F I R D C

FISHING INDUSTRY RESEARCH AND DEVELOPMENT COUNCIL

PROJECT No. P90/115

FINAL REPORT

A MANUAL
OF
AUSTRALIAN FISHERIES STATISTICS

Prepared by:

SCP Fisheries Consultants Australia
PO Box 1284
Crows Nest
NSW 2065
Australia

August 1991

CONTENTS

ABBREVIATIONS

ABARE	Australian Bureau of Agricultural and Resource Economics
ABS	Australian Bureau of Statistics
AFS	Australian Fisheries Service
AFZIS	Australian Fishing Zone Information System
DCE	Department of Conservation and Environment (Victoria)
DPIF	Department of Primary Industry and Fisheries (Northern Territory)
FIRDC	Fishing Industry Research and Development Council
FMA	Fish Marketing Authority of NSW
MSL	Marine Science Laboratories, Queenscliff, Victoria
QDPI	Queensland Department of Primary Industry
QFMA	Queensland Fish Management Authority
TSPZ	Torres Strait Protected Zone

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TSPZ	Torres Strait Protected Zone

1.2 REPORT STRUCTURE

The report is presented in two parts:

- Summary (this Section) which comprises summary tables and graphs; and

- Sections A to E which contain detailed statistics:
  - Section A Individual state data
  - Section B Commonwealth managed fisheries
  - Section C Aquaculture
  - Section D Trade
  - Section E Fishery descriptions

Sections A to D are mainly tabular, while Section E contains descriptions of the main fisheries, maps and data on licences, unitisation and capitalised values.

1.3 DATA AVAILABILITY

While some states and fisheries have comprehensive and accessible data, other fisheries are less well served. In particular this refers to some states, particularly in the early years of the attempted time series and to aquaculture. All states are however making major efforts to upgrade their data processing and publication and it is considered that an update of this publication to include 1990/91 data would be merited during 1992. Several states will have improved data for the earlier years of the series by that time, and it is hoped that possible duplication (eg, between the south east trawl and NSW data) will be reduced and overall accuracy enhanced in the next edition.

1.4 ROUNDING

Column totals may not reconcile precisely with their component figures due to rounding errors.

1.5 COVERAGE

In order to link with the ABS data set, data are presented for the years 1984/85 to 1989/90.

An attempt has been made to include all commercial marine fisheries, both State- and Commonwealth-managed. Few data are available on inland fisheries and none on amateur.

No statistical data of the nature of those presented in this manual can ever be fully accurate. While the report's authors have attempted to minimise errors and duplications, errors are certain to remain. Where individuals or institutions identify errors or are able to provide improved data, please advise:

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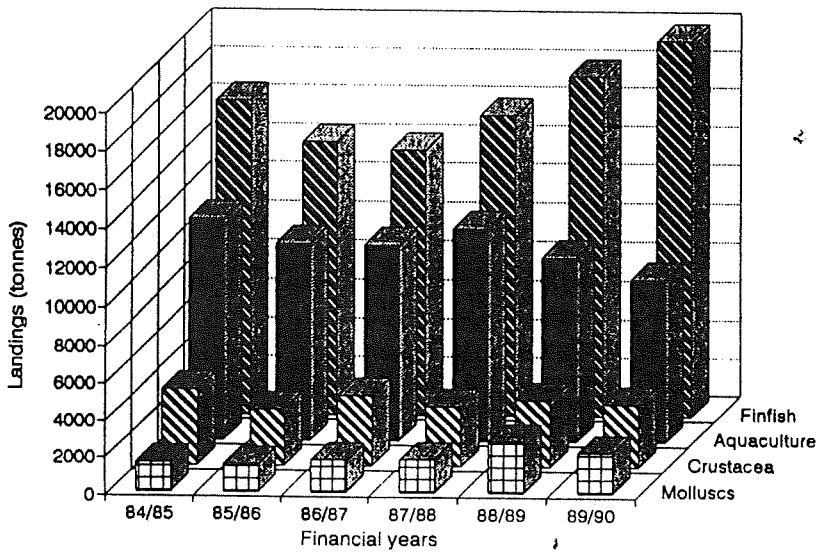
2. STATE, TERRITORY AND NATIONAL DATA

Table 2-1 New South Wales Quantity and Value of Production

	84/85	85/86	86/87	87/88	88/89	89/90
Quantity (tonnes liveweight)						
Fish a/	16320	14182	13795	15656	17713	19605
Crustacea	4104	3045	3864	3288	3600	3446
Molluscs	1583	1479	1685	1760	2758	2148
Total marine capture	22007	18705	19344	20704	24071	25200
Aquaculture					9677	8609
Value ($ million)						
Fish a/	20.6	21.0	24.4	27.9	31.8	33.5
Crustacea	18.8	15.6	25.2	21.7	23.7	21.7
Molluscs	6.1	6.4	7.6	7.9	7.9	10.2
Total marine capture	45.5	43.1	57.1	57.5	63.4	65.5
Aquaculture b/	23.5	25.0	26.9	31.0	30.2	31.5
Total	69.0	68.1	84.1	88.5	93.5	97.0

a/ excluding Southeast Trawl fishery for period 1985/86 to 1989/90
b/ oysters only for period 1984/85 to 1987/88

New South Wales Landings
1984/85 to 1989/90



New South Wales Value of Production
1984/85 to 1989/90

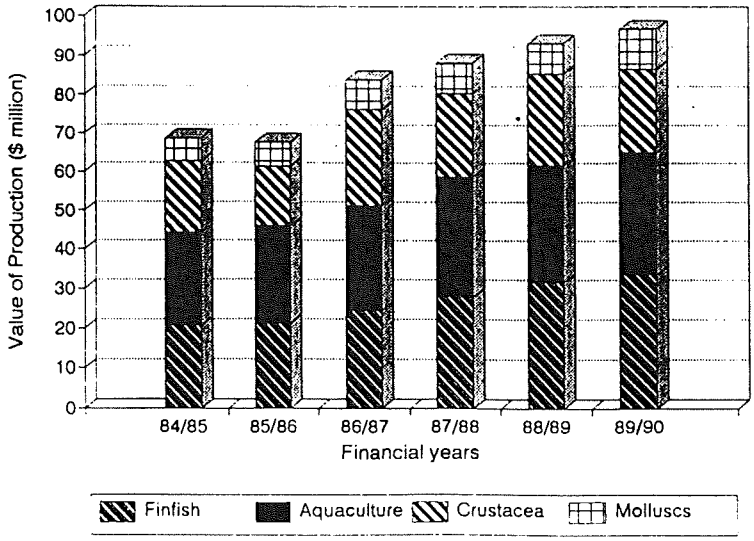
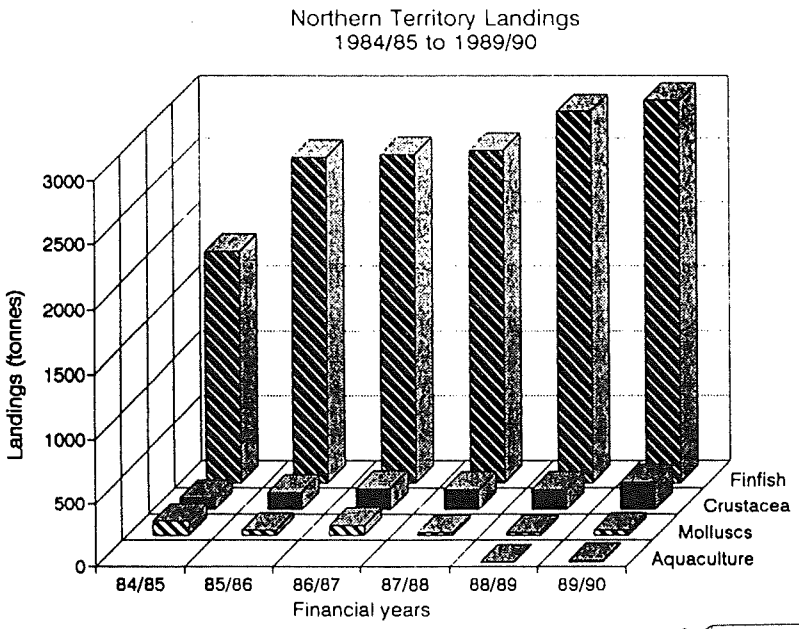


Table 2-2 Northern Territory Quantity and Value of Production

	84/85	85/86	86/87	87/88	88/89	89/90
Quantity (tonnes liveweight)						
Fish	1783	2524	2550	2576	2886	2975
Crustacea a/	91	137	164	160	158	214
Molluscs	113	36	80	24	25	37
Total marine capture	1987	2697	2794	2760	3069	3227
Aquaculture	0	0	0	0	0	7
Total	1987	2697	2794	2760	3069	3234
Value ($ million)						
Fish	2.8	4.0	4.4	4.9	5.7	5.8
Crustacea a/	0.4	0.7	0.9	1.1	1.0	1.3
Molluscs	0.2	0.1	0.2	0.1	0.4	0.4
Total marine capture	3.4	4.7	5.5	6.0	7.1	7.4
Aquaculture	0.0	0.0	0.0	0.0	0.0	0.9
Total	3.4	4.7	5.5	6.0	7.1	8.4
a/ excluding northern prawn fishery landings in NT.						
Prawn landings over the period were:						
tonnes	2154	3302	3481	3880	3361	2565
$ million	13.8	24.7	31.1	38.9	22.5	21.0



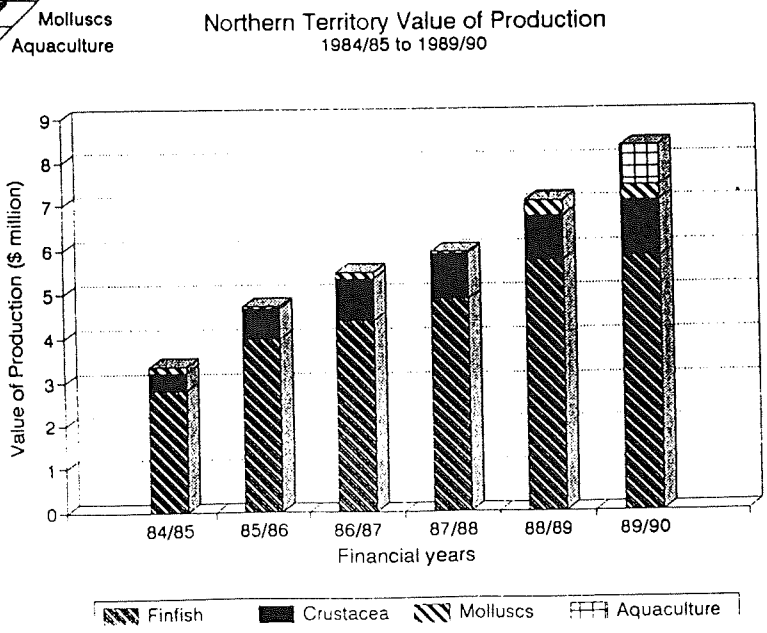
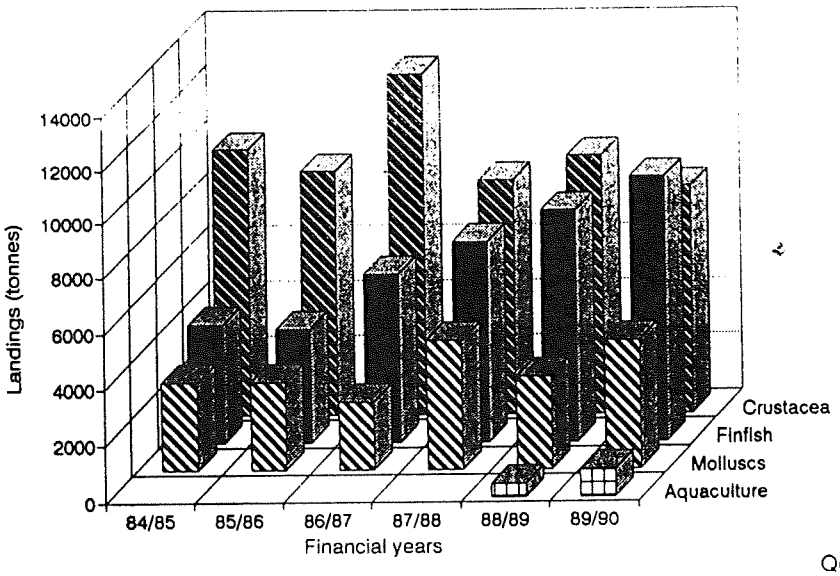


Table 2-3 Queensland Quantity and Value of Production

	84/85	85/86	86/87	87/88	88/89	89/90
Quantity (tonnes liveweight)						
Fish	4188	4019	6019	7166	8328	9587
Crustacea	9662	8872	12457	8495	9386	8232
Molluscs	3116	3105	2397	4581	3276	4541
Total marine capture	16966	15996	20873	20242	20990	22360
Aquaculture	na	na	na	na	465	965
Total	na	na	na	na	21455	23325
Value ($ million)						
Fish	9.4	10.0	16.2	20.7	30.9	34.3
Crustacea	74.2	85.8	122.8	79.2	86.3	65.8
Molluscs	12.2	15.8	11.9	17.7	14.3	23.9
Total marine capture	95.9	111.6	150.9	117.5	131.6	124.0
Aquaculture	na	na	na	na	2.7	10.5
Total	na	na	na	na	134.2	134.6

Queensland Landings
1984/85 to 1989/90



Queensland Value of Production
1984/85 to 1989/90

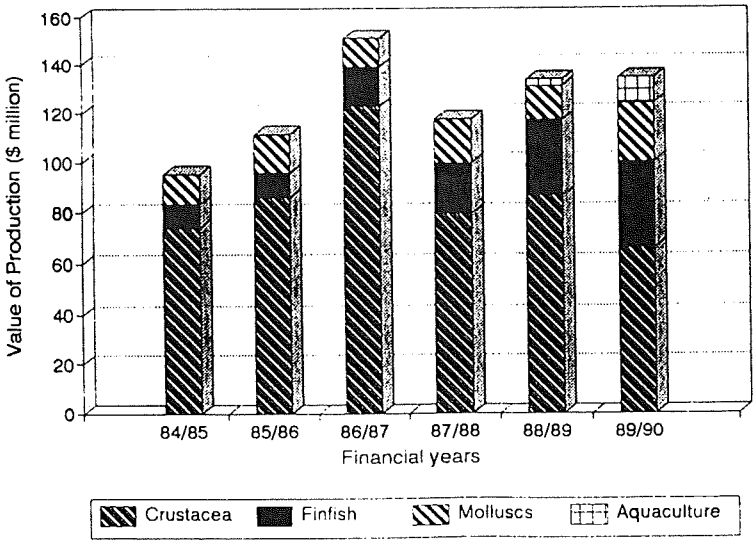
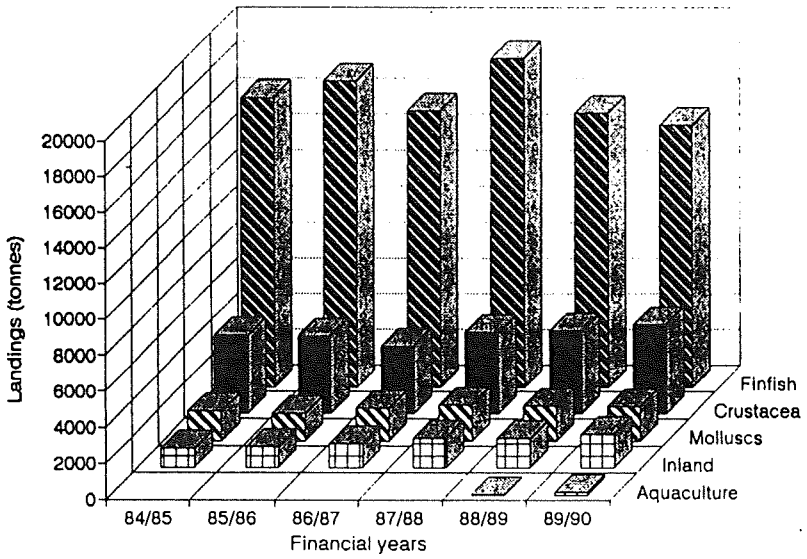


Table 2-4 South Australia Quantity and Value of Production

	84/85	85/86	86/87	87/88	88/89	89/90
Quantity (tonnes liveweight)						
Fish a/	16142	17103	15481	18359	15293	14664
Crustacea	4374	4322	3805	4557	4649	5011
Molluscs	1643	1467	1769	1992	1905	1855
Total marine capture	22159	22892	21055	24908	21847	21530
Aquaculture					25	101
Inland waters	1066	1196	1331	1629	1618	1877
Total b/	23225	24088	22386	26537	23490	23508
Value ($ million)						
Fish a/	22.1	23.7	28.5	35.4	35.3	41.9
Crustacea	40.0	42.7	48.7	59.5	51.3	61.0
Molluscs	5.2	8.4	12.2	14.9	16.8	18.5
Total marine capture	67.2	74.8	89.4	109.8	103.4	121.4
Aquaculture	na	na	na	na	0.1	0.7
Inland waters	0.6	0.8	1.0	1.2	1.3	1.6
Total b/	67.8	75.6	90.4	111.0	104.8	123.6

a/ including Great Australian Bight, excluding Southeast Trawl
b/ excluding aquaculture for the period 1984/85 to 1987/88

South Australia Landings
1984/85 to 1989/90



South Australia Value of Production
1984/85 to 1989/90

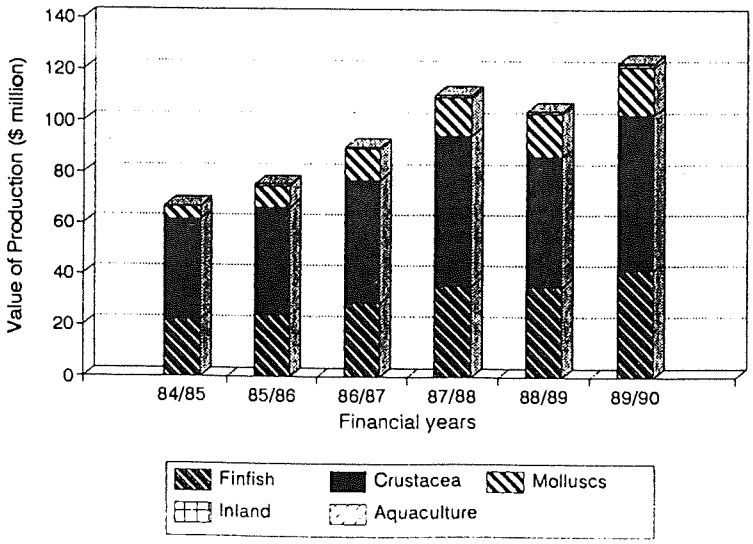
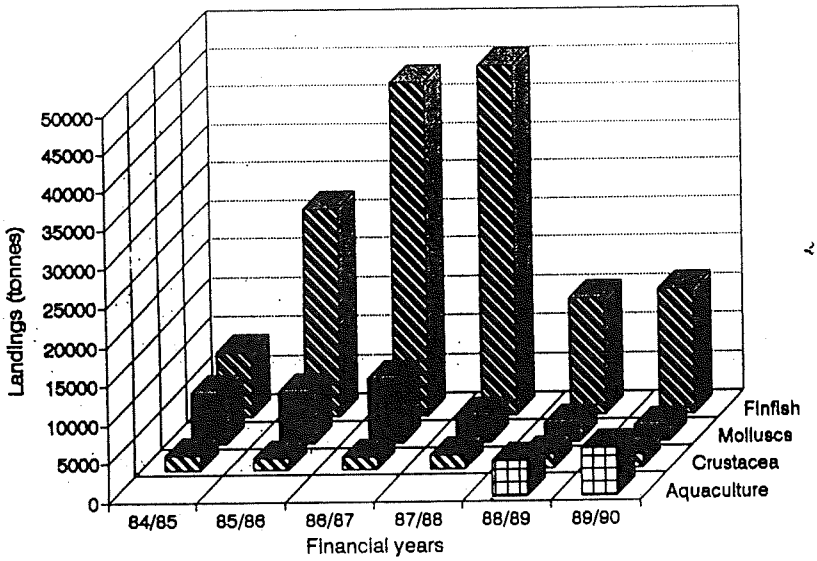


Table 2-5 Tasmania Quantity and Value of Production

	84/85	85/86	86/87	87/88	88/89	89/90
Quantity (tonnes liveweight)						
Fish a/	8236	26668	43277	45373	14831	15967
Crustacea	1916	1456	1582	1803	1850	1743
Molluscs	6516	6580	8265	3291	2421	1929
Total marine capture	16668	34704	53124	50467	19102	19639
Aquaculture	na	na	na	na	4526	6087
Total	na	na	na	na	23628	25726
Value ($ million)						
Fish a/	2.4	4.1	10.4	14.5	14.1	11.4
Crustacea	18.6	16.2	21.7	29.5	27.2	25.7
Molluscs	21.5	34.1	53.2	47.2	39.3	33.9
Total marine capture	42.6	54.5	85.2	91.2	80.6	71.1
Aquaculture	na	na	na	na	27.0	46.1
Total	na	na	na	na	107.7	117.2

a/ excluding southeast trawl

Tasmania Landings
1984/85 to 1989/90



Tasmania Value of Production
1984/85 to 1989/90

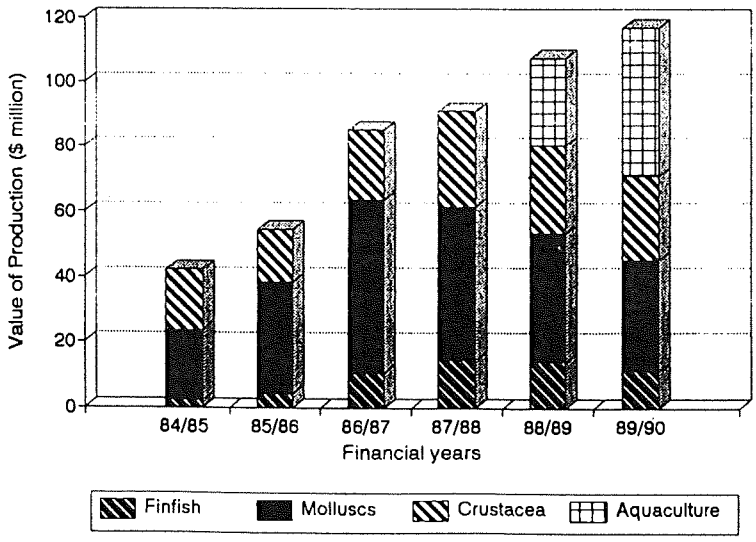
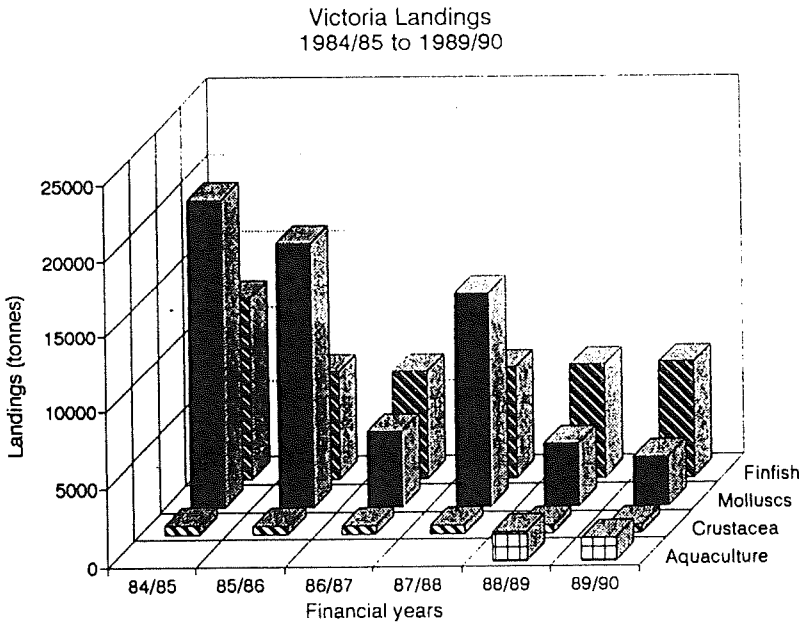


Table 2-6 Victoria Quantity and Value of Production

	84/85	85/86	86/87	87/88	88/89	89/90
Quantity (tonnes liveweight)						
Fish a/	12112	7099	7060	7305	7496	7578
Molluscs	20252	17366	4800	14071	3918	3043
Crustacea	635	540	533	535	533	533
Total marine capture	32999	25005	12393	21912	11947	11154
Aquaculture	na	na	na	na	1813	1427
Total	na	na	na	na	13760	12581
Value ($ million)						
Fish a/	16.4	11.0	14.0	14.0	14.7	16.3
Molluscs	23.0	35.1	29.7	49.7	28.8	27.2
Crustacea	6.5	6.4	6.8	7.8	7.4	7.5
Total marine capture	45.9	52.5	50.5	71.5	50.9	51.0
Aquaculture	na	na	na	na	7.0	12.3
Total	na	na	na	na	57.9	63.3

a/ excluding southeast trawl landings for 1985/86 to 1989/90



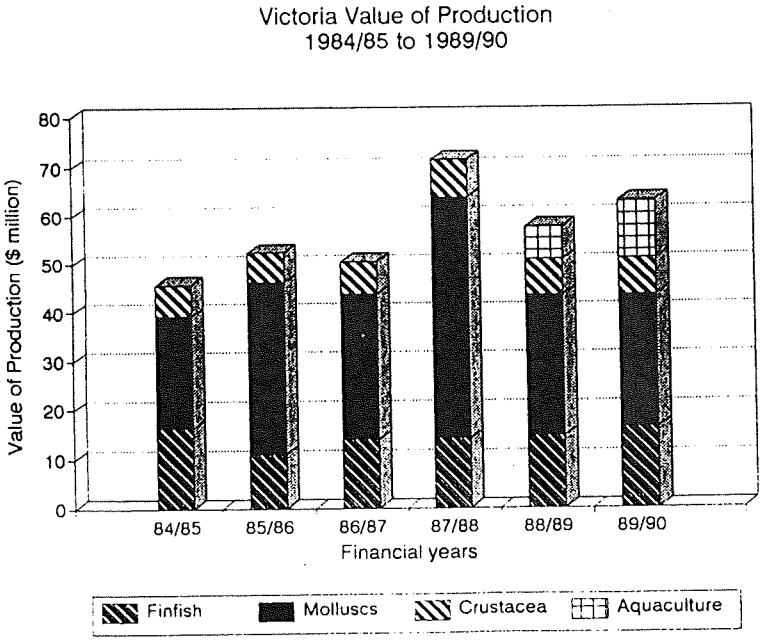
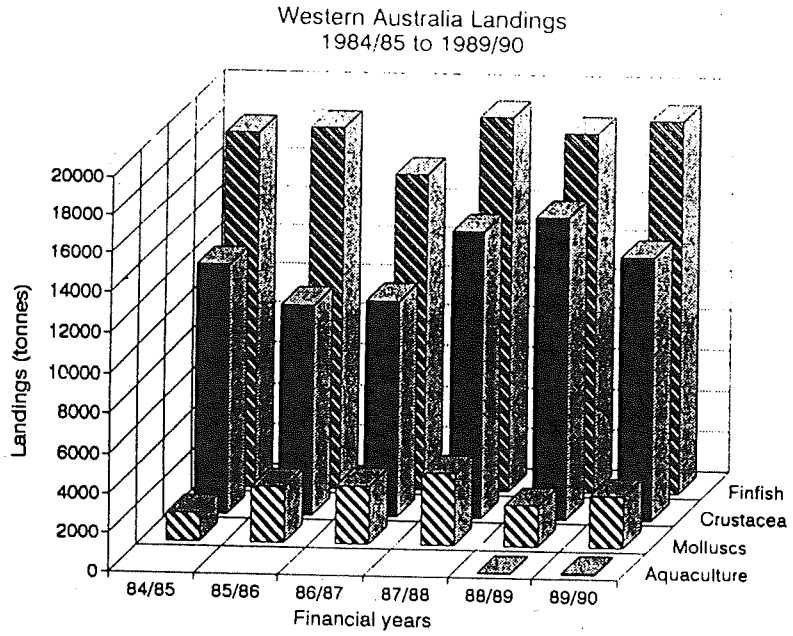


Table 2-7 Western Australia Quantity and Value of Production

	84/85	85/86	86/87	87/88	88/89	89/90
Quantity (tonnes liveweight)						
Fish	17976	18276	15893	18989	18128	18866
Crustacea	12448	10477	10756	14384	15177	13151
Molluscs	1433	2849	2960	3692	2087	2632
Total marine capture	31857	31602	29609	37065	35392	34649
Aquaculture	na	na	na	na	28	46
Total	na	na	na	na	35420	34695
Value ($ million)						
Fish	18.0	21.0	21.4	29.3	25.7	25.4
Crustacea	144.3	114.3	150.1	211.3	207.9	191.4
Molluscs	3.9	7.8	10.9	13.7	8.8	14.7
Total marine capture	166.2	143.0	182.4	254.4	242.4	231.5
Aquaculture	na	na	na	na	63.4	95.9
Total	na	na	na	na	305.8	327.4



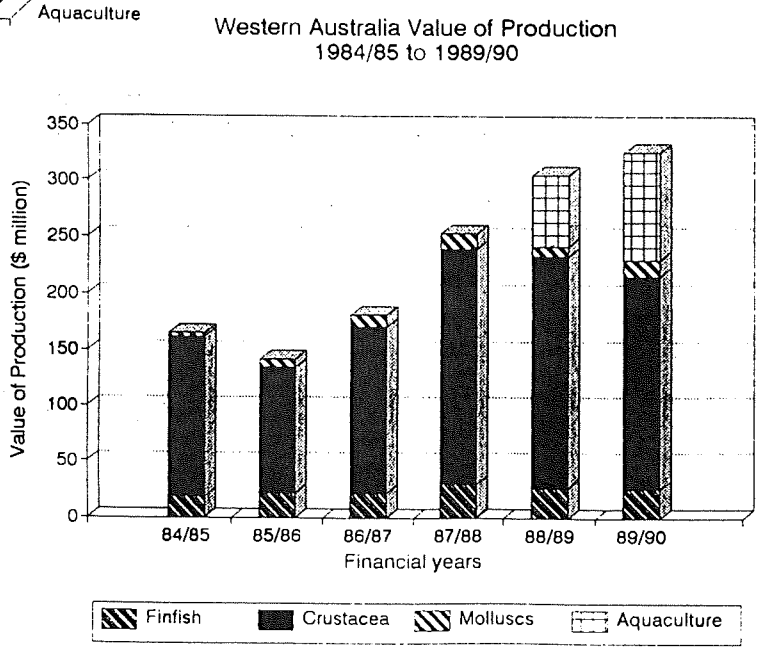
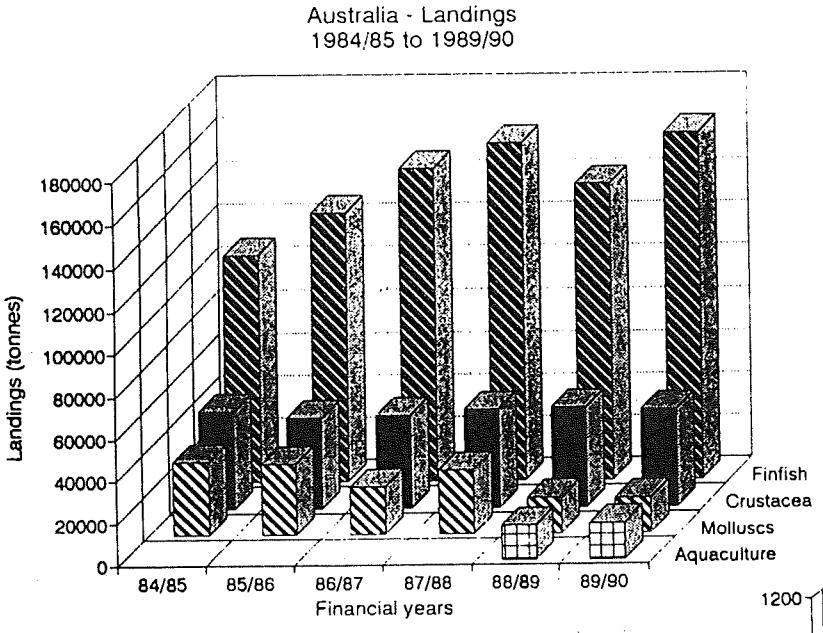
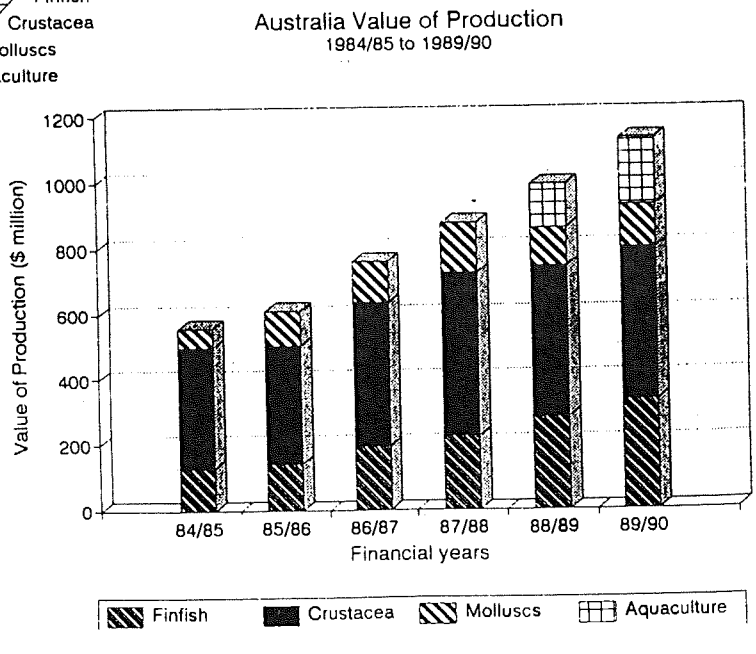


Table 2-8 Australia Quantity and Value of Production

	84/85	85/86	86/87	87/88	88/89	89/90
Quantity (tonnes liveweight)						
Fish a/	106259	125375	145914	157067	137515	161583
Crustacea b/	43596	39407	40523	42486	43988	43551
Molluscs	34656	33431	22612	30015	16964	16630
Total marine capture	184511	198212	209049	229568	198467	221764
Aquaculture					16534	17242
Inland waters c/	1066	1196	1331	1629	1618	1877
Total					216619	240883
Value ($ million)						
Fish a/	126.1	141.5	191.2	220.3	262.5	294.1
Crustacea b/	370.6	362.9	444.2	503.4	465.4	468.8
Molluscs	60.1	108.5	126.9	152.4	117.2	129.7
Total marine capture	556.8	612.8	762.3	876.2	845.1	892.7
Aquaculture					131.8	199.9
Inland waters c/	0.6	0.8	1.0	1.2	1.3	1.6
Total					978.3	1094.1

a/ States plus Southeast Trawl, Torres Strait mackerel, foreign and joint venture fishing
b/ States plus Northern Prawn and Torres Strait Prawn and Lobsters
c/ data on inland fisheries only available for South Australia





3. COMMONWEALTH MANAGED FISHERIES

Table 3-1 Southeast Trawl Fishery - Landings by Species and State 1985/86 -1989
(tonnes liveweight)

	85/86[a/]	86/87	87/88	88/89	89/90
Landings (tonnes liveweight)					
Fish	13026	25213	25530	33310	52406
Crustacea	303	442	375	380	334
Molluscs	548	656	603	573	445
Total	13878	26311	26509	34263	53186
Landings by State (tonnes liveweight)					
Tasmania	628	2400	1812	8948	27983
Victoria	5731	11542	13181	13238	16120
NSW	7155	11857	10563	11214	8674
South Australia	363	513	953	863	409
Total	13878	26311	26509	34263	53186
Value ($ million)					
Fish	19.1	48.8	45.6	73.6	114.6
Crustacea	1.6	2.9	2.5	2.5	2.0
Molluscs	1.0	1.3	1.3	0.9	0.9
Total	21.6	53.0	49.4	76.9	117.6

a/ data for 1985/86 are incomplete

Southeast Trawl Fishery Landings
by State 1985/86 to 1989/90

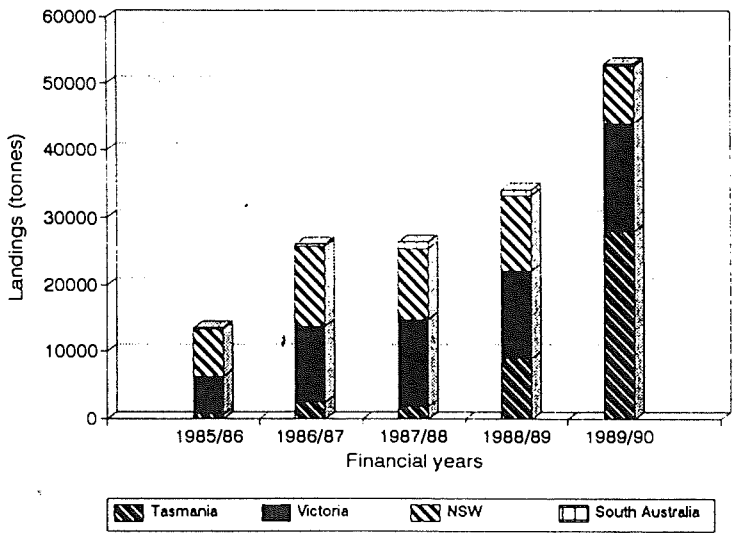


Table 3-2 Northern Prawn Fishery - Quantity and Value of Production [a/]

Financial years [b/]	84/85	85/85	86/87	87/88	88/89	89/90
Landings (tonnes liveweight)						
Banana	4062	2995	4026	3575	5635	2465
Tiger	4248	3434	2424	3297	3480	3179
Endeavour	1654	1663	749	685	679	920
King	80	75	82	179	82	85
Other	100	24	48	10	0	0
Total	10144	8191	7329	7746	9876	6649
Value of Production						
Est. price ($/kg) [c/]	6.42	7.47	8.95	10.02	6.71	8.19
Value ($ million)	65.2	61.2	65.6	77.6	66.2	54.4

a/ includes areas outside NPF managed area (Admiralty, Collier Bay, York Sound)
b/ assuming that bananas are caught in the first half of the year with other species in the second
c/ based on estimated prices from Northern Territory annual reports

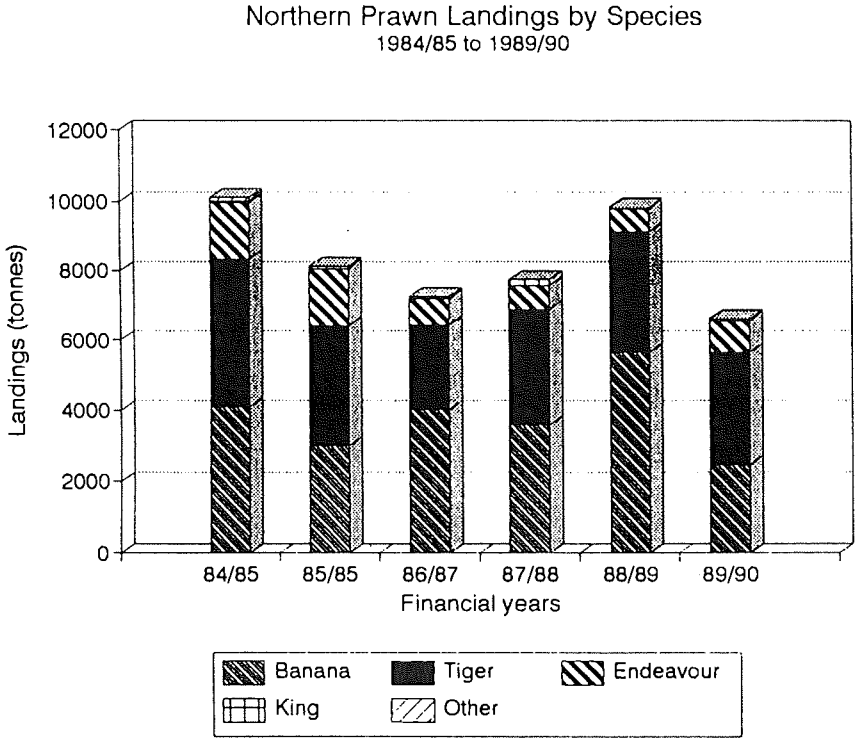


Table 3-3 Torres Strait Lobster and Prawn Landings
(tonnes)

	84/85	85/85	86/87	87/88	88/89	89/90
Landings (tonnes liveweight)						
Lobster a/	335	879	573	633	606	507
Prawns						
Tiger	369	195	177	109	416	381
Endeavour	225	179	240	80	413	415
King	31	13	20	8	22	21
Other	20	6	2	1	5	6
Total	644	392	439	199	856	822
Effort						
Fishing hours (prawns)	34445	23455	22309	12491	44151	57073
CPUE (kg prawn/hour)	18.7	16.7	19.7	15.9	19.4	14.4
Value of Production						
Lobster						
Estimated price ($/kg tail) b/	15.00	16.00	23.00	17.00	18.00	24.00
Value of production ($ mil)	2.0	5.6	5.3	4.3	4.4	4.9
Prawns						
Est. price ($/kg) c/	6.42	7.47	8.95	10.02	6.71	8.19
Value ($ million)	4.1	2.9	3.9	2.0	5.7	6.7
Total value ($ million)	6.2	8.6	9.2	6.3	10.1	11.6

a/ based on conversion of 1.0 kg tail weight per 2.5 kg live
b/ prices estimated by local traders
c/ based on estimated prices from Northern Territory Annual Reports

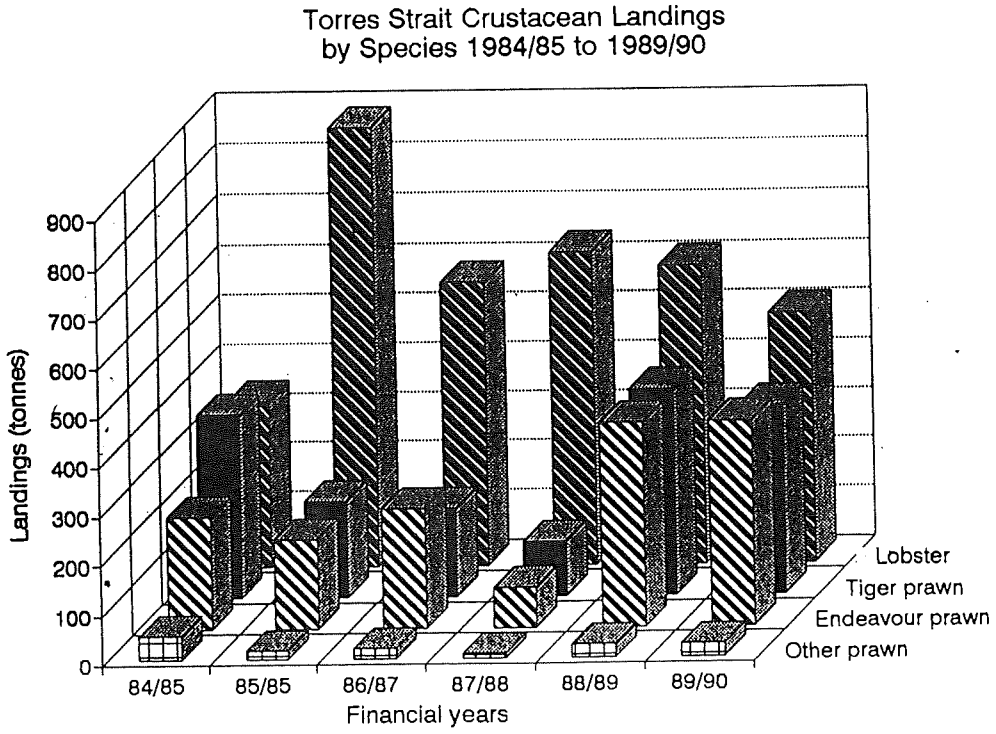


Table 3-4 Foreign and Joint Venture Fishing - Northern Australia

Financial years a/	84/85	85/85	86/87	87/88	88/89	89/90
Quantity (tonnes)						
Taiwanese Fleet						
Arafura Sea	5677	3987	3347	1037	399	209
Northwest Shelf	10891	6808	2306	2600	3155	1467
Timor Sea	2554	1546	759	395	317	184
Total Taiwanese	19122	12342	6412	4032	3872	1859
Thai Fleet - Arafura Sea	149	1301	2924	4082	6106	6515
Total	19272	13643	9336	8114	9978	8374
Value						
Estimated price ($/kg)	1.17	1.29	1.27	1.80	2.34	2.30
Value ($ million)	22.5	17.7	11.8	14.6	23.4	19.3

a/ actual financial year data not available. Estimated by taking 50 % from two calendar years. Calendar year data are given in the tables in Section B

Foreign and Joint Venture Fishing
Northern Australia 1984/85 to 1989/90

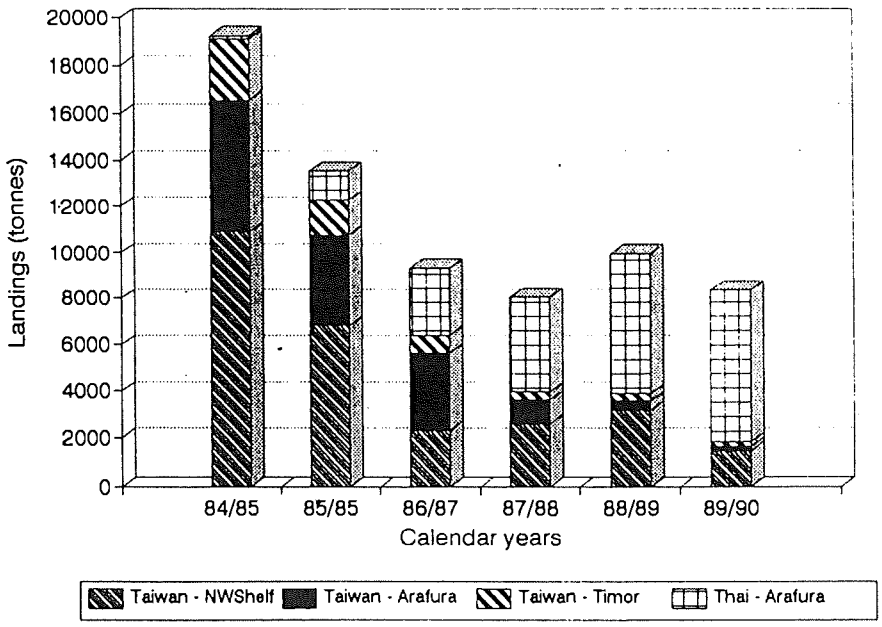


Table 3-5 Shark Landings, Southern Australia 1984/85 to 1989/90
(tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
By State						
Victoria	1600	1714	1679	1701	1673	1506
Tasmania	1515	1176	1095	840	736	658
South Australia	942	1189	1251	1427	1388	1199
Total	4057	4079	4025	3968	3797	3363
By species						
Gummy shark	1779	1755	1708	1790	1853	1785
School shark	1901	1999	1956	1801	1660	1325
Saw shark	261	240	302	312	214	190
Elephant fish	116	85	59	65	70	63
Total	4057	4079	4025	3968	3797	3363
Values are calculated under individual State fisheries						

Southern Shark Landings
by State 1984/85 to 1989/90

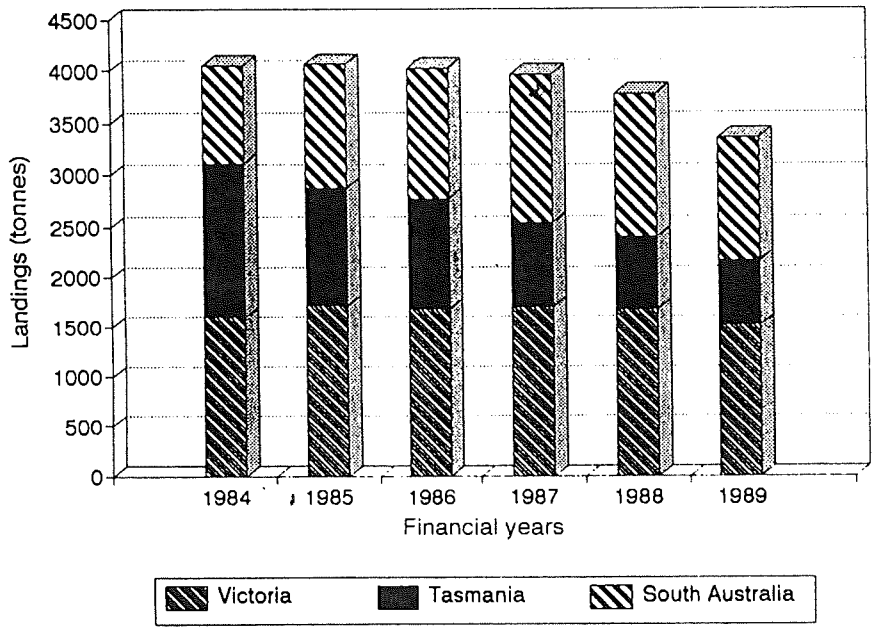


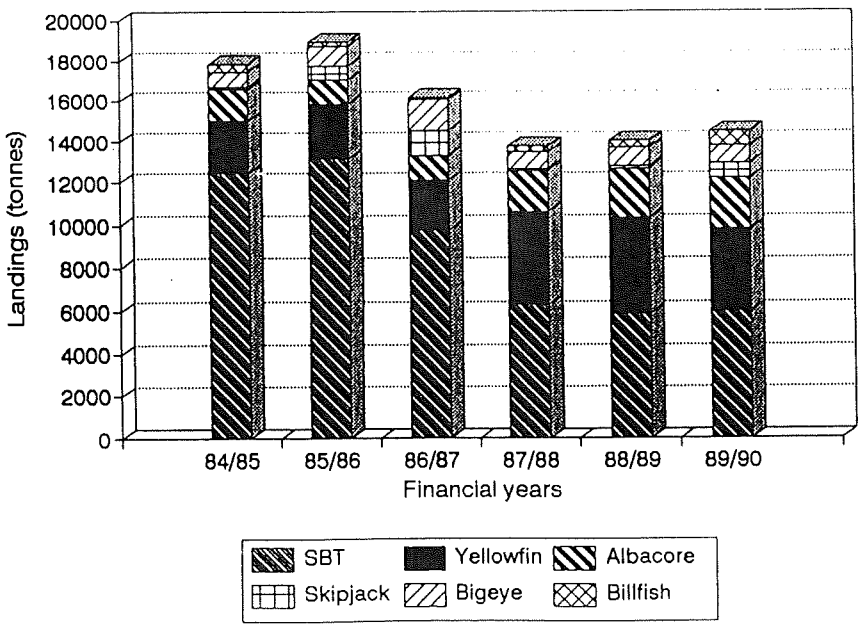
Table 3-6 Summary of Tuna Landings - Australia 1984/85 to 1989/90
(tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
By Species						
SBT	12438	13159	9722	6335	5852	6001
Yellowfin	2607	2736	2392	4338	4502	3800
Albacore	1571	1236	1203	1953	2364	2446
Skipjack	177	696	1267	100	108	719
Bigeye	792	993	1569	808	917	852
Billfish	429	243	135	333	391	754
Total	18015	19062	16287	13867	14134	14571
By State of Catch						
New South Wales	1524	1590	1858	2464	2617	2706
Northern Territory	0	2	12	0	32	4
Queensland	2792	2439	2133	3992	4817	3898
South Australia	4374	7599	3360	3662	3021	3578
Tasmania	313	472	561	801	1613	1953
Victoria	39	12	18	37	754	933
Western Australia	8973	6948	8344	2911	1279	1500
Total	18015	19062	16287	13867	14134	14571
By Class of Vessel						
Australian Pole & Line	11915	13371	10326	5625	3870	4479
Japanese longliners	6100	5691	5728	7224	8870	8406
Australian longliners	0	0	233	1018	999	682
Joint venture vessels	0	0	0	0	395	1004
Total	18015	19062	16287	13867	14134	14571

Values are calculated under individual State fisheries

Source: AFS databases

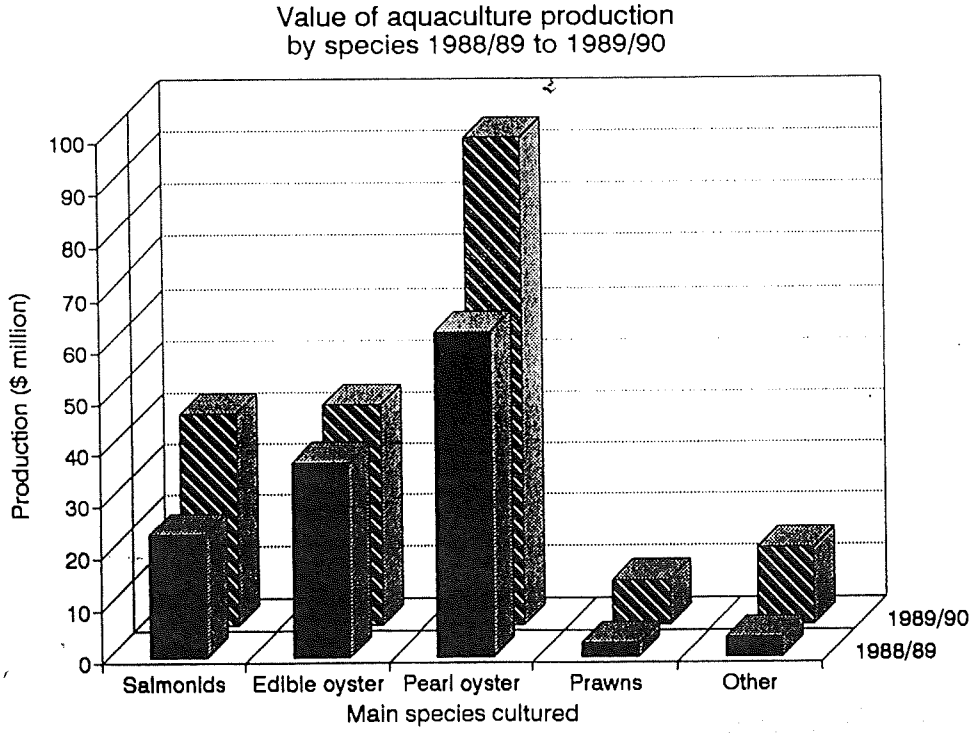
Australian Tuna Landings - Local and Foreign Vessels 1984/85 to 1989/90



4. AQUACULTURE

Table 4-1 Summary of Aquaculture Production by Species 1988/89 to 1989/90
($ million)

	1988/89	1989/90			
	Market	Hatchery	Market	Total	Farms no.
Salmonids	23.6	6.9	34.1	41.0	107
Barramundi	0.3	0.6	0.4	1.0	8
Native freshwater fish	0.0	1.8	0.2	2.0	48
Aquarium fish	1.0	0.0	0.6	0.6	49
Edible oysters	48.8	1.5	45.8	47.2	4179
Pearls and pearlshell	63.0	0.0	93.6	93.6	27
Penaeid prawns	2.7	2.1	6.4	8.5	31
Mussels	1.4	0.0	1.8	1.8	82
Eels	0.1	0.0	1.6	1.6	13
Freshwater crayfish	0.8	0.9	1.7	2.6	398
Microalgae	0.0	0.0	3.5	3.5	3
Crocodiles	0.0	1.2	0.2	1.4	12
Total	141.6	14.8	189.9	204.8	4957



5. TRADE

Table 5-1 Australia - Marine Product Imports
1984/85-1989/90

	84/85	85/86	86/87	87/88	88/89	89/90
Import Volume (tonnes product weight)						
Crustacea	15071	16195	19393	18763	21022	21583
FCF whole fish	14101	12305	14082	13228	19178	19410
FCF fish fillets	161	25109	25203	28230	16028	19825
Canned fish	15496	15571	17185	16101	21241	21069
Canned molluscs	1605	1376	1401	1272	1653	1241
Smoked + other	14157	13227	10990	9370	7335	8796
Total	45520	67588	68861	68201	65435	70341
Import Value ($ million)						
Crustacea	100.5	109.8	163.4	148.2	149.0	152.3
FCF whole fish	20.3	20.4	26.1	26.4	35.7	40.3
FCF fish fillets	0.6	75.3	84.1	97.8	59.5	66.5
Canned fish	64.4	74.6	90.3	86.0	119.4	107.2
Canned molluscs	6.8	6.4	8.8	8.0	11.7	9.2
Smoked + other	39.6	44.8	47.7	40.2	37.1	38.8
Total	232.2	331.4	420.5	406.5	412.3	414.3
Import Value by Origin ($ million)						
SE Asia	78.3	88.8	139.7	137.4	150.3	132.4
North America	48.2	58.4	69.0	55.4	78.4	65.6
Pacific/Oceania	29.1	61.1	56.6	58.6	66.6	65.1
North Asia	34.3	43.4	47.5	43.5	42.7	43.3
Europe	20.7	34.3	41.3	43.0	37.9	36.6
Other	21.5	45.5	66.5	68.7	36.9	71.5
Total	232.3	331.4	420.6	406.6	412.9	414.3

Australia - Marine Product Imports by Value 1984/85 to 1989/90

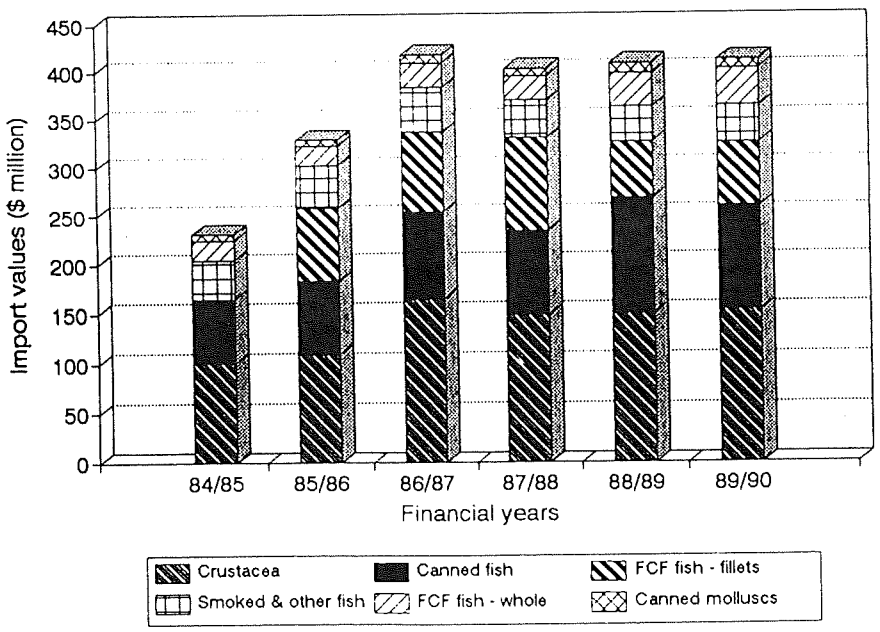
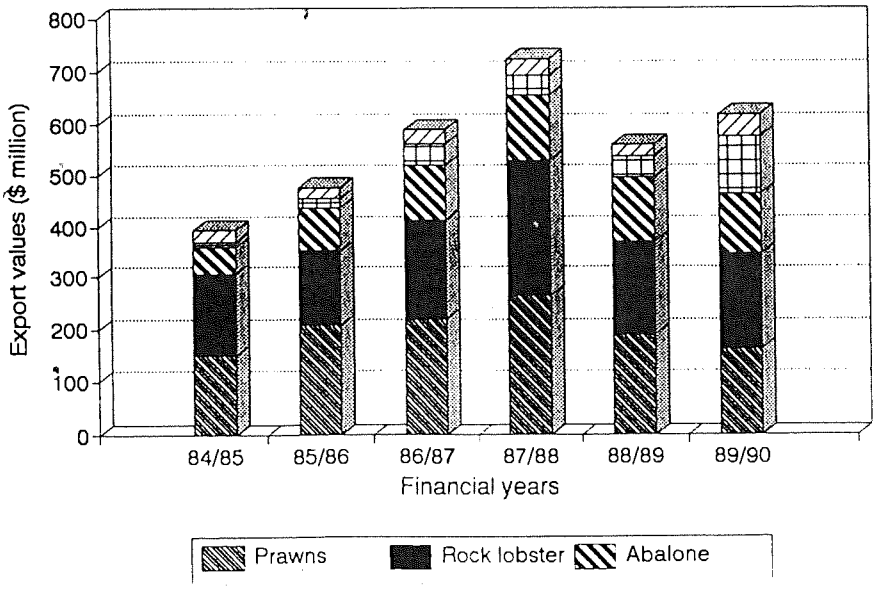


Table 5-2 Australian Fishery Product Exports
1984/85 to 1989/90

	84/85	85/86	86/87	87/88	88/89	89/90
Export Volume (tonnes product weight)						
Edible products						
Fish	6546	7855	10611	8893	8657	16639
Prawns	12236	13095	12919	15255	11644	11356
Rock Lobster	5875	5484	6604	8580	8017	6623
Abalone	4333	4261	3724	3876	3579	3009
Scallops	2103	1451	1314	1297	982	931
Other	442	539	785	962	734	1493
Total	31535	32685	35957	38863	33613	40051
Edible Product Export Value ($ million)						
Fish	11.7	19.8	42.3	39.1	41.7	112.7
Prawns	149.9	206.9	218.2	261.5	189.8	161.7
Rock lobster	157.1	145.5	195.3	268.4	181.2	184.2
Abalone	55.2	86.8	108.2	125.1	128.4	119.7
Scallops	20.2	18.7	23.0	23.7	17.8	21.9
Other	4.9	4.2	5.8	8.4	6.0	21.1
Total edible product	398.8	481.9	592.8	726.2	564.9	621.3
Value by Destination						
North Asia	188.1	281.9	324.0	399.1	382.6	330.5
North America	150.8	120.9	148.8	184.7	79.8	169.1
SE Asia	35.6	51.2	67.6	80.5	65.7	74.6
Europe	13.4	19.4	41.3	49.4	30.1	39.9
Other	11.0	8.5	11.1	12.5	6.8	7.1
Total	398.8	481.9	592.8	726.2	564.9	621.3
Non-edible products						
Pearls ('000)	366	352	440	375	428	581
Shells (t)	631	668	915	1879	905	1300
Fishmeal (t)	16	26	187	536	495	2
Value ($ million)						
Pearls	18.6	27.9	25.7	40.2	55.9	101.0
Shells	1.6	1.8	2.4	3.7	3.4	8.0
Other (mainly f'meal)	0.0	0.1	0.1	0.7	0.8	0.0
Total non-edible	20.2	29.8	28.2	44.5	60.1	109.0

Australia - Marine Product Exports by Value 1984/85 to 1989/90



A. STATE AND NATIONAL LANDINGS AND VALUES

This Section summarises available data from individual States. National landings data are derived by adding the quantities and values of the Northern Prawn, Torres Strait Protected Zone, Northern foreign and joint venture and Southeast Trawl fisheries. Catches by foreign tuna fishing vessels are also added. Other fisheries. Landings by the Australian tuna fleet and southern shark and Great Australian Bight fishing vessels are included under their relevant States. Data on the Commonwealth managed fisheries are provided in Section B.

CONTENTS

1. NEW SOUTH WALES

Table A1-1 NSW Quantity [a/]
(tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
Crustacea						
Lobster	86	67	107	98	79	87
Prawns	3272	2127	2880	2428	2893	2832
Crabs	690	779	740	655	522	421
Other crustacea	57	73	138	107	106	106
Total crustacea	4104	3045	3864	3288	3600	3446
Molluscs						
Abalone	540	540	480	435	359	370
Squid/octopus/cuttlefish	774	744	923	911	989	1091
Other	269	195	282	414	1410	687
Total molluscs	1583	1479	1685	1760	2758	2148
Finfish						
Tuna	409	547	481	1427	1847	3804
Shark	723	722	632	653	695	797
Gemfish [a/]	2440	included in SET				
Australian Salmon	417	341	692	302	543	437
Snapper	607	571	447	591	536	474
Bream	524	484	444	655	585	488
Dory, john	164	169	146	159	174	164
Flathead, tiger/sand	1073	655	504	697	1189	795
Kingfish, yellowtail	452	452	577	540	522	482
Ling	150	167	119	169	177	225
Luderick	504	731	575	788	732	705
Mackerel	408	169	369	815	1081	159
Morwong	634	510	455	488	603	395
Mullet	2501	3087	2934	3112	3151	3295
Redfish/nannygai	871	718	589	588	700	477
Trevalla, deepsea/b'eye	104	103	123	244	243	254
Trevally, silver	687	639	1015	670	1122	943
Whiting	848	1099	996	835	664	642
Other	2805	3018	2698	2923	3148	5071
Total finfish	16320	14182	13795	15656	17713	19605
Total Capture	22007	18705	19344	20704	24071	25200
Aquaculture [b/]	11608	10311	10299	11098	9677	8609

a/ SE trawl landings included for 1984/85, excluded for other years
b/ oysters ('000 dozen) only for period 1984/85 to 1987/88

Sources:
1987/88-1989/90 volume data from logbook database
1984/85-1986/87 extrapolated on the basis of FMA throughput, except:
- Skipjack tuna data based on Eden cannery receivals, plus 1000 tonnes shipped directly to SA in 1989/90
- cephalopod landings assumed to be 10% over FMA sales of NSW throughput from NSW fishers/co-ops
- gemfish - FMA sales
- Australian salmon 1984/87 based on landings to Heinz cannery, increased by differential between NSWA&F data and Heinz data for subsequent 3 years

Table A1-2 NSW Value of Production
($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
Crustacea						
Lobster	1115	1008	1718	1848	1434	1613
Prawns	15661	12602	20543	16986	19291	17581
Crabs	1780	1717	2344	2464	2418	1896
Other crustacea	250	310	565	442	527	599
Total crustacea	18806	15637	25170	21741	23669	21689
Molluscs						
Abalone	4320	5019	5880	5981	5744	7234
Squid/octopus/cuttlefish	1089	1295	1806	1958	1573	2261
Other	227	191	245	295	1154	792
Total molluscs	6061	6406	7550	7885	7928	10238
Finfish						
Tuna	740	1125	1320	2490	3157	5033
Shark	1015	1139	1311	1355	1343	1477
Gemfish a/	2110	included in SET				
Australian Salmon	146	119	294	151	272	240
Snapper	2752	2928	2913	3656	3570	3138
Bream	1841	1815	2166	2820	2569	1903
Dory, john	496	527	604	677	924	762
Flathead, tiger/sand	1060	807	797	829	1313	1000
Kingfish, yellowtail	678	793	1327	1255	1337	1111
Ling	289	388	332	415	437	582
Luderick	231	346	431	554	497	468
Mackerel	322	145	453	891	2124	183
Morwong	838	869	991	1009	1064	865
Mullet	1423	1973	2189	2421	2719	2982
Redfish/nannygai	434	488	591	576	675	494
Trevalla, deepsea/b'eye	413	464	673	1064	1224	1126
Trevally, silver	369	429	954	662	1037	760
Whiting	1292	1738	2094	1704	1707	1572
Other	4168	4950	4972	5332	5795	9848
Total finfish	20619	21043	24414	27862	31763	33543
Fish		19.1	48.8	45.6	73.6	114.6
Aquaculture b/	23483	24984	26944	31041	30184	31484

a/ oysters only for period 1984/85 to 1987/88

Source: Tables 1-1 & 1-3

Table A1-3 NSW Unit Value
($/kg)

	84/85	85/86	86/87	87/88	88/89	89/90
Crustacea						
Lobster	12.99	15.09	16.08	18.79	18.12	18.59
Prawns	4.79	5.93	7.13	7.00	6.67	6.21
Crabs	2.58	2.20	3.17	3.76	4.63	4.50
Other crustacea	4.40	4.24	4.10	4.14	4.97	5.65
Total crustacea	4.58	5.18	6.56	6.64	6.57	6.28
Molluscs						
Abalone	8.00	9.29	12.25	13.75	16.00	19.55
Squid/octopus/cuttlefish	1.41	1.74	1.96	2.15	1.59	2.07
Other	0.84	0.98	0.87	0.71	0.82	1.15
Total molluscs	3.83	4.33	4.48	4.48	2.88	4.77
Finfish						
Tuna	1.81	2.06	2.75	1.75	1.71	1.32
Shark	1.40	1.58	2.07	2.08	1.93	1.85
Gemfish a/	0.87	0.94	1.18	1.43	1.70	1.84
Australian Salmon	0.35	0.35	0.43	0.50	0.50	0.55
Snapper	4.54	5.13	6.52	6.19	6.66	6.62
Bream	3.51	3.75	4.88	4.31	4.39	3.90
Dory, john	3.03	3.12	4.14	4.26	5.31	4.64
Flathead, tiger/sand	0.99	1.23	1.58	1.19	1.10	1.26
Kingfish, yellowtail	1.50	1.75	2.30	2.32	2.56	2.31
Ling	1.93	2.32	2.80	2.46	2.46	2.59
Luderick	0.46	0.47	0.75	0.70	0.68	0.66
Mackerel	0.79	0.86	1.23	1.09	1.96	1.15
Morwong	1.32	1.70	2.18	2.07	1.77	2.19
Mullet	0.57	0.64	0.75	0.78	0.86	0.91
Redfish/nannygai	0.50	0.68	1.00	0.98	0.96	1.04
Trevalla, deepsea/b'eye	3.98	4.50	5.48	4.36	5.04	4.43
Trevally, silver	0.54	0.67	0.94	0.99	0.92	0.81
Whiting	1.52	1.58	2.10	2.04	2.57	2.45
Other	1.49	1.64	1.84	1.82	1.84	1.94
Total finfish	1.26	1.40	1.85	1.72	1.80	1.76
Total Capture	2.07	2.30	2.95	2.78	2.63	2.60
Aquaculture b/	2.02	2.42	2.62	2.80	2.99	3.19
Oysters ($/dozen)	2.02	2.42	2.62	2.80	2.99	3.19

a/ FMA prices less 21 per cent freight and commission

Source: Fish Marketing Authority average prices, less 21 per cent freight and commission

Table A1-4 New South Wales Vessel Numbers
December 1990

Port	Boat Size			
	<7.5m	7.5-12m	>12m	Total
NA	13	1		14
Tweed Heads	106	7	20	133
Brunswick Heads	2	5	11	18
Byron Bay/Lennox Head	15			15
Richmond River/Ballina	55	2	17	74
Evans Head	8	4	16	28
Clarence/Maclean	335	66	65	466
Sandon River Brooms Head	7			7
Wooli	23	6	2	31
Arrawarra	2			2
Woolgoolga	12			12
Coffs Harbour	26	24	22	72
Sawtell Bonville Creek	4			4
Bellingen River Urunga	4			4
Nambucca Heads	28			28
Macleay South West Rocks	69	7	6	82
Hastings Port Macquarie	51	4	4	59
Lake Cathie	2			2
Camden Haven Laurieton	47	8	4	59
Crowdy Head	15	11	8	34
Manning Taree	64			64
Smiths Lake	20			20
Myall Lakes	37	2		39
Wallis Lake Tuncurry	195	7	6	208
Port Stephens	189	11	19	219
Hunter Newcastle	70	33	30	133
Lake Macquarie Swansea	122	2	1	125
Tuggerah Lks The Entrance	163			163
Terrigal	25	4		29
Brisbane Waters	19	13		32
Hawkesbury Pittwater	106	31	5	142
Lord Howe Island			2	2
Port Jackson Sydney Hrbr	50	33	24	107
Botany Bay	97	37	1	135
Port Hacking	7	1	1	9
Lake Illawarra Wollongong	123	13	12	148
Kiama	13	3	2	18
Greenwell Point Nowra	73	15	8	96
Jervis Bay Huskisson	32	3	2	37
St Georges Basin	20			20
Ulladulla	49	7	27	83
Batemans Bay	42	15	3	60
Moruya	37		1	38
Narooma	48	13	3	64
Bermagui	15	12	11	38
Bega River Tathra	16			16
Merimbula	1			1
Twofold Bay Eden	52	14	32	98
Total	2509	414	365	3288
Per cent	76.3%	12.6%	11.1%	

Source: NSW Agriculture & Fisheries

2. NORTHERN TERRITORY

Table A2-1 Northern Territory Quantity
(tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
Crustacea [a/]						
Lobster	1	2	3	1	1	1
Crabs	52	106	123	138	145	197
Other crustacea	38	29	38	21	12	16
Total crustacea	91	137	164	160	158	214
Molluscs						
Scallops	66	19	47	15	14	13
Squid	38	8	19	6	7	18
Other	9	9	14	3	4	7
Total molluscs	113	36	80	24	25	37
Finfish						
Tuna	11	10	0	10	3	3
Shark	408	430	359	509	579	458
Snapper	5	233	276	75	125	205
Barramundi	636	609	531	550	613	550
Threadfin salmon	384	367	370	327	256	198
Mackerel	225	485	128	238	243	366
Jewfish	20	22	30	26	18	14
Emperor	4	55	57	9	13	26
Sweetlip	2	89	73	13	1	7
Other	89	224	725	818	1035	1148
Total finfish	1783	2524	2550	2576	2886	2975
Total	1987	2697	2794	2760	3069	3227
Aquaculture						7
a/ excluding northern prawn fishery landings (t)	2154	3302	3481	3880	3361	2565

Source: Department of Primary Industry and Fisheries (DPIF)

Table A2-2 Northern Territory Value
($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
Crustacea [a]						
Lobster	4	8	19	6	13	10
Crabs	282	573	690	845	890	1135
Other crustacea	135	111	237	203	100	130
Total crustacea	421	692	946	1054	1003	1275
Molluscs						
Scallops	73	21	88	30	25	32
Squid	77	19	51	18	30	63
Other	9	12	19	5	325	267
Total molluscs	159	51	157	52	380	362
Finfish						
Tuna	4	5	0	5	2	1
Shark	268	275	324	570	574	472
Snapper	8	321	301	186	423	670
Barramundi	1737	1779	1891	1983	2242	2052
Threadfin salmon	344	419	518	478	380	309
Mackerel	297	686	209	414	431	764
Jewfish	26	35	57	57	43	33
Emperor	10	79	65	20	50	90
Sweetlip	3	96	74	20	2	15
Other	105	278	955	1119	1576	1395
Total finfish	2800	3973	4393	4852	5722	5800
Total	3380	4717	5496	5958	7106	7437
Aquaculture [b]					0	919

a/ excluding northern prawn fishery landings: 13838 24661 31145 38859 22546 21001

b/ includes pearl and pearl shell for which no quantity is included

Source: DPIF

Table A2-3 Northern Territory Unit Value
($/kg)

	84/85	85/86	86/87	87/88	88/89	89/90
Crustacea a/						
Lobster	3.60	4.10	6.40	9.47	11.17	7.14
Crabs	5.42	5.38	5.60	6.12	6.16	5.76
Other crustacea	3.56	3.88	6.26	9.64	8.30	8.39
Total crustacea	4.62	5.04	5.76	6.59	6.36	5.95
Molluscs						
Scallops	1.10	1.08	1.86	1.99	1.75	2.50
Squid	2.03	2.36	2.70	2.94	4.20	3.50
Other	1.02	1.33	1.32	1.59	1.00	2.50
Total molluscs	1.41	1.43	1.97	2.18	15.21	9.67
Finfish						
Tuna	0.32	0.47	1.74	0.50	0.60	0.41
Shark	0.66	0.64	0.90	1.12	0.99	1.03
Snapper	1.56	1.38	1.09	2.48	3.39	3.27
Barramundi	2.73	2.92	3.56	3.61	3.66	3.73
Threadfin salmon	0.89	1.14	1.40	1.46	1.48	1.56
Mackerel	1.32	1.41	1.63	1.74	1.78	2.09
Jewfish	1.29	1.59	1.87	2.21	2.32	2.34
Emperor	2.40	1.44	1.14	2.14	3.85	3.41
Sweetlip	1.70	1.08	1.01	1.46	2.04	2.10
Other	1.19	1.24	1.32	1.37	1.52	1.22
Total finfish	1.57	1.57	1.72	1.88	1.98	1.95
Total	4.16	4.90	5.84	6.75	4.61	4.87
a/ estimated northern prawn prices	6.42	7.47	8.95	10.02	6.71	8.19

Source: DPIF

Table A2-4 Northern Territory Vessel Numbers
December 1990

Length Class	Total	Crab	Bait	Barra-mundi	Pelagic	Inshore	Offshore
0-5.0 m	56	36	21	4		20	3
5.1-10.0 m	34	2	10	7	3	31	23
10.1-15.0 m	21	2	6	13	10	17	17
15.1-20.0 m	12		1	3	5	7	8
20.1-25.0 m	1		1			1	1
Total	124	40	39	27	18	76	52

a/ many vessels licensed for more than one fishery

Source: DPIF Records

3. QUEENSLAND

Table A3-1 Queensland Quantity
(tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
Crustacea						
Prawns	8580	7698	10572	6847	7788	6436
Crabs	835	940	980	1152	1181	1329
Lobster (mainly bugs)	247	234	905	496	417	467
Total crustacea	9662	8872	12457	8495	9386	8232
Molluscs						
Scallops	2989	2998	2335	4466	3060	4373
Squid	127	108	62	116	216	168
Total molluscs	3116	3105	2397	4581	3276	4541
Finfish						
Snapper	na	na	na	24	64	86
Barramundi	230	221	360	281	577	602
Bream (inc tarwhine)	222	221	128	231	248	240
Mullet	1094	989	1602	3024	2529	2276
Tailor	na	na	na	209	200	246
Whiting	262	253	294	296	373	359
Coral trout	na	na	na	862	1129	1295
Red Emperor	na	na	na	348	516	532
Mackerel-spanish	692	731	604	401	495	610
Mackerel-grey	370	391	323	254	259	292
Other species	1318	1213	2709	1236	1938	3049
Total finfish	4188	4019	6019	7166	8328	9587
Total Capture	16966	15996	20873	20242	20990	22360
Aquaculture					465	965

Source: 1988/89 & 1989/90 based on fishermen's returns, processed by QFMA published by QDPI
prior years based on limited data from QFMA plus prior published data

Table A3-2 Queensland Value
($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
Crustacea						
Prawns	71378	82640	113500	70916	77229	54203
Crabs	1744	2048	3104	4425	5146	6500
Lobster (mainly bugs)	1111	1101	6180	3838	3953	5142
Total crustacea	74234	85788	122783	79179	86328	65845
Molluscs						
Scallops	11902	15403	11786	17325	13770	23412
Squid	309	353	152	337	548	476
Total molluscs	12210	15756	11938	17661	14318	23888
Finfish						
Snapper	na	na	na	140	385	533
Barramundi	1099	1138	2296	1742	3674	4231
Bream (inc tarwhine)	480	578	321	557	795	770
Mullet	1587	1336	1938	3224	2959	3036
Tailor	na	na	na	557	451	615
Whiting	783	871	1323	1255	1619	1379
Coral trout	na	na	na	5815	8438	8436
Red Emperor	na	na	na	2262	3842	3070
Mackerel-spanish	1905	2263	2114	1509	1846	2141
Mackerel-grey	764	907	848	718	724	769
Other species	2831	2932	7380	2904	6171	9333
Total finfish	9449	10025	16220	20683	30904	34313
Total Capture	95892	111567	150942	117526	131550	124044
Aquaculture					2655	10524

Source: Tables A3-1 and A3-3

Table A3-3 Queensland Unit Value
($/kg)

	84/85	85/86	86/87	87/88	88/89	89/90
Crustacea						
Prawns	8.32	10.74	10.55	10.36	9.92	8.42
Crabs	2.09	2.18	3.17	3.84	4.36	4.89
Lobster (mainly bugs)	4.50	4.70	6.83	7.73	9.48	11.01
Total crustacea	7.68	9.67	9.86	9.32	9.20	8.00
Molluscs						
Scallops	14.02	18.10	17.78	13.67	15.85	18.86
Squid	2.43	3.28	2.45	2.91	2.54	2.83
Total molluscs	3.92	5.07	4.98	3.86	4.37	5.26
Finfish						
Snapper	4.42	4.75	5.90	5.90	6.02	6.20
Barramundi	4.78	5.14	6.38	6.21	6.37	7.03
Bream (inc tarwhine)	2.16	2.62	2.52	2.42	3.20	3.21
Mullet	1.45	1.35	1.21	1.07	1.17	1.33
Tailor	2.18	2.94	2.20	2.66	2.26	2.50
Whiting	2.99	3.44	4.50	4.24	4.34	3.84
Coral trout	4.57	4.91	6.15	6.75	7.47	6.51
Red Emperor	4.82	5.18	6.45	6.51	7.45	5.77
Mackerel-spanish	2.75	3.10	3.50	3.76	3.73	3.51
Mackerel-grey	2.06	2.32	2.63	2.82	2.80	2.63
Other species	2.15	2.42	2.72	2.35	3.18	3.06
Total finfish	2.26	2.49	2.69	2.89	3.71	3.58
Total Capture	5.65	6.97	7.23	5.81	6.27	5.55

Source: unpublished Colmslie market statistics for 1987/88 to 1989/90. Prior years estimated

Table A3-4 Queensland Vessel Numbers
December 1990

Length Class (metres)	E Coast Barra	EC Trawl	Net	Gulf Line	EC Line	Beam Trawl	Crab Pot	Total
6	10	2	19		4	6	23	64
7	16	5	28		6	23	9	87
8	13	6	37		17	17	10	100
9	41	68	62		38	16	21	246
10	16	32	12		10	3	5	78
11	7	51	16		18	1	1	94
12	13	90	11		24	1	9	148
13	4	78	8		10	2	6	108
14	8	194	12		12	1	3	230
15	2	162	5		17			186
16		60	0		4			64
17		85	1		3			89
18		75	0		4			79
19		24	0	1	1			26
20		43	1	2	1			47
21		0	0	1				1
22		0	0	7				7
23		0	0	14	1			15
24		1	0	12				13
25		0	0	11	1			12
26		0	0	6				6
27		0	0					0
28		0	0	1				1
29		1	0					1
30				1				1
Total	130	977	212	56	171	70	87	1703

Source: QDPI

4. SOUTH AUSTRALIA

Table A4-1 South Australia Quantity [a/]
(tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
Crustacea						
Lobster	2216	2206	2208	2468	2275	2525
Prawns	2007	1909	1393	1862	1984	1970
Crabs	143	196	187	214	380	504
Other crustacea	8	11	17	13	10	12
Total crustacea	4374	4322	3805	4557	4649	5011
Molluscs						
Abalone	1007	877	911	1037	973	959
Cockles	449	398	471	497	355	339
Squid	187	192	202	206	265	208
Other molluscs			185	252	312	349
Total molluscs	1643	1467	1769	1992	1905	1855
Finfish						
Tuna	11315	12075	10040	9785	4872	4228
Shark	1663	1976	2124	2494	2516	2258
Orange Roughy GAB [b/]				1422	2510	2760
Australian Salmon	623	650	606	669	422	411
Snapper	471	455	405	333	447	423
Mullet	224	346	488	299	354	522
Tommy ruff	274	306	440	498	489	340
King george whiting	665	654	656	589	620	634
Garfish	429	439	389	381	463	516
Other GAB & SET [c/]				1471	2523	1614
Deduct est. SET [d/]		-363	-513	-825	-1384	-540
Other	478	565	846	1243	1461	1498
Total finfish	16142	17103	15481	18359	15293	14664
Inland waters	1066	1196	1331	1629	1618	1877
Total capture	23225	24088	22386	26537	23465	23407
Aquaculture					25	101

a/ excluding SET, including GAB
b/ species composition for SET & GAB estimated for 1987/88
Total GAB landings (tonnes) 2068 3650 3835
c/ ie, in addition to orange roughy
d/ 1985/87 taken from SET dastabase, 1987/90 from Fisheries Dept records
If the SET data are added back, total landings reconcile with published data

Source: South Australian Department of Fisheries

Table A4-2 South Australia Value [a/]
($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
Crustacea						
Lobster	23549	24298	32049	37978	26891	36487
Prawns	16084	17925	16077	20778	23026	22748
Crabs	292	451	456	665	1265	1693
Other crustacea	32	48	106	98	109	81
Total crustacea	39957	42722	48688	59519	51291	61009
Molluscs						
Abalone	4399	7507	10953	13219	14542	16694
Cockles	232	263	274	400	730	325
Squid	540	583	638	776	990	833
Other molluscs			324	489	562	635
Total molluscs	5171	8353	12189	14884	16824	18488
Finfish						
Tuna	12550	11736	15509	15749	10053	17587
Shark	2640	3394	4327	6780	6134	5350
Orange Roughy GAB [b/]				2863	6475	6541
Australian Salmon	371	516	621	662	411	488
Snapper	1141	1208	1320	1204	1715	1648
Mullet	201	268	507	347	382	476
Tommy ruff	218	224	281	350	398	243
King george whiting	3348	4245	3591	3678	4793	4173
Garfish	1092	1157	1136	1376	1543	1402
Other GAB & SET [c/]				2716	5217	3601
Deduct est. SET [d/]		-726	-1026	-1765	-3359	-1429
Other	520	1725	2272	1449	1500	1781
Total finfish	22081	23747	28538	35409	35262	41861
Inland waters	595	812	1008	1156	1324	1550
Total capture	67804	74908	89397	111355	106028	124231
Aquaculture					146	652

a/ excluding SET, including GAB
b/ species composition for SET & GAB estimated for 1987/88
c/ ie, in addition to orange roughy
d/ 1985/87 estimated, 1987/90 from Fisheries Dept records
If the SET data are added back, total values reconcile with published data

Source: South Australian Department of Fisheries

Table A4-3 South Australia Unit Value
($/kg)

	84/85	85/86	86/87	87/88	88/89	89/90
Crustacea						
Lobster	10.63	11.02	14.52	15.39	11.82	14.45
Prawns	8.01	9.39	11.54	11.16	11.61	11.55
Crabs	2.04	2.30	2.44	3.11	3.33	3.36
Other crustacea	4.00	4.36	6.24	7.54	10.90	6.75
Total crustacea	9.14	9.89	12.80	13.06	11.03	12.18
Molluscs						
Abalone	4.37	8.56	12.02	12.75	14.95	17.40
Cockles	0.52	0.66	0.58	0.81	2.06	0.96
Squid	2.89	3.04	3.16	3.77	3.74	4.01
Other molluscs			1.75	1.94	1.80	1.82
Total molluscs	3.15	5.69	6.89	7.47	8.83	9.97
Finfish						
Tuna	1.11	0.97	1.55	1.61	2.06	4.16
Shark	1.59	1.72	2.04	2.72	2.44	2.37
Orange Roughy				2.01	2.58	2.37
Australian Salmon	0.60	0.79	1.03	0.99	0.98	1.19
Snapper	2.42	2.66	3.26	3.62	3.84	3.89
Mullet	0.90	0.78	1.04	1.16	1.08	0.91
Tommy ruff	0.80	0.73	0.64	0.70	0.81	0.72
King george whiting	5.04	6.49	5.47	6.24	7.73	6.58
Garfish	2.55	2.64	2.92	3.61	3.33	2.72
Other GAB & SET				1.85	2.07	2.23
Deduct est. SET a/		2.00	2.00	2.14	2.43	2.65
Other	1.09	3.05	2.69	1.17	1.03	1.19
Total finfish	1.37	1.39	1.84	1.93	2.31	2.85
Inland waters	0.56	0.68	0.76	0.71	0.82	0.83
Total capture	2.92	3.11	3.99	4.20	4.52	5.31
Aquaculture					5.84	6.46

a/ 1985/87 price estimated

Source: Tables A4-1 and A4-2

Table A4-4 South Australia Vessel Numbers
December 1990

Length	Number of vessels
0 - 5.0 m	630
5.1 - 10.0 m	665
10.1 - 15.0 m	237
15.1 - 20.0 m	91
20.1 - 25.0 m	5
25.1 - 30.0 m	1
Total	1629

Source: South Australia Department of Fisheries

5. TASMANIA

Table A5-1 Tasmania Quantity
(tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
Crustacea						
Lobster	1916	1456	1582	1803	1850	1743
Total crustacea	1916	1456	1582	1803	1850	1743
Molluscs						
Abalone	4215	3558	3245	3213	2421	1929
Scallops	2301	3022	5020	78	nil	nil
Total molluscs	6516	6580	8265	3291	2421	1929
Finfish						
Tuna				43	46	148
Shark	1121	1966	1635	1887	2090	1422
Australian Salmon	443	885	535	946	1020	na
Jack mackerel	5961	21547	39399	40141	8865	12692
Other fish species	711	2270	1708	2357	2810	1705
Total finfish	8236	26668	43277	45373	14831	15967
Total Capture	16668	34704	53124	50467	19102	19639
Aquaculture					4526	6087

Source: Tasmanian Department of Primary Industry

Table A5-2 Tasmania Value
($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
Crustacea						
Lobster	18649	16233	21652	29485	27206	25718
Total crustacea	18649	16233	21652	29485	27206	25718
Molluscs						
Abalone	19614	30801	44683	46235	39308	33929
Scallops	1873	3326	8495	943	nil	nil
Total molluscs	21487	34127	53178	47178	39308	33929
Finfish						est
Tuna				104	113	361
Shark	1763	1051	5079	7157	7424	4630
Australian Salmon	232	510	365	731	791	na
Jack mackerel	236	1487	2839	2460	1330	1904
Other fish species	213	1043	2121	4063	4477	4531
Total finfish	2444	4091	10404	14515	14135	11426
Total Capture	42580	54451	85234	91178	80649	71073
Aquaculture					27016	46096

Source: Tasmanian Department of Primary Industry

Table A5-3 Tasmania Unit Value
($/kg)

	84/85	85/86	86/87	87/88	88/89	89/90
Crustacea						
Lobster	9.73	11.15	13.69	16.35	14.71	14.76
Total crustacea	9.73	11.15	13.69	16.35	14.71	14.76
Molluscs						
Abalone	4.65	8.66	13.77	14.39	16.24	17.59
Scallops	0.81	1.10	1.69	12.09		
Total molluscs	3.30	5.19	6.43	14.34	16.24	17.59
Finfish						
Tuna				2.44	2.44	2.44
Shark	1.57	0.53	3.11	3.79	3.55	3.26
Australian Salmon	0.52	0.58	0.68	0.77	0.78	na
Jack mackerel	0.04	0.07	0.07	0.06	0.15	0.15
Other fish species a/	0.02	0.46	1.24	1.72	1.59	2.66
Total finfish	0.27	0.15	0.24	0.32	0.95	0.72
Total Capture b/	2.54	1.57	1.60	1.81	4.22	3.62
Aquaculture	na	na	na	na	5.97	7.57

a/ 1984/85 estimated
b/ large catches of jack mackerel resulted in low overall average prices between 1985/86 to 1987/88

Source: Tables A5-1 and A5-2

Table A5-4 Tasmania Vessel Numbers
December 1990

Length	Number of vessels
0 - 5.0 m	181
5.1 - 10.0 m	293
10.1- 15.0 m	264
15.1- 20.0 m	162
20.1- 25.0 m	15
25.1- 30.0 m	8
>30	4
Total	927

Source: Tasmanian Department of Primary Industry

6. VICTORIA

Table A6-1 Victoria Quantity
(tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
Crustacea						
Lobster (87/89/90 est)	482	387	380	382	380	380
Prawns d/	90	90	90	90	90	90
Inshore/estuarine d/	63	63	63	63	63	63
Total crustacea	635	540	533	535	533	533
Molluscs						
Abalone	1572	1700	1800	1900	1420	1420
Scallops	17600	14700	2100	11200	1540	700
Squid	258	144	78	149	136	101
Blue mussels d/	822	822	822	822	822	822
Total molluscs	20252	17366	4800	14071	3918	3043
Finfish						
Tuna a/	39	12	9	7	333	706
Shark b/	2223	1714	1679	1701	1673	1506
Gemfish c/	365					
Orange Roughy c/	128					
Australian Salmon d/	260	260	260	260	260	260
Snapper d/	129	129	129	129	129	129
Jack/blue mackerel d/	103	12	11	236	129	5
Bream d/	258	258	258	258	258	258
Eels d/	238	238	238	238	238	238
Flathead tiger c/	1232					
Garfish d/	164	164	164	164	164	164
Grenadier blue c/	645					
Ling c/	113					
Morwong c/	580					
Mullet d/	269	269	269	269	269	269
Pilchard d/	2309	2309	2309	2309	2309	2309
Trevalla c/	123					
Warehou c/	424					
Whiting king george d/	57	57	57	57	57	57
Whiting school c/	776					
Other species c/d/	1677	1677	1677	1677	1677	1677
Total finfish	12112	7099	7060	7305	7496	7578
Total Capture	32999	25005	12393	21912	11947	11154
Aquaculture					1813	1427

Sources:
a/ 1985/90 data from AFS tuna database for local & joint venture vessels
b/ from MSL shark database except 1984/85 from Department of Conservation and Environment (MSL -1600 tonnes)
c/ 1985/90 data included under Southeast Trawl
d/ 1984/85 data supplied by DCE. No data available for other years. Landings for subsequent years included at 1984/85 levels

Table A6-2 Victoria Value
($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
Crustacea						
Lobster	5664	5283	5527	6493	6227	6389
Prawns	707	875	1053	1033	985	917
Inshore/estuarine	157	194	234	229	219	204
Total crustacea	6528	6352	6814	7756	7431	7509
Molluscs						
Abalone	7008	18600	25900	28500	25600	25600
Scallops	15488	16170	3549	20800	2900	1300
Squid	489	338	205	432	292	281
Blue mussels	189	236	363	399	404	399
Total molluscs	22985	35108	29654	49732	28792	27181
Finfish						
Tuna	43	12	14	11	687	2937
Shark	4449	3858	4968	5035	4612	3980
Gemfish	771					
Orange Roughy	228					
Australian Salmon	218	218	265	311	311	343
Snapper	546	617	785	745	802	797
Jack/blue mackerel	91	10	10	209	114	5
Bream	676	722	939	829	845	750
Eels	415	458	514	509	514	542
Flathead tiger	1162					
Garfish	441	457	506	626	577	471
Grenadier blue	960					
Ling	271					
Morwong	573					
Mullet	254	327	418	397	339	421
Pilchard	1552	1720	2274	2110	2217	2164
Trevalla	317					
Warehou	318					
Whiting king george	389	431	570	529	556	542
Whiting school	663					
Other species	2022	2232	2509	2482	2505	2643
Total finfish	16359	11000	13996	14037	14710	16330
Total Capture	45872	52460	50465	71525	50933	51021
Aquaculture					6950	12330

Source: Tables A6-1 and A6-3

Table A6-3 Victoria Unit Value
($/kg)

	84/85	85/86	86/87	87/88	88/89	89/90
Crustacea						
Lobster	11.75	13.65	14.55	17.00	16.39	16.81
Prawns	7.86	9.72	11.71	11.48	10.94	10.19
Inshore/estuarine	2.49	3.08	3.71	3.64	3.47	3.23
Total crustacea	10.28	11.62	14.71	14.89	14.74	14.09
Molluscs						
Abalone	4.46	5.18	6.83	7.66	8.92	10.90
Scallops	0.88	1.10	1.69	1.86	1.88	1.86
Squid	1.90	2.34	2.63	2.89	2.14	2.79
Blue mussels	0.23	0.29	0.44	0.49	0.49	0.49
Total molluscs	1.13	1.34	1.39	1.38	0.89	1.47
Finfish						
Tuna	1.11	0.97	1.55	1.61	2.06	4.16
Shark	2.00	2.25	2.96	2.96	2.76	2.64
Gemfish	2.11	2.29	2.88	3.48	4.14	4.49
Orange Roughy	1.78	1.85	1.93	2.01	2.69	2.28
Australian Salmon	0.84	0.84	1.02	1.20	1.20	1.32
Snapper	4.23	4.79	6.08	5.77	6.22	6.18
Jack/blue mackerel	0.88	0.88	0.88	0.88	0.88	0.88
Bream	2.62	2.80	3.64	3.21	3.27	2.91
Eels	1.74	1.92	2.16	2.14	2.16	2.28
Flathead tiger	0.94	1.18	1.51	1.14	1.05	1.20
Garfish	2.69	2.78	3.09	3.82	3.52	2.87
Grenadier blue	1.49	1.65	2.16	1.90	1.90	2.00
Ling	2.40	2.89	3.48	3.07	3.07	3.23
Morwong	0.99	1.27	1.63	1.55	1.32	1.64
Mullet	0.94	1.22	1.56	1.48	1.26	1.56
Pilchard	0.67	0.75	0.99	0.91	0.96	0.94
Trevalla	2.58	2.91	3.54	2.82	3.26	2.87
Warehou	0.75	0.85	1.03	0.82	0.95	0.84
Whiting king george	6.82	7.57	10.00	9.28	9.75	9.52
Whiting school	0.85	0.89	1.18	1.15	1.44	1.37
Other species	1.21	1.33	1.50	1.48	1.49	1.58
Total finfish	1.35	1.49	1.97	1.83	1.92	1.88
Total Capture	1.39	1.43	1.86	1.73	1.73	1.75
Aquaculture					3.83	8.64

Source: price data from DCE for 1984/85, extrapolated to other years on the basis of either NSW or South Australian price indexes

Table A6-4 Victoria Vessel Numbers
December 1990

Length	Number of vessels
Dinghies	61
0 - 5.0 m	418
5.1 - 10.0 m	167
10.1 - 15.0 m	126
15.1 - 20.0 m	11
20.1 - 25.0 m	5
25.1 - 30.0 m	2
Total	790

Source: Victorian Ministry of Transport

7. WESTERN AUSTRALIA

Table A7-1 Western Australia Quantity
(tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
Crustacea						
Lobster	9095	7391	7718	10873	11776	9945
Prawns	3180	2896	2845	3314	3160	2899
Other crustacea a/	173	190	193	197	241	307
Total crustacea	12448	10477	10756	14384	15177	13151
Molluscs						
Abalone	327	249	224	262	250	299
Scallops	708	2046	2370	2814	1346	1867
Mussels	334	475	283	483	218	338
Squid	30	39	39	39	44	49
Other molluscs	34	40	44	94	229	80
Total molluscs	1433	2849	2960	3692	2087	2632
Finfish						
Tuna	1393	1750	989	1341	739	380
Shark	1571	1599	1282	2148	1610	1913
Australian Salmon	2587	2064	1538	1315	1433	1711
Snapper	1584	1384	1119	999	966	1416
Cobbler	213	243	184	247	302	92
Westralian jewfish	244	297	206	218	218	229
Spanish mackerel	260	322	222	270	196	211
Sea mullet	591	449	509	639	511	473
Yelloweye mullet	444	390	246	454	452	221
Pilchard	4213	5391	6161	7392	7527	8075
Australian herring	1269	837	980	1266	1346	1206
Whiting b/	312	302	174	205	203	198
Other	3295	3248	2283	2495	2625	2742
Total finfish	17976	18276	15893	18989	18128	18866
Total	31857	31602	29609	37065	35392	34649
Aquaculture					28	46

a/ mainly crab
b/ King George + western sand whiting

Source: Western Australia Fisheries Department

Table A7-2 Western Australia Value
($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
Crustacea						
Lobster	121855	91076	119461	174260	177910	150247
Prawns	22003	22720	29943	36496	29062	26664
Other crustacea	487	504	677	576	946	1203
Total crustacea	144346	114301	150081	211332	207918	178114
Molluscs						
Abalone	1979	3362	2963	3379	4076	4867
Scallops	1367	3726	7314	9291	3635	5041
Mussels	385	617	443	699	331	513
Squid	62	64	138	167	194	214
Other molluscs	109	10	87	204	542	190
Total molluscs	3901	7780	10945	13741	8778	10922
Finfish						
Tuna	1061	1437	1181	2364	1028	529
Shark	2012	3069	3900	6112	4729	5618
Australian Salmon	776	722	794	748	840	1002
Snapper	3580	3542	3383	3354	3247	4758
Cobbler	507	833	754	1050	1118	341
Westralian jewfish	1451	1872	1607	1895	1846	1935
Spanish mackerel	628	908	783	823	658	709
Sea mullet	479	444	535	785	614	569
Yelloweye mullet	298	273	201	412	346	169
Pilchard	1685	1995	2625	3735	3273	3511
Australian herring	685	477	817	1211	1342	1203
Whiting	684	801	554	662	784	764
Other	4116	4581	4261	6176	5892	6156
Total finfish	17961	20954	21395	29326	25716	27263
Total	166208	143035	182421	254399	242412	216299
Aquaculture					63380	95913

Source: Western Australia Fisheries Department

Table A7-3 Western Australia Unit Value
($/kg)

	84/85	85/86	86/87	87/88	88/89	89/90
Crustacea						
Lobster	13.40	12.32	15.48	16.03	15.11	16.78
Prawns	6.92	7.85	10.52	11.01	9.20	8.04
Other crustacea	2.82	2.65	3.51	2.92	3.92	3.70
Total crustacea	11.60	10.91	13.95	14.69	13.70	14.55
Molluscs						
Abalone	6.05	13.50	13.23	12.90	16.30	21.69
Scallops	1.93	1.82	3.09	3.30	2.70	3.95
Mussels	1.15	1.30	1.56	1.45	1.52	1.50
Squid	2.05	1.65	3.53	4.28	4.41	4.05
Other molluscs	3.19	0.26	1.98	2.17	2.37	1.82
Total molluscs	2.72	2.73	3.70	3.72	4.21	5.60
Finfish						
Tuna	0.76	0.82	1.19	1.76	1.39	1.20
Shark	1.28	1.92	3.04	2.85	2.94	2.13
Australian Salmon	0.30	0.35	0.52	0.57	0.59	0.38
Snapper	2.26	2.56	3.02	3.36	3.36	2.16
Cobbler	2.38	3.43	4.10	4.25	3.70	5.62
Westralian jewfish	5.94	6.30	7.80	8.69	8.47	8.50
Spanish mackerel	2.41	2.82	3.53	3.05	3.36	3.36
Sea mullet	0.81	0.99	1.05	1.23	1.20	1.12
Yelloweye mullet	0.67	0.70	0.82	0.91	0.76	0.52
Pilchard	0.40	0.37	0.43	0.51	0.43	0.56
Australian herring	0.54	0.57	0.83	0.96	1.00	1.02
Whiting	2.19	2.65	3.18	3.23	3.86	3.80
Other	1.25	1.41	1.87	2.48	2.24	2.50
Total finfish	1.00	1.15	1.35	1.54	1.42	1.35
Total	5.22	4.53	6.16	6.86	6.85	6.68

Source: Tables A7-1 & A7-2

Table A7-4 Western Australia Vessel Numbers

	85/86	86/87	87/88	88/89	89/90
Dinghies					
0 - 3.5 m	75	74	66	64	63
3.6 - 6.5 m	292	301	322	330	326
6.6 - 9.5 m	3	3	4		2
9.6 -12.5 m		1	1	1	
Total dinghies	370	379	393	395	391
Main boats					
0 - 3.5 m	15	15	16	14	15
3.6 - 6.5 m	220	219	216	205	212
6.6 - 9.5 m	154	135	109	111	105
9.6 -12.5 m	491	467	431	412	403
12.6-15.5 m	363	363	389	393	393
15.6-18.5 m	146	171	202	206	210
18.6-21.5 m	52	57	60	65	67
>21.5 m	129	151	149	147	140
Total main boats	1570	1578	1572	1553	1545

Source: Western Australia Fisheries Department

8. AUSTRALIA

Table A8-1 Australia Quantity
(tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
Crustacea						
Lobster	13930	11860	12227	15879	16604	14884
Prawns	27361	24863	24851	23527	24274	25207
Other crustacea	2306	2684	3446	3080	3111	3459
Total crustacea	43596	39407	40523	42486	43988	43551
Molluscs						
Abalone	7661	6924	6660	6847	5423	4977
Scallops	23664	22785	11872	18573	5960	6952
Other molluscs	3331	3173	3423	3992	5007	4256
Total molluscs	34656	33431	22612	30015	16964	16630
Finfish						
Tuna	19267	20085	17247	19837	16710	17675
Shark	7709	8902	8314	9825	9628	8854
Gemfish	2805	2223	3480	4789	2309	1612
Orange Roughy	128	1165	7832	7806	16052	40656
Australian Salmon	4330	4200	3631	3492	3678	2819
Snapper	7153	6070	6264	5235	6446	7643
Barramundi	866	1265	891	831	1190	1152
Jack mackerel	6064	21559	39410	40377	8994	12697
Other fish species	57937	59906	58845	64876	72508	68477
Total finfish	106259	125375	145914	157067	137515	161583
Inland waters	1066	1196	1331	1629	1618	1877
Total Capture	185577	199408	210380	231197	200085	223641
Aquaculture	11608	10311	10299	11098	16534	17242

Source: Tables A1-1 to A7-3 and Section B

Table A8-2 Australia Value
($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
Crustacea						
Lobster	172849	143532	185700	254376	244042	241995
Prawns	191523	212163	243707	235194	205665	208095
Other crustacea	6271	7193	14789	13878	15733	18685
Total crustacea	370643	362888	444196	503448	465441	468775
Molluscs						
Abalone	37320	65289	90379	97314	89270	89956
Scallops	18801	38646	31232	48389	20330	32134
Other molluscs	3527	3676	4352	5780	7272	6783
Total molluscs	60073	108466	126867	152431	117240	129748
Finfish						
Tuna	21162	19846	26874	32353	33339	44869
Shark	12147	13566	21159	27906	25716	20915
Gemfish	2881	2081	4110	6829	3914	2961
Orange Roughy	228	2156	15117	15713	30715	59217
Australian Salmon	1743	2085	2339	2603	2625	1713
Snapper	14825	13268	16948	17024	24416	25994
Barramundi	2836	2917	4187	3725	5915	6283
Jack mackerel	327	1497	2849	2669	1444	1909
Other fish species	69937	84064	97628	111485	134372	130280
Total finfish	126086	141480	191209	220308	262455	294139
Inland waters	595	812	1008	1156	1324	1550
Total Capture	557396	612921	762253	877730	847788	895535
Aquaculture	23483	24984	26944	31041	131831	199918
Total					979618	1095453

Source: Tables A1-1 to A7-3 and Section B

Table A8-3 Australia Unit Value
($/kg)

	84/85	85/86	86/87	87/88	88/89	89/90
Crustacea						
Lobster	12.41	12.10	15.19	16.02	14.70	16.26
Prawns	7.00	8.53	9.81	10.00	8.47	8.26
Other crustacea	2.72	2.68	4.29	4.51	5.06	5.40
Total crustacea	8.50	9.21	10.96	11.85	10.58	10.76
Molluscs						
Abalone	4.87	9.43	13.57	14.21	16.46	18.08
Scallops	0.79	1.70	2.63	2.61	3.41	4.62
Other molluscs	1.06	1.16	1.27	1.45	1.45	1.59
Total molluscs	1.73	3.24	5.61	5.08	6.91	7.80
Finfish						
Tuna	1.10	0.99	1.56	1.63	2.00	2.54
Shark	1.58	1.52	2.55	2.84	2.67	2.36
Gemfish	1.03	0.94	1.18	1.43	1.70	1.84
Orange Roughy	1.78	1.85	1.93	2.01	1.91	1.46
Australian Salmon	0.40	0.50	0.64	0.75	0.71	0.61
Snapper	2.07	2.19	2.71	3.25	3.79	3.40
Barramundi	3.28	2.31	4.70	4.49	4.97	5.45
Jack mackerel	0.05	0.07	0.07	0.07	0.16	0.15
Other fish species	1.21	1.40	1.66	1.72	1.85	1.90
Total finfish	1.19	1.13	1.31	1.40	1.91	1.82
Inland waters	0.56	0.68	0.76	0.71	0.82	0.83
Total Capture	3.00	3.07	3.62	3.80	4.24	4.00
Aquaculture					7.97	11.59

Source: Tables A8-2 and A8-3

Table A8-4 Australia Vessel Numbers
December 1990

Vessel Numbers	Total	NSW	NT	QLD	SA	TAS	VIC	WA
Dinghies	61						61	
0 - 5.0 m	3067	1360	56	0	630	181	418	422
5.1 -10.0 m	3666	1514	34	575	665	293	167	418
10.1-15.0 m	1864	286	21	766	237	264	126	164
15.1-20.0 m	1093	169	12	305	91	162	11	343
20.1-25.0 m	245	38	1	48	5	15	5	133
25.1-30.0 m	45	8	0	8	1	8	2	18
>30	15	8	0	1	0	4	0	2
Total	10056							

Source: Tables A1-1 to A9-3

B. COMMONWEALTH MANAGED FISHERIES

CONTENTS

1. NORTHERN PRAWN FISHERY

Table B1-1 Northern Prawn Fishery [a/]
(tonnes)

Calendar years	1984	1985	1986	1987	1988	1989	1990
Banana	3500	4062	2995	4026	3575	5635	2465
Tiger	4248	3434	2424	3297	3480	3179	3575
Endeavour	1654	1663	749	685	679	920	776
King	80	75	82	179	82	85	129
Other	100	24	48	10			
Total	9582	9258	6298	8197	7816	9819	6945
Effort							
Fishing days	36310	31783	31802	28155	32448	33857	30901
CPUE (kg/day)	264	291	198	291	241	290	225
Logbook returns					100%	100%	97%

Financial years [b/]	84/85	85/85	86/87	87/88	88/89	89/90
Banana	4062	2995	4026	3575	5635	2465
Tiger	4248	3434	2424	3297	3480	3179
Endeavour	1654	1663	749	685	679	920
King	80	75	82	179	82	85
Other	100	24	48	10	0	0
Total	10144	8191	7329	7746	9876	6649
Value of Production						
Est. price ($/kg) [c/]	6.42	7.47	8.95	10.02	6.71	8.19
Value ($ million)	65.2	61.2	65.6	77.6	66.2	54.4

a/ includes areas outside NPF managed area (Admiralty, Collier Bay, York Sound)
b/ assuming that bananas are caught in the first half of the year with other species in the second
c/ based on estimated prices from Northern Territory annual reports

Source: NPF Database, Canberra

2. TORRES STRAIT PROTECTED ZONE

Table B2-1 Torres Strait Protected Zone

	84/85	85/85	86/87	87/88	88/89	89/90
Landings (tonnes liveweight)						
Mackerel a/	100	100	100	100	110	114
Lobster b/	335	879	573	633	606	507
Prawns						
Tiger	369	195	177	109	416	381
Endeavour	225	179	240	80	413	415
King	31	13	20	8	22	21
Other	20	6	2	1	5	6
Total	644	392	439	199	856	822
Praawn fishing effort						
Fishing hours	34445	23455	22309	12491	44151	57073
CPUE (kg/hour)	18.7	16.7	19.7	15.9	19.4	14.4
Value of Production						
Mackerel						
Est. price ($/kg) b/	2.75	3.10	3.50	3.76	3.73	3.51
Value ($'000)	275	310	350	376	410	400
Lobster						
Estimated price ($/kg tail) c/	15.00	16.00	23.00	17.00	18.00	24.00
Value of production ($ mil)	2.0	5.6	5.3	4.3	4.4	4.9
Prawns						
Est. price ($/kg) d/	6.42	7.47	8.95	10.02	6.71	8.19
Value ($ million)	4.1	2.9	3.9	2.0	5.7	6.7
Pearls e/					1.5	2.0
Total value	6.4	8.9	9.5	6.7	12.0	14.0

a/ based on conversion of 1.0 kg tail weight per 2.5 kg live
c/ based on estimated Queensland prices
b/ prices estimated by local traders
d/ based on estimated prices from Northern Territory Annual Reports
e/ ABARE estimate

Source: DPI Cairns and Thursday Island

3. NORTHERN ZONE FOREIGN AND JOINT VENTURE FISHING

Table B3-1 Foreign Fishing Catch and Effort - Northern Australia
(tonnes)

	1984	1985	1986	1987	1988	1989	1990
Taiwanese Fleet -Arafura Sea							
Threadfin bream	442	215	556	165	102		1
Lizard fish	10	27	38	10	5		
Butterfish	357	314	1069	65	85		42
Bigeyes							19
Trevallies	957	206	265	100	8		3
Cods	53	6	17	5	1		4
Emperors	398	61	236	87	40	1	29
Snappers -large	3370	840	1644	452	301	4	170
Snappers - small	309	86	146	50	18	0	15
Sweetlip	509	85	165	39	10		
Gold-banded snapper							14
Other landed species	2391	722	1280	307	223	0	131
Total landed	8794	2561	5414	1280	794	4	413
Fishing effort a/	29935	7173	16850	3942	2880	22	1508
CPUE (kg/hr)	294	357	321	325	276	191	274
Taiwanese Fleet - Northwest Shelf							
Threadfin bream	3604	2954	923	401	965	481	46
Lizard fish	762	532	434	207	624	141	
Butterfish							
Bigeyes	180	226	60	77	84	56	
Trevallies	543	641	174	76	100	49	
Cods	229	226	38	86	116	110	17
Emperors	1125	1174	305	247	346	542	21
Snappers -large	465	624	128	65	208	329	23
Snappers - small	683	615	132	88	257	180	26
Sweetlip	142	121	23	15	14	143	
Gold-banded snapper							22
Other landed species	3430	3506	781	354	871	693	76
Total landed	11163	10620	2997	1615	3585	2726	208
Fishing effort a/	38543	38107	12200	4960	11930	10230	681
CPUE (kg/hr)	290	279	246	326	301	266	306
Taiwanese Fleet - Timor Sea							
Threadfin bream	183	175	124	26	41	12	
Lizard fish	153	154	89	3	6	4	
Butterfish							
Bigeyes	73	63	39	7	5	4	
Trevallies	143	66	14	9	14	4	
Cods	35	31	4	9	3	9	
Emperors	325	196	107	45	49	71	
Snappers -large	667	423	143	117	33	150	
Snappers - small	153	116	39	31	18	6	
Sweetlip	229	57	45	8	14	25	
Gold-banded snapper	493	365	167	150	39	48	
Other landed species	557	452	225	119	44	36	
Total landed	3010	2098	994	523	267	368	
Fishing effort a/	6980	6188	2993	1449	690	1090	
CPUE (kg/hr)	431	339	332	361	387	337	

Ctd.

Table B3-1 Ctd Foreign Fishing Catch and Effort - Northern Australia
(tonnes)

	1984	1985	1986	1987	1988	1989	1990
Thai Fleet - Arafura Sea							
Threadfin bream		20	160	244	284	263	230
Lizard fish		10	60	114	39	107	
Trevallies		20	120	188	338	634	436
Cods		4	30	41	50	95	59
Emperors		20	150	226	261	455	273
Snappers -large		150	1140	1755	2407	4100	2613
Snappers - small		10	90	143	141	208	186
Sweetlip		10	110	168	219	371	310
Gold-banded snapper							131
Other species		55	443	667	880	1361	1199
Total landed		299	2303	3545	4618	7593	5436
Fishing effort a/		2570	17770	25790	33890	60140	41697
CPUE (kg/hr)		116	130	137	136	126	130
Summary Foreign Trawling							
Threadfin bream	4199	3343	1727	813	1357	748	276
Lizard fish	772	569	532	331	668	248	0
Butterfish	430	377	1108	72	91	4	42
Bigeyes	323	292	74	86	98	60	19
Trevallies	1535	897	563	373	449	692	438
Cods	606	431	192	177	216	276	80
Emperors	2190	1678	834	676	681	1148	323
Snappers -large	3987	1730	2951	2302	2934	4438	2806
Snappers - small	1221	768	412	289	430	413	227
Sweetlip	1143	581	465	372	282	563	310
Gold-banded snapper	557	452	225	119	44	36	167
Other landed species	8831	6381	3498	1851	2241	2422	1405
Total landed	26937	19667	13707	7889	9687	11413	6057
Fishing effort a/	68909	48189	47152	35053	49087	70729	43886
CPUE (kg/hr)	391	408	291	225	197	161	138

a/ hours nets in water

Species groups

Threadfin bream	Nemipterus spp
Lizard fish	Suarida spp
Butterfish	Psenopsis spp
Bigeyes	Priacanthus spp
Trevallies	Carangidae
Cods	Serranidae
Emperors	Lethrinidae
Snappers -large	Lutjanus spp
Snappers - small	Lutjanus spp
Sweetlip	Haemulidae
Gold-banded snapper	Pristipomoides spp

Source: DPIE Darwin

4. TUNA FISHERY

Table B4-1 Summary of Tuna Landings by Species - Australia 1984/85 to 1989/90
(tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
Australian Pole & Line and PS Vessels						
Yellowfin		22		5	20	
Skipjack	177	696	1266	98	106	712
SBT	11724	12646	9050	5505	3742	3767
Albacore	7	1	3	2	1	1
Bigeye	7	7	7	15	1	0
Total	11915	13371	10326	5625	3870	4479
Japanese Longliners						
Yellowfin	2607	2714	2308	3575	3742	3217
Skipjack						6
SBT	714	513	648	820	1896	1788
Albacore	1565	1235	1159	1834	2140	1980
Bigeye	785	986	1488	753	835	769
Billfish	429	243	125	242	257	647
Total	6100	5691	5728	7224	8870	8406
Australian Longliners						
Yellowfin			84	759	727	532
Skipjack			1	2	2	1
SBT			24	10	9	4
Albacore			40	117	100	62
Bigeye			74	39	63	56
Billfish			10	91	98	26
Total			233	1018	999	682
Joint Venture Vessels						
Yellowfin					13	52
SBT					205	443
Albacore					124	403
Bigeye					17	26
Billfish					36	80
Total					395	1004
All Vessel Classes						
Yellowfin	2607	2736	2392	4338	4502	3800
Albacore	1571	1236	1203	1953	2364	2446
Skipjack	177	696	1267	100	108	719
Bigeye	792	993	1569	808	917	852
Billfish	429	243	135	333	391	754
Total	18015	19062	16287	13867	14134	14571

Source: AFS databases, Canberra

Table B4-2 Summary of Tuna Landings by State 1984/85 to 1989/90
(tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
Australian Pole & Line and Purse Seine Vessels						
Western Australia	7439	5659	6967	1951	726	787
Northern Territory					25	
NSW	101	117	38	27	109	
Victoria		7		7		
South Australia	4374	7588	3321	3639	3011	3575
Tasmania						117
Total	11915	13371	10326	5625	3870	4479
Japanese Longliners						
Western Australia	1534	1289	1316	949	390	498
Northern Territory		2	12		7	4
Queensland	2792	2439	2128	3368	4431	3843
NSW	1423	1473	1702	2090	2075	2041
Victoria	39	5	9	9	372	215
South Australia		11		12	10	
Tasmania	313	472	561	797	1585	1805
	6100	5691	5728	7224	8870	8406
Australian Longliners						
Western Australia			61	11	164	214
Queensland			5	624	386	55
NSW			118	346	399	397
Victoria			9	21	50	12
South Australia			39	12		3
Tasmania				4		2
Total			233	1018	999	682
Joint Venture Vessels						
NSW					34	268
Victoria					332	706
Tasmania					28	30
Total					395	1004
All Vessel Classes						
Northern Territory		2	12		32	4
WA	8973	6948	8344	2911	1279	1500
South Australia	4374	7599	3360	3662	3021	3578
Queensland	2792	2439	2133	3992	4817	3898
NSW	1524	1590	1858	2464	2617	2706
Tasmania	313	472	561	801	1613	1953
Victoria	39	12	18	37	754	933
Total	18015	19062	16287	13867	14134	14571

Source: AFS databases, Canberra

Table B4-3 Catches by Domestic Longliners 1986/87 to 1989/90
(tonnes)

	86/87	87/88	88/89	89/90
WA				
Yellowfin		2	74	123
SBT	15	1	2	1
Albacore	16	3	8	24
Bigeye	30	5	44	47
Billfish	1	0	36	20
Total	61	11	164	214
Queensland				
Yellowfin	5	497	286	54
Albacore		52	42	0
Bigeye		9	10	
Billfish	0	65	47	0
Total	5	624	386	55
NSW				
Yellowfin	76	250	331	346
Skipjack	1	2	2	1
SBT	0	1	7	1
Albacore	16	50	41	36
Bigeye	16	19	5	8
Billfish	9	24	14	6
Total	118	346	399	397
Victoria				
Yellowfin	1	9	36	7
SBT	4	5	0	0
Albacore	1	5	9	3
Bigeye	2	1	3	1
Billfish	0	2	1	1
Total	9	21	50	12
South Australia				
Yellowfin	1	1		2
SBT	4	0	0	0
Albacore	7	5	0	0
Bigeye	26	6		0
Total	39	12	0	3
Australia				
Yellowfin	84	759	727	532
Skipjack	1	2	2	1
SBT	24	10	9	4
Albacore	40	117	100	62
Bigeye	74	39	63	56
Billfish	10	91	98	26
Total	233	1018	999	682

Source: AFS databases, Canberra

1986/88 data estimated to be approx 40% of actual, 1988/89 about 70%.
1989/90 data is believed to be reasonably accurate.

Table B4-4 Japanese Longline Catch by State, 1984/85 to 1989/90
(tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
WA						
Yellowfin	1030	785	427	585	215	379
Southern Bluefin	20	25	23	13	5	7
Albacore	107	74	52	97	38	31
Bigeye	222	255	759	192	76	60
Billfish	155	150	55	62	55	21
Total	1534	1289	1316	949	390	498
Queensland						
Yellowfin	1371	1540	1273	2138	2662	2155
Albacore	804	548	457	851	1244	957
Bigeye	350	263	330	205	329	407
Billfish	266	88	63	170	191	319
Total	2792	2439	2128	3368	4431	3843
NSW						
Yellowfin	206	378	603	846	839	680
Southern Bluefin	356	36	73	43	169	170
Albacore	640	593	630	839	655	679
Bigeye	213	462	389	354	403	296
Billfish	8	4	6	9	9	215
Total	1423	1473	1702	2090	2075	2041
Victoria						
Yellowfin			0	4	13	2
Southern Bluefin	29	4	8	1	210	115
Albacore	10	1	1	1	134	82
Bigeye			0	1	15	3
Billfish				0	0	13
Total	39	5	9	9	372	215
South Australia						
Yellowfin		2		2	3	
Southern Bluefin		3		5	0	
Albacore		1		3	0	
Bigeye		4		1	6	
Total		11		12	10	
Tasmania						
Yellowfin	0	8		0	5	
Southern Bluefin	307	443	538	753	1507	1496
Albacore	5	18	21	44	69	230
Bigeye	0	3	3	0	4	0
Billfish		0			0	79
Total	313	472	561	797	1585	1805

Table B4-5 Tuna Catches by Joint Venture Vessels 1988/89 to 1989/90
(tonnes)

	88/89	89/90
NSW		
Yellowfin	5	41
SBT	5	106
Albacore	14	85
Bigeye	6	14
Billfish	4	23
Total	34	268
Tasmania		
SBT	22	25
Albacore	3	3
Billfish	2	3
Total	28	30
Victoria		
Yellowfin	7	11
SBT	178	312
Albacore	106	315
Bigeye	11	12
Billfish	30	55
Total	332	706
Australia		
Yellowfin	13	52
SBT	205	443
Albacore	124	403
Bigeye	17	26
Billfish	36	80
Total	395	1004

No catches were reported prior to June 1989

Source: AFS

Table B4-6 Tuna Landings by Australian Pole and Line and Purse Seine Vessels
(tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
WA						
Skipjack	24	147	1215	69	1	31
SBT	7402	5505	5742	1866	723	756
Albacore	6	1	3	2		0
Bigeye	7	7	7	15	1	0
Total	7439	5659	6967	1951	726	787
NT						
Yellowfin					7	
Skipjack					19	
Total					25	
NSW						
Yellowfin		22		5	13	
Skipjack		95	1	16	87	
SBT	101		37	6	9	
Total	101	117	38	27	109	
SA						
Skipjack	153	454	50	13		564
SBT	4221	7134	3271	3626	3010	3011
Albacore	1	0			1	0
Total	4374	7588	3321	3639	3011	3575
TAS						
Skipjack						117
Total						117
Australia						
Yellowfin	0	22		5	20	
Skipjack	177	696	1266	98	106	712
SBT	11724	12646	9050	5505	3742	3767
Albacore	7	1	3	2	1	1
Bigeye	7	7	7	15	1	0
Total	11915	13371	10326	5625	3870	4479

Source: AFS Canberra

5. SOUTHEAST TRAWL FISHERY

Table B5-1 Southeast Trawl Fishery - NSW Landings by Major Species
(tonnes)

	85/86	86/87	87/88	88/89	89/90
Crustacea					
Prawns	238	379	350	344	296
Other crustacea	33	19	19	30	30
Total crustacea	271	398	369	373	326
Molluscs					
Cephalopods	395	568	436	425	333
Finfish					
Blue grenadier	174	268	248	277	414
Dory john	176	213	189	205	183
Dory mirror	138	371	433	444	434
Flathead tiger	657	700	849	1179	1058
Gemfish	1693	3050	3878	1753	1409
Jack mackeral	4	474	237	746	16
Jackass morwong	418	647	623	1097	515
Ocean perch	216	190	141	197	147
Orange roughy	0	79	27	34	401
Pink ling	423	555	372	463	380
Redfish	939	1369	1073	1010	767
Shark	425	526	364	400	377
Snapper	27	737	23	27	20
Spotted warehou	37	363	76	809	256
Trevalla Tasmanian	26	137	128	434	327
Trevally silver	441	263	199	412	344
Other fish species	696	948	896	926	967
Total finfish	6489	10891	9758	10415	8014
Total	7155	11857	10563	11214	8674

Source: AFS Canberra

Table B5-2 Southeast Trawl Fishery - Victoria by Major Species 1985/86 - 1989
(tonnes)

	85/86	86/87	87/88	88/89	89/90
Crustacea					
Prawns	3	1	1	2	0
Other crustacea	28	43	5	4	7
Total crustacea	32	44	6	6	8
Molluscs					
Cephalopods	144	78	149	136	101
Finfish					
Blue grenadier	886	892	1301	1384	684
Flathead tiger	885	1540	1862	1588	1223
Gemfish	439	302	647	338	134
Jack mackeral	12	11	236	129	5
Jackass morwong	331	359	408	759	425
Ocean perch	23	30	37	25	41
Orange roughy	863	5734	5467	5148	10724
Oreo dories	39	41	58	125	137
Pink ling	153	136	274	195	189
Redfish	24	18	13	52	9
School whiting	1043	1138	1076	1326	1525
Shark	55	54	51	56	42
Spotted warehou	363	610	691	841	329
Trevalla Tasmanian	61	61	318	455	145
Trevally silver	2	113	19	11	4
Other fish species	377	380	569	665	393
Total finfish	5555	11420	13026	13096	16012
Total	5731	11542	13181	13238	16120

Source: AFS Canberra

Table B5-3 Southeast Trawl Fishery - South Australia Landings by Major Species
(tonnes)

	85/86	86/87	87/88	88/89	89/90
Crustacea					
Other crustacea	0	1	0	0	0
Total crustacea	0	1	0	1	0
Molluscs					
Cephalopods	9	10	10	10	7
Finfish					
Blue grenadier	79	117	114	195	108
Gemfish	56	89	112	100	55
Jackass morwong	64	30	17	37	35
Orange roughy	0	1	468	343	73
Oreo dories	0	3	25	14	2
Pink ling	13	25	29	29	12
Shark	8	18	10	7	4
Spotted warehou	63	70	59	9	40
Other fish species	71	150	109	119	72
Total finfish	354	503	942	852	401
Total	363	513	953	863	409

Source: AFS Canberra

Table B5-4 Southeast Trawl Fishery - Tasmania Landings by Major Species
(tonnes)

	85/86	86/87	87/88	88/89	89/90
Molluscs					
Cephalopods	1	1	8	2	4
Finfish					
Blue grenadier	89	226	693	382	172
Flathead tiger	32	3	34	27	24
Gemfish	35	39	152	118	13
Jackass morwong	31	13	257	124	76
Orange roughy	302	2019	422	8016	26699
Oreo dories	22	39	12	27	606
Pink ling	45	7	18	10	15
Shark	6	4	7	3	76
Spotted warehou	24	34	95	64	148
Trevalla Tasmanian	0	0	25	95	25
Other fish species	41	16	87	81	125
Total finfish	628	2399	1804	8946	27979
Total	628	2400	1812	8948	27983

Source: AFS Canberra

Table B5-5 Southeast Trawl Fishery - Total Landings by Major Species
(tonnes)

	85/86	86/87	87/88	88/89	89/90
Crustacea					
Prawns	241	380	351	345	296
Other crustacea	62	62	24	35	38
Total crustacea	303	442	375	380	334
Molluscs					
Cephalopods	548	656	603	573	445
Finfish					
Blue grenadier	1229	1502	2357	2238	1378
Dory john	183	218	194	216	196
Dory mirror	146	383	475	465	463
Flathead tiger	1580	2256	2758	2809	2312
Gemfish	2223	3480	4789	2309	1612
Jack mackeral	16	485	474	875	22
Jackass morwong	844	1049	1305	2016	1051
Ocean perch	244	227	188	232	192
Orange roughy	1165	7832	6384	13542	37896
Oreo dories	61	87	97	167	746
Pink ling	633	723	693	697	597
Redfish	963	1389	1108	1063	776
School whiting	1112	1179	1102	1352	1563
Shark	495	603	433	465	500
Snapper	29	739	25	32	24
Spotted warehou	486	1078	921	1723	772
Trevalla Tasmanian	89	202	472	996	508
Trevally silver	442	489	94	424	359
Other fish species	1087	1292	1662	1687	1438
Total fish	13026	25213	25530	33310	52406
Total	13878	26311	26509	34263	53186

Source: AFS Canberra

Table B5-6 Southeast Trawl Fishery - Estimated Value
($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
Crustacea						
Prawns		1431	2714	2454	2301	1838
Bugs		73	79	84	146	150
Crabs		63	117	8	14	21
Total crustacea		1567	2910	2546	2461	2009
Molluscs						
Cephalopods		954	1285	1297	912	922
Total molluscs		954	1285	1297	912	922
Finfish						
Shark		780	1250	897	899	926
Gemfish		2081	4110	6829	3914	2961
Orange Roughy		2156	15117	12851	24240	52676
Snapper		147	4817	157	211	156
Blue grenadier		2028	3244	4485	4259	2760
Dory john		571	901	826	1146	909
Flathead tiger		1946	3569	3283	3101	2908
Jackass morwong		1437	2285	2698	3559	2302
Pink ling		1470	2022	1707	1716	1548
Redfish		654	1393	1086	1024	803
School whiting		1759	2479	2250	3476	3829
Spotted warehou		412	1111	756	1636	645
Trevalla Tasmanian		399	1105	2056	5019	2252
Trevally silver		297	460	93	392	290
Other fish species		2949	4978	5625	6736	5929
Total finfish		19086	48839	45599	61330	80894
Total		21607	53034	49441	64703	83825

Source: based on quantity data from Table B5-5 and prices from B5-7.

Table B5-7 Southeast Trawl Fishery - Estimated Unit Value
($/kg)

	84/85	85/86	86/87	87/88	88/89	89/90
Crustacea						
Prawns		5.93	7.13	7.00	6.67	6.21
Bugs		2.20	3.17	3.76	4.63	4.50
Crabs		2.20	3.17	3.76	4.63	4.50
Total crustacea		5.17	6.58	6.78	6.48	6.02
Molluscs						
Cephalopods		1.74	1.96	2.15	1.59	2.07
Total molluscs		1.74	1.96	2.15	1.59	2.07
Finfish						
Shark		1.58	2.07	2.08	1.93	1.85
Gemfish		0.94	1.18	1.43	1.70	1.84
Orange Roughy		1.85	1.93	2.01	1.79	1.39
Snapper		5.13	6.52	6.19	6.66	6.62
Blue grenadier		1.65	2.16	1.90	1.90	2.00
Dory john		3.12	4.14	4.26	5.31	4.64
Flathead tiger		1.23	1.58	1.19	1.10	1.26
Jackass morwong		1.70	2.18	2.07	1.77	2.19
Pink ling		2.32	2.80	2.46	2.46	2.59
Redfish		0.68	1.00	0.98	0.96	1.04
School whiting		1.58	2.10	2.04	2.57	2.45
Spotted warehou		0.85	1.03	0.82	0.95	0.84
Trevalla Tasmanian		4.50	5.48	4.36	5.04	4.43
Trevally silver		0.67	0.94	0.99	0.92	0.81
Other fish species		1.64	1.84	1.82	1.84	1.94
Total finfish		1.47	1.94	1.79	1.84	1.54
Total		1.56	2.02	1.87	1.89	1.58

Source: derived from South Australian, Tasmanian and NSW price data
Orange roughy prices for 1988/90 from ABARE

6. SOUTHERN SHARK FISHERY

Table B6-1 Shark landings
(tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
Gummy shark						
Victoria	816	927	828	806	906	880
Tasmania	560	394	397	382	372	305
South Australia	403	434	483	602	575	600
Total	1779	1755	1708	1790	1853	1785
School shark						
Victoria	535	543	566	589	550	432
Tasmania	828	705	628	400	306	300
South Australia	538	751	762	812	804	593
Total	1901	1999	1956	1801	1660	1325
Saw shark						
Victoria	207	197	256	271	187	169
Tasmania	53	39	40	28	18	15
South Australia	1	4	6	13	9	6
Total	261	240	302	312	214	190
Elephant fish						
Victoria	42	47	29	35	30	25
Tasmania	74	38	30	30	40	38
Total	116	85	59	65	70	63
All species						
Victoria	1600	1714	1679	1701	1673	1506
Tasmania	1515	1176	1095	840	736	658
South Australia	942	1189	1251	1427	1388	1199
Total	4057	4079	4025	3968	3797	3363

Source: Marine Science Laboratories, Queenscliff, Victoria

C. AQUACULTURE STATISTICS 1989/90

The statistics in this Section were collected and analysed by Mr Dos O'Sullivan of:

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CONTENTS

TABLES

Tables C-1 to C-20 summarise available data on the number of farms, farm (pond/lease) area, production and value for the main Australian aquaculture species for 1989/90. Estiamted national production for the period 1988/90 is given in Table C-21.

The information was collated from data provided by the State and Territory Fisheries Departments. Where these data were not available, estimates were sought from industry sources

Hatchery production has been included where fingerling, spat, seed, larvae or juveniles were sold to another party. Since the output of the hatcheries is in part an input to growout farms, this leads to double-counting and over-estimation of the total value of aquaculture production. However, it is difficult to differentiate between fingerlings/seed for commercial stocking and that for recreational purposes. The total value data therefore include both hatchery and market production.

When a range of figures were given but no average was available, the lower end of the range was applied.

Where no data were available for market prices, those from adjoining states were used.

Abbreviations:

na	=	no details available
exp	=	experimental production, but no details were available
>	=	higher than shown but specific data unavailable
pc	=	piece (eg, an individual fingerling)

1. MOLLUSCS

1.1 Edible Oysters

Systematic oyster cultivation commenced in New South Wales and Southern Queensland around the 1890s using the Sydney rock oyster *(Saccostrea commercialis)*, and in Tasmania in the 1880s with the flat or mud oyster *(Ostrea angasi)*, However, whereas the Tasmanian industry was abandoned in the 1990s and the Queensland industry declined in the 1920s; the New South Wales industry showed an upward trend in production until 1972 when over 13 million dozen oysters were produced. The decline in Queensland was attributed to disease, over-exploitation and market competition with the New South Wales industry, while the demise of the Tasmanian industry was attributed to the departure of the Chief Inspector of Fisheries who was instrumental in developing the culture industry.

Cultivation of the Sydney rock oyster is widespread in New South Wales with Wallis Lake, Port Stephens, Brisbane Water, Hawkesbury River and Georges River being the main areas of production. Some hatchery produced juveniles are used but the industry mainly operates by providing suitable substrate materials such as sawn wooden stakes to catch and grow wild juvenile stock. Wire mesh trays are often used to supplement the sticks in growing and conditioning the older oysters.

Much of the increase in production in the past resulted from an increase in the area under cultivation. However, it is unlikely that any new leases will be approved in the future because of other waterway demands and the unsuitability of many of the leased areas for growing oysters. In fact, oyster farmers are being encouraged to surrender leases in poor growing areas so that these areas can be returned to their natural state. In view of this, the only means of significantly increasing production is by the introduction of more efficient cultivation practices.

NSW oyster production has fluctuated since its peak in 1972 and in 1989/90 was down to approximately 8174 thousand dozen (Table C-1). Production was reduced following establishment in 1978 that widespread outbreaks of food poisoning were due to ingestion of Sydney rock oysters grown in polluted waters. This was initially overcome by mandatory purification of all oysters grown and sold in New South Wales. However, subsequently production has been adversely affected by the unfortunate introduction and establishment of the Pacific oyster *(Crassostrea gigas)*, in the Port Stephens area, general market competition with Pacific oysters grown in Tasmania and New Zealand, and further cases of food poisoning due to the fact that the adopted purification procedures were inadequate under certain conditions.

In Queensland, oyster farming has again become well established with cultivation of the Sydney rock oyster. There is also the harvesting on the central and northern coasts of wild stock of the black lipped oyster *(Saccostrea echinata)* and to a limited extent the milky oyster *(Saccostrea amasi)*. Estimated production for the year 1989/90 was 475 thousand dozen of which over 80 per cent comprised the Sydney rock oyster.

The Sydney rock oyster is cultivated in Queensland as far north as Maryborough but the main growing areas are the sheltered bays and estuaries on the mainland side of Pumicestone Passage and Moreton Bay and in the Southport Broadwater. Stick and tray culture is the main method of farming. There is a considerable reliance on New South Wales for spat.

In Tasmania, oyster farming recommenced in 1968 following the establishment of the Pacific oyster which had been introduced to Tasmania, Victoria and Western Australia following the Second World War. Initially the industry faced problems with heavy metal pollution in the growing areas of the Tamar and Derwent Rivers and unreliable spatfall, but with relocation of the growing areas and establishment of hatchery operations, production has increased steadily during the last decade to yield an estimated 3500 thousand dozen in 1989/90. Production is almost entirely the Pacific oyster, but cultivation is being extended to include the native mud or flat oyster. Areas of cultivation are to be found on both the northern and eastern coasts with the dominant growing areas comprising Pittwater, Pipe Clay Lagoon, Eaglehawk Bay and Blackman Bay. The industry dependends on hatchery spat which is grown under rack culture using baskets and trays.

In South Australia there has been little commercial interest in oyster cultivation, apart from an unsuccessful attempt by ICI to develop a commercial hatchery and farming operation with the Pacific oyster in salt ponds near Adelaide. However, trials undertaken in 1986 by the South Australian Department of Fisheries showed that the Pacific and the local mud or flat oyster *(Ostrea angasi)* demonstrated good growth at various localities.

By 1989/90, 53 oyster farms had been registered. The distribution of the farms is widespread, including suitable embayments on the west coast, Spencer and St Vincents Gulfs and Kangaroo Island. The normal maximum area is ten hectares but the majority of the farmers only have one or two hectares under cultivation at this stage. Concentration is on the Pacific oyster with seed being obtained from Tasmanian hatcheries. Production of Pacific oysters for the year was 88 thousand dozen It is likely that production will increase substantially in future as existing farms become fully operational. There is no evidence of natural spatfall with the Pacific oyster in South Australian waters, so commercial farming will be dependent on hatchery production of seed oysters. However, it is reported that some farmers are also looking at commercial production of the local mud or flat oysters.

There are five commercial oyster projects in Western Australia but they are developmental with no commercial production. Three are located at Albany with one each in Carnarvon and Broome. In the Albany area, concentration is on the mud or flat oyster. One of the farms involves only a one hectare lease while the remaining two are large-scale ventures with hatchery and grow out proposals. The Carnarvon operation involves hatchery research and development and has proved successful in producing juvenile black-lip oysters, *Pinctata albina albina*, and western rock oysters *(Crassostrea commercialis* subsp*)*. At Broome a grow-out operation is planned using black-lipped oysters and liaison is currently under way in an attempt to obtain hatchery produced juveniles.

In Victoria, there was some limited production of Pacific oysters in salt ponds, but cultivation in the wild is to be restricted to the mud or flat oyster. Currently two small farms are in operation with an annual production of just over 6 thousand dozen oysters.

Research has been carried out by the Fisheries Division of the Department of Conservation and Environment into hatchery and nursery requirements, growing techniques and marketing and it is proposed that two oyster culture zones be established in the Rye area of Port Phillip Bay. Once these zones are established it is proposed that expressions of interest be sought with the objective of granting leases in the approved zones. Initially, juvenile oysters would be provided by the Fisheries Division Laboratory at Queenscliffe but in the long term it would be necessary for a commercial hatchery to be constructed by industry to provide the necessary grow-out stock.

Table C-1: Edible Oysters 1989/90

State	Farms	Area	Seed			Market		
			prod'n	price	value	prod'n[a/]	price	value
	no.	ha	'000	$/pc	$'000	'000doz	$/doz	$'000
NSW	3897[b/]	3300[b/]	0[c/]	-	-	8174	3.19	26107
Vic	2	10	0.2[d/]	na	na	6	~3.50	23
Tas	86	1258	92[e/]	~0.01[e/]	1472	3500	3.50	13722
Qld	144	>745	0[c/]	-	-	475[f/]	2.39[f/]	1135
SA	50	~400[g/]	0[h/]	-	-	88	3.24	286
WA	2	<20	exp	-	-	exp	-	0
Total								41273

a/ The Sydney rock oyster is produced in New South Wales, the Pacific and flat oysters are grown in Victoria and Tasmania, in Queensland the Sydney rock and northern oysters are produced, the Pacific oyster is cultured in South Australia while the flat and Sydney rock oysters are being cultured experimentally in Western Australia

b/ 1988/89 data

c/ Seed is wild caught, hatchery production is insignificant in New South Wales and does not occur in Queensland

d/ Supplied by Government hatchery

e/ In Tasmania three hatcheries produced seed for the local industry and export to South Australia. The price varied from $16-19 per thousand

f/ The totals for Queensland were made up of Sydney rock oysters (*Saccostrea commercialis*) 405,700 dozen, priced at about $2.51 per dozen worth $1 million and Northern oysters (*S. amasa* and *S. echinata*) 69,400 dozen priced around $1.67 per dozen worth $115,930. Market prices were higher for value-added products and lower for bulk sales

g/ Of the 400 hectares in South Australia, only about 10 per cent were stocked

h/ Some 6-8 million seed was imported from Tasmania, price varied from $16-19 per thousand

Sources: State Fisheries Departments and industry

1.2 Pearl Oysters

Pearling operations were first recorded in Western Australia in 1850. The shell was the black lipped pearl *(Pinctada albina albina)*, which forms the basis of the Shark Bay fishery. The small natural pearls were sought because the small shell was not highly valued

Following the success of the Shark Bay operation, pearling spread northwards to exploit the stocks of gold lipped pearl oysters or mother-of-pearl shell, *Pinctada maxima*. A large number of aboriginal and Asian divers were employed and by 1870 the industry had developed markedly with some 30 boats in operation. The shallow waters were quickly depleted and diving was extended to the deeper waters. Malay divers were recruited for the deep water work and in 1885 Japanese divers wearing diving dress were introduced.

About 1870, pearl shell was also discovered in Torres Strait and a fishery commenced in this area. As in Western Australia the industry grew rapidly and by 1875 there were over 100 vessels operating. The shallow water grounds were quickly depleted and diving gear was introduced to allow exploitation of the deeper waters. Thursday Island became the centre of operations and by the turn of the century over 260 boats and 1600 men were employed in the industry.

In Western Australia the Shark Bay beds became depleted and by 1910 Broome had become the centre of pearling in Western Australia with 350 to 400 luggers operating from the port and employing over 3500 people.

Subsequently pearling began to decline in both regions and the market collapsed during the depression years. A brief recovery was made but operations virtually ceased with the advent of the Second World War and the subsequent introduction of plastic, particularly for buttons.

The decline in demand for the mother-of-pearl shell and the development of pearl culture techniques now means that most pearl oysters are used initially for pearl culture, producing mainly round or half round pearls. Ultimately, the majority of the oysters will be used for mother-of-pearl and to a limited extent meat production.

Currently the major production is in Western Australia where the gold lipped pearl oyster is the main species cultured. The pearl culture technique used is the traditional Japanese method. Pearl oysters are collected from natural beds by divers. To produce round pearls, a small incision is made in the flesh of the foot of the oyster. A small piece of mantle and a shell nucleus are carefully inserted and the shell returned to the water for up to two years before harvesting to remove the pearl. The same shell may be operated upon several times before being utilised for mother-of-pearl or for cultivation of half pearls.

To produce half pearls, a number of semi-spherical nuclei are glued to the insides of the shell with a special adhesive. The shell is returned to the water for about seven months before harvesting and removal of the pearls. Removal of the pearls renders the shell valueless.

A further type of pearl is the "keshi" which may develop in the pearl sac if a nucleus is rejected. This type may also be grown deliberately by proceeding with the normal round pearl operation without inserting the nucleus.

In the past, the shell was collected from the natural beds by a single diver supplied with compressed air from a lugger. Today, two or three divers using hookah gear are towed over the seabed from suspended booms controlled by a chief diver. Many companies are now operating on the oysters at the collecting grounds before transport to the lease where they are now generally held near the seabed in net bags suspended from longlines rather than at the surface to reduce the vulnerability of the shells to cyclone damage.

The Western Australian coastline between Exmouth Gulf and the Northern Territory has been divided into a number of zones between Exmouth Gulf and Port Nelson, just north of Kuri Bay (zones 1 to 3) and a Kimberley Development zone between Port Nelson and the Northern Territory border (zone 4). The fishery is limited entry with 13 pearl farmers licenced to take a specific number of oysters each year from specific zones. The total number of shells is currently 500,000 and there are specific totals for zones 1 to 3. Companies could take all or part of their quota from zone 4 if they so desired but most of the collection is made between Cape Leveque and Exmouth Gulf with the majority of the shell being taken off the 80 mile beach south of Broome.

The grow-on phase is undertaken on pearling farms, the majority of which are located in the area between Kuri Bay and Cape Bossut south of Broome. However, one company has its grow-on areas in waters out of Darwin, another out of Onslow and a third at the Montebello Islands.

Although the Western Australian pearling industry is still in the development stage, there has been a steady increase in yield to reach a production value of approximately $94 million in 1990 (Table C-2).

With the development of the pearl culture industry in Western Australia, there was a marked increase in interest in the development of a pearl culture industry in the Northern Territory. As a result, a Northern Territory Pearl Industry Development Plan was introduced in November 1987. The Plan allowed for a three year development phase during which time a restricted number of integrated diving-farming enterprises would be authorised to test the feasibility of such operations. Strict criteria were laid down allowing for the selected applicants to take and farm a specified number of shells and over the three years to demonstrate a proven record of production.

Six licences were subsequently issued and during the first year of the Plan, ending 30 June 1989, each licensee was allowed to take 20,000 shell of which no more than 10,000 is to be taken as mother-of-pearl.

In the Queensland area, including the Torres Strait Protected Zone, there has been a marked decline in the quantity of live shell taken since 1970. Whereas approximately 400,000 live shells were supplied to farms in 1969, the number was down to an estimated 50,000 by 1990. In the Torres Strait Protected Zone only three dedicated pearling vessels are operating and many of the Torres Strait Islanders are now diving for lobsters rather than pearls. Ten farms are in existence from Cairns northwards into Torres Strait but they are relatively small and no data are available on production.

Table C-2: Pearl Oysters 1989/90

State	Farms	Area	Seed			Market			Total value
			prod'n	price	value	prod'n	price	value	
	no.	ha	'000	$		mome[a/]	$/mome	$mil	$mil
WA[b/]	13	41700	na[c/]	-	-	385000[c/]	<600[d/]	93.6	93.6
Qld	14	1650	0[c/]	-	-				na[e/]
NT	6		0[c/]	-	-			na[f/]	na[f/]
Total									>93.6

a/ Mome is the weight measurement used in the pearling industry. It is equal to approximately 3.75 grams
b/ Calender year 1990. The value of production in 1989 was $95 million, 1988 it was $62 million, 1987 it was $47 million, 1986 $27 million and 1985 $40 million
c/ An insignificant number of seed was produced in a hatchery in Western Australia, but in Queensland and the Northern Territory all of the shell was collected from the wild
d/ Production for Western Australia is mostly *Pinctada maxima*, and included 7800 mome of keshi (natural) pearls priced at $160 per mome and worth $1.25 million, 149,600 mome of round pearls priced at $594 per mome and worth $89 million and 227,400 mome of round pearls priced at $15.30 per mome and worth $3.47 million. Production of mother-of-pearl shell was insignificant
e/ In Queensland, production included *P. maxima*, *P. margaritifera* and *Pteria penguin*. In excess of 38,000 shell were stocked on farms
f/ In the Northern Territory, there was no production of pearl although some shell was sold for mother-of-pearl

Sources: State and Territory Fisheries Departments

1.3 Other Molluscs

Table C-3: Giant Clams 1989/90

State	Farms	Area	Juvenile			Market			Total value
			prod'n	price	value	prod'n[a/]	price	value	
	no.	ha	'000	$/pc	$'000	tonnes	$/kg	$'000	$'000
Qld	3[b/]	~2	1500[b/]	-[b/]	-	exp	-	-	exp

a/ Meat weight. Giant clams can be sold for their mantle meat, shell and as aquarium specimens
b/ One farm was a research facility run by James Cook University which could not sell any production. Its clams were mainly restocked in the Townsville area

Sources: State Fisheries Department

Table C-4: Abalone 1989/90

State	Farms	Area	Juvenile			Market			Total value
			prod'n	price	value	prod'n	price	value	
	no.	ha	'000	$/pc	$'000	tonnes	$/kg	$'000	$'000
Tas	10	233	exp	-	-	exp	-	-	exp
SA	1	<1	exp	-	-	exp	-	-	exp
Vic[a/]	2a	<1	exp	-	-	exp	-	-	exp

a/ The facilities in Victoria include one hatchery and one nursery operation, no growout so far

Sources: State Fisheries Departments

Table C-5: Mussels 1989/90

State	Farms	Area	Prod'n	Price	Market value
	no.	ha	tonnes	$/kg	$'000
WA	8	69	35	3.00[b/]	105
NSW	7	na	15	*2.35[c/]	35
Vic	21	126	650	*2.35[d/]	1528
Tas	46	642[e/]	42	2.80	117
Total					1785

a/ All mussel seed is collected from the wild
b/ WA prices varied from $2 to $4 per kilogram
c/ No details were available for NSW. Market price for Victoria was used
d/ Prices ranged from $2 up to $6 per kilogram depending on quality and supply
e/ Farms licensed for both mussels and oyster

Sources: State Fisheries Departments and industry

Table C-6: Scallops 1989/90

State	Farms	Area	Seed			Market			Total value
			prod'n	price	value	prod'n	price	value	
	no.	ha	'000	$/pc	$'000	tonnes	$/kg	$'000	$'000
Tas	34	643[a/]	na[b/]	na	na	exp	-	-	exp
WA	2[c/]	na	exp	-	-	exp	-	-	exp
NSW	1[c/]	na	exp	-	-	exp	-	-	exp
Vic	1[c/]	na	exp	-	-	exp	-	-	exp
Total									na

a/ Farms licensed for both scallops and oyster
b/ Three hatcheries are experimenting with production of seed in Tasmania, while the remainder is collected from the wild
c/ Experimental hatcheries are in operation in New South Wales, Western Australia and Victoria

Sources: State and Territory Fisheries Departments

2. FISH

Table C-7: Salmonids 1989/90

State	Farms	Area	Smolt/fingerling			Market			Total value
			prod'n '000	price $/pc	value $'000	prod'n tonnes	price $/kg	value $'000	$'000
	no.	ha							
Tas	41	514	995[a/]	2.60[a/]	2587	>2550[b/]	11.00[b/]	28050	30637
Vic	25	8	7800	0.40[c/]	3120	1200[d/]	4.00[d/]	4800	7920
NSW	17	na	2500	0.40[e/]	1000	250	4.00[e/]	1000	2000
SA	15	na	105[f/]	0.40[e/]	42	21	7.60	158	200
WA	9	na	213[g/]	0.60[g/]	128	6	11.00[h/]	69	197
Total									40954

a/ Atlantic salmon produced by SALTAS. Size range 80-800 grams, value $0.70-5.00/pc. Data unavailable on rainbow trout production for stocking farms
b/ Freshwater production of rainbow trout occurred in all States. In Tasmania, rainbow trout (ocean trout) and Atlantic salmon were cultured in seawater. In Tasmania the main species cultured is Atlantic salmon which sells for between $10-14 per kilogram, ocean trout averages about $10/kg and freshwater trout $5.00/kg. Data are not available on the tonnage of rainbow trout grown in freshwater.
c/ The cost of rainbow trout fingerlings in Victoria ranges from $0.04 up to $0.60 depending on size and market
d/ Industry sources estimate the capacity for freshwater trout production in Victoria at 1500-1700 tonnes per year. The market price for freshwater trout in Victoria was $4.00-4.50/kg
e/ No details available - data from Victoria used
f/ Some 80,000 brown trout and 25,000 rainbow trout fingerlings were released
g/ 50,000 eggs, 162,000 fry and 1300 yearlings, at an average price of $0.60
h/ Range $11.00-15.00/kg

Sources: State Fisheries Departments and industry

Table C-8: Native Freshwater Food and Sport Fish 1989/90

State	Farms	Area	Fingerling			Market			Total value
			prod'n '000	price $/pc	value $'000	prod'n tonnes	price $/kg	value $'000	$'000
	no.	ha							
Qld	>20[a/]	na	1,800[b/]	0.23[b/]	400	1.55[c/]	5[c/]	9	409
NSW	18	na	1,500[d/]	0.60[e/]	900	7[f/]	22[f/]	154	1054
Vic	<10[g/]	15	<1[g/]	0.50	500	~1	10	10	510
SA	5	na	exp	-	-	exp	-	-	exp
Total									1973

a/ 20 farms are in a position to sell product - many others are licensed but under development
b/ 8 hatcheries and 6 species. Some 1.2 million fingerlings were put into public waters, balance stocked in private farm dams. Fingerlings also purchased from interstate). Some 650,000 silver perch fingerlings were sold at $0.23-0.40 each, while 1 million golden perch fingerling were sold at $0.25-0.30 each
c/ Market production includes silver and golden perch - 1.5 tonnes and 0.05 tonnes respectively. Market prices were $5 per kilogram for silver perch and $10 per kilogram for golden perch
d/ Industry estimate, excludes 602,000 fingerlings produced by Government hatcheries for stocking public waters
e/ Depends on species and volume sold, varies from $0.20-1.00
f/ almost entirely live silver perch
g/ 2 farms producing, balance being established. Some 235,000 golden perch, 220,000 Murray cod, 25,000 Macquarie perch and 8,000 trout cod were produced by the Government hatchery at Snobs Creek for recreational fishing and/or restocking for conservation

Sources: State Fisheries Departments and industry

Table C-9: Barramundi 1989/90

State	Farms	Area	Fingerling			Market			Total value
			prod'n	price	value	prod'n	price	value	
	no.	ha	'000	$/pc	$'000	tonnes	$/kg	$'000	$'000
Qld	8	>19	925	0.62	573	33.1	13.00	430	1003
NT	2	<1	exp	-	-	0	-	-	exp
SA	2	<1	exp	-	-	0	-	-	exp
Total									1003

Sources: State and Territory Fisheries Departments

Table C-10: Ornamental and Aquarium Fish 1989/90

State	Farms	Area	Market prod'n	Price[a/]	Total value
	no.	ha	'000	$/pc	$'000
Qld	~20	~10	200	0.20	40
NSW	<10[b/]	5	600[c/]	0.30[d/]	180
Vic	8	15	2000[e/]	0.20	400
WA	6	<5	60	0.30[d/]	18
NT	2	<1	exp	-	exp
Tas	3	<2	exp	-	exp
SA	na[g/]	na	na	-	na[g/]
Total					638[h/]

a/ Prices vary greatly between species. Common species such as goldfish can be as low as $0.20-0.40 each; those such as saratoga may exceed $60 for export and show quality koi carp $200. Prices for rare or novel marine specimens may exceed koi carp levels

b/ 2 or 3 farms producing commercially

c/ New South Wales production was estimated to be between 600,000 and 800,000

d/ Prices vary from $0.30-0.40 up to $0.60-0.80 depending on whether the sale is to a wholesaler or direct to the retailer

e/ Victorian production was estimated to be between 2 and 2.5 million fish

f/ The figures for Victoria do not include the ongrowing of imported fish to increase their market price. The estimated value of this activity was around $200,000

g/ Figures for South Australia are not collected, although there are a number of "back-yard" or unlicensed producers

h/ Mr Roly Mackay from the Queensland Museum is undertaking a survey into the aquarium fish industry in Australia. He estimates that Australian production is worth about $2 million, about 30 per cent of the total market. He said that it is very difficult to determine the amount of production in Australia as there are a large number of hobby or unlicensed producers - for example he said that up to 50 per cent of the cichlids sold in Australia came from hobby or backyard producers

No estimates were provided for the value of aquatic plants and lillies

Sources: State and Territory Fisheries Departments and industry sources

Table C-11: Marine Fish 1989/90

State	Farms	Area	Fingerling			Market			Total value
			prod'n	price	value	prod'n	price	value	
	no.	ha	'000	$/pc	$'000	tonnes	$/kg	$'000	$'000
NSW	2	na	na	na	na	na	na	na	na
WA	1	< 1	exp	-	-	exp	-	-	exp
Tas	7	44	exp	-	-	exp	-	-	exp
Total									na

Sources: State and Territory Fisheries Departments

3. CRUSTACEA

Table C-12: Freshwater Crayfish 1989/90

State	Farms	Area	Juvenile			Market			Total value
			prod'n	price	value	prod'n	price	value	
	no.	ha	'000	$/pc	$'000	tonnes	$/kg	$'000	$'000
Qld	80[a/]	130	1500[b/]	0.35[b/]	525	31.2[c/]	15.89[c/]	497	1022
NSW	38	na	na	na	na	8	10.00[d/]	80	80
Vic	100[e/]	70[e/]	5000[f/]	0.05[f/]	250	~20	10.00[g/]	200	450
SA	120	na	na	na	na	13.8[h/]	15.00[h/]	208	208
WA	60	> 100	> 167[i/]	0.50[i/]	> 84	39.7[j/]	18.60[j/]	739[h/]	822
NT	7	2-3	exp	-	-	exp	-	-	exp
Total									2581

a/ 16 farms in Queensland marketing food product
b/ Industry estimate, most was in ponds for own farm use and was priced between $0.35-0.40
c/ In Queensland 31.2 tonnes of red claw were produced, at an average price of $15.89 per kilogram. Total value was $495,600. For marron the figures were 0.06 tonnes, $16.22 per kilogram and $900 respectively
d/ Market price was not available for New South Wales and the Victorian price was used
e/ Only about 24 of the farms in Victoria are active, with a total area of about 70 hectares
f/ In Victoria most of the juveniles were produced from ponds. Juvenile prices may be up to $0.11 each for lots (< 50,000)
g/ Prices are around $10-13 per kilogram for local sales, and $15-18 per kilogram for export grade, $12 was used for value determination
h/ In South Australia, yabbie production was 11,650 kg, priced at $13 per kilogram, giving a value of $151,000. The figures for marron were 2110 kilograms, $26.77 per kilogram, valued at $56,600
i/ Figure for marron sales only, excludes figures for yabbies
j/ In Western Australia production of yabbies/koonacs was 27.87 tonnes, marron 11.88 tonnes. Prices for yabbies varied between $10-20 per kilogram, averaging $15, while the prices for marron ranged from $20-33 per kilogram and averaged $27

Sources: State and Territory Fisheries Departments and industry

Table C-13: Penaeid Prawns 1989/90

State	Farms	Area	Post larva			Market			Total value
			prod'n	price	value	prod'n	price	value	
	no.	ha	mil	$/pc	$'000	tonnes	$/kg	$'000	$'000
Qld	23	250[a/]	94[b/]	0.02	1880	424[c/]	10.73[c/]	4545[c/]	6425
NT	1	31	exp	-	-	exp	-	-	0
NSW	7	~160[d/]	10[e/]	0.02	200	170[f/]	~10.75[f/]	1828[d/]	2028
Total									8453

a/ 160-200 hectares was actually in production
b/ The main production of post larvae was for black tiger prawn (*Penaeus monodon*) from seven hatcheries. Prices averaged $20 per thousand post larvae, but ranged from $13-25 per thousand depending on the species and demand
c/ Production of black tiger was 417 tonnes, averaging $10.75/kg. Brown tiger prawn (*P. esculentus*) production was 6.6 tonnes averaging $9.57/kg
d/ Only around 160 hectares was in production in New South Wales. However, approximately 450 hectares of prawn ponds had been built
e/ In New South Wales post larvae production came from two hatcheries. Total production was between 10 and 15 million post larvae
f/ Almost all of the production was for black tiger, with prices from $8-16 per kilogram, averaging around $10.75

Sources: State and Territory Fisheries Departments and industry

Table C-14: Mud/Sand Crabs 1989/90

State	Farms	Area	Juvenile			Market			Total value
			prod'n	price	value	prod'n	price	value	
	no.	ha	'000	$/pc	$'000	tonnes	$/kg	$'000	$'000
NSW	1	na	na	na	na	na	na	na	na
NT	1	<4	na	na	na	na[a/]	na	na	na
Total									na

a/ Mud crab fattening only

Sources: State and Territory Fisheries Departments

Table C-15: Brine Shrimp 1989/90

State	Farms	Area	Cyst			Biomass			Total value
			prod'n	price	value	prod'n[a/]	price	value	
	no.	ha	kg	$/kg	$'000	kg	$/kg	$'000	$'000
Vic	1	<1	na	na	na	na	na	na	na
Qld	1	<1	exp	-	-	exp	-	-	exp
Total									na

a/ Biomass could be either frozen or alive

Sources: State and Territory Fisheries Departments

4. OTHER MARINE PRODUCTS

Table C-16: Short-fin Eels 1989/90

State	Farms	Area	Elver			Market		
			prod'n[a/]	price	value	prod'n	price	value
	no.	ha	'000	$/pc	$'000	tonnes	$/kg	$'000
Tas	10	na[c/]	510[b/]	na	na	37	4.00	148
Vic	3[d/]	500	1233[b/]	na	na	200	7.50	1500
Total								1648

a/ Elvers are collected under licence from Tasmania and provided as stock in Tasmania and Victoria. There is no market value for them
b/ There are between 1 and 1400 elvers per kilogram
c/ In Tasmania there is no set area, eels are fished from farm dams, rivers and lagoons throughout the State. Elvers are caught and supplied to licensed fishermen to restock these wild catchments
d/ In Victoria six lakes are leased by State Government and fished by three companies

Sources: State and Territory Fisheries Departments

Table C-17: Microalgae (*Dunaliella salina*) 1989/90

State	Farms	Area	Biomass		
			prod'n	price	value
	no.	ha	kg	$/kg	$'000
WA	2[a/]	70	na	na	1150
SA	1	265	na	na	2300
Total					3450

a/ One operations in commercial production

Sources: industry

Table C-18: Seaweeds 1989/90

State	Farms	Area	Prod'n	Price	Value	Total value
	no.	ha	tonnes	$/kg	$'000	$'000
Tas	2	3	exp	-	-	exp
Total						na

Sources: State Fisheries Department

Table C-19: Crocodiles 1989/90

State	Farms	Area	Skins			Meat			Total value
			prod'n	price	value	prod'n	price	value	
	no.	ha	cm'000	$/cm	$'000	tonnes	$/kg	$'000	$'000
Qld	5[a/]	11	na	na	400	na	na	90	490
NT	4[b/]	na	74[c/]	[c/]	>771 [d/]	7.4	20	148	1000
WA	3	<10	0[e/]	-	-	exp	-	-	exp
Total									1490

a/ In Queensland only 2-3 of the farms are in commercial production, and 90 per cent of the production comes from one farm
b/ In the Northern Territory most of the production comes from 2 farms only
c/ The price for *Crocodylus porosus* skins was $13.53 per cm, and for *C. johnstoni* it was $5.13 per cm. Production was 1336 skins (46,640 cm) and 1,101 skins (27,260 cm) respectively
d/ Plus an additional $80,000 for belts, curios and other products
e/ In Western Australia skins cannot be sold as yet. There has been some production but these are in storage

Sources: industry

Table C-20: Lambruscus Worms[a/] 1989/90

State	Farms	Area	Biomass prod'n	Price price	Value value
	no.	ha	Lb	$/Lb	$'000
Vic	1	<1	1000	20.00	20
Total					20

a/ Lambruscus is an oligochaete worm similar to Tubifex. It is used as fish food

Sources: State Fisheries Department

5. TOTAL AQUACULTURE PRODUCTION

Table C-21: Estimated Total Value (farm gate) of Australian Aquaculture Production (including hatcheries)

Species	1988/89 $mil	1989/90 $mil
Salmonids	25.0	41.0
Native freshwater fish	2.0	1.1
Barramundi	0.3	1.0
Aquarium fish	2.0	2.0
Marine fish	neg	neg
Eels	na	1.6
Freshwater crayfish	2.5	2.6
Penaeid prawns	2.7	8.4
Crabs	neg	neg
Brine shrimp	0.1	neg
Edible oysters	52.0	41.3
Pearl oysters	63.0	93.6
Giant clams	0.0	neg
Abalone	neg	1.0
Mussels	1.6	1.8
Scallops	0.0	neg
Micro-algae	3.4	5.0
Seaweeds	0.0	neg
Crocodiles	0.9	1.5
Total	$155.5	$201.9

neg = below $0.1 million
na= no details available

D. TRADE DATA

The tables in this section summarise Australian fish and fish product trade data for the period 1984/85 to 1989/90. Years relate to financial years ending 30 June. Columns may not add to exact totals shown due to rounding.

The data were supplied by the Fisheries Section of the Australian Bureau of Agricultural and Resource Economics (ABARE). Data were converted from DOS TEXT to spreadsheet and summarised to highlight the most important information.

The following nomenclature is used for table numbers:

IQ	Import Quantity
IV	Import Value
IP	Import Price (C&F)
EQ	Export Quantity
EV	Export Value
EP	Export Price (FOB)

TABLE NUMBERS

IMPORT QUANTITY

Table IQ-1 Total Australian Imports of Edible Fishery Products by Product Form (tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
Fresh/Chilled Whole	1237	1519	1076	1223	1469	3017
Frozen Hake	1119	602	357	326	140	25
Minced Hake	1821	1188	1707	1450	1246	2423
Frozen Salmon[a/]				23	528	28
Frozen Tuna[a/]				1963	9610	6976
Frozen Other	9924	8996	10942	6940	6185	6941
Fresh/Chilled Fillets	161	167	74	182	441	333
Frozen Trout Fillets		30	7	281	9	0
Frozen Hake Fillets <1 kg		255	1153	827	305	312
Frozen Hake Fillets >1 kg		12030	14333	17230	5710	8511
Frozen Other Fillets <1 kg		745	1150	1100	978	1439
Frozen Other Fillets >1 kg		11882	8486	8610	8585	9230
Canned Herrings	982	803	511	839	1239	1214
Canned Salmon	7053	8268	8605	5985	7897	7350
Canned Sardines	3111	2550	3016	3300	3463	3750
Canned Tuna	2648	2510	3539	4228	7022	6684
Canned Anchovies	381	299	390	298	456	393
Canned Other	1321	1141	1124	1451	1164	1678
Smoked Fish up to 1 kg	377	541	632	432	287	275
Smoked Fish over 1 kg	3438	2846	2246	1780	1012	2092
Dried Cod	99	84	86	79	85	80
Dried Salted Shark Fins	5	10	6	3	7	8
Other Dried	119	385	466	2238	405	195
Other Salted	653	682	604	712	573	572
Fishballs/cakes/sausages	2199	2218	1810	1479	1969	2437
Caviars/pastes	160	160	191	129	140	177
Other Preparations	7071	6226	4921	2482	2612	2804
Prawns - Fresh/chil'd/froz	4513	4402	6360	4925	5947	5508
Prawns Other	3913	4284	4497	4731	5125	4464
Lobster - Boiled	478	520	247	95	141	23
Other Crus/moll Exc Canned	4966	5845	7258	7842	8763	10576
Canned Crab	443	427	384	494	521	323
Canned Prawns	758	717	647	676	525	689
Canned Smoked Molluscs	1043	901	984	883	1261	912
Canned Other Molluscs	562	475	417	389	392	329
Extracts and Pastes	23	25	27	36	120	152
Other	13	50	1		139	4
Total	60591	83783	88254	86961	86471	91924

a/ prior to January 1988, frozen salmon & tuna were included in Frozen Other

Table IQ-2 Frozen Fish Imports by Country Excluding Fillets (tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
Argentina	11	0	608	1333	725	1042
Canada	235	32	168	41	916	1419
Chile		36	9	354	227	493
Denmark	97	137	282	228	214	116
Hong Kong	14	13	43	55	71	38
Japan	1881	217	515	366	586	566
Malaysia	0	1400	9	11	34	73
Netherlands	897	464	534	1520	169	140
New Zealand	4634	4790	3586	4066	4924	4368
Papua New Guinea	5	31	2891	0	46	779
Korea Republic	2	12	19	898	972	281
South Africa	1382	992	931	0		
Seychelles Republic		0	2485	26	1364	0
Singapore	264	65	376	66	1458	448
Solomon Islands	1000	0	707	1	2428	3575
Spain		93	0	389	205	40
Taiwan	10	10	70	18	112	42
Thailand	60	903	106	70	216	777
United Kingdom	286	164	42	76	16	62
Uruguay	1293	707	393	857	240	442
USA	467	2028	21	1768	1471	1158
Vietnam	13	32	138	87	155	141
Other Countries	1549	178	149	998	3079	3410
Total	14100	12304	14082	13228	21326	19410

Table IQ-3 Fresh, Chilled, Frozen Fillet Imports by Country (tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
Argentina		532	1425	6843	1208	256
Canada	0	620	503	113	116	12
Chile		1092	1284	3029	2680	777
Denmark	12	276	124	27	45	122
Iceland			0	16	70	230
Indonesia		17	24	29	92	105
Japan	0	2572	853	483	139	95
Kenya	0	0	106	153	248	619
Netherlands		435	743	335	341	489
Norway		190	238	57	35	21
New Zealand	113	6895	3836	3335	3919	3849
Papua New Guinea	13	70	73	83	41	12
Poland		314	254	636	143	196
Korea Republic	0	71	113	481	95	0
South Africa		8195	10072	18		
Singapore	208	550	1348	1348	693	795
Spain		223	965	1818	830	16
Taiwan		115	230	786	491	520
Thailand		239	545	490	527	585
United Kingdom	20	1231	1227	821	1125	761
Uruguay		1521	1593	4730	749	65
Vietnam		38	282	941	873	576
Other Countries	0	256	165	1658	1568	901
Total	161	25110	25205	28230	16028	11002

Table IQ-4 Canned Fish Imports by Country (tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
Canada	2381	3346	4645	2605	4324	3257
China	63	14	47	115	190	118
Denmark	132	98	61	125	75	205
Germany FR	456	320	190	386	586	530
Italy	187	142	253	174	276	244
Japan	1935	1525	768	363	211	438
Netherlands	119	111	83	146	240	222
Norway	768	809	780	710	547	721
New Zealand	236	625	516	544	766	407
Philippines	223	90	7	270	429	507
Portugal	178	229	220	116	273	191
Korea Republic	713	956	1284	1565	1062	1138
Spain	177	130	200	104	150	111
Thailand	2014	1991	4009	4934	7916	7301
United Kingdom	418	468	296	344	406	457
USA	4987	4396	3371	2857	2731	2870
Yugoslavia	111	99	162	270	554	430
Other Countries	398	222	292	472	504	1992
Total	15496	15571	17184	16100	21240	21069

Table IQ-5 Dried, Salted, Smoked Fish Imports by Country (tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
Argentina	60	50	56	620	156	360
Canada	168	366	452	340	295	186
China	25	26	24	21	31	27
Chile		54	315	2050	15	0
Denmark	193	184	175	183	229	160
Germany FR	35	15	15	12	28	39
Greece	56	61	49	91	40	48
Hong Kong	21	16	18	19	47	23
Iceland	24	91	67	110	105	143
Italy	88	55	9	48	25	28
Japan	32	20	14	16	37	66
Malaysia	8	14	21	38	35	37
Netherlands	157	121	131	255	102	74
Norway	241	267	222	187	185	201
New Zealand	275	462	122	345	274	265
Korea Republic	28	19	16	7	20	35
South Africa	2897	2181	1531	0	0	0
Spain	33	188	464	236	88	156
Thailand	91	46	47	83	57	36
United Kingdom	195	210	208	397	244	1003
USA	38	18	19	39	45	16
Other Countries	27	85	64	146	310	319
Total	4692	4549	4039	5243	2368	3222

Table IQ-6 Other Prepared and Preserved Fish Products Imports by Country (tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
Canada	65	35	162	68	37	2
China	2	4	8	41	67	62
Denmark	305	174	215	135	81	133
Germany FR	313	228	207	126	121	41
Greece	38	43	50	23	35	46
Hong Kong	10	20	32	43	12	35
Japan	3162	3107	2008	1279	1707	1931
Norway	148	202	119	83	38	71
New Zealand	2416	1719	1463	1542	1569	1665
Iran	0	0	40	1	1	5
Korea Republic	35	16	138	343	466	364
South Africa	1926	1819	1757	0		
Singapore	2	1	3	29	85	160
Sweden	36	178	15	5	3	3
Taiwan	5	6	9	11	7	18
Thailand	169	442	167	158	177	301
United Kingdom	168	194	138	35	126	30
USA	468	72	184	87	75	21
Other Countries	176	394	210	81	239	533
Total	9444	8654	6925	4090	4846	5421

Table IQ-7 Crustaceans and Molluscs Excluding Canned Imports by Country (tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
Burma	75	106	144	31	39	76
Canada	91	38	38	25	55	203
China	364	233	636	451	303	226
Hong Kong	464	1050	681	643	433	521
Indonesia	235	176	348	515	848	646
India	264	232	827	333	424	644
Japan	1154	930	755	760	1016	1725
Macao	93	178	136	27	33	25
Malaysia	3232	3426	3905	3919	4077	3591
New Zealand	2274	2743	2622	2799	3280	3469
Philippines	157	80	134	151	337	225
Papua New Guinea	84	143	317	97	152	75
Korea Republic	50	63	102	445	463	50
Singapore	615	1091	819	714	1131	750
Taiwan	547	638	1423	1117	916	263
Thailand	2746	2145	3313	3704	4433	4661
USA	207	231	228	179	424	732
Vietnam	660	953	1404	995	1023	614
Other Countries	559	594	530	687	588	2075
Total	13871	15050	18362	17592	19975	20571

Table IQ-8 Canned Crustaceans and Molluscs Imports by Country (tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
China	2	3	9	68	89	15
Denmark	46	48	33	31	26	55
Japan	55	21	42	16	11	8
Malaysia	319	307	144	36	99	90
New Zealand	16	21	13	30	46	71
Korea Republic	1176	1002	1124	1064	1326	891
Singapore	17	31	44	39	29	27
Taiwan	13	25	36	30	6	12
Thailand	1069	918	928	1056	1080	1008
Other	115	170	86	108	107	229
Total	2828	2546	2459	2478	2819	2406

Table IQ-9 Total Australian Imports of Edible Fishery Products by Country (tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
Argentina	84	582	2089	8880	2165	2189
Canada	2975	4439	5967	3192	5749	5079
China	479	343	769	788	779	703
Chile	1	1224	1683	5448	3064	4631
Denmark	835	954	919	735	694	845
Germany FR	875	637	448	544	738	636
Hong Kong	535	1117	877	841	632	681
Indonesia	310	214	458	690	1028	895
India	265	239	834	351	437	693
Italy	298	232	281	301	303	289
Japan	8220	8392	4954	3283	3708	5235
Malaysia	3706	5188	4105	4030	4300	3897
Netherlands	1303	1204	1555	2327	898	942
Norway	1272	1789	1454	1075	845	1029
New Zealand	9965	17255	12160	12660	14778	14111
Philippines	446	220	159	454	808	780
Papua New Guinea	102	244	3281	180	239	867
Korea Republic	2005	2140	2796	4803	4404	2759
South Africa	6224	13251	14326	18	0	15
Singapore	906	1406	1812	2231	3411	2224
Solomon Islands	1004	0	708	44	2475	3604
Spain	229	682	1655	2560	1311	1073
Taiwan	618	816	1786	2003	1771	899
Thailand	6149	6683	9115	10495	14404	14674
United Kingdom	1191	2382	2010	1773	2009	3075
Uruguay	1297	2373	1986	5652	989	947
USA	6188	6879	3852	4952	4775	4875
Vietnam	674	1044	1858	2040	2063	1337
Other Countries	2435	1854	4357	4611	7680	12940
Total	60591	83783	88254	86961	86457	91924

Table IQ-10 Marine Fats and Oils Imports (q = kl)

	85/86	86/87	87/88	88/89	89/90
Iceland	19	100	68		
Japan	120	111	29		
Netherlands	216	101	68		
Norway	132	129	56		
New Zealand	175	363	76		
Other Countries	66	210	160	0	0
Total	728	1013	457	na	1132

Table IQ-11 Fishmeal Imports (tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
Chile				10042	18730	29207
Denmark				780	2166	417
New Zealand				476	590	114
American Samoa				3839	4479	2542
Other Countries				282	1887	7465
Total				15419	27852	39745

Table IQ-12 Live Fish Imports ('000)

	84/85	85/86	86/87	87/88	88/89	89/90
China				21	34	1
Germany FR				29	29	118
Hong Kong				686	1337	1270
Indonesia				53	111	282
Malaysia				20	68	79
Singapore				2554	4948	5264
Other Countries				28	36	745
Total				3390	6563	7760

IMPORT VALUE

Table IV-1 Total Australian Imports of Edible Fishery Products by Product Form ($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
Fresh/Chilled Whole	4190	6035	4886	5131	6598	9963
Frozen Hake	2173	1107	1096	937	487	75
Minced Hake	1554	1289	2077	3730	1442	2980
Frozen Salmon a/				116	2271	396
Frozen Tuna a/				2209	9510	8235
Frozen Other	12421	11961	18075	14324	15342	18636
Fresh/Chilled Fillets	589	637	303	883	1438	1343
Frozen Trout Fillets		88	23	95	165	5
Frozen Hake Fillets <1 kg		634	2975	2307	831	811
Frozen Hake Fillets >1 kg		27258	38253	51484	16096	22719
Frozen Other Fillets <1 kg		2867	5674	5011	4359	6860
Frozen Other Fillets >1 kg		43851	36919	37984	36568	34784
Canned Herrings	2460	2193	1789	3013	3861	4602
Canned Salmon	39489	49898	58509	48232	71762	57090
Canned Sardines	9756	9203	12025	14213	13939	15413
Canned Tuna	7501	8138	10733	13141	22059	20529
Canned Anchovies	2213	2180	3864	3157	4175	4339
Canned Other	2984	3015	3421	4288	3582	5192
Smoked Fish up to 1 kg	2517	3748	4944	4976	3531	3416
Smoked Fish over 1 kg	9217	8638	9178	9757	7227	7003
Dried Cod	346	460	593	643	837	793
Dried Salted Shark Fins	217	353	378	314	606	450
Other Dried	891	1841	2725	2752	1748	1721
Other Salted	1858	2400	2524	2606	2677	2693
Fishballs/cakes/sauces	6030	7087	7619	5898	6651	8161
Caviars/pastes	1289	1765	2381	2244	2116	2639
Other Preparations	16860	18219	17145	10715	11046	11377
Prawns - Fr/ch/froz	43367	42063	76773	55069	58614	52321
Prawns Other	25748	30680	36635	37851	37858	33274
Lobster - Boiled	5185	6027	3441	1647	1965	366
Oth Crus/moll Exc Canned	20487	25269	40998	46914	46593	61127
Canned Crab	2402	2142	2252	3353	1877	1711
Canned Prawns	3340	3622	3324	3337	2057	3468
Canned Smoked Molluscs	5177	4994	6488	5974	10287	8056
Canned Other Molluscs	1639	1420	2264	1977	1394	1136
Extracts and Pastes	329	334	254	266	695	587
Other	51	29	28	6	617	82
Total	232279	331444	420565	406548	412881	414349

a/ prior to Jan 1988, frozen salmon and tuna were included in Frozen Other

Table IV-2 Frozen Fish Excl Fillets Imports by Country ($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
Argentina	25	0	855	1937	848	1351
Canada	836	139	836	288	2696	5714
Chile		67	7	477	392	646
Denmark	129	573	1749	1290	2072	1196
Hong Kong	26	40	219	225	317	217
Japan	1482	308	842	594	1191	1231
Malaysia	0	626	44	44	99	153
Netherlands	486	289	697	1136	230	205
New Zealand	10042	12652	10113	13145	14320	12729
Papua New Guinea	17	207	3208	4	112	999
Korea Republic	6	58	69	1320	1229	580
South Africa	1857	1263	1271	0		
Seychelles Republic		0	2743	93	1178	0
Singapore	388	124	514	160	1681	740
Solomon Islands	530	0	733	2	2283	4061
Spain		95	0	798	358	49
Taiwan	55	59	214	40	288	154
Thailand	190	744	429	205	626	1543
United Kingdom	800	637	216	279	64	368
Uruguay	1283	780	508	1160	282	521
USA	419	1291	62	1872	1393	1191
Vietnam	16	51	326	238	443	354
Other Countries	1751	389	479	1140	4063	6283
Total	20338	20392	26134	26447	38009	40285

Table IV-3 Fresh, Chilled, Frozen Fillets Imports by Country ($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
Argentina		1268	3303	17160	2326	654
Canada	0	2426	2471	599	569	58
Chile		2795	4606	9648	7509	2998
Denmark	39	1230	771	165	138	781
Iceland			0	20	264	1051
Indonesia		121	155	176	472	420
Japan	1	8969	3938	2028	557	330
Kenya		0	494	607	698	1891
Netherlands		1595	3430	1853	1585	1439
Norway		622	1023	310	186	94
New Zealand	397	25773	16008	16542	18900	16475
Papua New Guinea	100	511	613	711	362	113
Poland		672	558	1752	161	567
Korea Republic	0	200	340	1706	408	0
South Africa		18318	26148	62		
Singapore		628	1494	4475	1849	1809
Spain		454	2277	6524	2633	40
Taiwan		527	1232	1886	1763	2016
Thailand		1109	3834	2396	2466	2862
United Kingdom	41	4719	5917	4037	5872	3872
Uruguay		2435	3857	14379	1914	250
Vietnam		87	892	4036	3243	1876
Other Countries	11	877	786	6690	5581	3395
Total	589	75336	84147	97762	59456	42991

Table IV-4 Canned Fish Imports by Country ($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
Canada	14077	22918	36203	21898	39211	27561
China	284	62	191	262	374	324
Denmark	361	376	320	591	316	856
Germany FR	1227	1090	806	1752	2098	2262
Italy	927	995	2231	1663	2414	2436
Japan	5357	4868	3211	1585	776	1275
Netherlands	239	305	264	513	679	673
Norway	3625	4034	4578	6081	4607	5300
New Zealand	593	1434	1359	1494	2900	1397
Philippines	573	273	25	869	1432	1967
Portugal	541	569	788	545	900	782
Korea Republic	1935	2630	5088	6781	4698	4729
Spain	928	1119	1800	1281	1511	1370
Thailand	4451	5215	11001	14170	25454	22682
United Kingdom	1531	2245	1340	1657	2252	2310
USA	26228	25603	19934	23108	26783	22216
Yugoslavia	232	195	352	589	1042	1002
Other Countries	287	694	848	1206	1930	8022
Total	64403	74625	90339	86045	119377	107164

Table IV-5 Dried, Salted, Smoked Fish Imports by Country ($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
Argentina	82	83	118	1841	328	821
Canada	2105	3563	5045	4445	4116	2706
China	218	230	266	238	414	274
Chile		22	1462	1105	43	0
Denmark	2052	2451	2648	2785	3503	2392
Germany FR	116	104	134	81	152	218
Greece	166	185	250	517	223	251
Hong Kong	271	199	303	296	428	466
Iceland	107	341	322	745	741	1015
Italy	313	187	35	219	186	163
Japan	292	406	387	443	718	454
Malaysia	54	104	125	253	259	234
Netherlands	461	380	519	374	308	248
Norway	824	1227	1298	1313	1220	1368
New Zealand	456	1321	427	1518	1069	848
Korea Republic	76	72	68	56	118	144
South Africa	5592	4067	3668	0	0	9
Spain	118	341	1053	831	235	399
Thailand	372	239	170	355	275	204
United Kingdom	796	1192	1226	2155	1073	1082
USA	391	395	379	852	701	510
Other Countries	184	332	439	626	517	2270
Total	15046	17441	20342	21048	16627	16076

Table IV-6 Other Prepared and Preserved Fish Products Imports by Country ($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
Canada	367	173	1503	458	517	43
China	13	16	99	282	364	269
Denmark	1240	1028	1510	1026	733	1482
Germany FR	1286	1345	1745	1345	1123	505
Greece	122	168	261	135	167	176
Hong Kong	76	163	242	312	63	190
Japan	9727	11558	10207	6310	7068	7455
Norway	219	405	281	254	115	225
New Zealand	4847	4262	4755	5197	5302	5774
Iran	1	46	207	197	243	283
Korea Republic	75	53	622	1456	1751	1469
South Africa	3001	3422	3040	0		
Singapore	29	12	15	116	335	582
Sweden	115	717	89	45	17	18
Taiwan	25	32	53	78	70	123
Thailand	486	1397	420	503	625	962
United Kingdom	354	607	543	133	596	97
USA	1558	297	839	460	277	116
Other Countries	690	1402	747	381	1066	2493
Total	24231	27103	27178	18868	20432	22262

Table IV-7 Crustaceans and Molluscs Excluding Canned Imports by Country ($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
Burma	898	1241	1929	429	309	667
Canada	868	633	688	654	963	2831
China	3866	2693	7938	5462	2751	1987
Hong Kong	3041	7932	6880	3854	3006	3378
Indonesia	2099	1415	3558	3988	6938	5703
India	2338	1717	4523	2722	2960	3181
Japan	4506	5008	5829	4651	6891	11612
Macao	728	1678	1711	328	293	262
Malaysia	22733	24359	31341	31647	29872	25782
New Zealand	11231	13351	16101	18550	19505	21329
Philippines	1515	778	1553	1879	3224	2343
Papua New Guinea	815	1420	3148	1093	1492	860
Korea Republic	179	431	796	2493	2061	407
Singapore	4095	6797	7242	6042	8072	5274
Taiwan	5187	6111	20472	11835	6434	1829
Thailand	19102	13675	24900	28970	34885	35275
USA	1047	484	867	645	1016	2320
Vietnam	6634	9689	14710	10606	9991	6531
Other Countries	3905	4627	3661	5542	4367	15517
Total	94787	104039	157847	141480	145030	147088

Table IV-8 Canned Crustaceans and Molluscs Imports by Country ($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
China	8	10	66	294	409	78
Denmark	150	173	150	121	99	264
Japan	468	235	476	166	63	97
Malaysia	1758	1776	1018	175	585	470
New Zealand	102	137	90	135	175	323
Korea Republic	5787	5434	6961	7117	10606	7859
Singapore	74	179	263	176	95	113
Taiwan	64	157	382	226	30	60
Thailand	3818	3541	4500	5535	3706	4304
Other	657	870	676	963	542	1390
Total	12886	12512	14582	14908	16310	14958

Table IV-9 Total Australian Imports of Edible Fishery Products by Country $'000

	84/85	85/86	86/87	87/88	88/89	89/90
Argentina	143	1352	4276	21334	3837	3859
Canada	18550	29852	46746	28341	48108	38914
China	4452	3173	8667	6797	4613	3691
Chile	9	2944	6189	11254	8660	12299
Denmark	4342	6104	7562	6243	7131	7442
Germany FR	2722	2911	2857	3296	3417	3121
Hong Kong	3593	8388	8109	5100	4055	4500
Indonesia	2289	1646	3785	4638	7745	6606
India	2351	1742	4569	2792	3014	3396
Italy	1373	1452	2347	2197	2635	2795
Japan	21833	31352	24890	15777	17263	24378
Malaysia	24965	26980	32607	32192	30969	26986
Netherlands	1726	2784	5141	4244	2997	2613
Norway	5341	8687	7981	8524	6360	7011
New Zealand	27667	58930	48854	56581	62172	58938
Philippines	2265	1202	1642	2864	4819	4497
Papua New Guinea	932	2138	6969	1808	1966	1972
Korea Republic	8058	8878	13945	20929	20871	15189
South Africa	10672	27270	34376	62	0	62
Singapore	4665	7843	9681	11115	12136	8736
Solomon Islands	536	3	734	173	2501	4167
Spain	1123	2184	5260	9505	4871	3440
Taiwan	5462	6966	22462	14289	8798	4359
Thailand	28418	25921	45254	52132	68037	67844
United Kingdom	4120	10182	10200	8949	10517	10154
Uruguay	1296	3645	4364	15746	2196	1636
USA	29684	28524	22238	27035	30255	26668
Vietnam	6651	9864	16154	15074	13746	8827
Other Countries	7041	8527	12706	17561	19192	50249
Total	232280	331445	420566	406552	412881	414353

Table IV-10 Non-edible Product Imports ($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
Fishmeal	5801	4183		7765	17283	20650
Live Fish				896	1872	2336
Marine Oils and Fats	510	739	1105	1145	2008	1132
Pearls			5467	1548	3970	11971
Other Marine Products	2100	2476	2298	5534	9375	6466
Total	8411	7397	8870	16888	34500	42554

Table IV-11 Fishmeal Imports ($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
Chile				5596	12238	15565
Denmark				516	1286	304
New Zealand				274	395	73
American Samoa				1218	2002	1022
Other Countries				160	1362	3686
Total				7765	17283	20650

Table IV-12 Live Fish Imports ($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
China				9	23	6
Germany FR				16	45	89
Hong Kong				172	409	373
Indonesia				56	146	229
Malaysia				5	11	28
Singapore				617	1174	1301
Other Countries				20	63	312
Total				896	1872	2336

Table IV-13 Marine Fats and Oils Imports ($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
Iceland		31	127	62		
Japan		103	90	55		
Netherlands		182	137	259		
Norway		150	126	149		
New Zealand		160	328	163		
Other Countries		113	296	457	2008	1132
Total		739	1105	1144	2008	0

Table IV-14 Pearl Imports ($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
Germany FR				3	10	0
Hong Kong				259	404	612
Italy				2	18	9
Japan				1230	3101	9229
French Polynesia					136	0
Switzerland				15	69	63
Other Countries				38	232	2057
Total				1547	3970	11971

Quantity data are not available

Table IV-15 Other Marine Imports ($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
Canada				12	39	72
Chile				0	313	572
Fiji				13	80	0
Japan				406	845	676
Malaysia				308	774	451
Netherlands				155	868	447
New Zealand				2695	4149	2226
Philippines				237	301	205
Taiwan				508	197	374
Thailand				836	1352	382
USA				172	333	330
Other Countries				193	123	731
Total				5534	9375	6466

IMPORT PRICE

Table IP-1 Total Australian Imports of Edible Fishery Products by Product Form ($/kg)

	84/85	85/86	86/87	87/88	88/89	89/90
Fresh/Chilled Whole	3.39	3.97	4.54	4.20	4.49	3.30
Frozen Hake	1.94	1.84	3.07	2.87	3.48	3.00
Minced Hake	0.85	1.09	1.22	1.35	1.16	1.23
Frozen Salmon				5.04	4.30	14.14
Frozen Tuna				1.13	0.99	1.18
Frozen Other	1.25	1.33	1.65	2.06	2.48	2.68
Fresh/Chilled Fillets	3.66	3.81	4.09	4.85	3.26	4.03
Frozen Trout Fillets		2.93	3.29	0.34	18.33	
Frozen Hake Fillets <1 kg		2.49	2.58	2.79	2.72	2.60
Frozen Hake Fillets >1 kg		2.27	2.67	3.02	2.82	2.67
Frozen Other Fillets <1 kg		3.85	4.93	4.56	4.46	4.77
Frozen Other Fillets >1 kg		3.69	4.35	4.41	4.26	3.77
Canned Herrings	2.51	2.73	3.50	3.59	3.12	3.79
Canned Salmon	5.60	6.04	6.80	8.06	9.09	7.77
Canned Sardines	3.14	3.61	3.99	4.31	4.03	4.11
Canned Tuna	2.83	3.24	3.03	3.11	3.14	3.07
Canned Anchovies	5.81	7.29	9.91	10.59	9.16	11.04
Canned Other	2.26	2.64	3.04	2.96	3.08	3.09
Smoked Fish up to 1 kg	6.68	6.93	7.82	11.52	12.30	12.42
Smoked Fish over 1 kg	2.68	3.04	4.09	5.48	7.14	3.35
Dried Cod	3.49	5.48	6.90	8.14	9.85	9.91
Dried Salted Shark Fins	43.40	35.30	63.00	104.67	86.57	56.25
Other Dried	7.49	4.78	5.85	1.23	4.32	8.83
Other Salted	2.85	3.52	4.18	3.66	4.67	4.71
Fishballs/cakes/sausages	2.74	3.20	4.21	3.99	3.38	3.35
Caviars/pastes	8.06	11.03	12.47	17.40	15.11	14.91
Other Preparations	2.38	2.93	3.48	4.32	4.23	4.06
Prawns - Fr/ch/froz	9.61	9.56	12.07	11.18	9.86	9.50
Prawns Other	6.58	7.16	8.15	8.00	7.39	7.45
Lobster - Boiled	10.85	11.59	13.93	17.34	13.94	15.91
Oth Crus/moll Exc Canned	4.13	4.32	5.65	5.98	5.32	5.78
Canned Crab	5.42	5.02	5.86	6.79	3.60	5.30
Canned Prawns	4.41	5.05	5.14	4.94	3.92	5.03
Canned Smoked Molluscs	4.96	5.54	6.59	6.77	8.16	8.83
Canned Other Molluscs	2.92	2.99	5.43	5.08	3.56	3.45
Extracts and Pastes	14.30	13.36	9.41	7.39	5.79	3.86
Total	3.83	3.96	4.77	4.68	4.78	4.51

Table IP-2 Frozen Fish Imports by Country Excluding Fillets ($/kg)

	84/85	85/86	86/87	87/88	88/89	89/90
Argentina	2.27		1.41	1.45	1.17	1.30
Canada	3.56	4.34	4.98	7.02	2.94	4.03
Chile		1.86	0.78	1.35	1.73	1.31
Denmark	1.33	4.18	6.20	5.66	9.68	10.31
Hong Kong	1.86	3.08	5.09	4.09	4.46	5.71
Japan	0.79	1.42	1.63	1.62	2.03	2.17
Malaysia		0.45	4.89	4.00	2.91	2.10
Netherlands	0.54	0.62	1.31	0.75	1.36	1.46
New Zealand	2.17	2.64	2.82	3.23	2.91	2.91
Papua New Guinea	3.40	6.68	1.11		2.43	1.28
Korea Republic	3.00	4.83	3.63	1.47	1.26	2.06
South Africa	1.34	1.27	1.37			
Seychelles Republic			1.10	3.58	0.86	
Singapore	1.47	1.91	1.37	2.42	1.15	1.65
Solomon Islands	0.53		1.04	3.49	0.94	1.14
Spain		1.02		2.05	1.75	1.23
Taiwan	5.50	5.90	3.06	2.22	2.57	3.67
Thailand	3.17	0.82	4.05	2.93	2.90	1.99
United Kingdom	2.80	3.88	5.14	3.67	4.00	5.94
Uruguay	0.99	1.10	1.29	1.35	1.18	1.18
USA	0.90	0.64	2.95	1.06	0.95	1.03
Vietnam	1.23	1.59	2.36	2.74	2.86	2.51
Other Countries	1.09	2.19	3.21	1.14	1.32	1.84
Total	1.44	1.66	1.86	2.00	1.81	2.08

Table IP-3 Fresh, Chilled, Frozen Fillet Imports by Country ($/kg)

	84/85	85/86	86/87	87/88	88/89	89/90
Argentina		2.38	2.32	2.51	1.93	2.55
Canada		3.91	4.91	5.30	4.91	4.83
Chile		2.56	3.59	3.19	2.80	3.86
Denmark	3.25	4.46	6.22	6.11	3.07	6.40
Iceland				1.25	3.77	4.57
Indonesia		7.12	6.46	6.07	5.13	4.00
Japan		3.49	4.62	4.20	4.01	3.47
Kenya			4.66	3.97	2.81	3.05
Netherlands		3.67	4.62	5.53	4.65	2.94
Norway		3.27	4.30	5.44	5.31	4.48
New Zealand	3.51	3.74	4.17	4.96	4.82	4.28
Papua New Guinea	7.69	7.30	8.40	8.57	8.83	9.42
Poland		2.14	2.20	2.75	1.13	2.89
Korea Republic		2.82	3.01	3.55	4.29	
South Africa		2.24	2.60	3.44		
Singapore		3.02	2.72	3.32	2.67	2.28
Spain		2.04	2.36	3.59	3.17	2.50
Taiwan		4.58	5.36	2.40	3.59	3.88
Thailand		4.64	7.03	4.89	4.68	4.89
United Kingdom	2.05	3.83	4.82	4.92	5.22	5.09
Uruguay		1.60	2.42	3.04	2.56	3.85
Vietnam		2.29	3.16	4.29	3.71	3.26
Other Countries		3.43	4.76	4.03	3.56	3.77
Total	3.66	3.00	3.34	3.46	3.71	3.91

Table IP-4 Canned Fish Imports by Country ($/kg)

	84/85	85/86	86/87	87/88	88/89	89/90
Canada	5.91	6.85	7.79	8.41	9.07	8.46
China	4.51	4.43	4.06	2.28	1.97	2.75
Denmark	2.73	3.84	5.25	4.73	4.21	4.18
Germany FR	2.69	3.41	4.24	4.54	3.58	4.27
Italy	4.96	7.01	8.82	9.56	8.75	9.98
Japan	2.77	3.19	4.18	4.37	3.68	2.91
Netherlands	2.01	2.75	3.18	3.51	2.83	3.03
Norway	4.72	4.99	5.87	8.56	8.42	7.35
New Zealand	2.51	2.29	2.63	2.75	3.79	3.43
Philippines	2.57	3.03	3.57	3.22	3.34	3.88
Portugal	3.04	2.48	3.58	4.70	3.30	4.09
Korea Republic	2.71	2.75	3.96	4.33	4.42	4.16
Spain	5.24	8.61	9.00	12.32	10.07	12.34
Thailand	2.21	2.62	2.74	2.87	3.22	3.11
United Kingdom	3.66	4.80	4.53	4.82	5.55	5.05
USA	5.26	5.82	5.91	8.09	9.81	7.74
Yugoslavia	2.09	1.97	2.17	2.18	1.88	2.33
Other Countries	5.13	3.13	2.90	2.56	3.70	4.56
Total	4.16	4.79	5.26	5.34	5.62	5.09

Table IP-5 Dried, Salted, Smoked Fish Imports by Country ($/kg)

	84/85	85/86	86/87	87/88	88/89	89/90
Argentina	1.37	1.66	2.11	2.97	2.10	2.28
Canada	12.53	9.73	11.16	13.07	13.95	14.55
China	8.72	8.85	11.08	11.33	13.35	10.15
Chile		0.41	4.64	0.54	2.87	
Denmark	10.63	13.32	15.13	15.22	15.30	14.95
Germany FR	3.31	6.93	8.93	6.75	5.43	5.59
Greece	2.96	3.03	5.10	5.68	5.58	5.23
Hong Kong	12.90	12.44	16.83	15.58	9.11	20.26
Iceland	4.46	3.75	4.81	6.77	7.06	7.10
Italy	3.56	3.40	3.89	4.56	7.44	5.82
Japan	9.13	20.30	27.64	27.69	19.41	6.88
Malaysia	6.75	7.43	5.95	6.66	7.40	6.32
Netherlands	2.94	3.14	3.96	1.47	3.02	3.35
Norway	3.42	4.60	5.85	7.02	6.59	6.81
New Zealand	1.66	2.86	3.50	4.40	3.90	3.20
Korea Republic	2.71	3.79	4.25	8.00	5.90	4.11
South Africa	1.93	1.86	2.40			
Spain	3.58	1.81	2.27	3.52	2.67	2.56
Thailand	4.09	5.20	3.62	4.28	4.82	5.67
United Kingdom	4.08	5.68	5.89	5.43	4.40	1.08
USA	10.29	21.94	19.95	21.85	15.58	31.88
Other Countries	6.81	3.91	6.86	4.29	1.67	7.12
Total	3.21	3.83	5.04	4.01	7.02	4.99

Table IP-6 Other Prepared and Preserved Fish Products Imports by Country ($/kg)

	84/85	85/86	86/87	87/88	88/89	89/90
Canada	5.65	4.94	9.28	6.74	13.97	21.50
China	6.50	4.00	12.38	6.88	5.43	4.34
Denmark	4.07	5.91	7.02	8.93	9.05	11.14
Germany FR	4.11	5.90	8.43	10.67	9.28	12.32
Greece	3.21	3.91	5.22	5.87	4.77	3.83
Hong Kong	7.60	8.15	7.56	7.26	5.25	5.43
Japan	3.08	3.72	5.08	4.93	4.14	3.86
Norway	1.48	2.00	2.36	3.06	3.03	3.17
New Zealand	2.01	2.48	3.25	3.37	3.38	3.47
Iran			5.18	197.00	243.00	56.60
Korea Republic	2.14	3.31	4.51	4.24	3.76	4.04
South Africa	1.56	1.88	1.73			
Singapore	14.50	12.00	5.00	4.00	3.94	3.64
Sweden	3.19	4.03	5.93	9.00	5.67	6.00
Taiwan	5.00	5.33	5.89	7.09	10.00	6.83
Thailand	2.88	3.16	2.51	3.18	3.53	3.20
United Kingdom	2.11	3.13	3.93	3.80	4.73	3.23
USA	3.33	4.13	4.56	5.29	3.69	5.52
Other Countries	3.92	3.56	3.56	4.70	4.46	4.68
Total	2.57	3.13	3.92	4.61	4.22	4.11

Table IP-7 Crustaceans and Molluscs Excluding Canned Imports by Country ($/kg)

	84/85	85/86	86/87	87/88	88/89	89/90
Burma	11.97	11.71	13.40	13.84	7.92	8.78
Canada	9.54	16.66	18.11	26.16	17.51	13.95
China	10.62	11.56	12.48	12.11	9.08	8.79
Hong Kong	6.55	7.55	10.10	5.99	6.94	6.48
Indonesia	8.93	8.04	10.22	7.74	8.18	8.83
India	8.86	7.40	5.47	8.17	6.98	4.94
Japan	3.90	5.38	7.72	6.12	6.78	6.73
Macao	7.83	9.43	12.58	12.15	8.88	10.48
Malaysia	7.03	7.11	8.03	8.08	7.33	7.18
New Zealand	4.94	4.87	6.14	6.63	5.95	6.15
Philippines	9.65	9.73	11.59	12.44	9.57	10.41
Papua New Guinea	9.70	9.93	9.93	11.27	9.82	11.47
Korea Republic	3.58	6.84	7.80	5.60	4.45	8.14
Singapore	6.66	6.23	8.84	8.46	7.14	7.03
Taiwan	9.48	9.58	14.39	10.60	7.02	6.95
Thailand	6.96	6.38	7.52	7.82	7.87	7.57
USA	5.06	2.10	3.80	3.60	2.40	3.17
Vietnam	10.05	10.17	10.48	10.75	9.77	10.64
Other Countries	6.99	7.79	6.91	8.07	7.43	7.48
Total	6.83	6.91	8.60	8.04	7.26	7.15

Table IP-8 Canned Crustaceans and Molluscs Imports by Country ($/kg)

	84/85	85/86	86/87	87/88	88/89	89/90
China	4.00	3.33	7.33	4.32	4.60	5.20
Denmark	3.26	3.60	4.55	3.90	3.81	4.80
Japan	8.51	11.19	11.33	10.38	5.73	12.13
Malaysia	5.51	5.79	7.07	4.86	5.91	5.22
New Zealand	6.38	6.52	6.92	4.50	3.80	4.55
Korea Republic	4.92	5.42	6.19	6.69	8.00	8.82
Singapore	4.35	5.77	5.98	4.51	3.28	4.19
Taiwan	4.92	6.28	10.61	7.53	5.00	5.00
Thailand	3.57	3.86	4.85	5.24	3.43	4.27
Other	5.71	5.12	7.86	8.92	5.07	6.07
Total	4.56	4.91	5.93	6.02	5.79	6.22

Table IP-9 Total Australian Imports of Edible Fishery Products by Country ($/kg)

	84/85	85/86	86/87	87/88	88/89	89/90
Argentina	1.70	2.32	2.05	2.40	1.77	1.76
Canada	6.24	6.72	7.83	8.88	8.37	7.66
China	9.29	9.25	11.27	8.63	5.92	5.25
Chile	9.00	2.41	3.68	2.07	2.83	2.66
Denmark	5.20	6.40	8.23	8.49	10.28	8.81
Germany FR	3.11	4.57	6.38	6.06	4.63	4.91
Hong Kong	6.72	7.51	9.25	6.06	6.42	6.61
Indonesia	7.38	7.69	8.26	6.72	7.53	7.38
India	8.87	7.29	5.48	7.95	6.90	4.90
Italy	4.61	6.26	8.35	7.30	8.70	9.67
Japan	2.66	3.74	5.02	4.81	4.66	4.66
Malaysia	6.74	5.20	7.94	7.99	7.20	6.92
Netherlands	1.32	2.31	3.31	1.82	3.34	2.77
Norway	4.20	4.86	5.49	7.93	7.53	6.81
New Zealand	2.78	3.42	4.02	4.47	4.21	4.18
Philippines	5.08	5.46	10.33	6.31	5.96	5.77
Papua New Guinea	9.14	8.76	2.12	10.04	8.23	2.27
Korea Republic	4.02	4.15	4.99	4.36	4.74	5.51
South Africa	1.71	2.06	2.40	3.44		4.13
Singapore	5.15	5.58	5.34	4.98	3.56	3.93
Solomon Islands	0.53		1.04	3.93	1.01	1.16
Spain	4.90	3.20	3.18	3.71	3.72	3.21
Taiwan	8.84	8.54	12.58	7.13	4.97	4.85
Thailand	4.62	3.88	4.96	4.97	4.72	4.62
United Kingdom	3.46	4.27	5.07	5.05	5.23	3.30
Uruguay	1.00	1.54	2.20	2.79	2.22	1.73
USA	4.80	4.15	5.77	5.46	6.34	5.47
Vietnam	9.87	9.45	8.69	7.39	6.66	6.60
Other Countries	2.89	4.60	2.92	3.81	2.49	3.88
Total	3.83	3.96	4.77	4.68	4.77	4.51

EXPORT QUANTITY

Table EQ-1 Australian edible fishery product exports (tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
Fish						
Fresh/Chilled Whole Tuna				527	497	1941
Fresh/Chilled Whole Other	300	612	1432	1048	704	1156
Frozen Whole Tuna	3522	2325	3802	1613	1706	1156
Frozen Whole Whiting	1036	1347	2033	1626	1256	1737
Frozen Whole Other	1241	2922	1458	1335	1253	1970
Fresh/Chilled Fillets	19	16	101	157	333	283
Frozen Fillets	317	389	1502	1992	2388	7725
Other Excl Canned	66	58	172	327	250	460
Canned Tuna	3	79	45	185	130	148
Canned Other	42	107	66	83	140	63
Total fish	6546	7855	10611	8893	8657	16639
Rock Lobster						
Whole Fresh/chilled/froze	875	899	1532	3233	4358	3617
Whole Cooked	768	977	1619	1600	1190	407
Tails Fresh/chilled/froze	4232	3608	3453	3712	2456	2546
Other				35	13	53
Total Rock Lobster	5875	5484	6604	8580	8017	6623
Prawns						
Headless	3677	4034	3004	2939	1826	1731
Whole	8330	8780	9590	11929	9632	9408
Other	229	281	325	387	186	217
Total Prawns	12236	13095	12919	15255	11644	11356
Abalone						
Abalone - Fr/ch/fro	2322	2133	1591	1487	1338	1125
Abalone - Canned	2011	2128	2133	2389	2241	1884
Total Abalone	4333	4261	3724	3876	3579	3009
Scallops	2103	1451	1314	1297	982	931
Oysters - not canned	21	22	56	36	24	33
Other Cr/mol - Frozen	63	150	232	581	525	954
Other Cr/mol - Prep/pres	206	186	16	13	43	55
Other Cr/mol - Other	151	182	480	330	141	452
Total	31535	32685	35957	38863	33613	40051

Table EQ-2 Finfish exports by country (tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
Canada		7	43	20	1	53
China		0	6	1	1	159
Germany FR	146	157	296	123	181	216
Fiji	21	7	42	29	13	67
France	61	33	49	110	109	21
Greece	10	26	19	8	4	10
Hong Kong	41	46	72	261	125	121
Italy	3152	1849	1402	617	11	46
Japan	1678	3584	5752	4276	5126	5989
Kuwait	15	35	31	98	32	23
Malaysia	15	11	17	19	25	23
Nauru	5	34	47	10	27	41
New Zealand	39	98	119	163	139	254
Papua New Guinea	62	11	54	22	56	67
Korea Republic	42	77	30	0	4	17
South Africa	113	0	0	14	29	0
Saudi Arabia	704	925	669	585	547	261
Singapore	46	5	13	77	181	296
Taiwan	163	218	83	349	359	680
Thailand	79	448	793	522	318	534
United Arab Emirates	45	1	0	10	2	13
United Kingdom	1	14	28	21	43	26
USA	94	252	961	1162	1283	7623
Other Countries	14	18	86	130	41	98
Total	6546	7856	10612	8627	8657	16638

Table EQ-3 Rock lobster exports by country (tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
France	12	39	62	44	39	23
Hong Kong	46	126	270	302	168	122
Japan	1410	1493	2778	3574	3905	2407
Korea Republic	8	12	10	13	21	8
Singapore	89	97	59	103	76	137
Taiwan	7	72	41	500	1563	1596
USA	4257	3613	3299	3935	2182	2313
Other Countries	46	31	85	110	64	17
Total	5875	5483	6604	8581	8018	6623

Table EQ-4 Prawn exports by country (tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
Hong Kong	119	277	125	93	148	126
Italy	0	47	434	1014	531	235
Japan	10427	11540	9257	10833	8283	6744
New Zealand	79	65	74	83	107	128
Korea Republic	10	0	1	64	119	413
South Africa	356	193	277	126	66	62
Spain	260	473	1836	2070	1653	2713
Taiwan	0	0	0	31	164	120
USA	825	385	750	659	328	210
Other Countries	160	116	164	282	245	605
Total	12236	13096	12918	15255	11644	11356

Table EQ-5 Abalone exports by country (tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
Hong Kong	1093	960	844	950	707	542
Japan	2329	2316	2108	2144	2291	1627
Singapore	415	464	384	391	276	353
Taiwan	197	274	173	242	206	330
United Kingdom	34	21	27	22	19	24
USA	211	175	120	105	42	113
Other Countries	53	51	69	21	38	20
Total	4332	4261	3725	3875	3579	3009

Table EQ-6 Total Australian exports of edible fishery products by country (tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
Canada	36	17	89	60	27	59
Germany FR	148	161	298	133	203	216
France	669	850	507	322	201	274
Greece	10	27	36	8	26	60
Hong Kong	1930	1919	2011	2525	1995	1849
Italy	3153	1920	1974	1717	563	307
Japan	15894	19147	20384	21539	20041	17554
Malaysia	61	55	52	29	66	43
New Zealand	522	274	279	480	283	404
Korea Republic	62	89	51	87	154	462
South Africa	495	195	277	140	95	62
Saudi Arabia	730	925	669	585	547	261
Singapore	677	661	533	714	677	983
Spain	260	474	1854	2128	1658	2743
Sweden	17	43	49	52	33	31
Taiwan	422	588	320	1155	2368	2938
Thailand	83	453	793	525	319	739
United Kingdom	55	38	68	82	108	87
USA	5935	4552	5271	5979	3878	10399
Other Countries	376	297	442	603	371	580
Total	31535	32685	35957	38863	33613	40051

Table EQ-7 Non-edible product exports (tonnes)

	84/85	85/86	86/87	87/88	88/89	89/90
Pearls ('000)						
Japan	322	302	372	271	350	451
USA	3	20	24	48	52	72
Other Countries	41	30	44	56	26	58
Total	366	352	440	375	428	581
Shells						
Germany FR	83	47	64	128	43	23
Hong Kong	100	101	184	515	333	170
Japan	69	116	248	507	127	185
Korea Republic	248	159	256	255	221	308
Taiwan	7	0	8	33	3	38
USA	41	23	20	24	19	33
Other Countries	83	221	135	417	159	543
Total Shells	631	668	915	1879	905	1300
Fishmeal						
New Zealand			159	437	495	0
Other Countries	16	26	28	99	0	2
Total	16	26	187	536	495	2

EXPORT VALUE

Table EV-1 Australian edible fishery product exports ($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
Fish						
Fresh/Chilled Whole Tuna				2711	2942	4807
Fresh/Chilled Whole Other	867	2820	8225	6213	5080	12487
Frozen Whole Tuna	4649	3210	9006	2242	4150	2653
Frozen Whole Whiting	1287	2577	4473	2981	2386	3549
Frozen Whole Other	3006	7919	5359	5173	6338	10848
Fresh/Chilled Fillets	82	96	782	1197	1562	3119
Frozen Fillets	1002	1454	11024	13561	15656	68643
Other Excl Canned	417	558	2801	3570	2292	5431
Canned Tuna	14	310	204	995	873	828
Canned Other	341	828	402	463	456	304
Total fish	11665	19772	42276	39106	41735	112669
Rock Lobster						
Whole Fresh/chilled/froze	14668	18774	38965	87603	88353	80741
Whole Cooked	12943	17977	36771	36413	22724	7997
Tails Fresh/chilled/froze	129439	108796	119537	143655	69704	95015
Other				690	452	493
Total Rock Lobster	157050	145547	195273	268361	181233	184246
Prawns						
Headless	48853	65564	55909	59036	34109	27098
Whole	98667	137913	157772	196828	153442	132307
Other	2332	3431	4517	5675	2225	2332
Total Prawns	149852	206908	218198	261539	189776	161737
Abalone						
Abalone - Fr/ch/fro	26581	39351	42848	42516	44160	43960
Abalone - Canned	28628	47462	65393	82630	84285	75691
Total Abalone	55209	86813	108241	125146	128445	119651
Scallops	20183	18695	23004	23661	17769	21911
Oysters - not canned	110	186	830	373	270	354
Other Cr/mol - Frozen	621	1023	1461	4433	3406	9582
Other Cr/mol - Prep/pres	1970	2155	285	175	451	1083
Other Cr/mol - Other	2172	828	3238	3389	1846	10074
Total	398831	481926	592802	726182	564933	621308

Table EV-2 Finfish exports by country ($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
Canada		21	439	118	13	434
China		2	52	16	17	354
Germany FR	671	1016	1685	1136	1481	1836
Fiji	87	40	76	46	28	94
France	164	58	103	333	366	133
Greece	14	30	42	74	88	24
Hong Kong	200	317	588	1515	893	974
Italy	3535	2069	2619	978	259	437
Japan	4152	10118	22354	18362	20788	27173
Kuwait	14	58	55	154	44	53
Malaysia	26	15	98	109	136	150
Nauru	37	152	211	60	121	238
New Zealand	151	395	506	783	462	1076
Papua New Guinea	246	68	318	130	297	246
Korea Republic	57	335	73	0	6	45
South Africa	98	0	0	12	35	0
Saudi Arabia	751	1073	756	690	627	300
Singapore	103	23	112	581	839	1304
Taiwan	801	1581	1173	1950	3216	4809
Thailand	101	901	1768	995	511	1099
United Arab Emirates	41	4	1	15	7	12
United Kingdom	11	52	62	60	181	161
USA	390	1302	8885	8850	10978	71316
Other Countries	15	139	300	681	343	402
Total	11665	19769	42276	37648	41736	112670

Table EV-3 Rock lobster exports by country ($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
France	190	865	1585	1290	786	513
Hong Kong	878	2740	6637	7010	4233	2916
Japan	24257	29641	65200	87083	82845	55635
Korea Republic	164	264	256	322	562	232
Singapore	1268	1828	1141	2478	1544	2820
Taiwan	188	1280	972	10710	27956	32794
USA	129545	108209	117757	156619	61777	88942
Other Countries	560	720	1725	2849	1531	394
Total	157050	145547	195273	268361	181234	184246

Table EV-4 Prawn exports by country ($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
Hong Kong	1197	2292	1632	1042	1629	1385
Italy	0	677	5379	14113	6624	2811
Japan	128107	188683	167983	201002	151963	113264
New Zealand	695	794	1111	1214	1377	1450
Korea Republic	182	0	14	867	1437	3307
South Africa	3756	2435	3903	2002	1003	918
Spain	2700	4686	21325	24522	16300	29013
Taiwan	2	0	10	327	2143	887
USA	11467	5963	14441	12909	4398	2707
Other Countries	1746	1378	2400	3541	2902	5995
Total	149852	206908	218198	261539	189776	161737

Table EV-5 Abalone exports by country ($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
Hong Kong	15934	22550	27173	33742	27264	21501
Japan	26392	42995	57794	64371	80220	65799
Singapore	5827	10446	12063	13920	10221	14841
Taiwan	2967	5857	4577	8137	7607	13619
United Kingdom	449	488	903	763	697	1045
USA	3015	3706	3770	3522	1466	1844
Other Countries	626	771	1961	691	970	1002
Total	55210	86813	108241	125146	128445	119651

Table EV-6 Total Australian exports of edible fishery products by country ($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
Canada	433	196	1442	1232	381	639
Germany FR	681	1075	1748	1360	2062	1844
France	5520	9674	7087	4443	1980	2754
Greece	14	32	103	74	332	553
Hong Kong	26587	36108	50413	59776	49384	48140
Italy	3547	2928	9255	16460	7105	3516
Japan	183417	272389	316457	376366	339080	272023
Malaysia	492	556	716	373	706	696
New Zealand	3354	2166	2599	3517	2181	2768
Korea Republic	425	603	513	1237	2077	3725
South Africa	4102	2452	3903	2021	1037	918
Saudi Arabia	807	1073	756	694	627	331
Singapore	8401	13582	14638	19293	15046	22806
Spain	2703	4704	21483	24891	16443	29262
Sweden	142	386	580	606	440	355
Taiwan	4248	8932	7059	21490	41448	54767
Thailand	160	979	1793	1032	539	3006
United Kingdom	746	578	1061	1612	1688	1658
USA	150351	120683	147323	183470	79372	168440
Other Countries	2701	2830	3873	6235	3004	3106
Total	398831	481926	592802	726182	564932	621307

Table EV-7 Non-edible product exports ($'000)

	84/85	85/86	86/87	87/88	88/89	89/90
Pearls						
Japan	17444	24035	19043	27841	39873	75412
USA	129	3221	4683	4936	9503	11403
Other Countries	1060	665	1982	7426	6533	14189
Total Pearls	18633	27921	25708	40203	55909	101004
Shells						
Germany FR	258	158	382	671	407	107
Hong Kong	105	44	102	425	454	318
Japan	138	362	456	500	711	1332
Korea Republic	738	600	828	889	676	2317
Taiwan	5	5	38	289	163	365
USA	139	124	182	283	219	345
Other Countries	192	474	391	594	753	3212
Total Shells	1574	1767	2379	3652	3382	7995
Fishmeal						
New Zealand			122	422	519	0
Other Countries	11	23	24	108	0	3
Total	11	23	146	530	519	3
Marine Fats And Oils	0	103	2	143	248	4
Total Non-edible Products	20218	29814	28235	44528	60058	109006

EXPORT PRICE

Table EP-1 Australian edible fishery product exports ($/kg)

	84/85	85/86	86/87	87/88	88/89	89/90
Fish						
Fresh/Chilled Whole Tuna					5.92	2.48
Fresh/Chilled Whole Other	2.89	4.61	5.74	5.93	7.22	10.80
Frozen Whole Tuna	1.32	1.38	2.37	1.39	2.43	2.29
Frozen Whole Whiting	1.24	1.91	2.20	1.83	1.90	2.04
Frozen Whole Other	2.42	2.71	3.68	3.87	5.06	5.51
Fresh/Chilled Fillets	4.32	6.00	7.74	7.62	4.69	11.02
Frozen Fillets	3.16	3.74	7.34	6.81	6.56	8.89
Other Excl Canned	6.32	9.62	16.28	10.92	9.17	11.81
Canned Tuna	4.67	3.92	4.53	5.38	6.72	5.59
Total finfish	1.78	2.52	3.98	4.40	4.82	6.77
Rock Lobster						
Whole Fresh/chilled/froze	16.76	20.88	25.43	27.10	20.27	22.32
Whole Cooked	16.85	18.40	22.71	22.76	19.10	19.65
Tails Fresh/chilled/froze	30.59	30.15	34.62	38.70	28.38	37.32
Total Rock Lobster	26.73	26.54	29.57	31.28	22.61	27.82
Prawns						
Headless	13.29	16.25	18.61	20.09	18.68	15.65
Whole	11.84	15.71	16.45	16.50	15.93	14.06
Other	10.18	12.21	13.90	14.66	11.96	10.75
Total Prawns	12.25	15.80	16.89	17.14	16.30	14.24
Abalone						
Abalone - Fr/ch/fro	11.45	18.45	26.93	28.59	33.00	39.08
Abalone - Canned	14.24	22.30	30.66	34.59	37.61	40.18
Total Abalone	12.74	20.37	29.07	32.29	35.89	39.76
Scallops	9.60	12.88	17.51	18.24	18.09	23.53
Other Cr/mol - Frozen	9.86	6.82	6.30	7.63	6.49	10.04
Other Cr/mol - Prep/pres	9.56	11.59	17.81	13.46	10.49	19.69
Other Cr/mol - Other	14.38	4.55	6.75	10.27	13.09	22.29
Total	12.65	14.74	16.49	18.69	16.81	15.51

Table EP-2 Finfish exports by country ($/kg)

	84/85	85/86	86/87	87/88	88/89	89/90
Canada		3.00	10.21	5.90	13.00	8.19
China			8.67		17.00	2.23
Germany FR	4.60	6.47	5.69	9.24	8.18	8.50
Fiji	4.14	5.71	1.81	1.59	2.15	1.40
France	2.69	1.76	2.10	3.03	3.36	6.33
Greece	1.40	1.15	2.21	9.25	22.00	2.40
Hong Kong	4.88	6.89	8.17	5.80	7.14	8.05
Italy	1.12	1.12	1.87	1.59	24.36	9.50
Japan	2.47	2.82	3.89	4.29	4.06	4.54
Kuwait	0.93	1.66	1.77	1.57	1.38	2.30
Malaysia	1.73	1.36	5.76	5.74	5.44	6.52
Nauru	7.40	4.47	4.49	6.00	4.48	5.80
New Zealand	3.87	4.03	4.25	4.80	3.32	4.24
Papua New Guinea	3.97	6.18	5.89	5.91	5.30	3.67
Korea Republic	1.36	4.35	2.43		1.50	2.65
South Africa	0.87			0.86	1.21	
Saudi Arabia	1.07	1.16	1.13	1.18	1.15	1.15
Singapore	2.24	4.60	8.62	7.55	4.64	4.41
Taiwan	4.91	7.25	14.13	5.59	8.96	7.07
Thailand	1.28	2.01	2.23	1.91	1.61	2.06
United Arab Emirates	0.91	4.00		1.50	3.50	0.92
United Kingdom	11.00	3.71	2.21	2.86	4.21	6.19
USA	4.15	5.17	9.25	7.62	8.56	9.36
Other Countries	1.07	7.72	3.49	5.24	8.37	4.10
Total	1.78	2.52	3.98	4.36	4.82	6.77

Table EP-3 Rock lobster exports by country ($/kg)

	84/85	85/86	86/87	87/88	88/89	89/90
France	15.83	22.18	25.56	29.32	20.15	22.30
Hong Kong	19.09	21.75	24.58	23.21	25.20	23.90
Japan	17.20	19.85	23.47	24.37	21.22	23.11
Korea Republic	20.50	22.00	25.60	24.77	26.76	29.00
Singapore	14.25	18.85	19.34	24.06	20.32	20.58
Taiwan	26.86	17.78	23.71	21.42	17.89	20.55
USA	30.43	29.95	35.69	39.80	28.31	38.45
Other Countries	12.17	23.23	20.29	25.90	23.92	23.18
Total	26.73	26.55	29.57	31.27	22.60	27.82

Table EP-4 Prawn exports by country ($/kg)

	84/85	85/86	86/87	87/88	88/89	89/90
Hong Kong	10.06	8.27	13.06	11.20	11.01	10.99
Italy		14.40	12.39	13.92	12.47	11.96
Japan	12.29	16.35	18.15	18.55	18.35	16.79
New Zealand	8.80	12.22	15.01	14.63	12.87	11.33
Korea Republic	18.20		14.00	13.55	12.08	8.01
South Africa	10.55	12.62	14.09	15.89	15.20	14.81
Spain	10.38	9.91	11.61	11.85	9.86	10.69
Taiwan				10.55	13.07	7.39
USA	13.90	15.49	19.25	19.59	13.41	12.89
Other Countries	10.91	11.88	14.63	12.56	11.84	9.91
Total	12.25	15.80	16.89	17.14	16.30	14.24

Table EP-5 Abalone exports by country ($/kg)

	84/85	85/86	86/87	87/88	88/89	89/90
Hong Kong	14.58	23.49	32.20	35.52	38.56	39.67
Japan	11.33	18.56	27.42	30.02	35.02	40.44
Singapore	14.04	22.51	31.41	35.60	37.03	42.04
Taiwan	15.06	21.38	26.46	33.62	36.93	41.27
United Kingdom	13.21	23.24	33.44	34.68	36.68	43.54
USA	14.29	21.18	31.42	33.54	34.90	16.32
Other Countries	11.81	15.12	28.42	32.90	25.53	50.10
Total	12.74	20.37	29.06	32.30	35.89	39.76

Table EP-6 Total Australian exports of edible fishery products by country ($/kg)

	84/85	85/86	86/87	87/88	88/89	89/90
Canada	12.03	11.53	16.20	20.53	14.11	10.83
Germany FR	4.60	6.68	5.87	10.23	10.16	8.54
France	8.25	11.38	13.98	13.80	9.85	10.05
Greece	1.40	1.19	2.86	9.25	12.77	9.22
Hong Kong	13.78	18.82	25.07	23.67	24.75	26.04
Italy	1.12	1.53	4.69	9.59	12.62	11.45
Japan	11.54	14.23	15.52	17.47	16.92	15.50
Malaysia	8.07	10.11	13.77	12.86	10.70	16.19
New Zealand	6.43	7.91	9.32	7.33	7.71	6.85
Korea Republic	6.85	6.78	10.06	14.22	13.49	8.06
South Africa	8.29	12.57	14.09	14.44	10.92	14.81
Saudi Arabia	1.11	1.16	1.13	1.19	1.15	1.27
Singapore	12.41	20.55	27.46	27.02	22.22	23.20
Spain	10.40	9.92	11.59	11.70	9.92	10.67
Sweden	8.35	8.98	11.84	11.65	13.33	11.45
Taiwan	10.07	15.19	22.06	18.61	17.50	18.64
Thailand	1.93	2.16	2.26	1.97	1.69	4.07
United Kingdom	13.56	15.21	15.60	19.66	15.63	19.06
USA	25.33	26.51	27.95	30.69	20.47	16.20
Other Countries	7.18	9.53	8.76	10.34	8.10	5.36
Total	12.65	14.74	16.49	18.69	16.81	15.51

Table EP-7 Non-edible product exports ($/kg)

	84/85	85/86	86/87	87/88	88/89	89/90
Pearls ($/pearl)						
Japan	54.17	79.59	51.19	102.73	113.92	167.21
USA	43.00	161.05	195.13	102.83	182.75	158.38
Other Countries	25.85	22.17	45.05	132.61	251.27	244.64
Total	50.91	79.32	58.43	107.21	130.63	173.85
Shells ($/kg)						
Germany FR	3.11	3.36	5.97	5.24	9.47	4.65
Hong Kong	1.05	0.44	0.55	0.83	1.36	1.87
Japan	2.00	3.12	1.84	0.99	5.60	7.20
Korea Republic	2.98	3.77	3.23	3.49	3.06	7.52
Taiwan	0.71		4.75	8.76	54.33	9.61
USA	3.39	5.39	9.10		11.53	10.45
Other Countries	2.31	2.14	2.90	1.42	4.74	5.92
Total Shells	2.49	2.65	2.60	1.94	3.74	6.15
Fishmeal						
New Zealand			0.77	0.97	1.05	
Other Countries	0.69	0.88	0.86	1.09		1.50
Total	0.69	0.88	0.78	0.99	1.05	1.50

E. DESCRIPTION OF INDIVIDUAL FISHERIES

1. PRAWNS

1.1 BACKGROUND

Numerous prawn species are found in Australian waters. The main commercial forms are:

Western king	*Penaeus latisulcatus*,
Eastern king	*P. plebejus*,
Banana	*P. merguiensis*,
Brown tiger	*P. esculentus*,
Green tiger	*P. semisulcatus*,
Red spot king	*P. longistylus*,
Greasyback	*Metapenaeus bennettae*,
Endeavour	*M. endeavouri*,
Eastern school	*M. macleayi*,
Western school	*M. dalli*,
Royal red	*Haliporoides sibogae*.

Until 1947, commercial prawning was confined to the estuaries with annual production in New South Wales averaging about 600 tonnes and in Queensland 100 tonnes. The only other fishery was for western school prawns in Peel Inlet and the Swan River in Western Australia, but this was of low intensity. However, in 1947, large quantities of eastern school prawns were taken on ocean grounds by Danish seiners off Stockton Bight, Newcastle, and the inshore ocean school prawn fishery spread rapidly along the New South Wales coast. During the 1950s otter trawls were used at night in deeper water and this led to the establishment of the king prawn fishery. In Queensland, commercial otter trawling commenced in Moreton Bay in 1950 and during the next decade otter trawling extended along the entire Queensland east coast and out into the deeper waters off the southern coast.

Following exploratory fishing and a government industry survey, commercial fishing commenced in the Gulf of Carpentaria in 1967. Fishing was concentrated initially in the eastern sector of the Gulf and during the next few years expanded rapidly to become one of Australia's richest fisheries. Fishing also quickly spread to the west, resulting in the establishment of the valuable Northern Territory prawn fishery.

In Western Australia, following exploratory fishing and an initial commercial venture, the Shark Bay fishery commenced in 1962. This was followed by the Exmouth Gulf fishery in 1965 and Nickol Bay in 1967. In South Australia, exploratory fishing for prawns was carried out over many years, but worthwhile catches were only made in 1967 in Spencer Gulf and the commercial fishery became established, subsequently spreading to St Vincent Gulf and the west coast.

A small commercial fishery operates intermittently in the Mallacoota - Gippsland Lakes area in eastern Victoria but annual production is normally less than 10 tonnes. There is no commercial fishery for prawns in Tasmania although small quantities of eastern kings occur occasionally on the north-east coast.

The northern prawn fishery, is under the jurisdiction of the Commonwealth, while the other prawn fisheries dealt with below are under State control.

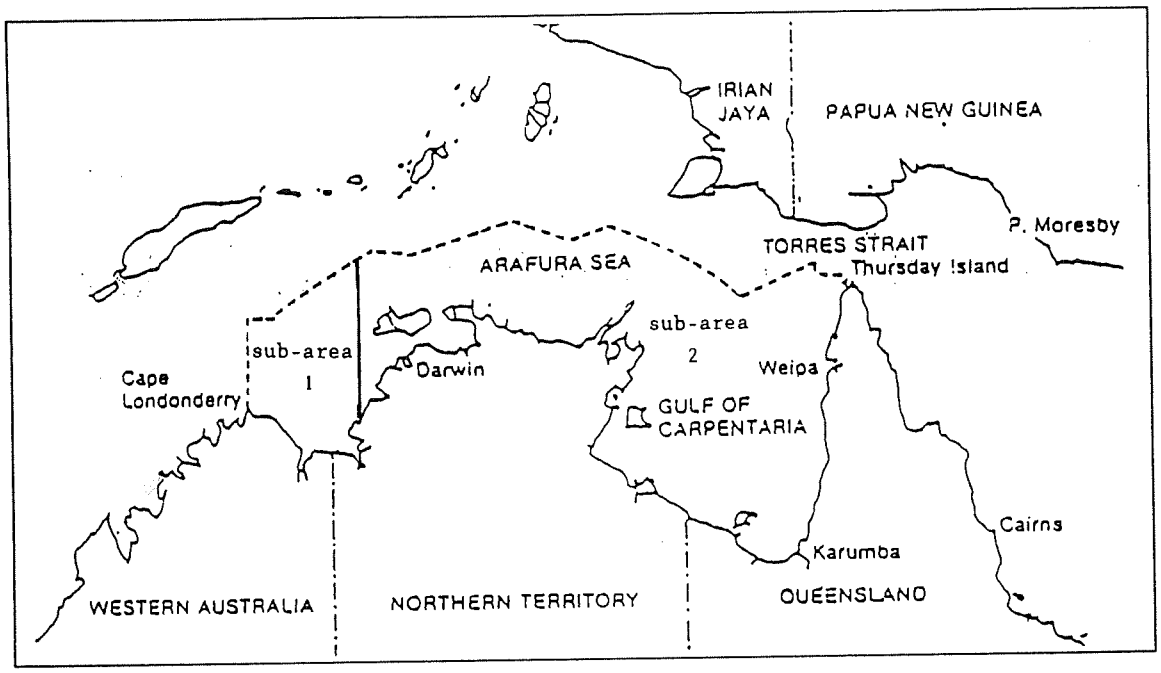
1.2 NORTHERN PRAWN FISHERY

Distribution of the Fishery

The northern prawn fishery is distributed from Cape York in Queensland, west to Cape Londonderry in Western Australia. The main fishing areas are the Weipa, Karumba and Groot Eylandt regions of the Gulf of Carpentaria and the Joseph Bonaparte Gulf. The main ports comprise Cairns, Karumba, Weipa, Darwin and Fremantle.

and a western zone between Koolan Island and Cape Londonderry (sub-area 2) which is open to Western Australian endorsed prawn trawlers as well as those from the northern prawn fishery (Figure 1). Five main species of prawns are taken commercially: banana, brown tiger, green tiger, endeavour and western king.

Figure 1: Management Zones in the Northern Prawn Fishery



Source: AFS

Production and Value of Catch

Year *	Production (tonnes live)	Value ($ million)
1984/85	10144	65.2
1985/86	8191	61.2
1986/87	7329	65.6
1987/88	7746	77.6
1988/89	9876	66.2
1989/90	6649	54.4

Source: AFS

* financial year data assume banana prawns to be caught between January and June and tigers/endeavours in July and December

Number of Boats and Fishermen

Year	Number of Boats
1985/86	292
1986/87	266
1987/88	234
1988/89	225
1989/90	215

Source: AFS

When fishing commenced in 1966, five trawlers were involved in the northern prawn fishery. When production peaked in 1974 at 13,864 tonnes the number of vessels had increased to 196. Trawler numbers grew to 277 in 1980 when a limit of 292 entitlements to fish was imposed and size restrictions

established for replacement vessels. In 1985, a voluntary adjustment (buy back) scheme and a new boat replacement policy were introduced to reduce the number of trawlers. By June 1990 the number of vessels had been reduced to 215. Subsequent retirements from the fishery reduced numbers to 174 by 1 April 1991.

Definition of a Unit of Capacity
One active Class A unit comprises a unit of capacity. The number of Class A units assigned to a vessel was equal to the sum of the main engine power in kilowatts and hull size in cubic metres (underdeck volume). In addition, trawlers endorsed in the northern prawn fishery are granted a Class B unit which is a licence to fish.

Total Units of Capacity
The total number of Class A units for the year 1989/90 was 96,300. The Government also approved a scheme to reduce the number of Class A units to 50,000 by 1993. A purchase price of $950 was offered for each unit surrendered before 1 April 1991 and at this date the number of Class A units was 76,700. Owners can still retire trawlers but will only receive $450 a unit compensation. If the 50,000 unit target is not reached by 1 April 1993 there will be a compulsory reduction of units across the board without compensation. The current number of Class B units is 174.

Sale Value of Units of Capacity
Both Class A and Class B units are saleable. The value of a Class B unit in 1989/90 ranged from approximately $120,000 to $160,000 and the current value of a Class A unit is approximately $1000.

Capitalised Value of Units of Capacity
On the basis of $1000 per Class A unit, the capitalised value of units of capacity in the fishery is approximately $77 million

Licence Fees
Besides vessel and other necessary licences a levy of $11.50 per Class A licence is imposed annually to cover management costs. In addition, there is an adjustment levy fund to buy back units which in 1990 was $15 per Class A unit for vessels holding less than 375 units and $30 per Class A unit for vessels holding in excess of 375 units.

1.3 PRAWNS - QUEENSLAND EAST COAST

Distribution of the Fishery

On the east coast of Queensland, prawns are widely distributed in the estuaries, on the continental shelf and, in some areas, the continental slope.

In ocean waters the commercial fishery is distributed from Cape York to the New South Wales border, but the dominant areas of production are Princess Charlotte Bay, Townsville and Moreton Bay. Fishing is by otter trawl. On the northern grounds, the main species are tigers, bananas, red spot kings, and endeavours. In the south, eastern kings, brown tigers, eastern schools and greasybacks are the most common. An estuarine beam trawl fishery is also widespread, taking the juveniles of many of the oceanic species as well as inshore species such as the eastern school and greasyback.

In addition to prawns, the fishery also targets on saucer *(Amusium japonicus balloti)* and mud *(A pleurorectes)* scallops while slipper lobsters, sand crabs, squid and various species of whiting comprise a valuable by-catch.

No separate management zones are currently delineated, the fishery to be the east coast trawl fishery encompassing the waters out to the 200 mile limit between Cape York and the Queensland - New South Wales border. This fishery includes the Queensland sector of the previous east coast prawn fishery to which endorsements were issued by way of Commonwealth Fishery Notice No. 117.

Production and Value of Catch

Year	Production (tonnes live)	Value ($ million)
1985/86	7698	82.6
1986/87	10572	113.5
1987/88	6847	70.9
1988/89	7788	77.2
1989/90	6436	54.2

Source: Queensland DPI

Number of Boats and Fishermen

Year	Number of Boats
1989/90	980

Source: Queensland DPI

Licence limitation was introduced into Queensland territorial waters in 1979 and into Commonwealth waters off Queensland in 1984. In 1980 the number of otter trawlers in the fishery was 1413 but this number has since been substantially reduced by a restrictive boat replacement policy. Of the 980 boat licences available in 1990, 942 were active licences endorsed for trawling while the remaining 38 related to vessels in the process of being replaced. Included in the active category are 20 New South Wales vessels with endorsement to fish in Queensland waters as far north as Sandy Cape.

The precise number of otter trawl fishermen is not readily available but because the number per vessel would be between two and three, the total would be in excess of two thousand.

In addition to the otter trawlers, 229 beam trawlers were authorised to fish for prawns in rivers and specified inshore areas on the east coast during 1990.

Currently the management of the entire Queensland prawn fishery is under review with the objective of further reducing the number of vessels and units.

Definition of Unit of Capacity
The number of units of capacity allocated to a licence holder relates to the under deck volume of the vessel calculated in accordance with an established formula using the length, breadth and moulded depth dimensions. Engine units are not included.

Total Units of Capacity
The total units of capacity for the year 1991 was slightly in excess of 30,000.

Sale Value of Units of Capacity
The sale value of a unit of capacity reportedly has been as high as $3000 but currently there is little movement of units and $1500 a unit would probably be a more realistic figure.

Capitalised Value of Units of Capacity
On the basis of 30,000 units and the suggested sale price of $1500 per unit, the capitalised value of the units of capacity is $45 million.

Licence Fees
The only licence fees relate to the vessel and crew. No management or other levies are imposed.

1.4 PRAWNS - NEW SOUTH WALES

Distribution of the Fishery

Prawns are widely distributed in New South Wales waters occurring in the estuaries and throughout the continental shelf and slope.

In the estuaries, fishing is normally restricted to set pocket, hauling and running nets although otter trawling is permitted seasonally in some estuaries. The main species taken are juvenile eastern king and school prawns with some greasybacks. In inshore ocean waters eastern school prawn adults are taken. Further out on the shelf pre-adult and adult eastern king prawns are the predominant forms, the major catches being made on the ocean grounds between the Clarence River and Tweed Heads. Royal reds are trawled on the continental slope, generally between 400 and 600 metres. The main commercial royal red grounds currently being exploited are off Port Stephens, Sydney, Wollongong and Nowra.

Off New South Wales two major management zones have been delineated for ocean waters. From Barrenjoey Head southwards to the Victorian border, ocean waters between the 3-mile and 200-mile limits are included in the south east trawl fishery under Commonwealth jurisdiction (see South East Trawl Fishery). From Barrenjoey Head northwards to the Queensland border, the ocean waters between the 3-mile limit and the 4000 m depth contour (approximately 45 - 50 miles to sea) define the area of the New South Wales off-shore prawn fishery which is now under State jurisdiction. This area previously comprised the New South Wales sector of the east coast prawn fishery to which endorsements were issued by way of Commonwealth Fishery Notice No. 117.

Production and Value of Catch

Year	Production (tonnes live)	Value ($ million)
1985/86	2127	12.6
1986/87	2880	20.5
1987/88	2428	17.0
1988/89	2893	19.3
1989/90	2832	17.6

Source: Fisheries Division, NSW

Number of Boats and Fishermen

Year	Number of Boats
1989/90	306

Source: Fisheries Division, NSW

The above data refers only to the New South Wales off-shore prawn fishery. When licence limitation was introduced in 1984 by both the Commonwealth and the State, the number of vessels endorsed was 295. This number has gradually increased to the present total of 306. In addition to the local vessels, 9 Queensland trawlers are endorsed to fish in New South Wales waters north of Cape Byron.

The precise number of fishermen is not readily available but because most vessels would be manned by a skipper and deckhand, the number of prawn fishermen would probably be between six and seven hundred.

In addition to the vessels licenced to fish in the off-shore prawn trawl fishery, 321 trawlers are endorsed to fish in estuarine and inshore ocean waters. The use of hauling, running and pocket nets is also widespread in estuarine waters.

Currently the management plan for the off-shore prawn trawl fishery is under review with the objective of reducing the number of vessels and the overall capacity of the fleet. A similar review is also proposed for the fishery operating in estuarine and inshore waters.

Definition of Unit of Capacity
The number of units of capacity allocated to licenced operators is the sum of the number of hull units and the number of engine units, the calculation of the hull and engine units to be carried out as described in the draft management plan.

Total Units of Capacity
The total units of capacity for the year 1991 was slightly in excess of 51,000.

Sale Value of Units of Capacity
Sale values of $3000 a unit have been recorded, but because of anticipated changes in the management plan currently there is little movement in unit sales and it is suggested that $1000 a unit would be a more realistic value.

Capitalised Value of Units of capacity
On the basis of 51,000 units and the current estimated sale price of $1000 a unit, the capitalised value of the units of capacity is $51 million.

Licence Fees
In addition to the normal licence fees, there is an annual levy of $250 for research and management and $220 for access for each endorsement such as off-shore prawn trawling, finfish trawling, or inshore prawn trawling.

1.5 PRAWNS - SOUTH AUSTRALIA

Distribution of the Fishery

The commercial prawn fishery operates in the St Vincent and Spencer Gulf areas as well as the lower west coast, but the major part of the catch is taken in Spencer Gulf. Only one species of prawn is taken commercially, the western king prawn

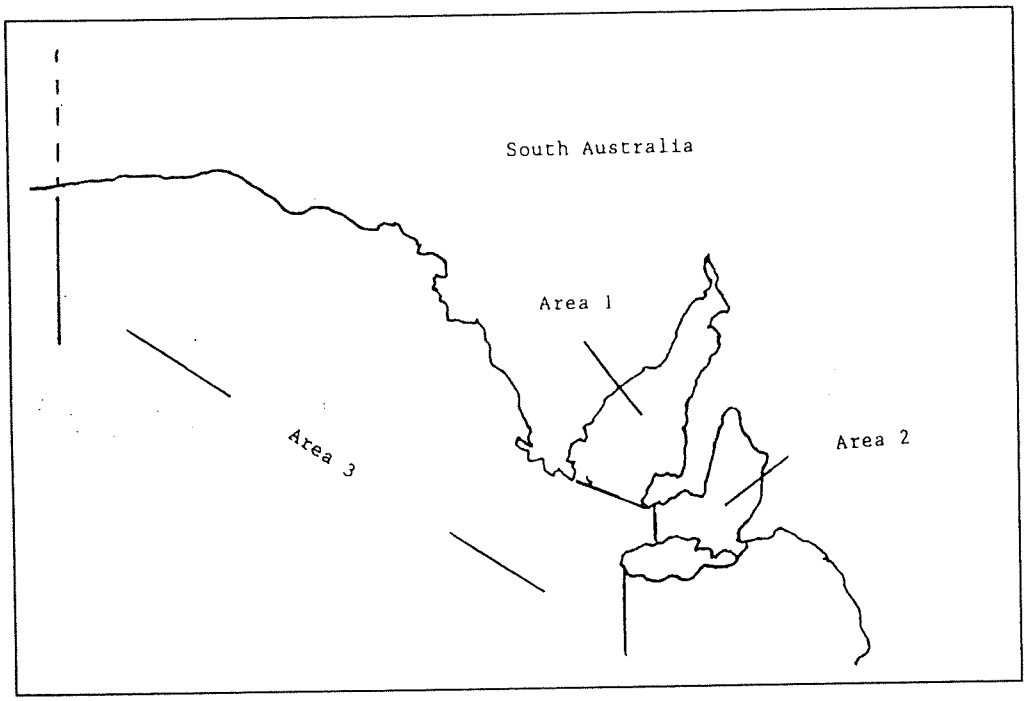
Three management zones are currently delineated, the management regime varying from zone to zone. These zones comprise the Spencer Gulf fishery (Area 1), the St Vincent Gulf fishery which also includes the waters of north-eastern Kangaroo Island (Area 2) and the west coast fishery which extends from the western region of Kangaroo Island to the South Australian - Western Australian border, but excluding the waters of Spencer Gulf (Area 3) - Figure 2).

Production and Value of Catch

Year	Production (tonnes live)	Value ($ million)
1985/86	1909	17.9
1986/87	1393	16.1
1987/88	1862	20.8
1988/89	1984	23.0
1989/90	1970	22.7

Source: Dept of Fisheries, South Australia

Figure 2: Management Zones in the South Australian Prawn Fishery.



Number of Boats and Number of Fishermen

Year	Number of Licence Holders
1985/86	58*
1986/87	53
1987/88	53
1988/89	53
1989/90	53

Source: Dept of Fisheries, South Australia

* Includes five ministerial permits for exploratory fishing. When licence limitation was introduced in 1968, 40 vessels were authorised but the number gradually increased to 59 by 1975 including 53 licensed vessels and six ministerial permits for exploratory fishing.

Licences relate to specified vessels, but the number of crew is not restricted by fisheries regulation and varies from vessel to vessel. The total number of fishers is not known.

Definition of Unit of Capacity

One prawn trawler comprises a unit of capacity.

Total Units of Capacity

The total units of capacity for the year 1989/90 comprised 53 vessels as follows:

West Coast zone	3
Spencer Gulf zone	39
St Vincent Gulf zone	11

Sale Value of Unit of Capacity

Prawn licences are saleable. The reported price of a recent sale was $900,000 for the licence and $775,000 for the vessel.

Capitalised Value of Units of Capacity
On the basis of the number of licences and the reported sale price of $900,000 for a licence, the capitalised value of the licences would be to the order of $48 million. No estimate is available of the total value of the vessels.

Licence Fees
In addition to the costs associated with the fishers licence, the licence fees for prawn vessels for the year 1989/90 were west coast zone, $16,050, Spencer Gulf zone, $13,604 and St. Vincent Gulf zone, $10,322.

1.6 PRAWNS - WESTERN AUSTRALIA

Distribution of the Fishery

Commercial prawning takes place in a number of estuaries and embayments on the west coast from Mandurah in the south to St Joseph Bonaparte Gulf in the north. However, the main areas of production are Shark Bay, Exmouth Gulf and Nickol Bay. Further north, a number of boats also work out of the Onslow area.

In the Kimberley region, catches have been made in the St Joseph Bonaparte Gulf region and between Broome and the Lacepede Islands. The latter areas are within Commonwealth proclaimed waters and form part of the northern prawn fishery. The catches have been made predominantly by northern prawn fishery vessels which land their catches in Darwin.

Western Australian state waters have not been divided into management zones as such for prawns but because of their isolation the Shark Bay, Exmouth Gulf and Nickol Bay fisheries are managed as separate entities. The Shark Bay fishery operates predominantly on western king prawns with substantial quantities of brown tiger prawns. The Exmouth Gulf fishery takes western kings, brown tigers and endeavour prawns in similar quantities, whilst western king and banana prawns comprise the main species in the Nickol Bay fishery.

Production and Value of Catch

Year	Production (tonnes live)	Value ($ million)
1985/86	2896	22.7
1986/87	2845	29.9
1987/88	3314	36.5
1988/89	3160	29.1
1989/90	2899	26.6

Source: Fisheries Dept, Western Australia

Number of Boats and Fishermen

Year	Number of Boats*	Number of Licence Holders
1985/86	68	
1986/87	68	
1987/88	68	
1988/89	57	
1989/90	57	

* Vessels endorsed specifically for the Onslow area are excluded
Source: Fisheries Dept, Western Australia

Because of the threat of rapid over-development of the fisheries, licence limitation was introduced into Shark Bay in 1963, Exmouth Gulf in 1965, and Nickol Bay in 1971, the number of original licences being 25, 15 and 13 respectively. Licences were subsequently increased gradually follow-ing regular assessments of the stocks, the 1981 numbers consisting of Shark Bay 35, Exmouth Gulf 23 and Nickol Bay 16 to give a total oof 74. This number was gradually reduced to 68 and then to 57 in the year 1988/89 as a result of a buy-back scheme. In 1991, licence limitation was introduced into the Onslow area with 17 vessels being granted entry to bring the total back up to 74 for the year 1990/91. In addition to the 17 vessels granted entry to the Onslow fishery, 33 vessels with endorsements in other sectors of the Western Australian prawn fishery can also operate in the area.

Definition of Unit of Capacity
One prawn trawler comprises one unit of capacity.

Total Units of Capacity
The total units of capacity for the year 1989/90 comprised 57 vessels as follows.

Shark Bay	27
Exmouth Gulf	16
Nickol Bay	14

Sale Value of Unit of Capacity
Reported sale prices for licences are $1.2 million for Shark Bay, $1.0 million for Exmouth Gulf and $120,000 for Nickol Bay. No sales of Onslow endorsements have yet been reported.

Capitalised Value of Unit of Capacity
On the basis of the above prices the capitalised value of the units of capacity in the Shark Bay, Exmouth Gulf and Nickol Bay fisheries is approximately $50 million..

Licence Fees
Access entitlement fees for the year 1989/90 are Shark Bay $5400, Exmouth Bulf $4900 and Nickol Bay $1050. No fee has yet been set for the Onslow fishery.

2. ROCK LOBSTERS

2.1 BACKGROUND

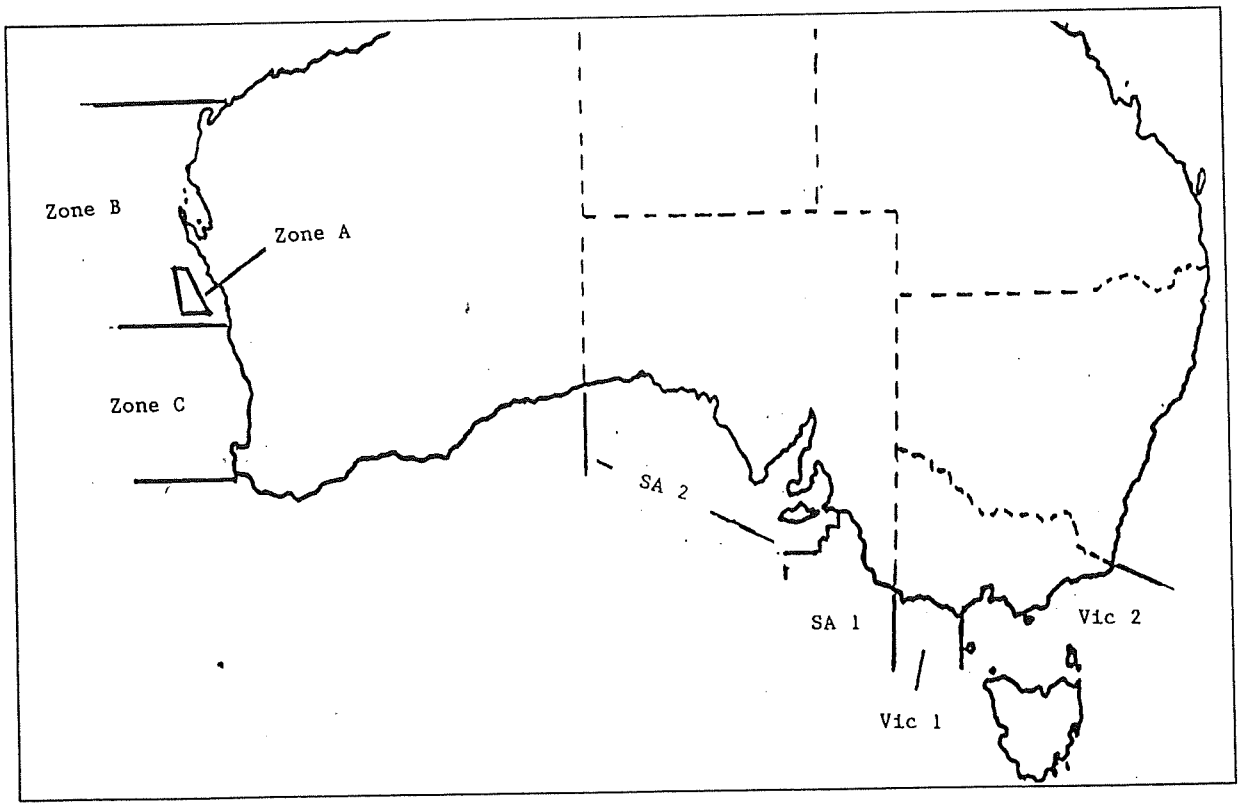
Rock lobsters are widely distributed throughout Australian coastal areas but the main commercial fisheries are found in southern waters where the species present readily enter traps. The western rock lobster *(Panulirus cygnus)* forms the basis for the Western Australian fishery which extends from Cape Naturaliste northwards to the Shark Bay area, while the southern rock lobster *(Jasus novaehollandiae)* is fished in southern Western Australia, South Australia, Victoria, Tasmania and to a limited extent in southern New South Wales. The main species taken in New South Wales is the eastern rock lobster *(Jasus verreauxi)* which also provides the basis for a major fishery in New Zealand.

A number of species of Panulirus, commonly referred to as painted or coral crayfish, occur in the more northerly waters of Australia. However, the numbers taken commercially are relatively small because the northern species do not usually enter traps and are generally taken by diving or as a by-catch during other fishing operations. The predominant species taken is the ornate crayfish *(Panulirus ornatus)*.

Lobster fishing has had a long history in Australia but for the major part production was small. Some increase in catch occurred during World War II when canning of rock lobsters was commenced to supply American armed forces in the Pacific, but the most dramatic increase in production commenced in 1947 with the export of frozen tails to the United States. From a catch of some 500 tonnes in 1944/45, the annual yield had risen to approximately 15,000 tonnes by 1966/67. This was achieved primarily by a marked increase in the number of boats in operation and the number of pots in use, extension of the fishery into new areas and the use of more efficient equipment.

With the exception of the Torres Strait Protected Zone, management of the rock lobster fisheries is under State jurisdiction. In the Torres Strait Protected Zone, management of the lobster fishery in the Australian segment is under the control of a Commonwealth/Queensland Joint Authority.

Figure 3: Management Zones in the Lobster Fisheries in Southern Australia.



2.2 ROCK LOBSTER - VICTORIA

Distribution of the Fishery

The commercial fishery operates throughout Victorian coastal waters, but the main fishing areas are between Portland and Apollo Bay and from the entrance of Port Phillip Bay east to Lakes Entrance. East of Wilsons Promontory, Victorian waters extend as far south as 39° 12'S while to the west Victorian control extends as far as 40° S.

Two main fishing areas have been delineated for management purposes, comprising the area east (Vic 1) and the area west of the Apollo Bay region (Vic 2) - Figure 3.

The catch is almost entirely the southern rock lobster, but small quantities of the eastern rock lobster are taken occasionally in eastern Victoria.

Production and Value of Catch

Year	Production (tonnes live)
1985/86	387*
1986/87	
1987/88	382*
1988/89	
1989/90	

* Provisional figures only - other data not yet available.
Source: Dept of Conservation and Environment, Victoria

Number of Boats and Fishermen

Year	Number of Licence Holders
1985/86	184
1986/87	182
1987/88	181
1988/89	179
1989/90	178

Source: Dept of Conservation and Environment, Victoria

A rock lobster licence is endorsed on the boat registration. Crew numbers are not restricted by fisheries regulations, but most boats work with a skipper and one crew. The exact number is not readily available.

Prior to introduction of licence limitation in 1968, approximately 430 vessels operated in the rock lobster fishery.

Definition of Unit of Capacity

One rock lobster pot is defined as a unit of capacity.

Total Units of Capacity

The number of lobster pots that can be carried by authorised lobster boats is derived from the entitlement of the boat when licences were first issued in the late 1960s with adjustments according to subsequent pot or licence transfers. The minimum number of pots for the eastern zone is 15 and for the western zone 10. The maximum number of pots for the eastern zone is 70 per vessel. No maximum has been set for the western zone. The total number of units for the year 1989/90 is 8356 pots as shown below.

	Eastern Zone	Western Zone	Total
No. of licence holders	81	97	178
Total No. of pots	2576	5780	8356

Sale Value of Units of Capacity
Rock lobster pot allocations can be sold in total or in part, but in all cases a percentage of the entitlement must be forfeited. Current price estimates for individual pots are $1500 in the western zone and $750 in the eastern.

Capitalised Value of Units of Capacity
On the basis of the number of pots licensed and sale price estimates in each zone, the capitalised value of the units of capacity is approximately $10.6 million.

Licence Fees
In addition to vessel and other necessary licences, the licence fee per lobster pot was $10.60 for the year 1989/90.

2.3 ROCK LOBSTER - TASMANIA

Distribution of the Fishery

The commercial fishery operates off the entire Tasmanian coast including the reefs and islands of Bass Strait with productive areas in virtually all regions except the central section of the north coast.

The fishery is limited entry but because individual management zones have not been established, licensed lobster fishers can operate throughout Tasmanian waters.

The only species taken is the southern rock lobster.

Production and Value of Catch

Year	Production (tonnes live)	Value ($ million)
1985/86	1456	16.2
1986/87	1582	21.7
1987/88	1803	29.5
1988/89	1850	27.2
1989/90	1743	25.7

Source: Dept of Primary Industry, Tasmania

Number of Boats and Fishermen

The annual licence period commences on 1 March. For the year commencing 1 March 1990, 341 commercial entitlements existed. Accurate data are not available for previous years but since 1985 the number has not exceeded 350.

A licence holder is entitled to one operational vessel but the number of crew is not restricted by fisheries regulations and varies from boat to boat.

When limited entry was introduced at the beginning of the 1967/68 season, 442 vessels were licensed.

Definition of Unit of Capacity
One rock lobster pot is defined as a unit of capacity.

Total Units of Capacity
The number of lobster pots that could be carried by authorised lobster boats was originally determined according to length and tonnage of the boat. The minimum and maximum number of pots to be

pots to be operated was also defined. In addition, there has been an active policy to reduce the number of vessels and also the number of pots.

The total number of units of capacity for the year commencing 1 March 1990 was 10,543 pots as set out below:

No of Licence Holders	341
Minimum No. pots per vessel	15
Maximum No. pots per vessel	40
Total No. of pots	10543

Sale Value of Units of Capacity
Rock lobster pot allocations can be sold in total or in part. The current price estimate is between $3500 and $4000 per pot.

Capitalised Value of Units of Capacity
On the basis of the number of pots in use and the average price, the capitalised value of the units of capacity is approximately $40 million.

Licence Fees
In addition to the costs associated with vessel and other necessary licences, the licence fee per lobster pot was $30 for the year commencing 1 March 1990.

2.4 ROCK LOBSTER - SOUTH AUSTRALIA

Distribution of the Fishery

The commercial fishery operates along the greater part of the South Australian coast. The main fishing areas comprise the south-east coast from Kingston to the Victorian border, Kangaroo Island, the southern coast of York Peninsular, most off-shore islands and the west coast from Port Lincoln to Fowlers Bay.

Two main fishing zones have been delineated for management purposes, a southern zone which comprises the area east of the Murray River mouth (SA1) and a northern zone comprising the area west (SA2) - Figure 3.

The only species taken is the southern rock lobster.

Production and Value of Catch

Year	Production (tonnes live)	Value ($ million)
1985/86	2206	24.3
1986/87	2208	32.0
1987/88	2468	38.0
1988/89	2275	26.9
1989/90	2525	36.5

Source: Dept of Fisheries, South Australia

Number of Boats and Fishermen

Year	Number of licence Holders
1985/86	334
1986/87	328
1987/88	319
1988/89	282
1989/90	280

Source: Dept of Fisheries, South Australia

A licence holder is entitled to one operational vessel, but the number of crew is not restricted by fisheries regulations and varies from boat to boat.

Prior to introduction of licence limitation in the late 1960s, approximately 430 vessels operated in the rock lobster fishery.

Definition of Unit of Capacity
A unit of capacity is defined as one rock lobster pot.

Total Units of Capacity
The number of lobster pots that could be carried by authorised lobster boats was originally determined by the length of the boat, number of crew and area of operation. The minimum and maximum number of pots to be operated was also defined. Since the original allocations, the number of vessels and pots has been considerably reduced. Significant reduction of effort has been achieved in the southern zone as the result of a buy-back scheme.

The total number of units of capacity for the year 1989/90 was 16,265 pots.

	Southern Zone	Northern Zone	Total
No. of licence holders	194	86	280
Minimum No. pots per vessel	40	25	-
Maximum No. pots per vessel	80	65	-
Total No. of pots	11,918	4,347	16,265

Sale Value of Units of Capacity
Rock lobster pot allocations can be sold in total or in part and current price estimates for individual pots are $4250 in the southern zone and $9000 in the northern zone.

Capitalised Value of Units of Capacity
On the basis of the number of pots in use and the average price for each zone, the capitalised value of the units of capacity is approximately $90 million.

Licence Fees
In addition to the costs associated with vessel and other necessary licences, the licence fee per lobster pot was $16 for the year commencing 1 October 1989.

2.5 ROCK LOBSTER - WESTERN AUSTRALIA

Distribution of the Fishery

The main commercial fishery operates off the west coast between North West Cape and Cape Leeuwin on the western rock lobster. The main catching areas are off the Abrolhos Islands, Dongara, Jurien Bay, Fremantle and Rottnest Island.

The fishery is limited entry. Three main fishing zones have been established for management purposes. The Abrolhos Islands comprise Zone A, the waters from latitude 30° S northwards to the Onslow area Zone B, and the waters south from latitude 30° S to Cape Leeuwin Zone C (Figure 3).

In addition to the main western rock lobster fishery, small limited entry fisheries operate in the south-west in the Augusta - Windy Harbour area and on the south coast in the Hopetoun - Israelite Bay region. Both western and southern rock lobsters are taken by the Windy Harbour fishery whereas the Israelite Bay fishery is based on the southern form. In both cases the catches are small and the fisheries are not considered further in this paper.

Production and Value of Catch

Year	Production (tonnes live)	Value ($ million)
1985/86	7,391	91.1
1986/87	7,718	119.5
1987/88	10,873	174.3
1988/89	11,776	177.9
1989/90	9,945	150.2

Source: Fisheries Dept, Western Australia

Number of Boats and Number of Fishermen

Year	Number of Licence Holders
1985/86	765
1986/87	749
1987/88	721
1988/89	712
1989/90	700

Source: Fisheries Dept, Western Australia

The licence relates to the vessel and the crew normally varies between one and four.

Prior to the introduction of licence limitation in 1963, approximately 850 vessels operated in the fishery.

Definition of Unit of Capacity
One lobster pot is defined as a unit of capacity.

Total Units of Capacity
The number of lobster pots that could be carried by authorised lobster boats was originally determined on the basis of the length of the boat. The minimum and maximum number of pots to be operated was also defined. Since the original allocations the number of vessels has been considerably reduced and a program to substantially reduce pot numbers is also being actively pursued. The total number of units of capacity for the year 1989/90 is 70,740 pots as set out below.

	Zone A	Zone B	Zone C	Total
Number of licenced vessels	187	166	347	700
Total number of pots	18487	15660	36593	70740

Sale Value of Units of Capacity
Rock lobster pot entitlements can be sold in total or in part and the current price estimate for an individual pot is approximately $6500.

Capitalised Value of Units of Capacity
On the basis of the number of pots and the estimated sale price of each unit, the capitalised value of the units of capacity is approximately $460 million.

Licence Fees
The annual licence fee is based on 0.75% of the estimated gross value of the western rock lobster fishery and for the year 1989/90 has been set at $17.00 per pot. In addition, there are the relatively small fees associated with other necessary licences.

3. ABALONE

3.1 BACKGROUND

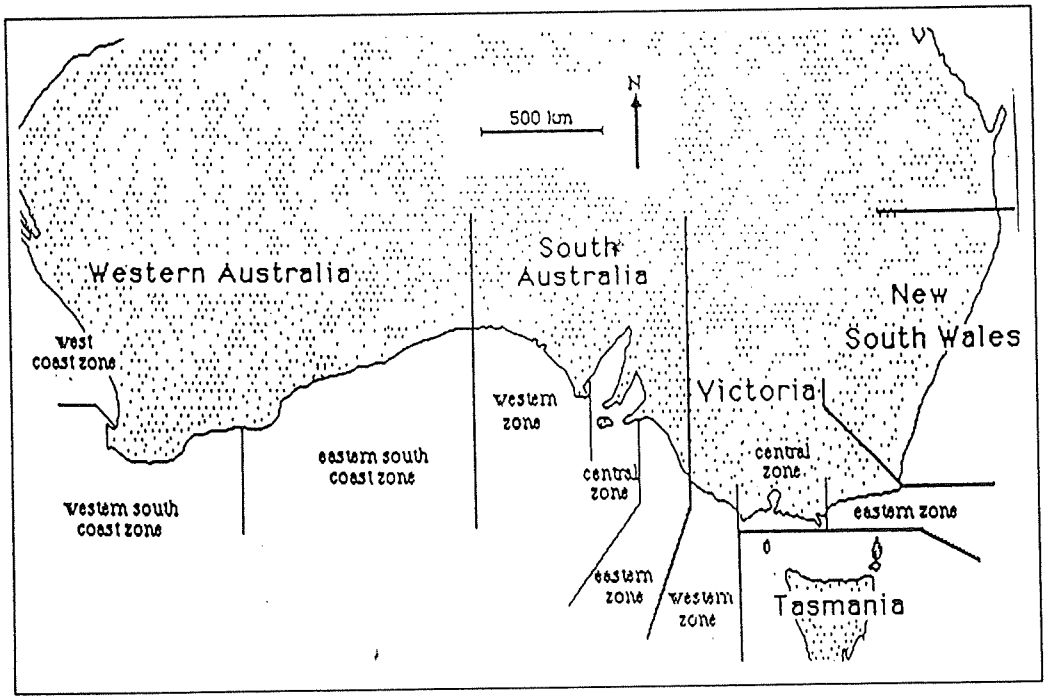
Abalone are widely distributed in Australian coastal waters but commercial operations are restricted to the larger species which occur in the more southern waters. These species are the blacklip or brownlip abalone *(Haliotis rubra)*, the greenlip abalone (*Haliotis laevigata*) and Roe's abalone *(Haliotis roei)*.

All species are found on rocky substrate but whereas Roe's abalone occurs only to depths of some three metres, the other species occur in depths of the order of 30 metres.

Prior to 1963, virtually no commercial fishery for abalone existed, small catches being canned or frozen for export. However, commencing in 1963 a commercial fishery developed rapidly and spread throughout southern Australia realising approximately 8000 tonnes live weight by the year 1971/72. Following shucking, almost the entire catch was frozen or canned and exported to Malaysia, Japan, Hong Kong and the USA. There is now a growing market for live abalone in Japan.

The abalone fisheries are managed independently by each of the States.

Figure 4: Management Zones in the Australian Abalone Fisheries



Source: Prince and Shepherd (1991)

3.2 ABALONE - NEW SOUTH WALES

Distribution of the Fishery

The commercial fishery operates from the New South Wales-Victorian border to the Ballina region in northern New South Wales, but the major portion of the catch is taken from the waters south of Port Stephens. No separate management zones have been established in New South Wales, the licence holders being entitled to operate along the entire coast. The only species taken is the blacklip abalone. Shucking at sea is not permitted.

Production and Value of Catch

Year	Production (tonnes live)	Value ($ million)
1985/86	540	5.0
1986/87	480	5.9
1987/88	435	6.0
1988/89	359	5.7
1989/90	370	7.2

Source: Fisheries Division, NSW

Number of Boats and Fishermen

Year	Number of Licence Holders
1985/86	52
1986/87	49
1987/88	45
1988/89	44
1989/90	43
1990/91	38

Source: Fisheries Division, NSW

Licence holders invariably possess a relatively large boat for operation out of the home ports and smaller trailable unit for use elsewhere. Only one vessel is operated at any one time, normally with the assistance of one deckhand.

The number of commercial divers operating in New South Wales in the late 1970s was in excess of one hundred. With the introduction of licence limitation, numbers were reduced to 59 for the 1980/81 season.

Definition of Unit of Capacity
One unit of capacity comprises 100 kg abalone live weight.

Total Units of Capacity
Quotas were introduced in 1988 and have not changed since that time. Abalone licences are issued for the year commencing 1 July. On the basis of the number of licence holders, the total number of units for the year commencing 1991 would be 3800 representing 380 tonnes live weight.

No of licence holders	38
No of units per licence holder	100
Unit - live weight (kg)	100
Licence holder quota - tonnes live weight	10
Total - tonnes live weight	380

Sale Value of Unit of Capacity
A limited number of units of capacity can be transferred between licensees during the season, provided the minimum of 80 and maximum of 140 are not exceeded. Units cannot be sold individually. The most recent sale value of an abalone licence was $589,000.

Capitalised Value of Units of Capacity
Using the number of licences as a base, the capitalised value of the units would be approximately $22 million.

Licence Fees

Licence Fees for the year commencing July 1991 were $11,700 per licence holder.

3.3 ABALONE - VICTORIA

Distribution of the Fishery

The commercial fishery operates throughout Victorian waters, but the main fishing grounds are found in the Mallacoota and Wilsons Promontory regions.

Three main fishing zones have been established for management purposes. The eastern zone extends from the New South Wales-Victorian border to the Lakes Entrance area, the central zone from the Lakes Entrance area to the Warnambool area, and the western zone from the Warnambool area to the Victorian-South Australian border (Figure 4).

The Victorian catch is almost entirely blacklip abalone with small quantities of greenlip abalone. The catch is landed in the shell.

Production Value of Catch

Year	Production (tonnes live)	Value ($ million)
1985/86	1700	18.6
1986/87	1800	25.9
1987/88	1900	28.5
1988/89	1420*	25.6
1989/90	1420	25.6

* Quotas introduced
Source: Dept of Conservation and Environment, Victoria

Number of Boats and Fishermen

Year	Number of Licence Holders
1985/86	80
1986/87	74
1987/88	72
1988/89	71
1989/90	71

Source: Dept of Conservation and Environment, Victoria

Licence holders are entitled to one operational boat at any particular time and one deckhand. With the introduction of licence limitation in 1968 the number of divers was reduced from 165 to 96 and this number has been further reduced as a result of other restrictions.

Definition of Units of Capacity

One unit of capacity comprises two tonnes of abalone live weight.

Total Units of Capacity

Abalone licences are issued for the year commencing 1 April. On the basis of number of licence holders and quotas allocated, the total units of capacity for the year commencing April 1990 was 710 representing 1420 tonnes live weight as set out below.

	Western Zone	Central Zone	Eastern Zone	Total
No of licence holders	14	34	23	71
No of units per licence holder	10	10	10	10
Live weight units - (tonnes)	2	2	2	2
Licence holder quota tonnes lvweight	20	20	20	20
Total - tonnes live weight	280	680	460	1420

Sale Value of Unit of Capacity
Licences can be sold or up to half the number of units can be leased during the season. Estimated sale price of a licence is slightly in excess of $1 million.

Capitalised Value of Units of Capacity
Using the number of licences as a base, the capitalised value of units of capacity is approximately $71 million.

Licence Fees
The licence fee is determined by a formula relating to the beach price of abalone. For the year commencing 1st April 1990, the licence fee was $28,500.

3.4 ABALONE - TASMANIA

Distribution of the Fishery

The commercial fishery operates along the entire Tasmanian coast including the Bass Strait Islands, but the main fishing areas comprise the western and southern coasts.

When licence limitation was introduced in 1969, no separate management zones were designated, the licensed divers being permitted to operate throughout Tasmanian waters including the Bass Strait Islands. However, in 1972 a small number of special licences were issued specifically for the Furneaux Group of Islands in Bass Strait, but these were abolished in January 1990 allowing all divers to work throughout Tasmanian waters.

The dominant species taken in Tasmanian waters is blacklip abalone with small quantities of greenlip abalone. Shucking at sea is permitted on licensed vessels.

Production and Value of Catch

Year	Production (tonnes live)	Value ($ million)
1985/86	3558	30.8
1986/87	3245	44.6
1987/88	3213	46.2
1988/89	2421	39.3
1989/90	1929	33.9

Source: Dept of Fisheries, Tasmania.

Number of Boats and Fishermen

Year	Number of Licence Holders
1985/86	125
1986/87	125
1987/88	125
1988/89	125
1989/990	125

Source: Dept of Fisheries, Tasmania.

Although a licence holder may commonly operate from a single vessel with one assistant, a number of licensed divers may operate from a single mothership, particularly in remote areas.

No new entrants were admitted to the fishery after 1968, annual licence fees were increased significantly and divers were required to earn their income primarily from the fishery. Numbers quickly declined from over 250 to 120. In 1972, five special licences were issued for the Furneaux Island Group.

Definition of Units of Capacity
One unit of capacity comprises 600 kg abalone live weight.

Total Units of Capacity
Abalone licences are issued for the year commencing 1 January, and on the basis of number of licence holders and quotas allocated, the total units of capacity for the year commencing 1990 was 3500 representing 2100 tonnes live weight as set out hereunder.

No of licence holders	125
No of units per licence holder	28
Unit - live weight (kg)	600
Licence holder quota - tonnes liveweight	16.8
Total - tonnes live weight	2100

When individual transferable quotas were introduced in the mid-1980s, a total annual catch of some 3700 tonnes was divided equally among the 120 commercial divers based on the Tasmanian mainland and a total annual catch of 110 tonnes equally among the five divers in the Furneaux Group. Each mainland licence was granted a total of 28 units and each Furneaux Group licence a total of 20 units, the quantities of each unit being 1.1 tonnes live weight. The value of each unit has been gradually reduced in the period since 1985 with a current value of 600 kg live weight. However, with the abolition of the five special Furneaux Group licences, each of these divers is now entitled to 28 units.

Sale Value of Unit of Capacity
Units of capacity can be transferred between licensees during the season providing the minimum of 16 and maximum of 80 are not exceeded. Cost of a unit by transfer would be approximately $2.00 less than the beach price live weight.

Units cannot be sold individually but a diver may surrender his total entitlements on condition that it be sold to his nominee. Current value is estimated at approximately $750,000.

Capitalised Value of Units of Capacity
Using the number of licences as a base, the capitalised value of the units would be approximately $94 million.

Licence Fees
Licence fees are determined by the Minister and were set at $18,076 per licence holder for 1990.

3.5 ABALONE - SOUTH AUSTRALIA

Distribution of the Fishery

The commercial fishery operates along the greater part of the South Australian coastline, the main areas comprising the coast between Fowlers Bay and Port Lincoln and the southern shore of Kangaroo Island.

Three main fishing zones have been established for management purposes, the management regime varying from zone to zone. The general region between the Streaky Bay and Port Lincoln areas is designated the western zone, the waters of Kangaroo Island and the approaches to Spencer and St Vincent Gulfs the central zone, and the coast generally east of Cape Jervis the southern zone (Figure 4).

Both the greenlip and blacklip abalone are taken in large quantities in South Australia, the actual proportion of each varying between zones. In all zones the catch is sorted by species. Shucking takes place at sea in the central and western zones, but the catch is landed in the shell in the southern zone.

Production and Value of Catch

Year	Production (tonnes live)	Value ($ million)
1985/86	877	7.5
1986/87	911	11.0
1987/88	1037	13.2
1988/89	973	14.5
1989/90	960	16.7

Source: Dept of Fisheries, South Australia

Number of Boats and Fishermen

Year	Number of Licence Holders
1985/86	35
1986/87	35
1987/88	35
1988/89	35
1989/90	35

Source: Dept of Fisheries, South Australia

Licence holders are entitled to one operational boat at any one time and one assistant.

Definition of Units of Capacity
One tonne abalone live weight comprises one unit of capacity.

Total Units of Capacity
On the basis of number of licence holders and quotas allocated, the total units of capacity for the year 1989/90 was approximately 778 tonnes live weight.

	Western Zone	Central Zone	Southern Zone	Total
No of divers	23	6	6	35
Diver quota - tonnes meat weight	7.00	10.20	6.17	
Diver quota - tonnes live weight	21.00	30.62	18.51	
Total - tonnes live weight	483.0	183.6	111.0	777.6

In addition to the quotas set out above, divers licenced to operate in the western zone are allowed to fish in the area west of the designated western zone and take three tonnes live weight annually from this area. In addition, it has been accepted practice in recent years where stunted stocks occur in specific areas in the southern zone to reduce the legal size and allow fishing in these areas by licensed southern zone divers for short periods such as two to three weeks.

Sale Value of Units of Capacity
Quotas can be leased for periods up to twelve months. No estimates of leasing costs are available. However, the estimated sale price of an abalone licence ranges between $1.2 and $1.5 million regardless of the fishing zone.

Capitalised Value of Units of Capacity
Using the number of licences as a base, the capitalised value of units of capacity is approximately $47 million.

Licence Fees
The annual licence fee is calculated at 8.5% of the average production of the previous three years in the zone at the average value of the product during the last year. For the year 1990 the licence fees were western zone, $27,716, central zone, $37,394 and southern zone, $28,384.

3.6 ABALONE - WESTERN AUSTRALIA

Distribution of the Fishery

The commercial fishery operates along the entire southern coast and up the west coast to the north of Shark Bay. Major fishing areas for the greenlip and brownlip abalone are the reefs off Augusta and Esperance while productive reef areas for Roe's abalone are found at Kalbarri, Greenough River, off Perth, and between Cape Naturaliste and Cape Leeuwin.

The commercial fishery is divided into three main zones, the management regime varying for each zone. An eastern south coast zone extends from the South Australian-Western Australian border to Shoal Cape, a western south coast zone from Shoal Bay to Cape Naturaliste, and a west coast zone from Cape Leeuwin to North West Cape (Figure 4).

The catch taken in the west coast zone comprises Roe's abalone, whilst the predominant species taken in the eastern and western south coast zones is the greenlip abalone. Small quantities of brownlip and Roe's abalone are also taken in the latter two zones.

Production and Value of Catch

	Production (tonnes live)	Value ($ million)
1985/86	249	3.4
1986/87	224	3.0
1987/88	262	3.4
1988/89	250	4.1
1989/90	299	4.9

Source: Fisheries Dept, Western Australia

Number of Boats and Fishermen

Year	Licence Holders
1985/86	26
1986/87	26
1987/88	26
1988/89	26
1989/90	26

Source: Fisheries Dept

With the introduction of licence limitation in 1971, 36 licences were issued. However, the licences were not transferable or re-issued when a diver retired and the number of divers was quickly reduced to 26. Licence holders are entitled to one operational boat and one assistant.

Definition of Units of Capacity

One unit of capacity comprises one tonne abalone live weight.

Total Units of Capacity

On the basis of the number of licence holders and quotas allocated, the total units for the year 1989/90 was 342.

	Eastern South Coast Zone - green and brownlip abalone	Western South Coast Zone - green and brownlip abalone	West Coast Zone - Roe's abalone	Total
No of divers	6	8	12	26
Quota - tonnes meat weight	6	53		
Quota - tonnes live weight	18	15	9	
Total - tonnes live weight	108	120	108	336

The eastern south coast zone is divided into two regions, a quota area (Shoal Cape to Point Culver), and an off-quota area (from Point Culver to the Western Australian-South Australian border). A diver licenced for the eastern south coast zone can fish the off-quota area but for each three tonnes of catch live weight his quota of 18 tonnes is reduced by one tonne.

The west coast zone divers, who fish for Roe's abalone, can also take this species in the eastern and western south coast zones but their individual nine tonne quotas still apply. A catch of six tonnes of Roe's abalone has also been set for the six divers licenced to fish the other species west of Point Culver which would give an overall quota tonnage of 342 tonnes live weight for Western Australia. Although some Roe's abalone are also taken by the divers licenced to fish the greenlip and brownlip in the western south coast zone, no quota has been set for this catch.

Sale Value of Unit of Capacity
No estimate of the sale value of individual units of capacity has been obtained. However, the purchase price of a licence to collect greenlip and brownlip abalone is approximately $700,000 and to take Roe's abalone approximately $275,000.

Capitalised Value of Units of Capacity
Using the number of licences as a base, the capitalised value of the units of capacity would be approximately $13 million.

Licence Fees
Licence fees for the year 1989/90 were Zone 1 $2700, Zone 2 $1900 and Zone 3 $750.

4. SCALLOPS

4.1 BACKGROUND

A number of scallop species occur in Australian waters, but commercial fishing is concentrated on three main species. In Southern Australia the dominant form is the commercial or king scallop *(Pecten fumatus)* but small quantities of queen scallops *(Equichlamys bifrons)* and doughboy scallops *(Chlamys asperrimus)* are taken in south-eastern Tasmania. In the more northerly waters saucer scallops are the only forms taken commercially. In Western Australia the fishery is based on *Amusium balloti*, which in Queensland the dominant species is A. japonicum balloti. A further species, the mud scallop *(A. pleurorectes)* is taken in small numbers by the Queensland fishery and also as a by-catch in the northern prawn fishery.

Areas of abundance include large embayments and sandy ocean beds in relatively shallow water. In south-eastern Australia fishing is predominantly by dredge with some diving, whereas the fisheries for the saucer scallops operate by trawl.

The fishery in south-eastern Australia commenced in Tasmania early this century and until 1963 the main grounds were restricted to southern Tasmania. Annual catches of the order of 2000 - 3000 tonnes live weight were made but commenced to decline in the mid 1960s. In the early 1960s scallop beds were located in Port Phillip Bay and between 1963 and 1967 the fishery in the Bay developed rapidly to produce over 13,000 tonnes in 1966/67. A decline in production followed and the major effort was transferred initially to ocean grounds off Lakes Entrance and then to Bass Strait generally. The Bass Strait fishery, which commenced about 1970, relied for almost 20 years on the progressive exploitation of new beds, the last major bed discovered being fished out in 1986. Currently in Victoria, the population of scallops is small leading to closures, restricted seasons and catch quotas.

In Queensland, the scallop fishery has existed since the mid 1950s and operates by trawl relatively close inshore in depths from 20 to 50 metres. The scallop is fished as part of a multi-species fishery.

In Western Australia, following exploratory fishing in the late 1950s and early 1960s, scallop landings commenced in Shark Bay as the result of by-catch from vessels fishing primarily for prawns. Subsequently, a number of specialised scallop boats commenced operation in Shark Bay and other areas.

4.2 SCALLOPS - SOUTH EASTERN AUSTRALIA

Distribution of the Fishery

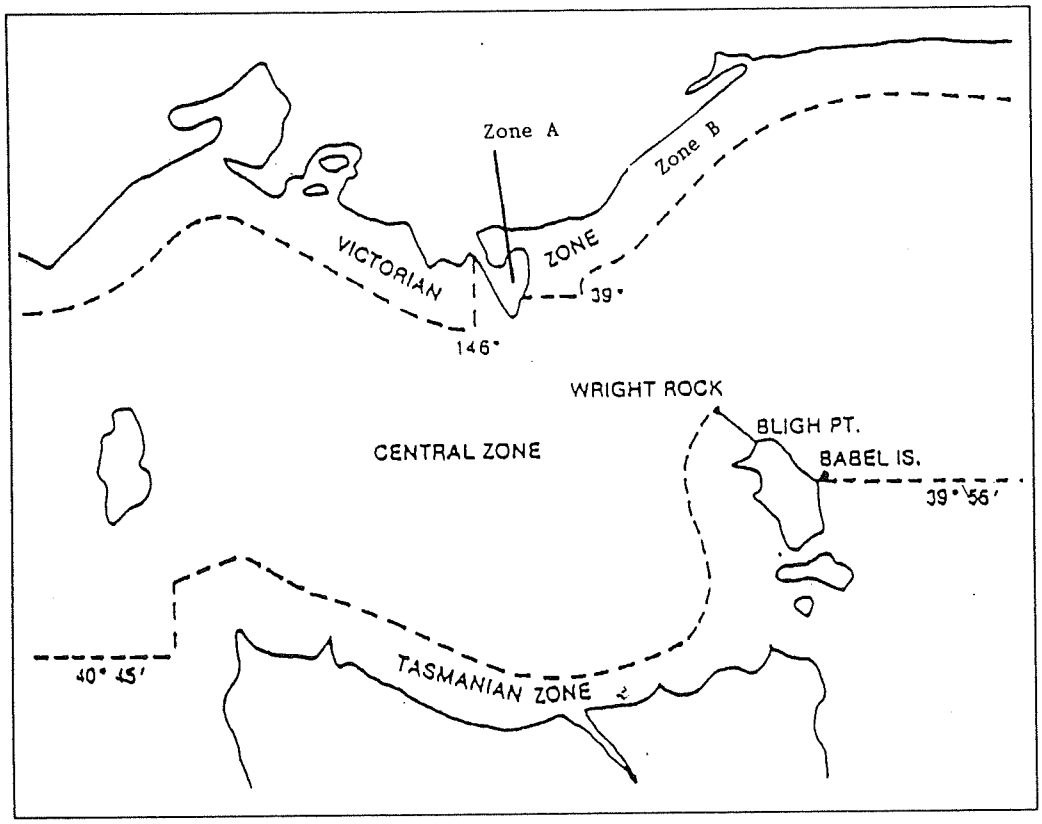
Scallops have been taken commercially along the eastern and northern coasts of Tasmania, around the islands in Bass Strait and from Port Phillip Bay eastwards throughout Victoria. The major Tasmanian grounds occur along the east coast, around the Furneaux Island Group and in scattered regions in western Bass Strait. In Victoria, the main areas are Port Phillip Bay, off Lakes Entrance and north-east of King Island. Limited fishing takes place in South Australia while in New South Wales fishing takes place intermittently off the south coast and in Jervis Bay. The commercial or king scallop is the dominant species although a small dive fishery exists in south-eastern Tasmania for doughboy and queen scallops.

Three management zones have been established for south-eastern Australia- Tasmanian, Victorian and Central. The Tasmanian zone includes all waters out to 200 nautical miles around the east, west and south coasts of Tasmania and out to 20 nautical miles in northern Tasmania including the Furneaux Island Group. The Victorian zone generally comprises Victorian waters out to 20 nautical miles, while the area between the State zones in Bass Strait is the Central zone (Figure 5).

Tasmania and Victoria have jurisdiction over the fisheries in their respective waters whereas responsibility for the Central zone lies with the Commonwealth.

The central zone can only be fished by Tasmanian and Victorian scallop vessels with entitlements to operate in the area, and catches from the zone were normally shown in the Tasmanian and Victorian landings. Because there has been virtually no production from the zone since 1986, it is not considered as a separate entity in this paper.

Figure 5: Management Zones in the Scallop Fishery in the Bass Strait Region



Source: AFS

4.3 SCALLOPS - TASMANIA

In Tasmanian proclaimed waters, three management zones have been created. These consist of Zone B, a south-eastern area comprising the Derwent Estuary, D'Entrecasteaux Channel, Frederick Henry Bay and Norfolk Bay, Zone C comprising Great Oyster Bay, Mercury Passage and Marion Bay, and Zone A which comprises all other State waters as established under the Off-shore Constitutional Settlement in June 1986. Zone C is closed to commercial fishing and is the centre of a scallop enhancement program, Zone B comprises a restricted dive fishery for doughboy and queen scallops, while Zone A covers the Tasmanian dredge fishery.

Production and Value of Catch

Year	Production (tonnes live)	Value ($ million)
1985/86	3022	3.3
1986/87	5020	8.5
1987/88	78*	0.9
1988/89	Nil	Nil
1989/90	Nil	Nil

* Tasmanian fishery closed September 1987
Source: Dept of Fisheries, Tasmania

Number of Boats and Fishermen

Year	Number of Licence Holders
1985/86	285
1986/87	187
1987/88	
1988/89	
1989/90	135

Source: Dept of Fisheries, Tasmania

The fishery became limited entry with ratification of the Off-shore Constitutional Settlement agreement in June 1986, reducing the number of licence holders from 285 to 187. Of the 187, 134 had access to the Central zone. A normal crew is three or four, but there are no fisheries restrictions on number. Thus the total number of fishers is not known. The majority of licence holders currently fish for rock lobster with some trawling or shark fishing

Definition of Unit of Capacity
Licence holders are allocated a possession quota per trip which was based on six units per metre of boat with a maximum of 140 units. Before the fishery closed a unit comprised 500 scallops. One unit of capacity comprises one trip possession unit.

Total Units of Capacity
The average number of trip possession units per vessel is approximately 100 giving 13,500 total units of capacity on the basis that currently 135 vessels would be entitled to operate if the fishery in Tasmanian waters was opened.

Sale Value of Units of Capacity
The reported sale price for 100 units of capacity is $100,000.

Capitalised Value of Units of Capacity
On the basis of the number of units of capacity and the reported sale price, the capitalised value of the units of capacity is $13.5 million.

Licence Fees
In addition to the vessel licence, the scallop licence fee of $5.0 per trip possession unit up to a maximum of $700.0 for 140 units is imposed.

4.4 SCALLOPS - VICTORIA

In Victoria, three zones have been established for management purposes. These comprise Port Phillip Bay (Zone A), the ocean waters east of the Wilson's Promontory area (Zone B, Lakes Entrance area), and all Victorian waters including Port Phillip Bay (Zone C) - Figure 5.

Production and Value of Catch

Year	Production (tonnes live)	Value ($ million)
1985	14700	16.2
1986	2100	3.5
1987	11200	20.8
1988	1540	2.9
1989	700	1.3

Source: Research data

Production estimates are based on quotas and number of boats fishing (Gwyther, D, Australian Scallop Workshop, Taroona, Tasmania, 1988). They were originally expressed as meat weight but have been converted to live weight by multiplying by factor of 7. No landings from the Bass Strait central zone have been recorded since 1984 and the high yields in 1985 and 1987 were due to high population numbers of scallops in Port Phillip Bay. Because of a subsequent fall in the number of scallops, the Bay was opened to fishing for only three weeks in 1988 and has been closed since then. In the Lakes Entrance area, the season is from March to December, but invariably fishing ceases well before December because of poor catch rates.

Number of Boats and Fishermen

Year	Number of Licence Holders
1985	114
1986	114
1987	114
1988	113
1989	113

Source: Dept of Conservation and Environment, Victoria

Licence limitation were introduced to Port Phillip Bay in 1968, 167 vessels receiving endorsement. Following the discovery of ocean beds off Lakes Entrance zoning was introduced and when licencing was finalised in 1971, a total of 118 licences was issued, 23 for Port Phillip Bay only, 34 for the Lakes Entrance area, and 61 for all Victorian waters. With ratification of the Off-shore Constitutional Settlement agreement in 1986, 97 Victorian licence holders gained access to the Central zone in Bass Strait. Through some consolidation of licences, the total number of licence holders in Victoria has been reduced from 118 to 113. Licence holders are restricted to one operational vessel. The total number of crew is not known.

Definition of Unit of Capacity

The catch of each vessel is restricted by a catch limit which is expressed in terms of quarter cubic metre crates or wheat bags. The catch limits are adjusted on the basis of available stock and scallop conditions. Before Port Phillip Bay was closed the catch limit was six crates per day per vessel while the current limit for the Lakes Entrance area is ten crates per 14 days. Because the same catch limit is applied to each vessel regardless of its size or capacity, and can vary from area to area and within a season, one scallop vessel is regarded as one unit of capacity.

Total Units of Capacity

The total units of capacity for the year 1991 comprised 113 vessels as follows:

Port Phillip Bay	19
Lakes Entrance area	29
All Victorian waters	65

Sale Value of Units of Capacity
Because of the current state of the fishery there is little or no movement in relation to sales. However, it is reported that the estimated sale price of an all Victorian waters licence would be approximately $150,000. No estimate has been provided for the Port Phillip Bay and Lakes Entrance licences but both would probably be less than $100,000.

Capitalised Value of Units of Capacity
In the absence of values for the Port Phillip Bay and Lakes Entrance licences, no estimate is provided for the capitalised value of the units of capacity.

Licence Fees

The annual licence fee for an all Victorian licence is $1534.51 and for Port Phillip Bay and Lakes Entrance $1162.51.

4.5 SCALLOPS - WESTERN AUSTRALIA

Distribution of the Fishery

Scallops are taken commercially in Western Australia between Dampier and Esperance. Two main fisheries are present, Shark Bay and the Abrolhos Island area, with smaller fisheries at Dampier, Fremantle, Geographe Bay and Esperance. The Dampier fishery is intermittent and comprises scallops taken incidentally during prawn trawling, while the Fremantle fishery is a mixed trawl fishery restricted to a small number of vessels. The Geographe Bay and Esperance fisheries are relatively new and involve a small number of vessels in each area targeting on scallops. The only species taken commercially in Western Australia is the saucer scallop. Management zones in relation to scallops as such have not been delineated for the coast, but because of their isolation each of the fisheries can be managed as a separate entity.

Production and Value of Catch

Year	Production (tonnes live)	Value ($ million)
1985/86	2046	3.7
1986/87	2370	7.3
1987/88	2814	9.3
1988/89	1346	3.6
1989/90	1867	5.0

Source: Fisheries Dept, Western Australia

On the average the Shark Bay fishery yields slightly in excess of 2000 tonnes shell weight annually, the Abrolhos Island area to the order of 450 tonnes. Precise data are not available for areas such as Dampier, Fremantle, Geographe Bay and Esperance, but the total annual production for all of these areas combined is unlikely to exceed 200 tonnes shell weight.

Number of Boats and Fishermen

Year	Number of Licence Holders
1985/86	44
1986/87	44
1987/88	44
1988/89	44
1989/90	43

Source: Fisheries Dept, Western Australia

The above number of licence holders relates to the Shark Bay and Abrolhos Island fisheries only, both of which are limited entry. Since limited entry was introduced to Shark Bay prior to the 1983/84 season, the number of endorsed vessels has remained constant at 14. The Abrolhos Island

fishery has been restricted to 30 vessels since the commencement of the 1984/85 season, this number being reduced to 29 for the 1989/90 season. Prior to introduction of licence limitation, the number of vessels operating in these fisheries was 26 and 40 respectively.

Besides the involvement of the 14 endorsed scallop vessels in Shark Bay, the scallop by-catch of the 35 prawn trawlers engaged in the Shark Bay prawn fishery is retained under a catch sharing arrangement. However, on the average, approximately 75 per cent of the total annual scallop catch is taken by the endorsed scallop trawlers.

In addition to the Shark Bay and Abrolhos scallop fisheries, there are 14 vessel endorsements to trawl for scallops in the Fremantle and Geographe Bay areas, whereas only some four to five vessels actually fish, whilst in the Esperance area there are six endorsements.

Definition of Unit of Capacity
One scallop trawler comprises one unit of capacity.

Total Units of Capacity
The total units of capacity for the year 1989/90 comprises 63 vessels as follows:

Shark Bay	14
Abrolhos Islands	29
Fremantle	10
Geographe Bay	4
Esperance	6

Sale Value of Units of Capacity
It is reported that the sale value of a unit of capacity in the Abrolhos Island fishery is approximately $100,000. A unit of capacity for the Shark Bay fishery would be more costly but no indication of the actual value has been obtained.

Capitalised Value of Units of Capacity
In the absence of information on the sale value of a unit of capacity in the Shark Bay fishery it is not possible to determine the capitalised value of the units of capacity for the scallop fishery in Western Australia.

Licence Fees
In addition to the normal licence fees, an annual levy of $215 per net has been set for the Abrolhos Island fishery and $270 per net for the Fremantle and Geographe Bay fisheries. No levies have been set for the Shark Bay and Esperance fisheries.

4.6 SCALLOPS - QUEENSLAND

Distribution of the Fishery

Scallops are fished consistently on the east coast of Queensland between Yeppoon and southern Hervey Bay. Other grounds worked intermittently are off Tin Can Bay, Mackay and Townsville. No management zones have been delineated for the fishery. Two species of saucer scallops are taken but Amusium japonicum balloti is the dominant form.

Year	Production (tonnes live)	Value ($ million)
1985/86	2998	15.4
1986/87	2335	11.8
1987/88	4466	17.3
1988/89	3060	13.8
1989/90	4373	23.4

Source: Queensland DPI

Number of Boats and Fishermen
The scallop fishery is part of the Queensland east coast trawl fishery which is an otter trawl operation targeting primarily on a large number of prawn species and to a limited extent on saucer scallops (see Prawns - Queensland East Coast). All 980 vessels endorsed to operate in this fishery are entitled to take both prawns and scallops but only about 250 would take scallops and the number for which scallop fishing is the main activity is considerably less.

Units of Capacity and Licence Fees
These relate to the Queensland east coast trawl fishery as a whole and have been considered previously (see Prawns - Queensland East Coast).

5. SHARK

5.1 SHARK - SOUTH EASTERN AUSTRALIA

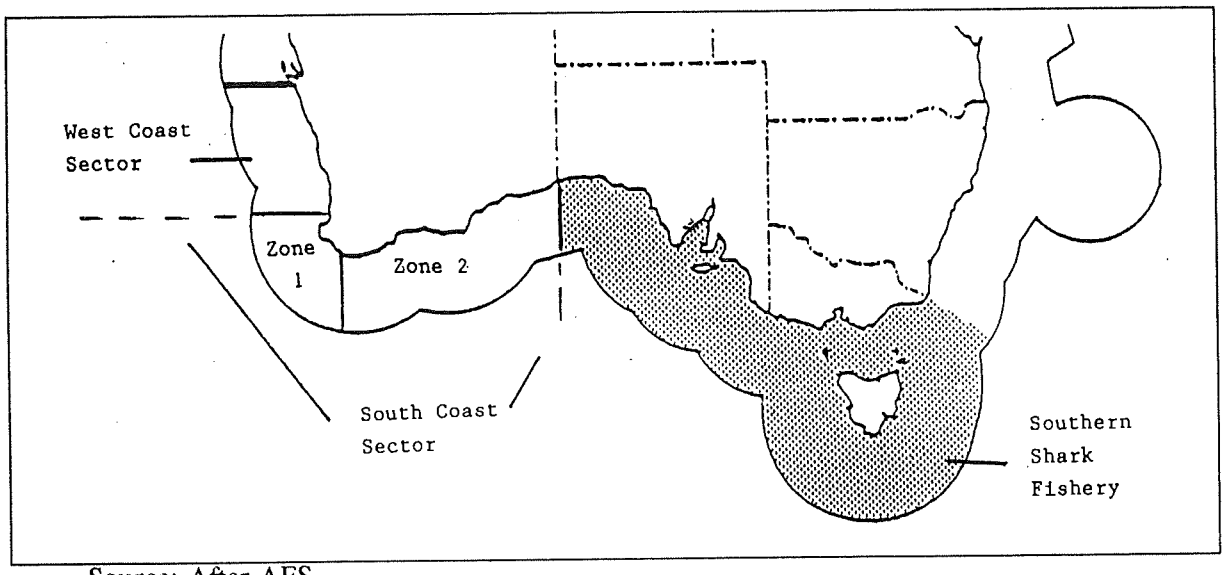
Distribution of the Fishery

The fishery in south-eastern Australia, referred to as the southern shark fishery, is widely distributed throughout the waters of Tasmania, Victoria and South Australia (Figure 6). The first catches recorded were from Victoria in the late 1920s, but in the early 1940s the fishery spread into Tasmania and South Australia. In 1969, the catch had reached 4000 tonnes (carcass weight) but declined dramatically in the 1970s because of the prohibition for sale in Victoria of the large school sharks because of high mercury levels together with a shift from long liners to gillnetting. Catches have now risen significantly mainly because of a marked increase in fishing effort.

Commercial fishing is concentrated upon the school shark *(Caleorhinus galeus)* and the gummy shark *(Mustelus antarcticus)*. The majority of specialist shark fishers use gillnets and some 85 percent of the catch is taken by this method.

No management zones have been delineated for the southern shark fishery which is managed by the Commonwealth in conjunction with the Governments of Victoria, Tasmania and South Australia.

Figure 6: Distribution of the Southern Shark Fishery and Management Zones in the Western Australian Fishery



Source; After AFS.

Production and Value of Catch

Year	Production (tonnes carcase weight)
1985/86	4079
1986/87	4025
1987/88	3968
1988/89	3797
1989/90	3363

Source: Research data
Source: Southern Shark Monitoring Database, Marine Science Laboratories, Victoria. From fishers returns in Victoria, South Australia and Tasmania All weight standardised to untrimmed carcass weight, beheaded and gutted sharks with fins attached.

Number of Boats and Fishermen

Year	Number of Licence Holders
1986	241
1987	241
1988	220 a/
1989	190 a/
1990	158

a/ Estimates. Source: AFS.

Limited entry was introduced to the southern shark fishery in 1986 when 241 gillnet vessels were granted entitlement to operate. However, as a result of licence amalgamations or the forfeiture or cancellation of entitlements, the number of gillnet vessels had been reduced to 158 by October 1990. No controls have yet been introduced on the longline sector of the southern shark fishery.

Definition of Unit of Capacity
One unit of capacity comprises one 600 metre gillnet.

Total Units of Capacity
On the basis of the number of licence holders and net entitlements, the total units of capacity in October 1990 was 1000.

	GILLNET UNITS						
Licence Type a/	A10	A6	B5	B4	B3	B2	Total
South Australia							
No of Boats	15	11	29	2	2	0	59
No of Units	150	66	145	8	6	0	375
Victoria							
No of Boats	22	16	29	0	0	2	69
No of Units	220	96	145	0	0	4	465
Tasmania							
No of Boats	3	5	16	4	0	2	30
No of Units	30	30	80	16	0	4	160
Total Boats	40	32	74	6	2	4	158
Total Units	400	142	370	24	6	8	1000

a/ An A10 classification represents a category A fisher with entitlement for ten 600 metre nets.
Source: AFS.

The Southern Shark Fishery Management Plan, was adopted in 1988. Those fishers who had been granted access to the fishery were divided into two categories depending upon their level of historical catch and, by inference, their degree of dependence on shark fishing. Category A fishers could generally be accepted as full time shark fishers and Category B as fishers that also normally operated in one or more other fisheries such as rock lobster, scallop or scalefish.

Category A fishers were allocated six units while the number allocated to Category B fishers varied from two to five and was based on the number of nets that the fishers had traditionally used in the fishery. During the first two years of the Plan, a Category A fisher could purchase the six nets allocated to another Category A fisher and merge the two into one A10 entitlement with two nets being forfeited under the amalgamation rule. Forty such transfers were effected. With the exception of the above transfers during the first two years of the plan, shark entitlements can only be transferred between immediate family members.

Sale Value of Units of Capacity
Because the entitlements can only be transferred between immediate family members, the units have no sale value.

Capitalised Value of Units of Capacity
Not defined.

Licence Fees
In addition to the fees associated with licencing of the fishers and registration of the vessel, an annual management levy of $500 per unit is payable.

5.2 SHARK - SOUTH WESTERN AUSTRALIA

Distribution of the Fishery

The shark fishery in Western Australia extends from north of Geraldton to east of Esperance with the Abrolhos Islands, the Busselton region and the Albany - Esperence region the main fishing areas. The principal species taken are whiskery *(Furgaleus macki)*, bronze whaler *(Carcharlinus brachyurus)* and gummy *(Mustelus antarcticus)* sharks.

The shark fishery commenced off Bunbury in the early 1940s and expanded steadily to produce a catch of 630 tonnes live weight in the early 1970s. The catch then fell because of the problems associated with high mercury levels but has since increased substantially because of a marked increase in fishing effort. The fishery operates primarily by gillnet but some longlines are used.

For management purposes two major areas have been delineated, a west coast sector which consists of the area from just south of Shark Bay to just north of Bunbury, and a south coast sector from just north of Bunbury to the South Australian border. The south coast or southern zone has been further divided into the Busselton (Zone 1) and the Albany-Esperance (Zone 2) regions (Figure 6).

The south coast fishery, referred to as the southern demersal gillnet and longline fishery, is a limited entry fishery managed by state law by the Western Australian Joint Management Authority. The west coast fishery is currently open access but introduction of limited access is anticipated in the near future.

Production and Value of Catch

Year	Production (tonnes live)	Value ($ million)
1985/86	1599	3.1
1986/87	1282	3.9
1987/88	2148	6.1
1988/89	1610	4.7
1989/90	1913	5.6

Source: Fisheries Dept, Western Australia

Number of Boats and Fishermen

Year	Number of Limited Entry Licence Holders	Number of Supplementary Access Licence Holders
1988/89	49	40
1989/90	45	43
1990/91	45	41

Source: Fisheries Dept, Western Australia

The above information relates to the south coast fishery which was declared limited entry in June 1988. In addition to the limited entry licence holders, a number of fishers have been granted low level supplementary access. The South Australian fishers have also been granted access on historical grounds.

In the west coast zone 40 vessels have been endorsed to fish but of these it is reported that only approximately 10 are actively fishing.

The total numbers of fishers including crew member is not known.

Definition of Unit of Capacity
A unit of capacity or gear unit is a specified length of net (600 metres) or longline (200 hooks). The number of unit entitlements is the product of the number of gear units and the number of months in each year the gear can be used.

Total Units of Capacity
Gear units allocated to limited entry licence holders range from 1.5 to 12 and taking into account the number of months they can be used, annual unit entitlements range from 6 to 132. The total number of unit entitlements for limited entry licence holders in the southern demersal gillnet and longline fishery was 2371.5 for the year 1990/91.

The number of unit entitlements held by supplementary access licence holders in the southern fishery for the year 1990/91 was 298. This includes 39 Western Australian licence holders each with six units and two South Australian licence holders with 24 and 40 units respectively.

Sale Value of Unit of Capacity
The estimated sale value of a unit of capacity is between $600 and $900, but because half the units must be surrendered on transfer there is reportedly little movement of units.

Capitalised Value of Unit of Capacity
On the basis of $750 a unit, the capitalised value of the units of capacity would be approximately $20 million.

Licence Fees
In addition to the normal vessel and other licences, an annual fee of $8.00 per unit is payable.

6. SOUTH EAST TRAWL FISHERY

BACKGROUND

Commercial trawling commenced off New South Wales in 1915 with the operation of three steam trawlers. By 1928 the fleet had increased to 19 and the main species was tiger flathead with an annual catch in excess of 5000 tonnes. With a decline in catch on the local grounds the vessels extended their operations into eastern Bass Strait but subsequently, because of increasing costs, the number of steam trawlers began to decline

In 1933, Danish seining commenced off Jervis Bay and by 1941, 81 Danish seiners were operating off New South Wales between Crowdy Head and Twofold Bay, working the shallower grounds principally for tiger flathead and jackass morwong.

Virtually all the steam trawlers and Danish seiners were impounded when Japan entered the war in 1941. However, immediately after the war, although there was only limited activity by the steam trawlers, over 100 Danish seiners were soon operating off New South Wales. Catch rates on the local grounds fell and the number of seiners was reduced to approximately 50. At the same time, exploratory fishing was commenced off western Victoria resulting in establishment of the Lakes Entrance Danish seine fishery with flathead and school whiting the main species.

In the late 1950s the steam trawlers ceased operation, and the late 1960s saw the commencement of gradual conversion from Danish seining to otter trawling. At the same time, there was a gradual introduction of more modern vessels which facilitated the expansion of fishing operations into new areas and to greater depths.

The initial expansion was a movement into deeper waters, particularly off southern New South Wales, to target on gemfish during a winter spawning migration. However, the subsequent discovery of aggregations of orange roughy off south-western Victoria and the west and east coasts of Tasmania has resulted in a marked expansion of the fishery into these waters including a major portion of the effort.

As part of the South East Trawl Fishery Preliminary Management Plan introduced in 1985, the fishing capacity of each boat with endorsement for the fishery was determined and the total capacity in the fishery established in units. At a future stage it is planned to introduce individual transferable quotas (ITQs) with priority being given to flathead, gemfish, redfish and whiting. Species such as orange roughy and blue grenadier could be included in the regime soon after.

Distribution of the Fishery

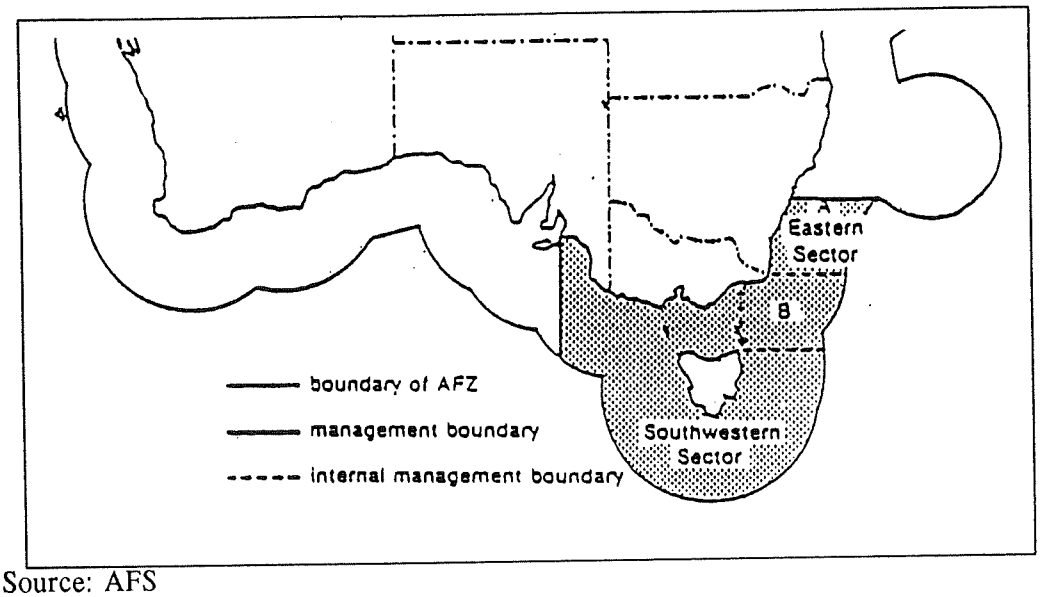
The fishery is distributed widely throughout the continental shelf and slope areas off New South Wales, Victoria and Tasmania with the exception of central Bass Strait, but production and catch composition may vary markedly from area to area. The main fishing ports are Wollongong, Ulladulla, Eden, Lakes Entrance, Hobart and Portland. Otter trawling is the major and more widespread fishing method with Danish seining predominating in the shallow inshore shelf areas of northern and eastern Bass Strait

The main species are:

orange roughy	*Hoplostethus atlanticus*,
gemfish	*Rexea solandri*
tiger flathead	*Neoplatycephalus richardsoni*
blue grenadier	*Macruronus novaezelandiae*
redfish	*Centroberyx affinis*
school whiting	*Sillago bassensis flindersi*
jackass morwong	*Nemadactylus macropterus*.

Two major management zones have been delineated, the Eastern Sector and the South West Sector. The Eastern Sector has been divided into two regions, Region A which extends from Barrenjoey Point to the New South Wales-Victorian border and Region B which covers the area from the New South Wales-Victorian border southwards to north-eastern Tasmania (Figure 7).

Figure 7: Management Zones in the South East Trawl Fishery



Source: AFS

Management of the south east trawl fishery is under Commonwealth jurisdiction.

Production and Value of Catch

Year	Production (tonnes live)	Value ($ million)
1985/86	13,878	21.7
1986/87	26,311	53.0
1987/88	26,509	49.4
1988/89	34,263	64.7
1989/90	53,186	83.8

Source: AFS.

Number of Boats and Fishermen

Year
1985/86
1986/87
1987/88
1988/89
1989/90
Source: AFS.

When the fishery was closed in March 1985, it was estimated that there were approximately 150 operational vessels.

Definition of Unit of Capacity
The number of units of capacity allocated to a licence holder is the sum of the number of hull units and the number of engine units of the vessel, the calculation of the hull and engine units to be carried out in accordance with Schedule 2 of the South East Trawl Fishery Preliminary Management Plan.

Total Units of Capacity
The total number of units is 24,638 of which 23,612 are attached to 136 endorsed boats actually fishing. Of this total, 106 are trawlers and the remaining 30 Danish seiners. The average number of allocated units per boat is 181.2. A total of 1026 units has been held in abeyance for vessels under construction or undergoing modification.

The number of boats, number of units and average vessel size per fishing sector on 19 March 1991 is set out below. SET 2 is that part of the South West Sector fished by the otter board trawlers while SET 1 is that part fished by the Danish Seiners.

Endorsements	Boats	Units	Av Size
A	13	1328	102.2
A+B	27	3998	148.1
A+B+SET2	41	11156	272.1
B	0	0	0.0
B+SET2	8	1119	139.9
SET2	14	3457	246.9
A+SET2	3	493	164.3
Otter Board Trawlers Total	106	21551	203.3
A	2	110	55.0
B+SET1	17	1185	69.7
SET1	11	766	69.6
Danish Seiner Total	30	2061	68.7
South East Trawl Boats Total	136	23612	173.6

Source: AFS

Sale Value of Units of Capacity
Initially the sale value of a unit of capacity ranged between $2,500 and $3,500 but the current price is reportedly about $2,000. However, because of the uncertainty in regard to the resource status there is little transfer of units.

Capitalised Value of Units of Capacity
On the basis of the 23,612 units allocated and the reported current sale price of some $2,000, the capitalised value of the total units of capacity would be approximately $47 million.

Licence Fees
Besides vessel and other necessary licences, all vessels in the south east trawl fishery pay a general management levy of $27 per unit per annum. In addition for those trawlers with a SET2 region endorsement, an additional $26 per unit is payable annually to cover research and management of the orange roughy fishery.

7. TUNA

The main tuna fishery in Australian waters has concentrated on southern bluefin *(Thunnus maccoyii)* although development of a longline fishery is currently under way in eastern Australia with the predominant species being yellowfin *(T. albacares)*, bigeye *(T. obesus)* and albacore *(T. alalunga)*. Small intermittent fisheries for skipjack *(Katsuwonus pelamis)* have operated in various areas off southern Australia in the past, but during the last five years there has been a substantial increase in production of this species in southern New South Wales by way of purse seining and pole fishing.

7.1 SOUTHERN BLUEFIN FISHERY

Background

The southern bluefin tuna comprises a single stock which is distributed in the more temperate southerly waters of the Pacific, Indian and Atlantic oceans.

Spawning takes place in a limited area in the Indian Ocean south of Java. Southern Australian waters comprise a major area for juveniles up to six years of age. The fishery in Western Australia was based predominantly on two year old fish, the South Australian fishery on three and four year olds and the New South Wales fishery on three to six year old fish. Surface schooling by juveniles is a common phenomenon. After some six years of age most southern bluefin have moved offshore to occupy deeper waters predominantly between 30° and 50° S. They also become more widely dispersed with their distribution extending from east of New Zealand westwards to South Africa.

Australia and Japan have had a major involvement in the southern bluefin fishery. The Australian fishery has concentrated on the surface schools of juveniles using pole fishing and purse seining. The Japanese fishery is by longline and concentrates on the older fish throughout the general range of the species.

The southern bluefin fishery in Australia commenced in the 1950s on the southern coast of New South Wales and was later extended to South Australian waters and subsequently to Western Australia. Following initial development, the Australian fishery was relatively stable for many years normally yielding between 8000 and 10,000 tonnes of southern bluefin annually and providing the mainstay of the Australian fish canning industry. Annual Japanese production was generally in the range of 30,000 to 40,000 tonnes, but has maintained a declining trend after peak catches in 1961.

In the late 1970s, fishing effort in South Australia and Western Australia began to increase markedly and over the next few years the Australian catch rose rapidly to reach 21,000 tonnes in the 1983 season. The increase in production in South and Western Australia was accompanied by a decline in production in New South Wales. The Japanese longline catch continued to decline to less than 25,000 tonnes a year.

Concern for the state of southern bluefin stocks by Australia, Japan and New Zealand led to the Commonwealth Government introducing long term management arrangements for southern bluefin in New South Wales, South Australia and Western Australia in October, 1984. The objective was to stabilise the parental biomass at the 1980 level by reducing the global catch and the relative proportion of young fish in that catch. The management arrangements included a national quota of 14,500 tonnes and allocation of individual transferable quotas to fishers using a formula incorporating the highest catch in the previous three years and the current market value of the boat and gear. Subsequently, Japan accepted a catch limit of 19,500 tonnes and New Zealand 1000 whilst the Australian catch was effectively reduced to 11,500 tonnes when the Japanese fishing industry agreed to subsidise the Australian fishers to forego the catching of 3000 tonnes of southern bluefin annually.

Further concern in relation to declining catches and the state of the stocks led to a reduction of the global quota for the year 1988/89 to 15,500 tonnes. Respective allocations were Japan 8800 tonnes, Australia 6250 tonnes and New Zealand 450 tonnes. Subsequently a new global quota of 11,750

tonnes was set for each of the years 1989/90 and 1990/91. Respective allocations were Japan 6065 tonnes, Australia 5265 tonnes and New Zealand 420 tonnes. However, it has been agreed that for the year 1990/91 the Japanese industry will compensate the Australian industry for a freeze of 1000 tonnes with a result that maximum Australian production should not exceed 4265 tonnes.

Distribution of the Fishery

In the past, the southern bluefin and its fishery was widely distributed throughout southern Australia south of latitude 34°S, but the commercial fishery is now concentrated mainly in the Great Australian Bight because of the absence of any real number of surface aggregations of southern bluefin off New South Wales and the accumulation of most of the units of fishing capacity by the South Australian fleet.

The fishery operates primarily by pole and line and purse seine with some longlining.

Production and Value of Catch

Year	Quota (tonnes live)	Production (tonnes live)	Value ($ million)
1985/86	14500	13237	-
1986/87	11500	11308	34.5
1987/88	11500	10976	38.7
1988/89	6250	5984	34.2
1989/90	5265	4590	25.3

Source: Bureau of Rural Resources

Number of Boats and Fishermen

In the case of the southern bluefin fishery, the quota is held by individuals or companies and is not necessarily related to individual vessels. Moreover, although the number of quota holders is quite large only a small proportion actively operate in the fishery, the remainder holding a small number of units to cover some limited activity or incidental catches of southern bluefin while targeting on other species. For example, in the 1990/91 season although there were approximately 76 quota holders, only 28 held in excess of 10 tonnes.

Data are not available on the number of fishers in past years and the total number of vessels that landed southern bluefin cannot be established. However, it is possible to provide information on the number of vessels that actively operated in the South and Western Australian fisheries and the total numbers are set out below.

Year	Number of Boats Actively Fishing
1985/86	54
1986/87	41
1987/88	51
1988/89	29
1989/90	22

Source: K. Williams

The substantial reduction in quotas for the 1988/89 and 1989/90 seasons led to a reduction in fleet size as the companies attempted to rationalise operations. However, more than half the catch was transferred to foreign processing vessels or Australian owned Japanese-style longliners acting as processing vessels to capitalise on the frozen sashimi market. In addition a considerable portion of the landed catch was exported as fresh sashimi.

Definition of Unit Capacity
One unit of capacity for the years 1989/90 and 1990/91 comprises 986 kilos live weight of southern bluefin tuna. This figure is determined each year by dividing the total allowable catch for the year by 5347, the total number of units of capacity in the fishery.

Total Units of Capacity
The total number of units of capacity is 5347. This number was determined in 1984 when individual transferable quotas were introduced and units of capacity were established for individual fishers on the basis of catch history and the market value of the vessel.

Sale Value of Unit of Capacity
Currently there is little sale of units of capacity because of the uncertainty as to the future of the fishery but it is reported that the last sale was approximately $8000 a unit. Leasing is reportedly about $800 a tonne locally and between $2000 and $5000 a tonne internationally per year.

Capitalised Value of Unit of Capacity
On the basis of 5347 units and a reported sale price of $8000 per unit, the capitalised value of the units of capacity is approximately $43 million.

Licence Fees
Besides vessel and other necessary licences, the management levy for the year 1990/91 has been set at $81.00 per unit.

7.2 EAST COAST LONGLINE FISHERY

Background

In 1979 the first recorded shipment of chilled fresh tuna to Japan was forwarded from the Clarence River Fishermen's Co-operative and for several years shipments were made on an ad hoc basis. The fish were generally caught by handline from vessels engaged in other fisheries such as prawn trawling. Following these early initiatives a specialised tuna longline fishery has developed off New South Wales and Queensland with a number of companies and co-operatives air-freighting chilled fresh tuna to Japan on a regular basis. In addition, there is considerable local demand.

Distribution of the Fishery

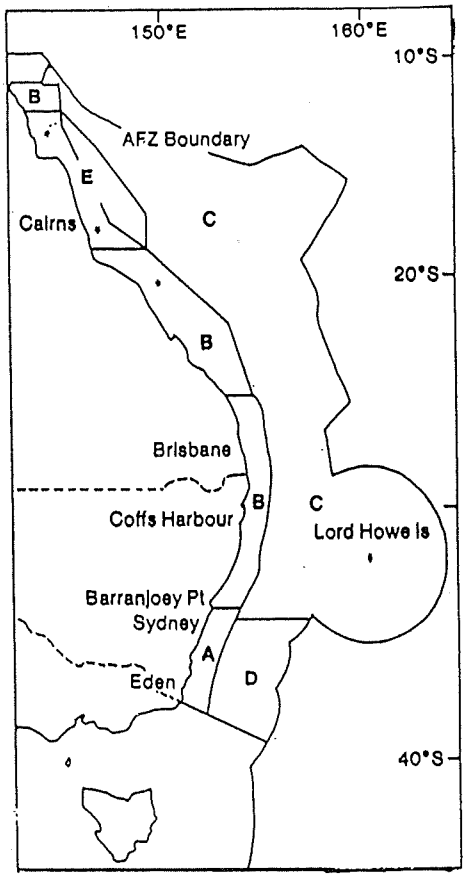
The fishery extends from Cape York in northern Queensland to the New South Wales-Victoria border, with New South Wales providing the major catches. Coffs Harbour, Ulladulla and Bermagui are the major fishing ports. From July to November, the main fishing effort is concentrated in northern New South Wales between Yamba and Coffs Harbour, but with rising water temperatures there is a shift of the major effort to southern New South Wales. Fishing is by means of longline.

The primary species are yellowfin tuna *(Thunnus albacares)* and bigeye tuna *(Thunnus obesus)* while secondary species include albacore *(Thunnus alalunga)*, broadbill swordfish *(Xiphias gladius)* and striped marlin *(Tetrapterus audax)*.

Management of the east coast longline fishery is under the jurisdiction of the Commonwealth. Interim management arrangements were introduced in July 1988 to control entry and thus prevent a rapid and uncontrolled growth of the fishery. Since then only suitably endorsed vessels have been eligible to use pelagic longlines in Commonwealth waters off the east coast between Cape York and Cape Howe. The interim management plan was initially for a three year period ending 30 June 1991, but has now been extended until 30 June 1993.

Five management zones were established for the east coast longline fishery but basically they cover three main categories, historical usage, development in inshore waters and development in offshore waters. Area A off New South Wales is available only to fishers with an established history in the fishery, but these fishers also have access to development areas B, C and D. Offshore development area A is open to southern bluefin vessels which fishers without a history in the fishery could apply for access to development areas B, C and D. Area E and portion of area B in Queensland waters are subject to specific additional controls because of the existence of the Great Barrier Reef Marine Park and the recreational black marlin game fishery.

Figure 8 **Management Zones in the East Coast Longline Fishery**



Source: AFS

Production and Value of Catch

Year	Production (tonnes live)	Value ($ mil)
1985/85	-	
1986/87	124	
1987/88	970	
1988/89	785	
1989/90	452	

Source: AFS

Number of Boats and Fishermen

Year	Number of Licence Holders
1988/89	196
1989/90	177
1990/91	165

Source: AFS

Of the 165 vessels in the fishery in January 1991, 113 had a previous history in pelagic longlining, 49 were endorsed for inshore development and three were in the offshore development category. The number of fishermen is not known.

Definition of Unit of Capacity
One longline vessel comprises a unit of capacity.

Total Units of Capacity
The total units of capacity in January 1991 comprised 165 vessels.

Sale Value of Units of Capacity
Licences became transferable in June 1989. The sale price of a longline endorsement is reportedly between $20,000 and $30,000, the higher price relating to the historical zone.

Capitalised Value of Units of Capacity
On the basis of $30,000 for an endorsement in the historical category and $20,000 for other endorsement types, the capitalised value of the units of capacity is approximately $4.4 million.

Licence Fees
In addition to the costs associated with vessel and other licences, an annual management levy of $2000 is payable for inshore zone endorsements and $1000 for the offshore zones.

7.3 SKIPJACK TUNA FISHERY

Skipjack tuna is almost world-wide in distribution and is found in all Australian States. The fish undertake extensive migrations but whether there is a well defined migratory pattern in Australian waters has not been established. However, there would appear to be some seasonal shift of the main body of fish on the east coast.

A small gillnet fishery for skipjack existed in Victorian waters in the early 1960s and from time to time small purse seine fisheries for the species have operated off the New South Wales coast. In addition, some catches have been made in the Great Australian Bight by purse seiners that normally operated on southern bluefin.

On the east coast production has been inconsistent and it was generally accepted that the failure to establish a regular fishery was due mainly to fluctuations in abundance. However, off New South Wales since the 1986/87 season there has been a steady increase in production from 152 tonnes to over 6000 tonnes in the 1990/91 season. In this season up to five purse seiners have been operating as well as a number of pole boats, and the suggestion has been put forward that one of the main reasons for the increased catches has been the increasing experience in locating and catching the schools.

An interim management plan for the east coast tuna purse seine fishery has been introduced by the Commonwealth because of concern that purse seining of juvenile yellowfin tuna off New South Wales could adversely affect the existing east coast tuna longline fishery. Under the interim plan the number of vessels and areas of operation have been restricted. Restrictions also apply to the dimensions of the purse nets and the quantity of yellowfin tuna that can be taken as a by-catch.

8. NEW SOUTH WALES COASTAL INSHORE AND ESTUARINE FISHERY

Distribution of the Fishery

The New South Wales coastal inshore and estuarine fishery, which has been operating since early colonisation, is widespread, and makes a substantial contribution to the production of the State. Although the major effort is concentrated in the estuaries, netting is commonplace on ocean beaches particularly on travelling schools.. Fishing is conducted mainly by beach seine or gill net although purse seines, lamparas and fish traps are used for some species. The most productive estuarine areas are the Clarence River, Wallis Lake, Lake Macquarie and Tuggerah Lakes.

In addition to prawns which have been considered under Prawns-New South Wales a wide range of fish species are taken but the main forms are:

Sea mullet	*Mugil cephalus*
Australian "salmon"	*Arripis trutta*
Luderick	*Girella tricuspidata*,
Yellowfin bream	*Acanthroparus australis*,
Flat-tail mullet	*Liza argentea*
Pilchard	*Sardinops neopilchardus*
Dusky flathead	*Platyceplalus fuscus*,
Tailor	*Pamatomus saltatrix*
Sand whiting	*Sillago ciliata*.

Management zones have not been delineated for New South Wales waters although closures, net and other restrictions apply to specified areas.

Production and Value of Catch

Year	Production (tonnes live)
1985/86	-
1986/87	-
1987/88	6868
1988/89	6617
1989/90	6599

Source: Division of Fisheries, NSW

Number of Boats and Fishermen

It is estimated that between 1000 and 1500 fishers are currently operating in New South Wales estuarine and inshore waters. Currently a management plan is being developed which will provide precise information on the number of fishers and the nature of their fishing operations. Because of the proposed implementation of a new management plan, the number of fishers and the number of nets has been frozen. Fishing licences are not transferable and only replacement nets are permitted.

Definition of Unit of Capacity

No unit of capacity has yet been defined. Possible options include licence endorsements or net units.

Total Units of Capacity

The total units cannot be determined in the absence of a definition of unit of capacity.

Sale Value of Units of Capacity
Sale value cannot be determined in the absence of a definition of unit of capacity. However, there is some transfer of net entitlements with sale values reportedly between $500 and $3000 depending upon the net types.

Capitalised Value of Units of Capacity
No value can be determined in the absence of a definition of unit of capacity.

Licence Fees
Fees relate only to fishers, net and vessel licences. No management or other levies are imposed.

9. SOUTH AUSTRALIAN SCALE FISHERY

Distribution of the Fishery

South Australia has a designated "Marine Scalefish Fishery" which includes all species of fish, crustaceans and molluscs in marine waters of South Australia with the exception of certain species managed independently, for example, prawns, rock lobster, abalone and scallops. Also excluded are fisheries under Commonwealth jurisdiction such as tuna. The fishery is widely distributed throughout South Australian coastal waters but the main production is derived from the Spencer Gulf - Coffin Bay and the Gulf St. Vincent - Kangaroo Island areas.

The main species are:

Australian salmon	*Arripis trutta*
Ocean leather-jacket	*Nelusetta ayraudi*
King George whiting	*Sillaginodes punctata*
Tommy ruff	*Arripis georgianus*
Sea garfish	*Hyporhamphus melanochir*
Snapper	*Chrysophrys auratus*
Yelloweye mullet	*Aldrichetta forsteri*
Deepsea trevalla	*Hyperoglyphe antartica*
Snook	*Sphyraena novaehollandiae*
School shark	*Galeorhinus galeus*
Gummy shark	*Mustelus antarcticus*
Sand crabs	*Ovalipes australiensis*
Southern calamari	*Sepioteuthis australis*
Cockles	*Donax deltoides* and *Katelysia spp.*

The fishery comprises four major groups of operators, recreational line, recreational net, commercial marine scalefish holders and commercial restricted licence holders.

Management zones have not been delineated for South Australian waters although closures, net and other restrictions apply to specified areas.

Production and Value of Catch

Year	Production (tonnes live)	Value ($ million)
1985/86	5724	12.6
1986/87	6423	13.9
1987/88	7367	18.1
1988/89	7663	20.8
1989/90	7435	19.0

Source: Dept of Fisheries, South Australia, Annual Reports

Department of Fisheries. The above information relates only to commercial licensees and does not include catches made by recreational line and net fishers.)

Number of Boats and Fishermen

	Number of Licence Holders		
Year	Marine Scale	Restricted	Total
1985/86	532	152	684
1986/87	530	148	678
1987/88	530	141	671
1988/89	529	141	670
1989/90	521	132	653

Source: Dept of Fisheries, South Australia

The commercial marine scale licence is issued to persons who intend to take fish for sale as their principal business whilst the restricted scale licence is issued to those who intend to fish part time or seasonally. In addition, rock lobster fishers may be issued with net endorsements to take fish for sale or in other cases net endorsements to use bait nets. Also, all prawn licence holders are permitted to sell calamari and slipper lobsters taken in prawn trawls, but not other species except prawns.

Precise information is not available on the total number of vessels or people involved commercially in the marine scalefish fishery. In the case of the recreational line fishery, the number of participants likewise cannot be provided. In the recreational net fishery, operators can only use a registered net and in 1988 there were 6500 fishing nets registered for use in coastal marine waters.

Definition of Unit of Capacity
One marine scalefish licence is defined as a unit of capacity.

Total Units of Capacity
The total number of marine scalefish licences or units of capacity for the year 1989/90 was 521.

Sale Value of Units of Capacity
The current value of the marine scalefish licence is estimated at $35,000. The restricted marine scalefish licence is not transferable.

Capitalised Value of Units of Capacity
On the basis of the number of marine scalefish licences and the reported value of $35,000 per licence, the capitalised value of the units of capacity would be approximately $17.2 million.

Licence Fees
The fee for both the marine scale and the restricted marine scale licences for the year 1989/90 was $308 with an additional $234 net fee.

10. NORTHERN TERRITORY BARRAMUNDI

Distribution of the Fishery

The barramundi *(Lates calcarifer)* is widely distributed throughout the coastal and fresh waters of the Northern Territory. Commercial fishing, which is chiefly by gillnet, is restricted to the coastal zone. Commercial netting is prohibited inside the mouths of creeks and rivers except in the case of some of the major rivers where the closure line is 10 to 15 km upstream. No separate management zones have been delineated.

Production and Value of Catch

Year	Production (tonnes live)	Value ($ million)
1985/86	609	1.8
1986/87	531	1.9
1987/88	550	2.0
1988/89	613	2.2
1989/90	550	2.1

Source: Dept of Primary Industries and Fisheries, NT

Number of Boats and Fishermen

Year	Number of Licence Holders
1986	40
1987	38
1988	35
1989	30
1990	28

Source: Dept of Primary Industries and Fisheries, Northern Territory

Netting crews generally operate from mother ships and rarely comprise more than three or four members. Licence limitation was introduced in 1976 and the maximum number of licences that could be issued was set at 114. To reduce excess fishing capacity, this number was substantially reduced by the introduction of periods of non-transferability of licences and buy-back schemes.

Definition of Unit of Capacity
100 metres of gillnet comprises a unit of capacity.

Total Units of Capacity
Licence holders are restricted to a maximum of 10 units or 1000 metres of gillnet per licence.. The total number of units currently in the fishery is 2340.

Sale Value of a Unit of Capacity
Because of recent completion of the buy-back scheme, there is currently no active turnover of licences. However, the sale value of a unit of capacity is approximately $12,000.

Capitalised Value of Units of Capacity
On the basis of 2340 units in the fishery and a suggested sale value of $12,000 per unit, the capitalised value of units of capacity would be approximately $28 million.

Licence Fees
The annual licence fee is currently $1000, but there is an additional annual buy-back levy of $100 per unit of gillnet which is industry's contribution to the funding of previous buy-back schemes.

11. TORRES STRAIT PROTECTED ZONE

BACKGROUND

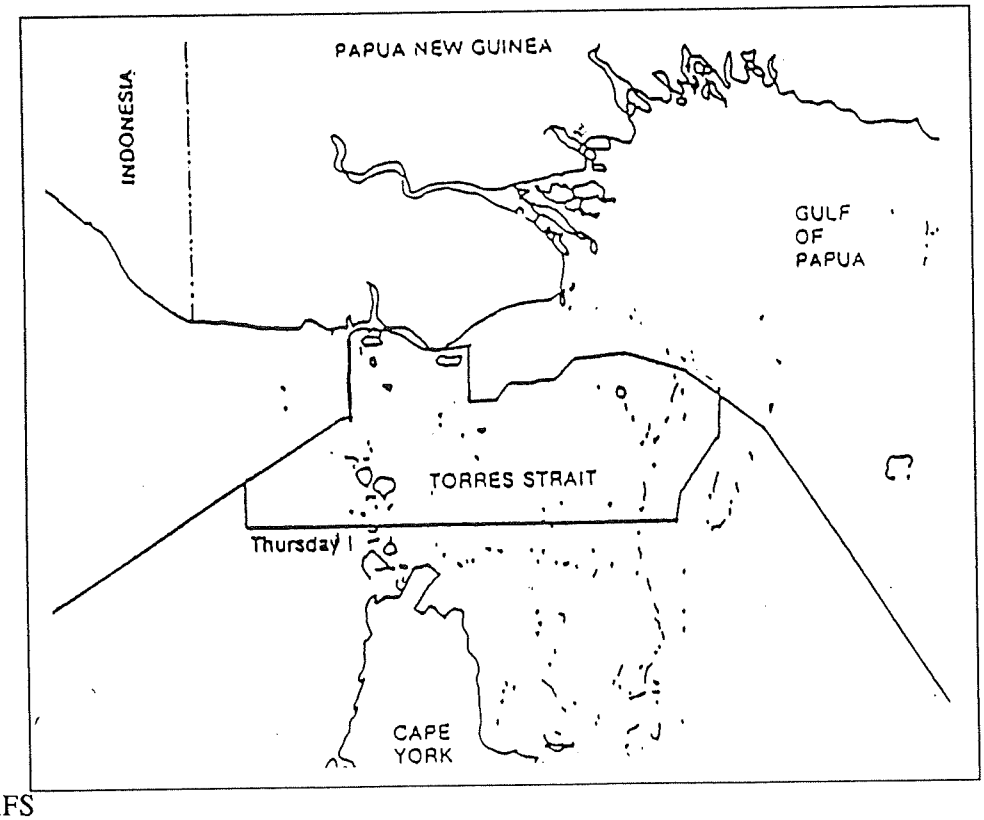
The Torres Strait Protected Zone was established in 1985 by international treaty between Australia and Papua New Guinea. The principle purpose in establishing the zone was to acknowledge and protect the traditional way of life and livelihood of traditional inhabitants including their traditional fishing and free movement.

The treaty contains extensive provisions relating to the commercial fisheries in the Protected Zone. The two countries have entered into subsidiary conservation and management arrangements for the commercial fisheries in the Protected Zone covering rock lobster, prawns, spanish mackerel, dugong, turtles and pearl shell.

The zone includes the major portion of Torres Strait and is divisible into Australia and New Guinea areas of jurisdiction. Management of the major fisheries in the area of Australian jurisdiction (Figure 9) by agreement between the Commonwealth and Queensland Governments, is carried out by the Protected Zone Joint Authority in accordance with Commonwealth law. The fisheries include tropical rock lobster, prawns, spanish mackerel, dugong, turtles and pearl shell, and the commercial barramundi in coastal waters adjacent to six Australian islands near the Papua New Guinea coast.

The agreement also provides that Queensland is to manage under its laws all other commercial fisheries as well as the recreational fisheries in the Australian area of jurisdiction except for fishing by foreign vessels.

Figure 9: Area of Australian Fisheries Jurisdiction, Torres Strait Protected Zone



Source: AFS

Distribution of the Fisheries

The main commercial fisheries are widely distributed in the Protected Zone area under Australian jurisdiction and comprise rock lobster, prawns and spanish mackerel. The main ports are Cairns and Thursday Island.

The prawns are taken by conventional prawn trawlers in the main channels and internal reef areas to the east of the Warrior Reef complex. The main species are brown tigers *(Penaeus esculentus)*, endeavours *(Metapenaeus endeavouri)* and eastern kings *(P. plebejus)*. The lobsters are taken by spear on reef tops and reef edges to approximately 20 metres with Hookah gear being used in many cases. The divers work from dinghies associated with mother ships which provide accommodation and freezing facilities. Although a number of species of rock lobster may be taken, the predominant form is the ornate lobster *(Panulirus ornatus)*. The spanish mackerel fishery is sporadic and operates by trolling; the main species is *(Scomberomorus commerson)*.

No commercial licences will be issued for barramundi (*Lates calcarifer*) and the fishery will be retained for the benefit of traditional inhabitants undertaking community fishing. Likewise the taking of dugong and turtles is restricted to traditional fishers and these fishers are being made increasingly aware of the need to take a cautious long term approach to harvesting because of the limited nature of the stocks. In the case of pearls three luggers are authorised to take pearl shell and the Islanders have the right to take shell while free diving or using Hookah gear. However, the fishery is of low intensity and basically incidental to lobster and trochus fishing.

Production and Value of Catch

Year	Prawn		Lobster	
	Production (tonnes live)	Value ($ million)	Production (tonnes live)	Value ($ million)
1985/86	392.1		879.1	5.6
1986/87	438.7		573.1	5.3
1987/88	198.6		633.2	4.3
1988/89	855.5		605.7	4.4
1989/90	822.3		507.3	4.9

Source: AFS.

Detailed information on spanish mackerel and pearl shell is not readily available. However, catches of spanish mackerel for the years 1989 and 1990 were 119 and 99 tonnes respectively while the number of pearl shells taken in 1990 was 16,543 compared with 866 in 1989. The value of spanish mackerel is approximately $6.00 a kg while the reported value of a pearl shell is $20.00. Pearl shell collected by community fishers is not included in the above totals.

Number of Boats and Fishermen

Year	Number of Boats	Number of Master fishermen's licences
1985/86	636	719
1986/87	744	826
1987/88	383	851
1988/89	420	763
1989/90	476	806

Source: Annual Reports, Torres Strait Protected Zone Joint Authority.

Of the 476 vessels licenced for the year 1989/90, 130 were endorsed for prawns, 71 for rock lobster, 10 for pearls and 50 for mackerel. The remaining 215 vessels held multiple endorsements, in almost all cases relating to rock lobsters, mackerel and pearls.

A number of master fishers operating in the zone would be higher than shown above because it is not compulsory for a Torres Strait Islander to hold a licence.

Definition of a Unit of Capacity
Definition of a unit of capacity is not practical because of the range of fisheries and the varying nature of the vessels and gear in use.

Total Units of Capacity.
No figure can be provided in the absence of a suitable definition of unit of capacity.

Sale Value of a Unit of Capacity
In the absence of a suitable definition of a unit of capacity, no sale value can be provided. Restrictions on transferability would render many fishing endorsements valueless.

Capitalised Value of Units of Capacity
No value can be determined in the absence of a suitable definition of a unit of capacity.

Licence Fees
The only fees relate to fishers and other necessary licences. No management or other levies are imposed.

DATA SET

AUSTRALIAN FISHERIES STATISTICS

1. Australian production (live weight) and value of selected species (excluding the oyster fishery, pearl culture industry and aquaculture generally)

(a) rock lobster
(b) prawns
(c) abalone
(d) tuna
(e) scallops
(f) shark
(g) gemfish
(h) orange roughy
(i) australian salmon
(j) snapper
(k) barramundi
(l) jack mackerel
(m) others
(n) pilchards

All data to be the most current available plus data for its previous five years.

2. Australian export, by weight and value, of seafood products by major species and country of distination

(a) All data to be the most current available plus data for the previous five years.
(b) Specify the units of weight for each product.

3. Production and value

(a) oyster industry
(b) pearl culture industry
(c) aquaculture industry, excluding oysters and pearl culture.

4. Production, by major species, of fish caught by foreign vessels operating in the Australian Fishing Zone and access fees paid.

All data to be for the most current year available.

5. Production, value of catch, number of boats, number of fishermen, definition of unit of capacity, total units of capacity, sale value of a unit of capacity and capitalised value of units of capacity for each of the following fisheries.

(a) All data for most current available but in addition production and value of the catch to be both current and for the previous five years.
(b) The units of capacity in use for each fishery to be clearly defined and explained.

INDIVIDUAL FISHERIES

(a) Prawns
(i) Northern Prawn Fishery
(ii) Queensland east coast
(iii) New South Wales
(iv) South Australia
(v) Western Australia

(b) Rock Lobster
- (i) Victoria
- (ii) Tasmania
- (iii) South Australia
- (iv) Western Australia

(c) abalone
- (i) New South Wales
- (ii) Victoria
- (iii) Tasmania
- (iv) South Australia
- (v) Western Australia

(d) scallops
- (i) Queensland
- (ii) Bass Strait/Tasmania
- (iii) Western Australia

(e) shark
- (i) south east
- (ii) south west (off Western Australia)

(f) South east trawl

(g) tuna

(h) New South Wales estuarine

(i) Victorian estuarine/inshore

(j) South Australian scale fishery

(k) Northern Territory barramundi

(l) Torres Strait Protection Zone

(m) Victorian, New South Wales and Western Australian pilchards

6. On A State and Northern Territory basis (if available)

(a) number of boats by size class
(b) number of fishermen
(c) production of major species (accounting for at least 80% of total production of all species).

- (i) fin fish
- (ii) crustaceans
- (iii) molluscs
- (iv) total

(d) value of production in (c).

DATA SOURCES

NEW SOUTH WALES

Landings

NSW Agriculture and Fisheries maintain a database of landings data provided by fishermen on their monthly logbooks. Only data since 1987 have been fully edited and are believed to be reasonably accurate. These data have been used for the period 1987/88 to 1989/90. For prior years, landings have been estimated based on the throughput of the NSW Fish Marketing Authority.

Although it is intended that Southeast Trawl fishery data should be excluded from the database, in many cases fishermen have included these landings, resulting in some duplication. Review of the individual species suggests that gemfish is the major area of overlap and this species has been excluded from the NSW data in Section A.

Price

NSW Fish Marketing Authority weighted average prices have been used, deducting 21 per cent from auction price to derive an estimated average price to fishermen, net of commission and freight. Since the FMA year ends on 31 March, prices do not relate precisely to the July to June years used for analysis in this handbook. However, the resulting discrepancy is generally not significant and FMA prices represent the most accurate data set of all Australian fisheries price series.

NORTHERN TERRITORY

Landings Data

The Northern Territory Department of Primary Industry and Fisheries collects data on:

- all coastal fisheries, within 3 nautical miles of the low- water line through fishermen's returns:
- State licensed fishermen from 3 - 12 nm;
- from vessels catching beyond 12 nm who include their catches on their returns (reported to be most operators);
- on prawn landings through the DPIF export inspection service;
- aquaculture data via a licensing system. Since there has been little commercial production to date, a system for production and other data collection has yet to be introduced.

The Commonwealth (AFS) is responsible for collection of data on the northern prawn fishery and on the foreign fishing ventures operating in waters off the NT, including the Taiwanese pair trawling venture in the Arafura and Timor Seas and on the Northwest Shelf, the Thai/Australian joint venture (Seanorth) which operates stern trawlers in the Arafura and Timor Seas and a limited bottom Taiwanese longlining venture. The DPIF collects and analyses logbook data on behalf of AFS. Data are also collected through the observer program on these vessels. Data to 1987 are held on the AFS AFZIS database and more recent data on the DPIF system in Darwin. Analysis on the trawling ventures is up-to-date, but limited data entry has been completed on the longlining operation. Data entry on the latter is due in early 1991. Data from the logbooks are entered into DOS files and processed through a Fortran program developed by DPIF staff.

Vessel and Crew Data

The Department of Transport and Works, Marine Division maintains records of vessels requiring survey, including most of the larger vessels in the NT fleet. However, classification by fishing activity is not possible. Licensed vessel numbers are reported in the DPIF annual reports. Average vessel sizes and crew numbers were estimated by DPIF staff.

Price

Average value data on processed products such as lobster, prawns, abalone and scallops are estimated by DPIF on the basis of discussions with fishermen and processors. Finfish species values are included on their monthly returns and are used to develop weighted average prices for each species through the DPIF database system.

QUEENSLAND

Queensland fisheries data are limited for the early part of the assessment period. The winding up of the Queensland Fish Board by the establishment of the Queensland Fish Marketing Authority (QFMA). This organisation collected data from registered processors and wholesalers but these data appear to omit a substantial percentage of fish sales. Price data are available from the daily auction market in Colmslie, conducted by a private auctioneer. The market is however largely a residual market and does not reflect average producer prices for most commodities.

Since the introduction of management plans for most fisheries in about 1988, the quality of data has improved markedly, and production data are now reasonably reliable. Discussions with QDPI, QFMA and private traders suggests that further refinement of the data for the 1984/85 to 1987/88 period is unlikely to be feasible and it was therefore decided that the data should be presented as reported, with the proviso that substantial underestimation is likely in most sectors due to the method of data collection or estimation.

Production Data

1984/85-1985/86	Interpolated from ABS 1980/81 and QFMA 1986/87 data
1986/87-March 1988	QFMA data based on returns from processors/wholesalers, published in the Queensland Fishermen's' Journal
March 1988-1989/90	Logbook records, held on Unified database on QDPI Pyramid mainframe computer. Fishermen are required to submit daily catch data in monthly logbook form. Data exclude Commonwealth managed fisheries (Gulf prawn and Torres Straight Protection Zone (TSPZ).

Discussion

Production data for Queensland for the period prior to about April 1988 are of limited accuracy. Comparison between processors' returns and logbook data indicate a marked discrepancy for all products other than prawns. Data for 1984/85 to 1987/88 are therefore likely to understate actual catch, by as much as 50 per cent.

Price Data

Price data for Queensland are also drawn from a variety of sources. For the early part of the time series, reliance is placed on the sporadic publication of price data for selected species which appeared in the Queensland Fishermens' Journal, most recently in January 1987. From late 1987, actual processor buying prices are used, discounted by 10 per cent to approximate a weighted average. These data were compared to NSW Fish Marketing Authority prices to attempt to ensure that prices were realistic. Where major discrepancies were evident, adjustment was made to the Queensland unit prices in order to derive total value of production.

Aquaculture Data

Limited data are collected on aquaculture production in Queensland. Two major surveys have been undertaken, for calendar year 1988 and for 1989/90. As a mail survey (with telephone follow-up), it is likely that the 1988 survey underestimated actual production. On this basis, the calendar 1988 data are assumed to reflect approximate financial year (1987/88) production data. Production for 1988/89 are interpolated.

Fishing Vessels

Data on vessel length class by fishery for 30 June 1990 were summarised from the QFMA database. Data were also provided on crew numbers and were used to assess the total number of fishermen at that date.

SOUTH AUSTRALIA

South Australia publishes volume and value data regularly. Landings data are based on monthly returns from fishermen, and on six-monthly returns in the case of aquaculture. Basic data processing is undertaken manually, with processed data entered onto computers, either in-house PCs or the South Australian State mainframe computer.

Data for Commonwealth managed fisheries are processed manually from monthly returns and forwarded to the relevant database manager.

Values are derived from monthly fish processor and wholesaler returns for the five regions into which the State is divided. Interstate prices are incorporated, for species with substantial interstate sales.

TASMANIA

Tasmania maintains a database on fish landings based on data from Tasmanian general finfish logbooks, submitted monthly. There is duplication with Commonwealth managed fishery databases, and therefore the main deepwater species (covered by the SET) were omitted from the Tasmanian tables. Shark however, were included on the grounds that landings approximated those of the AFS southern shark database.

VICTORIA

Victoria was only able to supply data from 1984/85, the last year of Australian Bureau of Statistics involvement in fisheries statistics. Other data sources were therefore used for shark, abalone, lobster and scallop production, while deepwater fisheries are covered under the SET. Under this scenario, the major data gaps relate to the inshore and estuarine species. In order to complete the Victorian (and thus the Australian) tables, it was assumed that landings of these species remained constant over the period.

In the absence of usable price data, NSW prices were assumed to apply.

WESTERN AUSTRALIA

Until 1988/89, catch and effort data were compiled by the WA office of the Australian Bureau of Statistics, using monthly returns collected by the Fisheries Department of Western Australia. All catch data are in terms of estimated live (whole) weight. Value data were compiled using data obtained from fish dealers, fish processors and Fishermen's cooperatives. Values represent gross values to the fishermen.

Commencing in July 1989, the Western Australian Marine Research Laboratories have been processing the monthly returns. Returns are checked, coded and data entered into the mainframe at

Watermans. Research logbooks are available for some fisheries but are not necessarily used for the completion of monthly returns.

Value data continue to be collected by ABS. For the year 1989/90, the data were provided to Fisheries Department in August 1991.

In the aquaculture sector, freshwater licence holders are required to submit a copy of the sales consignment note to the Department. The data are used to compile production statistics. For marine fisheries such as mussels and pearls, annual production returns are submitted.

COMMONWEALTH MANAGED FISHERIES

Torres Straight Protection Zone - databases maintained by AFS on Thursday Island (tropical lobster) and Cairns (prawns)

Northern Prawn Fishery - Database held in AFS, Canberra

Northern Foreign and Joint Venture Fishing - Databases maintained by Northern Territory Department of Primary Industry and Fisheries on behalf of AFS

Tuna - Database held in AFS, Canberra

Shark - Database maintained by Marine Science Laboratories, Queenscliff, Victoria on behalf of AFS