

## CHAPTER XXIV.

## 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 Commonwealth Government is taking steps to implement this recommendation by

\* A specially contributed article dealing with the Marine and Fresh Water Fisheries of Australia, cared as § 6 of this Chapter in Official Year Book No. 17 (*vide* pp. 752 to 767 therein).

(i) procuring an up-to-date vessel specially designed for exploratory work in connexion with pelagic or surface swimming fish ; (ii) carrying out experiments in conjunction with private enterprise in connexion with canning of Australian fish ; (iii) carrying out tests in conjunction with private enterprise to determine the best methods of curing and preserving fish, especially the more common varieties ; and (iv) co-operating with State authorities in the study of systems of distribution of fish in each State, with a view to the improvement of existing transport and marketing arrangements. A sum of £15,000 has been placed on the 1935-36 Estimates for the construction and equipment of an Australian built trawler which will probably be in commission about the middle of 1936. In addition a sum of £5,000 has been voted for the development of the industry in accordance with the recommendations mentioned above. The Commonwealth Government has agreed to provide for the development of fisheries during the four succeeding years a further £15,000 per annum including an amount to cover the running costs of the trawler. The establishment of by-products industries for the treatment of inedible fish and the production therefrom of fish meal and oil is also being considered. It is hoped that this will assist in the cheapening of fresh fish as well as in the economic development of the industry. The Council for Scientific and Industrial Research is entrusted with the carrying out of the programme.

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 £44,515, £44,682, £32,532, £49,525 and £41,596 was exported from Australia during 1929-30, 1930-31, 1931-32, 1932-33 and 1933-34 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, 1933.

State or Territory.	No. of Boats Engaged.	Value of Boats and Equip-ment.	No. of Men Em-ployed.	Total Take of—		Gross Value of Take.	
				Fish.	Spiny Lobster (Crayfish).	Fish.	Spiny Lobster (Crayfish).
	No.	£	No.	cwt.	doz.	£	£
New South Wales	1,291	106,864	(g) 2,891	195,552	10,116	538,580	(c) 71,770
Victoria ..	759	111,680	1,474	105,832	13,755	153,620	7,276
Queensland ..	818	69,337	1,630	80,000	(d) 9,384	139,801	(e) 6,651
South Australia ..	900	150,000	1,500	120,500	(a)	(b) 180,000	(f)
Western Australia	273	61,212	557	37,031	20,803	103,686	6,402
Tasmania ..	233	51,524	343	21,950	67,359	35,700	30,310
Northern Territory	4	820	10	170	..	425	..
Total ..	4,278	551,437	8,405	561,035	121,417	1,151,812	122,409

(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 31 turtles valued at £31. (f) Included with fish. (g) Fishermen's licences issued.

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

### GENERAL FISHERIES.—AUSTRALIA.

Particulars.	1929.	1930.	1931.	1932.	1933.	
No. of boats engaged ..	..	4,546	4,681	4,657	4,348	4,278
No. of men employed ..	..	8,979	9,293	9,076	8,656	8,405
Fish obtained—						
Quantity ..	cwt.	650,518	613,859	562,230	568,324	561,035
Gross value ..	£	1,439,355	1,269,735	1,166,338	1,183,081	1,151,812
Lobsters obtained—Gross value	£	115,208	113,950	118,129	118,183	122,409

(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 1933 the available returns show the following takes :—New South Wales, 47,448 cwt., value £56,790; Queensland, 10,180 cwt., value £14,604. In Tasmania the scallop is far more important than the oyster. In 1933 the scallops taken in Tasmania were valued at £6,000.

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

### EDIBLE OYSTER FISHERIES.—(a) AUSTRALIA.

Particulars.	1929.	1930.	1931.	1932.	1933.	
No. of boats engaged ..	..	808	790	724	727	662
No. of men employed ..	..	804	741	681	716	666
Oysters obtained—						
Quantity ..	cwt.	70,773	55,214	50,350	63,825	57,824
Gross value (b) ..	£	134,223	106,422	76,108	94,641	77,590

(a) Exclusive of South Australia. (b) Including scallops in Tasmania valued at £5,625 in 1929; £5,750 in 1930; £4,530 in 1931; £5,495 in 1932; and £6,000 in 1933.

(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 1933 are as follow:—

## PEARL, PEARL-SHELL, AND BÊCHE-DE-MER FISHERIES, (a) 1933.

State or Territory.	Number of Boats Engaged.	Value of Boats and Equip-ment.	Number of Men Em-ployed.	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) ..	93	80,530	1,439	607	76,582	1,187	18,362	80
Western Australia ..	123	57,426	774	799	85,373	6,574	..	..
Northern Territory	21	18,700	126	269	40,800	1,600	..	20
Australia ..	237	156,656	2,339	1,675	202,755	9,361	18,362	100

(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 £38,059 in Queensland.

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.	1929.	1930.	1931.	1932.	1933.
No. of boats engaged .. ..	289	258	241	231	237
No. of men employed .. ..	2,334	1,977	2,109	2,064	2,330
Pearl-shell obtained—					
Quantity .. .. tons	3,112	1,295	1,310	1,419	1,675
Value .. .. £	455,578	251,448	219,887	214,747	202,755
Pearls obtained (a)—					
Value .. .. £	23,017	8,672	7,415	8,171	9,361
Bêche-de-mer obtained—					
Quantity .. .. tons	(b)	(b)	(b)	(b)	(b)
Value .. .. £	24,706	14,784	48,291	19,265	18,362
Tortoise-shell exported—					
Value .. .. £	693	921	1,112	210	696
Trochus-shell exported—					
Value .. .. £	44,515	44,682	32,532	49,525	41,596

(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, 1933.

State.	Gross Production Valued at Principal Markets.	Marketing Costs.	Gross Production Valued at Place of Production.
	£	£	£
New South Wales .. ..	667,000	131,000	536,000
Victoria .. ..	160,952	28,500	132,452
Queensland .. ..	295,326	46,951	248,375
South Australia .. ..	180,000	27,959	152,041
Western Australia .. ..	202,970	6,985	195,985
Tasmania .. ..	72,080	7,208	64,872
Total .. ..	(a) 1,578,328	248,603	1,329,725

(a) Not including production in the Northern Territory of a gross value of £42,915.

3. **Fish Preserving.**—To encourage the industry the Federal Parliament provided a bounty of  $\frac{1}{2}$ 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 1933 is given hereunder :—

### FISHERIES.—REVENUE, 1933.

State or Territory.	Licences.	Leases.	Fines and Forfeitures.	Other Sources.	Total.
	£	£	£	£	£
New South Wales .. ..	1,405	10,319	342	424	12,490
Victoria .. ..	1,116	102	412	120	1,750
Queensland .. ..	2,971	1,831	121	13	4,936
South Australia .. ..	1,495	..	..	..	1,495
Western Australia .. ..	1,485	66	82	140	1,773
Tasmania .. ..	836	..	..	154	990
Northern Territory .. ..	237	1	..	..	238
Total .. ..	9,545	12,319	957	851	23,672

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

### FISHERIES.—REVENUE, AUSTRALIA.

Particulars.	1929.	1930.	1931.	1932.	1933.
	£	£	£	£	£
Licences .. ..	11,614	11,177	10,334	9,428	9,545
Leases .. ..	16,332	14,681	12,842	12,508	12,319
Fines and Forfeitures .. ..	1,105	877	648	960	957
Other Sources .. ..	942	557	537	558	851
Total .. ..	29,993	27,292	24,361	23,454	23,672

### § 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 follow :—

#### FISH.—IMPORTS, AUSTRALIA.

Classification.		1929-30.	1930-31.	1931-32.	1932-33.	1933-34.
Fresh (oysters) ..	cwt.	508	3,793	140	956	3,367
	£	420	(c) 2,049	(c) 60	(c) 519	(c) 1,643
Fresh, or preserved by cold process	cwt.	67,503	43,370	33,277	35,843	57,346
	£	206,357	(c) 127,907	(c) 97,364	(c) 96,410	(c) 142,389
Potted ..	cwt.	(a)	4,515	4,448	3,380	4,900
	£	137,046	(c) 85,959	(c) 84,431	(c) 62,616	(c) 82,288
Preserved in tins ..	cwt.	250,306	117,198	129,275	141,326	174,982
	£	1,342,016	(c) 565,594	(c) 563,789	(c) 586,516	(c) 663,238
Smoked, dried, and n.e.i.	cwt.	13,280	9,702	5,345	6,922	8,449
	£	46,556	(c) 30,643	(c) 18,485	(c) 20,066	(c) 24,602
Total ..	cwt.	(b) 331,597	178,578	172,485	188,427	249,044
	£	1,732,395	(c) 812,152	(c) 764,129	(c) 766,127	(c) 914,160

(a) Not available.

(b) Exclusive of potted fish.

(c) Australian currency values.

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 1933-4; 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.

2. Exports of Fish.—The exports of fish are comparatively insignificant. During the year 1933-34 they were as follow :—Fresh or preserved by cold process 161,438 lb., £7,807; oysters, fresh, 45 cwt., £149; potted or concentrated, £197; preserved in tins, 8,207 lb., £452; smoked or dried, 20,344 lb., £562; other including salted, 118 cwt., £17.

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 1929-30 to 1933-34 :—

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

Article.		1929-30.	1930-31.	1931-32.	1932-33.	1933-34.
Pearl-shell ..	cwt.	58,503	48,353	26,779	32,975	33,721
	£	450,615	354,992	194,351	233,786	198,347
Tortoise-shell ..	lb.	1,541	2,160	1,949	519	1,292
	£	693	921	1,112	210	696
Trochus-shell ..	cwt.	11,184	14,056	10,228	13,421	9,175
	£	44,515	44,682	32,532	49,525	41,596

The bulk of the pearl-shell exported during 1933-34 was consigned to the United States of America and the United Kingdom, the respective values of the shipments amounting to £141,639 and £50,727, while trochus-shell to the value of £41,326 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 as already stated, the Council for Scientific and Industrial Research has been entrusted with the carrying out of the fisheries programme, and the necessary financial provision has been made in the Estimates of 1935-36.

#### § 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.