

CHAPTER XXII.

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 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 steps now being taken to implement this recommendation are (i) procuring an up-to-date

* 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).

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. Plans and specifications of a suitable vessel are now being obtained and tenders will be called for its early construction. It is proposed to appoint an experienced Marine Biologist who will be responsible for the study of the biological aspects of the investigation and for the co-ordination of similar work by independent scientists and institutions in Australia. A sum of £15,000 has been placed on the Estimates for 1934-35 for the construction and equipment of the trawler and £5,000 for the development of the industry. 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 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 distributing 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 £71,714, £44,515, £44,682, £32,532 and £49,525 was exported from Australia during 1928-29, 1929-30, 1930-31, 1931-32 and 1932-33 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, 1932.

State or Territory.	No. of Boats Engaged.	Value of Boats and Equipment.	No. of Men Employed.	Total Take of—		Value of Take.	
				Fish.	Spiny Lobster (Crayfish).	Fish.	Spiny Lobster (Crayfish).
	No.	£	No.	cwt.	doz.	£	£
New South Wales ..	1,343	165,459	3,140	205,688	8,731	575,925 (c)	70,966
Victoria ..	755	116,937	1,448	102,923	13,523	144,093	7,438
Queensland ..	846	71,812	1,658	71,700 (d)	9,964	133,954 (e)	7,622
South Australia ..	900	150,000	1,500	(b)125,000	(a)	180,000	(f)
Western Australia..	257	55,974	571	38,034	11,442	106,495	4,747
Tasmania ..	243	59,000	335	24,849	60,918	42,250	27,410
Northern Territory	4	800	4	130	..	364	..
Total ..	4,348	619,982	8,656	568,324	104,578	1,183,081	118,183

(a) Not available. (b) Estimate. (c) Including £57,870, the value of 13,697 cwt. of prawns and 3,420 dozen crabs. (d) Crabs. (e) Including 736 turtles valued at £904. (f) Included with fish.

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

GENERAL FISHERIES.—AUSTRALIA.

Particulars.	1928.	1929.	1930.	1931.	1932.
No. of boats engaged ..	5,213	4,546	4,681	4,657	4,348
No. of men employed ..	8,600	8,979	9,293	9,076	8,656
Fish obtained—					
Quantity ..	cwt. 546,949	650,518	613,859	562,230	568,324
Value ..	£ 1,435,427	1,439,355	1,269,735	1,166,338	1,183,081
Lobsters obtained—Value	£ 155,890	151,208	133,950	118,129	118,183

(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 1932, the available returns show the following takes :—New South Wales, 48,375 cwt., value £69,108; Queensland, 15,022 cwt., value £19,740. In Tasmania the scallop is far more important than the oyster. In 1932, the scallops taken in Tasmania were valued at £5,495.

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

EDIBLE OYSTER FISHERIES.—(a) AUSTRALIA.

Particulars.	1928.	1929.	1930.	1931.	1932.
No. of boats engaged ..	835	808	790	724	727
No. of men employed ..	833	804	741	681	716
Oysters obtained—					
Quantity ..	cwt. 64,991	70,773	55,214	50,350	63,825
Value (b) ..	£ 121,358	134,223	106,422	76,108	94,641

(a) Exclusive of South Australia. (b) Including scallops in Tasmania valued at £4,500 in 1928; £5,625 in 1929; £5,750 in 1930; £4,530 in 1931; and £5,495 in 1932.

(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 1932 are as follow :—

PEARL, PEARL-SHELL, AND BÈCHE-DE-MER FISHERIES, (a) 1932.

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	84,790	1,141	416	69,083	..	19,265	120
Western Australia	122	58,307	779	733	97,664	6,171
Northern Territory	18	18,000	144	270	48,000	2,000	..	14
Australia ..	231	161,097	2,064	1,419	214,747	8,171	19,265	134

(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 £40,433 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 BÈCHE-DE-MER FISHERIES.—AUSTRALIA.

Particulars.	1928.	1929.	1930.	1931.	1932.
No. of boats engaged ..	307	289	258	241	231
No. of men employed ..	2,407	2,334	1,977	2,109	2,064
Pearl-shell obtained—					
Quantity .. tons	2,212	3,112	1,295	1,310	1,419
Value £	345,227	455,578	251,448	219,887	214,747
Pearls obtained (a)—					
Value £	29,615	23,017	8,672	7,415	8,171
Bêche-de-mer obtained—					
Quantity .. tons	(b)	(b)	(b)	(b)	(b)
Value £	17,893	24,706	14,784	48,291	19,265
Tortoise-shell exported—					
Value £	3,113	693	921	1,112	210
Trochus-shell exported—					
Value £	71,714	44,515	44,682	32,532	49,525

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

2. *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.

3. State Revenue from Fisheries.—The revenue from fisheries in each State during the year 1932 is given hereunder :—

FISHERIES.—REVENUE, 1932.

State or Territory.	Licences.	Leases.	Fines and Forfeitures.	Other Sources.	Total.
	£	£	£	£	£
New South Wales ..	1,446	10,243	181	122	11,992
Victoria	1,101	102	461	100	1,764
Queensland	2,886	1,795	158	60	4,899
South Australia ..	1,409	1,409
Western Australia ..	1,604	260	160	157	2,181
Tasmania	761	107	..	119	987
Northern Territory ..	221	1	222
Total	9,428	12,508	960	558	23,454

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

FISHERIES.—REVENUE, AUSTRALIA.

Particulars.	1928.	1929.	1930.	1931.	1932.
	£	£	£	£	£
Licences	12,864	11,614	11,177	10,334	9,428
Leases	16,498	16,332	14,681	12,842	12,508
Fines and Forfeitures ..	1,216	1,105	877	648	960
Other Sources	760	942	557	537	558
Total	31,338	29,993	27,292	24,361	23,454

§ 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.	1928-29.	1929-30.	1930-31.	1931-32.	1932-33.
Fresh (oysters) ..	cwt. 1,308	508	3,793	140	956
	£ 958	420	(c) 2,049	(c) 60	(c) 519
Fresh, or preserved by cold process	cwt. 72,866	67,503	43,370	33,277	35,843
	£ 221,999	206,357	(c) 127,907	(c) 97,364	(c) 96,410
Potted	(a) cwt. 4,515	(a)	4,515	4,448	3,380
	£ 158,797	137,046	(c) 85,959	(c) 84,431	(c) 62,616
Preserved in tins ..	cwt. 252,379	250,306	117,198	129,275	141,326
	£ 1,265,510	1,342,016	(c) 565,594	(c) 563,789	(c) 586,516
Smoked, dried, and n.e.i.	cwt. 14,007	13,280	9,702	5,345	6,922
	£ 48,430	46,556	(c) 30,643	(c) 18,485	(c) 20,066
Total	cwt. (b) 340,560	(b) 331,597	178,578	172,485	188,427
	£ 1,695,694	1,732,395	(c) 812,152	(c) 764,129	(c) 766,127

(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 1932-3; 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 1932-33, they were as follow :—Fresh or preserved by cold process 148,415 lb. £7,455; oysters, fresh, 18 cwt. £51; potted or concentrated, £226; preserved in tins, 3,288 lb., £168; smoked or dried, 68,645 lb., £861; other including salted, 264 cwt., £326.

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 1928-29 to 1932-33 :—

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

Article.		1928-29.	1929-30.	1930-31.	1931-32.	1932-33.
Pearl-shell	cwt.	45,058	58,503	48,353	26,779	32,975
	£	339,016	450,615	354,992	194,351	233,786
Tortoise-shell	lb.	4,311	1,541	2,160	1,949	519
	£	3,113	693	921	1,112	210
Trochus-shell	cwt.	18,814	11,184	14,056	10,228	13,421
	£	71,714	44,515	44,682	32,532	49,525

The bulk of the pearl-shell exported during 1932-33 was consigned to the United States of America and the United Kingdom, the respective values of the shipments amounted to £170,875 and £61,840, while trochus-shell to the value of £49,291 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 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, financial provision is being made in the Estimates of 1934-35.

§ 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.