the 113 net licences in the fishery, 61 net endorsements or licences were relinquished under the scheme.

As a result of the buyback, in August 2005 3 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.).

4.2 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.

4.2.1 Average monthly beach prices for marine scalefish species in SA

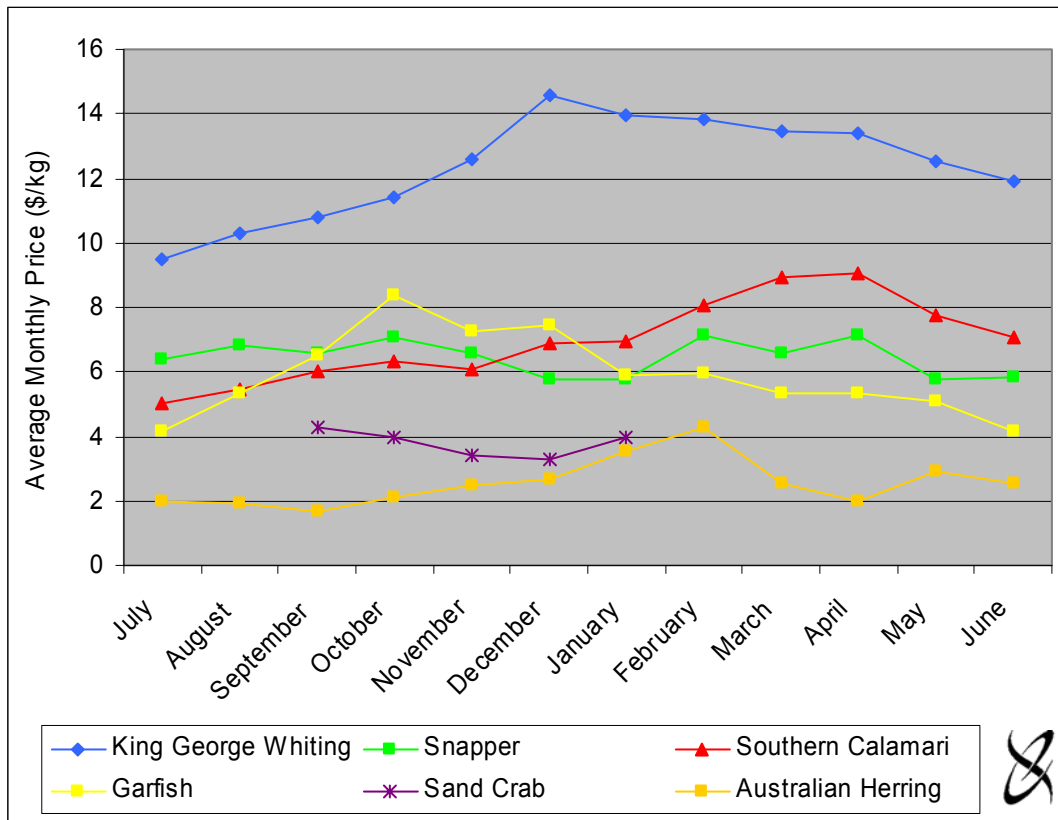
An outline of the seasonality of prices in SA (by month) for 2005/06 is provided in Table 4.1 and Figure 4.1. Across the species, beach prices in SA tend to peak in the warmer months from November to February and be at their lowest in June/July.

Table 4.1 Average monthly prices for major marine scalefish species, South Australia, 2005/06

Month	Average Monthly Price (\$/kg)					
	King George Whiting	Snapper	Southern Calamari	Garfish	Sand Crab	Australian Herring
July	\$9.25	\$6.25	\$6.38	\$4.32	\$4.39	\$1.93
August	\$9.01	\$7.36	\$5.63	\$4.52	\$4.20	\$2.43
September	\$9.64	\$8.27	\$5.75	\$5.45	\$3.03	\$1.67
October	\$10.94	\$8.16	\$5.29	\$7.66	\$2.77	\$1.92
November	\$12.65	\$7.91	\$5.50	\$8.03	\$3.15	\$2.56
December	\$13.65	\$5.57	\$5.59	\$8.19	\$3.85	\$2.58
January	\$11.52	\$6.44	\$5.90	\$6.91	\$3.73	\$2.51
February	\$10.65	\$6.86	\$6.01	\$5.35	\$4.03	\$2.26
March	\$10.53	\$8.37	\$6.08	\$4.44	\$3.72	\$1.96
April	\$10.21	\$6.80	\$5.73	\$4.38	\$3.49	\$1.64
May	\$9.80	\$6.79	\$5.22	\$3.89	-	\$2.01
June	\$9.82	\$6.66	\$4.89	\$4.06	-	\$2.31

Source: SARDI Aquatic Sciences

Figure 4.1 Average monthly prices for major marine scalefish species, South Australia, 2005/06



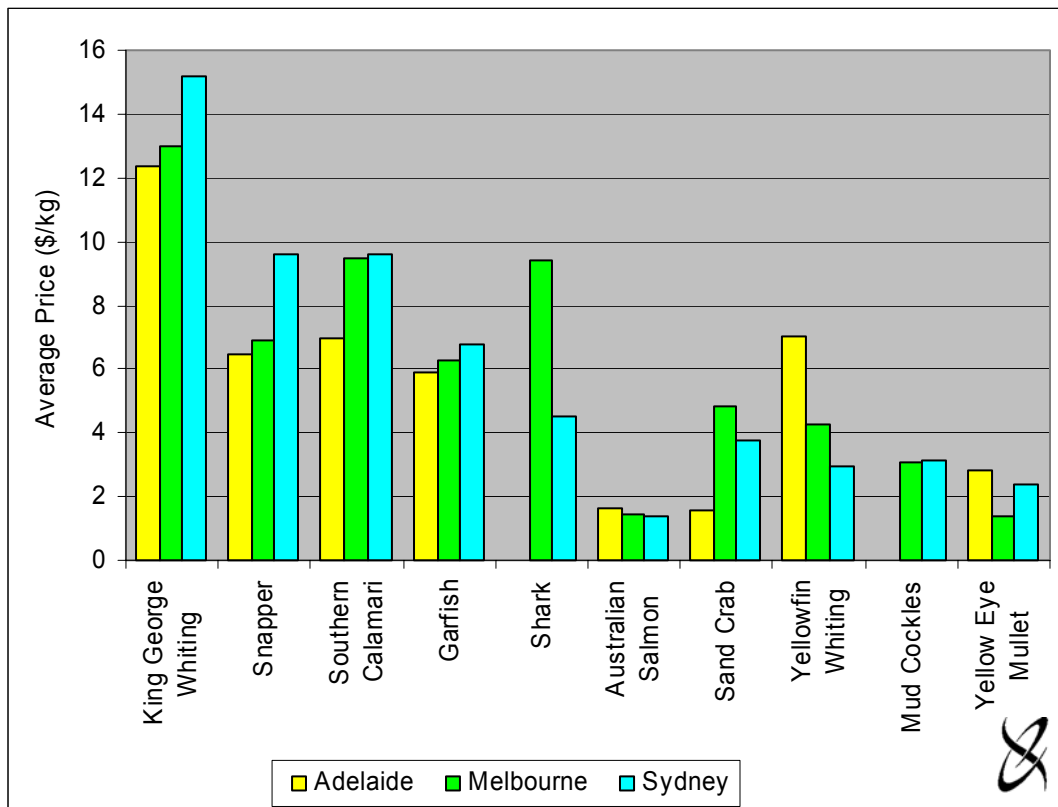
Source: SARDI Aquatic Sciences

4.2.2 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 Sydney 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, 2005/06 ^a



^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, 2005/06

	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	\$9.49	\$11.53	\$11.24	\$6.37	\$7.17	\$8.21	\$5.02	\$6.57	\$8.21	\$4.16	\$4.55	\$7.42	\$0.00	\$5.26	\$4.94	\$5.22	\$2.54	\$2.87
August	\$10.30	\$13.44	\$14.35	\$6.84	\$6.60	\$9.37	\$5.49	\$6.68	\$9.37	\$5.35	\$5.00	\$7.29	\$0.00	\$5.63	\$3.93	\$6.45	\$3.02	\$2.87
September	\$10.81	\$12.60	\$16.64	\$6.54	\$5.55	\$9.38	\$5.99	\$6.82	\$9.38	\$6.53	\$6.31	\$9.61	\$4.29	\$3.93	\$4.33	\$6.72	\$3.42	\$4.10
October	\$11.44	\$16.01	\$21.92	\$7.08	\$7.18	\$10.73	\$6.34	\$7.91	\$10.73	\$8.35	\$7.62	\$8.44	\$3.98	\$4.41	\$3.21	\$7.94	\$3.89	\$2.87
November	\$12.57	\$12.30	\$15.85	\$6.59	\$6.58	\$8.26	\$6.08	\$8.50	\$8.26	\$7.26	\$9.11	\$7.72	\$3.40	\$4.12	\$4.13	\$7.42	\$3.90	\$2.87
December	\$14.59	\$14.54	\$17.65	\$5.77	\$6.45	\$8.92	\$6.87	\$10.66	\$8.92	\$7.46	\$9.33	\$4.63	\$3.30	\$5.13	\$5.17	\$7.59	\$3.20	\$2.87
January	\$13.97	\$10.87	\$13.80	\$5.78	\$9.20	\$11.32	\$6.95	\$10.91	\$11.32	\$5.90	\$6.93	\$5.86	\$4.00	\$5.43	\$2.31	\$7.49	\$11.00	\$2.87
February	\$13.81	\$15.87	\$14.14	\$7.11	\$6.69	\$10.84	\$8.05	\$12.46	\$10.84	\$5.98	\$6.12	\$5.89	\$0.00	\$4.73	\$2.31	\$7.92	\$3.50	\$2.55
March	\$13.46	\$17.12	\$14.01	\$6.56	\$7.84	\$10.71	\$8.93	\$12.05	\$10.71	\$5.36	\$5.47	\$5.40	\$0.00	\$4.75	\$2.29	\$8.13	\$2.00	\$2.87
April	\$13.43	\$12.87	\$15.14	\$7.12	\$8.03	\$11.25	\$9.03	\$12.96	\$11.25	\$5.31	\$5.08	\$7.04	\$0.00	\$4.17	\$3.75	\$7.68	-	\$2.87
May	\$12.51	\$9.86	\$13.71	\$5.75	\$5.18	\$7.07	\$7.77	\$8.65	\$7.07	\$5.11	\$4.25	\$6.56	\$0.00	\$4.98	\$4.54	\$6.45	-	\$3.05
June	\$11.91	\$8.86	\$13.64	\$5.86	\$6.30	\$9.09	\$7.09	\$9.69	\$9.09	\$4.18	\$5.64	\$5.49	\$0.00	\$5.76	\$4.50	\$5.48	\$6.30	\$2.87

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.).

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Appendix 1 Economic Impact of the SA Marine Scalefish Fishery, 2004/05¹³

Appendix Table 1.1 Economic impact of the SA Marine Scalefish Fishery, 2004/05

	West Coast	Spencer Gulf / Coffin Bay	Gulf St Vincent / Kangaroo Island	South Australia
Output (\$m)				
Direct				
Fishing	2.8	11.1	7.0	20.9
Downstream ^c	0.4	2.2	1.3	11.1
All other sectors (indirect)	1.4	9.2	5.9	45.7
Total	4.5	22.5	14.1	77.7
Total/Direct	1.5	1.8	1.8	2.4
Total/Tonne (\$)	\$11,500	\$10,800	\$10,500	\$20,300
Contribution to GSP (\$m) ^d				
Direct				
Fishing	0.5	4.4	3.6	9.5
Downstream	0.2	0.8	0.5	3.9
All other sectors (indirect)	0.7	4.6	2.9	21.7
Total	1.4	9.9	6.9	35.2
Total/Direct	2.2	2.0	1.8	2.6
Total/Tonne (\$)	\$3,500	\$4,700	\$5,100	\$9,236
Employment (fte jobs) ^e				
Direct				
Fishing	47.5	185.2	124.1	363.3
Downstream	3.7	18.6	10.5	88.7
All other sectors (indirect)	9.4	66.6	42.8	263.2
Total	60.6	270.4	177.4	715.2
Total/Direct	1.2	1.4	1.4	1.6
Total/Tonne	\$0	\$0	\$0	\$0
Household Income (\$m)				
Direct				
Fishing	0.1	4.4	3.5	9.5
Downstream	0.1	0.6	0.3	2.9
All other sectors (indirect)	0.4	2.5	1.5	12.1
Total	0.6	7.6	5.3	24.5
Total/Direct	4.2	1.6	1.4	2.0
Total/Tonne (\$)	\$1,400	\$3,600	\$3,900	\$6,400

Source: EconSearch (2006a)

¹³ Estimates of economic impact for the period 1997/98 to 2003/04 are detailed in EconSearch (2006a).

Appendix 2 Summary Economic Indicators for South Australian Commercial Fisheries

Appendix Table 2.1 Commercial fisheries catch, South Australia, 1990/91 – 2004/05 (tonnes)

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

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

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

Source: EconSearch 2006b

Appendix Table 2.2 Commercial fisheries gross value of production, South Australia, 1990/91 – 2004/05 (\$m)

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

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

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

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

Source: EconSearch 2006b.

Appendix Table 2.3 Cost of management in South Australian commercial fisheries, 2004/05

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

^a Excludes the River fishery.

Source: EconSearch 2006b.

Appendix Table 2.4 Financial performance in South Australian commercial fisheries, 2004/05, (\$'000) (average per boat)

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

^a Estimates of financial performance for the blue crab fishery have been presented on a whole of sector basis. The survey estimate of gross income for the blue crab – pot sector is higher than the SARDI estimate of \$3.32 million for 2004/05 presented in Appendix Table 3.2. The reason for the difference is likely to be that the SARDI estimate is based on Adelaide prices only, whereas licence holders are selling to the higher priced Sydney and Melbourne markets as well.

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

^c Earnings before interest and tax.

Source: EconSearch 2006b.

Appendix Table 2.5 Costs as a percentage of total cash costs in South Australian commercial fisheries, 2004/05

	Abalone	GSV Prawns	SG & WC Prawns	Sth'n Zone Rock Lob	Nth'n Zone Rock Lob	Blue Crabs Pot Sector	Blue Crabs MS Sector	Marine Scalefish ^a	Sardines	Lakes & Coorong
Fuel	3%	12%	13%	10%	17%	18%	16%	11%	7%	9%
R&M	8%	7%	11%	9%	7%	16%	19%	10%	13%	7%
Labour	59%	47%	49%	47%	36%	31%	32%	52%	64%	55%
Licence fee	15%	9%	4%	8%	7%	6%	18%	7%	5%	5%
Insurance	2%	6%	4%	3%	3%	2%	3%	3%	3%	1%
Interest	1%	10%	8%	12%	12%	18%	3%	0%	2%	4%
Admin & Other	12%	8%	11%	11%	19%	8%	10%	17%	6%	20%
Total Cash Costs	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

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

Source: EconSearch 2006b.

Appendix Table 2.6 Economic impacts of South Australian commercial fisheries, 2004/05

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

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

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

^c Full time equivalent jobs. Direct employment in the fishing sector was comprised of 655 full-time and 1,399 part-time, that is, 2,054 jobs in total.

Source: EconSearch 2006b

Appendix Table 2.7 Economic rent in South Australian commercial fisheries,
2004/05 (\$m)

	Abalone	GSV Prawns	SG & WC Prawns	Sth'n Zone Rock Lob	Nth'n Zone Rock Lob	Blue Crabs	Marine Scalefish	Sardines	Lakes and Coorong	All Fisheries ^a
Gross Income	35.5	3.8	32.0	54.4	11.6	4.4	20.9	28.5	5.5	196.7
Less Labour	9.1	1.4	10.7	15.1	5.0	1.1	11.9	10.1	2.2	66.7
Less Materials & Services	6.0	1.3	9.5	13.3	7.4	1.9	10.9	5.3	1.7	57.3
Less Depreciation	1.9	1.6	7.3	8.3	2.9	0.4	3.4	1.7	0.6	28.1
Less Opportunity Cost of Capital (@10%)	1.0	1.2	6.6	6.1	2.3	0.4	3.4	1.6	0.4	22.8
Economic Rent	17.6	-1.7	-2.0	11.6	-5.9	0.7	-8.5	9.7	0.5	21.9

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

Source: EconSearch 2006b.

Appendix 3 Financial Performance, 1997/98 to 2000/01

Appendix Table 3.1 Financial performance in the Marine Scalefish Fishery, 1997/98 to 2000/01 (average per boat)^a

	1997/98		1998/99		1999/00		2000/01	
	All Boats	Share of TCC	All Boats	Share of TCC	All Boats	Share of TCC	All Boats	Share of TCC
Gross Income	\$35,658		\$40,656		\$45,498		\$48,915	
Costs								
Fuel	\$4,847	11%	\$4,307	10%	\$6,535	15%	\$5,818	13%
R&M	\$6,443	15%	\$6,161	15%	\$6,390	14%	\$4,355	9%
Bait	\$698	2%	\$659	2%	\$667	1%	\$1,666	4%
Provisions	\$706	2%	\$676	2%	\$701	2%	\$1,166	3%
Labour	\$18,226	42%	\$17,431	42%	\$18,077	41%	\$22,193	48%
Licence fee	\$3,418	8%	\$3,169	8%	\$3,188	7%	\$3,596	8%
Insurance	\$806	2%	\$806	2%	\$826	2%	\$1,774	4%
Interest	\$1,701	4%	\$1,570	4%	\$1,738	4%	\$269	1%
Admin and Other	\$6,250	15%	\$6,332	15%	\$6,491	15%	\$5,412	12%
Total Cash Costs	\$43,095	100%	\$41,110	100%	\$44,614	100%	\$46,248	100%
Cash Operating Surplus (excl unpaid labour)	\$8,686		-\$454		\$885		\$18,132	
Cash Operating Surplus (incl unpaid labour)	-\$7,437		-\$454		\$885		\$2,667	
Depreciation	\$8,045		\$8,151		\$8,356		\$7,704	
Earnings Before Tax	-\$15,483		-\$8,606		-\$7,472		-\$5,037	
Earnings Before Interest & Tax	-\$13,782		-\$7,036		-\$5,734		-\$4,768	
Capital								
Fishing Gear & Equipment	\$64,364		\$65,211		\$66,852		\$61,630	
Licence Value ^{b, c}	\$34,578		\$37,101		\$40,354		\$84,223	
Total Capital	\$98,942		\$102,312		\$107,205		\$145,853	
Rate of Return to Fishing Gear & Equip	-21.4%		-10.8%		-8.6%		-7.7%	
Rate of Return to Total Capital	-13.9%		-6.9%		-5.3%		-3.3%	

^a Financial performance estimates for 1997/98 to 1999/00 are based on the October 1998 survey of licence holders. Financial performance estimates for 2000/01 are based on a second licence holder survey conducted in May 2002.

Source: EconSearch (2006a).