CHAPTER XXIV

FISHERIES

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

§ 1. Resources, Development and National Aspects

1. **Natural Resources.**—(i) *Edible Fauna.* (*a*) *Fish.* Australian fishery resources, by comparison with those of some other areas, are not large. It has been calculated that there are approximately 2,000 species of fish in Australia and the waters surrounding it (including freshwater species), but the stocks of each species are comparatively small. Australia lacks adequate resources of such highly productive species as the herrings, cods, halibuts and true salmons (except for the Tasmanian whitebait and acclimatized freshwater species) on which the major proportion of world fisheries production is based.

The marine life of northern Australia is similar to that of the south-east Asian region; for example, the giant perch (*Lates calcarifer*) of northern Australia is also taken in Thailand and Malaya, and the parrot fishes (*Labridae*) are also distributed over the region. Some similarities with the fishes of South Africa can also be noted. For instance, the barracouta (*Leionura atun*) of Australia is found also in South Africa. Mullets, which form the basis of Australia's largest single species catch, occur throughout the world, as do the tunas.

Fishing is carried out continously in estuarine, coastal and off-shore Australian waters in the east and south from Port Douglas in Queensland to Ceduna in South Australia, in Western Australia from Esperance to Shark Bay, 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), breams (*Acanthopagrus spp.*), and some crustaceans. 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 perch-like group, or Perciformes, tunas (*Fam. Thynnidae, Katsuwonidae, Sardidae*), 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, Callyodon 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.

(*b*) *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

part 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 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, forms the basis of an amateur fishery in the south-west of Western Australia.

(*c*) *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. Scallops (*Equichlamys bifrons*) are taken mainly in Tasmania but fishing for saucer scallops (*Amusium balloti*) is being developed in Queensland. 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. Other edible molluscs which have been taken from time to time include abalone (*Haliotis spp.*) and pipis (*Plebidonax deltoides*).

(ii) *Pearl-shell and Trochus-shell.* Pearl-shell (*Pinctada maxima*), which is used for the manufacture of buttons, knife handles, etc., is fished in the tropical waters of Australia from Onslow in Western Australia to Cairns in Queensland. Trochus-shell is found mainly on coral reefs off the Queensland coast, although very small quantities occur in Western Australia.

(iii) *Whales.* Baleen whales, particularly humpback (*Megaptera nodosa*), migrate during winter from their summer feeding grounds in Antarctic waters to their breeding and nursery grounds in warmer waters off the north-east and north-west coasts of Australia. Since the war, the Australian whaling industry has exploited humpback whales on both coasts during the winter migrations. However, the same stocks are available to Antarctic whalers in the summer, and this, together with their slow reproduction rate, has resulted in the stocks of Antarctic humpback whales being subjected to exploitation greater than they can sustain.

Sperm whales (*Physeter catodon*) have been taken in the south-eastern waters of Western Australia since 1955.

(iv) *Marine Flora.* Seaweeds of possible commercial value occur in coastal waters of New South Wales, Tasmania and Western Australia. During 1962, a venture was launched to exploit seaweed (*Macrocystis pyrifera*) beds for their derivatives, such as agar and alginates, in Tasmanian waters.

2. **Development of Fisheries in Australia.**—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 1904 to 1914, a Commonwealth vessel was engaged in research into fisheries resources around Australia. As a result of this exploration, trawling in the 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 trawling vessels used in this area were taken out of service, and a modern diesel trawler was introduced. This fishery is now 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 the visit of a Fijian tuna clipper 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 and long-lining. Techniques of taking species of tuna other than southern bluefin are being investigated.

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 marine resource. Between 1944 and 1947, production from the shallow areas of Houtman's 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 numbers.

The prawn fishery was pursued for many decades on a small scale, but it was not until the discovery of the need for prawns to spawn at sea 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 offshore grounds. In 1962, a commercial prawn fishery was commenced in Shark Bay, Western Australia.

Whaling has been undertaken from time to time in Australia since the early days of settlement. Humpback whaling has been carried out from stations on the west coast of Australia since 1949, and off the east coast since 1952. A station was established on Norfolk Island in 1956. Prior to 1939, despite large-scale mechanized whaling in the Antarctic, whale stocks were able to sustain themselves. However, by the end of the 1962 whaling season, whale stocks had been depleted to the extent that the stations on the east coast and Norfolk Island had either gone into liquidation or otherwise disposed of their assets. On the west coast, the station at Albany, by 1962, had virtually completely changed its operations to sperm whaling, and the station at Carnarvon was extending its activities into other fisheries fields.

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

The fisheries legislation of each State and Territory and of the Commonwealth provides 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 Commonwealth *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 is no restriction 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 Commonwealth *Pearl Fisheries Act* 1952–1953 aims at the management of the pearl-shell resources in accord 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.

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.

4. 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 conservation measures in various fisheries. Future work is expected to concentrate on the discovery, development and conservation of new fisheries, on the expansion of under-exploited fisheries, on the economics of the industry and on the improvement of equipment.

The organizations, committees, etc., in Australia at present engaged in research into fisheries matters are:—

(i) Division of Fisheries and Oceanography, C.S.I.R.O. (biological and oceanographic research);
(ii) Division of Food Preservation, C.S.I.R.O. (research into handling, storage, processing and transport of fish);
(iii) the several State fisheries departments (general biological research);
(iv) Fisheries Division, Department of Primary Industry (economic and management research, gear technology, extension work to the industry);
(v) Southern Pelagic Project Sub-committee and the Western Fisheries Sub-committee of the Commonwealth–State Fisheries Conference (co-ordination and planning of research); and
(vi) Advisory Committee to the Minister for Primary Industry on the Fisheries Development Trust Account (consideration and recommendation to the Minister on projects to be subsidized from the Account, which was set up from the sale of the Commonwealth Government's whaling assets in 1956).

§ 2. Collection and Presentation 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 Division 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 fiscal years. However, pearl and shell fishing data refer to the season ended in the fiscal year shown. Whaling statistics are shown by calendar years, and refer to the season (from May to October) in the calendar year. All oversea trade information refers to fiscal 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.

The catch is generally shown according to the State in whose waters it was taken. However, a quantity of sharks and crayfish taken by Victorian-based fishermen in Tasmanian waters, but marketed in Victoria, is included in the Victorian catch, since the economy of that State is most directly affected. Similarly, pearl-shell taken by Queensland luggers operating in Northern Territory waters is included in the Queensland take. Pearl-shell taken by Japanese fishermen operating in Australian waters is excluded from Australian production figures, although the quantities taken are shown as a footnote to the table on page 1131.

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.

The details of employment, equipment, and production of the whaling industry shown in this chapter include whaling operations based on Norfolk Island, but for the purposes of Australia's oversea trade statistics Norfolk Island is regarded as an oversea country. The production figures do not include production from sperm whales, but sperm whale products are included in the statistics of oversea trade in whale products.

§ 3. The Fishing Industry

1. **Persons Engaged in Fisheries.**—In the following table, which shows particulars collected in the Population Censuses of Australia at 30th June, 1947, 1954 and 1961, the numbers of persons whose industry was stated to be "fishing and whaling" are shown together with the numbers engaged in all primary industries and the total work force.

PERSONS ENGAGED IN FISHERIES: AUSTRALIA

Particulars	Census, 30th June—		
	1947	1954	1961
Persons engaged in—			
Fishing and whaling	10,656	8,637	8,124
All primary industries	563,607	560,100	472,670
Total work force	3,196,431	3,702,022	4,225,098
Persons engaged in fishing and whaling as a proportion of—			
All primary industries .. .. %	1.9	1.5	1.7
Total work force .. .. %	0.3	0.2	0.2

2. **General Fisheries.**—(i) *Employment, Boats and Equipment.* 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.

Almost every type of fishing equipment is used. The following table sets out the main types of fish, crustaceans and molluscs and the equipment most commonly used.

FISHING EQUIPMENT USED IN AUSTRALIA

Type of fish	Equipment used
Mullet	Beach seine, gill net
Shark (edible)	Long-lines
Salmon	Beach seine
Barracouta	Trolling lines
Flathead	Danish seine, otter trawl
Snapper	Long-lines, traps
Morwong	Danish seine, otter trawl, traps
Whiting	Handlines, Danish seine
Garfish	Gill net, beach seine
Mackerel	Trolling lines
Tuna(*a*)	Poles and live-bait, trolling lines
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.

The following two tables show details of persons, boats and equipment employed in the taking of fish, crustaceans and edible molluscs, and data relating to oyster leases. 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 the fishing industries in the several States.

Some of the figures for 1959–60, 1960–61 and 1961–62 are not comparable with those for previous years for the following two reasons:—in Queensland, numbers of men employed and boats engaged now refer only to those licensed to take fish for sale, whereas previously all licensed men and boats were included; and in South Australia, the value of boats and equipment has been adjusted upward compared with previous years.

Boats and persons engaged in more than one type of fishing are classified according to their main activity, and so may be classified differently from one year to the next.

The table below gives details by States for 1961–62.

EDIBLE FISHERIES: BOATS AND EQUIPMENT IN USE, PERSONS ENGAGED, ETC., 1961-62

Particulars	Unit	N.S.W.	Vic.	Q'ld	S.A.	W.A. (a)	Tas.	N.T.	Aust.
General fisheries(b)—									
Boats engaged ..	No.	2,702	794	1,648	1,650	1,119	514	33	8,460
Value of boats and equipment	£'000	2,762	1,623	1,940	1,700	3,711	1,124	39	12,899
Persons engaged ..	No.	2,447	1,045	2,314	(c)6,848	2,039	1,122	63	15,878
Edible oyster fisheries—									
Boats engaged ..	No.	1,302	(d)	46	..	1	(d)	(d)	1,349
Value of boats and equipment	£'000	467	(d)	17	..	(e)	(d)	(d)	484
Persons engaged ..	No.	880	(d)	107	..	6	(d)	(d)	993
Leases granted ..	No.	4,983	5	241	..	..	..	2	5,231
Length of foreshore in leases	'000 yds	897	16	(f)	..	..	..	5	(g) 918
Off-shore leases ..	acres	6,710	330	(f)	..	..	..	..	(g)7,040

(a) Year ended December, 1961. (b) Excludes edible oyster fisheries but includes crustacean and other mollusc fisheries. (c) Includes licensed amateur fishermen. (d) No boats or persons had oyster fishing as their main activity in 1961; *see* explanation above. (e) Less than £500. (f) Not available. (g) Excludes Queensland.

The following table shows similar information for Australia for the years 1957–58 to 1961–62.

EDIBLE FISHERIES: BOATS AND EQUIPMENT IN USE, PERSONS ENGAGED, ETC., AUSTRALIA

Particulars	Unit	1957–58	1958–59	1959–60	1960–61	1961–62
General fisheries(a)—						
Boats engaged	No.	10,237	10,135	7,890	7,756	8,460
Value of boats and equipment ..	£'000	7,476	8,344	10,762	12,411	12,899
Persons engaged	No.	20,871	21,015	13,319	14,955	15,878
Edible oyster fisheries(b)—						
Boats engaged	No.	1,070	1,122	1,213	1,449	1,349
Value of boats and equipment(c) ..	£'000	171	377	368	412	484
Persons engaged	No.	909	812	917	822	993
Leases granted	No.	5,042	4,965	4,897	5,085	5,231
Length of foreshore in leases(d) ..	'000 yds	893	867	860	920	918
Off-shore leases(d)	acres	5,415	5,508	5,537	6,051	7,040

(a) Excludes edible oyster fisheries (except in Tasmania for years prior to 1959–60), but includes crustacean and other mollusc fisheries. Figures for 1959–60, 1960–61 and 1961–62 are not comparable with those for previous years; *see* explanation above. (b) Excludes particulars for Western Australia and Tasmania for years prior to 1959–60 and for the Northern Territory for all years except 1960–61 and 1961–62. (c) Figures for 1957–58 exclude the value of stakes, timber frames, etc., used on oyster leases in New South Wales. (d) Excludes Queensland.

(ii) *Production.* (*a*) *Fish.* The following table shows details of the production of the main types of fish caught in each State and the Northern Territory in 1961–62.

FISH: PRODUCTION BY TYPE, 1961-62

('000 lb. estimated live weight)

Type	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	Aust.
Marine types—								
Mullet	5,880	964	4,471	675	1,244	7	1	13,242
Australian salmon	1,384	636	..	1,050	5,543	2,921	..	11,534
Tuna	3,131	1	6	7,420	51	5	2	10,616
Shark	1,666	(*a*)3,916	31	1,582	501	(*a*) 994	1	8,691
Barracouta	24	4,725	..	..	..	2,061	..	6,810
Flathead	3,940	2,318	150	..	16	34	..	6,458
Snapper	1,803	279	97	505	1,072	..	..	3,756
Whiting	416	402	450	1,675	570	..	..	3,513
Morwong	2,368	318	..	84	..	3	..	2,773
Leatherjacket	2,120	30	..	..	43	(*b*)	..	2,193
Mackerel	188	..	1,355	..	83	2	3	1,631
Garfish	251	479	110	505	43	77	..	1,465
Bream	547	329	378	52	73	(*b*)	3	1,382
Ruff	..	20	..	390	778	..	..	1,188
Tailor	259	..	702	..	187	..	..	1,148
Luderick	865	72	83	..	..	..	..	1,020
Other	3,560	1,486	1,638	1,252	1,452	155	237	9,780
Total, Marine	*28,402*	*a 15,975*	*9,471*	*15,190*	*11,656*	(*a*)*6,259*	*247*	*87,200*
Freshwater types	561	249	(*c*)	450	..	(*b*)	..	(*d*)1,260
Grand Total	**28,963**	*a* **16,224**	(*d*)**9,471**	**15,640**	**11,656**	(*a*)**6,259**	**247**	*d* **88,460**

(*a*) 1,261,000 lb. taken by Victorian fishermen in Tasmanian waters is included in Victoria. (*b*) Less than 500 lb. (*c*) Not available. (*d*) Excludes freshwater fish caught in Queensland, particulars of which are not available.

The total Australian production of these more common types of fish is shown in the following table for the years 1957–58 to 1961–62.

FISH: PRODUCTION BY TYPE, AUSTRALIA

('000 lb. estimated live weight)

Type	1957–58	1958–59	1959–60	1960–61	1961–62
Marine types—					
Mullet	11,566	14,063	12,340	11,362	13,242
Australian salmon	10,561	8,543	7,601	6,630	11,534
Tuna	3,230	5,493	7,099	9,767	10,616
Shark	8,241	7,375	8,457	7,636	8,691
Barracouta	3,903	4,300	5,871	5,981	6,810
Flathead	4,108	4,599	4,902	5,141	6,458
Snapper	3,144	3,115	4,602	4,684	3,756
Whiting	3,000	2,990	3,297	3,267	3,513
Morwong	3,103	2,572	2,329	2,258	2,773
Leatherjacket	1,658	1,866	2,476	2,516	2,193
Mackerel	1,734	2,193	1,641	1,779	1,631
Garfish	1,139	1,079	1,024	1,315	1,465
Bream	1,064	1,207	1,123	1,236	1,382
Ruff	1,563	1,860	1,506	1,288	1,188
Tailor	894	845	1,199	1,407	1,148
Luderick	1,025	1,063	1,199	1,096	1,020
Other	9,815	8,927	9,819	10,137	9,780
Total, Marine	*69,748*	*72,090*	*76,485*	*77,500*	*87,200*
Freshwater types	2,225	2,293	1,612	(*a*) 1,597	(*a*) 1,260
Grand Total	**71,973**	**74,383**	**78,097**	(*a*) **79,097**	(*a*) **88,460**

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

(*b*) *Crustaceans.* In terms of gross value of catch, the importance of crustaceans has increased in recent years, and in 1961–62 was 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. Details of the production of crustaceans in each State and the Northern Territory in 1961–62 are shown in the following table.

CRUSTACEANS: PRODUCTION BY TYPE, 1961-62
('000 lb. whole weight)

Type	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	N.T.	Aust.
Crayfish ..	(*a*) 398	(*b*)1,676	(*c*) 58	4,025	19,238	(*b*)3,426	..	28,821
Prawns ..	4,678	4	4,400	..	239	..	1	9,322
Crabs ..	190	..	625	..	59	..	1	875
Total ..	**5,266**	**(*b*)1,680**	**5,083**	**4,025**	**19,536**	**(*b*)3,426**	**2**	**39,018**

(*a*) Includes catch of freshwater lobster (14,000 lb. in 1961–62). (*b*) The catch of crayfish by Victorian fishermen in Tasmanian waters (538,000 lb. in 1961–62) is included in Victoria. (*c*) Includes take of shovel-nosed lobster (4,000 lb. in 1961–62).

The following table shows details of the production of crustaceans in Australia in the years 1957–58 to 1961–62.

CRUSTACEANS: PRODUCTION BY TYPE, AUSTRALIA
('000 lb. whole weight)

Type	1957–58	1958–59	1959–60	1960–61	1961–62
Crayfish(*a*)	21,991	26,314	28,023	27,494	28,821
Prawns	4,687	6,751	7,749	6,529	9,322
Crabs	826	906	1,044	787	875
Total	**27,504**	**33,971**	**36,816**	**34,810**	**39,018**

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

(*c*) *Molluscs (edible).* Details of the production of molluscs in each State and the Northern Territory in 1961-62 are shown in the table below.

MOLLUSCS(*a*): PRODUCTION BY TYPE, 1961-62
('000 lb. gross (in shell) weight)

Type	N.S.W.	Vic.	Q'land	W. Aust.	Tas.	N.T.	Aust.
Oysters	12,204	65	323	10	1	10	12,613
Scallops	..	..	400	..	4,772	..	5,172
Mussels	..	646	..	..	..	..	646
Squid	..	196	117	6	..	..	319
Octopus	..	57	..	1	..	..	58
Cuttlefish	..	..	..	7	..	..	7
Total ..	**12,204**	**964**	**840**	**24**	**4,773**	**10**	**18,815**

(*a*) Excludes pipis taken in New South Wales, details of which are not available for publication.

The following table shows the production of molluscs in Australia in the years 1957–58 to 1961-62.

MOLLUSCS(*a*): PRODUCTION BY TYPE, AUSTRALIA

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

Type	1957–58	1958–59	1959–60	1960–61	1961–62
Oysters	(*b*) 10,562	*bc* 12,885	(*c*) 12,690	14,220	12,613
Scallops	(*b*) 4,207	(*b*) 4,786	(*b*) 6,105	6,896	5,172
Mussels	..	..	87	394	646
Squid	134	225	210	228	319
Octopus	..	2	52	36	58
Cuttlefish	..	57	60	34	7
Abalone	2	..	..	..	..
Total(*d*)	**14,905**	**17,955**	**19,204**	**21,808**	**18,815**

(*a*) Excludes pipis, particulars of which are not available for publication. (*b*) Excludes Western Australia. (*c*) Excludes Northern Territory. (*d*) Incomplete; *see* notes to individual types.

(iii) *Marketing*. The greater part of Australian fisheries production is marketed fresh or frozen. For practical purposes, the whole of the tuna and Australian " salmon " catches are canned, as is a large proportion of the barracouta catch.

Marketing arrangements for fresh fish vary from State to State. In New South Wales, fish marketing is controlled by the Chief Secretary's Department, 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 does 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 18 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.

Quick-freezing is widely used at sea and ashore to preserve fisheries products before delivery to consumers. The main techniques employed in Australia are brine freezing, which is used in the tuna and salmon fisheries, and air blast freezing, which is used chiefly for crayfish and scallops. Cold preservation with ice is still widely used.

(iv) *Processing*. Fish canning in Australia on a modern scale dates from 1937, prior to which the only fish canning carried out was on an occasional basis in factories handling other foodstuffs. In 1961–62, there were 20 fish canneries operating in Australia. The main canneries handle tuna (Eden, Melbourne, Port Lincoln), salmon (Eden, Melbourne, Margate, Port Lincoln, Adelaide, Albany, Perth), and barracouta (Melbourne, Margate, Portland). A long-established general cannery in Sydney handles a small quantity of tuna each year, as well as prawns and fish paste, and a general cannery in Melbourne produces paste and other fish products.

Apart from canning, other processes used on fish products include smoking and bottling. These processes take place only on a small scale.

There are few by-products derived from fish, crustaceans, and molluscs taken in Australia. Small quantities of fish meal are produced from scrap products. Oil from the livers of sharks was produced on a small scale until 1962, when cheaper substitutes became available.

The following table gives further details of fish processing in Australia during the years 1957–58 to 1961–62.

FISH PROCESSING (EXCEPT FREEZING): AUSTRALIA

Particulars	1957–58	1958–59	1959–60	1960–61	1961–62
Number of factories	14	18	19	18	20
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.
Fish used(*a*)—					
Whole	9,293	10,603	12,507	13,737	15,613
Headed and/or gutted	5,600	4,825	3,773	3,758	6,354
Estimated live weight equivalent(b)	*15,900*	*16,300*	*16,900*	*18,200*	*23,100*
Production(*c*)—					
Canned fish(*d*)—					
Australian salmon	5,198	4,756	4,550	3,480	5,818
Tuna	1,300	1,609	1,983	3,070	3,629
Other	1,358	1,417	1,585	1,647	2,473
Total	*7,856*	*7,782*	*8,118*	*8,197*	*11,920*
Smoked fish	439	286	296	301	172
Fish paste	1,700	1,314	1,379	1,261	1,037
Fish meal(*e*)	1,294	1,442	1,718	2,041	2,633

(*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.

3. **Pearls, Pearl-shell and Trochus-shell.**—(i) *Employment, Boats and Equipment.* Ketch-rigged luggers about 55 feet long and with crews of 8 to 14 members are used for pearl and shell fishing around Australia. Divers using suits collect the shells from the sea bed, at depths ranging from 3 to 45 fathoms. Details of employment of persons and equipment in the shell fisheries in 1961–62 are contained in the following table.

PEARL-SHELL AND TROCHUS-SHELL: BOATS AND EQUIPMENT IN USE, PERSONS ENGAGED, 1961-62

Particulars	Unit	Q'land	W. Aust.	N.T.	Aust.(*a*)
Boats engaged	No.	36	17	3	56
Value of boats and equipment	£'000	155	82	17	254
Persons engaged	No.	500	187	37	724

(*a*) Excludes Japanese pearlers operating in Australian waters.

The following table gives similar details for Australia for the years 1957–58 to 1961–62.

PEARL-SHELL AND TROCHUS-SHELL: BOATS AND EQUIPMENT IN USE, PERSONS ENGAGED, AUSTRALIA (*a*)

Particulars	Unit	1957–58	1958–59	1959–60	1960–61	1961–62
Boats engaged	No.	151	110	85	85	56
Value of boats and equipment ..	£'000	790	647	515	467	254
Persons engaged	No.	1,487	1,419	1,120	995	724

(*a*) Excludes Japanese pearlers operating in Australian waters.

(ii) *Production.* The production of cultured pearls was introduced into Australia in 1956, when a station was established off the north coast of Western Australia. The industry has since expanded, and in 1962, there were nine pearl culture farms in operation in Queensland and Western Australia. Particulars of cultured pearl production are not available for publication.

In recent years, plastics have replaced pearl-shell in many uses. However, since the introduction of pearl culture, live pearl-shell has been in demand for this purpose. The following table gives details of pearl-shell and trochus-shell production in Australia in the years 1957–58 to 1961–62.

PEARL-SHELL AND TROCHUS-SHELL: PRODUCTION

('000 lb.)

Particulars	1957–58	1958–59	1959–60	1960–61	1961–62
Pearl-shell(*a*)—					
Queensland(*b*)	1,131	889	1,082	1,821	1,008
Western Australia(*c*) ..	2,218	1,687	1,138	1,270	802
Northern Territory(*b*) ..	753	314	188	222	147
Australia	*4,102*	*2,890*	*2,408*	*3,313*	*1,957*
Trochus-shell—					
Queensland(*b*)	1,207	887	847	309	457
Western Australia(*c*) ..	22	29	22	10	..
Australia	*1,229*	*916*	*869*	*319*	*457*

(*a*) Excludes pearl-shell taken by Japanese pearlers operating in Australian waters. The quantities taken were as follows:—1957–58, 1,572,000 lb.; 1958–59, 1,064,000 lb.; 1959–60, 763,000 lb.; 1960–61, 860,000 lb.; 1961–62, 813,000 lb. (*b*) Season ended January of years shown. Shell taken by Queensland luggers operating in Northern Territory waters is included in Queensland. (*c*) Season ended December of years shown.

Particulars of the production of natural pearls in Australia are not available.

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

Whale meat is marketed as pet food. Oil from baleen whales is used in the manufacture of margarine, soap and cosmetics. Oil from sperm whales is used in the manufacture of soap, plastics and watch lubricants, and in automatic transmission systems in motor cars.

In 1962, 591 sperm whales were taken off Western Australia, but particulars of the production from sperm whales are not available. The table below gives further details of the whaling industry in Australia and Norfolk Island during the years 1958 to 1962.

WHALING STATISTICS(*a*) AUSTRALIA AND NORFOLK ISLAND

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

Particulars	Unit	1958	1959	1960	1961	1962
Stations operating	No.	5	5	5	5	5
Chasers engaged	„	12	13	(*b*) 14	(*c*) 18	(*d*) 16
Persons employed(*e*)—						
At sea	„	157	165	155	175	137
Ashore	„	440	468	445	260	179
Types of whales taken—						
Humpback	„	1,807	1,660	1,525	1,481	720
Blue	„	2	12	2	..	..
Bryde	„	3	..	..	2	..
Sei	„	..	..	..	..	2
Fin	„	..	1	..	..	..
Sex of whales taken—						
Males	„	1,085	970	868	879	407
Females	„	727	703	659	602	315
Total Whales Taken	„	*1,812*	*1,673*	*1,527*	(*f*) *1,483*	(*g*) *722*
Humpback Equivalent(h)	„	*1,813*	*1,691*	*1,530*	*1,482*	(*g*) *721*
Quota of whales(*h*)	„	1,960	2,080	1,850	1,560	1,470
Whale oil produced—						
Quantity	Barrel(*i*)	97,698	88,415	78,378	66,675	(*j*) 31,021
Value	£'000	1,424	1,326	1,136	972	(*j*) 362
Value of by-products (meal, meat, solubles, etc.)	„	442	401	317	332	(*j*) 182
Average production of oil per equivalent humpback whale	Barrel(*i*)	53.9	52.3	51.2	45.0	(*k*) 42.4
Average length of whales processed	ft	40.8	40.3	40.3	38.7	38.0

(*a*) Statistics of whales taken and processed and of oil and by-products produced exclude details of sperm whales. (*b*) Includes 2 two-man catchers. (*c*) Includes 3 tow-boats and 4 aircraft. (*d*) Includes 1 tow-boat and 4 aircraft. (*e*) Estimated. (*f*) The sex of 2 whales processed was not recorded. (*g*) Excludes 4 blue and 2 bryde whales taken, under special permits, for scientific research. (*h*) For quota purposes, 1 blue whale is taken as the equivalent of 2 fin, 2½ humpback, 6 sei or 6 bryde whales. (*i*) 6 barrels = 1 ton. (*j*) Includes produce from whales taken for scientific research. (*k*) Taking account of whales taken for scientific research.

5. Value of Production.—(i) *Gross Value of Products.* The following table shows details of gross values of production at principal markets of edible fisheries products, pearl-shell, and trochus-shell in each State and the Northern Territory in 1961–62.

FISHERIES PRODUCTION: GROSS VALUE, 1961-62

(£'000)

Product	N.S.W.	Vic.(*a*)	Qld	S. Aust.	W. Aust.	Tas.(*a*)	N.T.	Aust.
Fish(*b*)	2,016	1,575	670	870	666	255	23	6,075
Crustaceans ..	837	406	678	720	3,879	711	(*c*)	7,231
Molluscs (edible) ..	(*d*) 992	35	41	..	2	181	1	1,252
Pearl-shell(*e*) ..	..	..	(*f*) 231	..	(*g*) 156	..	(*f*) 29	416
Trochus-shell ..	..	..	(*f*) 28	..	..	..	..	28

(*a*) Victorian figures include catch by Victorian fishermen in Tasmanian waters (shark, £93,000, crayfish, £130,000, in 1961–62). (*b*) Includes shark livers for oil extraction; excludes freshwater fish caught in Queensland, particulars of which are not available. (*c*) Less than £500. (*d*) Excludes pipis, particulars of which are not available for publication. (*e*) Excludes pearl-shell taken by Japanese pearlers in Australian waters. Queensland figure includes pearl-shell taken by Queensland luggers operating in Northern Territory waters. (*f*) Season ended January. (*g*) Season ended December.

The table below gives this information for Australia for the years 1957–58 to 1961–62.

FISHERIES PRODUCTION: GROSS VALUE, AUSTRALIA

(£'000)

Product	1957–58	1958–59	1959–60	1960–61	1961–62
Fish(*a*)	5,228	5,294	5,851	5,907	6,075
Crustaceans	3,772	4,584	5,561	5,906	7,231
Molluscs (edible)(*b*) ..	825	1,037	1,089	1,186	1,252
Pearl-shell(*c*)(*d*)	995	561	558	724	416
Trochus-shell(*d*)	184	106	78	27	28

(*a*) Includes shark livers for oil extraction; excludes freshwater fish caught in Queensland in 1960–61 and 1961–62. (*b*) Excludes pipis in New South Wales for all years, scallops in Western Australia and oysters in the Northern Territory for years prior to 1960–61, and oysters in Western Australia for 1957–58 and 1958–59. (*c*) Excludes pearl-shell taken by Japanese pearlers in Australian waters. (*d*) Season ended December (Western Australia) or January (Queensland and Northern Territory) of years shown.

(ii) *Gross and Local Values, 1961–62.* Gross and local values of fishing and whaling production for each State are shown in the following table. A more detailed reference to the value of production of fishing and whaling and other industries in Australia, as well as a brief explanation of the terms used, is included in Chapter XXIX. Miscellaneous.

FISHING AND WHALING: GROSS AND LOCAL VALUE OF PRODUCTION, 1961-62

(£'000)

State or Territory	Gross value(a)	Marketing costs	Local value(b)
New South Wales	3,871	583	3,288
Victoria	2,016	275	1,741
Queensland	1,834	201	1,633
South Australia	1,590	211	1,379
Western Australia	5,320	53	5,267
Tasmania	1,147	238	909
Northern Territory	53	n.a.	53
Australia	**15,831**	**1,561**	**14,270**

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

(iii) *Local Values, 1957–58 to 1961–62.* In the following table, the local value of fisheries 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.

FISHING AND WHALING: LOCAL VALUE OF PRODUCTION

Year	N.S.W.	Vic.	Qld	S. Aust.	W. Aust.	Tas.	Aust.(a)
			LOCAL VALUE				
			(£'000)				
1957–58	2,792	1,104	1,542	1,074	3,226	508	10,402
1958–59	2,947	1,265	1,343	1,071	3,867	664	11,243
1959–60	3,101	1,771	1,448	975	4,276	683	12,325
1960–61	3,299	1,787	1,372	1,237	4,220	813	12,813
1961–62	3,288	1,741	1,633	1,379	5,267	909	14,270
			LOCAL VALUE PER HEAD OF POPULATION				
			(£)				
1957–58	0.8	0.4	1.1	1.2	4.7	1.6	1.1
1958–59	0.8	0.5	0.9	1.2	5.5	2.0	1.2
1959–60	0.8	0.6	1.0	1.0	6.0	2.0	1.2
1960–61	0.9	0.6	0.9	1.3	5.8	2.3	1.2
1961–62	0.9	0.6	1.1	1.4	7.1	2.6	1.4

(a) Includes Northern Territory.

§ 4. Consumption of Fish

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, the non-commercial fish catch has been estimated at ten per cent. of the recorded catch.

FISHERIES PRODUCTS: ESTIMATED SUPPLIES AVAILABLE FOR CONSUMPTION, AUSTRALIA

(lb. edible weight per head per annum)

Particulars	1957–58	1958–59	1959–60	1960–61	1961–62
Fresh or frozen—					
Fish—					
Australian origin	3.1	3.1	3.2	3.1	3.2
Imported	2.1	2.2	3.2	3.0	2.7
Crustaceans and molluscs ..	0.8	0.9	1.0	1.2	1.0
Cured (including smoked and salted)	1.3	0.8	1.1	1.1	1.0
Canned—					
Australian origin	0.7	0.8	0.8	0.7	0.8
Imported	1.8	1.7	2.0	2.6	2.0
Total	**9.8**	**9.5**	**11.3**	**11.7**	**10.7**

§ 5. Oversea Trade in Products of Fishing and Whaling

NOTE.—Values shown 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.

1. **Edible Products.**—A large proportion of the fish consumed in Australia is imported. Of the edible products imported in 1961–62, those originating in Japan were valued at £2.5 million (29 per cent. of the total value); United Kingdom, £1.7 million (20 per cent.); and South Africa, £1.3 million (15 per cent.).

South Africa supplied 10.5 million lb. (33 per cent., valued at £0.8 million) of the fresh or frozen fish products imported in 1961–62, and the United Kingdom 6.9 million lb. (21 per cent., valued at £0.9 million). Of the smoked or dried fish products imported in 1961–62, South Africa supplied 6.4 million lb. (76 per cent., valued at £0.5 million). Japan supplied 10.4 million lb. (47 per cent., valued at £2.4 million) of the canned fish products imported in 1961–62.

The value of exports of edible products in 1961–62 was 48 per cent. greater than that in 1960–61. The value of crayfish tails exported in 1961–62 was 93 per cent. of the value of all exports of edible products. Of all crayfish tails exported in 1961–62, 99 per cent. (9,765,000 lb., valued at £5,956,000) 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 1959–60, 1960–61 and 1961–62.

OVERSEA TRADE IN EDIBLE FISHERIES PRODUCTS: AUSTRALIA

Particulars	Quantity ('000 lb.)			Value (£A.'000 f.o.b.)		
	1959–60	1960–61	1961–62	1959–60	1960–61	1961–62
IMPORTS						
Fresh and frozen (*a*)	35,480	34,594	32,290	3,335	3,423	3,561
Smoked and dried	9,206	8,695	8,359	704	692	718
Potted and concentrated (*b*) ..	175	361	177	54	131	58
Canned—						
Herrings	5,238	7,427	4,504	586	821	473
Salmon	8,129	10,398	9,370	1,903	2,775	2,211
Sardines and pilchards ..	6,148	7,598	5,460	1,058	1,241	884
Tuna	56	424	709	9	63	96
Other fish	310	812	1,251	70	110	147
Crustaceans and molluscs ..	533	834	736	171	298	276
Total, Canned ..	20,414	27,493	22,030	3,797	5,308	4,087
Products not elsewhere included	..	..	..	157	139	112
Grand Total	..	..	..	*8,047*	*9,693*	*8,536*
EXPORTS						
(Australian produce only; excludes re-exports)						
Fresh or frozen(*c*)—						
Crayfish tails	7,777	6,023	9,875	3,809	3,401	6,020
Whole crayfish	(*d*)	1,783	513	293	649	173
Fish	(*d*)	(*d*)	1,351		267	166
Other	(*d*)	(*d*)	195			66
Canned—						
Salmon	22	21	30	4	4	6
Other fish	63	114	130	9	14	17
Crustaceans and molluscs ..	69	97	57	26	43	17
Total, Canned ..	154	232	217	39	61	40
Products not elsewhere included	..	..	..	22	2	3
Grand Total	..	..	..	*4,163*	*4,380*	*6,468*

(*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. (*d*) Not available separately.

2. Pearls.—Cultured pearls valued at £189,000 were imported into Australia in 1961–62. This was 23 per cent. greater than the value imported in 1960–61 (£153,000). In 1961–62, imports of cultured pearls valued at £179,000 (95 per cent. of the total value of cultured pearl imports) originated in Japan.

Cultured pearls exported from Australia in 1961–62 were valued at £53,000, 21 per cent. lower than the value exported in 1960–61 (£67,000). In 1961–62, cultured pearl exports consigned for Japan were valued at £52,000, 98 per cent. of the value of all cultured pearls shipped in that year.

The value of natural pearls exported from Australia in 1961–62 was £27,000, 70 per cent. lower than that in 1960–61 (£92,000).

3. Unmanufactured Shells.—Of the pearl-shell exported in 1961–62, 717,000 lb. (36 per cent.) were consigned to the Federal Republic of Germany, and 628,000 lb. (31 per cent.) to the United States of America. More than 73 per cent. (436,000 lb.) of the trochus-shell exported was consigned to Italy.

Imports of unmanufactured 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.

Further particulars of Australia's oversea trade in unmanufactured shells are shown in the table below.

OVERSEA TRADE IN UNMANUFACTURED SHELLS: AUSTRALIA

Particulars	Quantity ('000 lb.)			Value (£A.'000 f.o.b.)		
	1959–60	1960–61	1961–62	1959–60	1960–61	1961–62
IMPORTS						
Total	*156*	*114*	*96*	*18*	*10*	*14*
EXPORTS (Australian produce only; excludes re-exports)						
Pearl-shell	2,592	3,089	1,999	628	661	384
Trochus-shell	847	455	567	103	46	44
Other	24	10	22	6	2	4
Total	*3,463*	*3,554*	*2,588*	*737*	*709*	*432*

4. Marine Animal Oils.—The value of whale oil exported in 1961–62 was 22 per cent. less than that in 1960–61. Further details of oversea trade in marine animal oils are shown in the table below.

OVERSEA TRADE IN MARINE ANIMAL OILS: AUSTRALIA

Particulars	Quantity ('000 gals.)			Value (£A.'000 f.o.b.)		
	1959–60	1960–61	1961–62	1959–60	1960–61	1961–62
IMPORTS						
Whale oil(*a*)—						
From Norfolk Island ..	272	348	316	108	141	127
From other countries ..	82	138	181	29	49	82
Total, Whale Oil ..	354	486	497	137	190	209
Cod liver oil	64	115	94	35	53	45
Unrefined fish oils	123	127	100	66	70	58
Other	..	..	..	28	25	21
Grand Total	..	..	..	*266*	*338*	*333*
EXPORTS						
(Australian produce only; excludes re-exports)						
Whale oil(*a*)	3,056	2,298	1,900	893	865	671
Other	..	..	..	6	18	48
Total	..	..	..	*899*	*883*	*719*

(*a*) Includes sperm whale oil, for which production statistics are not available.