CHAPTER 25

FISHERIES

Further information on subjects dealt with in this chapter is contained in the annual printed bulletin *Non-Rural Primary Industries and Value of Production* and in the annual mimeographed statistical bulletin *Fisheries*, particularly as regards types of fish, etc., caught.

Fisheries resources and their commercial exploitation

Fish

It has been calculated that there are approximately 2,000 species of fish in Australia and the waters surrounding it (including freshwater species). Fishing is carried out continually in estuarine, coastal and offshore Australian waters in the east and south from Port Douglas in Queensland to Ceduna in South Australia, and in Western Australia from Esperance to Exmouth Gulf, and sporadically in the Onslow, Broome, Darwin, and Karumba areas in the north. Most fishing is done in waters over the continental shelf, which varies greatly in width around the continent, but tuna is sometimes fished beyond the shelf. As in other countries, fisheries in Australia may be divided into three types: the estuarine fisheries, located in the tidal waters of rivers and coastal lakes; the pelagic fisheries, which exploit species inhabiting the surface layers of the open ocean; and the demersal fisheries, which fish the bottom layers of the sea. The estuarine fisheries produce considerable quantities of the table varieties, such as mullets (*Mugil cephalus* and associated species) and breams (*Acanthopagrus spp.*). In addition to these there is a small freshwater commercial fishery, principally in New South Wales and South Australia, exploiting Murray cod (*Maccullochella macquariensis*) and golden perch (*Plectroplites ambiguus*). The pelagic fisheries produce species exploited during their seasonal migration, such as Australian 'Salmon' (*Arripis trutta*), which is a member of the order Perciformes, or perch-like fishes, tunas (*Fam. Thynnidae, Katsuwonidae, Sarididae*), barracouta (*Leionura atun*), and mackerels (*Cybium spp.*). These fisheries, with the exception of some tuna, mackerel and reef fisheries, are concentrated in the temperate waters around the southern half of the continent. The offshore demersal fisheries include those pursued on the reefs which may be found virtually right around the continent, and which yield such species as snapper (*Chrysophrys auratus*), the so-called 'cods' (*Epinephelus, Choerodon, Callycdon spp.*) and associated species; those pursued on the trawling grounds, which produce species such as flathead (*Neoplatycephalus, Trudis spp.*), morwong (*Nemadactylus spp.*), John Dory (*Zeus faber*), etc.; and the important fishery for edible shark (school shark, *Galeorhinus australis* and gummy shark, *Mustelus antarcticus*) in south-eastern Australia.

Crustaceans

Crustaceans taken in Australia include crayfish, prawns, crabs, and freshwater lobsters. Crayfish (southern, *Jasus lalandei;* western, *Panulirus cygnus;* and eastern, *Jasus verreauxi*) is the most important crustacean exploited in Australia, and various species occur on the reefs of the continental shelf in all States. The commercial fishery, for technological reasons and through lack of knowledge of numbers, has not extended to the tropical species (*P. ornatus*), etc., but is concentrated on species found around the southern half of Australia. Prawns (*Penaeus* and *Metapenaeus spp.*) are taken in the estuarine, coastal and offshore waters of New South Wales and Queensland, and in the Shark Bay and Exmouth Gulf region of Western Australia. Crabs (*Scylla* and *Portunus spp.*) are taken mainly in Queensland and Western Australia, but small quantities are also taken in the other States. Freshwater lobsters (*Euastacus serratus*) are caught in inland streams in New South Wales, and one species, marron (*Cheraps tenuimanus*) forms the basis of an amateur fishery in the south-west of Western Australia.

Molluscs

Edible molluscs produced in Australia include oysters (mainly *Crassostrea commercialis*), scallops, mussels, and some of the cephalopods (squid, octopus, cuttlefish). Naturally-grown oysters are produced in all States except South Australia. In New South Wales and to a lesser extent in Queensland edible oysters are cultured commercially. The scallops (*Pecten meridionalis* and *Equichlamys bifrons*) are taken in Tasmania, the saucer scallop (*Amusium balloti*) is harvested in Queensland, and a fishery exploiting the species *Pecten alba* has recently been developed in Port Phillip Bay. The scallop resources in the Shark Bay area of Western Australia have not been

developed, and are still the subject of scientific investigations. Mussels (*Mytilis planulatus*) are gathered mainly in Victoria. Small quantities of cephalopods, mainly squid (*Loligo spp.*), are produced in many localities. Increased interest in the abalone (*Haliotis spp.*) has resulted in the development of small fisheries off southern New South Wales and Victoria and the east coast of Tasmania. Other edible molluscs taken from time to time include pipis (*Plebidonax deltoides*).

Pearl-shell and trochus-shell

The shell of the Australian species of pearl oyster (*Pinctada maxima*) is taken in the tropical waters of Australia from Exmouth Gulf in Western Australia to Cairns in Queensland for the manufacture of buttons, knife handles, etc. Live pearl-shell is used for pearl culture, the *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 humpback whales (*Megaptera novaeangliae*) 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.

Marine flora

Seaweeds of possible commercial value occur in the coastal waters of New South Wales, Tasmania, South Australia, and Western Australia. In 1964, at Louisville, Tasmania, a factory began processing seaweed (*Macrocystis pyrifera*) for its alginate content.

History of the development of fisheries industries in Australia

Fishing

At the beginning of this century Australian fisheries were principally estuarine and onshore, and the deeper offshore resources were comparatively unknown. Vessels were generally sail-powered, and catching and preservation methods were primitive.

From 1909 to 1914 a Commonwealth vessel was engaged in research into fisheries resources around Australia. As a result of this exploration otter trawling in the south-eastern waters began in 1915. There have been several years of high production from this fishery, but in each case the peak year was followed by a period of low production. Danish seine trawlers entered this fishery in 1936. In 1958–59 steam otter trawling vessels used in this area were taken out of service. This fishery is at present stabilized at a relatively low level of production.

The tuna fishery began with the establishment in 1937 of a cannery at Narooma in New South Wales to exploit the occurrences, mainly of southern bluefin tuna (*Thunnus thynnus maccoyii*), which had been revealed by aerial surveys in 1936. However, landings were insignificant for over a decade. In 1950 the Commonwealth Government sponsored a Fijian tuna clipper and trained crew to instruct fishermen in the pole-and-live-bait method of catching tuna. Development of the South Australian tuna fishery followed the visit of two American tuna experts in 1954. Recent developments in tuna fishing include the use of gill netting, long-lining and the purse seine technique which was successfully used for the first time in 1965. Techniques for taking species of tuna other than southern bluefin are being investigated.

Crustaceans

The crayfishery, which is pursued off south-eastern Australia and off the west coast of Western Australia, was for many decades on a small scale. It was not until 1944 that the major sector, the western crayfishery, began to develop into what is now Australia's most productive single fishery. Between 1944 and 1947 production from the shallow areas of Houtman Abrolhos was used for canning for the armed forces. From 1948 to 1953 mechanization of the fleet was introduced progressively and deeper waters were worked. The United States market for frozen craytails was established during this period. The period 1954 to 1962 saw the introduction of larger and more powerful vessels, of conservation measures designed to maximize the sustainable yield, and of increased processing facilities. In the southern crayfishery, development has followed similar lines, but on a smaller scale because of the smaller crayfish population.

The prawn fishery was pursued for many decades on a small scale, but it was not until the discovery that prawns spawn in oceanic waters that interest developed in catching them during this phase of their life cycle. The discovery in 1947 of stocks of prawns in Stockton Bight and off Evans Head (both in New South Wales) initiated the development of deep-sea prawning in Australia. Since that time the prawn fishery has expanded to the eastern offshore grounds. Commercial prawn fisheries in Western Australia commenced at Shark Bay in 1962 and at Exmouth Gulf in 1964.

Molluscs

Natural oyster-beds were being harvested soon after settlement first began, but by 1870 rapid depletion of the stocks had resulted in restrictive legislation being passed in New South Wales. By the end of the nineteenth century, however, farms had been established in New South Wales and oyster cultivation was a notable industry. This cultivation has been almost entirely confined to the river estuaries of New South Wales. Very few oysters are exported and importation of oysters is necessary to cope with home demand. During 1964 a commercial scallop fishery was established in Port Phillip Bay and there was a noticeable development in the harvesting of abalone in the waters of New South Wales, Tasmania and Victoria.

Whaling

Whaling has been undertaken from time to time in Australia since the early days of settlement. Humpback whaling was carried out from stations on the west coast of Australia from 1949, and on the east coast from 1952. However, depleted stocks of the species resulted in the closing down by 1962 of the eastern stations, and in 1963, owing to the severe decline in world stocks of humpback whales, the International Whaling Commission, of which Australia is a member, prohibited the capture of the species south of the equator for an indefinite period. Australian whaling is now carried out from Albany only, where the catch is confined to sperm whales.

Pearling

Since the middle of the nineteenth century, when pearling by Europeans first commenced in Australia, the collection of natural pearls has been incidental to the production of mother-of-pearl shell. Although attempts to establish pearl culture in Australia had been partially successful as early as the end of the last century, it was not until 1956 that the modern technique, as developed by the Japanese, was introduced into Australia at Kuri Bay in Western Australia. The joint venture between Australian and Japanese interests proved successful and others entered the industry. There are now fifteen pearl culture farms in Western Australia, the Northern Territory and Queensland. Twelve of the farms are operated as joint ventures by Australian and Japanese interests, while three are wholly Australian enterprises. The technique of pearl culture is still a closely-guarded trade secret.

A map showing Australia's principal ports and the localities of the fishery resources under exploitation appears on plate 56 (facing page 992).

Fisheries administration and research

Government administration

The fisheries within territorial waters (that is, within three miles of the shore) are administered by State departments and Territory administrations. The Fisheries Branch of the Department of Primary Industry develops and administers fisheries in extra-territorial waters and co-ordinates fisheries administration.

The fisheries laws of each State and Territory and of the Commonwealth provide for the licensing of boats used in commercial fishing operations and of commercial fishermen. The provisions are broadly similar in each State, the general requirement being that any person who takes fish for sale, and any boat used in such fishing operations, must be licensed in the State or Territory concerned. Some States extend the licensing requirements to amateur or part-time fishermen. Australian nationals who fish commercially outside the territorial waters of a State or Territory, but within Australian waters as proclaimed under the *Fisheries Act* 1952–1959, are required to take out licences and to register their boats under that Act.

Fish stocks inhabiting Australian waters are a common property resource. With the exception of the Western Australian crayfishery and the Shark Bay prawn fishery, there are no restrictions on recruitment of men and vessels to any fishery. It has, therefore, been necessary for governmental action to be taken in an endeavour to provide rules of operation in certain fisheries which are vulnerable to depletion. The policy basic to the management of these fisheries is the greatest sustainable yield consistent with economic operations. Where a fishery, for economic reasons, is not producing its maximum yield, efforts to discover new methods of utilization of the catch are made.

The *Pearl Fisheries Act* 1952–1953 provides for the management of the pearl-shell resources in accordance with Australia's proclamation of sovereign rights over the natural resources of the sea bed and subsoil to the 100 fathom line. It requires that all pearlers, vessels, etc. must be licensed, and prohibits the removal of live shell from Australian waters except with the written permission of the Minister for Primary Industry.

Under the *Whaling Act* 1960 the Commonwealth controls whaling from Australian stations in accordance with the conditions laid down by the International Whaling Commission. This Commission was established by the International Convention for the Regulation of Whaling, 1946, to organize world-wide conservation measures.

Research

The aim of all fisheries research in Australia is to achieve the greatest sustainable yield of fish and to assist in the development of an efficient industry. To this end much of the biological research already undertaken has been directed at formulating recommendations for management measures in 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, more economical operations, and the use of more efficient equipment.

The organizations in Australia at present engaged in research into fisheries matters are:

(i) Division of Fisheries and Oceanography, C.S.I.R.O. (fisheries science and oceanography);

(ii) Division of Food Preservation, C.S.I.R.O. (research into handling, storage, processing, and transportation of fish);

(iii) the several State fisheries departments (general biological research);

(iv) Fisheries Branch, Department of Primary Industry (economic and management research, gear technology, extension work to the industry).

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 and the pearl and shell fisheries. The Fisheries Branch of the Department of Primary Industry has supplied particulars of the whaling industry. Statistics of the processing of general fisheries products and of oversea trade in the products of fishing and whaling have been compiled in the Commonwealth Bureau of Census and Statistics.

The statistics refer, in general, to financial years. However, pearl and shell fishing data refer to the season ended in the financial year shown. Whaling statistics are shown by calendar years, and refer to the season in the calendar year. All oversea 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 a 'whole 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.

In Australia the basic source of statistical information on commercial fishing operations is the fishermen. In four of the six States monthly returns of catch by species have been obtained from fishermen for a number of years. In the other two States (Queensland and South Australia) there have been no statistical collections from fishermen, and catch statistics have been derived from other sources such as markets and receiving depots. In general it is recognized that catch statistics in Australia have been somewhat incomplete in past years. For example, details of production given in this chapter refer in most cases only to the recorded commercial production. In view of the importance of amateur fishermen in certain types of fishing, details shown cannot be taken as representing the total catch. In addition, it is likely that the figures shown understate to some extent the full commercial catch because no information is available on fish taken for sale by persons not licensed as professional fishermen.

Two weaknesses of fisheries statistical collections in Australia to date have been the lack of uniformity, which makes it difficult to compile statistics on an Australia-wide basis, and the lack of data on the effort involved in taking fish (time spent fishing, gear used, etc.). Recognizing these weaknesses, the Commonwealth-States Fisheries Conference in 1960 appointed a Statistics Committee 'to examine all aspects of fisheries statistics and fully document a proposed system for submission to the States and Commonwealth for approval'.

Model system of catch and effort statistics, 1962

The model system of catch and effort statistics designed by the Committee was adopted by the Commonwealth-States Fisheries Conference in 1962. The new system was introduced in Tasmania in 1963 and in Victoria and Western Australia in 1964. The system was introduced in Queensland for the otter trawl fishery early in 1965, but there are no definite plans at present to extend the system to other fisheries. Arrangements are proceeding for the introduction of the model system in New South Wales, but there are no plans as yet for the introduction of the system in South Australia.

Under the new system fishermen are asked to report, on a monthly basis, for the various fishing methods used, catch of each species taken and the locality where the greatest proportion of the catch is taken. Fishermen are asked to record catch in terms of landed weight, and appropriate conversion factors are used to obtain live weight where this is required. A grid system of 1° rectangles (relating to latitude and longitude) is used for recording location of catches at sea, and estuaries and inland waters are recorded where appropriate. Other data obtained include details of fishing effort, ports at which catch is landed, and employment details.

The eventual implementation of this system in all States is expected to ensure the availability of statistical information of a much higher standard in the future. In addition to the new system of catch and effort statistics, a uniform boat registration system is now being introduced by the States. This new system will eventually ensure that details of various characteristics of the commercial fishing fleet are available on a uniform basis for all States.

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 in length from 30 feet to 120 feet and are almost invariably powered by diesel engines. Many of them have insulated holds to carry fish in ice, and some of the crayfish boats are fitted with wells in which the catch is kept alive. Some vessels have dry refrigeration, and others, including some of the tuna live-bait pole-fishing vessels, are equipped with brine refrigeration.

A recent survey showed that about 50 per cent of Australia's commercial fishing fleet, including tenders, consists of vessels up to twenty feet in length, about 25 per cent are in the 20–29 feet category, and the remainder are greater in length. Only a very small number are greater than fifty feet in length. It is hoped that more precise information on this aspect of the fishing fleet will be available in the future when an improved boat registration system is adopted in all States. Almost every type of fishing equipment is used. The following table sets out the equipment most commonly used for the main types of fish, crustaceans and molluscs.

FISHING EQUIPMENT USED IN AUSTRALIA

Type of fish	Equipment used
Mullet	Beach seine, gill net
Shark (edible)	Long-lines, gill net
Australian salmon	Beach seine
Barracouta	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
Garfish	Gill net, beach seine
Mackerel	Trolling lines
Tuna(*a*)	Pole and live-bait, trolling lines, gill net, purse seine
Prawns	Otter trawl, beam trawl, seine net
Crayfish	Pots, traps
Scallops	Dredge, otter trawl

(*a*) Lampara nets and purse seines are used for taking live bait for tuna.

Pearls, pearl-shell and trochus-shell; whaling

Ketch-rigged luggers about fifty-five feet long which carry crews of eight to fourteen members are used for pearl and pearl-shell fishing around Australia.

The whaling industry is highly mechanized. Standard equipment includes aircraft to locate whales, diesel-powered catchers of about 100 to 125 feet in length, and tow boats.

Boats and equipment employed, by industry

The following two tables show details of boats and equipment employed 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 on page 1000, regarding the use of employment information are also applicable to these tables. Boats employed in more than one industry are classified to their main activity.

FISHERIES: BOATS AND EQUIPMENT EMPLOYED AND WHALING STATIONS OPERATING, STATES AND NORTHERN TERRITORY, 1964–65

		N.S.W.	Vic.	Qld	S.A.	W.A.(a)	Tas.	N.T.	Aust.
General fisheries—									
Boats employed	No.	2,724	897	1,536	2,300	1,438	503	28	9,426
Value of boats and equipment	$'000	6,652	4,971	5,278	6,258	9,247	3,922	73	36,401
Edible oyster fisheries—									
Boats employed	No.	1,379	..	40	..	..	..	..	1,419
Value of boats and equipment	$'000	1,107	..	18	n.a.	..	..	..	1,125
Pearl-shell and trochus-shell—									
Boats employed	No.	..	..	28	n.a.	10	..	2	40
Value of boats and equipment	$'000	..	..	n.a.	..	108	..	30	n.a.
Whaling—									
Chasers	No.	..	..	..	..	3	..	..	3
Stations operating	No.	..	..	..	..	1	..	..	1

(a) Year ended December 1964.

FISHERIES: BOATS AND EQUIPMENT EMPLOYED AND WHALING STATIONS OPERATING, AUSTRALIA, 1960–61 TO 1964–65

		1960–61	1961–62	1962–63	1963–64	1964–65
General fisheries—						
Boats employed	No.	7,756	8,147	8,574	8,473	9,426
Value of boats and equipment	$'000	24,822	25,798	28,298	31,794	36,401
Edible oyster fisheries—						
Boats employed	No.	1,449	1,349	1,294	1,424	1,419
Value of boats and equipment	$'000	824	968	922	976	1,125
Pearl-shell and trochus-shell—						
Boats employed	No.	85	56	60	53	40
Value of boats and equipment	$'000	934	508	550	480	n.a.
Whaling—						
Chasers	No.	12	11	8	3	3
Stations operating	,,	4	4	2	1	1

Employment in fisheries

Census data

In the following table, which shows particulars collected in the population censuses of Australia at 30 June 1947, 1954 and 1961, the numbers of persons whose industry statements were classified to 'fishing' are shown together with the numbers engaged in all primary industries and the total work force. The census classification 'fishing' includes such activities as fishing, whaling, pearl-shell fishing, etc. An adjustment was made to the 1947 and 1954 industry data by distributing over the range of recorded industry the number of persons whose industry was not stated. No such adjustment was made to the 1961 figures.

PERSONS ENGAGED IN FISHING: AUSTRALIA, CENSUSES, 1947 TO 1961

	Census, 30 June—		
	1947	1954	1961
Persons engaged in—			
Fishing	10,656	8,637	8,252
All primary industries	563,607	560,100	513,286
Total work force	3,196,431	3,702,022	4,225,096
Persons engaged in fishing as a proportion of—			
All primary industries %	1.9	1.5	1.6
Total work force %	0.3	0.2	0.2

Annual employment by industry

The following two tables show details of persons engaged in the taking of fish, crustaceans and edible molluscs, pearl-shell and trochus-shell, and in whaling. These statistics 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 several States. Figures for employment in general fisheries in 1962–63 to 1964–65 are not comparable with those for previous years because licensed part-time (non-commercial) fishermen were included in the total for South Australia prior to 1962–63. However, since 1962–63, an estimate for full-time (commercial) fisherman engaged has been included. 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.

EMPLOYMENT IN FISHERIES: STATES AND NORTHERN TERRITORY, 1964-65

(Persons engaged)

Industry	N.S.W.	Vic.	Qld	S.A.	W.A.(*a*)	Tas.	N.T.	Aust.
General fisheries	2,564	1,518	2,007	(*b*)2,000	2,299	957	69	11,414
Edible oyster fisheries	894	..	99	n.a.	4	..	..	997
Pearl-shell and trochus-shell	..	..	408	..	103	..	22	533
Whaling(*c*)—At sea	..	..	..	..	45	..	..	45
Ashore	..	..	..	..	38	..	..	38

(*a*) Figures are for the year ended December 1964. (*b*) In addition, approximately 7,300 (non-commercial) licensed fishermen operated on a part-time basis. (*c*) Estimated.

EMPLOYMENT IN FISHERIES: AUSTRALIA, 1960-61 TO 1964-65

(Persons engaged)

Industry	1960–61	1961–62	1962–63	1963–64	1964–65
General fisheries	14,955	15,878	(*a*) 11,544	(*a*) 11,862	(*a*) 11,414
Edible oyster fisheries	822	993	1,154	1,467	997
Pearl-shell and trochus-shell	995	724	727	640	533
Whaling(*b*)—At sea	161	123	85	42	45
Ashore	240	164	90	40	38

(*a*) Not comparable with previous years; *see* text above. (*b*) Estimated.

Production, processing and domestic marketing of fisheries products

Fish

The following tables show details of the production of the main types of fish caught in each State and the Northern Territory in 1964–65 and throughout Australia for the years 1960–61 to 1964–65.

FISH: PRODUCTION, BY TYPE, STATES AND NORTHERN TERRITORY, 1964–65

('000 lb. estimated live weight)

Type	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	Aust.
Marine types—								
Tuna	5,183	19	120	10,430	33	54	..	15,838
Mullet	6,145	919	2,903	610	1,416	152	1	12,146
Shark	1,977	5,076	17	1,937	802	659	1	10,470
Australian salmon	2,010	1,223	..	1,155	3,401	501	..	8,291
Flathead	5,052	1,527	170	..	17	69	..	6,836
Barracouta	362	4,134	..	..	..	2,018	..	6,514
Snapper	1,650	414	82	647	1,083	..	..	3,877
Whiting	678	268	451	1,810	451	..	..	3,658
Morwong	2,775	426	..	..	10	7	..	3,218
Mackerel	210	..	1,873	..	230	2	1	2,316
Tailor	511	107	938	..	192	..	..	1,748
Ruff	..	96	..	530	881	..	..	1,507
Garfish	261	281	153	630	52	44	..	1,422
Luderick	1,192	71	93	..	..	..	..	1,356
Leatherjacket	1,295	29	..	..	20	..	..	1,343
Bream (incl. tarwhine)	590	204	356	50	92	..	1	1,293
Other	4,885	1,598	1,809	987	1,681	131	310	11,401
Total, marine	*34,777*	*16,393*	*8,965*	*18,786*	*10,361*	*3,637*	*316*	*93,234*
Freshwater types	490	292	n.a.	400	..	..	..	(*a*)1,183
Grand total	35,267	16,685	(*a*)8,965	19,186	10,361	3,637	316	*a* 94,417

(*a*) Excludes freshwater fish caught in Queensland, particulars of which are not available.

FISH: PRODUCTION, BY TYPE, AUSTRALIA, 1960–61 TO 1964–65

('000 lb. estimated live weight)

Type	1960–61	1961–62	1962–63	1963–64	1964–65
Marine types—					
Tuna	9,767	10,616	11,005	17,932	15,838
Mullet	11,362	13,242	13,736	12,496	12,146
Shark	7,636	8,691	10,524	10,463	10,470
Australian salmon	6,630	11,534	7,794	11,260	8,291
Flathead	5,141	6,458	6,828	6,151	6,836
Barracouta	5,981	6,810	4,842	4,331	6,514
Snapper	4,684	3,756	4,107	4,160	3,877
Whiting	3,267	3,513	3,699	3,498	3,658
Morwong	2,261	2,774	4,949	4,545	3,218
Mackerel	1,779	1,631	2,192	2,215	2,316
Tailor	1,407	1,148	956	1,627	1,748
Ruff	1,288	1,188	1,360	1,093	1,507
Garfish	1,315	1,465	1,645	1,740	1,422
Luderick	1,096	1,020	1,311	1,293	1,356
Leatherjacket	2,516	2,193	1,955	1,125	1,343
Bream (incl. tarwhine)	1,236	1,382	1,531	1,233	1,293
Other	10,137	9,780	9,941	10,907	11,401
Total, marine	*77,500*	*87,200*	*88,375*	*96,067*	*93,234*
Freshwater types(*a*)	1,597	1,260	1,309	1,015	1,183
Grand total(*a*)	**79,097**	**88,460**	**89,684**	**97,082**	**94,417**

(*a*) Excludes freshwater fish caught in Queensland, particulars of which are not available.

Crustaceans

In terms of gross value of catch, the importance of crustaceans has increased in recent years, and is considerably greater than that of fish. The crayfish is the most important crustacean. The bulk of Australian production of crayfish is exported, nearly all going to the United States of America.

CRUSTACEANS: PRODUCTION, BY TYPE, STATES AND NORTHERN TERRITORY, 1964–65

('000 lb. whole weight)

Type	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	Aust.
Crayfish(a)	424	1,291	30	4,928	16,378	3,336	..	26,386
Prawns	4,501	8	5,737	..	1,829	..	..	12,076
Crabs	157	..	638	..	28	..	9	832
Total	**5,081**	**1,299**	**6,405**	**4,928**	**18,235**	**3,336**	**9**	**39,293**

(a) Includes freshwater lobster caught in New South Wales and shovel-nosed lobster taken in Queensland.

CRUSTACEANS: PRODUCTION, BY TYPE, AUSTRALIA 1960–61 TO 1964–65

('000 lb. whole weight)

Type	1960–61	1961–62	1962–63	1963–64	1964–65
Crayfish(a)	27,494	29,356	31,400	27,633	26,386
Prawns	6,529	9,322	12,616	13,369	12,076
Crabs	787	875	842	708	832
Total	**34,810**	**39,552**	**44,858**	**41,711**	**39,293**

(a) Includes freshwater lobster caught in New South Wales and shovel-nosed lobster taken in Queensland.

Molluscs (edible)

A fast-developing scallop production since 1964 led to scallop exports rising to 1.9 million pounds weight for the 1964–65 period. France provided the largest market. Abalone has also become an export commodity, but production is on a smaller scale and is likely to remain so.

MOLLUSCS(a): PRODUCTION, BY TYPE, STATES, 1964–65

('000 lb. gross (in-shell) weight)

Type	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	Aust.
Scallops	..	21,371	452	..	(b)	2,916	(c)24,739
Oysters	14,297	7	305	..	28	..	14,636
Abalone	56	393	..	21	..	496	966
Mussels	..	334	..	..	..	..	334
Squid	..	119	95	..	3	1	217
Octopus	..	8	..	..	5	..	13
Cuttlefish	..	1	..	..	..	..	1
Total	**14,353**	**22,233**	**851**	**21**	**36**	**3,413**	**(d)40,907**

(a) Excludes pipis taken in New South Wales, details of which are not available for publication. (b) Not available for publication. (c) Excludes Western Australia. (d) Incomplete *see* footnote (c).

MOLLUSCS(*a*): PRODUCTION BY TYPE, AUSTRALIA, 1960–61 TO 1964–65

('000 lb. gross (in-shell) weight)

Type	1960–61	1961–62	1962–63	1963–64	1964–65
Scallops	6,896	5,172	(*b*) 6,498	(*b*) 15,373	(*b*) 24,739
Oysters	14,220	12,613	13,029	12,775	14,636
Abalone	..	..	..	156	966
Mussels	394	646	683	410	334
Squid	228	319	292	304	217
Octopus	36	58	18	16	13
Cuttlefish	34	7	1	1	1
Total	**21,808**	**18,815**	(*c*) **20,521**	(*c*) **29,037**	(*c*) **40,907**

(*a*) Excludes pipis, particulars of which are not available for publication. (*b*) Excludes Western Australia, particulars of which are not available for publication. (*c*) Incomplete; *see* footnote (*b*).

Pearls, pearl-shell and trochus-shell

In recent years the production of pearl-shell has declined, owing to the development of plastics. However, the advent of pearl culture has since created a growing demand for live pearl-shell. Particulars of cultured pearl production are not available for publication and particulars of the production of natural pearls are not available.

PEARL-SHELL AND TROCHUS-SHELL: PRODUCTION STATES AND NORTHERN TERRITORY, 1960–61 TO 1964–65

('000 lb.)

——	1960–61	1961–62	1962–63	1963–64	1964–65
Pearl-shell—					
Queensland(*a*)	1,821	860	788	578	645
Western Australia(*b*)	1,270	801	782	542	310
Northern Territory(*a*)	222	147	115	11	12
Australia	(*c*) *3,313*	(*c*) *1,809*	*1,685*	*1,131*	*967*
Trochus-shell—					
Queensland(*a*)	309	457	357	142	69
Western Australia(*b*)	10	..	..	..	..
Australia	*319*	*457*	*357*	*142*	*69*

(*a*) Season ended January of years shown. Shell taken by Queensland luggers operating in Northern Territory waters is included in Queensland. (*b*) Season ended December of years shown. (*c*) Excludes pearl-shell taken by Japanese pearlers operating in Australian waters. The quantities taken were as follows: 1960–61, 860,000 lb.; 1961–62, 813,000 lb. The Japanese pearling fleet did not operate in Australian waters after 1961–62.

Whales

Only sperm whales were caught during the 1965 season and no quotas were imposed on the catch. Quotas previously set by the Department of Primary Industry for the baleen species were in terms of humpback whales, and for this purpose 1 blue whale was taken as the equivalent of 2 fin, 2½ humpback, 6 sei, or 6 bryde whales.

WHALES TAKEN: AUSTRALIA(*a*), 1961 TO 1965

(*Source:* Fisheries Branch, Department of Primary Industry)

(Number)

	1961	1962	1963	1964	1965
Types of baleen whales taken—					
Humpback	1,311	716	87	..	..
Blue	..	..	1	..	..
Bryde	2	..	..	..	..
Sei	..	2	..	..	..
Sex of baleen whales—					
Male	755	404	37	..	..
Female	556	314	51	..	..
Total baleen whales taken	*b 1,313*	*718*	*88*	..	..
Humpback equivalent(*c*)	1,312	717	89	..	..
Quota of humpback whales(*c*)	1,390	1,300	550	..	..
Sex of sperm whales—					
Male	451	570	587	695	636
Female	3	21	11	15	32
Total sperm whales taken	*454*	*591*	*598*	*710*	*668*
Total whales taken	**1,767**	**1,309**	**686**	**710**	**668**

(*a*) Excludes details of Norfolk Island. (*b*) The sex of two whales processed was not recorded. (*c*) *See* text on page 1003.

Processing of fish

Quick-freezing is used at sea and ashore to preserve fish before delivery to consumers. The main technique employed in Australia is brine-freezing, as used extensively in the tuna and salmon fisheries.

Fish canning in Australia on a modern scale dates from 1937, before which the only fish canning carried out was on an occasional basis by factories handling other foodstuffs. In 1964–65 there were 17 canneries in Australia dealing exclusively with marine products, as well as several other canneries using small amounts of fish in general canning operations. The main canneries handle tuna (Eden, New South Wales; Melbourne, Victoria; Port Lincoln, South Australia); Australian salmon (Eden, New South Wales; Melbourne, Victoria; Port Lincoln and Adelaide, South Australia; Albany, Western Australia; Margate, Tasmania); barracouta (Melbourne and Portland, Victoria; Margate, Tasmania); scallops (Mornington, Victoria); and abalone (Melbourne, Victoria).

Other methods of fish processing include smoking and bottling, but these are undertaken on a minor scale only. Among the few fish by-products produced are small quantities of fish meal.

FISH PROCESSING (EXCEPT FREEZING): AUSTRALIA, 1960–61 TO 1964–65

	1960–61	1961–62	1962–63	1963–64	1964–65
Number of factories	18	20	25	25	32
Fish used(*a*)—	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.
Whole	13,737	18,494	15,447	17,506	16,745
Headed and/or gutted	3,758	6,796	4,972	5,148	5,037
Estimated live weight equivalent(b), fish used	*18,200*	*26,500*	*21,300*	*23,600*	*22,700*
Production(*c*)—					
Canned fish(*d*)—					
Australian salmon	3,480	5,772	3,976	5,396	3,884
Tuna	3,070	3,624	4,201	4,691	5,448
Other	1,647	2,644	2,150	1,180	1,763
Total, canned fish	*8,197*	*12,040*	*10,327*	*11,267*	*11,095*
Smoked fish	301	181	286	274	220
Fish paste	1,261	1,027	1,053	1,212	943
Fish meal(*e*)	2,041	2,640	2,076	2,222	2,390

(*a*) Fish used for canning (including fish loaf), smoking and the manufacture of fish paste, but excluding the weight of oysters, other shellfish and crustaceans used for canning. (*b*) The weight of headed and/or gutted fish is taken as 85 per cent of live weight. (*c*) Excludes canned crayfish, lobsters, prawns, oysters, and clams, details of which are not available for publication. (*d*) Includes fish loaf, fish cakes, etc. (*e*) Excludes whale meal.

Processed crustaceans and molluscs

Quick-freezing is also used to preserve crustaceans and molluscs. The chief technique employed to preserve crayfish and scallops is air blast freezing, while plate contact freezing is being used on an ever increasing scale for prawns, scallops and abalone. Crayfish for the domestic market are usually cooked whole and then frozen, as are some exported crayfish. However, the major proportion of crayfish exports consists of frozen raw craytails. Most prawns for domestic consumption are sold in a whole cooked condition. Some are also exported in this form, after freezing. As a rule, however, the majority of prawn exports consist of green headless prawns, sometimes de-veined, sometimes split in 'butterfly' style, but in all cases frozen into five-pound blocks. Scallops are normally frozen in cello-wrapped five-pound blocks, although packaging of individually frozen scallops in polythene pouches is growing in popularity for local consumer packs. Canned abalone is now packed for the Asian market, as well as abalone soup for domestic and oversea sale. Small quantities of frozen abalone are also now being exported to the United States of America and Asia.

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(*a*), 1961 TO 1965

		1961	1962(*b*)	1963(*b*)	1964(*b*)	1965(*b*)
Quantity of whale oil produced—						
Baleen oil	barrels(*c*)	59,187	30,849	3,865	..	..
Sperm oil	,,	18,929	24,833	23,860	27,534	25,002
Value of whale oil produced	$'000	2,360	1,564	886	620	510
Value of by-products (meal, meat, solubles, etc.)	,,	692	448	138	120	244
Total value of products	,,	*3,052*	*2,012*	*1,024*	*740*	*754*

(*a*) Excludes details of Norfolk Island. (*b*) Includes produce from whales taken for scientific research. (*c*) 6 barrels = 1 ton.

Domestic marketing of fisheries products

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

Marketing arrangements for fresh fish vary from State to State. In New South Wales fish marketing is the responsibility of the New South Wales Fish 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. Fish for industrial use do not pass through any of these markets. The Queensland Fish Board sells all production on behalf of fishermen in that State, and has branches in eighteen centres, as well as depots at eight others. The Board also purchases fish on its own account to stabilize prices. In Victoria, Western Australia and Tasmania the marketing of fish is undertaken through agents. In South Australia the great majority of the fishermen are members of the South Australian Fishermen's Co-operative Ltd., which handles the whole of their production. Canned fish and frozen fish in the form of consumer packs are marketed mainly by the supermarket-type retail establishments. Oysters are usually sold live in the shell directly to restaurants, or are shelled and bottled before being sent to retailers.

Value of fisheries production

The following tables show details of the values of production of edible fisheries products, pearl-shell and trochus-shell for the years 1960-61 to 1964-65. *See also* the chapter Miscellaneous for an explanation of the value terms used.

FISHERIES PRODUCTION: GROSS VALUE
STATES AND NORTHERN TERRITORY, 1964–65
($'000)

Product	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	Aust.
Fish(*a*)	4,683	2,030	1,485	2,282	1,300	346	55	12,179
Crustaceans	2,458	908	2,292	2,833	11,787	2,105	4	22,387
Molluscs (edible)	(*b*) 2,689	1,171	84	2	(*c*) 8	229	..	4,183
Pearl-shell(*d*)	..	..	(*e*) 187	..	(*f*) 182	..	(*e*) 2	371
Trochus-shell	..	..	(*e*) 5	..	..	..	..	5

(*a*) Excludes freshwater fish caught in Queensland, particulars of which are not available. (*b*) Excludes pipis, particulars of which are not available for publication. (*c*) Excludes scallops, particulars of which are not available for publication. (*d*) Queensland figure includes pearl-shell taken by Queensland luggers operating in Northern Territory waters. (*e*) Season ended January. (*f*) Season ended December.

FISHERIES PRODUCTION: GROSS VALUE, AUSTRALIA
1960–61 TO 1964–65
($'000)

Product	1960–61	1961–62	1962–63	1963–64	1964–65
Fish(*a*)	11,814	12,150	12,284	13,660	12,179
Crustaceans	11,812	14,954	16,012	15,629	22,387
Molluscs (edible)(*b*)	2,372	2,504	2,808	3,350	4,183
Pearl-shell(*c*)	(*d*) 1,448	(*d*) 722	668	391	371
Trochus-shell(*c*)	54	56	36	10	5

(*a*) Excludes freshwater fish caught in Queensland in 1960–61 and subsequent years. (*b*) Excludes pipis in New South Wales and scallops in Western Australia. (*c*) Season ended December (Western Australia) or January (Queensland and Northern Territory) of years shown. (*d*) Excludes pearl-shell taken by Japanese pearlers in Australian waters. The Japanese pearling fleet did not operate in Australian waters after 1961–62.

FISHERIES: GROSS AND LOCAL VALUE OF PRODUCTION STATES AND NORTHERN TERRITORY, 1964–65

($'000)

State or Territory	Gross value(a)	Marketing costs	Local value(b)
New South Wales	9,830	1,567	8,263
Victoria	4,108	557	3,551
Queensland	5,737	439	5,298
South Australia	5,118	640	4,478
Western Australia	15,218	51	15,167
Tasmania	2,686	492	2,194
Northern Territory	71	n.a.	71
Australia	**42,768**	**3,746**	**39,022**

(a) Gross production valued at principal markets. (b) Gross production valued at place of production.

In the following table the local value of fishing and whaling production and the local value per head of population are shown 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.

FISHERIES: LOCAL VALUE OF PRODUCTION, STATES 1960–61 TO 1964–65

Year	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	Aust.(a)
			LOCAL VALUE ($'000)				
1960–61	6,598	3,574	2,744	2,474	8,440	1,626	25,626
1961–62	6,576	3,482	3,266	2,758	10,582	1,818	28,588
1962–63	7,600	3,248	3,844	2,946	11,128	1,770	30,622
1963–64	7,856	4,202	4,324	3,436	10,088	1,726	31,684
1964–65	8,263	3,551	5,298	4,478	15,167	2,194	39,022
			LOCAL VALUE PER HEAD OF POPULATION ($)				
1960–61	1.8	1.2	1.8	2.6	11.6	4.6	2.4
1961–62	1.8	1.2	2.2	2.8	14.2	5.2	2.8
1962–63	1.8	1.2	2.4	3.0	14.4	5.0	2.8
1963–64	2.0	1.4	2.8	3.4	12.8	4.8	2.8
1964–65	2.0	1.1	3.3	4.3	19.0	6.0	3.5

(a) Includes Northern Territory.

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 table below. 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, 1960–61 TO 1964–65

(lb. edible weight per head per annum)

	1960–61	1961–62	1962–63	1963–64	1964–65
Fresh or frozen—					
Fish—					
Australian origin	3.1	3.1	3.3	3.3	3.2
Imported	3.0	2.7	2.7	3.1	3.0
Crustaceans and molluscs	1.2	1.0	1.3	1.2	1.4
Cured (including smoked and salted)	1.1	0.9	1.0	1.0	0.7
Canned—					
Australian origin	0.7	0.8	0.9	0.8	1.0
Imported	2.6	2.0	1.9	2.3	2.4
Total	**11.7**	**10.5**	**11.1**	**11.7**	**11.7**

Oversea trade in fisheries products

Values shown in this section are expressed as $A f.o.b. port of shipment. The tables of exports relate to Australian produce only, but quantities and values quoted in the text sometimes include re-exports, the amounts involved, however, generally being small.

Edible fisheries products

A large proportion of the fish consumed in Australia is imported. Of the edible products imported in 1964–65, those originating in United Kingdom were valued at $6.2 million (26 per cent of the total value), Japan, $5.7 million (24 per cent), Canada, $1.9 million (8 per cent), and South Africa, $1.7 million (7 per cent).

The United Kingdom supplied 13.7 million lb. (34 per cent, valued at $4.0 million) of the fresh or frozen fish products imported in 1964–65, South Africa, 5.8 million lb. (15 per cent, valued at $0.8 million), New Zealand, 5.7 million lb. (14 per cent, valued at $1.4 million), and Denmark, 3.8 million lb. (10 per cent, valued at $1.2 million). Of the smoked or dried fish products imported in 1964–65, South Africa supplied 4.1 million lb. (45 per cent, valued at $0.9 million) and the United Kingdom, 2.9 million lb. (32 per cent, valued at $0.5 million). Japan supplied 9.6 million lb. (37 per cent, valued at $4.9 million) of the canned fish products imported in 1964–65.

The value of exports of edible products in 1964–65 was 27 per cent more than that in 1963–64. The value of crayfish tails exported in 1964–65 was 75 per cent of the value of all exports of edible products. Of all crayfish tails exported in 1964–65, 98 per cent (7,678,000 lb., valued at $13,403,000) were consigned to the United States of America.

The table below gives further details of Australia's oversea trade in edible products in the years 1962–63, 1963–64 and 1964–65.

OVERSEA TRADE IN EDIBLE FISHERIES PRODUCTS: AUSTRALIA
1962-63 TO 1964-65

	Quantity ('000 lb.)			Value ($A'000 f.o.b.)		
	1962–63	1963–64	1964–65	1962–63	1963–64	1964–65
IMPORTS						
Fresh and frozen(*a*)	33,630	40,177	39,965	7,644	10,384	10,671
Smoked and dried	8,945	8,523	7,591	1,669	1,912	1,919
Potted and concentrated(*b*)	256	184	200	188	130	159
Canned—						
Herrings	3,333	4,376	4,773	752	934	1,060
Salmon	9,158	11,642	11,912	4,510	5,475	6,228
Sardines and pilchards	6,136	6,494	6,341	1,921	1,967	2,003
Tuna	415	497	316	121	149	90
Other fish	1,869	1,192	1,581	326	264	461
Crustaceans and molluscs	619	887	1,026	448	580	756
Total canned	*21,529*	*25,087*	*25,949*	*8,078*	*9,368*	*10,598*
Products not elsewhere included	1,643	1,980	2,490	282	400	675
Grand total	**66,003**	**75,951**	**76,197**	**17,862**	**22,195**	**24,023**
EXPORTS (Australian produce only; excludes re-exports)						
Fresh or frozen(*c*)—						
Crayfish tails	9,002	9,121	7,801	10,338	10,931	13,600
Whole crayfish	1,380	1,616	540	955	1,112	453
Fish	1,636	3,338	2,726	255	433	329
Other	1,260	2,374	4,984	988	1,731	3,363
Canned—						
Salmon	38	47	41	13	15	15
Other fish	113	155	204	24	32	77
Crustaceans and molluscs	25	87	553	22	34	290
Total canned	*176*	*289*	*798*	*60*	*82*	*382*
Products not elsewhere included	74	20	8	5	28	6
Grand total	**13,528**	**16,758**	**16,857**	**12,600**	**14,316**	**18,133**

(*a*) Excludes frozen smoked, which is included with 'Smoked and dried'. (*b*) Includes extracts and caviare.
(*c*) Excludes frozen smoked, which is included in item Products not elsewhere included.

Pearls

Cultured pearls valued at $1,078,000 were imported into Australia in 1964–65. This was 67 per cent greater than the value imported in 1963–64 ($646,000). In 1964–65 imports of cultured pearls valued at $1,066,000 (99 per cent of the total value of cultured pearl imports) originated in Japan. Cultured pearls exported from Australia in 1964–65 were valued at $1,299,000, $348,000 more than 1963–64. In 1964–65 cultured pearl exports consigned to Japan were valued at $1,248,000, 96 per cent of the value of all cultured pearls shipped in that year.

The value of natural pearls exported from Australia in 1964–65 was $28,000, an increase of $15,000 compared with 1963–64 ($13,000). In 1964–65 natural pearls consigned to Japan were valued at $19,000, 68 per cent of the value of all natural pearls shipped in that year.

Pearl, etc. shell and marine animal oils

Of the pearl-shell exported in 1964–65, 378,000 lb. (34 per cent) were consigned to the United States of America, 283,000 lb. (25 per cent) to the Federal Republic of Germany, and 243,000 lb. (22 per cent) to Japan. Of the trochus-shell exported, 132,000 lb. (66 per cent) were consigned to the Federal Republic of Germany, and 28,000 lb. (14 per cent) to Italy. Imports of shells included quantities of pearl, trochus and green snail shell from New Guinea, Papua and the Pacific Islands, which were subsequently re-exported from Australia.

OVERSEA TRADE IN SHELLS: AUSTRALIA, 1962-63 TO 1964-65

	Quantity ('000 lb.)			Value ($A'000 f.o.b.)		
	1962–63	1963–64	1964–65	1962–63	1963–64	1964–65
Imports—						
Total imports	*105*	*166*	*81*	*19*	*32*	*23*
Exports(*a*)—						
Pearl-shell	1,811	1,226	1,121	686	402	425
Trochus-shell	176	295	202	25	30	19
Other	38	61	21	11	19	8
Total exports	*2,025*	*1,582*	*1,344*	*722*	*452*	*452*

(*a*) Australian produce only; excludes re-exports.

OVERSEA TRADE IN MARINE ANIMAL OILS: AUSTRALIA 1962-63 TO 1964-65

	Quantity ('000 gals.)			Value ($A'000 f.o.b.)		
	1962–63	1963–64	1964–65	1962–63	1963–64	1964–65
Imports—						
Whale oil from—						
Netherlands	24	78	4	14	76	6
Japan	311	527	1,208	198	466	1,162
Other countries	75	48	241	94	78	250
Total whale oil	410	653	1,453	305	620	1,418
Cod liver oil	95	86	81	88	76	79
Unrefined fish oils	107	120	125	99	112	119
Other	28	45	43	39	55	63
Grand total imports	*640*	*904*	*1,702*	*532*	*863*	*1,679*
Exports(*a*)—						
Whale oil	950	1,253	1,738	644	927	864
Other	1	..	..	11	..	..
Total exports	*951*	*1,253*	*1,738*	*655*	*927*	*864*

(*a*) Australian produce only; excludes re-exports.