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Australian Statistician

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INQUIRIES

- For further information about these and related statistics, contact Jeannette Heycox on Canberra 02 6252 7889, or any ABS office shown on the back page of this publication.

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PREFACE

This is one of a series of Australian Bureau of Statistics (ABS) publications reporting on estimates of Australia's naturally occurring resources. It presents a set of statistics for Australia's fisheries resources. It is part of a broader project being undertaken by the ABS on environmental accounts.

As explained in the publication, lack of appropriate data has limited the amount of fisheries information that can be presented in the form of environmental accounts. Statistics on fish stocks are not available but production data for fresh fish from a range of different sources have been brought together to provide an overall picture of Australian fish production. Data on the supply and use of fresh fish have been presented in the form of environmental accounts.

Many individuals and organisations provided data for inclusion in this publication. The use of their published and unpublished material is specifically acknowledged at their point of use and in the reference list.

The ABS is also indebted to many people who willingly provided their time to referee the draft manuscript, and for their efforts in extracting data according to ABS specifications.

In Australia, environmental accounting is still a relatively new endeavour. Suggestions and comments on this ABS publication, or environmental accounting in general, would be greatly appreciated and should be sent to the Director, Environment and Energy Statistics Section, Australian Bureau of Statistics, PO Box 10, Belconnen, ACT 2616.

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LIST OF ABBREVIATIONS AND OTHER USAGES

ABBREVIATIONS

ABS	Australian Bureau of Statistics
AFMA	Australian Fisheries Management Authority
AFZ	Australian Fishing Zone
CSIRO	Commonwealth Scientific and Industrial Research Organisation
ECZ	Eastern Coast Zone
ETBF	Eastern Tuna and Billfish Fishery
GDP	Gross Domestic Product
I-O	Input-Output
IOCC	Input-Output Commodity Classification
ITQ	Individual transferable quota
SEF	South East Fishery
SNA	System of National Accounts
TAC	Total allowable catch
WCZ	Western Coast Zone
WTBF	Western Tuna and Billfish Fishery

SYMBOLS AND OTHER USAGES

t	tonnes
n.a.	not available
p	preliminary
—	nil or rounded to zero

CHAPTER 1 INTRODUCTION

BACKGROUND

To fully assess the sustainability of economic activities and economic growth, account should be made of environmental impacts and the depletion and degradation of natural resources. For this purpose, an information system which links the measurement of human activities to changes in the environment and the resource base is required. The environmental accounts are an attempt to provide important elements of such an information system.

To do this, there is a need to align environmental accounts and indicators with the System of National Accounts (SNA). Environmental accounts can be incorporated in a satellite account format to present an integrated economic and environmental account (United Nations 1993a).

The specific environmental considerations included in the satellite accounts of the SNA are:

- depletion of natural assets;
- expenditure on environmental protection and repair; and
- degradation of the environment.

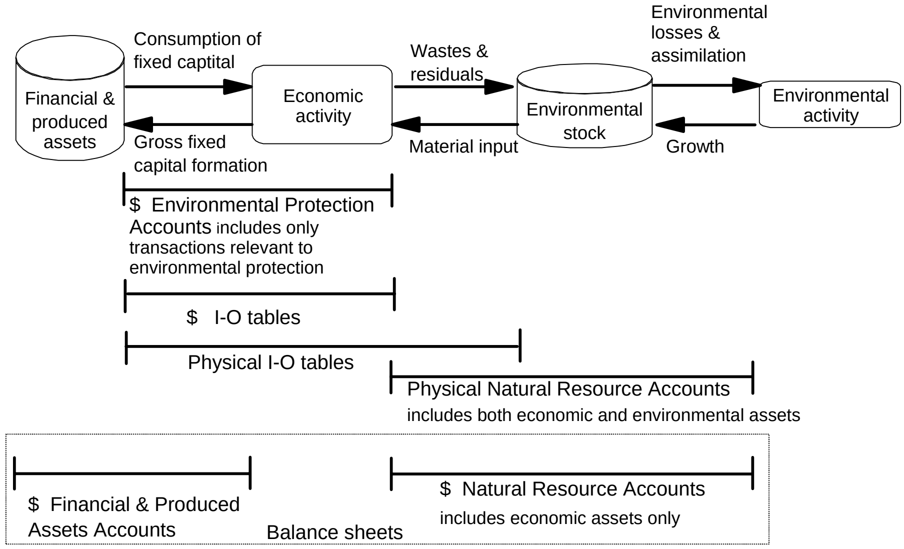
The resulting information system of environmental accounts linked to economic accounts, and the indicators derived from the information base, will be applicable to a wide range of policy questions relating to sustainable development. These accounts will also provide a substantial response to national and international recommendations such as those contained in the Ecologically Sustainable Development Strategy and 'Agenda 21'. 'Agenda 21' is the action document which emerged from the United Nations Conference on Environment and Development in June 1992.

FRAMEWORK

This publication follows the guidelines in *Integrated Environmental and Economic Accounting* (United Nations 1993a), a complement to the *System of National Accounts 1993* (United Nations 1993b).

Diagram 1.1 shows the way different components of environmental accounts relate to each other and to the National Accounts. It also shows the environmental accounts in reference to the stocks and processes of the economy and environment.

1.1 THE AUSTRALIAN SYSTEM OF ENVIRONMENTAL ACCOUNTS IN RELATION TO NATIONAL ACCOUNTS



Environmental Protection Accounts disaggregate the traditional National Account flows to show those monetary transactions that are relevant to environmental protection. As such, Environmental Protection Accounts cover current expenditures, income and capital investment, and depreciation. Some data have been collected and published relating to expenditures on protecting the environment. The results are contained in *Environment Protection Expenditure, Australia, 1994–95 and 1995–96* (ABS Cat. no. 4603.0). The next issue is expected to be published in May 1999.

Physical Input-Output (I-O) tables record, in physical terms, the flow of resources and wastes between the economy and the environment and the flow of commodities in physical terms through the economy. These latter flows have a direct parallel with the flows within the monetary I-O tables, a part of the SNA. Physical I-O tables typically embody considerable sectoral and industry detail and can be explicitly linked to the monetary I-O tables.

Physical Natural Resources Accounts provide a stock account of environmental assets. Typically these environmental assets provide important goods and/or services to the economy, e.g. timber, water or waste assimilation. The accounts include the level of stock available and changes to stock within a given time period due to both human and natural causes. The changes in stock level overlap with the flows presented in the Physical I-O tables. Physical I-O tables and Physical Natural Resources Accounts have been presented together in two earlier Australian Bureau of Statistics (ABS) publications:

- *Energy Accounts for Australia, 1993–94* (ABS Cat. no. 4604.0) provides information on major energy forms used in Australia and describes various aspects of energy resource use, including production, conversion and consumption in physical terms.
- The publication *Mineral Account, Australia, 1996* (ABS Cat. no. 4608.0) presents a set of stock and flow accounts for Australia's mineral and petroleum resources.

FRAMEWORK *continued*

Balance sheets provide a measure of the wealth of the nation and are part of the Australian National Accounts. They include a value for natural resources within the economic domain. The stock estimates included in the Physical Natural Resources Accounts can form the basis for the valuation of natural assets in the national balance sheets. For example the Mineral Account stock estimates have been used as the basis for the valuation of subsoil assets in the 1998 edition of the national balance sheets. Balance sheets have been published for a select range of resources, in conformity with principles of the SNA. These estimates are presented in *Australian National Accounts: National Balance Sheet, 30 June 1996* (ABS Cat. no. 5241.0).

IMPLEMENTATION

The core components of a physical environmental account are the stock table and the flow table. Ideally a stock table will present estimates of the total stock of a resource available for extraction or harvest. Fish stock assessment is a difficult task. Information on opening and closing stocks and changes resulting from harvesting and other causes is not available for most fisheries. Chapter 2 presents examples of stock tables for two species. Catch data are available and are presented in chapter 2 by species for Commonwealth, State and Territory fisheries. Catch information represents one component of the information required to compile a complete stock table.

The flow tables presented in chapter 3 consists of two parts, the supply table and the use table. Table 3.1 is the supply table and shows the total amount of product, in quantity terms, available for use by industry or final demand. Supply is the sum of domestic production and imports. Table 3.2, the use table, presents estimates of the distribution of supply across industries, as intermediate consumption or for export and final consumption. The use table is provided as a case study. The use table estimates are based on limited data and use a number of assumptions to extrapolate existing information to overcome data gaps. As it was not possible to verify the assumptions, those aspects of the use table derived from these should be interpreted only as illustrative. Data quality issues are discussed below. Further detail is provided in the Explanatory Notes (paragraph 6) at the end of the publication.

DATA QUALITY

Production data

Information presented in the production tables in chapter 2 and the Appendix has been provided by State and Territory fisheries divisions, and by the Australian Fisheries Management Authority. The data are based on catch information reported by fishers to these bodies. In some cases fishers are only required to report catch of target species. For example, in the Northern Prawn Fishery, only prawn catches are recorded. Other species such as squid which are taken in commercial volumes are not included in reported catch volumes. No adjustment has been made for instances where fishers are not required to record all species caught. Hence catch volumes will be an underestimate for some fisheries.

Production data *continued*

Most of the catch information reported by fishers is not verified by the agencies collecting the information apart from some monitoring aboard fishing vessels. There are incentives for fishers to record locations and volumes that may not accurately reflect details of their catch. Quotas in some fisheries, for example, may provide incentive for a fisher to record catch in waters outside the fishery where the quota does not apply. It is generally considered that catch information reported by fishers is less than actual catch though the extent of misreporting is unknown. The production information presented in chapter 2 has not been adjusted for misreporting.

Comprehensive data on recreational fishing are not available. Estimates of production from recreational fishing have been compiled for 1990–91 to 1996–97 based on information from *Home Production of Selected Foodstuffs, Australia, Year Ended April 1992* (ABS Cat. no. 7110.0). Currently a nationally coordinated recreational fishing survey involving a number of Commonwealth, State and Territory organisations is being conducted. Results from the survey are likely to provide more accurate estimates of the recreational fish catch.

Flow table

The flow tables presented in chapter 3 shows the movement of resources from harvest through to productive use. It shows the industries that consume commodities in the production of new commodities and end users (referred to as final demand). Estimates of supply were compiled from the catch data presented in chapter 2 and ABS imports data. The experimental estimates of use by industry were derived from a range of data sources including ABS exports data, studies of seafood consumption and Sydney Fish Market sales information. Other sources of information were used as a check where available.

The available data were not comprehensive and assumptions were necessary to compile the estimates. The assumptions are unlikely to accurately reflect the national distribution of product. The table has been included to demonstrate the form of a use table for fisheries resources. The methods used are outlined in more detail in chapter 3 and in the Explanatory Notes (paragraph 6).

CLASSIFICATION

Ideally environmental accounts should be comparable with Australia's National Accounts. One consequence would be that the flow table would be compiled using the Input-Output Commodity Classification (IOCC). The IOCC categorises fish commodities by fishing method. Some of these methods, such as squid jigging, are specific to a limited number of species and are not commonly employed by the industry. Others, such as finfish trawling, encompass a very broad range of species. In many cases it is difficult to allocate a particular species to a fishing method as one species can be caught by a variety of methods. Apart from this, the IOCC does not provide suitable categories for all fish species limiting its usefulness in presenting information about the industry.

CLASSIFICATION *continued*

Industry groups and government agencies commonly classify fish on the basis of biology and this approach has been adopted in this publication. There are five main biological groups relevant to fisheries resources. They are molluscs, crustaceans, echinoderms, elasmobranchs and teleosts. Definitions of these are contained in the Glossary. Elasmobranchs are referred to as 'sharks, skates and rays' and teleosts as 'other fish' throughout this publication. Echinoderms, including sea urchins and sea cucumbers, are included in an 'other' category. These groups have been adopted as the basis of the classification used in the flow table presented in chapter 3. While monetary information has not been linked to the physical flows presented in this publication, the ABS is working towards presenting flows of commodities in both physical and monetary terms on a comparable basis thus allowing physical data to be integrated with the National Accounts. This will require the alignment of the classification used in this publication with the IOCC in the future.

AUSTRALIAN FISHERIES RESOURCES

At about 36,000 kilometres, the Australian coastline is one of the longest in the world. The Australian Fishing Zone (AFZ), which covers approximately 9 million square kilometres, extends up to 200 nautical miles from Australia's shore and, in parts, adjoins the exclusive economic zones of Papua New Guinea, Indonesia, New Zealand and France. The AFZ also encompasses waters around the Australian external territories of the Norfolk, Christmas and Cocos (Keeling) Islands, and the Macquarie, Heard and McDonald Islands. The zone does not include the Australian Antarctic Territory.

Although Australia has the third largest fishing zone in the world after the United States of America and France, Australia ranks about fiftieth in world fisheries production in terms of tonnes of fish landed. The low catch level in Australian waters results from naturally limited run-off of nutrients from the land, a relatively small area of continental shelf, and the absence of major upwellings of nutrient-rich waters (BRS and FRDC 1993).

The management of Australia's fisheries resources is a shared responsibility between the Commonwealth Government and State and Territory Governments. The States and Northern Territory generally manage the fisheries that are inland and those within three nautical miles of the coast and the Commonwealth manages the offshore and highly migratory stocks beyond that to 200 nautical miles. Some fisheries, such as the Torres Strait fisheries, are managed jointly by agreements between the Commonwealth Government and State Governments.

Australia has an estimated 4,000 to 4,500 species of fish of which around 3,600 have been described. Approximately one-quarter of the species are found only in Australian waters (Zann 1995). More than 200 species are caught and sold commercially. In addition, the commercial and recreational catch includes more than 60 species of crustaceans, 30 species of molluscs and a few echinoderm species including sea cucumbers (beche de mer and trepang) and star fish (BRS and FRDC 1993).

SUMMARY INDICATORS

Table 1.2 provides some information about the contribution of the commercial fishing industry to the Australian economy. This is significant in assessing the contribution of fish resources to our national income and economic wellbeing. Overall the industry is a small contributor to employment and to Gross Domestic Product, however the proportion of total exports is significantly greater than that of imports. Exports and imports include fresh and processed fish and seafood commodities. Employment statistics only include Subdivision 04, Commercial fishing, of the Australian and New Zealand Standard Industrial Classification.

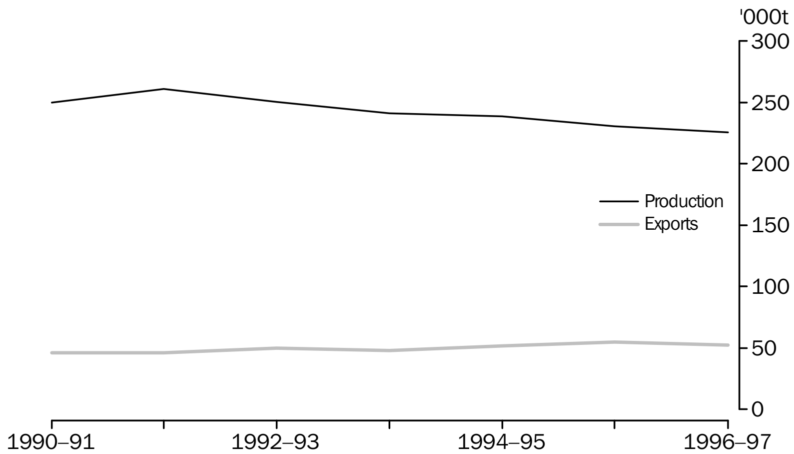
1.2 ECONOMIC INDICATORS FOR THE COMMERCIAL FISHING INDUSTRY

	1990–91	*1991–92*	*1992–93*	*1993–94*	*1994–95*	*1995–96*	*1996–97*
	%	%	%	%	%	%	%
GDP	0.219	0.232	0.220	0.187	0.186	0.174	0.163
Exports	1.585	1.782	1.796	1.925	2.039	1.747	1.653
Imports	0.982	0.997	0.888	0.921	0.903	0.873	0.888
Employment (Nov qtr)	0.002	0.002	0.002	0.002	0.002	0.002	0.001

Source: ABS, Unpublished data, Australian National Accounts, FASTTRACCS, Labour Force Survey.

Graph 1.3 shows exports of fisheries products, in quantity terms, in comparison to total production. Exports include all fresh and processed fish products. While exports account for about 20% of total production in quantity terms, they consist of mainly high value products and in 1995–96 accounted for 81% of the total value of Australian production (ABARE 1996). A slight decline in production over the period has not been reflected in the quantity of exports.

1.3 EXPORTS AND PRODUCTION



Source: Derived from ABARE 1992, 1993, 1994, 1995, 1996, 1997; ABS 1994, ABS unpublished data, FASTTRACCS; AFMA Logbook Database; Fisheries Division—Northern Territory Department of Primary Industry and Fisheries; Fisheries Victoria—Catch and Effort System; Fisheries Western Australia—Catch and Effort System; Lobegeiger 1998; New South Wales Fisheries Catch Database; O'Sullivan 1992, 1993, 1994, 1998; O'Sullivan and Kiley 1996, 1997; Queensland Fisheries Management Authority—Commercial Fisheries Information System; South Australian Research and Development Institute Production Figures; Southern Shark Fishery Monitoring Database; Tasmanian General Fishing Logbook; Tasmanian Rock Lobster Catch Record Logbook.

SUMMARY INDICATORS *continued*

Graph 1.4 shows Commonwealth fisheries production by the status of the fishery from which the fish were caught for 1992–93 to 1995–96. The graph shows the extent to which the commercial fish catch in Commonwealth waters relies on 'overfished', in comparison to 'underfished' and 'fully fished' fisheries. If a fishery is classified as 'fully fished' it suggests current catches are sustainable and close to optimum levels (BRS 1997). This is significant in assessing sustainable long-term fisheries production as overfishing contributes to the decline of fish stocks and can reduce the potential magnitude of future production.

Assessments of the status of Commonwealth fisheries are published annually by the Bureau of Resource Sciences. The status of some of the fisheries has not been assessed which results in almost half (48%) of the Commonwealth catch over the period being coded to 'uncertain' status. Most of the rest of the catch (75%) is from fisheries that are considered 'fully fished' with 14% from 'overfished' and 11% from 'underfished' fisheries. The overall proportion of catch from 'overfished' fisheries has fallen from 14% in 1992–93 to 3% in 1995–96.

1.4 COMMONWEALTH PRODUCTION, By Status of Stock

Source: Derived from ABARE 1992, 1993, 1994, 1995, 1996; AFMA Logbook Database; BRS 1994, 1995, 1996, 1997; Southern Shark Fishery Monitoring Database.

CHAPTER 2 MEASURING FISH STOCKS

INTRODUCTION

Fish stock assessment is a difficult task for government regulators, the fishing industry and scientific researchers. The mobility of fish and the influence of climate and other environmental conditions contribute to the complexity of assessing fish stocks. Assessments often require assumptions and results can have large error ranges. Nevertheless they are essential for the sustainable management of fish stocks and are important in identifying trends.

For the purposes of a natural resource account, an ideal fish stock table would include opening and closing stocks, together with information about production and adjustments resulting from natural and other factors. This framework is shown in table 2.1. Many assessments do not attempt to estimate the total biomass of a stock hence they cannot be presented in the format ideal for a natural resource stock table.

2.1 FRAMEWORK OF AN IDEAL FISH STOCK TABLE

	Produced (aquaculture)	*Wild (Australian Fishing Zone and inland water)*
	Year	Year
Opening stock		
Increase		
Gross natural growth		
New discoveries		
Decrease		
Natural causes		
Production		
Adjustment		
Technique improvement		
Improved estimation methods		
Closing stock		

A range of modelling and estimation techniques of varying sophistication are used to derive indicators of the status of wild fish stocks. These depend on the availability and quality of data collected for particular species and fisheries. Sufficient resources are not available to collect the required data and apply these techniques to all fisheries and fish species. Detailed stock assessments are therefore only available for a limited number, mainly those that are economically significant to the commercial industry. In this chapter information is presented in a simplified stock table format for two species for which stock assessments, including estimates of biomass, are available. These are orange roughy in the South East Fishery (SEF) and Tasmanian rock lobster.

INTRODUCTION *continued*

Table 2.2 provides stock measurements for orange roughy using Commonwealth Scientific and Industrial Research Organisation (CSIRO) data. Estimates of stock are based on acoustic surveys. The accuracy of these estimates has been debated but they are generally accepted by the main stakeholders. The production figures are not consistent with those shown for orange roughy in the SEF in table A10. Catch information in table A10 is based on logbook data provided by the Australian Fisheries Management Authority (AFMA). Production information in table 2.2 is based partly on AFMA logbook data but has been amended by CSIRO for losses, under-reporting and misreporting. For some years these amendments are large. For example, CSIRO estimated catch information reported in logbooks for 1992 to be 50–55% of the actual catch hence the production shown for this year in table 2.2 is much greater than is indicated in table A10. The adjustment figures in tables 2.2 and 2.3 are a balancing item accounting for changes in the stock level not related to production, including natural birth, growth and death rates.

According to the estimates shown in table 2.2, closing stock levels of orange roughy in the eastern zone decreased by over 70% between 1990 and 1993.

2.2 STOCK TABLE OF ORANGE ROUGHY IN SOUTH EAST FISHERY

	1987	*1988*	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*
	t	t	t	t	t	t	t	t	t
EASTERN ZONE									
Opening stock	n.a.	n.a.	n.a.	n.a.	38 604	22 913	14 119	11 185	n.a.
Adjustment	n.a.	n.a.	n.a.	n.a.	–4 235	6 023	1 835	n.a.	n.a.
Production	–403	–2 499	–23 873	–21 096	–11 456	–14 817	–4 769	–1 850	–1 959
Closing stock(a)	n.a.	n.a.	n.a.	38 604	22 913	14 119	11 185	n.a.	n.a.
Net change	n.a.	n.a.	n.a.	n.a.	–15 691	–8 794	–2 934	n.a.	n.a.
SOUTHERN ZONE									
Opening stock	n.a.	n.a.	n.a.	n.a.	n.a.	27 584	n.a.	33 124	n.a.
Adjustment	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Production	–459	–610	–9 906	–32 241	–13 831	–15 601	–5 836	–4 788	–2 159
Closing stock(a)	n.a.	n.a.	n.a.	n.a.	27 584	n.a.	33 124	n.a.	n.a.
Net change	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

(a) Closing stock figures are based on annual surveys undertaken by CSIRO. For the level of uncertainty in these figures see Bax (1996).

Source: Bax 1996.

INTRODUCTION *continued*

Table 2.3 presents stock information for legal-sized Tasmanian rock lobster. It is illegal for both commercial and recreational fishers to retain rock lobsters smaller than the legal size limit. The biomass of legal-sized rock lobster has been estimated by the Tasmanian Aquaculture and Fisheries Institute using their rock lobster assessment model which is described in Punt and Kennedy (1997). From 1988 to 1996 estimates of stock have fluctuated between 2,284 tonnes in 1993 and 3,023 tonnes in 1995. Estimates are available from 1970 and show a peak in biomass in 1982 at 4,569 tonnes. Based on trends shown by these estimates of biomass and other stock assessment methods, it was recommended that rebuilding of the resource, primarily by restraining catch, needed to be a management objective for the Tasmanian rock lobster fishery (Frusher 1997).

2.3 STOCK TABLE OF LEGAL-SIZED TASMANIAN ROCK LOBSTER

	1988	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*
	t	t	t	t	t	t	t	t	t
Opening stock	2 682	2 554	2 611	2 535	2 315	2 284	2 399	3 023	2 786
Adjustment	1 746	1 885	1 662	1 683	1 766	1 612	2 070	1 605	n.a.
Production	–1 874	–1 828	–1 738	–1 903	–1 797	–1 497	–1 446	–1 842	–1 758
Closing stock	2 554	2 611	2 535	2 315	2 284	2 399	3 023	2 786	n.a.
Net change	–128	57	–76	–220	–31	–115	624	–237	n.a.

Source: Tasmanian Aquaculture and Fisheries Institute, unpublished data.

AUSTRALIAN FISHERIES PRODUCTION

Catching fish is one way by which the stock is depleted. Fishing is undertaken commercially and as a recreational activity. Information is available about the size of the fish catch and is presented here as one of the data components required to compile a stock table. Other components are not available for all species hence it is not possible to produce a complete stock table for all Australian fisheries.

Commercial fisheries

The State and Northern Territory fisheries agencies and AFMA require commercial fishers to report the volume of their catch. The nature of what is reported varies. In some cases only the catch of species specifically targeted in a fishery needs to be reported. Fish caught incidentally may be landed and of a significant volume but not included in the reported catch. The volume of catch discarded at sea can also be considerable but does not need to be reported. Most discarded fish are dead or dying when returned to the sea. In some cases fish caught in inland waters are not reported. Hence the information collected is an underestimate of the actual catch. In addition much of the data collected from fishers is not verified or adjusted for misreporting or under-reporting. The State and Northern Territory fisheries agencies and AFMA process the data provided by fishers and produce estimates of the catch based on these. This information is presented in tables 2.4 to 2.12.

Aquaculture

Aquaculture is the farming of fish and other aquatic organisms (including pearls) and plants in either a freshwater or saltwater environment. Aquaculture can supplement production from wild fish stocks and has become an important industry in Australia accounting for 25% of the total value of Australian fisheries production in 1996–97. The industry was worth approximately $450 million to the Australian economy in 1996–97, up significantly from $49 million in 1985. Aquaculture production is referred to as the live weight quantity of product produced and marketed by aquaculturalists. Aquaculture data are presented in the following State and Territory production tables (tables 2.5 to 2.11) and were provided by State fisheries agencies, O'Sullivan (1992, 1993, 1994, 1998), O'Sullivan and Kiley (1996, 1997) or the ABARE (1992, 1993, 1994, 1995, 1996 and 1997).

Recreational catch

Recreational fishing is a popular past time in Australia. A significant volume of fish and other seafood species are caught by amateur fishers. Recreational fishers are generally not required to report their volume of catch though for some species quotas may be set. No records are kept of the recreational catch. In April 1992, the Australian Bureau of Statistics conducted a survey of home production of selected foodstuffs. The survey covered the 12 months ending April 1992 and included recreational fishing. The estimates in table 2.13 are derived from the results presented in the publication *Home Production of Selected Foodstuffs Survey, Australia, Year Ended April 1992* (ABS Cat. no. 7110.0). The method used is outlined in the Explanatory Notes (paragraph 4).

Summary of production

Fisheries production includes catch from the Commonwealth, State and Northern Territory managed fisheries, aquaculture production, and also catch from the recreational fishing sector. Total production from 1990–91 to 1996–97 is summarised in table 2.4.

Overall the States and the Northern Territory contributed approximately 64% of Australia's total production. Over this period Western Australia has consistently produced the greatest catch. In 1996–97 this was 45,120 tonnes, 28% of the State and Territory total. The Northern Territory had the smallest catch with about 2% of the State and Territory total in 1996–97. About 24% of total production was from Commonwealth managed fisheries. The contribution of recreational fishers (home production) was about 11% of the total. Total production declined steadily from 1991–92 (292,691 tonnes) to 1996–97 (255,873 tonnes). This was due mainly to substantial falls in production in Tasmanian and Commonwealth managed fisheries over this period.

Commonwealth, State and Territory production information is presented in tables 2.4 to 2.12. More detailed information, by fishery, is available for Commonwealth managed fisheries and is presented as an Appendix to this publication. Estimates of home production are shown in table 2.13.

2.4 SUMMARY OF PRODUCTION, Financial Year

	1990–91	*1991–92*	*1992–93*	*1993–94*	*1994–95*	*1995–96*	*1996–97*
Production	t	t	t	t	t	t	t
State and Territory							
New South Wales	27 889	28 298	30 566	31 543	29 442	27 627	26 059
Victoria	13 786	16 741	25 576	20 664	12 400	14 108	10 227
Queensland	28 021	24 898	28 392	29 466	32 249	33 852	31 041
South Australia	13 910	15 955	15 850	17 745	19 419	20 807	20 493
Western Australia	41 445	55 951	52 844	47 504	48 769	45 618	45 120
Tasmania	35 876	43 933	31 811	27 092	34 891	27 021	26 434
Northern Territory	2 753	2 753	2 580	3 391	2 901	3 886	3 723
Total	*163 680*	*188 530*	*187 620*	*177 405*	*180 070*	*172 920*	*163 097*
Commonwealth	86 064	73 018	63 633	64 683	59 280	58 272	62 577
Home	30 385	31 143	29 372	31 724	32 261	29 615	30 199
Total production	**280 129**	**292 691**	**280 624**	**273 812**	**271 612**	**260 807**	**255 873**

Source: ABARE 1992, 1993, 1994, 1995, 1996, 1997; ABS 1994; AFMA Logbook Database; Fisheries Division—Northern Territory Department of Primary Industry and Fisheries; Fisheries Victoria—Catch and Effort System; Fisheries Western Australia—Catch and Effort System; Lobegeiger 1998; New South Wales Fisheries Catch Database; O'Sullivan 1992, 1993, 1994, 1998; O'Sullivan and Kiley 1996, 1997; Queensland Fisheries Management Authority—Commercial Fisheries Information System; South Australian Research and Development Institute Production Figures; Southern Shark Fishery Monitoring Database; Tasmanian General Fishing Logbook; Tasmanian Rock Lobster Catch Record Logbook.

New South Wales fisheries production

Table 2.5 shows total commercial production in New South Wales from 1989–90 to 1996–97 was 230,115 tonnes. The greatest proportion of this was from the commercial finfish catch with 136,801 tonnes, about 59% of total production. Sea mullet was the most common species caught in New South Wales waters with 32,954 tonnes recorded over the period, 24% of the finfish catch. Finfish production peaked in 1992–93 (19,039 tonnes) and 1993–94 (19,480 tonnes) and has been steadily decreasing since. Catches of Australian salmon and school whiting have increased over the period while catches of other species such as shark and silver trevally have decreased. The commercial catch of crustaceans was 24,000 tonnes and commercial production of molluscs was 15,530 tonnes, 10% and 7% of overall production for the period respectively.

Aquaculture is a significant industry in New South Wales and from 1989–90 to 1996–97 produced 52,857 tonnes, 23% of overall production. The Sydney rock oyster was the main aquaculture species with 47,075 tonnes produced from 1989–90 to 1996–97, 89% of total aquaculture production. The greatest commercial production in New South Wales occurred in the 1993–94 season with the least amount of production occurring in the 1996–97 financial year.

Victorian fisheries production

The total commercial production in Victoria from 1989–90 to 1996–97 was 125,562 tonnes as shown in table 2.6. The greatest proportion of production was from the commercial fish catch with 45% (56,889 tonnes), followed by mollusc production with 37% (47,054 tonnes) and aquaculture with 13% (16,297 tonnes) of the total. Since 1992–93 total fish production has declined by 45%. Pilchard production fell from 3,230 tonnes in 1992–93 to 773 tonnes in 1996–97. Blue warehou production also declined, from 1,557 tonnes in 1990–91 to 104 tonnes in 1996–97. Scallops were the most common species caught with 25% (31,392 tonnes) of total commercial production followed by pilchards (14%) and abalone (9%). The greatest total commercial production occurred in the financial year of 1992–93 with 25,576 tonnes.

Rainbow and brown trout were the main aquaculture species over the eight-year period with 10,792 tonnes, 66% of aquaculture production. Aquaculture production was greatest in 1995–96.

Queensland fisheries production

Table 2.7 shows production by species for Queensland. Total commercial production in Queensland from 1989–90 to 1996–97 was 232,035 tonnes. Commercial fish caught constituted 37% of total production. Mullet species made up the greatest proportion of fish caught with 18% of total fish (15,535 tonnes) although whiting production has been consistently greater than mullet production since 1993–94. The crustacean catch was 39% of total production with king prawns constituting 24% and tiger prawns 18% of total crustaceans caught. The crustacean catch increased steadily from 1989–90 (8,955 tonnes) to 1996–97 (14,028 tonnes) mainly as a result of increased spanner crab and king prawn production. The production of molluscs in Queensland was 45,011 tonnes over the period, 19% of overall commercial production. Scallops constituted 97% of mollusc production (43,590 tonnes).

Queensland fisheries production *continued*

Aquaculture in Queensland is a new industry and only contributed 5% of total production (11,533 tonnes). Prawns made up 69% of this. The greatest total commercial production in Queensland occurred in the 1995–96 financial year with 33,852 tonnes.

South Australian fisheries production

Table 2.8 presents production information for South Australia. The total commercial fisheries production of South Australia from 1990–91 to 1996–97 was 124,179 tonnes. Fish production was 45% (55,802 tonnes) and crustaceans 30% (37,481 tonnes) of the overall total. Pilchards were the main fish species caught with production increasing from 3 tonnes in 1990–91 to 3,428 tonnes in 1996–97. Rock lobster production was 51% of total crustacean production and prawns constituted 38% of total crustacean catch.

Aquaculture production from 1990–91 to 1996–97 was 14,003 tonnes, 11% of total commercial fish production. Southern bluefin tuna was the predominant aquaculture species with 7,964 tonnes produced, 57% of overall aquaculture production. Aquaculture production of pacific oysters and southern bluefin tuna has increased more than tenfold over the period reflecting the development and growth of the industry in South Australia. The 1995–96 season, with 20,807 tonnes, was the year of greatest total production over the period.

Western Australian fisheries production

The total commercial production of Western Australian fisheries from 1989–90 to 1996–97 was 372,355 tonnes as shown in table 2.9. Production peaked at 55,951 tonnes in 1991–92. The majority of production was from fish (181,415 tonnes) which was 49% of total commercial production. Pilchards were the main species caught and constituted 41% of the fish catch. Scaly mackerel production more than doubled from 1992–93 (590 tonnes) to 1996–97 (1,489 tonnes). Rock lobster and mollusc production made up 23% and 19% of the total commercial catch respectively. Saucer scallops were the main species of molluscs caught with 63,089 tonnes, 90% of total mollusc production in Western Australia.

Aquaculture contributes less than 1% of Western Australia's total fisheries production, over half of which is mussels production.

Tasmanian fisheries production

Table 2.10 shows Tasmania's total commercial production from 1990–91 to 1996–97 was 227,058 tonnes. Total fish caught in Tasmania was 135,941 tonnes, 60% of overall production for the period. Most of the production of fish species is listed as 'other fish species' in table 2.10. This is necessary to ensure the confidentiality of the jack mackerel catch as required by the Tasmanian Department of Primary Industries, Water and the Environment. Overall fish production has declined since 1990–91 with the lowest catch occurring in 1995–96 (9,919 tonnes) after a peak of 32,877 tonnes in 1991–92. Mollusc production from 1990–91 to 1996–97 was 15,248 tonnes, 7% of total production. Abalone constituted 97% of total molluscs caught. Crustacean production was 13,878 tonnes with rock lobster being the most important species, contributing 87% of crustacean production.

Tasmanian fisheries production *continued*

Aquaculture has become an increasingly important industry within Tasmania. Total production over this period was 61,625 tonnes with aquaculture production increasing from less than 20% of total commercial production in Tasmania in 1990–91 and 1991–92, to over 40% since 1995–96. This has been primarily due to a steady increase in Atlantic salmon. In 1990–91 Atlantic salmon production was 2,650 tonnes. Since 1995–96, production has increased to over 7,000 tonnes. This species made up 58% of aquaculture production in Tasmania (35,732 tonnes) over the period. Pacific oysters are the other significant contributor with 30% of aquaculture production (18,344 tonnes).

Northern Territory fisheries production

The total commercial production of the Northern Territory fishing industry from 1990–91 to 1996–97 was 21,989 tonnes as shown in table 2.11. The commercial fish catch comprised 85% of overall production (186,344 tonnes). Sharks (3,769 tonnes) and barramundi (3,483 tonnes) were the major fish species caught with 20% and 19% of production respectively. Crustaceans constituted 11% of overall production with 2,494 tonnes. Molluscs were less than 3% of total Northern Territory production (569 tonnes). The year of greatest overall production in the Northern Territory was during 1995–96 with 3,886 tonnes.

Aquaculture is of a small scale within the Northern Territory and comprehensive information is not available for confidentiality reasons.

Commonwealth fisheries production

Total production in the Commonwealth fisheries from 1989–90 to 1996–97 was 548,644 tonnes (table 2.12). The largest production occurred in 1990–91 with 86,064 tonnes and the year of least production occurred in 1995–96 with 58,272 tonnes. More recent years have seen decreased production due to tighter restrictions for Commonwealth fisheries with limited boat entry and catch quotas for many species.

Home production

Home production was estimated at 214,699 tonnes for the period from 1990–91 to 1996–97, around 30,000 tonnes each year. The proportion of recreational catch compared to commercial production varies with each species. The recreational catch of yabbies shown in table 2.13 is about six times commercial production. For all fish species, the recreational catch is estimated at about 15% of commercial production. Overall, the recreational catch contributes about 11% of total production.

2.5 NEW SOUTH WALES FISHERIES PRODUCTION, Financial Year

Species	1989–90 t	1990–91 t	1991–92 t	1992–93 t	1993–94 t	1994–95 t	1995–96 t	1996–97 t
Fish								
Amberjack	0.2	0.1	0.3	0.3	0.4	0.3	0.5	1.0
Anchovy	52.3	22.2	13.2	14.6	13.0	18.6	15.8	19.3
Barracouta	89.9	49.3	51.6	165.3	66.2	32.9	13.6	11.5
Biddy, silver	135.7	143.7	170.6	126.9	200.9	196.8	158.8	149.3
Blue-eye(a)	183.9	204.1	106.3	42.6	23.9	19.2	18.4	11.3
Boarfish	2.1	16.2	9.7	9.8	7.3	6.1	6.1	9.8
Bonito	27.9	111.8	122.6	141.3	140.9	151.6	173.0	132.9
Bonito, leaping	2.2	9.6	7.4	16.4	7.3	14.7	5.1	3.9
Bream, black and yellowfin	537.6	568.6	507.5	627.0	719.1	587.8	550.0	479.7
Bream, bony	5.0	10.0	11.7	15.8	9.5	13.2	7.9	7.8
Bream, rays	—	—	0.8	1.0	0.7	0.6	1.5	0.2
Carp	128.2	120.1	168.1	164.6	180.6	148.2	142.8	101.7
Catfish, estuary	—	—	0.2	1.3	0.5	3.1	3.1	1.3
Catfish, forktailed	—	—	—	—	0.5	2.9	4.4	0.5
Catfish, unspecified	2.2	10.5	17.0	23.8	22.2	15.0	17.6	20.4
Cobia	—	0.7	0.4	5.1	6.5	3.8	6.0	4.6
Cod, bar	7.0	28.7	19.6	17.0	15.0	11.3	14.1	15.4
Cod, murray	11.5	11.2	9.5	7.7	12.4	6.8	25.9	24.4
Cod, red rock	1.5	5.1	6.1	5.5	5.0	8.1	6.8	10.1
Cod, unspecified	0.1	19.8	14.5	10.8	11.7	11.0	8.6	4.6
Dart	1.5	2.3	2.6	3.2	5.5	2.8	5.2	2.7
Diamond fish	—	—	—	0.5	—	0.1	1.1	0.2
Dolphinfish	0.1	16.7	4.6	6.8	6.6	11.2	24.3	9.2
Dory, John(a)	46.4	32.6	26.6	39.3	55.2	45.2	18.6	13.9
Dory, king(a)	—	—	—	—	—	0.5	—	—
Dory, mirror(a)	36.3	15.3	29.3	27.8	50.9	13.9	71.0	48.6
Dory, oreo(a)	—	0.1	0.1	0.4	1.6	0.9	1.5	0.2
Dory, silver(a)	—	4.7	13.8	1.1	8.5	1.5	0.1	—
Dory unspecified(a)	—	0.7	0.4	0.3	0.5	—	—	—
Drummer	0.1	0.8	0.4	1.1	2.1	2.2	2.9	1.2
Eel, conger	0.1	2.1	6.1	25.0	37.7	37.5	43.0	29.3
Eel, longfin river	—	45.6	137.6	141.0	40.2	43.6	59.9	68.3
Eel, pike	—	0.1	2.1	2.4	0.5	6.7	3.1	0.6
Eel, short-finned conger	—	0.2	10.2	46.5	41.5	98.1	130.3	85.5
Eel, shortfin river	0.1	0.9	8.8	59.8	82.2	31.1	20.9	3.2
Eel, unspecified	124.4	55.5	87.0	150.0	92.6	84.3	25.6	18.1
Fish, unspecified estuary	156.0	115.8	81.7	77.7	79.3	74.4	105.4	72.8
Fish, unspecified freshwater	1.6	3.4	2.5	3.7	7.0	0.2	0.1	0.5
Fish, unspecified ocean(b)	5 181.9	3 274.7	3 313.5	4 525.5	4 202.9	3 399.5	2 090.6	2 277.0
Flathead, dusky	185.6	180.0	183.0	167.3	190.1	184.2	172.4	191.1
Flathead, sand(a)	171.6	104.4	103.2	114.6	118.2	101.0	106.4	107.6
Flathead, tiger(a)	76.9	85.0	99.8	74.9	70.0	92.9	82.5	104.1
Flathead, unspecified	0.4	41.8	108.9	72.3	31.0	8.7	7.1	3.4
Flounder, unspecified	1.8	15.1	30.3	34.8	31.2	40.1	40.1	35.8
Garfish, no bill	13.8	8.9	9.5	4.9	7.5	13.6	7.7	10.9
Garfish, river	55.7	48.2	42.8	18.6	20.6	27.0	28.2	24.7
Garfish, sea	133.2	214.0	160.2	279.5	165.2	201.2	103.3	103.9
Gemfish(a)	26.5	176.2	9.9	6.9	12.1	8.1	8.2	5.6
Grenadier, blue(a)	—	0.8	0.3	0.1	0.4	0.6	0.4	1.2
Groper	—	10.2	0.1	—	—	0.7	—	—
Gurnard, red	54.2	53.9	297.2	77.3	54.1	40.2	32.2	21.5
Gurnard, spotted	—	1.7	5.0	9.1	10.1	5.0	4.3	4.3
Hairtail	39.5	160.5	77.6	33.1	10.1	5.5	3.5	2.2
Hapuku(a)	37.3	43.5	23.5	18.3	13.3	6.5	6.5	8.0
Jobfish, rosy	—	1.0	0.5	22.5	2.8	1.1	0.6	0.5
Kingfish, yellowtail	500.2	419.1	386.8	418.5	346.9	294.6	193.7	82.6
Latchet(a)	24.9	20.0	20.3	19.8	17.1	18.8	15.8	15.9
Leadenall	—	—	1.2	0.5	1.0	23.5	3.6	2.1
Leatherjacket, chinaman	—	—	0.2	2.1	6.9	2.2	1.9	3.0

(a) For these species, also caught in the South East Fishery, data show fish caught north of Barrenjoey Headland only (see Explanatory Notes, paragraph 3).

(b) This figure includes both NSW catch and an unknown proportion of catch from Commonwealth waters.

2.5 NEW SOUTH WALES FISHERIES PRODUCTION, Financial Year *continued*

Species	*1989–90* t	*1990–91* t	*1991–92* t	*1992–93* t	*1993–94* t	*1994–95* t	*1995–96* t	*1996–97* t
Fish *continued*								
Leatherjacket, unspecified	104.8	101.8	95.2	137.7	156.7	181.7	179.4	159.1
Ling(a)	5.8	4.4	2.7	3.0	2.1	5.3	6.6	6.0
Longtom	0.1	0.9	0.5	1.5	1.8	1.5	1.2	1.4
Luderick	767.7	746.7	581.8	598.3	644.3	492.0	501.1	480.2
Mackerel, blue	144.5	95.2	253.8	512.3	404.3	305.1	309.5	306.0
Mackerel, jack	78.6	58.7	39.9	160.4	102.3	63.3	67.8	26.8
Mackerel, spanish	27.7	45.0	15.4	48.3	17.5	8.3	9.3	22.6
Mackerel, spotted	0.2	3.2	2.5	13.6	27.6	8.1	8.0	31.4
Mackerel, unspecified	1.1	1.0	0.4	1.1	10.1	52.5	4.0	1.6
Moki	—	0.9	0.8	2.9	1.5	2.0	3.6	2.3
Morwong, jackass(a)	10.1	12.3	11.0	11.3	9.7	10.0	7.1	4.5
Morwong, red	0.1	0.3	0.8	6.2	9.2	7.4	8.3	9.8
Morwong, rubberlip	262.3	194.6	151.5	146.3	185.2	180.3	215.3	197.0
Morwong, unspecified	—	0.1	1.1	0.2	0.7	0.1	0.1	—
Mullet, fantail	125.9	146.5	113.8	142.0	135.0	95.8	111.3	90.7
Mullet, pink-eye	0.3	0.7	1.6	9.0	2.1	7.3	4.7	10.8
Mullet, red	2.6	54.2	45.7	30.1	28.3	22.5	26.3	35.3
Mullet, sand	45.8	3.1	10.6	28.1	14.0	43.6	49.7	33.6
Mullet, sea	3 266.1	3 795.9	3 476.2	3 960.2	5 508.3	4 465.0	4 450.4	4 031.6
Mullet, unspecified	—	8.3	47.2	37.7	51.9	103.8	30.2	92.9
Mulloway	163.1	162.3	159.5	154.3	140.8	128.3	101.9	87.9
Nanata	—	0.5	2.7	—	0.1	0.1	—	—
Oilfish	6.3	9.6	13.6	11.6	10.3	15.4	14.3	7.3
Old maid	1.2	6.4	12.0	9.9	12.9	18.0	17.0	14.2
Opah	0.3	2.7	4.7	7.4	7.2	11.3	6.0	4.7
Orange roughy(a)	—	—	0.4	—	—	0.2	0.2	—
Parrotfish	—	2.1	7.4	3.1	7.0	6.3	6.2	5.9
Perch, golden	62.6	90.0	122.1	159.8	173.3	105.4	91.1	66.1
Perch, ocean(a)	15.7	13.5	19.9	34.5	40.5	50.1	50.2	18.9
Perch, orange	—	0.7	0.9	1.5	8.9	13.8	20.0	21.2
Perch, pearl	1.0	6.2	8.7	16.1	12.9	14.0	17.4	9.6
Perch, redfin	6.3	6.9	3.5	2.8	2.6	3.7	4.1	1.7
Perch, silver	2.2	0.5	1.3	0.4	0.4	0.5	0.3	1.3
Perch, unspecified	—	1.0	0.1	9.6	18.3	6.5	5.9	9.8
Pigfish	0.2	2.4	5.6	5.9	6.1	6.9	8.7	7.6
Pike	—	2.2	1.9	5.9	7.3	7.5	4.3	7.2
Pilchard	206.3	220.4	339.5	472.7	443.3	343.2	354.4	416.7
Ribbonfish	13.0	78.8	80.9	112.8	122.3	166.5	92.0	70.8
Rudderfish	0.1	1.4	6.8	13.6	15.5	21.9	14.6	15.8
Salmon, Australian	490.7	393.1	636.5	829.2	490.7	1 085.8	1 162.2	1 261.6
Samson fish	0.5	5.5	12.8	18.7	19.2	15.8	54.6	20.0
Shark, angel(a)	0.3	19.6	23.4	24.2	19.1	21.3	17.2	14.4
Shark, black tip	0.1	14.2	16.5	18.1	20.1	29.1	40.6	38.0
Shark, carpet	4.0	122.0	111.0	119.8	97.5	91.9	86.3	63.9
Shark, dogfish endeavour(a)	0.1	17.2	18.5	18.2	13.8	16.3	14.5	5.3
Shark, dogfish greeneye(a)	0.3	34.1	50.4	50.2	35.5	32.2	29.3	13.3
Shark, dogfish unspecified(a)	—	0.5	0.2	0.3	—	0.1	0.3	0.6
Shark, fiddler	0.9	61.4	86.5	106.2	88.4	105.0	104.9	99.6
Shark, ghost	—	0.8	0.7	0.8	1.5	3.3	6.0	8.9
Shark, gummy(a)	—	5.4	8.8	11.5	12.1	11.4	12.4	10.0
Shark, hammerhead	—	6.0	5.1	8.8	15.7	9.5	11.2	7.3
Shark, mako	0.4	5.1	5.9	12.2	10.4	11.2	26.4	32.6
Shark, roughskin	—	0.1	0.1	51.3	20.0	1.5	1.2	0.7
Shark, saw(a)	—	1.2	4.7	9.3	11.7	16.6	18.8	10.0
Shark, school(a)	0.1	16.5	21.9	18.0	18.8	13.3	14.5	13.1
Shark, shovelnose	—	1.4	2.5	6.8	11.2	19.3	19.5	14.4
Shark, unspecified	836.0	309.6	199.0	216.9	171.3	168.7	148.3	106.3
Snapper	495.7	391.6	514.2	608.8	517.4	412.0	323.6	307.1
Sole, black	0.6	1.8	1.0	2.5	2.3	5.3	3.8	4.9
Sole, lemon	—	1.2	3.1	2.7	0.6	1.0	0.9	1.0

(a) For these species, also caught in the South East Fishery, data show fish caught north of Barrenjoey Headland only (see Explanatory Notes, paragraph 3).

2.5 NEW SOUTH WALES FISHERIES PRODUCTION, Financial Year *continued*

	1989–90	*1990–91*	*1991–92*	*1992–93*	*1993–94*	*1994–95*	*1995–96*	*1996–97*
Species	t	t	t	t	t	t	t	t
Fish *continued*								
Stargazer	—	1.4	1.8	4.2	12.0	8.5	1.8	1.8
Stingray	3.2	38.1	43.3	54.1	47.1	51.3	48.3	45.8
Sweep	8.5	68.2	96.8	151.4	130.6	120.0	157.2	131.5
Tailor	131.4	116.3	90.9	102.0	95.9	78.2	112.2	63.5
Tarwhine	40.7	87.3	65.4	61.6	79.1	63.7	95.5	74.3
Teraglin	36.7	38.1	39.7	48.8	27.4	20.4	21.6	26.8
Trevally, black	16.8	5.4	11.6	18.9	60.8	56.1	75.7	9.7
Trevally, silver	1 077.6	1 041.7	651.9	757.2	717.8	614.8	735.8	703.9
Trumpeter	0.1	2.6	3.2	3.9	7.2	8.9	7.9	7.3
Trumpeter, Tasmanian	—	0.9	1.3	1.4	3.1	6.1	2.9	3.1
Trumpeter, unspecified	0.3	4.5	2.1	2.3	3.4	1.1	7.3	2.0
Tuna, mackerel	—	18.5	39.6	23.2	23.5	7.9	23.0	19.4
Tuna, unspecified	2.4	3.0	0.3	0.2	0.2	0.4	1.4	0.1
Wahoo	—	0.2	0.6	1.5	7.7	227.1	22.9	11.0
Warehou, blue and silver(a)	—	2.6	3.2	0.2	—	0.1	—	—
Whitebait	19.2	39.9	99.1	51.7	116.5	71.0	81.1	74.8
Whiting, grass	—	2.6	0.2	0.7	1.4	0.1	0.6	1.7
Whiting, sand	131.5	165.2	179.6	145.8	212.1	202.8	199.6	161.1
Whiting, school(a)	400.4	370.1	362.0	360.5	435.0	601.6	711.5	797.3
Whiting, trumpeter	49.5	33.4	29.8	42.7	48.4	63.0	43.4	51.5
Whiting, unspecified	0.4	16.4	7.2	16.1	3.6	1.1	1.8	2.8
Wirrah	—	0.4	0.6	1.3	2.3	2.4	11.6	2.3
Yellowtail	148.3	179.9	237.9	298.3	258.9	241.2	349.8	338.5
Total	*17 276.2*	*16 014.0*	*15 860.2*	*19 038.7*	*19 480.2*	*17 675.1*	*16 213.6*	*15 243.0*
Crustaceans								
Bug, Balmain	5.0	51.6	98.7	102.1	69.3	84.5	116.2	112.5
Bug, deepwater	—	—	0.1	5.5	—	—	—	—
Crab, blue swimmer	10.3	87.3	217.7	191.4	200.6	231.3	190.5	210.5
Crab, hermit	—	1.5	1.7	1.2	2.2	6.3	2.4	2.1
Crab, mud	82.4	95.4	160.7	107.3	123.4	93.5	136.7	115.9
Crab, sand	138.4	59.7	39.3	21.0	15.7	27.1	46.2	47.4
Crab, spanner	208.5	255.3	325.8	326.0	349.2	443.6	423.6	360.1
Crab, unspecified	0.3	4.3	3.4	3.7	4.7	1.9	1.0	6.5
Krill	5.6	11.7	2.6	1.0	—	—	0.2	0.1
Lobster, eastern rock	92.9	83.3	97.3	100.6	150.8	79.6	99.9	102.6
Lobster, shovelnose	104.7	51.6	3.0	2.2	0.3	0.6	0.9	0.2
Lobster, southern rock	1.4	5.6	1.2	1.0	0.4	0.3	0.4	0.4
Lobster, unspecified	—	1.1	3.6	0.9	2.1	2.4	1.1	0.4
Nipper	0.1	0.1	1.8	1.2	1.7	1.9	2.3	3.9
Prawn, carid	0.3	2.8	3.1	1.3	0.5	8.0	5.6	4.4
Prawn, eastern king	1 084.6	1 138.2	934.5	814.4	925.8	888.0	831.0	700.7
Prawn, greasyback	81.0	106.7	46.9	43.6	33.5	24.1	21.7	35.6
Prawn, racek	3.1	8.2	8.3	4.4	1.1	1.2	0.3	4.5
Prawn, royal red(a)	10.8	97.8	175.9	165.4	118.0	126.7	162.5	45.4
Prawn, school	1 484.9	887.1	866.7	674.8	430.2	712.8	921.1	1 066.5
Prawn, tiger	0.5	1.1	0.9	3.7	5.5	8.7	6.7	3.9
Prawn, unspecified estuary	60.6	122.4	96.2	101.2	64.6	34.7	32.3	31.0
Prawn, unspecified ocean	47.9	30.5	31.3	14.4	11.3	3.3	2.6	2.8
Yabby, freshwater	57.1	73.1	31.3	64.9	124.0	73.2	37.3	43.1
Other	0.1	0.7	0.6	0.8	0.9	1.2	1.3	1.0
Total	*3 480.4*	*3 177.1*	*3 152.6*	*2 754.0*	*2 635.7*	*2 854.9*	*3 043.9*	*2 901.5*

(a) For these species, also caught in the South East Fishery, data show fish caught north of Barrenjoey Headland only (see Explanatory Notes, paragraph 3).

2.5 NEW SOUTH WALES FISHERIES PRODUCTION, Financial Year *continued*

Species	*1989–90* t	*1990–91* t	*1991–92* t	*1992–93* t	*1993–94* t	*1994–95* t	*1995–96* t	*1996–97* t
Molluscs								
Abalone, blacklip	369.7	327.8	285.3	326.6	315.2	308.3	327.0	335.4
Calamari, southern	10.0	86.2	65.6	82.5	66.3	70.5	60.6	89.9
Cockle	6.4	62.6	93.4	85.8	87.8	45.3	37.3	36.8
Cuttlefish	200.7	204.4	221.1	335.0	399.4	456.7	327.4	283.2
Mussel, blue	0.1	16.9	0.2	0.7	4.3	0.3	0.7	0.6
Octopus	436.4	475.8	701.8	457.4	709.3	499.6	481.1	462.5
Pipi	355.9	289.3	266.7	314.6	247.3	261.8	248.0	464.7
Scallop	28.5	6.9	1.5	5.6	21.7	20.8	0.8	0.7
Scallop, saucer	—	—	0.9	—	1.6	0.5	0.1	—
Shells	—	0.1	1.2	4.7	9.6	11.2	9.8	7.5
Squid	330.9	459.2	391.7	546.4	301.4	273.0	197.7	185.2
Turban snail, unspecified	0.4	0.2	0.3	1.4	0.9	1.2	0.1	0.1
Total	*1 739.0*	*1 929.4*	*2 029.7*	*2 160.8*	*2 164.6*	*1 949.1*	*1 690.6*	*1 866.7*
Other classes								
Beachworms	19.3	5.4	6.0	10.2	33.9	174.0	40.9	43.2
Shellfish, unspecified	137.8	105.8	75.1	73.3	20.7	69.5	75.0	32.4
Sea urchins	0.2	0.4	0.2	0.7	—	1.4	0.6	0.9
Total	*157.3*	*111.6*	*81.3*	*84.2*	*54.7*	*244.9*	*116.5*	*76.4*
Aquaculture								
Eels	34.0	—	—	—	—	0.6	0.5	0.3
Mussels (blue)	15.0	25.0	13.2	25.6	58.0	34.0	42.0	40.0
Other species(a)	—	—	0.2	0.5	0.4	0.9	0.7	0.5
Oyster, Sydney rock	5 453.6	6 100.0	6 693.0	6 035.0	6 188.0	5 961.5	5 580.5	5 063.7
Oysters, pacific	—	—	43.0	38.4	341.0	122.4	205.0	197.0
Perch, golden	—	1.2	4.9	3.1	—	0.5	0.3	1.0
Perch, silver	7.0	9.7	10.1	2.6	4.5	17.3	28.8	80.7
Prawn, kuruma	—	—	—	—	—	34.5	38.7	29.7
Prawn, tiger	160.0	183.9	183.0	267.4	264.0	213.3	232.0	179.5
Prawns, school	10.0	2.0	—	8.6	1.0	—	—	—
Red claw	—	—	—	1.1	2.6	2.6	0.9	1.4
Trout, brook	—	3.0	4.4	4.7	4.1	3.1	1.4	8.8
Trout, brown	—	—	—	1.3	1.4	0.9	3.5	—
Trout, rainbow	350.0	323.4	207.7	133.7	312.1	274.0	387.7	336.1
Yabbies	8.0	8.7	15.1	6.4	16.0	32.4	33.7	28.5
Other fish(b)	—	—	—	0.5	14.6	19.6	6.7	4.4
Total	*6 037.6*	*6 656.9*	*7 174.6*	*6 528.8*	*7 207.7*	*6 717.6*	*6 562.5*	*5 971.6*
Total production	**28 690.5**	**27 889.1**	**28 298.3**	**30 566.4**	**31 542.9**	**29 441.5**	**27 627.1**	**26 059.2**

(a) Other species includes freshwater mussel, mud crabs, freshwater shrimp, marron and rotund crayfish.

(b) Other fish includes barramundi, Australian bass, catfish, murray cod.

Source: New South Wales Fisheries Catch Database.

2.6 VICTORIA FISHERIES PRODUCTION, Financial Year

Species	1989–90 t	1990–91 t	1991–92 t	1992–93 t	1993–94 t	1994–95 t	1995–96 t	1996–97 t
Fish								
Anchovy, southern	68	49	80	174	658	457	645	868
Barracouta	26	31	41	18	27	11	21	17
Bream, black	234	185	140	200	182	139	146	104
Carp, European	427	625	454	469	415	372	497	625
Eel, longfinned	21	10	15	22	21	12	22	17
Eel, shortfinned	307	230	216	299	310	245	208	184
Flathead, dusky	12	10	12	13	5	4	6	2
Flathead, other	9	12	9	11	7	7	5	5
Flathead, rock	47	54	65	80	117	87	55	48
Flathead, sand	30	34	45	41	34	29	21	33
Flathead, tiger(a)	100	103	87	148	138	106	137	103
Flathead, yank	10	11	12	15	20	11	11	13
Flounder	32	19	21	25	46	30	23	39
Garfish	154	185	168	118	112	118	86	52
Gemfish(a)	73	7	16	12	8	18	7	0
Grenadier, blue	25	26	18	6	13	2	3	1
Leatherjacket	9	15	12	16	11	14	27	24
Ling, banded(a)	47	42	61	264	141	82	160	73
Luderick	71	60	65	66	50	25	34	34
Mackerel	201	311	322	410	242	88	16	26
Morwong(a)	81	59	37	105	36	26	17	14
Mullet, red	4	3	5	12	10	5	2	7
Mullet, sea	27	25	29	35	39	14	22	16
Mullet, yellow-eye	215	217	169	172	161	143	159	158
Pike, longfinned	12	17	20	19	16	10	6	11
Pike, shortfinned	2	1	1	2	1	2	1	0
Pike, unspecified	14	9	8	8	8	4	4	8
Pilchard	1 550	2 319	2 443	3 230	2 882	2 535	2 346	773
Redfish	5	15	10	5	26	22	14	1
Ruff	41	22	3	10	6	1	1	2
Salmon, Australian	100	223	402	335	162	324	333	308
Shark(b)	140	120	33	28	45	42	51	53
Snapper	159	163	113	88	82	59	50	49
Sprat	81	105	84	64	87	52	39	40
Stranger	17	17	25	17	6	5	3	4
Tailor	63	38	41	35	16	26	14	24
Trevalla, blue-eye	78	107	86	130	139	86	94	55
Trevally(a)	306	270	159	89	86	85	86	56
Warehou, blue(a)	1 167	1 557	1 192	792	405	293	230	104
Warehou, spotted(a)	4	6	30	108	45	74	122	136
Whiting, King George	273	158	185	155	126	101	126	229
Whiting, other	29	13	21	8	9	9	9	5
Whiting, school	89	107	93	230	228	160	11	72
Wrasse (parrot fish)	10	7	14	27	28	55	72	59
Other	888	1 007	899	348	328	225	282	182
Total	*7 258*	*8 604*	*7 961*	*8 459*	*7 534*	*6 215*	*6 224*	*4 634*
Crustaceans								
Crab, giant	5	19	56	211	122	54	41	62
Crabs, other	5	25	31	36	130	54	33	27
Lobster, rock southern	397	385	475	468	530	512	483	458
Lobster, shovelnose	2	2	17	8	21	21	18	9
Prawn	32	17	19	8	6	32	12	2
Yabby	14	10	10	9	6	6	12	22
Total	*455*	*458*	*608*	*740*	*815*	*679*	*599*	*580*

(a) May include some catch from the South East Fishery.

(b) Sharks are reported as carcass weight (beheaded and gutted with fins on).

2.6 VICTORIA FISHERIES PRODUCTION, Financial Year *continued*

	1989–90	*1990–91*	*1991–92*	*1992–93*	*1993–94*	*1994–95*	*1995–96*	*1996–97*
Species	t	t	t	t	t	t	t	t
Molluscs								
Abalone(a)	1 281	1 436	1 426	1 315	1 356	1 447	1 531	1 453
Calamari, southern	122	74	56	50	38	36	39	37
Cuttlefish	3	4	3	9	6	5	3	6
Mussel, blue	138	101	183	116	35	36	24	14
Octopus	31	25	26	50	39	27	39	43
Scallop, commercial(b)	273	1 678	4 223	12 814	8 675	497	2 657	575
Squid, arrow	323	130	358	422	348	1 281	55	38
Other	20	10	0	1	3	3	3	4
Total	2 191	*3 458*	*6 275*	*14 777*	*10 500*	*3 332*	*4 351*	*2 170*
Other classes								
Periwinkles	15	10	11	18	13	6	4	11
Sea urchins	64	19	22	22	42	36	53	42
Total	*79*	*29*	*33*	*40*	*55*	*42*	*57*	*53*
Aquaculture(c)								
Aquatic worms	—	1	1	—	—	8	9	—
Brine shrimp	—	3	4	—	—	4	4	—
Eels	200	200	245	200	200	250	350	315
Goldfish	1	—	—	—	—	—	—	—
Mussels	650	300	300	140	140	300	600	720
Oysters	3	3	4	4	4	5	6	—
Perch, golden	1	5	5	—	—	—	—	—
Perch, silver	—	—	—	—	—	—	20	—
Salmon, miscellaneous(d)	—	5	—	—	—	40	78	—
Trout, rainbow/brown	1 202	700	1 300	1 200	1 400	1 500	1 800	1 690
Yabbies	20	20	5	5	5	25	10	25
Other	—	—	—	11	11	—	—	40
Total	*2 077*	*1 237*	*1 864*	*1 560*	*1 760*	*2 132*	*2 877*	*2 790*
Total production	**12 060**	**13 786**	**16 741**	**25 576**	**20 664**	**12 400**	**14 108**	**10 227**

(a) Figures for abalone are by quota year (April–March).

(b) Scallop weights shown are live weights which have been calculated from meat weights by multiplying by 6.5. Scallop weights are for Lakes Entrance and Port Phillip Bay only, except for the years prior to 1993–94. Prior years include Bass Strait scallops as well.

(c) 1992–93 and 1993–94 data are from ABARE (1993, 1994). Data for other years are from O'Sullivan (1992, 1993, 1994, 1998) and O'Sullivan and Kiley (1996, 1997) and are industry estimates.

(d) Miscellaneous salmon includes Atlantic and chinook salmon.

Source: Fisheries Victoria—Catch and Effort System.

2.7 QUEENSLAND FISHERIES PRODUCTION, Financial Year

	1989–90	*1990–91*	*1991–92*	*1992–93*	*1993–94*	*1994–95*	*1995–96*	*1996–97(a)*
Species	t	t	t	t	t	t	t	t
Fish								
Barramundi	612.6	753.4	547.7	583.5	505.7	534.4	673.3	(b)
Bream, all species	242.7	172.6	210.0	169.3	134.8	181.8	181.8	164.0
Emperor, red throat	467.1	505.8	573.8	530.1	598.3	501.5	500.4	803.1
Mackerel, grey	298.8	317.1	233.5	152.8	130.0	207.9	286.6	419.4
Mackerel, Spanish	712.3	733.9	637.6	682.3	713.6	719.0	675.9	818.7
Mullet, all species	2 358.2	1 734.8	2 566.4	1 679.3	1 641.6	2 101.7	1 938.7	1 514.0
Salmon, blue	139.9	151.8	165.0	154.8	152.7	172.3	146.0	173.9
Salmon, king	372.5	451.1	405.4	312.2	270.3	237.5	258.5	271.0
Shark, all species	465.9	381.3	384.1	478.4	535.3	653.2	767.2	(b)
Snapper	80.5	116.9	111.4	131.9	88.5	72.7	117.1	135.6
Tailor	250.6	144.2	125.2	173.1	100.6	192.2	121.3	177.6
Trout, coral	1 141.3	1 465.3	1 532.2	1 447.4	1 335.9	1 374.7	1 664.3	1 753.7
Whiting, all species	1 294.0	1 940.2	577.8	1 545.3	1 856.3	2 860.9	2 549.2	2 153.2
Other	1 564.3	1 491.7	1 660.3	1 898.7	1 842.0	1 747.3	1 888.8	3 496.9
Total	*10 000.8*	*10 360.0*	*9 730.5*	*9 939.1*	*9 905.8*	*11 557.1*	*11 769.2*	*11 881.0*
Crustaceans								
Bugs, all species	453.8	416.5	489.0	609.0	674.7	639.3	720.6	802.0
Crab, blue swimmer	401.6	487.9	365.4	180.1	168.7	162.5	192.3	186.8
Crab, mud	435.7	378.0	416.7	426.3	438.4	400.2	470.5	580.6
Crab, spanner	511.3	748.5	911.1	1 804.6	2 983.2	3 566.5	3 423.0	3 526.5
Prawn, banana	466.7	1 109.0	564.4	510.7	605.4	364.6	699.3	895.2
Prawn, bay	469.7	462.8	465.4	326.1	310.0	377.9	543.6	546.4
Prawn, endeavour	1 549.5	1 170.2	1 073.5	1 244.5	1 257.4	1 626.4	1 525.9	1 463.0
Prawn, king	2 309.6	2 670.3	2 663.3	2 559.1	2 175.8	2 790.8	3 215.0	3 470.2
Prawn, tiger	1 738.6	1 877.1	1 503.5	2 308.8	1 838.7	2 309.2	2 694.5	1 998.5
Prawn, other	590.9	695.8	467.0	422.8	268.6	344.9	266.7	332.6
Other	27.7	13.8	22.6	160.9	228.3	288.0	268.8	225.7
Total	*8 955.1*	*10 029.7*	*8 942.0*	*10 553.1*	*10 949.2*	*12 870.1*	*14 020.2*	*14 027.5*
Molluscs								
Scallop, saucer(c)	4 173.0	6 447.0	4 910.0	6 378.0	6 736.0	5 860.0	6 050.0	3 036.0
Squid, all species	204.1	217.6	217.7	134.3	165.9	128.2	150.8	202.7
Total	*4 377.1*	*6 664.6*	*5 127.7*	*6 512.3*	*6 901.9*	*5 988.2*	*6 200.8*	*3 238.7*
Aquaculture(d)								
Barramundi	33.0	92.0	134.9	232.0	248.0	200.0	327.7	349.4
Marron	1.0	—	—	—	—	—	—	—
Native fish (other)	—	—	0.2	2.0	1.0	—	—	—
Oyster, northern/tropical	39.0	46.0	32.8	—	—	24.7	33.3	14.0
Oyster, Sydney rock	253.0	170.0	153.0	222.0	160.0	90.4	131.7	78.6
Perch, golden	1.0	1.0	1.2	—	—	—	—	—
Perch, silver	1.0	1.0	9.5	38.0	40.0	34.4	20.7	33.7
Prawn	424.0	624.0	725.0	853.0	1 229.0	1 423.9	1 294.1	1 355.1
Redclaw	31.0	33.0	39.9	40.0	32.0	59.6	54.7	62.6
Yabby	—	—	1.0	—	—	—	—	—
Total	*783.0*	*967.0*	*1 097.5*	*1 387.0*	*1 710.0*	*1 833.0*	*1 862.2*	*1 893.4*
Total production	**24 115.9**	**28 021.3**	**24 897.7**	**28 391.5**	**29 466.9**	**32 248.5**	**33 852.3**	**31 040.6**

(a) 1996–97 data are to be revised by the Queensland Fisheries Management Authority. Revisions will affect trawl species including bugs, blue swimmer crabs, prawns, squid and whiting.

(b) For 1996–97, barramundi and sharks are included in 'Other fish'.

(c) This figure for scallops is processed weight. All other years are in live weight.

(d) Estimates from Lobegeiger (1998), O'Sullivan (1993, 1994) and O'Sullivan and Kiley (1996, 1997).

Source: Queensland Fisheries Management Authority—Commercial Fisheries Information System.

2.8 SOUTH AUSTRALIA FISHERIES PRODUCTION, Financial Year

Species	*1990–91* t	*1991–92* t	*1992–93* t	*1993–94* t	*1994–95* t	*1995–96* t	*1996–97* t
Fish							
Bream, bony	977	1 129	702	741	888	752	734
Carp, European	657	1 154	863	1 009	904	876	911
Cod, murray	—	—	—	—	1	3	6
Garfish	454	514	515	472	392	511	513
Mullet, yellow eye	376	326	344	292	353	267	248
Oceanjackets	949	1 008	842	730	570	529	426
Perch, golden	164	157	279	299	286	293	235
Pilchards	3	145	1 230	2 377	2 803	3 708	3 428
Salmon, Australian	513	624	589	525	769	492	555
Snapper	457	437	386	318	223	306	305
Tommy ruff	309	363	332	304	275	236	204
Whiting, king george	692	750	700	664	615	534	586
Other freshwater fish	38	33	41	69	45	25	32
Other marine fish	605	549	558	606	588	616	589
Total	*6 194*	*7 189*	*7 381*	*8 406*	*8 712*	*9 148*	*8 772*
Crustaceans							
Crab, blue swimmer	434	425	511	544	608	655	464
Lobster, rock (northern zone)	1 104	1 222	1 064	930	891	903	893
Lobster, rock (southern zone)	1 563	1 940	1 754	1 669	1 721	1 684	1 635
Prawn, St Vincent Gulf	134	—	—	226	148	258	211
Prawn, Spencer Gulf	1 767	2 072	1 645	1 681	1 807	1 812	1 647
Prawn, west coast	184	83	—	12	104	201	166
Other	165	104	107	81	71	72	109
Total	*5 351*	*5 846*	*5 081*	*5 143*	*5 350*	*5 585*	*5 125*
Molluscs							
Abalone (central zone)	187	191	168	151	205	177	195
Abalone (southern zone)	121	131	176	141	154	155	146
Abalone (western zone)	555	563	525	510	492	570	562
Pipi (cockles)	541	774	748	954	783	931	830
Squid (southern calamari)	279	329	287	326	337	382	356
Other	387	504	578	272	222	397	601
Total	*2 070*	*2 492*	*2 482*	*2 354*	*2 193*	*2 612*	*2 690*
Aquaculture(a)							
Barramundi(b)	2	11	—	—	40	100	138
Marron	3	2	—	—	5	6	5
Oysters, pacific	106	139	345	486	855	976	1 359
Trout, rainbow	29	32	26	65	32	21	25
Tuna, southern bluefin	—	120	535	1 275	1 927	2 018	2 089
Yabby	16	124	—	—	9	18	10
Other	139	—	—	16	296	323	280
Total	*295*	*428*	*906*	*1 842*	*3 164*	*3 462*	*3 906*
Total production	**13 910**	**15 955**	**15 850**	**17 745**	**19 419**	**20 807**	**20 493**

(a) Aquaculture data for 1990–91 to 1993–94 sourced from ABARE (1992, 1993, 1994) and O'Sullivan (1993, 1994).

(b) Barramundi data sourced from O'Sullivan (1993, 1994, 1998) and O'Sullivan and Kiley (1996, 1997).

Source: South Australian Research and Development Institute Production Figures.

2.9 WESTERN AUSTRALIA FISHERIES PRODUCTION, Financial Year

Species	1989–90 t	1990–91 t	1991–92 t	1992–93 t	1993–94 t	1994–95 t	1995–96 t	1996–97 t
Fish								
Anchovy	—	14.1	5.3	4.2	76.8	18.3	130.0	5.8
Barracuda, northern pike	0.5	1.9	1.2	1.2	1.0	1.2	2.1	2.6
Barramundi, giant perch	56.8	61.6	59.6	45.8	43.0	39.7	45.8	36.6
Bigeye (not tuna)	—	—	—	—	28.8	24.4	15.5	16.4
Boarfish	5.7	10.5	26.0	10.6	5.5	5.9	5.0	5.5
Bonito	1.9	0.9	1.0	0.8	0.7	0.7	0.1	0.3
Bream, black	27.5	59.6	88.0	103.9	49.5	32.8	23.2	31.2
Bream, Robinson's	—	—	—	18.3	25.3	69.0	64.9	62.7
Bream, sea	—	4.1	6.1	8.0	29.5	18.1	12.9	4.6
Bream, silver (tarwhine)	3.4	2.4	7.9	7.1	6.0	16.1	2.4	2.9
Bream, western yellowfin	25.2	17.5	17.7	14.6	12.3	17.9	8.4	12.2
Catfish, sea (golden cobbler)	1.6	3.8	2.8	8.4	13.7	14.6	23.1	30.3
Chinaman fish (not cod)	—	—	1.7	4.7	6.0	7.6	17.1	12.4
Cobbler	92.1	65.2	87.8	88.2	95.4	121.1	69.5	70.0
Cobbler, silver	112.1	122.2	—	—	—	—	—	146.9
Cod	281.0	175.0	142.8	130.0	179.4	211.9	207.8	176.4
Cod, chinaman	—	—	—	—	—	—	0.8	5.5
Cod, grey banded	—	—	0.3	0.3	—	1.3	1.2	0.7
Cod, rankin	8.1	30.4	46.5	95.2	102.1	141.0	198.4	157.4
Cod spotted	—	19.9	20.9	42.2	41.3	48.6	69.0	51.3
Dory, john	0.2	0.5	0.8	0.5	0.1	0.1	—	0.1
Emperor, blue-lined	—	—	—	—	—	—	—	0.5
Emperor, red	185.7	262.8	269.0	365.8	445.0	437.0	502.5	440.7
Emperor, sweetlip	—	4.6	24.7	9.6	11.3	17.5	31.6	32.7
Flagfish, Spanish flag	3.5	9.7	15.0	88.7	158.6	188.1	222.2	190.3
Flathead	23.2	27.8	35.6	37.1	12.7	10.8	8.4	10.6
Flounder	6.5	4.9	5.5	5.2	3.1	3.6	2.8	4.3
Footballer, sweep and banded	—	—	—	—	—	0.9	0.7	0.6
Garfish, sea	50.4	36.4	66.9	40.9	51.1	56.6	52.3	43.8
Groper, baldchin	53.4	41.0	50.1	49.8	53.4	48.6	42.9	39.8
Groper blue	58.4	48.0	36.0	45.2	36.3	37.3	33.7	35.3
Gurnard	—	—	—	—	0.7	0.8	0.1	na
Hapuku	5.3	9.1	13.2	13.1	23.9	10.4	23.0	22.3
Herring, Australian	1 209.3	1 545.4	1 321.8	783.5	1 000.7	787.5	1 065.8	1 083.1
Herring, Perth	61.7	65.0	89.1	87.1	94.3	82.3	50.1	55.5
Javelin fish	—	8.5	—	14.9	10.2	16.3	22.8	19.5
Jewfish, westralian	226.6	220.2	185.5	173.4	159.3	171.9	184.8	196.9
Jobfish	18.2	50.4	151.1	259.6	300.9	209.3	126.1	147.8
Jobfish, goldband snapper	—	—	—	—	—	69.1	221.6	156.2
Jobfish, rosy	—	—	—	—	—	—	47.5	139.8
Kingfish, black (cobia)	2.7	3.3	4.0	6.7	12.2	13.6	14.3	16.1
Kingfish, yellowtail	1.2	0.9	1.2	0.6	1.4	0.9	1.2	0.6
Knifejaw	—	—	—	—	1.3	3.6	1.3	1.0
Leatherjacket	37.8	35.6	162.9	115.8	68.4	62.8	45.1	53.9
Ling, pink or rock ling	—	—	—	—	—	—	1.0	—
Mackerel, blue	4.4	1.0	7.8	9.8	2.7	7.1	10.9	6.5
Mackerel, other	144.9	202.5	144.3	125.5	88.4	112.5	100.8	104.5
Mackerel, scaly	417.6	142.2	287.1	590.4	1 260.2	1 992.0	1 684.2	1 488.8
Mackerel, Spanish	205.8	265.6	389.4	371.0	461.1	471.0	502.0	486.7
Mangrove jack	2.0	2.8	3.6	14.7	15.1	12.7	12.1	18.7
Morwong	4.4	2.1	7.3	7.7	2.0	0.6	0.6	—
Mullet, other	—	13.6	10.1	10.2	6.1	17.4	7.1	6.0
Mullet, red	4.1	14.6	10.9	41.8	58.1	69.8	49.0	31.6
Mullet, sea	473.5	415.8	474.8	488.1	506.7	505.9	390.5	419.2
Mullet, yellow-eye	220.7	349.1	228.8	248.3	198.9	171.1	161.1	169.3
Mulloway	20.9	27.1	24.2	21.9	26.1	28.8	43.6	26.8
Parrot fish	1.0	0.7	0.3	1.6	2.1	3.1	8.5	4.5
Perch, moses	—	7.6	10.2	30.9	39.6	47.1	69.4	65.9
Perch, pearl	9.7	19.4	19.1	32.0	44.4	70.1	57.1	55.5
Perch, red/sea/maroon	11.9	59.3	49.3	86.5	61.8	14.4	16.9	8.8
Perch, scarlet sea	31.3	24.4	27.1	36.4	70.0	129.7	147.6	168.2
Perch, yellowtail	3.0	3.7	3.2	2.4	3.0	3.3	1.8	—
Perch, other	23.7	36.5	21.7	23.0	15.3	12.9	19.1	22.6

2.9 WESTERN AUSTRALIA FISHERIES PRODUCTION, Financial Year *continued*

	1989–90	*1990–91*	*1991–92*	*1992–93*	*1993–94*	*1994–95*	*1995–96*	*1996–97*
Species	t	t	t	t	t	t	t	t
Fish *continued*								
Pike, sea	1.4	1.7	6.3	4.2	2.9	3.4	2.2	2.5
Pilchard	8 187.5	9 266.5	7 345.4	7 877.1	8 601.9	10 289.9	10 350.8	11 944.7
Queenfish	2.8	1.7	1.2	1.4	2.2	1.8	3.0	1.8
Redfish	36.8	37.9	31.7	20.6	18.0	19.7	18.5	25.7
Redfish, bight	8.0	9.8	35.2	35.0	16.9	12.0	7.7	6.7
Salmon, Western Australian	1 710.4	2 133.7	1 247.7	2 611.8	2 034.5	3 747.4	2 687.4	2 596.7
Samson fish, sea kingfish	108.4	107.2	92.0	88.3	87.5	92.7	85.2	90.0
Scad, yellowtail	46.2	18.4	32.8	43.2	17.3	16.3	18.0	3.3
Shark, blacktip	—	—	1.8	55.6	52.4	143.8	65.8	91.1
Shark, bronze whaler	509.0	466.3	457.8	518.7	503.9	463.0	421.3	453.3
Shark, eastern school	—	34.3	139.5	157.1	127.4	51.1	69.8	51.7
Shark, grey nurse	7.3	6.3	11.1	11.5	7.8	6.6	12.8	12.4
Shark, gummy	393.3	395.8	502.8	431.2	223.7	273.7	225.1	307.8
Shark, hammerhead	36.9	42.9	43.0	56.5	49.4	56.8	57.8	61.9
Shark, other	444.3	397.7	497.5	542.5	177.3	210.8	268.7	217.8
Shark, pencil	10.9	7.6	6.0	7.8	3.4	6.1	5.9	4.1
Shark, spurdog	—	—	—	—	42.3	100.1	103.7	—
Shark, thickskin	170.7	92.5	101.0	94.9	84.6	80.9	85.6	146.0
Shark, tiger	—	—	—	—	—	—	—	7.5
Shark, whiskery	323.2	407.9	365.4	296.9	206.5	229.1	203.5	205.2
Shark, wobbegong	64.2	71.0	63.2	63.6	58.5	68.6	52.7	58.8
Skates and rays, other	10.0	20.9	23.1	29.3	17.0	22.5	54.9	64.0
Snapper, golden/fingermark	—	—	—	—	—	7.6	4.9	5.2
Snapper, frypan	—	26.8	12.6	66.8	125.9	146.4	131.4	120.4
Snapper, long nose	—	3.2	8.5	4.9	9.4	10.7	28.5	24.8
Snapper, north west (L)(a)	5.3	15.4	88.1	258.0	203.6	197.5	220.0	138.8
Snapper, north west (S)(b)	—	70.7	74.3	323.6	676.9	724.3	782.2	560.6
Snapper, spangled emperor	385.2	328.5	249.3	69.0	96.2	173.7	154.8	271.5
Snapper, pink	943.7	802.4	725.6	810.0	762.6	851.2	845.9	901.7
Snapper, queen	91.4	82.6	96.1	81.0	67.0	69.3	61.5	67.5
Snapper, red spot emperor	—	—	—	—	—	51.1	58.5	55.6
Snapper, red, swallowtail	—	—	32.6	166.8	175.3	296.1	290.2	271.5
Sole	2.0	1.8	2.5	2.3	1.0	—	—	2.7
Sprat, blue	43.4	31.6	68.8	37.4	41.9	43.3	49.8	38.0
Sweep	3.7	4.8	8.1	9.6	6.8	5.6	5.4	3.2
Sweetlip	54.2	49.2	30.4	68.4	74.6	89.9	126.0	110.3
Tailor	45.6	36.9	47.8	49.0	49.3	53.8	56.0	51.3
Threadfin	45.4	37.8	34.4	21.7	22.1	36.9	32.4	35.0
Threadfin bream, butterfish	—	22.0	28.9	126.0	267.0	196.3	247.7	240.2
Threadfin, giant	13.9	19.9	21.0	50.7	41.8	22.2	53.4	115.7
Trevalla, deep sea	—	—	—	—	12.5	36.5	7.0	3.0
Trevally, golden	7.2	7.9	5.3	6.6	3.5	3.9	25.0	22.1
Trevally, other (skippy)	56.2	80.3	66.9	111.0	205.8	207.8	184.6	196.0
Trevally, skipjack	—	—	5.7	9.2	9.0	7.8	6.3	7.8
Trout, coral	30.4	22.2	17.2	21.4	20.9	29.8	41.4	29.3
Tuna, bigeye	1.1	3.7	—	—	—	—	—	—
Tuna, northern bluefin	53.9	10.2	12.6	—	2.1	2.3	—	—
Tuna, other	25.9	18.0	17.5	15.9	6.7	36.1	16.4	13.0
Tuna, skipjack, striped	9.4	—	—	0.2	0.7	1.4	1.0	1.0
Tuna, southern bluefin	288.8	242.3	135.8	11.2	—	—	—	—
Tuna, yellowfin	3.1	2.8	1.2	1.6	5.8	2.4	19.8	3.2
Tuskfish, bluebone	3.9	11.4	12.1	16.6	14.3	34.6	36.9	16.7
Whitebait	240.3	276.8	204.1	164.3	185.4	111.6	265.9	300.8
Whiting, golden-lined	9.4	4.3	—	—	—	—	—	—
Whiting, king george	33.6	36.4	38.3	33.9	25.9	20.2	23.0	34.8
Whiting, other	4.8	1.7	1.3	1.1	—	—	—	3.0
Whiting, school	—	—	—	4.6	0.9	—	—	—
Whiting, western sand	164.4	164.5	153.4	162.9	140.2	179.8	191.6	172.5
Other	329.5	305.9	962.8	718.2	374.9	342.6	318.7	176.5
Total	*19 105.7*	*20 793.9*	*18 834.9*	*21 193.6*	*21 987.7*	*26 577.7*	*25 967.9*	*26 953.1*

(a) (L) refers to *Lethrinus nebulosus*.

(b) (S) refers to *Lethrinus choerorhynchus*, *Lethrinus lentjan* and other smaller *Lethrinus* species.

2.9 WESTERN AUSTRALIA FISHERIES PRODUCTION, Financial Year *continued*

Species	*1989–90* t	*1990–91* t	*1991–92* t	*1992–93* t	*1993–94* t	*1994–95* t	*1995–96* t	*1996–97* t
Crustaceans								
Bugs	6.2	8.0	8.2	11.1	18.2	13.8	21.0	14.2
Crab, king	—	2.0	21.5	19.6	39.0	34.7	17.3	12.4
Crab, mud	4.4	3.9	6.2	3.0	2.4	—	—	2.4
Crab, sand (blue manna)	284.5	306.7	216.6	287.2	333.1	431.9	413.8	641.0
Crab, spiny	—	3.3	21.8	11.8	16.4	26.7	11.2	22.9
Crab, other	0.8	—	—	—	0.7	5.2	3.4	0.6
Prawn, banana	352.7	306.6	322.6	536.1	396.0	333.1	532.1	573.2
Prawn, brown tiger	766.3	879.2	715.5	901.6	1 224.1	1 377.7	1 035.6	898.4
Prawn, coral	10.7	—	—	4.0	4.1	110.2	207.0	372.8
Prawn, endeavour	275.6	233.2	238.2	323.8	315.5	244.9	311.3	166.9
Prawn, leader (black tiger)	0.8	—	—	—	—	1.0	2.2	1.5
Prawn, other	290.6	238.3	189.8	224.4	345.1	202.6	160.3	3.2
Prawn, western king	1 308.2	1 598.4	1 619.7	1 575.7	1 471.0	1 718.6	1 691.2	1 873.9
Prawn, western school	—	—	—	—	5.6	—	0.3	—
Rock lobster, southern	25.7	38.9	67.0	76.0	102.1	102.7	103.1	83.4
Rock lobster, tropical	4.4	—	4.2	4.8	5.3	0.6	4.2	2.9
Rock lobster, western	9 910.1	8 883.3	12 122.1	12 289.5	11 041.6	10 782.1	9 800.3	9 896.5
Rock lobster, other	11.8	3.6	—	—	—	—	—	—
Total	*13 252.9*	*12 505.3*	*15 553.5*	*16 268.6*	*15 320.2*	*15 385.9*	*14 314.3*	*14 566.4*
Molluscs								
Abalone, brownlip	29.4	27.7	25.2	34.2	32.9	31.3	27.3	24.0
Abalone, greenlip	169.1	167.8	182.7	169.3	193.9	158.6	199.1	182.8
Abalone, roe's	109.2	110.0	102.3	107.6	115.3	108.7	120.7	116.2
Cockles	—	—	—	13.8	—	—	—	—
Cuttlefish	12.4	9.4	12.0	28.6	42.0	50.5	56.0	62.5
Mussel	337.7	158.0	124.4	37.2	—	243.3	—	—
Octopus	63.7	88.1	99.5	81.1	118.8	111.4	150.5	158.4
Scallop, saucer	1 880.6	7 287.6	20 539.1	14 367.4	8 343.1	5 046.3	3 603.7	2 021.2
Squid	48.7	74.4	62.0	81.4	603.9	378.4	397.5	44.3
Turban shell (whelks)	—	5.9	—	—	—	—	—	—
Other	4.3	3.3	13.5	19.0	53.8	12.7	78.5	163.7
Total	*2 655.2*	*7 932.2*	*21 160.8*	*14 939.6*	*9 503.7*	*6 141.2*	*4 633.2*	*2 773.1*
Other classes								
Beche de mer	—	—	—	—	—	—	148.4	287.7
Other species	1.1	3.5	0.8	0.4	—	12.2	—	—
Total	*1.1*	*3.5*	*0.8*	*0.4*	—	*12.2*	*148.4*	*287.8*
Aquaculture								
Finfish	—	—	—	—	—	—	—	30.1
Marine fish	—	—	—	—	—	0.2	0.9	—
Marron(a)	12.0	12.0	15.7	17.0	18.0	17.3	19.1	23.3
Mussels	34.0	127.0	266.0	249.0	325.0	387.0	382.5	362.3
Oysters, pearl	1.0	—	—	—	—	—	—	—
Oysters, western rock	—	—	—	—	—	2.0	—	—
Trout, rainbow	14.0	29.0	38.5	49.0	59.0	36.0	40.0	—
Yabbies/koonacs	28.0	42.0	81.1	127.0	290.0	210.0	112.0	123.6
Total	*89.0*	*210.0*	*401.3*	*442.0*	*692.0*	*652.5*	*554.5*	*539.3*
Total production	**35 103.9**	**41 444.9**	**55 951.3**	**52 844.1**	**47 503.7**	**48 769.5**	**45 618.2**	**45 119.6**

(a) There is some indication that marron production is being seriously underestimated. The Fisheries Department of Western Australia is reviewing this.

Source: Fisheries Western Australia—Catch and Effort System.

2.10 TASMANIA FISHERIES PRODUCTION, Financial Year

	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97
Species	t	t	t	t	t	t	t
Fish							
Alfonsino	—	—	0.1	0.2	0.8	0.4	1.8
Anchovy	—	—	3.1	12.9	11.8	5.5	4.2
Boarfish	7.5	8.9	8.0	10.3	8.9	6.7	8.7
Boarfish, long snouted	—	0.7	—	—	0.5	0.6	1.3
Bream, black	9.4	5.2	2.0	8.5	7.3	2.5	9.9
Bream, rays	—	1.2	0.6	0.2	0.5	2.0	2.0
Cale, herring	—	0.3	—	—	1.1	1.1	0.5
Cardinal fish	2.3	—	—	—	—	—	—
Cod	10.5	10.0	4.8	11.9	16.9	64.2	50.6
Cod, bearded rock	0.6	0.4	0.9	8.5	0.6	4.7	6.6
Cod, deep sea	—	0.9	4.6	2.4	1.9	2.2	4.3
Cod, red	0.1	—	1.3	2.2	0.5	0.5	1.5
Dory	3.4	1.3	6.1	1.3	1.2	0.5	1.0
Eel	—	0.4	0.7	2.0	1.1	0.6	—
Eel, conger	0.2	0.1	0.2	0.6	2.0	1.7	1.4
Flathead, rock	0.2	—	0.1	—	0.3	1.5	1.1
Flathead, sand	0.3	0.2	0.1	0.3	1.1	3.1	1.4
Flathead, tiger	5.0	0.2	1.5	0.4	13.7	11.2	0.7
Flounder	43.4	35.0	30.7	27.2	25.5	24.5	21.5
Flounder, greenback	—	—	—	—	1.8	8.7	7.8
Garfish, sea	81.2	80.9	82.6	85.0	70.0	58.2	91.6
Gemfish	5.6	6.7	4.4	0.9	1.2	5.1	6.1
Grenadier, blue	3.7	1.9	3.6	6.0	4.4	8.9	12.4
Gurnard	18.9	18.5	13.2	13.1	10.3	9.0	8.2
Gurnard, perch	0.1	0.2	1.0	0.6	1.9	0.4	0.1
Gurnard, red	0.1	0.2	1.0	1.0	1.0	0.9	0.3
Hapuka	7.8	6.2	22.1	24.4	19.1	2.8	1.3
Kingfish, yellowtail	9.6	3.4	5.0	0.1	0.3	1.2	0.3
Latchet	13.9	10.0	6.5	13.3	12.2	6.1	3.3
Leatherjacket	12.3	14.0	13.3	23.4	27.9	15.0	12.6
Ling, rock	—	—	0.1	0.6	0.1	1.1	2.0
Luderick	0.7	0.6	0.2	1.5	2.4	1.6	0.5
Mackerel, blue	3.0	2.1	—	8.9	5.7	2.0	1.3
Marblefish/groper	0.2	0.9	0.3	1.0	1.8	3.8	5.6
Morwong	2.6	2.1	2.7	6.0	3.7	3.4	5.9
Morwong, banded	7.3	7.4	39.3	145.6	105.9	87.9	79.0
Morwong, grey	—	0.2	1.9	2.5	2.0	—	0.1
Morwong, jackass	153.6	113.1	87.5	136.0	66.0	27.5	20.7
Mullet	29.9	22.1	18.3	17.5	22.8	11.3	9.2
Mullet, yellow-eye	1.4	1.8	8.0	1.9	1.4	1.0	1.7
Orange roughy	258.0	—	—	—	—	—	—
Perch (morwong)	3.5	0.1	0.1	—	—	—	—
Perch, magpie	1.2	3.2	0.3	5.7	2.7	1.9	1.5
Perch, ocean	1.7	0.2	4.1	8.4	2.8	4.6	13.9
Pike, longfinned	0.1	—	0.1	0.3	0.2	0.3	3.1
Pike, shortfinned	10.4	9.5	11.2	12.6	19.1	13.7	15.2
Pilchard	0.1	—	0.7	1.7	0.3	1.1	—
Salmon, Atlantic	—	—	—	1.7	0.1	—	0.2
Shark, blue whaler	0.6	—	0.3	2.1	0.5	0.7	0.2
Shark, elephant	43.9	41.6	51.3	54.1	47.1	58.1	48.9
Shark, seven-gilled	1.9	3.9	2.7	2.2	2.9	6.1	4.9
Shark, southern saw	—	—	—	—	4.9	1.0	—
Skate	1.4	2.4	2.7	2.5	1.6	2.1	1.3
Sole	2.2	1.9	1.1	0.1	—	—	0.1
Spurdog	87.8	—	20.5	17.7	73.7	1.6	10.2
Stargazer	14.9	3.0	1.2	4.4	1.5	0.2	—
Stingrays and other rays	1.4	5.1	2.7	4.6	4.7	5.4	0.8
Sweep	1.5	1.4	0.8	1.0	2.0	1.1	0.5
Trevalla	1.1	20.9	10.0	0.8	1.4	—	—
Trevally	5.6	1.4	9.5	2.5	6.1	—	—
Trevally, silver	16.6	46.2	7.4	11.6	16.1	5.9	4.2
Trout, rainbow	—	—	0.5	—	—	0.4	0.8
Trumpeter, bastard	69.5	41.6	41.7	58.6	51.5	60.7	51.8

2.10 TASMANIA FISHERIES PRODUCTION, Financial Year *continued*

Species	*1990–91* t	*1991–92* t	*1992–93* t	*1993–94* t	*1994–95* t	*1995–96* t	*1996–97* t
Fish *continued*							
Trumpeter, striped	83.8	68.6	58.9	61.8	78.1	61.3	80.6
Tuna	12.8	10.5	9.0	4.9	1.1	0.2	0.5
Tuna, albacore	41.1	74.0	48.1	27.0	3.5	1.4	4.8
Tuna, skipjack	13.8	14.2	8.3	0.6	0.7	0.3	0.4
Tuna, southern bluefin	54.0	24.1	10.8	3.8	1.8	0.6	0.9
Warehou, spotted	1.1	5.6	8.9	19.8	10.8	14.6	15.6
Whiting	106.6	142.2	77.7	97.8	79.1	25.2	39.2
Whiting, sand	3.9	—	—	—	—	—	—
Whiting, school	13.7	10.0	6.6	—	2.6	1.4	0.1
Wrasse	41.6	55.8	82.3	114.8	148.7	76.5	101.2
Wrasse, blue-throated	2.9	6.7	4.7	6.0	15.5	5.6	2.1
Wrasse, purple	12.8	9.3	10.3	21.4	14.0	5.6	6.8
Other(a)	24 301.8	31 916.7	19 600.3	13 971.7	19 191.8	9 172.0	10 882.9
Total	*25 648.3*	*32 877.1*	*20 470.3*	*15 100.2*	*20 244.8*	*9 918.9*	*11 681.2*
Crustaceans							
Crab, giant	0.8	48.8	164.2	248.3	250.5	201.6	103.4
Crab, unspecified	—	0.1	7.2	28.3	4.2	0.3	2.1
Rock lobster	1 755.0	1 898.0	1 907.0	1 509.0	1 387.0	1 786.0	1 766.0
Other	—	—	—	277.0	254.0	202.0	77.0
Total	*1 755.8*	*1 946.9*	*2 078.4*	*2 062.6*	*1 895.7*	*2 189.9*	*1 948.5*
Molluscs							
Abalone	2 227.0	2 123.0	1 843.0	1 861.0	2 299.0	2 300.0	2 095.0
Clams	—	—	—	—	—	4.0	5.3
Cuttlefish	0.5	0.7	—	1.3	0.9	0.2	0.3
Octopus	32.3	35.2	47.4	58.4	55.4	77.2	40.8
Periwinkles	—	—	—	—	0.2	—	—
Squid, calamari	8.2	7.5	5.8	10.0	12.6	3.3	19.0
Squid, goulds	37.4	7.2	7.0	8.6	8.8	2.6	2.5
Total	*2 305.4*	*2 173.7*	*1 903.1*	*1 939.3*	*2 376.9*	*2 387.3*	*2 162.8*
Other classes							
Red bait	—	0.7	0.8	—	—	0.1	—
Red weed	—	5.0	165.4	113.7	48.4	—	—
Sea urchin	—	—	—	—	—	—	2.5
Sea Weed	—	0.1	0.2	18.0	—	—	—
Wokami	—	—	—	11.0	—	—	—
Total	—	*5.8*	*166.4*	*142.7*	*48.4*	*0.1*	*2.5*
Aquaculture(b)							
Abalone	—	0.7	—	1.0	1.3	3.0	5.0
Clams	—	1.5	7.0	12.0	—	—	—
Mussels	53.0	150.0	218.0	353.0	271.0	333.0	600.0
Oysters, native	11.0	22.6	—	—	0.5	0.4	0.6
Oysters, Pacific	2 784.0	2 408.0	2 250.0	2 175.0	3 000.0	3 740.6	1 986.0
Salmon, Atlantic	2 650.0	3 300.0	4 118.0	4 706.0	6 192.0	7 698.0	7 068.0
Scallops	11.0	110.0	—	—	170.0	250.0	180.0
Trout, brown	—	337.0	—	—	—	—	—
Trout (combined)	—	—	600.0	600.0	—	—	—
Trout, rainbow	220.0	200.0	—	—	200.0	200.0	600.0
Trout, rainbow ocean	437.0	400.0	—	—	490.0	300.0	200.0
Total	*6 166.0*	*6 929.8*	*7 193.0*	*7 847.0*	*10 324.8*	*12 525.0*	*10 639.6*
Total production	**35 875.5**	**43 933.3**	**31 811.2**	**27 091.7**	**34 890.6**	**27 021.3**	**26 434.6**

(a) Other fish species includes some shark species, flathead, pink ling, Australian salmon, jack mackerel, snoek, trevalla, warehou and other fish species.

(b) Aquaculture data sourced from ABARE (1992, 1993, 1994, 1995, 1996, 1997), O'Sullivan (1994, 1998), O'Sullivan and Kiley (1996, 1997).

Source: Tasmanian General Fishing Logbook; Tasmanian Rock Lobster Catch Record Logbook.

2.11 NORTHERN TERRITORY FISHERIES PRODUCTION, Financial Year

	1990–91	*1991–92*	*1992–93*	*1993–94*	*1994–95*	*1995–96*	*1996–97*
Species	t	t	t	t	t	t	t
Fish							
Bait fish (mixed species)	4.2	7.1	3.8	1.4	4.4	3.4	6.1
Barramundi	464.5	457.4	451.0	471.9	511.2	549.9	577.3
Catfish	10.8	17.0	40.6	8.3	18.3	16.5	17.8
Cod	44.1	54.6	32.2	54.6	35.3	23.7	21.2
Emperor	96.0	102.5	86.0	59.9	34.1	30.6	28.8
Jewfish	31.4	37.9	32.1	54.2	45.7	60.8	44.9
Mackerel	410.3	385.8	248.2	260.3	118.2	249.1	274.5
Mackerel, Spanish	—	—	—	137.8	218.1	245.9	230.2
Mullet	20.3	26.2	42.9	14.1	30.1	34.8	29.3
Perch, sea	4.8	15.5	28.4	33.6	81.0	88.7	102.8
Queenfish	7.7	6.4	13.9	11.5	13.1	11.8	7.3
Reef fish (mixed species)	70.0	64.0	8.7	90.6	65.1	38.1	19.6
Salmon, blue	9.3	13.6	16.6	14.9	9.4	17.5	6.6
Salmon, threadfin	266.3	198.6	221.5	211.6	155.4	194.1	215.8
Shark	348.2	494.9	529.1	495.5	523.1	706.9	671.2
Snapper	338.8	109.5	152.9	590.8	217.0	219.6	211.0
Snapper, gold band	—	419.6	304.2	502.7	287.7	331.2	318.9
Sweetlip	4.3	0.8	16.4	3.1	2.9	14.1	10.7
Trevally	5.1	6.7	6.1	6.1	4.7	2.6	5.4
Trout, coral	2.3	4.1	3.9	0.7	0.4	0.6	1.4
Tuna	24.3	26.0	7.2	5.0	15.7	10.1	5.3
Other	439.2	47.7	45.2	43.7	49.9	39.5	37.0
Total	*2 601.7*	*2 495.8*	*2 290.9*	*3 072.0*	*2 440.8*	*2 889.3*	*2 843.2*
Crustaceans							
Crab, mud	112.2	195.8	206.6	243.7	235.8	454.1	617.7
Crayfish, tropical	1.6	0.6	0.3	—	—	—	—
Lobster, bay (bugs)(a)	10.3	18.2	18.4	5.7	10.3	9.9	9.9
Other(a)	0.2	0.2	3.9	0.1	0.5	168.9	169.5
Total	*124.3*	*214.8*	*229.2*	*249.5*	*246.6*	*632.9*	*797.1*
Molluscs							
Cuttlefish(a)	2.7	4.8	3.3	0.3	4.9	2.5	2.5
Octopus(a)	0.8	1.2	0.7	0.2	1.0	0.6	0.6
Scallop(a)	14.2	8.6	6.0	1.1	8.5	3.5	3.5
Squid(a)	9.8	3.6	3.8	21.2	48.8	16.4	16.3
Trepang	—	—	45.6	46.6	94.0	110.9	60.1
Other	—	19.2	0.8	—	0.3	—	—
Total	*27.5*	*37.3*	*60.2*	*69.4*	*157.5*	*133.9*	*83.0*
Aquaculture(b)							
Barramundi	n.a.	5.5	n.a.	n.a.	51.9	190.0	n.a.
Prawn, black tiger	n.a.	n.a.	n.a.	n.a.	4.2	40.0	n.a.
Red claw	n.a.	n.a.	n.a.	n.a.	0.1	n.a.	n.a.
Total	*n.a.*	*5.5*	*n.a.*	*n.a.*	*56.2*	*230.0*	*n.a.*
Total production	**2 753.4**	**2 753.4**	**2 580.3**	**3 390.9**	**2 901.1**	**3 886.2**	**3 723.3**

(a) Landings from Northern Prawn Fishery vessels.

(b) Industry estimates from O'Sullivan (1994) and O'Sullivan and Kiley (1996, 1997).

Source: Fisheries Division—Northern Territory Department of Primary Industry and Fisheries.

2.12 COMMONWEALTH FISHERIES PRODUCTION, Financial Year

	1989–90	*1990–91*	*1991–92*	*1992–93*	*1993–94*	*1994–95*	*1995–96*	*1996–97*
Species	t	t	t	t	t	t	t	t
Fish								
Albacore	2 627.4	1 633.8	1 469.1	1 671.3	2 592.7	2 209.3	1 094.9	875.5
Alfonsin	0.3	6.1	8.7	17.3	7.7	3.4	18.1	7.4
Barracouta	115.0	203.7	230.1	512.6	257.9	273.4	233.1	135.8
Bigeye	1 075.0	757.7	543.8	789.6	538.4	586.0	493.1	1 136.8
Boarfish	33.1	40.2	52.9	5.8	5.9	4.0	5.7	11.2
Boarfish, long finned	7.0	6.6	0.7	2.4	—	—	—	—
Boarfish, short	0.0	2.0	0.1	—	—	—	—	—
Boarfish, yellow spotted	2.1	6.1	13.5	20.3	25.7	39.6	71.0	119.5
Bream, black	29.9	32.8	17.2	3.6	8.0	2.5	0.7	1.7
Bream, mixed	7.4	10.8	3.9	0.1	2.4	0.4	0.1	0.3
Bream, rays	—	—	—	—	—	—	—	2.9
Broadbill	818.9	650.8	631.3	588.5	421.2	405.6	357.1	1 182.8
Cardinalfish	29.3	14.1	39.6	155.7	22.8	11.1	69.2	26.8
Cod, bearded rock	0.7	2.6	4.9	3.0	3.6	1.2	4.0	5.5
Cucumber fish	0.9	1.2	5.4	5.9	0.1	0.2	7.1	—
Dealfish	126.5	133.6	101.2	59.4	0.9	3.2	0.0	0.2
Dogfish	134.5	285.2	332.6	475.9	268.1	207.6	355.6	307.5
Dogfish, endeavour	—	0.4	—	—	—	—	—	—
Dogfish, white spotted	2.1	0.1	0.8	0.1	0.0	0.0	1.9	2.2
Dory	0.3	4.8	—	—	—	0.2	—	—
Dory, John	190.8	165.7	157.6	193.9	258.9	222.0	157.6	131.4
Dory, king	58.9	129.2	131.6	117.2	170.8	171.3	147.2	163.5
Dory, mirror	436.1	303.6	232.6	226.1	307.4	275.0	302.9	378.0
Dory, rosy	—	—	—	—	0.2	0.1	—	0.1
Dory, silver	56.0	53.6	15.9	34.1	9.8	4.6	19.8	19.1
Eel	0.4	0.8	1.0	0.7	1.1	0.9	2.0	2.0
Elephant fish	68.3	57.6	59.2	71.0	78.9	54.8	83.2	5.5
Flathead	2 172.4	2 241.2	2 207.5	2 109.9	1 792.0	1 660.3	1 987.8	2 233.7
Flathead, deepwater	402.4	429.9	620.4	524.1	591.3	1 285.1	1 585.1	1 497.4
Flathead, sand	11.0	6.2	2.8	1.5	1.4	0.2	0.2	—
Flathead, yank	—	—	—	—	—	2.6	2.6	—
Flounder	4.1	2.9	1.5	1.2	1.4	1.1	1.4	1.1
Frostfish, southern	36.1	6.3	3.8	66.3	142.4	187.3	117.5	134.5
Gemfish	1 460.8	1 237.1	389.6	505.9	372.5	219.8	215.8	390.8
Grenadier, blue	1 397.1	3 616.8	3 062.7	2 164.0	2 293.4	2 353.2	2 051.7	2 792.3
Gurnard, red	96.4	95.3	267.9	94.0	94.2	69.3	45.9	43.1
Hairtail	0.3	4.5	—	—	—	—	0.5	—
Hapuku	8.8	9.2	8.6	6.4	8.9	10.1	28.4	29.2
Jewfish	8.5	3.8	1.7	5.2	0.3	0.2	—	0.3
Kingfish, yellowtail	17.4	12.3	5.5	2.2	1.7	1.7	2.6	1.7
Knifejaw	24.9	33.1	33.9	16.8	12.3	36.1	37.1	54.8
Latchet	91.7	110.1	81.2	83.8	70.8	80.1	98.2	132.1
Leatherjacket	71.7	124.9	159.4	72.2	59.3	102.7	180.0	191.5
Ling	585.6	765.6	619.9	749.5	934.6	1 008.5	1 243.2	1 337.1
Mackerel, blue	3.0	3.2	5.0	2.1	9.3	3.5	1.6	6.9
Mackerel, Indian	—	—	—	—	—	—	0.1	0.3
Mackerel, jack	21.5	15.7	35.3	51.0	31.1	68.4	75.9	52.5
Mackerel, spanish	111.0	116.0	123.0	97.0	77.0	76.0	85.0	101.0
Marlin, black	134.7	42.6	29.8	22.2	63.6	67.9	7.9	10.7
Marlin, blue	361.5	73.3	37.1	53.5	100.2	100.2	14.0	11.2
Marlin, striped	668.3	395.9	261.0	231.3	322.6	367.7	194.5	258.1
Morwong, grey	14.9	13.6	21.9	9.4	16.6	15.1	19.0	21.5
Morwong, jackass	1 048.1	1 114.3	885.7	974.4	862.4	793.4	760.7	1 047.9
Mullet, red	17.9	18.8	10.2	11.5	16.3	7.5	5.2	10.6
Octopus	17.8	44.6	46.8	105.9	98.8	54.0	210.3	131.1
Oilfish	2.0	1.3	0.8	0.8	1.3	0.5	0.8	1.0
Orange roughy	41 882.8	35 585.6	19 702.9	12 165.6	10 431.7	6 842.2	5 151.3	4 828.1
Oreo	1.1	—	—	—	0.6	—	—	—
Oreo, spikey	24.8	0.7	1.6	2.2	1.4	0.3	2.0	3.3
Oreo, ox-eyed	5.2	3.4	11.8	5.2	3.3	17.4	0.7	5.2

2.12 COMMONWEALTH FISHERIES PRODUCTION, Financial Year *continued*

	1989–90	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97
Species	t	t	t	t	t	t	t	t
Fish								
Oreo, smooth	590.3	926.6	2 092.6	1 494.7	484.6	752.3	282.6	767.2
Oreo, spikey	322.4	142.2	527.5	467.7	435.6	343.4	475.6	566.5
Oreo, warty	6.2	1.2	0.8	3.3	14.8	17.5	11.3	25.2
Perch, ocean	165.8	227.5	183.1	225.7	264.2	224.2	267.9	273.9
Perch, orange	1.9	2.3	5.2	7.7	8.6	8.2	15.1	13.1
Perch, splendid sea	—	—	10.4	21.1	10.0	16.8	13.9	16.5
Pufferfish	—	—	—	2.0	—	—	—	6.7
Ray	4.9	7.6	12.6	17.8	14.6	12.0	11.8	14.9
Ray, southern fiddler	—	—	0.7	—	—	—	—	—
Redbait	0.9	3.8	0.2	0.8	10.0	0.4	12.0	2.1
Redfish	749.4	1 025.8	1 502.0	2 028.8	1 903.1	1 415.7	1 211.4	1 260.5
Redfish, bight	173.4	289.7	272.7	132.1	108.3	163.4	176.9	332.5
Ribaldo	3.8	4.8	11.9	19.2	23.5	51.7	104.0	71.9
Rubyfish	1.9	0.2	1.3	0.0	6.4	1.0	0.3	0.8
Rudderfish	2.1	0.5	1.5	2.7	4.8	3.3	2.9	4.1
Sailfish	87.1	11.1	12.6	27.7	20.6	23.3	1.6	3.1
Samsonfish	—	—	0.1	—	0.1	0.1	0.3	0.2
Seapike	0.1	0.7	—	—	0.2	0.4	0.3	0.3
Shark	—	—	—	—	—	—	0.4	1.4
Shark, angel	84.1	108.5	126.1	128.4	103.8	129.9	131.0	156.3
Shark, bronze whaler	—	—	0.1	—	—	0.1	0.1	—
Shark, ghost	—	—	0.2	0.5	0.4	0.5	1.0	0.9
Shark, gummy	1 961.5	1 794.9	1 869.3	1 995.3	2 277.6	1 820.8	1 871.1	19.6
Shark, gummy and school	15.4	11.5	31.4	67.2	71.8	55.2	49.7	34.9
Shark, ogilby's ghost	0.3	—	0.3	—	—	0.3	0.1	0.1
Shark, other	287.3	163.9	171.1	119.0	168.9	323.7	563.1	394.5
Shark, saw	27.3	34.1	49.3	48.7	56.7	55.3	61.7	67.7
Shark, school	1 540.2	1 379.2	1 272.0	1 159.9	1 247.3	977.0	836.7	28.0
Shark, southern saw	192.0	219.0	189.0	246.0	323.0	310.0	345.0	—
Shark, wobbegong	—	1.0	1.0	0.4	1.0	2.1	3.2	1.8
Silverside	—	—	—	—	—	—	—	11.9
Skate	8.8	6.8	9.5	12.1	14.3	9.8	11.7	11.7
Skipjack	898.3	2 364.4	7 047.2	4 286.7	2 894.0	1 720.0	2 978.1	4 956.3
Slickhead	—	—	0.3	0.3	2.7	1.1	1.1	0.1
Snapper	23.7	19.8	8.5	14.0	9.9	7.2	7.0	11.7
Snapper, queens	27.9	32.7	25.9	13.0	11.8	20.2	24.2	33.2
Stargazer	31.8	76.4	56.8	82.2	91.2	80.7	100.7	114.8
Stargazer, purple	1.4	0.6	—	—	—	—	—	—
Swallow tail	0.6	1.3	1.1	1.0	0.3	—	—	—
Tailor	1.6	1.4	0.1	—	—	—	—	—
Toadfish	0.3	0.4	0.5	—	1.7	1.1	0.4	0.9
Trevalla, blue-eye	72.8	97.8	46.0	72.5	105.3	59.2	75.8	74.8
Trevalla, white	—	0.2	0.6	7.4	2.5	0.9	3.5	4.9
Trevally, silver	335.6	436.5	268.1	373.4	436.5	421.1	361.8	322.9
Trumpeter, bastard	2.4	2.1	4.0	1.0	2.4	1.0	2.3	2.8
Trumpeter, striped	0.4	—	—	—	—	—	—	—
Tuna, southern bluefin	6 468.6	3 561.7	4 276.6	3 966.4	4 641.6	5 041.4	5 264.9	6 292.5
Tusk fish	0.1	—	6.4	0.3	0.4	0.3	0.5	1.1
Tusk fish, Australian	0.9	1.1	2.4	0.3	1.6	2.8	1.8	1.7
Warehou, blue	527.5	985.3	1 354.3	981.5	954.9	742.7	838.9	638.5
Warehou, spotted	771.3	1 681.2	1 115.1	1 214.1	1 973.4	2 142.5	2 407.1	2 473.4
Whiptail	6.6	0.5	3.0	2.4	9.8	30.3	30.1	12.9
Whiting, King George	0.3	0.4	3.7	5.1	0.8	1.5	12.1	7.2
Whiting, school	1 440.3	2 054.5	972.5	1 264.3	1 344.4	1 093.9	1 092.9	796.3
Yellowfin	4 177.6	2 250.7	1 700.7	2 560.0	3 248.7	3 440.5	2 770.7	3 305.7
Other	1 726.9	1 293.3	4 392.1	4 187.6	7 585.4	3 565.3	3 134.6	2 773.4
Total	*79 268.6*	*71 856.4*	*62 333.0*	*52 351.7*	*54 288.5*	*45 000.8*	*43 122.6*	*45 758.5*

2.12 COMMONWEALTH FISHERIES PRODUCTION, Financial Year *continued*

	1989–90	*1990–91*	*1991–92*	*1992–93*	*1993–94*	*1994–95*	*1995–96*	*1996–97*
Species	t	t	t	t	t	t	t	t
Crustaceans								
Bug	35.0	33.2	40.2	39.4	53.5	47.5	38.2	74.7
Crab	2.8	3.2	4.6	78.0	72.7	8.2	13.0	12.3
Prawn, banana	215.3	6 998.4	2 605.0	4 274.0	2 719.0	4 719.5	4 660.5	5 010.2
Prawn, carid	1.0	0.9	1.6	1.0	1.5	4.0	1.1	0.3
Prawn, coral	0.1	—	1.4	1.5	1.1	1.6	1.3	1.3
Prawn, endeavour	443.5	1 716.4	2 062.1	1 829.9	1 957.9	1 957.5	2 222.8	2 322.2
Prawn, king	23.3	163.2	121.5	80.2	74.1	77.0	56.0	51.1
Prawn, leader	—	—	—	—	—	—	—	0.2
Prawn, mixed	5.2	9.8	7.4	6.0	6.9	2.8	1.4	5.4
Prawn, other	0.1	1.8	1.2	1.6	0.5	3.5	1.9	0.0
Prawn, royal red	306.1	386.2	222.9	169.4	459.2	272.0	411.2	257.7
Prawn, tiger	403.3	4 132.8	4 872.1	3 502.0	3 374.2	4 380.8	3 861.1	3 086.5
Rock lobster	—	174.4	147.2	174.3	196.0	218.6	201.2	260.1
Total	*1 435.8*	*13 620.3*	*10 087.2*	*10 157.4*	*8 916.5*	*11 692.9*	*11 469.7*	*11 081.8*
Molluscs								
Calamari, southern	11.5	13.5	6.4	4.7	5.5	14.3	11.3	14.0
Cuttlefish	38.3	23.8	29.9	27.7	47.8	56.2	75.6	91.9
Scallop	—	—	—	—	456.2	1 124.6	649.9	686.2
Squid	348.0	544.1	528.2	678.1	306.1	469.9	397.2	457.4
Squid, arrow	35.0	5.5	15.0	17.6	20.4	60.7	1 267.6	2 133.0
Total	*432.9*	*587.0*	*579.5*	*728.2*	*836.1*	*1 725.7*	*2 401.5*	*3 382.5*
Confidential fisheries	—	—	*18.0*	*(a)395.3*	*(b)642.3*	*(c)861.1*	*(d)1 278.2*	*(e)2 353.8*
Total production	**81 137.2**	**86 063.7**	**73 017.8**	**63 632.6**	**64 683.4**	**59 280.5**	**58 272.1**	**62 576.6**

(a) Includes Coral Sea, Western Deepwater Trawl and North West Slope Fishery.

(b) Includes (a) and Jack Mackerel, Cocos and Christmas Island fisheries.

(c) Includes (b) and Macquarie Island Developmental Fishery.

(d) Includes (c) and King Crab Fishery.

(e) Includes (d) and Heard and McDonald Islands Fishery.

Note: Production information was not available for all fisheries for all years hence total production is underestimated.

Source: ABARE (1992, 1993, 1994, 1995, 1996); AFMA Logbook Database; Southern Shark Fishery Monitoring Database.

2.13 HOME PRODUCTION OF SEAFOOD, Financial Year

	1990–91	*1991–92*	*1992–93*	*1993–94*	*1994–95*	*1995–96*	*1996–97*
Species	t	t	t	t	t	t	t
Fish	24 154	23 696	21 495	21 614	21 794	20 258	20 683
Abalone	129	126	117	117	130	135	128
Crabs	2 029	2 324	3 080	4 065	4 453	4 509	4 693
Lobster/crayfish	562	721	722	661	630	605	607
Mussels	198	241	155	153	272	285	309
Octopus	148	202	165	227	166	213	186
Oysters	332	342	320	337	362	384	313
Prawns	566	525	533	524	595	631	612
Scallops	124	238	269	194	102	106	52
Squid	744	791	898	858	1 205	681	597
Yabbies/marron	1 109	1 711	1 376	2 754	2 267	1 489	1 683
Other seafood	290	226	244	220	284	320	337
Total production	**30 385**	**31 143**	**29 372**	**31 724**	**32 261**	**29 615**	**30 199**

Source: Derived from ABS 1994.

CHAPTER 3 THE FLOW ACCOUNT

INTRODUCTION

This chapter presents supply and use tables for the fishing industry in quantity terms. Together these tables show the flow of fisheries resources from production to end use. As limited information was available on which to base these estimates a number of assumptions were made. Insufficient independent sources are available to verify these assumptions and the data are presented for illustrative purposes only. The main assumptions were:

- The total supply of fresh fish and seafood in the domestic market is equal to total reported production, home production and imports of fresh whole product.
- Sydney Fish Market sales to various buyer types reflect the national distribution of product domestically.
- Species such as skipjack tuna and jack mackerel are directed entirely to processing industries.
- All product sold by retailers is consumed by households.
- All fish caught recreationally are consumed by households.

These assumptions have been made in the absence of comprehensive market information and highlight the deficiencies in this area of fisheries statistics. About half of the catch landed in New South Wales is consigned to the Sydney Fish Market. However, this represents only 6 to 7% of the volume of product sold annually in Australia. The market is influenced by the statutory and other marketing arrangements that apply in New South Wales and may not reflect market conditions and the range of products sold in other States. Given the reliance of the estimates on this data source, caution should be exercised when interpreting the information.

Skipjack tuna, jack mackerel and some other species are of low value and are caught primarily for further processing into products such as canned fish, fish meal and other stock and pet feeds. A small proportion of these species would not be directed to processing however no data sources were available to estimate this proportion.

The assumption that retail sales are considered to be entirely for use in household consumption is consistent with the treatment of retail sales in Australia's National Accounts. Some businesses including restaurants, accommodation providers and cafes would, however, purchase their supplies directly from retailers. Some retailers also engage in wholesale trade. Figures for household consumption may therefore be inflated in comparison to other categories.

More detailed information about data sources and methodology can be found in the Explanatory Notes (paragraph 6) at the end of this publication. There is a need for the development of a more comprehensive information base in relation to market flow data for fish. The Fisheries Economic Statistics Steering Committee and the Australian Bureau of Agricultural and Resource Economics have identified the data deficiencies and are looking to develop means to address some of the data gaps in the long term.

SUPPLY TABLE

Table 3.1 shows the total supply of fresh fish commodities for the years 1992–93 to 1996–97. Estimates of supply of fresh fish are the sum of domestic commercial production, home production and imports for each year. Production estimates are based on the catch information presented in chapter 2. Imports data have been derived from Australian Bureau of Statistics trade information.

Imports of whole fresh and some frozen product have been included in the supply of fresh product. Some frozen products are included, however most, including frozen molluscs and crustaceans, are not and are considered processed products. Processed products are listed separately in table 3.3. Data are only available to show imports of processed products. The differentiation between fresh and processed product is based on concordances of the *Australian Harmonized Export Commodity Classification (AHECC), 1996* (ABS Cat. no. 1233.0) and the Harmonised Tariff Item Statistical Classification with the *Australian and New Zealand Standard Industrial Classification (ANZSIC) 1993* (ABS Cat. no. 1292.0) and the Input Output (I-O) industry classification. This treatment is consistent with the Australian National Accounts. A full concordance between the import and export classifications and the I-O industry classification is available as *Tailored Input-Output Products on Floppy Disk, 1994–95* (ABS cat. no. 5209.0.15.001).

The total supply of fresh fish declined from 308,817 tonnes in 1992–93 to 301,903 tonnes in 1996–97. Production fell by 9% with most of the decrease occurring in molluscs (55,069 tonnes to 30,541 tonnes). A sharp drop also occurred in shark, skates and rays production in 1996–97. Imports contributed between 9 and 15% of total supply of fresh fish and seafood between 1992–93 and 1996–97.

3.1 SUPPLY TABLE, Financial Year

	Imports	*Commercial Production*	*Home Production*	*Total supply*
	t	t	t	t
1992–93				
Molluscs	3 775	53 147	1 923	58 845
Crustaceans	3 365	49 410	5 711	58 486
Sharks, skates and rays	40	10 335	—	10 375
Other finfish	21 012	138 116	21 738	180 867
Other	—	245	—	245
Total	**28 193**	**251 252**	**29 372**	**308 817**
1993–94				
Molluscs	3 722	44 499	1 886	50 107
Crustaceans	3 154	48 037	8 004	59 195
Sharks, skates and rays	31	9 614	—	9 645
Other finfish	25 302	139 673	21 833	186 808
Other	—	265	—	265
Total	**32 208**	**242 088**	**31 724**	**306 020**
1994–95				
Molluscs	6 409	35 070	2 237	43 716
Crustaceans	6 169	53 058	7 946	67 173
Sharks, skates and rays	23	9 215	—	9 238
Other finfish	27 868	141 634	22 078	191 580
Other	—	374	—	374
Total	**40 470**	**239 351**	**32 261**	**312 082**
1995–96				
Molluscs	6 662	36 662	1 804	45 129
Crustaceans	6 439	53 782	7 233	67 453
Sharks, skates and rays	187	9 346	—	9 533
Other finfish	22 356	131 040	20 578	173 973
Other	—	363	—	363
Total	**35 644**	**231 192**	**29 615**	**296 451**
1996–97				
Molluscs	7 498	28 956	1 585	38 039
Crustaceans	7 381	53 006	7 595	67 982
Sharks, skates and rays	94	4 817	—	4 911
Other finfish	31 057	138 449	21 020	190 525
Other	—	446	—	446
Total	**46 030**	**225 674**	**30 199**	**301 903**

Note: Where figures have been rounded, discrepancies may occur within totals.

Source: Derived from ABARE 1992, 1993, 1994, 1995, 1996, 1997; ABS 1994, ABS unpublished data, FASTTRACCS; AFMA Logbook Database; Fisheries Division—Northern Territory Department of Primary Industry and Fisheries; Fisheries Victoria—Catch and Effort System; Fisheries Western Australia—Catch and Effort System; Lobegeiger 1998; New South Wales Fisheries Catch Database; O'Sullivan 1992, 1993, 1994, 1998; O'Sullivan and Kiley 1996, 1997; Queensland Fisheries Management Authority—Commercial Fisheries Information System; South Australian Research and Development Institute Production Figures; Southern Shark Fishery Monitoring Database; Tasmanian General Fishing Logbook; Tasmanian Rock Lobster Catch Record Logbook.

USE TABLE

There are few industries considered significant in the use of fresh fish with most product ultimately consumed by humans for food. Three industry and two final consumption categories are identified in table 3.2. The two main industries are Other food products and Accommodation, cafes and restaurants. Fish for processing into products such as canned fish for food are used by the Other food products industry. The Accommodation, cafes and restaurants industry does not include fish and chips shops and other takeaway outlets. These outlets are regarded as retailers hence use is attributed to Household consumption. A small proportion of product is used by other industries and has been included in the Other industry category. Most of the product included in this category is used for bait in the fishing industry or is processed into fish meal for aquaculture or other stock feed. The two final consumption categories are Household consumption and Exports. Processed products are listed separately in table 3.3 with information only available for exports of these products.

Table 3.2 indicates that from 1992–93 to 1996–97, the bulk of fresh fish and seafood was for Household consumption. Over this period Household consumption fell by 3%, with its proportion of total use decreasing from 66% in 1992–93 to 63% in 1996–97. The food processing industry (Other food products) increased its total share of fresh fish and seafood use over this period from about 17% to 19%. From 1992–93 to 1996–97 the Accommodation, cafes and restaurants industry used approximately 10% of fresh fish and seafood, 5% was exported and 3% was directed to Other industries.

3.2 USE TABLE, Financial Year

	Other food products	*Accommodation, cafes and restaurants*	*Other*	*Household consumption*	*Exports*	*Total*
	t	t	t	t	t	t
1992–93						
Molluscs	9 020	10 736	—	37 853	1 235	58 845
Crustaceans	17 657	3 885	—	33 986	2 957	58 486
Sharks, skates and rays	1 616	26	—	8 708	24	10 375
Other finfish	25 088	15 023	10 161	123 293	7 301	180 867
Other	14	46	—	185	—	245
Total	**53 396**	**29 716**	**10 161**	**204 026**	**11 518**	**308 817**
1993–94						
Molluscs	7 693	9 858	—	31 359	1 197	50 107
Crustaceans	17 885	4 288	—	34 202	2 820	59 195
Sharks, skates and rays	1 533	18	—	8 087	7	9 645
Other finfish	24 766	15 841	6 883	130 978	8 341	186 808
Other	14	24	—	227	—	265
Total	**51 890**	**30 030**	**6 883**	**204 853**	**12 364**	**306 020**
1994–95						
Molluscs	6 719	8 930	—	26 477	1 591	43 716
Crustaceans	20 283	4 315	—	39 374	3 201	67 173
Sharks, skates and rays	1 796	20	—	7 419	3	9 238
Other finfish	27 299	15 152	10 495	128 461	10 173	191 580
Other	28	18	—	328	—	374
Total	**56 125**	**28 434**	**10 495**	**202 060**	**14 967**	**312 082**
1995–96						
Molluscs	6 934	9 156	—	27 223	1 815	45 129
Crustaceans	20 403	5 545	—	38 256	3 250	67 453
Sharks, skates and rays	1 840	28	—	7 665	—	9 533
Other finfish	28 164	14 509	4 927	115 267	11 106	173 973
Other	78	27	—	258	—	363
Total	**57 419**	**29 266**	**4 927**	**188 668**	**16 171**	**296 451**
1996–97						
Molluscs	5 847	7 828	—	22 768	1 597	38 039
Crustaceans	20 552	5 189	—	39 356	2 885	67 982
Sharks, skates and rays	1 857	14	—	3 040	—	4 911
Other finfish	30 357	17 340	5 959	124 757	12 112	190 525
Other	104	67	—	274	—	446
Total	**58 717**	**30 438**	**5 959**	**190 195**	**16 594**	**301 903**

Note: Where figures have been rounded, discrepancies may occur within totals.

Source: Derived from ABARE 1992, 1993, 1994, 1995, 1996, 1997; ABS 1994, ABS unpublished data, FASTTRACCS; AFMA Logbook Database; Fisheries Division—Northern Territory Department of Primary Industry and Fisheries; Fisheries Research and Development Corporation 1992a, 1992b; Fisheries Victoria—Catch and Effort System; Fisheries Western Australia—Catch and Effort System; Lobegeiger 1998; New South Wales Fisheries Catch Database; O'Sullivan 1992, 1993, 1994, 1998; O'Sullivan and Kiley 1996, 1997; Queensland Fisheries Management Authority—Commercial Fisheries Information System; South Australian Research and Development Institute Production Figures; Southern Shark Fishery Monitoring Database; Sydney Fish Market Sales Stats Database; Tasmanian General Fishing Logbook; Tasmanian Rock Lobster Catch Record Logbook.

PROCESSED FISH

Comprehensive information about the distribution of processed fish and fish products is not available. Imports and exports data are available and are presented in table 3.3.

Processed imports increased by 44% from 113,800 tonnes to 163,314 tonnes between 1992–93 and 1993–94 largely as a result of increased imports of fish meal.

Exports of processed products were steady over the period with the lowest amount exported in 1993–94 (37,595 tonnes) and the highest in 1995–96 (42,270 tonnes).

3.3 IMPORTS AND EXPORTS OF PROCESSED FISH, Financial Year

	1992–93	*1993–94*	*1994–95*	*1995–96*	*1996–97*
	t	t	t	t	t
IMPORTS					
Fresh fillets and meat	37 124	39 478	41 527	43 808	46 506
Canned	26 683	29 257	31 909	31 177	29 487
Other edible preparations	28 260	29 723	37 274	38 427	40 649
Non-edible preparations	21 733	64 856	47 391	26 710	27 318
Total	**113 800**	**163 314**	**158 101**	**140 121**	**143 960**
EXPORTS					
Fresh fillets and meat	30 500	29 156	30 652	31 902	29 878
Canned	290	398	640	764	933
Other edible preparations	8 646	7 992	7 029	6 553	4 878
Non-edible preparations	304	49	1 562	3 051	3 229
Total	**39 741**	**37 595**	**39 884**	**42 270**	**38 918**

Note: Where figures have been rounded, discrepancies may occur within totals.

Source: ABS, unpublished data, FASTTRACCS.

EXPLANATORY NOTES

PRODUCTION INFORMATION

1 Production information presented in chapter 2 and the Appendix was provided by the Australian Fisheries Management Authority (AFMA) and State and Territory fisheries agencies. The data are collected from fishers who submit logbooks or forms detailing catch information. Much of the data are not verified and adjustment has not been made for under-reporting or misreporting by fishers.

2 Fishers licensed to operate in both Commonwealth and State waters can be required to submit their catch details to both AFMA and the relevant State agency. This can result in the double counting of catch. Without information about where the fish are caught, it is difficult to allocate proportions of the catch to a Commonwealth fishery or the relevant State. Where duplication occurs, species also caught in offshore Commonwealth fisheries are usually excluded from the State data though a proportion of the catch may be taken in State waters. More information about the treatment of New South Wales data is presented in paragraph 3.

3 For New South Wales, catch of some species also caught in the South East Fishery (SEF) has only been included if caught north of Barrenjoey Point. All tuna species caught in the eastern tuna fisheries have been excluded. To reduce the duplication of effort by fishers in the SEF, those also licensed to fish in New South Wales are allowed not to give the full detail on their New South Wales returns of species caught. Some do record the details however others list all their catch under the generic term 'fish, ocean unspecified' (Scribner & Kathuria 1996). All of this catch has been included in New South Wales figures though an unknown proportion would be caught in Commonwealth fisheries.

ESTIMATES OF HOME PRODUCTION

4 Estimates of home production presented in table 2.12 are based on information in *Home Production of Selected Foodstuffs, Australia, Year Ended April 1992* (ABS Cat. no. 7110.0). The estimates for all years were derived as a proportion of the commercial catch based on a comparison of the 1992 Home Production Survey data with a three-year average of the commercial catch. The proportions derived were applied to all years. No adjustments have been made for changes affecting the recreational fish catch that may have occurred since 1992. The same method of estimating the recreational catch is used in *Apparent Consumption of Foodstuffs, Australia, 1994–95 and 1995–96* (ABS Cat. no. 4306.0).

CLASSIFICATION USED IN THE SUPPLY AND USE TABLES

5 A longer term objective of the Australian Bureau of Statistics (ABS) series of environmental accounts is to link physical and monetary data. To achieve this a classification consistent with that used to produce the ABS Input-Output tables needs to be adopted. The Input-Output Commodity Classification (IOCC) for fish is based on fishing method and has not been used as it is not compatible with classifications widely accepted in the industry. Instead the commodity classification used in the supply and use tables in this publication is based on biological groupings. The Input-Output industry classifications have been used.

COMPILATION OF THE SUPPLY AND USE TABLES

6 Table 3.2 has been compiled using a range of data sources. It is primarily based on sales data obtained from the Sydney Fish Market, Fisheries Research and Development Corporation (1992a, 1992b) and ABS trade information. These sources did not provide comprehensive national information, however, extrapolations were used in the absence of more detailed data to compile the tables.

7 Data from the Sydney Fish Market was used to estimate the proportion of product sold to wholesalers and retailers. This information was used as an indicator of the national distribution of all product. The Sydney Fish Market is the largest of its kind in Australia, however, it may not be an accurate indicator of the national distribution.

8 The Fisheries Research and Development Corporation (1992a, 1992b) presented information on the proportions of fish and seafood sold from wholesalers to other outlets in 1990–91. This information was applied to the wholesale component derived from the Sydney Fish Market data to estimate proportions of product directed to Household consumption and the Accommodation, cafes and restaurants industry. No adjustments have been made for any changes in distribution that may have occurred since 1990–91.

9 Estimates of product directed to the Other food products industry and Other industries were based on knowledge of particular species being mostly directed for processing or for bait. These included skipjack tuna, pilchards, anchovies and Australian salmon.

INTRODUCTION

For management purposes, fisheries resources are usually described and managed in units called a 'fishery'. A fishery is defined by a combination of the species caught, the gear and fishing methods used, and the area of operation. Production information for fisheries resources managed by the Commonwealth is available by fishery and is presented in this Appendix.

TOTAL PRODUCTION IN COMMONWEALTH FISHERIES

Total production in the Commonwealth fisheries from 1989–90 to 1996–97 was 548,663 tonnes (table A1). The largest production occurred in 1990–91 with 86,064 tonnes and the year of least production occurred in 1995–96 with 58,272 tonnes. More recent years have seen decreased production due to tighter restrictions for Commonwealth fisheries with limited boat entry and catch quotas for many species.

A1 COMMONWEALTH FISHERIES PRODUCTION, Financial Year

	1989–90	*1990–91*	*1991–92*	*1992–93*	*1993–94*	*1994–95*	*1995–96*	*1996–97*
	t	t	t	t	t	t	t	t
Production	81 137	86 064	73 018	63 633	64 683	59 280	58 272	62 576

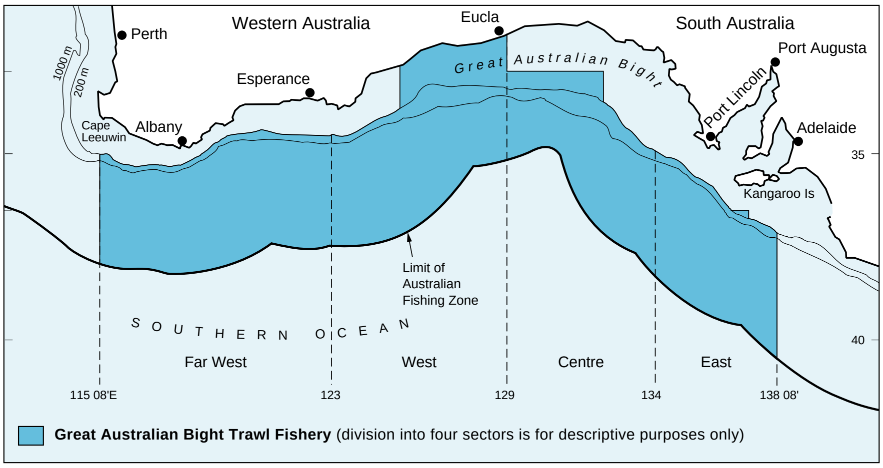
Note: Production information was not available for all fisheries for all years hence total production is underestimated.

Source: ABARE 1992, 1993, 1994, 1995, 1996; AFMA Logbook Database; Southern Shark Fishery Monitoring Database.

GREAT AUSTRALIAN BIGHT TRAWL FISHERY

The Great Australian Bight Trawl Fishery consists of a seasonal deepwater slope fishery for orange roughy and a continental shelf fishery dominated by deepwater flathead and bight redfish. It covers an area of about 812,000 square kilometres and extends from Kangaroo Island in South Australia to Cape Leeuwin in Western Australia (map A2). The fishery excludes State (South Australia and Western Australia) fishery shelf waters to the extreme east and west. The estimated value of catch in 1996 was $5.1 million (BRS 1997). The status of the fishery is 'uncertain' (BRS 1997).

A2 GREAT AUSTRALIAN BIGHT TRAWL FISHERY—1996



Source: BRS 1996.

Table A3 shows reported catch for the fishery. Deepwater flathead accounted for 38% of the total commercial catch in the Great Australian Bight Trawl Fishery from 1989–90 to 1996–97. Catches of this species increased from about 401 tonnes in 1989–90 to a peak of 1,577 tonnes in 1995–96 largely as a result of increased fishing effort. Orange roughy (30%) and bight redfish (9%) also made up a significant proportion of the catch over this period although the orange roughy catch declined from 1,970 tonnes in 1989–90 to 349 tonnes in 1996–97. The total commercial catch in the fishery from 1989–90 to 1996–97 was 18,111 tonnes. The largest catch of fish occurred in the 1996–97 season and the smallest was in 1992–93.

A3 GREAT AUSTRALIAN BIGHT TRAWL FISHERY, Financial Year

	1989–90	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97p
Species	t	t	t	t	t	t	t	t
Fish								
Barracouta	—	0.8	—	—	0.3	0.2	—	—
Boarfish	25.4	32.5	49.9	1.9	4.0	1.1	1.6	4.0
Boarfish, long finned	7.0	6.6	0.7	2.4	—	—	—	—
Boarfish, short	—	2.0	0.1	—	—	—	—	—
Boarfish, yellow spotted	2.1	6.1	13.5	20.3	25.7	39.6	71.0	119.5
Bream, black	—	—	—	0.8	—	—	—	—
Bream, rays	—	—	—	—	—	—	—	0.2
Cardinalfish	—	—	—	0.2	—	0.5	—	—
Cod, bearded rock	0.4	—	—	0.1	—	—	—	—
Dogfish	0.3	0.4	—	0.4	3.7	—	0.4	3.1
Dogfish, endeavour	—	0.4	—	—	—	—	—	—
Dogfish, white spotted	2.1	0.1	0.8	0.1	—	—	1.9	2.2
Dory	0.3	4.8	—	—	—	0.2	—	—
Dory, John	1.4	1.9	2.6	1.6	1.2	0.9	0.6	0.5
Dory, king	9.3	0.8	0.3	1.4	0.5	0.2	2.6	2.4
Dory, mirror	0.3	0.1	0.2	—	—	—	—	1.4
Dory, rosy	—	—	—	—	0.2	0.1	—	0.1
Dory, silver	0.4	0.5	0.2	0.2	—	0.1	—	0.2
Eel	—	0.1	0.3	—	—	0.4	0.5	0.5
Elephant fish	0.2	—	0.1	—	0.2	0.5	0.2	0.1
Flathead, deepwater	400.9	429.7	620.4	523.7	591.0	1 273.2	1 576.9	1 477.3
Frostfish, southern	—	—	—	—	—	—	—	0.3
Gemfish	13.1	18.7	31.9	4.7	15.4	22.3	5.3	34.7
Grenadier, blue	25.3	1.4	1.1	5.0	1.3	2.1	25.3	12.9
Gurnard, red	0.8	0.4	—	—	0.3	0.2	—	0.8
Hapuku	3.9	2.8	1.8	1.3	1.3	2.4	1.5	3.1
Knifejaw	23.9	31.7	32.7	15.6	11.1	33.9	34.7	51.7
Latchet	19.2	22.2	22.0	9.1	10.4	25.5	40.0	59.3
Leatherjacket	26.9	89.4	122.7	3.2	1.0	—	—	—
Leatherjacket, chinaman	8.0	0.7	7.9	38.9	26.7	54.7	112.9	121.7
Ling	8.4	1.4	1.8	1.5	0.6	0.6	1.7	2.4
Mackerel, blue	0.3	0.3	2.0	—	—	—	—	1.5
Mackerel, jack	0.1	0.6	3.5	0.1	0.1	—	—	3.7
Morwong, jackass	49.3	34.7	50.4	42.2	41.4	53.2	40.3	61.1
Oilfish	0.5	0.2	0.1	—	—	—	—	—
Orange roughy	1 970.3	1 020.0	626.9	432.3	669.7	26.8	356.7	348.9
Oreo	1.1	—	—	—	0.6	—	—	—
Oreo spikey	24.8	0.7	1.6	2.2	1.4	0.3	2.0	3.3
Oreo, ox-eyed	0.7	—	—	0.5	—	—	—	—
Oreo, smooth	0.1	7.0	11.0	81.0	40.8	6.4	2.7	5.4
Oreo, warty	0.9	—	—	—	—	0.3	—	0.2
Perch, ocean	0.6	1.4	—	0.1	0.3	0.1	0.4	0.7
Pufferfish	—	—	—	2.0	—	—	—	6.7
Ray	—	—	1.1	—	0.2	0.4	0.2	—
Ray, southern fiddler	—	—	0.7	—	—	—	—	—
Redbait	—	—	0.1	—	—	—	—	0.2
Redfish	—	—	0.4	—	—	—	—	—
Redfish, bight	173.4	289.7	272.7	132.1	108.3	163.4	176.9	332.5
Ribaldo	2.2	0.3	0.1	0.3	0.7	0.1	0.3	1.0
Rubyfish	0.7	—	1.0	—	6.2	0.7	—	—
Samsonfish	—	—	0.1	—	0.1	0.1	0.3	0.2
Shark, angel	36.7	61.7	80.5	67.9	48.1	98.4	102.2	129.0
Shark, bronze whaler	—	—	0.1	—	—	0.1	0.1	—
Shark, gummy	4.5	13.9	15.3	4.3	3.6	8.8	16.1	19.6
Shark, ogilby's ghost	0.3	—	0.3	—	—	0.3	0.1	0.1
Shark, other	6.5	2.8	13.8	0.6	0.6	1.7	1.2	2.7
Shark, saw	9.3	14.2	23.7	20.8	17.7	21.7	28.1	29.4
Shark, school	9.9	6.3	6.6	0.7	1.3	2.0	3.0	7.2
Shark, wobbegong	—	1.0	1.0	0.4	1.0	2.1	3.2	1.8
Silverside	—	—	—	—	—	—	—	11.9

A3 GREAT AUSTRALIAN BIGHT TRAWL FISHERY, Financial Year *continued*

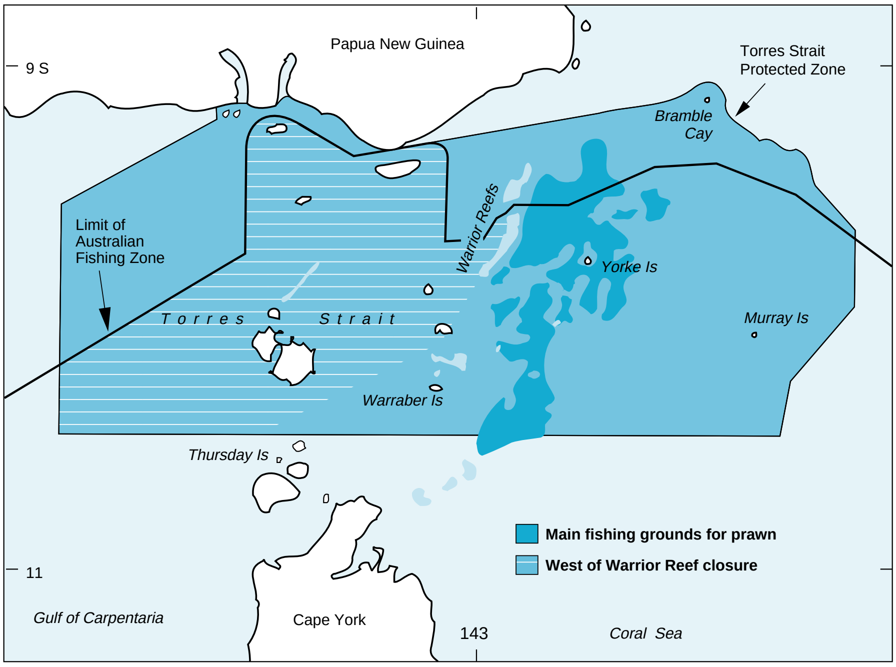
	1989–90	*1990–91*	*1991–92*	*1992–93*	*1993–94*	*1994–95*	*1995–96*	*1996–97p*
Species	t	t	t	t	t	t	t	t
Fish *continued*								
Snapper	0.6	1.2	0.7	0.7	0.2	0.2	0.2	0.9
Snapper, queens	27.9	32.7	25.9	13.0	11.8	20.2	24.2	33.2
Stargazer	5.5	0.1	0.4	0.4	0.4	—	0.2	0.9
Stargazer, purple	1.4	0.6	—	—	—	—	—	—
Swallow tail	0.6	1.3	1.1	1.0	0.3	—	—	—
Trevalla, blue-eye	2.4	0.5	0.3	—	0.1	0.6	0.1	0.4
Trevally, silver	0.4	0.7	17.6	4.4	1.1	0.4	0.8	2.0
Trumpeter, striped	0.4	—	—	—	—	—	—	—
Tusk fish, Australian	0.9	1.1	2.4	0.3	1.6	2.8	1.8	1.7
Warehou, blue	—	0.6	0.2	0.6	0.3	4.6	0.9	0.2
Warehou, spotted	0.1	2.7	6.9	0.6	0.1	0.3	—	1.9
Other fish	17.1	37.5	5.9	2.3	3.6	1.6	2.8	10.2
Total	*2 929.2*	*2 189.4*	*2 085.5*	*1 443.0*	*1 656.8*	*1 876.1*	*2 641.6*	*2 917.0*
Crustaceans								
Crab	—	0.1	0.2	—	—	—	—	0.1
Total	—	*0.1*	*0.2*	—	—	—	—	*0.1*
Molluscs								
Calamari, southern	0.4	1.6	2.1	0.6	1.7	8.7	8.0	6.6
Cuttlefish	0.1	0.7	1.5	0.1	—	—	—	—
Squid	21.1	28.4	28.6	2.2	1.1	0.5	—	—
Squid, arrow	7.7	1.3	15.0	17.6	20.4	60.5	48.7	86.7
Total	*29.3*	*31.9*	*47.2*	*20.4*	*23.1*	*69.7*	*56.7*	*93.3*
Total production	**2 958.5**	**2 221.4**	**2 132.8**	**1 463.4**	**1 679.9**	**1 945.8**	**2 698.3**	**3 010.4**

Source: AFMA Logbook Database.

TORRES STRAIT PRAWN FISHERY

The catch from the Torres Strait Prawn Fishery has an estimated annual value of $18–23 million to commercial fishers. It is a multi-species prawn fishery which operates in the eastern section of the Torres Strait Protected Zone (map A4). The brown tiger prawn and the blue endeavour prawn are the primary target species in the fishery. The red spot king prawn is essentially a by-catch species. Other by-catch species in the fishery include sharks, cuttlefish, squid and several other fish species.

A4 TORRES STRAIT PRAWN FISHERY—1996



Source: BRS 1996.

From 1989–90 to 1996–97 endeavour prawns made up 58% (7,521 tonnes) of the total catch in the Torres Strait Prawn Fishery (table A5). Tiger prawns constituted most of the remaining catch with 4,861 tonnes, 38% of total production. The total catch in the Torres Strait Prawn Fishery from 1989–90 to 1996–97 was 12,954 tonnes. The greatest catch occurred in the 1991–92 financial year and the period of least catch was 1989–90. The Torres Strait Prawn Fishery is assessed as 'fully fished' with current catches considered 'sustainable' (BRS 1997).

A5 TORRES STRAIT PRAWN FISHERY, Financial Year

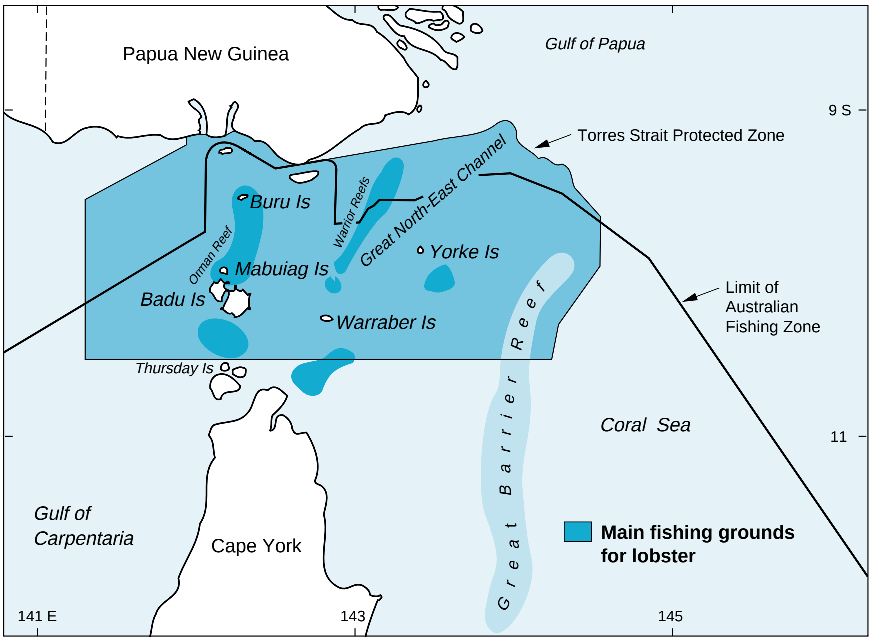
	1989–90	*1990–91*	*1991–92*	*1992–93*	*1993–94*	*1994–95*	*1995–96*	*1996–97*
Species	t	t	t	t	t	t	t	t
Fish								
Mackerel, Indian	—	—	—	—	—	—	0.1	0.3
Perch, orange	—	—	—	—	—	—	1.0	2.0
Shark	—	—	—	—	—	—	0.4	1.4
Other fish	—	0.1	1.2	6.0	13.3	6.3	4.0	2.1
Total	—	*0.1*	*1.2*	*6.0*	*13.3*	*6.3*	*5.6*	*5.7*
Crustaceans								
Bug	—	5.5	14.5	20.7	26.0	24.9	22.4	29.0
Prawn, banana	0.3	0.4	—	—	—	—	—	—
Prawn, coral	0.1	—	1.4	1.5	1.1	1.6	1.3	1.3
Prawn, endeavour	416.5	950.9	1 005.6	987.9	1 087.4	1 159.0	916.3	997.8
Prawn, king	21.3	59.2	59.0	43.7	47.6	33.5	25.5	26.1
Prawn, leader	—	—	—	—	—	—	—	0.2
Prawn, mixed	5.2	9.8	7.4	6.0	6.9	2.8	1.4	5.4
Prawn, tiger	383.8	690.3	781.1	585.5	533.2	623.8	639.1	623.9
Total	*827.3*	*1 716.0*	*1 869.1*	*1 645.3*	*1 702.1*	*1 845.6*	*1 606.0*	*1 683.6*
Molluscs								
Cuttlefish	—	—	—	—	—	—	0.4	0.6
Scallop	—	—	—	—	—	0.1	0.1	—
Squid	—	0.2	1.7	1.9	2.1	1.3	1.7	11.0
Total	—	*0.2*	*1.7*	*1.9*	*2.1*	*1.4*	*2.2*	*11.6*
Total production	**827.3**	**1 716.3**	**1 871.9**	**1 653.2**	**1 717.6**	**1 853.3**	**1 613.7**	**1 700.9**

Source: AFMA Logbook Database.

TORRES STRAIT ROCK LOBSTER FISHERY

The Torres Strait Rock Lobster Fishery is managed as a joint authority fishery by Australia and Papua New Guinea. The fishery began in the late 1960s and is mainly centred around Thursday Island, and the Orman and Warrior reefs in central and western Torres Strait (map A6). It is the most important commercial fishery to Torres Strait Islanders. The fishery is based on a single species, the ornate or tropical rock lobster. Tropical rock lobsters are caught by divers using a short hand spear or hand-held scoop nets. The fishery has been assessed as 'sustainable' with some scope for rational development (BRS 1997).

A6 TORRES STRAIT ROCK LOBSTER FISHERY—1996



Source: BRS 1996.

The total catch of rock lobsters in the fishery from 1990–91 to 1996–1997 was 1,372 tonnes as shown in table A7. The greatest catch (260 tonnes) occurred in the 1996–97 season and the smallest catch (147 tonnes) was in the 1991–92 season.

A7 TORRES STRAIT ROCK LOBSTER FISHERY, Financial Year

	1990–91	*1991–92*	*1992–93*	*1993–94*	*1994–95*	*1995–96*	*1996–97*
Species	t	t	t	t	t	t	t
Rock lobster	174.4	147.2	174.3	196.0	218.6	201.2	260.1

Source: AFMA Logbook Database.

TORRES STRAIT SPANISH MACKEREL FISHERY

A small troll line fishery operates in the eastern sector of the Torres Strait region targeting spanish mackerel. About 12 specialist boats operate regularly in the fishery, however mackerel fishing is a part-time activity for most (AFMA 1998). The total catch of spanish mackerel in the fishery from 1989–90 to 1996–97 was 786 tonnes. The greatest catch occurred during the 1991–92 financial year (table A8).

A8 TORRES STRAIT SPANISH MACKEREL FISHERY, Financial Year

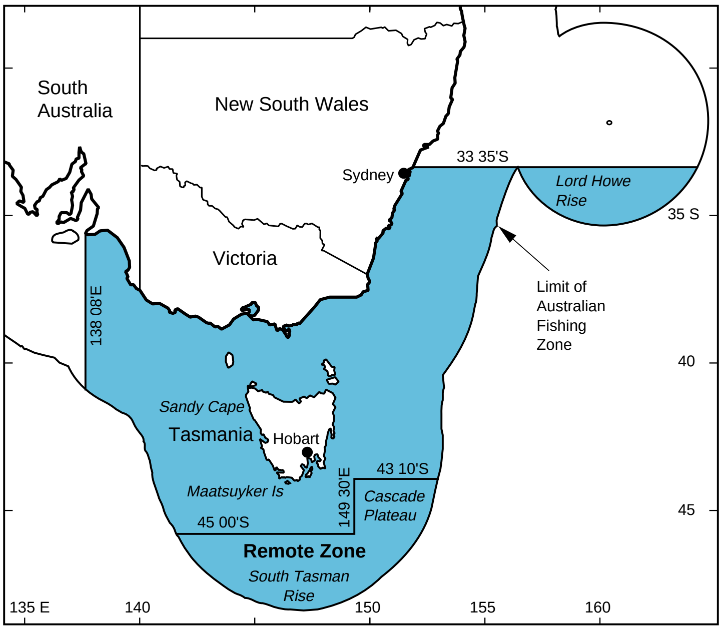
	1989–90	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97
Species	t	t	t	t	t	t	t	t
Spanish mackerel	111	116	123	97	77	76	85	101

Source: AFMA Logbook Database. ABS has converted data from calendar year to financial year estimates.

SOUTH EAST FISHERY

The South East Fishery (SEF) is a multi-species fishery that is located off the south-east coast of Australia. The SEF trawl sector stretches from Sydney southwards to Kangaroo Island in South Australia. The primary fishing methods are otter trawling and Danish seine netting. The SEF non-trawl sector incorporates all waters outside a line 80 nautical miles off the New South Wales coast south of Barrenjoey Point and all waters outside 3 nautical miles off Victoria, Tasmania and South Australia.

A9 SOUTH EAST FISHERY—1996



Source: BRS 1996.

SOUTH EAST FISHERY *continued*

Total commercial catch in the SEF trawl sector from 1989–90 to 1996–97 was 274,363 tonnes with an overall decline in production occurring from 1989–90 (54,702 tonnes) to 1995–96 (22,377 tonnes) (table A10). This is primarily due to orange roughy which constituted almost half the catch over the period with 131,139 tonnes, 48% of total production. The catch of orange roughy has decreased substantially from 39,913 tonnes in 1989–90 to 4,479 tonnes in 1996–97 as a result of the introduction of total allowable catches (TACs) and declining stocks (see table 2.1). The two species to contribute the next largest amounts towards production in this fishery were blue grenadier (7% of total production) and flathead (6% of total production). Other major movements included an increase in the ling catch from 577 tonnes in 1989–90 to 1,335 tonnes in 1996–97, due to decreased targeting by fishers resulting from good market prices. Catches of gemfish declined from 1,448 tonnes in 1989–90 to 211 tonnes in 1995–96, reflecting depleted stocks and the introduction of TACs. The greatest catch in the fishery occurred in the 1989–90 financial year (54,702 tonnes) before TACs had been introduced. The smallest catch over the period occurred in 1995–96 (22,377 tonnes).

A10 SOUTH EAST TRAWL FISHERY, Financial Year

	1989–90	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97
Species	t	t	t	t	t	t	t	t
Fish								
Alfonsin	0.3	6.1	8.7	17.3	7.7	3.4	18.1	7.4
Barracouta	115.0	202.9	230.1	512.6	257.6	273.2	233.1	135.7
Boarfish	7.7	7.7	3.0	3.9	1.8	2.9	4.1	7.1
Bream, black	29.9	32.8	17.2	2.8	8.0	2.5	0.7	1.7
Bream, mixed	7.4	10.8	3.9	0.1	2.4	0.4	0.1	0.3
Bream, rays	—	—	—	—	—	—	—	2.7
Cardinalfish	29.3	14.1	39.6	155.5	22.8	10.6	69.2	26.8
Cod, bearded rock	0.3	2.6	4.9	2.9	3.6	1.2	4.0	5.5
Cucumber fish	0.9	1.2	5.4	5.9	0.1	0.2	7.1	—
Dealfish	126.5	133.6	101.2	59.4	0.9	3.2	—	0.2
Dogfish	132.3	97.8	117.6	198.5	169.4	166.6	334.3	304.4
Dory, John	189.3	163.8	155.0	192.2	257.6	221.1	157.0	130.9
Dory, king	49.6	128.4	131.3	115.7	170.3	171.1	144.6	161.1
Dory, mirror	435.8	303.5	232.4	226.1	307.4	275.0	302.9	376.6
Dory, silver	55.5	53.0	15.7	34.0	9.8	4.5	19.8	19.0
Eel	0.4	0.7	0.7	0.7	1.1	0.5	1.5	1.4
Elephant fish	1.1	4.6	7.1	4.0	3.6	3.2	5.9	5.4
Flathead	2 172.4	2 241.2	2 207.5	2 109.9	1 792.0	1 660.3	1 987.8	2 233.7
Flathead, deepwater	1.6	0.2	0.0	0.4	0.3	11.9	8.2	20.1
Flathead, sand	11.0	6.2	2.8	1.5	1.4	0.2	0.2	—
Flathead, yank	—	—	—	—	—	2.6	2.6	—
Flounder	4.1	2.9	1.5	1.2	1.4	1.1	1.4	1.1
Frostfish, southern	36.1	6.3	3.8	66.3	142.4	187.3	117.5	134.2
Gemfish	1 447.7	1 218.4	357.7	501.3	357.1	197.5	210.5	356.1
Grenadier, blue	1 371.8	3 615.3	3 061.6	2 159.1	2 292.1	2 351.1	2 026.4	2 779.4
Gurnard, red	95.6	95.0	267.9	94.0	93.8	69.1	45.9	42.3
Hairtail	0.3	4.5	0.0	—	—	—	0.5	—
Hapuku	4.8	6.5	6.7	5.1	7.6	7.7	26.9	26.1
Jewfish	8.5	3.8	1.7	5.2	0.3	0.2	—	0.3
Kingfish, yellowtail	17.4	12.3	5.5	2.2	1.7	1.7	2.6	1.7
Knifejaw	1.0	1.4	1.3	1.2	1.3	2.2	2.4	3.1
Latchet	72.5	87.9	59.2	74.7	60.4	54.6	58.2	72.8
Leatherjacket	36.7	34.9	28.7	30.0	31.6	48.0	67.1	69.8
Ling	577.2	764.3	618.0	748.1	934.0	1 007.8	1 241.5	1 334.8
Mackerel, blue	2.8	2.9	2.9	2.1	9.3	3.5	1.6	5.4
Mackerel, jack	21.4	15.1	31.8	50.9	31.1	68.3	75.9	48.9
Morwong, grey	14.9	13.6	21.9	9.4	16.6	15.1	19.0	21.5
Morwong, jackass	998.8	1 079.6	835.3	932.2	821.0	740.2	720.4	986.9
Mullet, red	17.9	18.8	10.2	11.5	16.3	7.5	5.2	10.6
Oilfish	1.5	1.1	0.8	0.8	1.3	0.5	0.8	1.0
Orange roughy	39 912.6	34 565.6	19 076.0	11 733.3	9 762.0	6 815.4	4 794.6	4 479.1
Oreo, ox-eyed	4.4	3.4	11.8	4.7	3.3	17.4	0.7	5.2
Oreo, smooth	590.2	919.6	2 081.5	1 413.7	443.7	745.9	279.9	761.9
Oreo, spiky	322.4	142.2	527.5	467.7	435.6	343.4	475.6	566.5
Oreo, warty	5.3	1.2	0.8	3.3	14.8	17.3	11.3	25.0
Perch, ocean	165.2	226.0	183.1	225.7	263.9	224.2	267.5	273.2
Perch, orange	1.9	2.3	5.2	7.7	8.6	8.2	14.1	11.1
Perch, splendid sea	—	—	10.4	21.1	10.0	16.8	13.9	16.5
Ray	4.9	7.6	11.5	17.8	14.4	11.6	11.6	14.9
Redbait	0.9	3.8	0.2	0.8	10.0	0.4	12.0	1.9
Redfish	749.4	1 025.8	1 501.7	2 028.8	1 903.1	1 415.7	1 211.4	1 260.5
Ribaldo	1.7	4.5	11.8	18.9	22.9	51.6	103.8	70.8
Rubyfish	1.3	0.2	0.3	—	0.2	0.3	0.3	0.8
Rudderfish	2.1	0.5	1.5	2.7	4.8	3.3	2.9	4.1
Seapike	0.1	0.7	—	—	0.2	0.4	0.3	0.3
Shark, angel	47.4	46.8	45.6	60.5	55.6	31.6	28.8	27.4
Shark, ghost	—	—	0.2	0.5	0.4	0.5	1.0	0.9
Shark, gummy	15.4	11.5	7.7	0.6	—	—	12.2	34.9
Shark, gummy and school	—	—	23.8	66.7	71.8	55.2	37.5	—
Shark, other	280.8	161.1	157.3	118.4	168.2	203.1	391.9	391.8
Shark, saw	17.9	19.9	25.6	27.9	38.9	33.6	33.6	38.3
Shark, school	10.3	21.9	5.3	0.2	—	—	4.8	20.7

A10 SOUTH EAST TRAWL FISHERY, Financial Year *continued*

	1989–90	*1990–91*	*1991–92*	*1992–93*	*1993–94*	*1994–95*	*1995–96*	*1996–97*
Species	t	t	t	t	t	t	t	t
Fish *continued*								
Skate	8.8	6.8	9.5	12.1	14.3	9.8	11.7	11.7
Slickhead	—	—	0.3	0.3	2.7	1.1	1.1	0.1
Snapper	23.1	18.6	7.8	13.3	9.7	7.0	6.8	10.8
Stargazer	26.3	76.3	56.4	81.8	90.8	80.7	100.5	113.9
Tailor	1.6	1.4	0.1	—	—	—	—	—
Toadfish	0.3	0.4	0.5	—	1.7	1.1	0.4	0.9
Trevalla, blue eye	70.4	97.2	45.7	72.4	105.2	58.6	75.7	74.5
Trevalla, white	—	0.2	0.6	7.4	2.5	0.9	3.5	4.9
Trevally, silver	335.2	435.8	250.5	368.9	435.4	420.7	361.0	320.9
Trumpeter, bastard	2.4	2.1	4.0	1.0	2.4	1.0	2.3	2.8
Tusk fish	0.1	—	6.4	0.3	0.4	0.3	0.5	1.1
Warehou, blue	527.4	984.7	1 354.1	981.0	954.6	738.1	838.0	638.3
Warehou, spotted	771.3	1 678.5	1 108.1	1 213.5	1 973.3	2 142.1	2 407.1	2 471.5
Whiptail	6.6	0.5	3.0	2.4	9.8	30.3	30.1	12.9
Whiting, King George	0.3	0.4	3.7	5.1	0.8	1.5	12.1	7.2
Whiting, school	1 440.3	2 054.5	972.5	1 264.3	1 344.4	1 093.9	1 092.9	796.3
Other fish	490.6	623.3	529.1	631.0	753.3	731.3	671.4	579.3
Total	*53 936.0*	*53 541.1*	*36 641.4*	*29 214.4*	*26 770.8*	*22 892.3*	*21 249.9*	*22 389.0*
Crustaceans								
Bug	35.0	27.7	25.6	18.7	27.5	22.6	15.8	45.7
Crab	2.8	3.1	4.5	78.0	72.7	8.2	13.0	12.2
Prawn, carid	1.0	0.9	1.6	1.0	1.5	4.0	1.1	0.3
Prawn, other	0.1	1.8	1.2	1.6	0.5	3.5	1.9	—
Prawn, royal red	306.1	386.2	222.9	169.4	459.2	272.0	411.2	257.7
Total	*345.0*	*419.9*	*255.7*	*268.7*	*561.4*	*310.3*	*443.0*	*315.8*
Molluscs								
Calamary, southern	11.1	11.9	4.3	4.2	3.9	5.7	3.3	7.4
Cuttlefish	38.2	23.2	28.4	27.6	47.8	56.2	75.2	91.4
Octopus	17.8	44.6	46.8	105.9	98.8	54.0	210.3	131.1
Squid	327.0	515.6	497.9	674.1	303.0	468.2	395.5	446.4
Squid, arrow	27.3	4.2	—	0.1	0.1	0.2	—	—
Total	*421.4*	*599.4*	*577.4*	*811.8*	*453.5*	*584.2*	*684.4*	*676.3*
Total production	**54 702.4**	**54 560.3**	**37 474.5**	**30 294.8**	**27 785.7**	**23 786.7**	**22 377.3**	**23 381.2**

Source: AFMA Logbook Database.

More than 100 commercial species are taken in the SEF although 16 provide the majority of the catch (more than 80%) and have been subject to a system of individual tranferable quotas (ITQs) since 1992 (BRS 1997). Under an ITQ system the TAC for each species is distributed amongst quota holders. Including the non-trawl sector, the value of catch from the fishery in 1996 was approximately $57.6 million (BRS 1997).

SOUTH EAST FISHERY NON-TRAWL

The non-trawl sector in the SEF extends southwards from Fraser Island in Queensland, around New South Wales, Victoria, Tasmania and South Australia. The main harvesting methods are demersal gillnetting and line fishing. The main species caught are blue-eye trevalla, blue warehou and ling. In total, over 90 different species are taken in the fishery by non-trawl methods. The estimated annual value of catch from the fishery in 1996 was about $7.3 million (BRS 1997).

SOUTH EAST FISHERY NON-TRAWL *continued*

The total catch from 1991–92 to 1996–97 in the South East Non-Trawl Fishery was 11,317 tonnes. Table A11 shows the greatest catch occurred in the 1991–92 season (2,574 tonnes).

A11 SOUTH EAST FISHERY NON-TRAWL, Financial Year

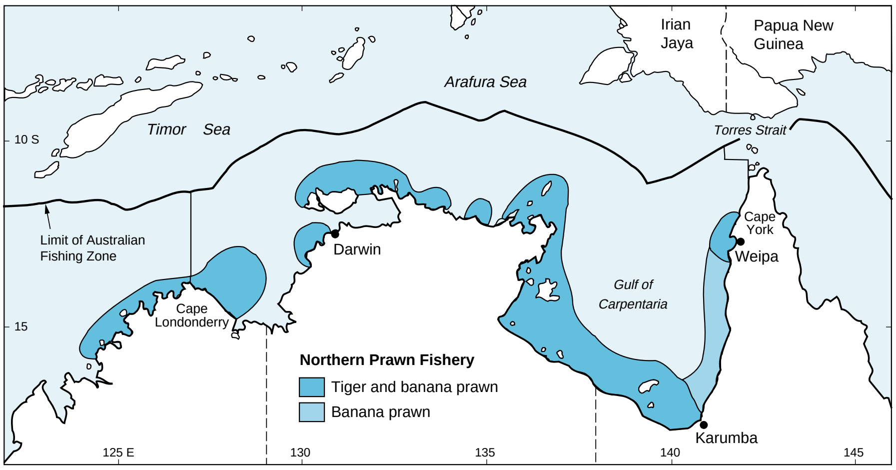
	1991–92	*1992–93*	*1993–94*	*1994–95*	*1995–96*	*1996–97*
Species	t	t	t	t	t	t
All species	2 574	1 551	2 160	1 700	1 800	1 532

Source: ABARE 1992, 1993, 1994, 1995, 1996.

NORTHERN PRAWN FISHERY

The Northern Prawn Fishery is the most valuable fishery managed by the Commonwealth. The estimated value of the catch in 1996 was $115 million (BRS 1997). The Northern Prawn Fishery extends from Cape Londonderry in Western Australia to Cape York in Queensland (map A12). The bulk of the catch in this fishery is exported, predominantly to Japan (BRS 1997). The main prawn species caught in the fishery are the white banana prawn, brown tiger prawn, grooved tiger prawn and the blue endeavour prawn.

A12 NORTHERN PRAWN FISHERY—1996



Source: BRS 1996.

Table A13 shows the total catch of prawns in the fishery from 1990–91 to 1996–97 was 58,239 tonnes. Banana prawns constituted almost half of the catch with 28,808 tonnes. Tiger prawns were also a significant proportion of the catch with 22,518 tonnes, 39% of total production in the Northern Prawn Fishery. The remainder of the catch was mainly endeavour prawns with 6,603 tonnes, 11% of total catch. A small amount of king prawns was also caught. The greatest catch occurred in 1990–91 with 10,835 tonnes and the smallest in 1993–94 with 6,091 tonnes. The Northern Prawn Fishery has been assessed as 'fully fished' (BRS 1997).

A13 NORTHERN PRAWN FISHERY, Financial Year

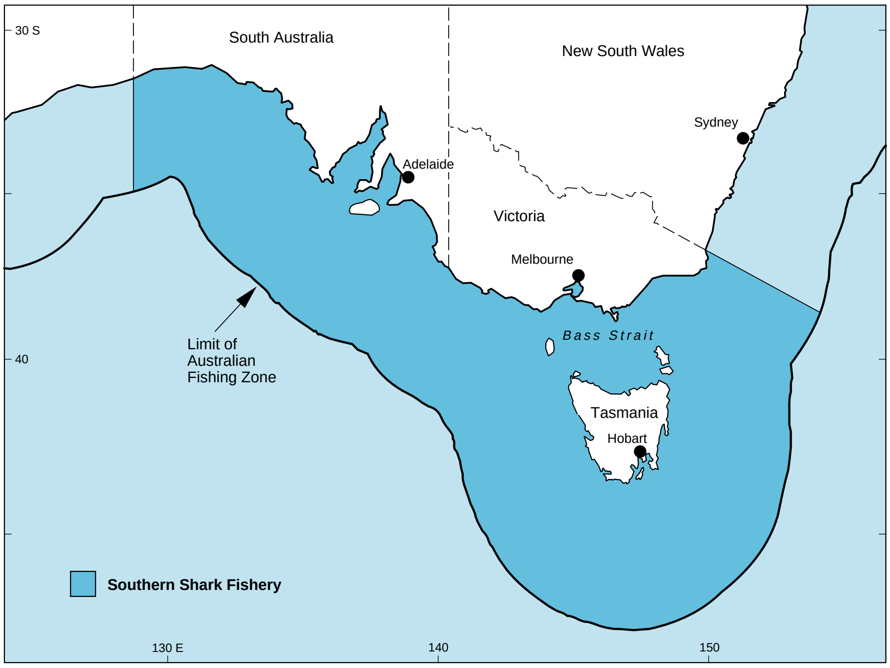
	1990–91	*1991–92*	*1992–93*	*1993–94*	*1994–95*	*1995–96*	*1996–97*
Prawn species	t	t	t	t	t	t	t
Banana	6 655	2 292	3 994	2 429	4 490	4 347	4 601
Endeavour	691	993	800	832	785	1 260	1 242
King	97	57	36	26	43	29	24
Tiger	3 393	4 050	2 880	2 804	3 740	3 203	2 448
Total production	**10 835**	**7 392**	**7 708**	**6 091**	**9 059**	**8 839**	**8 315**

Source: AFMA Logbook Database.

SOUTHERN SHARK FISHERY

The Southern Shark Fishery is managed by the Australian Fisheries Management Authority (AFMA) (on behalf of the Commonwealth Government), with the cooperation of the State Governments of South Australia, Victoria and Tasmania. The fishery is the world's oldest surviving commercial shark fishery and officially began in 1927 (AFMA 1998). Originally the commercial fishers targeted school shark using longlines. In 1972 high levels of mercury were found in large school sharks and this led to a more concentrated effort on the catch of gummy sharks using gillnets. As well as gummy and school shark, up to ten other demersal shark species are taken including saw shark, elephant fish, whiskery shark and dog shark.

A14 SOUTHERN SHARK FISHERY—1996



Source: BRS 1996.

SOUTHERN SHARK FISHERY *continued*

Gummy shark has constituted the greatest proportion of the catch over the period from 1989–90 to 1995–96 with over half (54%) of the total at 13,524 tonnes (table A15). Gummy shark is fully fished with current catch levels being assessed as 'sustainable' (BRS 1997). The production of school shark decreased by almost a half from 1,520 tonnes to 829 tonnes over the period. BRS (1997) has classified school shark as 'overfished' with stocks currently declining. Total production within the Southern Shark Fishery in this period was 25,257 tonnes with the greatest catch occurring in the 1993–94 season with 4,013 tonnes. The value of catch is estimated at $12 million (BRS 1997).

A15 SOUTHERN SHARK FISHERY, Carcass Weight—Financial Year

	1989–90	*1990–91*	*1991–92*	*1992–93*	*1993–94*	*1994–95*	*1995–96*
Species	t	t	t	t	t	t	t
Dogfish	2	187	215	277	95	41	21
Elephant fish	67	53	52	67	75	51	77
Shark, gummy	1 957	1 781	1 854	1 991	2 274	1 812	1 855
Shark, school	1 520	1 351	1 260	1 159	1 246	975	829
Shark, southern saw	192	219	189	246	323	310	345
Other sharks(a)	n.a.	n.a.	n.a.	n.a.	n.a.	119	170
Total production	**3 738**	**3 591**	**3 570**	**3 740**	**4 013**	**3 308**	**3 297**

(a) Includes seven gill shark, whiskery shark and angel shark.

Note: Carcass weight is sharks headed and gutted with fins left on.

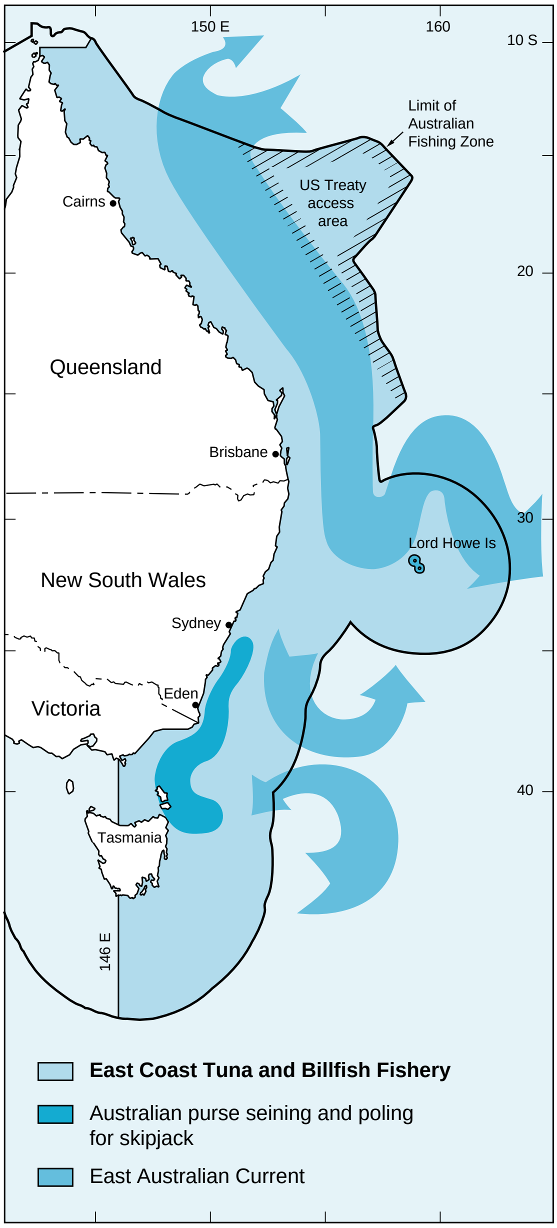
Source: Southern Shark Fishery Monitoring Database.

EASTERN AND WESTERN COAST ZONES

The Eastern Coast Zone (ECZ) is recognised as the water that lies east of 141° longitude. The ECZ includes the Commonwealth managed fisheries, the Eastern Tuna and Billfish Fishery (ETBF) (map A16) and the Southern Bluefin Tuna Fishery (map A17). The ETBF extends from northern Queensland to eastern Tasmania. The targeted species in the ETBF include yellowfin and skipjack tuna. Several other species of tuna and billfish are also caught by longline and other pelagic fishing methods. In 1995–96 the combined value of catch from the ETBF and the Southern Bluefin Tuna Fishery was about $62 million. The Southern Bluefin Tuna Fishery is considered 'overfished' while the status of the ETBF is 'uncertain' (BRS 1997).

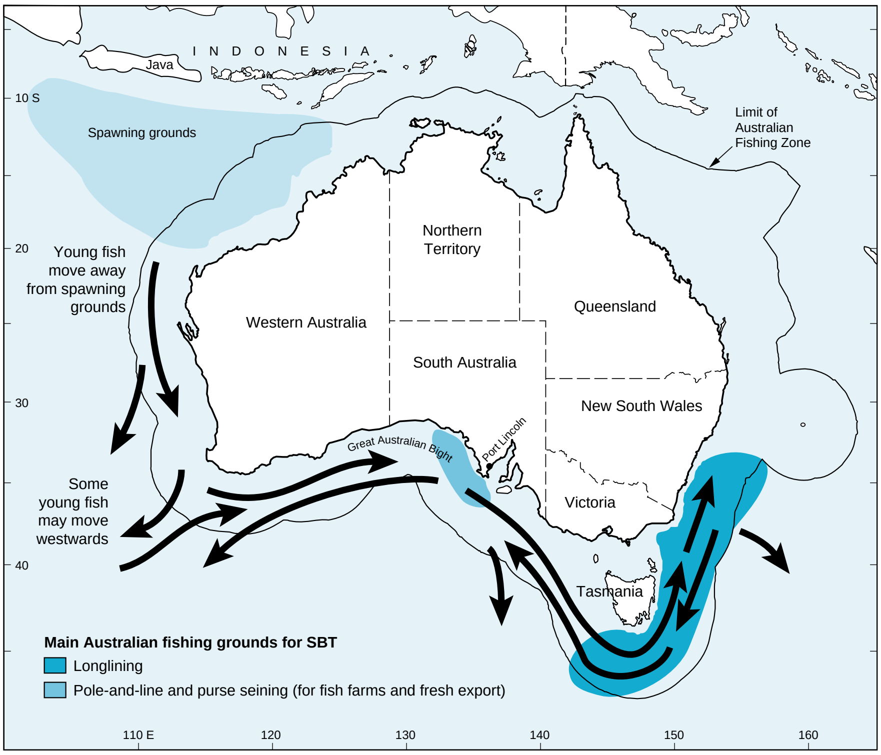
The Western Coast Zone (WCZ) is recognised as the water that lies west of 141° longitude. The WCZ incorporates the Commonwealth fisheries, the Western Tuna and Billfish Fishery (WTBF) and the Southern Bluefin Tuna Fishery (map A17). The WTBF is located in the waters of Western Australia, the Northern Territory and Queensland between Cape York in the north and Cape Leeuwin in the south. The WCZ consists of several different fleets that target tuna, billfish and also southern bluefin tuna. The main participants in the fishery have been domestic longliners, Japanese longliners operating under bilateral agreements, and other vessels using other line fishing gear.

A16 EASTERN TUNA AND BILLFISH FISHERY—1996



Source: BRS 1996.

A17 SOUTHERN BLUEFIN TUNA FISHERY—1996



Source: BRS 1996.

Table A18 shows Australia's total catch from tuna vessels in the ECZ was 45,103 tonnes over the period from 1989–90 to 1996–97. Skipjack tuna constituted the greatest proportion of catch of any species with 23,864 tonnes (53%). Over this period production varied widely from between 240 tonnes in 1989–90 and 6,508 tonnes in 1991–92. Catches of skipjack tuna are thought to be more strongly influenced by sea surface temperature and the abundance of prey species than the number of fishing vessels (BRS 1997). Production of yellowfin tuna increased from 474 tonnes in 1989–90 to 1,727 tonnes in 1996–97. The greatest overall production for the fishery occurred in 1996–97 with a total catch of 9,369 tonnes. The smallest catch occurred in 1989–90 with a total of 882 tonnes.

Australia's total catch from tuna vessels in the WCZ was 29,315 tonnes from 1989–90 to 1996–97. The main species caught by Australian tuna vessels in the western zone was southern bluefin tuna with 23,667 tonnes which constituted over three-quarters of the total catch (81%). Catch volume of southern bluefin tuna over this period was variable with a low of 1,272 tonnes in 1992–93 and a peak of 5,438 tonnes in 1996–97. The greatest overall production by domestic tuna vessels occurred in 1996–97 with a total catch of 5,869 tonnes. Lowest production was recorded in 1992–93, with 1,566 tonnes being caught.

A18 DOMESTIC TUNA VESSELS, Financial Year

Species	1989–90 t	1990–91 t	1991–92 t	1992–93 t	1993–94 t	1994–95 t	1995–96 t	1996–97 t
EASTERN COAST ZONE								
Albacore	49.5	169.9	203.9	163.6	321.1	373.2	490.1	318.9
Bigeye	14.0	24.0	26.4	23.5	48.3	129.8	198.3	562.6
Broadbill	10.9	34.2	31.5	29.2	27.9	33.5	106.2	901.9
Marlin, black	0.2	11.7	17.1	1.1	1.9	1.9	3.7	2.5
Marlin, blue	0.2	16.7	0.4	1.8	2.1	5.2	7.3	2.3
Marlin, striped	3.2	67.6	22.4	22.4	42.5	61.8	81.5	169.2
Sailfish	—	2.8	2.2	0.1	0.5	5.5	0.9	0.7
Skipjack	240.2	2 344.1	6 507.6	4 255.6	1 692.4	1 253.6	2 767.3	4 803.4
Tuna, southern bluefin	3.9	40.3	170.9	176.6	329.6	307.8	247.3	509.2
Yellowfin	474.0	672.3	637.9	780.8	749.2	889.9	1 426.6	1 726.7
Other	86.2	151.3	592.2	1 237.6	3 979.0	419.8	406.8	372.1
Total production	**882.0**	**3 534.9**	**8 212.5**	**6 692.3**	**7 194.4**	**3 481.8**	**5 735.9**	**9 369.4**
WESTERN COAST ZONE								
Albacore	27.4	5.5	17.1	45.6	52.1	5.2	8.0	18.9
Bigeye	47.4	16.1	1.7	33.5	8.5	31.0	44.7	39.9
Broadbill	19.9	6.5	1.1	9.7	6.2	28.3	43.9	18.0
Marlin, black	18.4	0.6	—	—	—	0.3	—	2.6
Marlin, blue	9.6	0.8	—	—	0.1	—	0.1	1.5
Marlin, striped	27.2	0.5	0.2	0.1	0.1	1.2	3.2	2.0
Sailfish	0.2	0.1	—	—	—	0.1	0.1	0.7
Skipjack	658.1	20.3	539.6	31.1	1 201.7	466.4	210.8	152.9
Tuna, southern bluefin	3 899.9	2 218.0	1 678.0	1 272.0	1 963.6	2 825.0	4 372.8	5 438.1
Yellowfin	124.5	38.7	—	10.0	3.4	45.6	88.9	178.0
Other	600.9	93.6	198.2	164.0	71.3	94.4	31.9	16.5
Total production	**5 433.6**	**2 400.7**	**2 436.9**	**1 565.7**	**3 307.0**	**3 497.5**	**4 804.2**	**5 869.2**

Source: AFMA Logbook Database.

JAPANESE TUNA VESSELS IN EASTERN AND WESTERN COAST ZONES

Japanese longline fleets also fish in the offshore waters of the ECZ and WCZ under annually negotiated bilateral access arrangements between the Governments of Japan and Australia, catering for the frozen sashimi market in Japan.

Total Japanese catch in the ECZ from 1989–90 to 1996–97 was 51,007 tonnes. The major species caught were yellowfin tuna with 13,683 tonnes (27% of total catch), southern bluefin tuna with 12,570 tonnes and albacore tuna with 11,514 tonnes, 25% and 23% of total Japanese catch in the ECZ respectively.

The largest Japanese longline catch in the ECZ was in 1989–90 with 11,270 tonnes, before any major restrictions were placed on the Japanese fishing fleet. In 1995–96 production fell by more than half (2,827 tonnes) of the 1994–95 catch and remained around this level again in 1996–97 (3,091 tonnes). A contributing factor has been the declining catch of southern bluefin tuna. This species is assessed as 'overfished' and there is doubt whether spawning stock can rebuild under current catches (BRS 1997).

JAPANESE TUNA VESSELS IN EASTERN AND WESTERN COAST ZONES *continued*

Japanese longliners operating in the WCZ from 1989–90 to 1996–97 caught 6,074 tonnes of fish, predominantly yellowfin and southern bluefin tuna (table A19). The large catch of yellowfin tuna over this period was primarily due to large catches in three years—1989–90 (452 tonnes); 1993–94 (473 tonnes); and 1994–95 (788 tonnes). Southern bluefin tuna and bigeye were the next largest contributors at 25% and 21% respectively of the total catch over this period. The largest catch for Japanese longliners in the WCZ occurred in 1994–95 with 1,440 tonnes and the smallest season catch occurred in 1990–91 with only 146 tonnes. Fluctuations in the catch of Japanese tuna vessels can be partly attributed to variations in bilateral agreements. Japanese longliners have been excluded from the Australian Fishing Zone on several occasions during the 1990s because of unresolved southern bluefin tuna quotas (BRS 1997).

A19 JAPANESE TUNA VESSELS, Financial Year

	1989–90	*1990–91*	*1991–92*	*1992–93*	*1993–94*	*1994–95*	*1995–96*	*1996–97*
Species	t	t	t	t	t	t	t	t
EASTERN COAST ZONE								
Albacore	2 474.1	1 443.8	1 212.7	1 422.2	2 152.6	1 745.7	560.7	502.7
Bigeye	783.6	649.2	329.1	390.6	345.8	346.3	176.6	364.0
Broadbill	759.1	592.5	543.3	468.1	292.3	315.3	155.6	196.6
Marlin, black	88.0	29.2	12.0	19.8	37.3	38.4	4.0	5.3
Marlin, blue	319.7	54.5	35.8	50.6	74.4	63.9	5.6	6.5
Marlin, striped	633.4	327.7	238.2	207.0	276.1	298.1	108.8	85.0
Sailfish	86.2	8.3	10.3	27.6	18.9	16.1	0.7	1.6
Tuna, southern bluefin	2 484.9	1 278.8	2 009.6	2 475.0	1 959.4	1 593.3	424.6	344.8
Yellowfin	3 127.3	1 523.3	1 038.4	1 695.2	2 023.1	1 716.8	1 217.9	1 340.6
Other	513.4	385.9	446.4	555.6	490.6	534.5	172.1	244.4
Total production	**11 269.8**	**6 293.2**	**5 876.0**	**7 311.6**	**7 670.6**	**6 668.2**	**2 826.5**	**3 091.4**
WESTERN COAST ZONE								
Albacore	76.5	14.6	35.4	39.9	66.9	85.2	36.2	35.0
Bigeye	230.0	68.3	186.5	342.0	135.8	79.0	73.5	170.4
Broadbill	28.9	17.6	55.3	81.5	94.9	28.6	51.5	66.2
Marlin, black	28.1	1.1	0.6	1.3	24.3	27.2	0.3	0.3
Marlin, blue	32.0	1.2	0.8	1.1	23.5	31.2	1.1	1.0
Marlin, striped	4.4	0.1	0.2	1.8	3.9	6.7	1.0	2.0
Sailfish	0.6	—	0.2	0.1	1.2	1.6	—	0.1
Tuna, southern bluefin	79.9	24.7	417.6	43.1	388.9	315.2	220.2	0.4
Yellowfin	452.2	16.4	23.9	74.1	473.0	788.2	37.3	60.4
Other	18.7	1.6	45.1	40.2	114.2	77.6	45.5	16.8
Total production	**951.2**	**145.5**	**765.7**	**625.0**	**1 326.7**	**1 440.4**	**466.6**	**352.6**

Source: AFMA Logbook Database.

SOUTHERN SQUID JIG FISHERY

The Southern Squid Jig Fishery includes Commonwealth waters adjacent to New South Wales, Victoria, South Australia, Tasmania and Queensland up to Sandy Cape. The estimated value of the catch each year is $2 million (BRS 1997). The major fishing grounds are off the south-east corner of Australia. The principal fishing method is squid jigging and the main species caught is arrow squid. Most of the arrow squid catch is taken between January and June each year with the highest catches occurring in March and April.

Catch information from AFMA is only available for 1995–96 and 1996–97 (table A20). Domestic catch prior to this time was relatively low. The status of the fishery is 'uncertain' but 'probably underfished' (BRS 1997). In 1995–96 and 1996–97 a total of 3,265 tonnes of arrow squid was caught by squid jigging in the fishery. Most of this was caught in the 1996–97 season (2,046 tonnes).

A20 SOUTHERN SQUID JIG FISHERY, Financial Year

	1995–96	*1996–97*
Species	t	t
Arrow squid	1 218.9	2 046.4

Source: AFMA Logbook Database.

BASS STRAIT SCALLOP FISHERY

The Bass Strait Scallop Fishery is divided into three zones. Zones one and two extend approximately 20 nautical miles off the Victorian and Tasmanian coasts respectively, and each is managed by the adjacent State. The third zone, the central zone, comprising the waters around King Island and western Bass Strait, is managed by AFMA under Commonwealth jurisdiction. Data for the central zone of the fishery are only available from 1993–94 to 1996–97.

The total catch of scallops in the Bass Strait Central Scallop Fishery from 1993–94 to 1996–97 was 2,917 tonnes. The period of greatest catch occurred in 1994–95 when 1,124 tonnes of scallops were caught (table A21). The estimated value of catch for 1996 was $12.1 million (BRS 1997). The fishery has major export markets in France, United States of America and Hong Kong. The status of the fishery is 'uncertain' and annual abundance varies widely (BRS 1997).

A21 BASS STRAIT CENTRAL ZONE SCALLOP FISHERY, Financial Year

	1993–94	*1994–95*	*1995–96*	*1996–97*
Species	t	t	t	t
Scallop	456.2	1 124.4	649.8	686.2

Source: AFMA Logbook Database.

KIMBERLEY PRAWN FISHERY

Banana prawns made up the greatest proportion of catch in the Kimberley Prawn Fishery with 2,393 tonnes, 79% of total production. Endeavour and tiger prawns made up the bulk of the remainder of production with small amounts of king prawns also being caught.

A22 KIMBERLEY PRAWN FISHERY, Financial Year

	1989–90	*1990–91*	*1991–92*	*1992–93*	*1993–94*	*1994–95*	*1995–96*	*1996–97*
Prawn species	t	t	t	t	t	t	t	t
Banana	215.0	343.0	313.0	280.0	290.0	229.5	313.5	409.2
Endeavour	27.0	74.5	63.5	42.0	38.5	13.5	46.5	82.4
King	2.0	7.0	5.5	0.5	0.5	0.5	1.5	1.0
Tiger	19.5	49.5	41.0	36.5	37.0	17.0	19.0	14.7
Total production	**263.5**	**474.0**	**423.0**	**359.0**	**366.0**	**260.5**	**380.5**	**507.3**

Source: AFMA Logbook Database. ABS has converted data from financial year to calendar year estimates for 1989–90 to 1995–96.

CONFIDENTIAL COMMONWEALTH FISHERIES

Catch information for some Commonwealth fisheries is confidential. The Commonwealth fisheries that are classified as confidential are the North West Slope Trawl, Western Deepwater Trawl, Christmas and Cocos Island, Coral Sea, Jack Mackerel, Macquarie Island, Heard and McDonald Islands, and the King Crab Trap Fishery. These fisheries have all been included in a single total which is shown in table A23.

A23 CONFIDENTIAL COMMONWEALTH FISHERIES, Financial Year

	1991–92	*1992–93*	*1993–94*	*1994–95*	*1995–96*	*1996–97*
	t	t	t	t	t	t
Confidential fisheries	18.0	(a)395.3	(b)642.3	(c)861.1	(d)1 278.2	(e)2 353.8

(a) Includes Coral Sea, Western Deepwater Trawl and North West Slope Fishery.

(b) Includes (a) and Jack Mackerel, Christmas and Cocos Island fisheries.

(c) Includes (b) and Macquarie Island Developmental Fishery.

(d) Includes (c) and King Crab Fishery.

(e) Includes (d) and Heard and McDonald Islands Fishery.

Source: AFMA Logbook Database.

GLOSSARY

Crustaceans A group of mainly aquatic invertebrates with a hard exoskeleton, two pairs of antennae and jointed, double-branched limbs. Crustaceans grow by moulting (or shedding) their hard exoskeleton and forming a new one. Most crustaceans have gills, although smaller forms breathe directly through their exoskeleton. Examples are crabs, lobsters, prawns, sea lice and barnacles (BRS and FRDC 1993).

Demersal Found on or near the bottom of the sea or lake (BRS and FRDC 1993).

Developmental Fishery Transition through exploratory and experimental fishing, and establishment of commercial activities and markets, with the ultimate goal of sustained long-term exploitation within bounds which the stock can support (BRS and FRDC 1993).

Echinoderms Exclusively marine invertebrates with an internal skeleton of calcareous plates that often bear spines. Echinoderms have a unique hydraulic water vascular system which operates tube feet used for feeding and locomotion. Their bodies are generally radially symmetrical with the body divided into five parts around a central axis. Echinoderms are nearly all bottom dwelling. Examples are star fish, feather stars, brittle stars, sea urchins and sea cucumbers (BRS and FRDC 1993).

Elasmobranchs Fishes whose internal skeleton is mainly cartilaginous, sometimes calcified but never ossified. Their skull is without sutures. Elasmobranchs have placoid scales and their upper jaw is not fused to the cranium. They have numerous teeth that are not usually fused to the jaws and are replaced serially. Elasmobranchs have a spiracle (respiratory pore) and five to seven separate gill openings on each side, no swim bladder and males bear claspers for internal fertilisation. Examples are sharks, skates and rays (BRS and FRDC 1993).

Exports The exports of goods represents the quantity of goods sent to other countries or for which ownership changes from residents to non-residents.

Fully fished An appraisal of the status of stock which suggests that current catches are sustainable and close to optimum levels (the definition of which may vary between fisheries; e.g. catches are close to maximum sustainable yield, or fishing effort is close to a biological reference point). In a fully fished fishery, increases in fishing effort above current levels may lead to overfishing (BRS 1997).

Household consumption Measures the consumption of goods by households and producers of non-profit services to households. It includes the consumption of durable and non-durable goods.

Individual transferable quota A management tool by which the total available catch quota is allocated to individual fishers or companies. These individuals or companies have long-term rights over this quota and are able to trade quota with others (BRS 1997).

Industry Refers to Input-Output industry groups.

Input-Output A compilation method which provides a description of the supply and disposition of the products of an entire (economic) system for a particular time.

Input structure Shows the detailed consumption of a commodity by Input-Output industries.

Molluscs A group of mainly aquatic invertebrates with a soft, unsegmented body and often a shell. Most have a radula, a large muscular foot and a fleshy mantle covering the internal organs which, in some forms, secretes a thin shell. Most forms possess one or two gills. Examples are oysters, scallops, abalone, periwinkles, limpets, cuttlefish, squid and octopus (BRS and FRDC 1993).

Overfished Current fishing levels may not be sustainable, or yields may be higher in the long term if the fishing level is reduced in the short term. This may be due either to growth overfishing or recruitment overfishing (BRS 1997).

Production The term 'production' has been used interchangeably with 'catch' in this publication.

Quota Amount of catch allocated; could refer to a fishery as a whole (total allowable catch) or to that amount allocated to an individual or company (see Individual transferable quota) (BRS 1997).

Sustainable yield Catch that can be removed over an indefinite period without causing the stock to be depleted. This could be either a constant yield from year to year, or a yield which is allowed to fluctuate in response to changes in abundance (BRS 1997).

Teleosts Fishes whose internal skeleton is constructed mainly of true bone. Their skull is sutured and the teeth are usually fused to the jaw bones. The posterior tip of their vertebral column turns upwards and terminates in a bony plate. Their scales are usually thin and bony. Teleosts have external nostrils, a single gill opening on each side, and usually have a swim bladder or lung. Examples include sardines, eels, bream and tunas (BRS and FRDC 1993).

Total supply The total amount of a commodity available at a point in time; includes imports.

Underfished A fish stock that has potential to sustain catches higher than those currently taken is described as underfished (BRS 1997).

LIST OF REFERENCES

ABARE	Australian Bureau of Agricultural and Resource Economics
ABS	Australian Bureau of Statistics
AFMA	Australian Fisheries Management Authority
BRS	Bureau of Resource Sciences
FRDC	Fisheries Research and Development Corporation

AFMA Logbook Database, Australian Fisheries Management Authority.

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