

## CHAPTER XXI.

## 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, and transport and marketing of the proved supplies have not been satisfactorily dealt with.

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 submitted by these Committees to a further conference held in July, 1929, were adopted and forwarded to the Federal and State Governments,

\* 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. 752 to 767 therein*).

with a recommendation that the necessary action be taken to carry out the procedure outlined therein. It was recommended that the Commonwealth Government undertake the investigation work, and a sum of £20,000 was placed on the estimates for 1933-34 for this purpose. It is proposed to expend this amount in (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. 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 Commonwealth Director of Development is entrusted with the carrying out of the programme.

3. **Consumption of Fish.**—It has been said that the Australians are not an "ichthyophagous" race, seeing that the annual consumption of fish per head of population in Great Britain is set down at 42 lbs., while in Australia it has been estimated at only 13 lbs. The heavy imports of dried and preserved fish indicate, however, that there is scope for the development of the industry, which now seems to be ill-managed, the price to the consumer being high, while the fisherman's gain is uncertain, and the system of distribution lacks method.

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 £76,116, £71,714, £44,515, £44,682 and £32,532 was exported from Australia during 1927-28, 1928-29, 1929-30, 1930-31 and 1931-32 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 now 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 at present 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, 1931.

State or Territory.	No. of Boats Engaged.	Value of Boats and Equip-ment.	No. of Men Em-ployed.	Total Take of—		Value of Take.	
				Fish.	Spiny Lobster (Crayfish).	Fish.	Spiny Lobster (Crayfish).
	No.	£	No.	cwt.	doz.	£	£
New South Wales ..	1,466	261,476	3,633	197,748	8,597	553,695	(c) 63,696
Victoria .. .. .	843	115,637	1,518	104,547	13,468	146,365	6,734
Queensland .. ..	916	71,514	1,818	73,920	(d) 10,042	136,116	(e) 7,585
South Australia ..	900	150,000	1,200	(b) 125,000	(a)	6180,000	(f)
Western Australia ..	258	54,100	551	36,917	16,371	103,367	6,134
Tasmania .. .. .	269	57,450	351	23,948	56,635	46,375	33,980
Northern Territory	5	1,000	5	150	..	420	..
Total .. .. .	4,657	711,177	9,076	562,230	105,113	1,166,338	118,129

(a) Not available.  
and 3,994 dozen crabs.  
with fish.

(b) Estimate.  
(d) Crabs.

(c) Including £50,800, the value of 8,893 cwt. prawns  
(e) Including 134 turtles valued at £200.

(f) Included

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

#### GENERAL FISHERIES.—AUSTRALIA.

Particulars.	1927.	1928.	1929.	1930.	1931.
No. of boats engaged .. ..	4,843	5,213	4,546	4,681	4,657
No. of men employed .. ..	7,987	8,600	8,979	9,293	9,076
Fish obtained—					
Quantity .. .. . cwt.	443,984	546,949	650,518	613,859	562,230
Value .. .. . £	1,139,218	1,435,427	1,439,355	1,269,735	1,166,338
Lobsters obtained—Value	£ a140,439	a155,890	a151,208	a133,950	a118,129

(a) Exclusive of South Australia.

(ii) *Edible Oyster Fisheries.* Edible oyster fisheries are of small dimensions outside New South Wales and Queensland. During 1931, the available returns show the following takes :—New South Wales, 38,616 cwt., value £55,165; Queensland, 11,329 cwt., value £16,143. In Tasmania the scallop is far more important than the oyster. In 1931, the scallops taken in Tasmania were valued at £4,530.

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

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

Particulars.	1927.	1928.	1929.	1930.	1931.
No. of boats engaged .. ..	813	835	808	790	724
No. of men employed .. ..	790	833	804	741	681
Oysters obtained—					
Quantity .. .. . cwt.	67,422	64,991	70,773	55,214	50,350
Value .. .. . £	129,215	121,358	134,223	106,422	b 76,108

(a) Exclusive of South Australia.

(b) Including £4,530 for scallops in Tasmania.

(iii) *Pearls, Pearl-shell and Bêche-de-mer.* Figures 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 1931 are as follow :—

## PEARL, PEARL-SHELL, AND BÊCHE-DE-MER FISHERIES, (a) 1931.

State or Territory.	Number of Boats Engaged.	Value of Boats and Equip-ment.	Number of Men Em-ployed.	Quantity of Pearl-shell obtained.	Value of Pearl-shell obtained.	Value of Pearls obtained. (b)	Value of Bêche-de-mer obtained.	Value of Tortoise shell obtained.
	No.	£	No.	Tons.	£	£	£	£
Queensland (c) ..	91	94,650	1,129	469	76,197	..	33,437	264
Western Australia (c)	132	54,318	836	616	98,690	4,415	267	363
Northern Territory	18	18,000	144	225	45,000	3,000	14,587	15
Australia ..	241	166,968	2,109	1,310	219,887	7,415	48,291	642

(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 £33,168 in Queensland and £266 in Western Australia.

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 past five years, export figures of Australian origin are inserted for both of these items :—

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

Particulars.	1927.	1928.	1929.	1930.	1931.
No. of boats engaged ..	297	307	289	258	241
No. of men employed ..	2,062	2,407	2,334	1,977	2,109
Pearl-shell obtained—					
Quantity .. tons	2,243	2,212	3,112	1,295	1,310
Value .. £	332,739	345,227	455,578	251,448	219,887
Pearls obtained (a)—					
Value .. £	22,863	29,615	23,017	8,672	7,415
Bêche-de-mer obtained—					
Quantity .. tons	(b)	(b)	(b)	(b)	(b)
Value .. £	14,693	17,893	24,706	14,784	48,291
Tortoise-shell exported—					
Value .. £	2,894	3,113	693	921	1,112
Trochus-shell exported—					
Value .. £	76,116	71,714	44,515	44,682	32,532

(a) Incomplete; as returned.

(b) Not returned.

2. *Fish Preserving.*—To encourage the industry, the Federal Parliament provided a bounty of ½d. per lb. for fish preserved as prescribed during the ten years 1907–8 to 1916–17. This amounted to only £3,005 during the period, or at the rate of £300 per annum, failed to develop the industry, and was not renewed on its expiration in 1916–17. 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.

3. State Revenue from Fisheries.—The revenue from fisheries in each State during the year 1931 is given hereunder:—

## FISHERIES.—REVENUE, 1931.

State or Territory.	Licences.	Leases.	Fines and Forfeitures.	Other Sources.	Total.
	£	£	£	£	£
New South Wales ..	1,510	10,348	138	200	12,196
Victoria .. ..	1,257	118	274	2	1,651
Queensland .. ..	3,099	2,022	61	72	5,254
South Australia ..	1,694	..	..	..	1,694
Western Australia ..	1,580	250	175	257	2,262
Tasmania .. ..	897	103	..	6	1,006
Northern Territory ..	297	1	..	..	298
Total .. ..	10,334	12,842	648	537	24,361

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

## FISHERIES.—REVENUE, AUSTRALIA.

Particulars.	1927.	1928.	1929.	1930.	1931.
	£	£	£	£	£
Licences .. ..	11,769	12,864	11,614	11,177	10,334
Leases .. ..	16,531	16,498	16,332	14,681	12,842
Fines and Forfeitures ..	748	1,216	1,105	877	648
Other Sources .. ..	739	760	942	557	537
Total .. ..	29,787	31,338	29,993	27,292	24,361

## § 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.		1927-28.	1928-29.	1929-30.	1930-31.	1931-32.
Fresh (oysters) ..	cwt.	1,488	1,308	508	3,793	140
	£	1,157	958	420	(c) 2,049	(c) 60
Fresh, or preserved by cold process	cwt.	75,835	72,866	67,503	43,370	33,277
	£	232,894	221,999	206,357	(c) 127,907	(c) 97,364
Potted .. ..	cwt.	(a)	(a)	(a)	4,515	4,448
	£	148,424	158,797	137,046	(c) 85,959	(c) 84,431
Preserved in tins ..	cwt.	209,791	252,379	250,306	117,198	129,275
	£	1,141,493	1,265,510	1,342,016	(c) 565,594	(c) 563,789
Smoked, dried, and n.e.i.	cwt.	13,837	14,007	13,280	9,702	5,345
	£	51,723	48,430	46,556	(c) 30,643	(c) 18,485
Total .. ..	cwt.	(b) 300,951	(b) 340,560	(b) 331,597	178,578	172,485
	£	1,575,691	1,695,694	1,732,395	(c) 812,152	(c) 764,129

(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 proportion of the fresh fish imported in 1931-32; the bulk of the remainder coming 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 1931-32, they amounted to 1,152 cwt. valued at £5,233, and during the previous five years the average annual exports were—704 cwt. for £5,188.

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 1927-28 to 1931-32 :—

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

Article.		1927-28.	1928-29.	1929-30.	1930-31.	1931-32.
Pearl-shell	cwt.	44,119	45,058	58,503	48,353	26,779
	£	337,469	339,016	450,615	354,992	194,351
Tortoise-shell	lb.	4,506	4,311	1,541	2,160	1,949
	£	2,894	3,113	693	921	1,112
Trochus-shell	cwt.	21,968	18,814	11,184	14,056	10,228
	£	76,116	71,714	44,515	44,682	32,532

The bulk of the pearl-shell exported during 1931-32 was consigned to the United States of America and the United Kingdom, the respective values of the shipments amounting to £161,397 and £31,978, while trochus-shell to the value of £32,357 was dispatched to Japan.

§ 4. The Commonwealth Department of Fisheries.

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 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, financial provision is being made in the Estimates of 1933-34.

§ 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.