

CHAPTER XXIII.

FISHERIES.*

§ 1. General.

1. **Fish Stocks.**—Australia possesses an abundant and varied fish fauna, which embraces both tropical and temperate varieties and includes destructive as well as valuable species. In rivers and lakes both indigenous and imported varieties thrive. The latter have been introduced and acclimatized for industrial and sporting purposes by Governments and angling societies. Exploitation of the fishing areas is controlled by governmental authority. In some cases the minimum size of the fish to be taken is fixed, and in other cases the taking of some kinds is prohibited during periods prescribed according to the necessity.

2. **Progress of Industry.**—(i) *Transport and Marketing.* Despite the abundance of edible fish, the progress of the fishery industry in Australia has been slow, the difficulties of transport and marketing of the proved supplies presenting the chief obstacles.

In New South Wales, as shown in § 5 herein and § 6 of this Chapter in Official Year Book No. 17, the matter of exploiting trawlable fish was undertaken by the State Government, which also took steps to improve the conditions under which ordinary coastal fishing is carried on. In Queensland, State trawling was undertaken in 1919, and good trawling areas have been located and charted between Cape Moreton and Caloundra.

(ii) *Economic Investigations.* Although valuable work has been carried out by the State Governments in the way of experiment and culture, much yet remains to be done before the industry is at all commensurate in extent with the industrial progress or consuming capacities of Australia. All live fish imported into Australia are examined on shipboard in order to prevent the importation of undesirable fish. With the object of ascertaining the movements of oceanic fishes, and of estuarine fishes which make periodical oceanic migrations, reports are furnished regarding the various kinds of fishes, etc., and their movements along the coast. Details regarding the activities of the States in fish-culture were given in Official Year Book No. 6, pp. 471–2. By arrangement with the Commonwealth Fisheries Department some years ago members of the staff of the Australian Museum, Sydney, accompanied the F.I.S. *Endeavour* on various cruises. Specimens were collected, mounted for scientific purposes, and distributed to other Australian Museums, a considerable number being put aside for the Commonwealth Fishery Museum. As pointed out in § 4, however, this vessel was lost with all hands in 1914, and has not since been replaced.

With the object of reviewing the potentialities of the fishing industry of Australia the Development and Migration Commission convened a meeting of State and Commonwealth representatives. The Conference, which was held in Melbourne during September, 1927, affirmed:—

- (1) The importance of establishing a Marine Biological Institution to study the scientific problems connected with Australian fisheries, and to collect and disseminate authoritative information and give advice on matters concerning the fisheries.
- (2) The desirability of establishing an experimental trawling unit to explore the fisheries resources of Australia.

Committees were formed to deal with important problems concerning the preservation, transportation, marketing and distribution of fish, canning and curing of fish, the production of fish by-products, factors of destruction in fisheries, the development of the oyster industry, etc. The reports prepared by these Committees were submitted to a further conference held in July, 1929, at which the Commonwealth Government and all State Governments were represented; it was then unanimously recommended that investigation work should be undertaken by the Commonwealth Government. The

* A specially contributed article dealing with the Marine and Fresh Water Fisheries of Australia appeared as § 6 of this Chapter in Official Year Book No. 17 (*vide* pp. 751 to 767 therein).

Commonwealth Government is providing a sum of £80,000, spread over a period of five years to cover fishery research and investigation under the following main heads:— (i) to procure a vessel specially designed for the exploration of pelagic or surface-swimming fish, but which could also carry out certain investigations of demersal or bottom-dwelling species, (ii) to undertake experiment in the canning of fish and the determination of the chemical composition of fish thought to be suitable for the manufacture of fish by-products, (iii) the determining, by tests, of the best methods of curing and preserving fish, especially the more common varieties, and (iv) in co-operation with the State authorities, to undertake a study of the systems of distribution of fish in each State with a view to the improvement of existing transport and marketing facilities. A tender for the construction of a trawler at a cost of £17,000 has been accepted and it is anticipated that the vessel will be in commission early in 1937.

A Commonwealth Director of Fisheries, who will be entrusted with the task of carrying out these investigations, has been appointed for a period of five years. Other steps have been taken to initiate action according to the programme outlined above including the building up of a staff of trained investigators. It is hoped that, as a result of the knowledge gained from this investigation, the fishery industry of Australia will develop more in keeping with the advancement made by other branches of production.

3. **Consumption of Fish.**—It has been said that the Australians are not fish-eating people, seeing that the annual consumption of fish per head of population in Great Britain is set down at 42 lb., while in Australia it has been estimated at only 13 lb. There are frequent complaints that the distribution service does not give the public adequate opportunity to satisfy its appetite for a fish diet.

4. **Oyster Fisheries.**—Natural oyster beds exist on the foreshores in the shallow waters of inlets and estuaries in several parts of Australia. By husbanding the natural crop, and by judicious transplanting, the output has been very materially augmented. The areas are leased by the Government to private persons, lengths of foreshore being taken up under oyster leases. In New South Wales and Queensland the industry has thriven, and small yields are obtained in South Australia, Victoria and Tasmania.

5. **Pearl-Shell, Pearls, Bêche-de-Mer, etc.**—(i) *General.* Pearl-shelling is carried on in the tropical waters of Queensland, the Northern Territory and Western Australia. The pearl oyster inhabits the northern and western coastal waters from Cape York to Shark Bay, a length of shore of over 2,000 miles. The shells are marketed in considerable quantities, and pearls are obtained in Queensland, Western Australia and the Northern Territory. The fishing is generally conducted with the aid of diving apparatus in water varying from 4 to 20 fathoms in depth. In Queensland and the Northern Territory the bêche-de-mer industry is carried on, and tortoise-shell is obtained on the coasts. Experiments have been made in cultivating the pearl oyster on suitable banks. In October, 1911, a pearl weighing 178 grains, and valued at £3,000, was obtained at Broome. Further details regarding pearl-shelling are given in Official Year Book No. 6, p. 463. Trochus-shell to the value of £44,682, £32,532, £49,525, £41,596 and £53,619 was exported from Australia during 1930-31, 1931-32, 1932-33, 1933-34 and 1934-35 respectively.

(ii) *Royal Commission on Pearl-shelling Industry.* In accordance with the "White Australia" policy it was originally determined that the employment of Asiatic labour in the pearl-shelling industry should be restricted, and ultimately cease, and it was proposed that after 31st December, 1913, permits to bring in Asiatics for the pearling-fleet should no longer be issued. In view, however, of the disorganization of the industry occasioned by the war, the time was extended to the 30th June, 1918, after which date permits to introduce Asiatic labour were to be granted only in cases where the diver and tender of a boat were Europeans. The Royal Commission appointed in March, 1912, presented its final report in 1916. The Commissioners stated that, though it might be practicable, they did not consider it advisable or profitable to attempt to transfer the industry from Asiatics to Europeans. They further stated that, while the labour employed is almost entirely Asiatic, they did not consider that the "White Australia" policy would be weakened or imperilled by allowing the industry to continue as then conducted.

§ 2. The Fishing Industry.

1. Boats and Men Engaged, and Take.—(i) *General Fisheries.* The returns have been compiled from particulars supplied by the State Departments, and while the data do not generally lend themselves to presentation on a uniform basis, the principal facts have been incorporated in the tables hereunder :—

GENERAL FISHERIES, 1934-35.

State or Territory.	No. of Boats Engaged.	Value of Boats and Equipment.	No. of Men Employed.	Total Take of—		Gross Value of Take.	
				Fish.	Spiny Lobster (Crayfish).	Fish.	Spiny Lobster (Crayfish).
	No.	£	No.	cwt.	doz.	£	£
New South Wales(k)	1,291	106,864	(g)2,891	195,552	10,116	538,580	(c)71,770
Victoria..	804	103,736	1,337	108,324	11,310	158,230	10,952
Queensland	798	70,602	1,597	(h)77,420	(d)9,236	(h)147,459	(e)5,683
South Australia(k)	(b)900	150,000	(b)1,500	b119,740	(a)	b180,000	(f)
Western Australia	273	54,217	523	34,428	20,141	(i)97,161	(j)7,081
Tasmania(k)	205	50,680	297	21,590	61,800	37,960	27,810
Northern Territory	1	600	6	160	..	418	..
Total ..	4,272	536,699	8,151	557,214	112,603	1,159,808	123,296

(a) Not available. (b) Estimate. (c) Including £53,520, the value of 13,248 cwt. of prawns and 1,121 dozen crabs. (d) Crabs. (e) Including 33 turtles valued at £31. (f) Included with fish. (g) Fishermen's licences issued. (h) Includes prawns. (i) Including £761, the value of 408 cwt. prawns. (j) Including £211, the value of 1,686 dozen crabs. (k) Year ended December, 1934.

Returns for Australia for the last five years are given in the table below :—

GENERAL FISHERIES.—AUSTRALIA.

Particulars.	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.
No. of boats engaged ..	4,681	4,657	4,348	4,278	4,272
No. of men employed ..	9,293	9,076	8,656	8,405	8,151
Fish obtained—					
Quantity .. cwt.	613,859	562,230	568,324	561,035	557,214
Gross value .. £	1,269,735	1,166,338	1,183,081	1,151,812	1,159,808
Lobsters obtained—Gross value £	a133,950	a118,129	a118,183	a122,409	a123,296

(a) Exclusive of South Australia. *Vide* footnotes to previous table.

(ii) *Edible Oyster Fisheries.* Edible oyster fisheries are of small dimensions outside New South Wales and Queensland. During 1934-35 the available returns show the following takes :—New South Wales, 47,448 cwt., value £56,790; Queensland, 11,144 cwt.; value £15,895. In Tasmania the scallop is far more important than the oyster. In 1934 the scallops taken in Tasmania were valued at £5,500.

Returns for Australia for the last five years are given in the appended table :—

EDIBLE OYSTER FISHERIES.—(a) AUSTRALIA.

Particulars.	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.
No. of boats engaged ..	790	724	727	662	665
No. of men employed ..	741	681	716	666	675
Oysters obtained—					
Quantity .. cwt.	55,214	50,350	63,825	57,824	58,678
Gross value (b) .. £	106,422	76,108	94,641	77,590	78,287

(a) Exclusive of South Australia. (b) Including scallops in Tasmania valued at £5,750 in 1930; £4,530 in 1931; £5,495 in 1932; £6,000 in 1933; £5,500 in 1934.

(iii) *Pearls, Pearl-shell and Bêche-de-mer.* Details regarding the production, trade, etc., for these items, so far as they are ascertainable, are given hereunder. As regards pearls, for obvious reasons no correct estimate can be obtained of the value of those found. Pearl-shell (*Margaritifera*) is widely distributed in North Australian waters over an area facing some thousands of miles of coastline, though not intensively over the whole distance. The north-west beds are the most prolific, but those around and to the north of Cape York are also of importance. There is need for further investigation into the occurrence of this valuable shell, as well as of trochus, green snail, window-pane shell (*Placuna*), the various types of trepang or bêche-de-mer (*Holothuria*), both in tropical Australian waters and those of Papua and the mandated area of New Guinea. Particulars as returned for the year 1934 are as follows:—

PEARL, PEARL-SHELL AND BÊCHE-DE-MER FISHERIES, (a) 1934-35.

State or Territory.	Number of Boats Engaged.	Value of Boats and Equipment.	Number of Men Employed.	Quantity of Pearl-shell obtained.	Gross Value of Pearl-shell obtained.	Gross Value of Pearls obtained. (b)	Gross Value of Bêche-de-mer obtained.	Gross Value of Tortoise-shell obtained.
	No.	£	No.	Tons.	£	£	£	£
Queensland (c) ..	89	76,930	1,678	818	86,502	1,905	14,100	78
Western Australia(d)	113	53,450	702	815	74,441	6,814	292	176
Northern Territory	28	23,300	219	474	40,300	720	(e)	16
Australia ..	230	153,680	2,599	2,107	201,243	9,439	14,392	270

(a) No pearl-shelling industry in New South Wales, Victoria, South Australia and Tasmania.
 (b) Incomplete; as returned. (c) Also trochus-shell to the value of £48,397 in Queensland.
 (d) Also trochus-shell to the value of £169 in Western Australia. (e) Not available.

The figures for tortoise-shell and trochus-shell as returned are defective, as the necessary information is not collected in full detail. In the following summary of production during the last five years export figures of Australian origin are inserted for both of these items:—

PEARL, PEARL-SHELL AND BÊCHE-DE-MER FISHERIES.—AUSTRALIA.

Particulars.	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.
No. of boats engaged	258	241	231	237	230
No. of men employed	1,977	2,109	2,064	2,339	2,599
Pearl-shell obtained—					
Quantity tons	1,295	1,310	1,419	1,675	2,107
Value £	251,448	219,887	214,747	202,755	201,243
Pearls obtained (a)—					
Value £	8,672	7,415	8,171	9,361	9,439
Bêche-de-mer obtained—					
Quantity tons	(b)	(b)	(b)	(b)	(b)
Value £	14,784	48,291	19,265	18,362	14,392
Tortoise-shell exported—					
Value £	921	1,112	210	696	747
Trochus-shell exported—					
Value £	44,682	32,532	49,525	41,596	44,694

(a) Incomplete; as returned. (b) Not returned.

2. **Value of Production.**—As the outcome of a series of conferences by Australian Statisticians it is now possible to present the value of production of the fishing industry on a much more satisfactory basis than was possible hitherto. It should be remembered, however, that the actual collection of statistics of the quantity of fish taken presents many difficulties and therefore the gross values in some States are not, perhaps, as exact as might be desired. Particulars of the value of other materials used in the process of production are not available for all States, and consequently 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 FISHERIES PRODUCTION, 1934-35.

State.	Gross Production Valued at Principal Markets.	Marketing Costs.	Gross Production Valued at Place of Production.
	£	£	£
New South Wales	668,000	132,000	536,000
Victoria	169,182	28,633	140,549
Queensland	320,019	58,608	261,411
South Australia	180,000	28,157	151,843
Western Australia	186,626	4,713	181,913
Tasmania	71,300	..	71,300
Total	1,595,127	252,111	1,343,016

(a) Not including production in the Northern Territory of a gross value of £41,526.

3. **Fish Preserving.**—To encourage the industry the Federal Parliament provided a bounty of $\frac{1}{4}$ d. per lb. for fish preserved as prescribed during the ten years 1907-8 to 1916-17. This failed to develop the industry, and was not renewed on its expiration in 1916-17. The amount of bounty paid during the ten years was only £3,005. Consideration of a further attempt to develop this branch of the fishing industry is now receiving the attention of the Commonwealth Government. Details of the proposals are shown in § 1 hereinbefore.

4. **State Revenue from Fisheries.**—The revenue from fisheries in each State during the year 1934 is given hereunder:—

FISHERIES.—REVENUE, 1934-35.

State or Territory.	Licences.	Leases.	Fines and Forfeitures.	Other Sources.	Total.
	£	£	£	£	£
New South Wales	1,405	10,319	342	424	12,490
Victoria	1,071	45	373	90	1,579
Queensland	2,955	1,845	71	16	4,887
South Australia	1,477	..	..	..	1,477
Western Australia	1,018	55	117	181	1,371
Tasmania	750	..	..	131	881
Northern Territory	300	1	..	..	301
Total	8,976	12,265	903	842	22,986

Similar particulars for Australia for the last five years are given in the following table:—

FISHERIES.—REVENUE, AUSTRALIA.

Particulars.	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.
	£	£	£	£	£
Licences	11,177	10,334	9,428	9,545	8,976
Leases	14,681	12,842	12,508	12,319	12,265
Fines and Forfeitures	877	648	960	957	903
Other Sources	557	537	558	851	842
Total	27,292	24,361	23,454	23,672	22,986

§ 3. Oversea Trade in Fishery Products.

1. Imports of Fish.—The development of the local fishing industry leaves much to be desired, as is evident from the large imports. For the last five years the imports were as follows :—

FISH.—IMPORTS, AUSTRALIA.

Australian Currency Values.

Classification.		1930-31.	1931-32.	1932-33.	1933-34.	1934-35.
Fresh (oysters) ..	cwt.	3,793	140	956	3,367	4,609
	£	2,049	60	519	1,643	2,702
Fresh, or preserved by cold process	cwt.	43,370	33,277	35,843	57,346	79,585
	£	127,907	97,364	96,410	142,389	204,746
Potted ..	cwt.	4,515	4,448	3,380	4,900	5,794
	£	85,959	84,431	62,616	82,288	96,451
Preserved in tins ..	cwt.	117,198	129,275	141,326	174,982	209,640
	£	565,594	563,789	586,516	663,238	817,398
Smoked, dried, and n.e.i.	cwt.	9,702	5,345	6,922	8,405	13,340
	£	30,643	18,485	20,066	24,602	25,744
Crustaceans ..	cwt.	(a)	(a)	(a)	(a)	4,393
	£	(a)	(a)	(a)	(a)	42,561
Total ..	cwt.	178,578	172,485	188,427	249,000	308,361
	£	812,152	764,129	766,127	914,160	1,189,602

(a) Not recorded separately.

Tinned fish constitutes by far the largest proportion of the imports, most of it consisting of salmon from Canada, the United States of America, Norway and the United Kingdom. The potted fish comes chiefly from the United Kingdom, which also supplied a considerable proportion of the fresh fish imported in 1934-35; the bulk of the remainder came from New Zealand and the Union of South Africa. The small import of oysters is supplied by New Zealand, while Japan furnished 3,964 cwt. of the crustaceans imported.

2. Exports of Fish.—The exports of fish are comparatively insignificant. During the year 1934-35 they were as follows :—Fresh or preserved by cold process, 152,342 lb., £8,480; oysters, fresh, 13 cwt., £46; potted or concentrated, £300; preserved in tins, 215,064 lb., £6,845; smoked or dried, 23,955 lb., £788; other including salted, 496 cwt., £1,744.

3. Exports of Pearl and Other Shell.—The exports of pearl, tortoise and trochus-shell of Australian origin are given hereunder for the five years 1930-31 to 1934-35 :—

PEARL, TORTOISE AND TROCHUS-SHELL.—EXPORTS, AUSTRALIA.

Article.		1930-31.	1931-32.	1932-33.	1933-34.	1934-35.
Pearl-shell ..	cwt.	48,353	26,779	32,975	33,721	43,483
	£	354,992	194,351	233,786	198,347	218,488
Tortoise-shell ..	lb.	2,160	1,949	519	1,292	2,239
	£	921	1,112	210	696	752
Trochus-shell ..	cwt.	14,056	10,228	13,421	9,175	12,646
	£	44,682	32,532	49,525	41,596	53,619

The bulk of the pearl-shell exported during 1934-35 was consigned to the United States of America and the United Kingdom, the respective values of the shipments amounting to £127,219 and £84,644, while trochus-shell to the value of £46,591 was dispatched to Japan.

§ 4. The Development of Fisheries in Australia.

In 1907 the Commonwealth Government decided to demonstrate what might be attained commercially by the application of modern methods in fishery. A Federal Investigation Ship, the *Endeavour*, was constructed specially for the work, and a Director of Fisheries was appointed. Experimental cruises were undertaken, which showed that Australia possesses an asset of considerable value in her sea fisheries. The *Endeavour* was unfortunately lost at sea with all on board at the end of 1914. A description of the trawling grounds discovered, data regarding oceanography to the east of Australia, and a list of the publications of the Department will be found on pp. 333 to 335 of the Official Year Book No. 14.

In accordance with the recommendations of the Australian Fisheries Conference of 1927-29 the Commonwealth Government has decided to continue investigations, and the Council for Scientific and Industrial Research has been entrusted with the carrying out of the fisheries programme. This has been referred to in § 1 par. 2 above.

§ 5. Trawling in Australian Waters.

The State Trawling Industry was established in New South Wales in 1915, and fishing operations were conducted with seven steel steam trawlers. The catches were landed at Sydney and Newcastle, and the fish distributed through retail shops, of which there were fourteen in the metropolitan area, one in Newcastle, and five in country towns. Early in the year 1923 the Government discontinued trawling operations, as the venture was not a commercial success. The operations of the trawlers, however, revealed some of the richest trawling areas in the world, and these localities are being successfully exploited by private enterprise.