CHAPTER 25

FISHERIES

Further information on subjects dealt with in this chapter is contained in the annual statistical bulletins *Fisheries* (10.8 and 10.9).

Fisheries resources and their commercial exploitation

Fish

Approximately 2,000 species of marine and freshwater fish occur in and around Australia, about forty of which support substantial commercial fisheries. Most fishing is confined to waters over the continental shelf on the populous eastern and south-eastern seaboard, including Tasmania and South Australia, and off the south-western corner of the continent. As in other countries, fisheries in Australia may be divided into estuarine fisheries, located in the tidal waters of rivers and coastal lakes, beaches and bays; pelagic fisheries, which exploit species inhabiting the surface layers of the open ocean; and demersal fisheries, which fish the bottom layers of the sea. Estuarine fisheries produce considerable quantities of mullet (mainly *Mugil cephalus*), bream (*Acanthopagrus spp.*) and, in northern Australia, the valuable giant perch (*Lates calcarifer*). Important freshwater fisheries in New South Wales, Victoria and South Australia include those for Murray cods (*Maccullochella spp.*), golden perch (*Plectroplites ambiguus*) and eels (*Anguilla australis*). Rainbow trout are farmed in Tasmania. Important pelagic fisheries include those for Australian 'salmon' (*Arripis trutta*), southern bluefin tuna (*Thunnus maccoyii*), snoek (*Leionura atun*), mackerel (*Scomber amorus*), and clupeoids (*Sardinops neopilchardus* and *Engraulis australis*). Demersal fisheries include those for snapper (*Chrysophrys auratus*), whiting (*Sillaginidae*) and from tropical waters the so called 'cods' (*Epinephelus*, etc.). Trawl fisheries off New South Wales and Victoria yield species such as flathead (*Neoplatycephalus* and *Trudis spp.*), morwong (*Nemadactylus spp.*) and John Dory (*Zeus faber*). The previously valuable fishery for edible school and gummy shark (*Galeorhinus australis* and *Mustelus antarcticus*) in south-eastern Australia declined significantly in the year 1972–73 because of the discovery of a high mercury content in large school shark but production and prices have since risen, although production has not attained its former level. A fishery for clupeoids in the Bass Strait which supplies the raw material for a fish meal plant at Lakes Entrance, Victoria, is the only established 'industrial fishery' in Australia, but several other exploratory purse seine ventures aimed at production of clupeoids and jack mackerel (*Trachurus declivis*), including a fish meal plant at Triabunna, have been established in south-eastern Australia recently.

Crustaceans

The western and southern rock lobsters (*Panulirus longipes cygnus* and *Jasus novaehollandiae*) which are taken on rocky reefs around the southern half of Australia, provide the most valuable fishery in Australia. Prawns (*Penaeus* and *Metapenaeus spp.*) are taken in estuarine, coastal and offshore waters of all States except Tasmania. This fishery has grown rapidly in recent years, especially in northern Australia. Bay lobsters (*Thenus* and *Ibacus spp.*) are taken incidentally to prawn trawling operations. Crabs (*Scylla and Portunus spp.*) are taken mainly in Queensland, New South Wales and Western Australia.

Molluscs (edible)

Naturally occurring oysters are harvested in all States; and in New South Wales and Queensland the Sydney rock oyster (*Crassostrea commercialis*) is cultured commercially. The introduction of the Pacific oyster (*Crassostrea gigas*) in Tasmania and, recently, South Australia provides a limited supply in those States. Following a serious decline in catches in the scallop (*Pecten meridionalis*) fishery based on stocks in Port Phillip Bay, Victoria, new offshore beds were located in southern New South Wales, eastern Victoria, northern Tasmania and south-western Western Australia. However, substantial fluctuations in abundance has resulted in erratic variation in production from year to year, and only the Victorian and Tasmanian beds are currently producing. A fishery based on the saucer scallop (*Amusium balloti*) developed, then declined, in another area of Western Australia, and there is a similar though more stable fishery in Queensland. An important abalone fishery has been developed

since 1964 in south-east Australia with Tasmania, Victoria and South Australia providing the bulk of the catch. Mussels (*Mytilus planulatus*) are harvested in Victoria, and a fishery for squid developed in the Derwent River estuary at Hobart in 1972–73. Other small quantities of cephalopods, mainly squid, are produced in many localities.

Pearl-shell and trochus-shell

The shell of the Australian species of pearl oyster (*Pinctada maxima*) is taken from various localities in the tropical waters of Australia from Broome in Western Australia to Cairns in Queensland for the manufacture of buttons, knife handles, etc. Live pearl-shell is used for pearl culture, *Pinctada maxima* being capable of producing pearls which are the largest in the world and which command top market prices. Trochus-shell is found mainly on coral reefs off the Queensland coast, although small quantities occur in Western Australia.

Whales

The Australian whaling industry formerly exploited the baleen (humpback) whales during their winter migrations along the east and west coasts of Australia. However, owing to the total prohibition placed on their capture by the International Whaling Commission in 1963, Australian whaling is now confined to the sperm whale (*Physeter catodon*) which has been taken in the southern waters of Western Australia since 1955. Processing operations were carried out by several shore stations, but now only one station at Albany, Western Australia, is still operating.

General

A map showing Australia's principal ports and generalised localities of the fishery resources under exploitation appears on plate 56, page 912. Detailed information on the history of the development of fisheries industries in Australia is given in Year Book No. 55, pages 976–7.

Fisheries administration and research

The Constitution of the Commonwealth (Section 51 (x)) assigns to the Commonwealth Government power to legislate for fisheries in Australian waters beyond territorial limits, the residual power in respect of waters within territorial limits (including inland waters) resting with the States. The Commonwealth Government has made similar arrangements for each of its Territories. Each State and Territory has legislation regulating fisheries in waters within its jurisdiction. Persons taking fish for sale, and their boats, are required to be licensed, and provision is made for management of the fisheries.

The Commonwealth Government laws regulating the fisheries are the *Fisheries Act* 1952, the *Continental Shelf (Living Natural Resources) Act* 1968 and the *Whaling Act* 1960. Each of these applies in accordance with the Commonwealth Government's fishery power under the Constitution.

Fisheries Act

This Act requires persons engaging in fishing and boats used for fishing to be licensed and their equipment for taking fish to be registered if the purpose of the fishing is commercial. It also provides for management and conservation of the fisheries. The Act applies to Australian residents and their boats in waters proclaimed under the Act and, since 1968, to foreign boats and their crews in the zone of waters extending 12 miles from the baselines of the territorial sea but excluding waters within territorial limits, where State law applies.

Continental Shelf (Living Natural Resources) Act

This Act implements in Australian law the sovereign rights, conferred on Australia in respect of the organisms belonging to sedentary species (that is, organisms which, at the harvestable stage, either are immobile on or under the seabed, or are unable to move except in constant physical contact with the seabed or the subsoil) on the continental shelf. The continental shelf comprises the seabed and subsoil of the submarine areas adjacent to the coast but outside the territorial sea to a depth of 200 metres, or beyond that depth where the depth of the superjacent waters admits of the exploitation of the natural resources of the area, by the Convention on the Continental Shelf, Geneva, 1958. The Act requires the licensing of persons searching for and taking sedentary organisms, of boats used to search for and take sedentary organisms, and of persons employing divers, trial divers and divers' tenders in taking sedentary organisms, if such activities are carried out in controlled areas of the continental shelf of Australia or the Territories for a commercial purpose. Provision is made for proclamation of sedentary organisms to which the Act applies, for the establishment of controlled areas of continental shelf in respect of specified sedentary organisms, and for the management and conservation of sedentary organisms in controlled areas (the last of these applying to all persons whether the purpose of the taking of the sedentary organism was commercial or not). The Act applies to all persons including foreigners, and to all boats including foreign boats.

Whaling Act

This Act implements in Australian law the obligations imposed on Australia by virtue of our adherence to the International Convention for the Regulation of Whaling, Washington, 1946. The Act requires the licensing of factories engaged in treating whales and of ships (and aircraft) used for taking whales. It also provides for the management and conservation of whale stocks.

Administration

Australian fisheries are administered by the authority having jurisdiction over the waters concerned. In inland waters and in waters within territorial limits, administration is the responsibility of the State or Territory fisheries authority. In proclaimed waters, and on the continental shelf beyond territorial limits, administration is the responsibility of the Commonwealth Government which, by agreement, has delegated to State fisheries authorities the necessary authorities for day-to-day administration of the Acts.

The administration of the fisheries is directed to a number of objectives, of which the two most important are conservation of the living resources in order to ensure their ability to sustain a maximum yield consistent with economy in their exploitation, and the orderly conduct of the fishing industry. Fishery resources are common property and apart from fisheries such as those for rock lobster and abalone, where the numbers of boats and the quantities of fishing gear are controlled, the only other restrictions on the entry of boats into the Australian fishing industry are those relating to foreigners, and to processing and carrying boats in the northern prawn fishery. Management measures have been introduced in several fisheries to provide controls such as minimum sizes, closed areas, closed seasons and regulation of the types of fishing gear that may be used.

The Fisheries Development Trust Account (established under the *Fishing Industry Act* 1956) and the Fishing Industry Research Trust Account (established under the *Fishing Industry Research Act* 1969) are available to support financially, projects of kinds consistent with the purposes of those Acts for the development and management of the fisheries and fishing industry. The former is supported by the proceeds of the sale of the assets of the Australian Whaling Commission. The latter is a matching fund into which is paid each year an appropriation from Commonwealth Government Revenue equal to amounts collected from the fishing industry by the State Fisheries Authorities and expended by the States for the same purposes.

Research

The main aim of fisheries research in Australia is to provide a background of biological, technical and economic information which will provide guidance for the efficient and rational utilisation of fisheries resources. To this end much of the research already undertaken has been directed at formulating recommendations for management of various fisheries. Research work is also carried out which is expected to lead to the development of new fisheries, the expansion of under-exploited fisheries, greater economy in operations and the use of more efficient equipment and methods.

Organisations in Australia at present engaged in research into fisheries matters are:

(i) C.S.I.R.O. Division of Fisheries and Oceanography, with its headquarters and main laboratory at Cronulla, N.S.W. (fisheries science and oceanography);

(ii) C.S.I.R.O. Division of Food Research; main laboratories located at Ryde, N.S.W. (handling, storage, processing and transportation of fish);

(iii) State fisheries departments (fisheries laboratories have been established in Perth, Hobart, Melbourne, Sydney and Brisbane; research vessels are operated by New South Wales, Victoria, Western Australia and Tasmania; the Department of the Northern Territory has a small scientific section at Nhulunbuy);

(iv) Fisheries Division, Department of Primary Industry, Canberra (economic and management research, gear technology, extension and education service); and

(v) private fishing companies (surveys of fisheries resources, research into handling and processing).

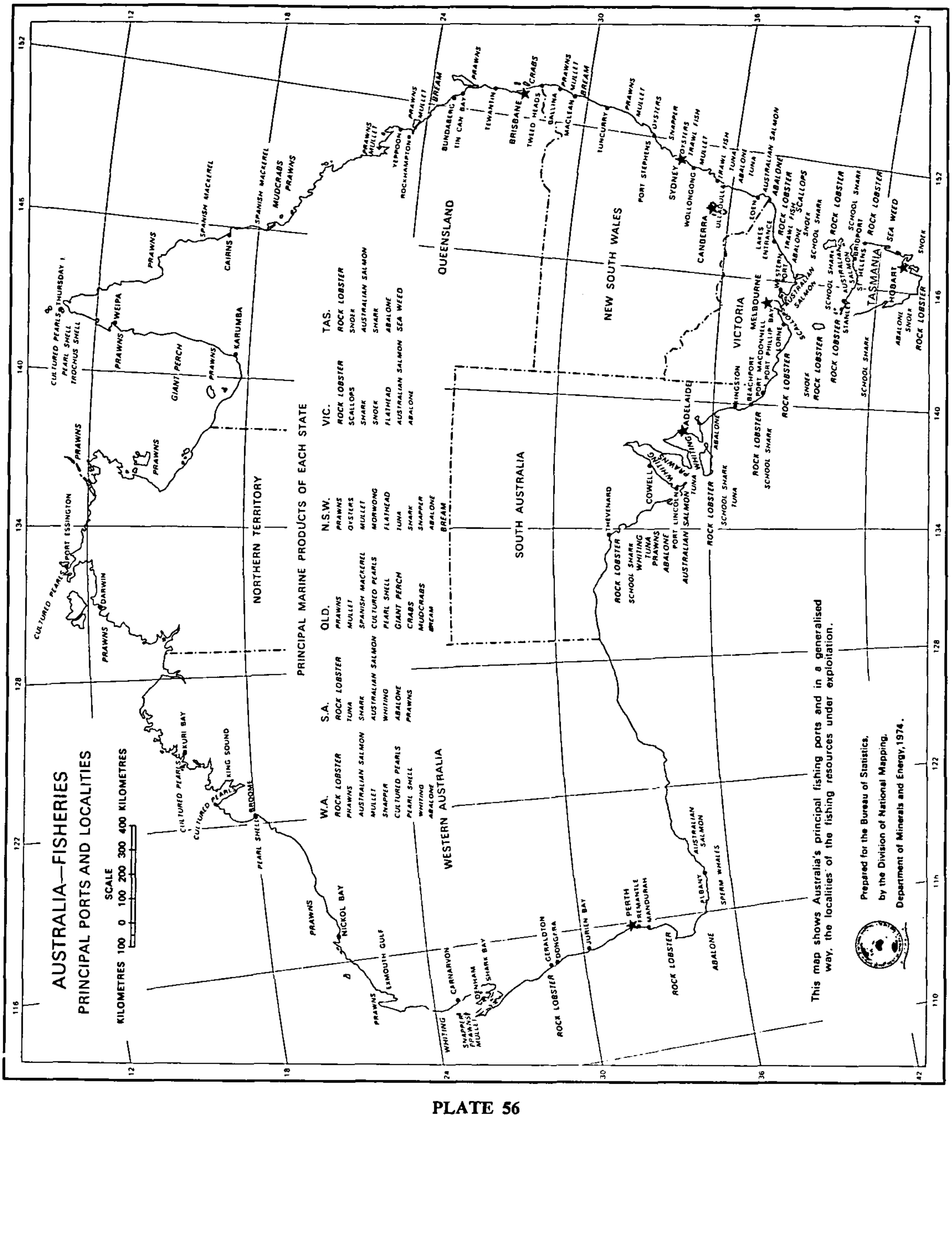
AUSTRALIA—FISHERIES
PRINCIPAL PORTS AND LOCALITIES
SCALE
KILOMETRES 100 0 100 200 300 400 KILOMETRES
PRINCIPAL MARINE PRODUCTS OF EACH STATE
W.A.
ROCK LOBSTER
PRAWNS
AUSTRALIAN SALMON
MULLET
SNAPPER
CULTURED PEARLS
PEARL SHELL
WHITING
ABALONE
S.A.
ROCK LOBSTER
TUNA
SHARK
AUSTRALIAN SALMON
WHITING
ABALONE
PRAWNS
QLD.
PRAWNS
MULLET
SPANISH MACKEREL
CULTURED PEARLS
PEARL SHELL
GIANT PERCH
CRABS
MUDCRABS
BREAM
N.S.W.
PRAWNS
OYSTERS
MULLET
MORWONG
FLATHEAD
TUNA
SHARK
SNAPPER
ABALONE
BREAM
VIC.
ROCK LOBSTER
SCALLOPS
SHARK
SNOEK
FLATHEAD
AUSTRALIAN SALMON
ABALONE
TAS.
ROCK LOBSTER
SNOEK
AUSTRALIAN SALMON
SHARK
ABALONE
SEA WEED
WESTERN AUSTRALIA
NORTHERN TERRITORY
SOUTH AUSTRALIA
QUEENSLAND
NEW SOUTH WALES
VICTORIA
TASMANIA
DARWIN
PORT ESSINGTON
THURSDAY I.
WEIPA
KARUMBA
CAIRNS
ROCKHAMPTON
YEPPOON
BUNDABERG
TIN CAN BAY
TEWANTIN
BRISBANE
TWEED HEADS
BALLINA
MACLEAN
TUNCURRY
PORT STEPHENS
SYDNEY
WOLLONGONG
ULLADULLA
CANBERRA
EDEN
LAKES ENTRANCE
WESTERN PORT
MELBOURNE
PORT PHILLIP BAY
LORNE
PORT MACDONNELL
BEACHPORT
KINGSTON
ADELAIDE
PORT LINCOLN
COWELL
THEVENARD
ALBANY
PERTH
FREMANTLE
MANDURAH
JURIEN BAY
GERALDTON
DONGARA
SHARK BAY
DENHAM
CARNARVON
EXMOUTH GULF
NICKOL BAY
BROOME
KING SOUND
KURI BAY
HOBART
STANLEY
BRIDPORT
ST. HELENS
CULTURED PEARLS
PEARL SHELL
TROCHUS SHELL
PRAWNS
GIANT PERCH
SPANISH MACKEREL
MUDCRABS
MULLET
BREAM
CRABS
OYSTERS
SNAPPER
TRAWL FISH
TUNA
ABALONE
AUSTRALIAN SALMON
ROCK LOBSTER
SCALLOPS
SNOEK
SCHOOL SHARK
SEA WEED
WHITING
SPERM WHALES
This map shows Australia's principal fishing ports and in a generalised way, the localities of the fishing resources under exploitation.
Prepared for the Bureau of Statistics,
by the Division of National Mapping,
Department of Minerals and Energy, 1974.

PLATE 56

Collection and presentation of fisheries statistics

Source and basis of statistics

Statistics presented in this chapter have been collected by a number of authorities. The various State fisheries authorities have supplied, through the Deputy Commonwealth Statisticians in the States, the details of employment, boats, equipment, and production of the general fisheries. The Fisheries division of the Department of Primary Industry has supplied particulars of the whaling industry and pearl-shell fishery. Statistics of the processing of general fisheries products and of overseas trade in the products of fishing and whaling have been compiled in the Australian Bureau of Statistics.

The statistics refer, in general, to financial years. However, statistics of pearl and trochus shell fishing, pearl culture operations and whaling refer to the season ended in the calendar year shown. For convenience of presentation, statistics of production of pearl and trochus shell have been assigned to financial years in the tables which follow. All overseas trade information refers to financial years.

In the preparation of Australian fisheries production statistics the quantities of individual products are generally in terms of the form in which they are taken from the water. For example, the statistics of fish production published in this chapter are in terms of 'estimated live weights' which are calculated from landed weights by using conversion factors for each species in each State. These conversion factors allow for the fact that the quantities of fish reported are frequently in a gutted, headed and gutted, or otherwise reduced condition. Crustaceans are reported on an 'estimated live weight' basis and molluscs (edible) on a 'gross (in-shell) weight' basis. The figures of pearl-shell and trochus-shell refer to the actual quantities of dry shell for sale and exclude the weight of the fish.

Boats and equipment used in fisheries

Fish, crustaceans and molluscs (edible)

The boats used for the estuarine fisheries are mostly small vessels, propelled by diesel or petrol engines of low power. The offshore vessels range up to 40 metres in length and are almost invariably powered by diesel engines. Most of them have either insulated holds and carry ice, or are equipped with dry or brine refrigeration. Some rock lobster vessels are fitted with wells in which the catch is kept alive. About 25 per cent of the vessels registered in Australia for commercial fishing are over 10 metres in length. Recently, a number of well equipped, double rigged, prawn trawlers of 20 metres to 25 metres in length with large refrigeration capacity have been built for the rapidly developing northern prawn fisheries.

The following are the types of equipment most commonly used in the main fisheries: *mullet*, beach seine, gill net; *shark* (edible), long-lines, gill net; *Australian salmon*, beach seine; *snoek*, trolling lines; *flathead*, Danish seine, otter trawl; *snapper*, long-lines, traps, gill net, hand-line; *morwong*, Danish seine, otter trawl, traps; *whiting*, handlines, Danish seine, beach seine, gill net; *garfish*, beach seine; *mackerel*, trolling lines; *tuna*, pole and live-bait, trolling lines (lampara nets and purse seines are used for taking live bait for tuna); *prawns*, otter trawl, beam trawl, beach seine net; *rock lobster*, pots, traps; *scallops*, dredge, otter trawl; *abalone*, diving using hookah gear; and *pilchards*, *anchovies*, *jack mackerel* and *striped tuna*, purse seine.

Pearls, pearl-shell and trochus-shell

Ketch-rigged luggers about 15 metres long which carry crews of eight to fourteen members are used for pearl-shell fishing in northern Australia.

Whaling

The whaling industry is highly mechanised. Standard equipment includes aircraft to locate whales, diesel-powered catchers of about 30 to 40 metres in length, and tow boats.

Boats and equipment employed by industry

The following two tables show details of boats and equipment engaged in the taking of fish, crustaceans and edible molluscs, pearl-shell and trochus-shell, and the number of chasers and stations engaged in whaling operations. The reservations mentioned below regarding the use of employment information are also applicable to these tables. Boats engaged in more than one industry are classified to their main activity.

FISHERIES: BOATS AND EQUIPMENT; WHALING STATIONS, 1974-75

		N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	Aust.
General fisheries—									
Boats	No.	2,209	772	2,447	1,824	1,588	616	194	9,650
Value of boats and equipment	$'000	20,541	11,103	44,847	36,601	37,672	14,086	24,027	188,877
Edible oyster fisheries—									
Boats	No.	1,812	..	n.a.	1	5	n.a.	..	(a)1,818
Value of boats and equipment	$'000	4,469	..	n.a.	1	6	n.a.	..	(a)4,476
Pearl-shell and trochus-shell—									
Boats(b)	No.	..	..	7	..	10	..	3	20
Whaling(b)—									
Chasers	No.	..	..	..	..	3	..	..	3
Stations operating	„	..	..	..	..	1	..	..	1

(a) Incomplete: *see* individual States. (b) *Source:* Commonwealth Department of Primary Industry.

FISHERIES: BOATS AND EQUIPMENT, WHALING STATIONS, AUSTRALIA

		1970–71	1971–72	1972–73	1973–74	1974–75
General fisheries—						
Boats	No.	9,322	9,591	10,760	10,532	9,650
Value of boats and equipment	$'000	79,711	(a)80,097	114,188	141,819	188,877
Edible oyster fisheries—						
Boats	No.	(b)1,829	(b)1,884	(c)1,710	(b)1,899	1,818
Value of boats and equipment(c)	$'000	1,844	2,843	3,734	4,133	4,476
Pearl-shell and trochus-shell—						
Boats(d)	No.	28	23	17	21	20
Whaling(d)—						
Chasers	No.	3	3	3	3	3
Stations operating	„	1	1	1	1	1

(a) Incomplete; excludes South Australia. (b) Incomplete; excludes Tasmania. (c) Incomplete; excludes Queensland and Tasmania. (d) *Source:* Commonwealth Department of Primary Industry.

Employment in fisheries

Classification of registered commercial fishermen by industry

The following two tables are derived mainly from the licensing records of the various State fisheries authorities. Because the definitions and licensing procedures used by these authorities are not uniform the statistics should not be used to compare the relative productivities of fishing industries in the various States. Persons engaged in more than one industry are classified according to their main activity, and so may be classified differently from one year to the next.

PERSONS EMPLOYED ON FISHING BOATS, 1974-75(a)

Industry	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	Aust.
General fisheries	3,224	1,533	5,054	3,007	3,241	1,343	638	18,040
Edible oyster fisheries	1,434	..	n.a.	6	4	n.a.	..	(b)1,444
Pearl-shell and trochus-shell(c)	..	..	94	..	90	..	22	206
Whaling(c)—								
At sea	..	..	..	..	51	..	..	51

(a) For all States except Western Australia, the figures for general fisheries refer to number of persons (including skippers) reported as usually employed on boats. Persons reported as usually employed on more than one boat for a particular year are counted more than once for that year. For Western Australia, the figure for general fisheries refers to number of licensed commercial fishermen. (b) Incomplete; excludes Queensland and Tasmania. (c) *Source:* Commonwealth Department of Primary Industry.

PERSONS EMPLOYED ON FISHING BOATS: AUSTRALIA(*a*)

Industry	*1970–71*	*1971–72*	*1972–73*	*1973–74*	*1974–75*
General fisheries(*b*)	16,279	17,594	19,208	19,072	18,040
Edible oyster fisheries	(*c*)1,596	(*d*)1,402	(*d*)1,318	(*c*)1,620	(*d*)1,444
Pearl-shell and trochus-shell(*e*)	416	287	233	193	206
Whaling(*e*)—					
At sea	51	51	51	56	51

(*a*) *See* foonote (*a*) to the table 'Persons Employed on Fishing Boats, 1974–75' previous page. (*b*) A break in comparability of figures in this series occurred in 1971–72, due to a change in basis of counting in South Australia. (*c*) Incomplete; figure for Tasmania is not available. (*d*) Incomplete: excludes Queensland and Tasmania. (*e*) *Source*. Commonwealth Department of Primary Industry.

Production, processing and domestic marketing of fisheries products

Value of fisheries production

The following table shows the gross value and local value of fishing and whaling production by States. Because the value of materials used in the course of production is not available for all States it is not possible to show a comparison of net values. (*See also* the chapter Miscellaneous for an explanation of the value terms used.)

FISHERIES: GROSS AND LOCAL VALUE OF PRODUCTION

($000)

Year	*N.S.W.*	*Vic.*	*Qld*	*S.A.*	*W.A.*	*Tas.*	*N.T.*	*Aust.*
GROSS VALUE								
1970–71	15,329	7,310	10,985	9,236	25,127	5,116	4,132	77,235
1971–72	18,970	9,507	11,382	12,380	30,817	5,929	2,793	91,776
1972–73	21,165	11,471	(*a*)13,375	15,759	28,158	5,739	4,617	(*a*)100,281
1973–74	20,974	10,895	(*b*)15,196	17,442	30,494	7,014	6,587	(*b*)108,602
1974–75	24,609	10,684	(*a*)12,606	(*c*)14,083	35,130	6,928	3,736	(*ac*)107,775
LOCAL VALUE(*d*)								
1970–71	13,224	6,462	10,458	8,177	25,028	5,116	4,132	72,596
1971–72	16,323	8,855	10,764	11,027	30,625	5,929	2,793	86,315
1972–73	16,898	10,646	12,686	13,969	28,000	5,739	4,617	92,555
1973–74	16,568	8,682	14,387	15,433	30,313	7,014	6,587	98,984
1974–75	21,569	8,550	11,732	12,496	34,785	6,928	3,736	99,796

(*a*) Incomplete; excludes oysters in Queensland. (*b*) Incomplete; excludes oysters and rock lobster in Queensland. (*c*) Incomplete; excludes oysters in South Australia. (*d*) Local value is gross value less marketing costs.

Production of selected fisheries

SELECTED FISHERIES PRODUCTS: PRODUCTION AND GROSS VALUE 1974–75

Product		*N.S.W.*	*Vic.*	*Qld*	*S.A.*	*W.A.*	*Tas.*	*N.T.*	*Aust.*
QUANTITY									
Fish(*a*)	tonnes	21,826	9,445	(*b*)5,971	9,309	7,222	2,870	781	57,423
Crustaceans(*a*)	,,	2,459	387	4,951	4,529	12,274	1,525	2,077	28,201
Molluscs (edible)(*a*)	,,	9,492	9,084	(*c*)1,603	(*c*)980	439	3,480	..	(*d*)25,079
Pearl-shell(*e*)	,,	..	..	(*f*)	..	(*f*)	..	(*f*)	(*g*)246.7
GROSS VALUE ($'000)									
Fish		12,119	4,973	(*b*)4,100	4,860	2,549	768	613	29,983
Crustaceans		5,877	1,125	7,314	8,562	24,558	3,476	3,112	54,023
Molluscs (edible)		6,613	4,586	(*c*)415	(*c*)661	377	2,683	..	(*d*)15,335
Pearl-shell(*e*)		..	..	(*f*)	..	(*f*)	..	(*f*)	(*g*)218

(*a*) Estimated live weight. (*b*) Excludes freshwater fish, particulars of which are not available. (*c*) Incomplete; exludes oysters. (*d*) Incomplete; *see* individual States. (*e*) *Source:* Commonwealth Department of Primary Industry. (*f*) Not available for publication. (*g*) Excludes manufacturing shell produced from pearl culture operations.

SELECTED FISHERIES PRODUCTS: PRODUCTION, AND GROSS VALUE AUSTRALIA

Product		*1970–71*	*1971–72*	*1972–73*	*1973–74*	*1974–75*
QUANTITY						
Fish(*a*)(*b*)	tonnes	51,632	57,002	59,263	65,747	57,423
Crustaceans(*a*)	,,	32,273	31,313	(*c*)30,230	(*c*)(*d*)36,827	28,201
Molluscs (edible)(*a*)	,,	27,672	29,479	(*e*)33,089	(*e*)29,362	(*f*)25,079
Pearl-shell(*g*)(*h*)	,,	365.6	314.5	223.8	204.9	246.7
Trochus-shell(*g*)	,,	25.5	0.7	1.1	2.5	21.4
GROSS VALUE ($'000)						
Fish(*b*)		15,348	18,633	23,329	26,334	29,983
Crustaceans		46,385	53,595	(*c*)53,781	(*c*)(*d*)60,101	54,023
Molluscs (edible)		11,466	14,581	(*e*)17,891	(*e*)15,848	(*f*)15,335
Pearl-shell(*g*)(*h*)		275	245	203	236	218
Trochus-shell(*g*)		4	..	..	..	8

(*a*) Estimated live weight. (*b*) Excludes freshwater fish caught in Queensland. (*c*) Excludes freshwater crayfish and crabs in Victoria. (*d*) Excludes rock lobster in Queensland. (*e*) Incomplete; excludes oysters in Queensland, and includes only abalone and scallops in Victoria. (*f*) Incomplete; excludes oysters in Queensland and South Australia. (*g*) *Source* Commonwealth Department of Primary Industry. (*h*) Excludes manufacturing shell produced from pearl culture operations.

Fish

FISH: PRODUCTION, BY TYPE, 1974–75

(tonnes estimated live weight)

Type	*N.S.W.*	*Vic.*	*Qld*	*S.A.*	*W.A.*	*Tas.*	*N.T.*	*Aust.*
Tuna	(*a*)5,277	89	28	4,842	710	135	..	11,082
Mackerel	54	6	1,139	..	98	3	15	1,315
Snoek	46	1,198	..	1	..	760	..	2,005
Mullet	2,806	380	1,543	252	1,001	5	10	5,999
Bream (including Tarwhine)	317	471	275	23	26	..	1	1,112
Australian salmon	1,382	673	..	873	1,619	631	..	5,178
Ruff	..	14	..	211	794	..	..	1,019
Snapper	1,088	277	118	284	424	..	..	2,190
Morwong	1,344	44	..	1	12	14	..	1,415
Whiting	162	477	389	977	262	1	..	2,268
Flathead	1,816	869	111	15	15	23	..	2,848
Shark	1,123	1,946	39	459	554	651	1	4,773
Leatherjacket	499	2	..	7	20	..	..	528
Other	5,911	3,000	(*b*)2,328	1,364	1,688	647	753	(*b*)15,690
Total	**21,826**	**9,445**	(*b*)**5,971**	**9,309**	**7,222**	**2,870**	**781**	(*b*)**57,423**

(*a*) *Source:* C.S.I.R.O. (*b*) Incomplete; excludes freshwater species in Queensland.

GROSS VALUE OF FISH, BY PRINCIPAL TYPES, 1974–75

($'000)

Type	*N.S.W.*	*Vic.*	*Qld*	*S.A.*	*W.A.*	*Tas.*	*N.T.*	*Aust.*
Tuna	1,583	52	6	1,482	198	27	..	3,349
Mackerel	37	2	836	..	55	1	10	941
Snoek	55	310	..	..	..	86	..	452
Mullet	973	95	583	81	336	1	6	2,076
Bream (including Tarwhine)	357	179	176	20	17	..	1	749
Australian salmon	229	309	..	179	224	124	..	1,065
Ruff	..	5	..	38	111	..	..	154
Snapper	1,925	382	129	201	224	..	..	2,860
Morwong	915	18	..	..	3	4	..	941
Whiting	280	486	388	1,876	159	(*a*)	..	(*a*)3,190
Flathead	1,155	385	75	3	5	7	..	1,630
Shark	339	1,398	7	289	279	327	..	2,640
Leatherjacket	322	1	..	3	7	..	..	333
Other	3,948	1,350	(*b*)1,900	688	932	(*a*)(*c*)191	596	(*a*)(*c*)9,605
Total fish	**12,119**	**4,973**	(*b*)**4,100**	**4,860**	**2,549**	(*c*)**768**	**613**	(*b*)(*c*)**29,983**

(*a*) Value of whiting in Tasmania is not available separately and is included in 'Other'. (*b*) Incomplete; excludes freshwater species in Queensland. (*c*) Includes value of seaweed in Tasmania.

FISH: PRODUCTION, BY TYPE, AUSTRALIA

(tonnes estimated live weight)

Type	*1970–71*	*1971–72*	*1972–73*	*1973–74*	*1974–75*
Tuna(*a*)	6,802	10,237	(*b*)13,422	(*b*)(*c*)9,700	11,082
Mackerel	903	900	(*b*)(*d*)1,355	(*b*)(*c*)1,291	1,315
Snoek	2,951	2,245	(*b*)(*d*)918	(*b*)708	2,005
Mullet	5,527	4,705	(*b*)5,316	(*b*)6,071	5,999
Bream (including Tarwhine)	945	815	(*b*)568	(*b*)704	1,112
Australian salmon	3,463	5,246	(*b*)3,482	(*b*)4,513	5,178
Ruff	834	1,220	(*b*)1,449	(*b*)1,161	1,019
Snapper	1,710	1,770	(*b*)1,678	(*b*)1,691	2,190
Morwong	1,029	1,179	(*b*)1,330	(*b*)1,342	1,415
Whiting	1,859	1,852	(*b*)1,730	(*b*)1,762	2,268
Flathead	2,341	2,390	(*b*)1,707	(*b*)1,645	2,848
Shark	7,314	7,310	(*b*)2,897	(*b*)4,233	4,773
Leatherjacket	946	879	(*b*)1,313	(*b*)1,642	528
Other	15,007	16,253	(*b*)(*d*)11,330	(*b*)(*c*)19,748	15,690
Total	**51,632**	**57,002**	**59,263**	**65,747**	**57,423**

(*a*) Includes estimate by C.S.I.R.O. for New South Wales. (*b*) Incomplete; excludes Victoria figure which is not available for publication. (*c*) Tasmanian figures for tuna and mackerel are not available for publication and have been included in 'Other'. (*d*) New South Wales figures for mackerel and snoek are not available separately, and have been included in 'Other'.

Crustaceans

CRUSTACEANS: PRODUCTION, BY TYPE, 1974-75

(tonnes estimated live weight)

Type	*N.S.W.*	*Vic.*	*Qld*	*S.A.*	*W.A.*	*Tas.*	*N.T.*	*Aust.*
Murray crayfish	23	..	..	..	..	..	..	23
Yabbies	31	2	..	127	..	..	..	161
Rock lobster	139	310	70	1,862	8,306	1,525	..	12,265
Bay lobster	12	..	34	..		..	7	
Prawns	2,075	64	4,414	2,530	3,898	..	2,060	15,041
Crabs	178	11	433	10	70	..	10	712
Total	**2,459**	**387**	**4,951**	**4,529**	**12,274**	**1,525**	**2,077**	**28,201**

CRUSTACEANS: PRODUCTION, BY TYPE, AUSTRALIA

(tonnes live weight)

Type	*1970–71*	*1971–72*	*1972–73*	*1973–74*	*1974–75*
Murray crayfish	94	136	(*a*)113	(*a*)295	23
Yabbies					161
Rock lobster	12,950	13,085	13,005	(*b*)11,830	12,265
Bay lobster					
Prawns	18,752	17,519	16,466	24,000	15,041
Crabs	477	573	(*a*)647	(*a*)702	712
Total	**32,273**	**31,313**	(*c*)**30,230**	(*c*)**36,827**	**28,201**

(*a*) Excludes Victorian figure, which is not available for publication. (*b*) Excludes rock lobster in Queensland. (*c*) Incomplete; *see* footnotes to figures for individual species.

Molluscs (edible)

MOLLUSCS: PRODUCTION, BY TYPE, 1974-75

(tonnes estimated live weight)

Type	*N.S.W.*	*Vic.*	*Qld*	*S.A.*	*W.A.*	*Tas.*	*N.T.*	*Aust.*
Octopus	..	20	..	..	1	..	..	20
Squid	..	52	106	36	12	6	..	212
Oysters	8,787	..	n.a.	n.a.	16	105	..	(*a*)8,908
Mussels	92	5	..	..	3	..	..	100
Pipi	..	..	..	193	..	..	..	193
Scallops	..	6,840	1,497	143	151	1,261	..	9,892
Abalone	613	2,168	..	608	256	2,108	..	5,753
Total	**9,492**	**9,084**	(*b*)**1,603**	(*b*)**981**	**439**	**3,480**	..	(*a*)**25,079**

(*a*) Incomplete; *see* individual States. (*b*) Incomplete; *see* individual species.

MOLLUSCS: PRODUCTION, BY TYPE, AUSTRALIA

(tonnes estimated live weight)

Type	*1970–71*	*1971–72*	*1972–73*	*1973–74*	*1974–75*
Octopus	86	65	(*a*)40	(*a*)158	20
Squid	194	209	(*a*)314		212
Cuttlefish	19	2	(*a*)..	(*a*)1	..
Oysters	9,807	10,434	(*b*)9,202	(*b*)10,479	(*b*)(*c*)8,908
Mussels	535	577	(*a*)23	(*a*)63	100
Pipi	47	86	117	203	193
Scallops	9,293	10,148	16,953	12,425	9,892
Abalone	7,692	7,958	6,439	6,032	5,753
Total	**27,672**	**29,479**	(*d*)**33,089**	(*d*)**29,362**	(*d*)**25,079**

(*a*) Excludes Victorian figure, which is not available for publication. (*b*) Excludes Queensland figure which is not available. (*c*) Excludes South Australia figure, which is not available. (*d*) Incomplete; *see* individual species.

Pearls, pearl-shell and trochus-shell

PEARL CULTURE AND PEARL AND TROCHUS SHELL FISHING OPERATIONS AUSTRALIA(*a*)

(*Source: Commonwealth Department of Primary Industry*)

		1970	*1971*	*1972*	*1973*	*1974*
		QUANTITY				
Pearl and Trochus shell fishing operations—						
Production of—						
Pearl shell(*b*)	tonne	365.6	314.5	223.8	204.9	246.7
Trochus shell	tonne	25.5	0.7	1.1	2.5	21.4
Pearl culture operations—						
Live shell introduced	No.	444,727	333,280	432,318	500,651	558,465
	tonne	179.8	107.4	139.6	202.1	249.3
Production—						
Round and baroque pearls	No.	80,445	107,777	133,442	102,033	86,757
	momme(*c*)	48,314	62,179	74,727	57,138	63,722
Half pearls	No.	472,259	413,964	159,113	215,288	224,966
Manufacturing shell	tonne	237.1	164.3	103.0	87.6	66.1

For footnotes *see* next page

PEARL CULTURE AND PEARL AND TROCHUS SHELL FISHING OPERATIONS AUSTRALIA(a)—*continued*

	1970	*1971*	*1972*	*1973*	*1974*
	VALUE ($'000)				
Pearl and Trochus shell fishing operations–					
Production of—					
Pearl shell	275	245	203	236	218
Trochus shell	4	..	..	..	8
Pearl culture operations—					
Production of—					
Round and baroque pearls	2,029	3,165	3,861	4,781	6,140
Half pearls	606	366	251	423	457
Manufacturing shell	116	89	59	44	24

(a) Figures refer to the year ended January for the Northern Territory and Queensland and to the year ended December for Western Australia. (b) Excludes manufacturing shell produced from pearl culture operations. (c) A momme is a pearl weight measurement equivalent to 3.769 grams.

Whales

WHALES TAKEN(a): AUSTRALIA

(*Source:* Commonwealth Department of Primary Industry)

(Number)

	1971	*1972*	*1973*	*1974*	*1975*
Male	820	792	684	629	692
Female	40	161	287	450	480
Total	**860**	**953**	**971**	**1,079**	**1,172**

(a) Sperm whales only were taken.

Processing of fish, crustaceans and molluscs

Ice is extensively used for the chilling of fish taken in estuarine and inshore fisheries. Refrigeration is used particularly on vessels operating in the tuna fishery and prawn fisheries to chill or freeze the catch. Refrigerated brine tanks are most commonly used.

Processing plants are located strategically throughout Australia close to fishing grounds. In recent years a number of shore-based plants have been established in remote areas of northern Australia to service the expansion of the prawn fishery.

Rock lobsters, prawns and scallops are frozen for export; tuna, snoek, Australian salmon and abalone are canned; small amounts of fish are smoked; some molluscs are bottled. Hand labour is still used extensively in processing operations, but mechanisation is being progressively introduced.

Fish, crustaceans and molluscs intended for export are processed in establishments registered under the Export (Fish) Regulations. Edible fish for local consumption is mainly dispatched fresh iced to markets. A survey of the Australian seafood processing industry was published by the Department of Trade and Industry in 1971.

FISH PROCESSING: AUSTRALIA

(tonnes)

	1970–71	*1971–72*	*1972–73*	*1973–74*	*1974–75*
Fish preserving—					
Fish used—					
Shellfish	1,742	1,931	1,663	1,311	1,123
Other—					
Whole	8,707	10,893	13,107	11,382	21,446
Headed and/or gutted	1,392	1,473	1,440	602	1,204
Production—					
Smoked fish and fish paste	694	557	640	659	318
Canned or bottled shellfish	1,679	1,758	1,573	1,241	1,056
Australian salmon (canned)	1,923	2,226	2,021	1,843	3,242
Other canned fish (incl. fish loaf, cake, etc.)	3,227	4,073	5,242	4,172	9,021
Other fish processing—					
Fish meal production	2,014	2,223	1,690	2,244	2,138

Whale processing

Oil from sperm whales is used in the manufacture of soap, plastics and watch lubricants, and in automatic transmission systems in motor cars.

WHALE PROCESSING: AUSTRALIA

(*Source:* Commonwealth Department of Primary Industry)

		1971	*1972*	*1973*	*1974*	*1975*
Quantity of sperm whale oil produced	barrels(*a*)	36,414	34,632	32,952	34,956	34,610
Value of whale oil produced	$'000	1,390	993	951	1,261	1,218
Value of by-products (meal, meat, solubles, etc.)	,,	553	585	624	795	631
Total value of products	,,	**1,943**	**1,578**	**1,575**	**2,056**	**1,849**

(*a*) 6 barrels = approximately 1.016 tonnes.

Domestic marketing of fisheries products

Although virtually the whole of the tuna and Australian salmon catches and a large proportion of the snoek catch are canned, the greater part of Australian fish production is marketed fresh or frozen.

Marketing arrangements for fresh fish vary. In New South Wales fish marketing is the responsibility of the Fish Marketing Authority, which operates the Metropolitan and Wollongong Fish Markets. In other coastal centres of New South Wales fishermen's co-operatives may become registered as local fish markets. In Queensland the Fish Board sells all production on behalf of fishermen in that State, except fish intended for export and interstate trade. In Victoria, South Australia, Western Australia and Tasmania there is no restriction on market outlets. In Victoria, South Australia and Western Australia most fish is sent to metropolitan wholesale fish markets for auctioning. Small quantities are processed for sale locally, chiefly by co-operatives. Nearly all fresh fish in Tasmania is consigned direct to processors. The principal outlets for fish products in Australia are retail and catering establishments.

Consumption of edible fisheries products

Particulars of the estimated supplies of fish, crustaceans and molluscs available for consumption per head of population, in terms of edible weight, are included in the following table. For the purpose of compiling this table, an allowance has been made for the non-commercial fish catch.

FISHERIES PRODUCTS: ESTIMATED SUPPLIES AVAILABLE FOR CONSUMPTION
AUSTRALIA
(kg edible weight per person per annum)

	1970–71	*1971–72*	*1972–73*	*1973–74*	*1974–75*
Fresh or frozen—					
Fish—					
Australian origin(*a*)	1.6	1.7	1.7	2.0	1.3
Imported	2.1	1.5	1.5	1.8	1.6
Crustaceans and molluscs	0.9	0.9	0.8	1.2	0.6
Cured (including smoked and salted)	0.5	0.5	0.8	0.9	0.7
Canned—					
Australian origin(*a*)	0.5	0.5	0.3	0.6	0.7
Imported	0.9	0.9	0.9	1.2	1.1
Total	**6.5**	**6.0**	**6.1**	**7.8**	**6.1**

(*a*) Estimates have been calculated by subtracting export figures from production figures. In the case of fresh or frozen fish, an allowance of 10 per cent has been added to the commercial production figure to allow for non-commercial catch.

Overseas trade in fisheries products

Edible fisheries products

OVERSEAS TRADE IN EDIBLE FISHERIES PRODUCTS: AUSTRALIA

	Quantity (tonnes)			*Value ($'000 f.o.b.)*		
	1972–73	*1973–74*	*1974–75*	*1972–73*	*1973–74*	*1974–75*
IMPORTS						
Fresh, chilled, frozen or boiled(*a*)	19,197	23,135	20,346	15,739	19,009	17,336
Smoked, dried, salted or in brine	2,946	4,694	3,739	2,835	4,747	4,281
Potted or concentrated	95	154	150	225	329	395
Canned—						
Herrings	1,994	2,047	1,734	1,377	1,668	1,873
Salmon	4,590	6,901	3,657	7,841	16,884	9,724
Sardines, sild, brisling, etc.	3,090	3,023	3,175	3,588	3,911	5,024
Tuna	38	538	2,355	43	723	3,418
Other fish	2,372	3,448	3,874	1,884	2,868	3,649
Crustaceans and molluscs	1,071	1,715	1,561	2,200	3,607	2,881
Total canned	*13,155*	*17,672*	*16,356*	*16,933*	*29,661*	*26,569*
Other prepared or preserved fish, crustaceans and molluscs(*b*)	11,030	10,448	8,936	11,432	14,201	13,156
Grand total	..	..	..	**47,164**	**67,947**	**61,737**
EXPORTS (Australian produce only; excludes re-exports)						
Fresh, chilled or frozen(*c*)—						
Fish	2,619	2,805	1,392	1,283	1,628	1,106
Crustaceans and molluscs—						
Rock lobster tails	4,544	3,749	4,193	29,783	25,706	32,026
Prawns	6,457	6,719	7,579	23,721	23,904	24,443
Other(*d*)	3,017	3,026	1,473	8,620	8,085	4,120
Crustaceans and molluscs boiled in water	644	334	357	2,234	1,194	1,124
Prepared and preserved—						
Fish	1,599	215	158	1,154	380	264
Crustaceans and molluscs	2,262	1,787	1,570	5,651	5,170	5,106
Grand total	..	..	..	**72,447**	**66,067**	**68,189**

(*a*) Excludes frozen smoked, which is included in item Smoked, dried, etc. (*b*) 1974–75 figures for this category are not comparable with those for previous years as the item 'prawn crackers' is no longer available separately and has been excluded. (*c*) Excludes frozen smoked, which is included in item 'Prepared and preserved crustaceans and molluscs'. (*d*) Total values for this item for 1972–73, 1973–74 and 1974–75 include values of $224,000, $232,000 and $215,000 respectively, for which no quantities have been included.

Non-edible fisheries products

OVERSEAS TRADE IN SELECTED NON-EDIBLE FISHERIES PRODUCTS: AUSTRALIA

		Quantity			*Value ($'000 f.o.b.)*		
		1972–73	*1973–74*	*1974–75*	*1972–73*	*1973–74*	*1974–75*
IMPORTS							
Fish heads, fresh or frozen	tonnes	1,972	883	576	262	128	95
Other fish waste	,,	1,109	1,978	3,484	190	185	128
Fish, live(*a*)	'000	6,201	8,315	10,856	494	688	1,029
Fish meal	tonnes	14,110	13,873	23,516	2,054	4,769	7,064
Whale oil	'000 litres	146	144	81	46	44	40
Cod-liver oil	,,	342	324	200	115	123	112
Other oils (including seal oil)	,,	748	1,043	985	145	218	382
Coral and shells and their waste	tonnes	91	75	77	33	56	82
Tortoise shell (including turtle shell, claws, waste)	,,	..	2	..	..	57	5
Pearls		..	..	..	142	232	204
Total		..	..	..	**3,481**	**6,500**	**9,141**
EXPORTS (Australian produce only; excludes re-exports)							
Australian produce—							
Whale oil	'000 litres	7,685	8,494	4,184	996	1,088	713
Other oils	,,	2	7	97	1	8	30
Pearl-shell	tonnes	560	455	400	547	489	471
Other shell (including trochus)	,,	302	297	417	86	115	166
Natural pearls		..	..	..	86	3	6
Cultured pearls—							
Round	No.	89,065	49,772	58,302	1,038	656	1,104
Half round	,,	159,195	279,474	209,824	299	521	324
Other		..	..	..	48	20	40
Total		..	..	..	**3,101**	**2,900**	**2,854**

(*a*) Live fish whether or not fit for human consumption.