CHAPTER XXVI.

FISHERIES.

§ 1. General.

1. Fish Resources.—The waters surrounding the Australian continent contain a great variety of marine fauna. Despite this, the fish stocks in Australian waters, in common with most other countries of the Southern Hemisphere, are small by comparison with the stocks in the Northern Hemisphere. The reasons for this comparative shortage have not been fully explained but it seems clear that the basic factors involved are the absence of large expanses of shallow water and the much lower fertility of the oceans of the Southern Hemisphere.

The existence of greater fish stocks, of course, largely explains why approximately 98 per cent. of the world production of fish comes from the Northern Hemisphere. Nevertheless, the Australian catch is low even after making allowance for the smaller resources available. Further explanation must be sought in terms of the socio-economic factors which determine the demand for and supply of fish.

Compared with certain countries in the Northern Hemisphere the consumption of fish in Australia per head is small. Consequently, there is not the pressure on resources necessary to induce expansion in the fishing industry and to encourage the investment of large amounts of capital. On the other hand, even this somewhat restricted Australian demand for fish is not met from purely local sources of supply and quantities of fish are imported each year.

This apparent paradox is explained by the fact that the Australian fishing industry has consistently over-exploited some sources of supply and under-exploited others.

Thus, on the one hand, the fisheries in the estuaries of the Australian coasts (the so-called estuarine fisheries) and those offshore for fish that dwell on the bottom of the sea (the demersal fisheries) have frequently been overfished with a consequent diminution of stocks. On the other hand, those species of fish which dwell near the surface of the sea (the pelagic species) have barely been exploited at all.

It is anticipated that the greatest future development of the Australian fishing industry will take place in the pelagic fisheries. However, no great contribution to the supplies of fresh fish can be expected from this source since most of the pelagic species caught are canned or processed.

An increase in the supply of fresh fish available to the Australian consumer will therefore have to come largely from an expansion of the estuarine and demersal fisheries. In view of the over-exploitation of existing estuarine and demersal fisheries, such an expansion will require the development of new fishing areas.

While it is known that promising fishing grounds exist to the south and north of Australia, it appears that the trawling grounds of the Great Australian Bight are the most suitable for development.

2. Fishing Areas.—The principal fishing areas at present are the coastal lakes, streams, estuaries and beaches, from Cairns in Queensland to Ceduna in South Australia, and from Esperance to Geraldton in Western Australia. For the most part, these fishing grounds are associated with the coastal streams. The demersal grounds fall into two classes—(*a*) the reefs from which cod, snapper, etc. are taken; and (*b*) the grounds from which flathead, morwong, etc., are taken. The reefs extend intermittently from northern Queensland around the southern part of the continent to Shark Bay in Western Australia. The flathead grounds lie on the continental shelf off south-east Australia, chiefly from Crowdy Head to south of Cape Everard and further off the east Tasmanian coast from Babel Island southwards to Storm Bay. Other demersal grounds exist in the Great Australian Bight but would require large modern trawlers for commercial exploitation. The demersal shark grounds lie principally in Bass Strait and on the continental shelf off eastern South Australia. Other grounds have been located off southern Western Australia.

The grounds of existing pelagic fisheries include that for the Spanish mackerel off the north-eastern coast from about Coff's Harbour to Cairns and that for barracouta in Bass Strait and off eastern Tasmania. Jack mackerel is found in the waters of eastern Tasmania, the south-east coast of New South Wales, and Western Australia. Tuna is now being taken in commercial quantities on the New South Wales and South Australian coasts.

Of the crustaceans exploited in Australia, crayfish are the most important and are taken on reefs of the continental shelf in the waters of all southern States, the fishery extending (with a major interruption in the Bight) from Port Macquarie in New South Wales to Geraldton in Western Australia. Considerable development has taken place in the crayfish fisheries, particularly in South Australian and Western Australian waters, owing to the opening up of markets in the United States of America for frozen crayfish tails. Crabs of various species are found in practically all coastal waters. Prawns are taken in the temperate waters of Queensland and New South Wales.

In the Mollusc group, edible oysters are found chiefly in the temperate waters of Queensland, New South Wales and Victoria. Some cropping of natural resources takes place in Queensland, but the principal cultivation grounds are found in New South Wales. Until 1956, scallops were taken commercially in Tasmanian waters only, but since then they have been taken also in Queensland and Western Australia.

Pearlshell is fished from Cooktown in Northern Queensland, and from Thursday Island round the north coast of Australia to Exmouth Gulf in Western Australia. Trochus shell is obtained from Mackay in Queensland round the north coast to King Sound in Western Australia.

Whales emigrating from Antarctic waters to their breeding grounds in the warmer waters of low latitudes pass up both the western and eastern coasts of Australia, returning to the Antarctic in the spring. Two whaling stations operate in Western Australia (Babbage Island near Carnarvon and Cheynes Beach near Albany), one in New South Wales (Byron Bay) and one in Queensland (Moreton Island). The company operating at Byron Bay (New South Wales) also operates a station at Norfolk Island.

3. **Fishing Boats and Equipment.**—The fishing equipment includes almost every possible type of gear, and appropriate boats are employed. The on-shore equipment includes mesh-nets, trawl-nets, and traps of various types. The demersal reef fishery is worked with traps, hand lines and long lines. The demersal flathead fishery is worked by both otter trawl (with Vigneron-Dahl gear) and Danish seine; in addition, some hand-lining is carried out. The demersal shark fishery is worked by long lines. The pelagic mackerel fishery employs trolling gear with lures of various types, while the pelagic barracouta fishery employs principally barbless jigs. Tuna is taken by trolling and, more recently, by pole fishing with live bait.

The boats for the on-shore fisheries are almost invariably small vessels fitted with low-power petrol engines. The vessels working the reefs are larger (up to 50 feet) and have more power. The otter trawl vessels are steam trawlers, and the Danish seine vessels are 40 to 70 feet in length with diesel engines. The shark boats have diesel power and range from 35 to 50 feet in length.

4. **Administration.**—The fisheries within the three-mile limit are administered by State Departments while the Commonwealth Fisheries Office, a division of the Department of Primary Industry, develops and administers fisheries in extra-territorial waters and co-ordinates fisheries administration.

The administration of the fisheries was discussed in greater detail in Official Year Book No. 41, page 844, and in earlier issues.

§ 2. Development and Present Condition of the Fishery.

1. **Fisheries Proper.**—(i) *General.* The development of Australian fisheries has almost invariably followed the same sequence at each centre. The earliest fisheries were on-shore, followed by demersal reef fishing using long lines. Trawling operations have followed line fishing in suitable areas and more recently the exploitation of pelagic fisheries has commenced.

Until about 1900, the expansion of the industry consisted chiefly of the extension of on-shore and demersal fishing with long lines into areas previously unworked. Barracouta was fished in Tasmanian waters at least by 1880, if not earlier, although the main developmen of this fishery occurred towards the end of the 1939–45 War and in later years to meet demands for canned fish.

The first major development of the industry came with the institution of trawling operations off the New South Wales coast in 1918 by the New South Wales Government. The State enterprise failed, but the fishery was found very profitable by private enterprise. In 1936, the use of Danish seine vessels began and the fleet of these vessels rapidly expanded, and in 1946 (after the return of vessels requisitioned in war-time) a peak was reached when thirteen steam trawlers and 120 Danish seine vessels were licensed. The total catch of trawled fish in 1946–47 was 16,000,000 lb. Of the species taken by the trawl fishery, tiger flathead, morwong, and nannygai are the most important and of these, flathead may be regarded as the prime fish and commands a higher price. Since 1947, the composition of the catch has changed, because of depletion of the flathead stocks, and the lower-priced fish have become a larger proportion of the catch. In 1957–58, four steam trawlers (all based at Sydney but fishing right down the coast to Bass Strait) and a considerably larger number of Danish seine vessels in New South Wales and Victoria were engaged in the trawl fishery.

In Queensland waters, since 1930, the Spanish mackerel has been taken by line fishermen, operating in off-shore waters out to the Barrier Reef between Gladstone and Cairns.

In 1930 also, fishing for school (snapper) shark commenced in south-eastern waters, particularly off the Victorian and Tasmanian coasts. This fishery rapidly extended its area of operations, and in 1957–58 the catch of edible sharks was 8,241,000 lb. live weight. Great impetus was given to the fishery during the war years by the demand for livers for fish oil production for medicinal purposes. Demand eased with the return of cod-liver oil and availability of synthetic vitamin " A ". The shark fishery is still important, however, as the flesh, which is sold as " flake ", brings substantial prices, mainly in Melbourne.

As far as pelagic fisheries are concerned, pilchards occur in the southern waters of Australia from Port Stephens to the south-west of Western Australia and also as far north as Moreton Bay. Commercial catches have been made with lampara nets and to a lesser extent with purse seines. Anchovies are caught in Port Phillip Bay and also in Lakes Entrance and are used for processing. Sprats in Tasmanian waters are caught in payable quantities, though there is usually some difficulty in finding a market for them. Jack mackerel have been caught in commercial quantities off the east coast of Tasmania and off Eden in New South Wales.

The growth of the Australian tuna fishing industry has been substantial in recent years. Before the 1939–45 War, tuna was taken only in small quantities but in 1950 the Commonwealth Government chartered the American-owned clipper *Senibua* and it was demonstrated that tuna could be caught in commercial quantities using the method of pole fishing with live bait. Since then, the catch has increased considerably and it amounted to 3,231,000 lb. in 1957–58. Practically all tuna in Australia is canned and is possibly the only Australian fish which can produce a canned product equal to oversea high quality packs.

Southern bluefin tuna occurs all along the southern coastline of the continent. In addition, albacore, yellowfin, striped (skipjack) and northern bluefin tuna occur, but the taking of these fish has not been developed.

(ii) *Production.* The statistics of production published in this chapter are in terms of " live " or " gross " weights. Live weights are calculated from recorded weights using conversion factors which allow for the fact that the weights of fish reported are frequently in a gutted, headed and gutted, or otherwise reduced condition. Publication on a live weight basis has been made possible in recent years largely as a result of the efforts of the Commonwealth Fisheries Office.

In interpreting Australian fisheries statistics, allowance should be made for the incomplete coverage. Returns are collected in most States from licensed professional fishermen only, and as a result the published totals fall short of total fish production to the extent of the catch by amateur fishermen, the commercial catch by persons not licensed as professional fishermen and unrecorded catch by professional fishermen.

Production by States for the years 1953–54 to 1957–58 is shown in the following table on a live weight basis.

RECORDED PRODUCTION OF FISH.

(ESTIMATED LIVE WEIGHT.)

('000 lb.)

State or Territory.	1953–54.	1954–55.	1955–56.	1956–57.	1957–58.
New South Wales	32,332	26,441	23,062	28,992	27,925
Victoria (*a*)	13,820	13,833	10,826	14,136	13,348
Queensland	10,525	9,368	9,668	9,447	9,034
South Australia	8,317	8,154	7,328	9,688	9,591
Western Australia	10,913	9,393	9,768	9,545	9,783
Tasmania (*a*)	2,821	3,115	2,545	3,416	2,177
Northern Territory ..	100	118	101	179	160
Australia	**78,828**	**70,422**	**63,298**	**75,403**	**72,018**

(*a*) Catch by Victorian fishermen in Tasmanian waters is included in Victoria.

In the following table, total Australian recorded production of fish by species as they are commonly known is shown by States in terms of estimated live weight for the years 1956–57 and 1957–58.

FISH: RECORDED PRODUCTION BY SPECIES.

(ESTIMATED LIVE WEIGHT.)

('000 lb.)

Species.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	N.T.	Aust.
1956–57.								
Mullet	4,603	578	4,269	650	1,131	13	..	11,244
Australian Salmon	3,256	3,621	..	900	4,314	73	..	12,164
Shark	1,792	*a* 2,568	25	3,175	359	(*a*) 519	..	8,438
Flathead	2,904	1,810	234	..	25	42	..	5,015
Barracouta	154	2,887	..	..	1	2,426	..	5,468
Tuna	1,683	35	2	490	14	38	..	2,262
Snapper	1,803	83	135	353	1,035	..	18	3,427
Morwong, Jackass Fish, Perch, Queen Snapper	3,725	155	..	..	4	11	..	3,895
Whiting	151	194	472	1,400	463	..	..	2,680
Leatherjacket	1,838	18	8	..	21	..	..	1,885
Ruff, Tommyruff, Sea Herring ..	..	153	..	750	1,015	..	..	1,918
Garfish	361	377	129	650	50	66	..	1,633
Other Species	6,722	1,657	4,173	1,320	1,113	228	161	15,374
Total	**28,992**	***a* 14,136**	**9,447**	**9,688**	**9,545**	***a* 3,416**	**179**	**75,403**
1957–58.								
Mullet	5,009	1,053	3,611	560	1,322	11	..	11,566
Australian Salmon	3,010	2,274	..	1,014	4,131	132	..	10,561
Shark	1,984	*a* 3,065	..	1,944	401	(*a*) 847	..	8,241
Flathead	2,492	1,289	258	..	25	44	..	4,108
Barracouta	13	2,977	..	..	..	913	..	3,903
Tuna	1,930	62	..	1,218	9	12	..	3,231
Snapper	1,612	130	134	388	864	..	16	3,144
Morwong, Jackass Fish, Perch, Queen Snapper	2,914	179	..	..	3	7	..	3,103
Whiting	228	218	469	1,500	585	..	..	3,000
Leatherjacket	1,609	13	2	..	34	(*b*)	..	1,658
Ruff, Tommyruff, Sea Herring ..	..	283	..	410	870	..	..	1,563
Garfish	237	222	126	468	48	38	..	1,139
Other Species	6,887	1,583	4,434	2,089	1,491	173	144	16,801
Total	**27,925**	***a* 13,348**	**9,034**	**9,591**	**9,783**	***a* 2,177**	**160**	**72,018**

(*a*) Catch by Victorian fishermen in Tasmanian waters is included in Victoria. (*b*) Less than 500 lb.

2. Crustaceans and Molluscs.—Crayfish are taken (in pots) in all States other than Queensland. Cray fisheries have developed greatly since the 1939–45 War to take advantage of the market in the United States of America for frozen crayfish tails, the total catch increasing from approximately 3 million lb. in 1945–46 to 22.0 million lb. in 1957–58. Of the total catch in 1957–58, Western Australia produced 13.3 million lb.

Prawns are taken by otter trawl in the waters of New South Wales, Queensland and Western Australia. Prawns have been found in considerable quantity in the ocean waters of northern New South Wales and southern Queensland. An important development is anticipated with improvement of handling and distribution and opening up of oversea markets.

Initially the Australian oyster fisheries depended solely upon the harvesting of naturally grown stock in littoral and submarine areas. However, the stocks soon deteriorated and attention was turned to methods of cultivation. This is carried on mainly in New South Wales where there has been constant improvement in methods, and the present technique in certain areas is highly efficient. The production (in-shell) for Australia was 10,310,000 lb. in 1956–57 and increased to 10,617,000 lb. in 1957–58. Scallops are taken by dredge in the D'Entrecasteaux Channel in Tasmania and by trawl in Hervey Bay, Queensland. In 1957–58, a small quantity was also taken in Western Australia.

Details of production of crustaceans and molluscs are shown by States in the tables below on a gross (in-shell) weight basis for the years 1956–57 and 1957–58.

RECORDED PRODUCTION OF CRUSTACEANS AND MOLLUSCS.

(GROSS (IN-SHELL) WEIGHT.)

('000 lb.)

Item.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Australia.
1956–57.							
Crustaceans—							
Crayfish ..	480	(a) 1,164	..	4,385	10,763	(a) 2,104	18,896
Crabs	123	..	701	..	11	..	835
Prawns ..	2,386	(b)	2,500	..	189	..	5,075
Other(c) ..	..	..	9	..	..	..	9
Total ..	*2,989*	(a) *1,164*	*3,210*	*4,385*	*10,963*	(a) *2,104*	*24,815*
Molluscs—							
Oysters ..	9,695	42	154	..	46	373	10,310
Scallops ..	..	..	1,200	..	..	5,874	7,074
Other(d) ..	..	47	45	..	14	..	106
Total ..	*9,695*	*89*	*1,399*	..	*60*	*6,247*	*17,490*
1957–58.							
Crustaceans—							
Crayfish ..	552	(a) 1,230	..	4,460	13,327	(a) 2,399	21,968
Crabs	127	..	664	..	35	..	826
Prawns ..	1,520	20	3,000	..	147	..	4,687
Other(c) ..	..	..	23	..	..	..	23
Total ..	*2,199*	(a) *1,250*	*3,687*	*4,460*	*13,509*	(a) *2,399*	*27,504*
Molluscs—							
Oysters ..	10,252	117	147	..	55	46	10,617
Scallops ..	..	..	44	..	12	4,163	4,219
Other(d) ..	..	48	74	..	12	2	136
Total ..	*10,252*	*165*	*265*	..	*79*	*4,211*	*14,972*

(a) Catch by Victorian fishermen in Tasmanian waters is included in Victoria. (b) Less than 500 lb. (c) Shovel-nosed lobster. (d) Includes squid and abalone.

3. **Pearl-shell and Trochus-shell.**—The industry, which ceased operations on Japan's entry into the war in December, 1941, did not resume on a commercial basis at Queensland centres until late in 1945, and at Western Australian centres until 1946, while operations off the Northern Territory coast were not resumed until 1948.

Before the war, a large proportion of the key men were Japanese; the others included Malays, Chinese, Koepangers, Filipinos, Papuans and Torres Strait Islanders. On the resumption of operations without the Japanese, the labour available was, with few exceptions, inefficient. The expansion of the industry at Darwin has been retarded by the fact that the key men lack the local knowledge acquired by the Japanese. Western Australian centres also suffered from lack of skilled labour. In 1953, the Commonwealth permitted the employment at Broome, under certain conditions, of 35 Japanese divers, tenders and engine-drivers. Queensland, with a more ready source of labour from the Torres Strait Islands and the mainland, was able to expand its fishing more rapidly, and in the 1949 season achieved its second highest pearl-shell production on record.

In 1953, a Japanese fleet, which had been pearling in the Arafura Sea while a Japanese Mission in Canberra was discussing a fisheries agreement with the Australian Government, moved into an area in which it had been asked not to fish. This action was regarded as having broken off the negotiations, and proclamations were issued in September, 1953, declaring Australia's sovereign rights over the natural resources of the sea bed and sub-soil of the Continental Shelf adjoining Australia, its territories and the Trust Territory of New Guinea. In September, the Pearl Fisheries Act 1952–53, providing for licensing and control of pearling, was brought into operation.

Japan disputed Australia's right to apply this legislation to foreign ships, and Australia agreed to refer the dispute to the International Court of Justice on condition that meantime Japanese pearling in Australian waters would be conducted in conformity with the Australian Government's policy of regulation and conservation, and that Japan would abide by the Court's decision. On these conditions, a Japanese pearling fleet has operated in prescribed waters since 1954.

Australian production of pearl-shell and trochus-shell was 4,102,000 lb. and 1,229,000 lb. respectively in 1957–58. In addition, Japanese pearlers took 1,572,000 lb. of pearl-shell in Australian waters.

Reference to inquiries into the pearl-shell fishing industry by a Royal Commission in 1912, and by the Tariff Board in 1935, is made on page 1031 of Official Year Book No. 37

§ 3. Marketing and Distribution.

1. **Marketing.**—Most of the fish taken in Australian waters is sold in the metropolitan markets, although many of the fisheries are considerable distances from these centres. The arrangements for marketing of fresh fish vary from State to State and in some cases the State Government exercises a certain amount of control.

In New South Wales, marketing of fish is controlled by the Chief Secretary and the bulk of the State's catch is sold through the Sydney market, owned by municipal authorities but controlled by the Chief Secretary. A small branch market is operated in Wollongong, and the nineteen fishermen's co-operatives also market fish in their own regions. By law, all fish produced must be sold through a recognised market, i.e. Sydney, Wollongong or the co-operatives.

In Victoria, there are no fish marketing regulations, and most of the catch, as well as considerable quantities of interstate fish, is sold at the main Melbourne market owned and controlled by the City of Melbourne. In addition, the eight fishermen's co-operatives engage in the wholesale and retail sale of fish within their own areas.

In Queensland, the Government Fish Board controls all marketing and in addition to the main Brisbane market, regulates the sale of fish through eighteen coastal markets and eight agencies extending along the coast from Coolangatta to Port Douglas.

In South Australia, the Adelaide market is owned and operated by the South Australian Fishermen's Co-operative. Of the total State catch, approximately 80% is handled by the Co-operative, the balance being sold privately either to local or interstate fish agents.

In Western Australia, the Perth market is established as a government instrumentality and handles most of the fish for sale in the main metropolitan market. Besides this, there is another Government market in Fremantle. Both of these markets are leased to private individuals, who have the right to conduct auctions subject to certain Government supervision. Outside the main metropolitan area, marketing is conducted on a more or less private basis.

In Tasmania, there is no established market and the sale of fish is conducted on a private basis with fish agents playing a considerable part in the disposal of fish locally and to the mainland.

2. **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 years 1953–54 to 1957–58. For the purpose of compiling this table, the non-commercial fish catch has been estimated at ten per cent. of the recorded catch.

Fish is not a staple item in the diet of Australians and the consumption of fisheries' products remained at the comparatively low level of 9.8 lb. per head in 1957–58, more than half of this quantity being fresh fish.

ESTIMATED SUPPLIES OF FISH, ETC., AVAILABLE FOR CONSUMPTION, AUSTRALIA.
(LB. EDIBLE WEIGHT PER HEAD PER ANNUM.)

Particulars.	1953–54.	1954–55.	1955–56.	1956–57.	1957–58.
Fresh or Frozen—					
Fish	5.7	5.2	4.9	5.1	5.3
Crustaceans and Molluscs ..	0.8	1.2	1.0	0.9	0.8
Cured (incl. Smoked and Salted) ..	0.8	1.0	1.1	0.5	1.3
Canned—					
Australian Origin	0.8	0.6	0.6	0.8	0.6
Imported	1.7	2.2	2.5	1.7	1.8
Total	**9.8**	**10.2**	**10.1**	**9.0**	**9.8**

3. **Processing, including Canning.**—The equipment for handling fish was rather inadequate in the past, but, in most States, cold storage facilities have been improved and increased in recent years. In Queensland and New South Wales, particularly, the depots which have been established at fishing ports have been equipped with cold storage space. In several States, there has been a development of establishments equipped for snap freezing of fish, in particular the freezing of crayfish tails, prawns and scallops for export. A number of vessels have been equipped with freezing plants to process crayfish at sea.

In all States, there has been a development of facilities for light processing of fish.

Reference to the production of processed fish and number of factories operating will be found in § 5, para. 4, page 1009. Considerable expansion has taken place in the industry, particularly since 1945–46. In 1938–39, 1,472,592 lb. of fish valued at £29,581 were processed, whereas in 1957–58, 9,293,321 lb., of whole fish and 5,600,326 lb. of headed and/or gutted fish valued at £268,610 and £231,220 respectively were processed.

4. **By-products.**—Processing of offal for fish-meals, etc., has been established in certain States. The processing of livers for vitamin-rich oils was undertaken in several States but, as mentioned previously, production has fallen to a low level in recent years.

§ 4. Inquiries and Research.

1. **General.**—The Australian fishing industry has been the subject of a number of official inquiries seeking an explanation of the very slow rate of development and the unfortunate conditions prevailing within the industry as well as the paucity of supplies available to the public. Details of the inquiries undertaken, the recommendations arising from them, and subsequent developments will be found in Official Year Book No. 38, page 1082.

2. **Commonwealth Scientific and Industrial Research Organization, Division of Fisheries and Oceanography.**—Details of the establishment, organization and functions of the Division of Fisheries of the Commonwealth Scientific and Industrial Research Organization will be found in Official Year Book No. 38, page 1083. The scientific basis on which the work of the Division is carried out has now been widened, and, to provide for this, the name of the Division has been amended to " Division of Fisheries and Oceanography ".

Research carried out by the Division has assisted greatly in the development and preservation of Australian fisheries. Details may be found in Official Year Book No. 41, page 848, and in previous issues.

3. **Commonwealth Fisheries Office.**—The Commonwealth Fisheries Office, a division of the Department of Primary Industry, arose out of a Tariff Board recommendation in

1941, following a public inquiry into the fishing industry, that a Commonwealth developmental authority should be established. Details of the establishment, organization and functions of the office will be found in Official Year Book No. 38, page 1084.

In accordance with the Tariff Board report, scientific research, as distinct from developmental and administrative functions, was left to the Commonwealth Scientific and Industrial Research Organization, which had established a Division of Fisheries for this purpose in 1937.

The Commonwealth is responsible for extra-territorial waters, whaling, pearling, rehabilitation of ex-servicemen in the fishing industry, fishery training schools, commercial development of fisheries, promotion of uniform conditions governing catches of various species of fish, economic research statistics, information and publications.

4. **Fisheries Development Trust Account.**—In early 1956, the assets of the Australian Whaling Commission, an authority set up by the Commonwealth Government in 1949, were disposed of to private interests. The finance derived from the sale, authorized by the Fishing Industry Act 1956, was paid into a fund known as the Fisheries Development Trust Account. Provision was made in the Act for the moneys to be used for the purposes of developing the fishing industry through research, direct financial assistance, the development of particular fisheries, training schemes and the dissemination of information and advice through various publications and the press.

An Advisory Committee on fisheries development, which comprises representatives of the Commonwealth Departments of Primary Industry, Trade, Treasury, and the Commonwealth Scientific and Industrial Research Organization, has been formed to advise the Minister on specific projects for fisheries development.

Projects which have so far been approved include:—

(i) The purchase of a modern diesel trawler to test the commercial potentialities of trawling in the Great Australian Bight. This area is so far unexploited, although, in the past, scientific and commercial fishing operations have revealed a vast fishing area.

(ii) The chartering of a vessel to survey the prawn resources off the east coast of Australia. This survey met with initial success with the discovery of large prawn resources off Fraser Island (Queensland).

(iii) A survey of the pilchard resources off the New South Wales coast, with a view to ascertaining whether pilchards can be taken in commercial quantities.

5. **North Australia Development Committee.**—In 1946, the North Australia Development Committee recommended that a hydrological and oceanographical survey should be made of North Australian waters. It also suggested that a biological survey should be made of the pearl oyster with particular reference to the possibility of instituting pearl culture.

Further reference to these and other recommendations may be found in Official Year Book No. 41, page 848.

The C.S.I.R.O. Division of Fisheries subsequently set up a biological research station on Thursday Island, mainly for the pearl and pearl-shell investigations. Since 1951, a research vessel has been based on Thursday Island and is used for diving, biological and hydrological work.

6. **Whaling.**—The whaling industry was re-established in Australia in 1949 with operations being carried out from shore-based stations. In this year, a station began operating at Point Cloates, Western Australia. The Australian Whaling Commission, established in 1949, built a station at Babbage Island near Carnarvon, Western Australia, and began operations towards the end of the 1950 season. In 1956, legislation was passed to dissolve the Commission and its assets were sold to the private company operating at Point Cloates. The operations of this company were transferred to Babbage Island and the Point Cloates station was closed in 1956. Other stations commenced operations in the following years: Cheynes Beach, near Albany (Western Australia) in 1952; Moreton Bay (Queensland) in 1952; Byron Bay (New South Wales) in 1954 and Norfolk Island in 1956.

Each of the stations operating is allowed a quota (in terms of humpback whales) imposed by the Minister for Primary Industry, acting on the advice of the Director of Fisheries who represents Australia on the International Whaling Commission which controls whaling throughout the world. This catch quota was first introduced in 1951 and aims at conserving the stock of whales in order that the industry might continue on a stable basis.

Sperm whaling, which commenced in 1955 on an exploratory basis, is still being carried out on the Western Australian coast but the catch of this species is not subject to the quotas imposed and the results of these operations are not reflected in the table showing statistics of whaling operations which appears in § 5, para. 2, following.

§ 5. The Fishing and Whaling Industry—Statistics.

1. **Fisheries.**—(i) *Quantity and Gross Value of Take.* Recorded production for all fisheries is shown in the following tables.

RECORDED FISHERIES PRODUCTION: QUANTITY AND GROSS VALUE OF TAKE.

Particulars.	Unit.	N.S.W.	Vic.(a)	Qld.	S.A.	W.A.	Tas.(a)	N.T.	Aust.
1956–57.									
Fish—									
Estimated Live Weight	'000 lb.	28,992	14,136	9,447	9,688	9,545	3,416	179	75,403
Gross Value	£'000.	2,145	1,203	622	943	578	192	27	5,710
Crustaceans—									
Gross Weight	'000 lb.	2,989	1,164	3,210	4,385	10,963	2,104	..	24,815
Gross Value	£'000.	576	176	401	506	1,380	245	..	3,284
Molluscs—									
In-shell Weight	'000 lb.	9,695	89	1,399	..	60	6,247	..	17,490
Gross Value	£'000.	636	6	46	..	5	171	..	864
Shark Livers—									
Gross Weight	'000 lb.	..	(b) 3	..	175	..	..	..	(b) 178
Gross Value	£'000.	..	(b)(c)	..	7	..	..	..	(b) 7
Pearl-shell(d)(e)—									
Weight	'000 lb.	..	..	1,127	..	2,012	..	585	3,724
Gross Value	£'000.	..	..	276	..	584	..	146	1,006
Trochus-shell(d)—									
Weight	'000 lb.	..	..	1,900	..	11	..	..	1,911
Gross Value	£'000.	..	..	356	..	1	..	..	357
1957–58.									
Fish—									
Estimated Live Weight	'000 lb.	27,925	13,348	9,034	9,591	9,783	2,177	160	72,018
Gross Value	£'000.	2,016	1,093	706	671	631	83	21	5,221
Crustaceans—									
Gross Weight	'000 lb.	2,199	1,250	3,687	4,460	13,509	2,399	..	27,504
Gross Value	£'000.	479	189	503	558	1,744	300	..	3,773
Molluscs—									
In-shell Weight	'000 lb.	10,252	165	265	..	79	4,211	..	14,972
Gross Value	£'000.	673	12	15	..	5	123	..	828
Shark Livers—									
Gross Weight	'000 lb.	..	(b) 16	..	95	..	26	..	(b) 137
Gross Value	£'000.	..	(b) 1	..	4	..	2	..	(b) 7
Pearl-shell(d)(e)—									
Weight	'000 lb.	..	..	1,131	..	2,218	..	753	4,102
Gross Value	£'000.	..	..	255	..	605	..	135	995
Trochus-shell(d)—									
Weight	'000 lb.	..	..	1,207	..	22	..	..	1,229
Gross Value	£'000.	..	..	181	..	3	..	..	184

(a) Catch by Victorian fishermen in Tasmanian waters is included in Victoria. (b) Incomplete. (c) Less than £500. (d) Western Australia, season ended preceding December. Queensland and Northern Territory, season ended preceding January. (e) Excludes pearl-shell taken by Japanese pearlers operating in Northern Territory Waters.

RECORDED FISHERIES PRODUCTION: QUANTITY AND GROSS VALUE OF TAKE, AUSTRALIA.

Particulars.	Unit.	1953–54.	1954–55.	1955–56.	1956–57.	1957–58.
Fish—						
Estimated Live Weight	'000 lb.	78,828	70,422	63,298	75,403	72,018
Gross Value	£'000.	4,716	4,632	4,626	5,710	5,221
Crustaceans—						
Gross Weight	'000 lb.	22,265	27,668	25,474	24,815	27,504
Gross Value	£'000.	2,510	2,929	2,873	3,284	3,773
Molluscs—						
In-shell Weight	'000 lb.	13,570	15,931	15,708	17,490	14,972
Gross Value	£'000.	641	829	792	864	828
Shark Livers—						
Gross Weight	'000 lb.	254	170	215	(a) 178	(a) 137
Gross Value	£'000.	34	22	25	(a) 7	(a) 7
Pearl-shell(b)(c)—						
Weight	'000 lb.	2,337	2,489	2,913	3,724	4,102
Gross Value	£'000.	595	647	771	1,006	995
Trochus-shell(b)—						
Weight	'000 lb.	3,057	2,784	2,114	1,911	1,229
Gross Value	£'000.	260	350	346	357	184

(a) Incomplete. (b) *See* note (d) to previous table. (c) *See* note (e) to previous table.

(ii) *Boats and Men Engaged, etc.* The following tables show particulars of boats and equipment used and persons engaged in the various fisheries. Details relating to oyster leases are also shown.

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

Particulars.	Unit.	N.S.W.	Vic.	Qld.	S.A.	W.A. (a)	Tas.	N.T.	Aust.
1956–57.									
General Fisheries(b)—									
Boats Engaged ..	No.	2,239	703	4,857	1,470	706	472	28	10,475
Value of Boats and Equipment	£'000	1,557	851	1,627	595	1,562	840	7	7,039
Persons Engaged ..	No.	2,201	930	10,731	5,550	1,285	958	52	21,707
Edible Oyster Fisheries—									
Boats Engaged ..	No.	980	4	47	..	1	(c)	..	*d* 1,032
Value of Boats and Equipment	£'000	130	(e)	30	..	3	(c)	..	(d) 163
Persons Engaged ..	No.	719	5	146	..	4	(c)	..	(d) 874
Leases Granted ..	,,	5,154	5	293	..	..	..	..	5,452
Length of Foreshore in Leases	'000 yds	954	16	(f)	..	..	..	..	(d) 970
Area of Offshore Leases	Acre	6,037	..	..	..	..	..	..	6,037
Pearl, Pearl-shell and Trochus-shell Fisheries—									
Boats Engaged ..	No.	..	..	98	..	42	..	10	150
Value of Boats and Equipment	£'000	..	..	500	..	251	..	75	826
Persons Engaged ..	No.	..	..	1,155	..	464	..	123	1,742
Total, All Fisheries—									
Boats Engaged ..	No.	3,219	707	5,002	1,470	749	472	38	11,657
Value of Boats and Equipment	£'000	1,687	851	2,157	595	1,816	840	82	8,028
Persons Engaged ..	No.	2,920	935	12,032	5,550	1,753	958	175	24,323
1957–58.									
General Fisheries(b)—									
Boats Engaged ..	No.	2,381	699	4,425	1,443	812	458	23	10,241
Value of Boats and Equipment	£'000	1,747	903	1,495	610	1,859	850	12	7,476
Persons Engaged ..	No.	1,645	937	9,987	5,998	1,348	907	54	20,876
Edible Oyster Fisheries—									
Boats Engaged ..	No.	1,022	4	44	..	1	(c)	..	*d* 1,071
Value of Boats and Equipment	£'000	141	(e)	26	..	3	(c)	..	(d) 170
Persons Engaged ..	No.	758	5	146	..	4	(c)	..	(d) 913
Leases Granted ..	,,	4,738	5	299	..	..	..	..	5,042
Length of Foreshore in Leases	'000 yds	877	16	(f)	..	..	..	..	(d) 893
Area of Offshore leases	Acre	5,415	..	..	..	..	..	..	5,415
Pearl, Pearl-shell and Trochus-shell Fisheries—									
Boats Engaged ..	No.	..	.	92	..	48	..	11	151
Value of Boats and Equipment	£'000	..	..	442	..	265	..	83	790
Persons Engaged ..	No.	..	..	898	..	482	..	107	1,487
Total, All Fisheries—									
Boats Engaged ..	No.	3,403	703	4,561	1,443	861	458	34	11,463
Value of Boats and Equipment	£'000	1,888	903	1,963	610	2,127	850	95	8,436
Persons Engaged ..	No.	2,403	942	11,031	5,998	1,834	907	161	23,276

(a) Year ended preceding December. (b) Excludes edible oyster fisheries (except in Tasmania) but includes crustacean and other mollusc fisheries. (c) Included in General Fisheries. (d) Incomplete; *see* footnotes to individual States. (e) Less than £500. (f) Not available.

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

Particulars.	Unit.	1953–54.	1954–55.	1955–56.	1956–57.	1957–58.
General Fisheries(a)—						
Boats Engaged	No.	9,877	10,030	10,223	10,475	10,241
Value of Boats and Equipment	£'000	5,936	6,240	6,606	7,039	7,476
Persons Engaged	No.	18,598	19,685	20,627	21,707	20,876
Edible Oyster Fisheries—						
Boats Engaged	No.	978	1,104	810	(*b*)1,032	(*b*)1,071
Value of Boats and Equipment(*b*)	£'000	129	123	115	163	170
Persons Engaged	No.	700	922	824	(*b*) 874	(*b*) 913
Leases Granted	,,	5,634	5,660	5,474	5,452	5,042
Length of Foreshore in Leases(*c*)	'000 yds.	1,020	1,043	1,127	970	893
Area of Offshore Leases	Acre	6,296	6,547	5,251	6,037	5,415
Pearl, Pearl-shell and Trochus-shell Fisheries—						
Boats Engaged	No.	124	127	136	150	151
Value of Boats and Equipment	£'000	502	564	727	826	790
Persons Engaged	No.	1,386	1,506	1,571	1,742	1,487
Total, All Fisheries—						
Boats Engaged	No.	10,979	11,261	11,169	11,657	11,463
Value of Boats and Equipment	£'000	6,567	6,927	7,448	8,028	8,436
Persons Engaged	No.	20,684	22,113	23,022	24,323	23,276

(*a*) Excludes edible oyster fisheries but includes crustacean and other mollusc fisheries. Includes particulars for Tasmanian edible oyster fisheries except prior to 1956–57, when only Tasmanian particulars of value of boats and equipment were included. (*b*) Excludes particulars for Tasmania which are included with General Fisheries. (*c*) Excludes Queensland.

2. **Whaling.**—The information summarized in the table below was supplied by the Commonwealth Fisheries Office. Details relate to seasons extending from about May to October of each year.

WHALING STATISTICS, AUSTRALIA AND NORFOLK ISLAND.

Particulars.	Unit.	1954.	1955.	1956.	1957.	1958.
Seasonal Quota(*a*)	No.	2,040	1,840	1,990	1,960	1,960
Whales Taken	,,	2,039	1,840	1,990	1,961	1,812
Whales Processed	,,	2,039	1,840	1,990	1,961	1,812
Average Length of Whales Processed	ft.	39.8	40.8	41.1	40 7	40.8
Average Oil Production per Whale Processed	Barrel *b*	49.1	51.8	51.6	52.5	54.1
Persons Employed—At Sea	No.	114	124	124	140	157
Persons Employed—Ashore	,,	420	433	396	431	440
Whale Oil Produced—Quantity	Barrel *b*	100,068	95,258	102,366	102,966	97,698
Whale Products—Value	£'000	1,960	1,953	2,233	2,205	1,866

(*a*) In terms of humpback whales. For quota purposes, 1 blue whale is taken as equivalent to 2 fin whales, 2½ humpback whales, 6 sei whales, or 6 bryde whales. (*b*) 6 barrels = 1 ton.

3. **Value of Production.**—(i) *Gross and Local Values*, 1956–57 and 1957–58. Although statistics of the value of production of the fishing industry have been on an established basis for some years, attention is drawn to the fact that the actual collection of statistics of the quantity of fish taken presents many difficulties and, consequently, any defects which may occur in the collection must necessarily be reflected in the value of production. Particulars of the value of materials used in the process of production are not available for all States, so the values can only be stated at the point of production, and not on a net basis, as has been done with other industries. Variations in the relative proportions of marketing costs to gross production suggest that complete uniformity in method has not yet been attained.

GROSS AND LOCAL VALUE OF PRODUCTION: FISHING AND WHALING.
(£'000.)

State or Territory.	Gross Production Valued at Principal Markets.	Marketing Costs.	Gross Production Valued at Place of Production.
1956–57.			
New South Wales	3,376	437	2,939
Victoria	1,381	203	1,178
Queensland	1,777	202	1,575
South Australia	1,456	161	1,295
Western Australia	2,782	45	2,737
Tasmania	609	..	609
Northern Territory	173	..	173
Australia	**11,554**	**1,048**	**10,506**
1957–58.			
New South Wales	3,198	406	2,792
Victoria	1,295	190	1,105
Queensland	1,752	210	1,542
South Australia	1,233	159	1,074
Western Australia	3,265	39	3,226
Tasmania	508	..	508
Northern Territory	156	..	156
Australia	**11,407**	**1,004**	**10,403**

(ii) *Local Values, 1934–35 to 1938–39 (Average) and 1953–54 to 1957–58.* In the following table, the local value of fisheries production and the local value per head of population are shown by States for the average of years 1934–35 to 1938–39 and for each of the years 1953–54 to 1957–58. Local value is gross value less marketing costs and is the value at the place of production. 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.

LOCAL VALUE OF FISHING AND WHALING PRODUCTION.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Total.
	LOCAL VALUE. (£'000.)						
Average, 1934–35 to 1938–39	588	159	292	182	229	80	1,530
1953–54	2,642	834	951	1,015	1,867	432	7,741
1954–55	2,739	849	1,275	1,046	2,149	556	(*a*) 8,727
1955–56	2,684	734	1,471	995	2,406	505	(*a*) 8,884
1956–57	2,939	1,178	1,575	1,295	2,737	609	(*a*) 10,506
1957–58	2,792	1,105	1,542	1,074	3,226	508	(*a*) 10,403

LOCAL VALUE OF FISHING AND WHALING PRODUCTION—*continued.*

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Total.
			LOCAL VALUE PER HEAD OF POPULATION.				
			(*s. d.*)				
Average, 1934–35 to 1938–39 ..	4 5	1 9	5 11	6 3	10 0	6 11	4 6
1953–54 ..	15 6	6 10	14 7	25 10	59 2	27 11	17 6
1954–55 ..	15 10	6 10	19 3	25 11	66 3	35 6	(*a*) 19 2
1955–56 ..	15 3	5 9	21 9	23 10	71 11	31 8	(*a*) 19 2
1956–57 ..	16 5	8 11	22 10	30 1	80 0	37 4	(*a*) 22 0
1957–58 ..	15 3	8 2	22 0	24 3	92 4	30 5	(*a*) 21 4

(*a*) Includes Northern Territory.

4. **Fish Preserving.**—The attempt to establish the fish preserving industry at the commencement of this century met with little success although a bounty was paid to encourage production. The industry, however, continued to operate, but there was no marked development until about 1945–46 when the production of canned fish amounted to 1,700,000 lb. After that year, production increased considerably and reached a peak of 10,900,000 lb. in 1948–49, but gradually declined in subsequent years to 6,000,000 lb. in 1955–56. Production increased in 1956–57 to 8,273,000 lb. and in 1957–58 it was 7,861,000 lb.

In addition to the canning of fish, other fish products are produced. In 1957–58, these included 439,000 lb. of smoked fish, 1,700,000 lb. of fish paste and considerable quantities of frozen crayfish tails for export and quick-frozen fish for the local market.

In 1939, New South Wales and Tasmania were the only States canning fish, but the industry has since been extended to Victoria, South Australia and Western Australia. Details of production are given in the following table for the years 1938–39 and 1953–54 to 1957–58.

PRODUCTION OF CANNED FISH(*a*): AUSTRALIA.

Particulars.	1938–39.	1953–54.	1954–55.	1955–56.	1956–57.	1957–58.
Number of factories operating	3	11	9	11	13	14
Quantity produced lb.	603,302	6,604,587	6,645,552	6,007,570	8,272,749	7,861,147
Value .. £	13,700	838,179	834,090	844,359	1,225,921	1,172,704

(*a*) Including the canning of fish loaf and crustaceans.

The varieties canned in the several States differ according to the species caught, but separate details for each variety are not available. In New South Wales, Australian salmon and tuna are the principal varieties. Barracouta is of major importance in Victoria and Tasmania, and Australian salmon predominates in South Australia and Western Australia. Herrings are also important in the latter State.

5. **State Revenue from Fisheries.**—The revenue from fisheries during the year 1957–58 was £97,696, compared with £69,190 in 1956–57 and £34,273 in 1938–39. Details by States of the amount collected in 1957–58, with comparable figures for 1956–57 in brackets, are as follows:—New South Wales £33,579 (£31,031); Victoria £5,273 (£4,701); Queensland £36,949 (£14,627); South Australia £5,832 (£5,354); Western Australia £8,989 (£7,468); Tasmania £7,033 (£5,969) and Northern Territory £41 (£40).

§ 6. Oversea Trade in Fishery Products.

NOTE.—Values of Australian oversea trade shown in this section are expressed in £A. f.o.b., port of shipment.

1. **Imports of Fish.**—Particulars of the imports of fish are shown below for the years 1953–54 to 1957–58 in comparison with 1938–39.

FISH (INCLUDING SHELL FISH): IMPORTS INTO AUSTRALIA.

('000 lb.)

Classification.	1938–39.	1953–54.	1954–55.	1955–56.	1956–57.	1957–58.
Fresh or Frozen(*a*)	9,411	15,768	18,488	19,257	18,799	23,163
Smoked or Dried	910	5,633	6,774	7,743	3,482	9,698
Salted	895	1,265	1,377	2,055	910	2,231
Potted or Concentrated (including Extracts)	1,057	152	155	158	76	148
Canned—						
Herrings	4,359	6,863	6,781	6,328	4,984	4,581
Salmon	18,670	3,062	6,484	9,691	5,514	6,761
Sardines and Pilchards ..	3,290	4,670	5,718	5,693	4,584	4,381
Crustaceans	765	464	551	1,053	218	496
Other(*b*)	1,819	433	680	496	1,403	898
Total Canned	**28,903**	**15,492**	**20,214**	**23,261**	**16,703**	**17,117**

(*a*) Includes Crustaceans and Molluscs. (*b*) Includes canned Molluscs.

The value of fish and fish products imported during 1957–58 amounted to £6,146,000, compared with £4,582,000 in 1956–57.

Canned fish (total imports of which in 1957–58 were valued at £3,136,000) accounted for most of the imports. Salmon from Japan and Canada, herrings from the United Kingdom and sardines from Norway and Canada were the chief varieties imported. About 90 per cent. of the fresh fish imported in 1957–58 came from the United Kingdom, the Union of South Africa, New Zealand and Denmark; the potted fish came chiefly from the United Kingdom; and the bulk of the remainder came from South Africa and the United Kingdom.

2. **Exports of Fish.**—During 1957–58, the exports of fish of Australian origin were as follows:—Fresh or frozen crayfish tails, 5,801,910 lb., £2,488,782, nearly all to the United States of America; other fish (including shell fish) fresh or preserved by cold process, 761,127 lb., £199,962; oysters in shell, 13,328 lb., £1,977; potted or concentrated fish, 3,306 lb., £430; fish preserved in tins, 367,155 lb., £71,010; shell fish in tins, 76,094 lb., £22,636; smoked or dried fish (including salted), 1,200 lb., £308.

3. **Exports of Pearl and other Shell.**—The exports of pearl, trochus and other shell of Australian origin are shown hereunder for the years 1938–39 and 1953–54 to 1957–58.

PEARL, TROCHUS AND OTHER SHELL: EXPORTS FROM AUSTRALIA.

Article.		1938–39.	1953–54.	1954–55.	1955–56.	1956–57.	1957–58.
Pearl-shell	cwt.	52,532	23,020	23,924	27,174	32,531	34,781
	£	244,266	653,797	690,204	836,736	1,034,128	1,031,223
Trochus-shell ..	cwt.	9,108	47,415	36,414	23,959	17,171	13,200
	£	34,166	591,511	578,876	524,954	447,514	228,319
Other shell	cwt.	4	5,853	4,938	1,436	985	673
	£	151	69,283	68,035	32,478	26,228	11,115