Chapter Sixteen

Forestry and Fishing

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FORESTRY

Forests are an important sustainable national resource providing a wide range of indispensable products and benefits to the community.

The cover of forest vegetation protects the soil from water and wind erosion, reduces flooding and siltation of water storages and maintains the quality of water. Forests provide habitat for a variety of native animals and plants.

Native and plantation forests contribute substantially to Australia's economic performance especially to employment in rural areas. Forests also represent valuable ecosystems providing a gene pool of great diversity for scientific investigation; a source of honey, oils, gums, resins and medicines; and a resource base for education, tourism and recreation and other purposes. Not all forests are necessarily suitable for all types of uses at the same time, yet careful management will ensure that the forests provide multiple benefits in the long term for the Australian community.

Existing forest estate

Native forest is defined as land dominated by trees with an existing or potential mature height of twenty metres or more, including native stands of cypress pine in commercial use regardless of height. The total area of native forest was estimated at 41 million hectares as at 30 June 1991.

Of the 41 million hectares, 6.2 million hectares (15%) are in national parks or on the World Heritage List, 10.9 million hectares (27%) of native forest are on private land, and 30 million hectares (73%) are publicly owned, of which 11.9 million hectares are managed by State forest authorities for various uses, including wood production (table 16.1). A small but increasing area is covered by plantations — 940,000 hectares of mostly radiata pine and 106,000 hectares of hardwood plantations (table 16.2).

16.1 NATIVE FOREST AREAS, BY FOREST TYPE AND OWNERSHIP, AT 30 JUNE 1991 ('000 hectares)

Item	*NSW*	*Vic.*	*Qld*	*SA*	*WA*	*Tas.*	*NT*	*ACT*	*Total*
CLASSIFIED BY FOREST TYPE GROUP									
Rainforest	265	16	1,237	—	—	605	38	—	2,161
Eucalypt productivity(a)									
Class I	1,163	521	205	—	181	459	—	—	2,529
Class II	3,661	4,427	1,290	—	2,502	1,868	—	—	13,748
Class III	7,937	397	3,300	—	—	—	—	51	11,685
Tropical eucalypt and paperbark	—	—	4,078	—	—	—	2,450	—	6,528
Cypress pine	1,696	7	1,686	—	—	—	778	—	4,167
Total	**14,722**	**5,368**	**11,796**	**—**	**2,683**	**2,932**	**3,266**	**51**	**40,818**
CLASSIFIED BY OWNERSHIP									
Public ownership	9,530	4,763	10,304	—	2,188	2,073	839	51	29,748
Category 1(b)	3,253	3,132	3,071	—	1,792	1,042	—	—	12,290
Category 2(c)	3,781	—	6,412	—	51	461	524	—	11,229
Category 3(d)	2,496	1,631	(e)821	—	345	570	315	51	6,229
Private ownership	5,192	605	1,492	—	495	859	2,427	—	11,070
Total	**14,722**	**5,368**	**11,796**	**—**	**2,683**	**2,932**	**3,266**	**51**	**40,818**

(a) Eucalypt forests are grouped into productivity classes in descending order of productivity. No specific indexes of productivity have been developed for these classes and there can be some overlap, especially between States, in the relative productivity levels used to assign particular forest types to productivity classes. (b) Forest land managed for multiple use including wood production. (c) Crown land either vacant or occupied under lease on which wood harvesting is carried out under government control but is not reserved and managed for that purpose. (d) Land on which wood production is excluded (National Parks etc.). (e) Includes 101,500 hectares in World Heritage Area previously included in Category 1.

Source: State and Territory forest services.

Plantations. Commonwealth Government programs have supported the expansion of Australia's plantation resource base for many years.

The National Afforestation Program (NAP) was established in 1987–88 as a three year grants program to stimulate an expansion in the commercial hardwood timber resource and to assist in land rehabilitation through assistance for broadacre commercial plantations (including farm forestry). Priority was given to strategically placed plantations, major land rehabilitation schemes, and related research and demonstration projects. NAP provided $14.7 million in assistance for projects and attracted more than double this contribution ($35 million) from the States and private sector. Of the total 30,000 hectares of hardwood plantations established in Australia during the period that NAP existed approximately 16,000 hectares were established under the NAP program. Under the land rehabilitation component approximately 1,400 hectares were established to tree cover and 3,000 hectares through natural regeneration.

The National Plantations Advisory Committee was established in December 1990 to provide advice to the Commonwealth Government on a national strategy to foster private sector plantation development on cleared agricultural land, particularly hardwood trees. The Committee's report was released in November 1991 and its findings are being considered in the context of a National Forest Policy Statement.

An increased interest in the establishment of eucalypt plantations is evident, particularly in Tasmania. Table 16.2 shows total plantation areas in Australia classified by species.

16.2 PLANTATION AREAS CLASSIFIED BY SPECIES, 31 MARCH 1991
(hectares)

Species group	*NSW(a)*	*Vic.*	*Qld*	*SA*	*WA*	*Tas.*	*NT(b)*	*ACT*	*Aust.*
PUBLIC AND PRIVATE OWNERSHIP									
Coniferous									
Pinus radiata	241,929	208,232	3,360	57,221	97,688	73,149	—	13,786	695,365
Pinus elliottii	5,020	8	(c)78,864	(d)288	—	—	—	—	84,180
Pinus pinaster	25	721	—	28,172	3,036	—	—	—	31,954
Pinus caribaea	104	3	52,935	—	—	—	2,486	—	55,528
Araucaria species	1,631	—	45,543	—	—	—	—	—	47,174
Other	(e)10,673	2,003	8,944	673	364	334	1,801	514	25,306
Total	*259,382*	*210,967*	*189,646*	*86,354*	*101,088*	*73,483*	*4,287*	*14,300*	*939,507*
Broadleaved									
Eucalyptus species	26,429	18,655	1,557	21,360	1,082	32,580	—	—	101,663
Populus species	1,555	196	—	—	—	—	—	—	1,751
Other	1	41	219	—	—	2,700	—	—	2,961
Total	*27,985*	*18,892*	*1,776*	*21,360*	*1,082*	*35,280*	—	—	*106,375*
Total	**287,367**	**229,859**	**191,422**	**107,714**	**102,170**	**108,763**	**4,287**	**14,300**	**1,045,882**

(a) Eucalypt plantation areas previously classified as native forest in table 16.1 are now recorded separately in table 16.2. (b) Since 31 March 1986, plantations on Aboriginal land have been transferred to private ownership and publicly owned plantations are no longer managed for wood production. (c) Includes APM resource which is being liquidated. (d) Includes *Pinus caribaea*. (e) Other coniferous includes *Pinus pinaster* and *Pinus caribaea*.

Source: State and Territory forest services.

Timber and timber products

The woodchip export industry uses timber which is unsuitable for sawmilling and not required by the Australian pulp, paper and reconstituted board industries. Before the advent of the woodchip export industry much of this material was left standing in the forest after logging. Considerable quantities of sawmill waste material, which would otherwise be burnt, are also chipped for local pulpwood-using industries and for export. Until recently, at least 95 per cent of woodchips exported from Australia have been eucalypt but increasing quantities of softwood woodchips are now becoming available from pine plantations.

16.3 TIMBER PROCESSING ESTABLISHMENTS(a): SUMMARY OF OPERATIONS, 1990–91

1983 ASIC(b) code	*Industry description*	*Establishments at 30 June*	*Employment at 30 June(c)*	*Wages and salaries(d)*	*Turnover*
		no.	'000	$m	$m
2531	Log sawmilling	485	9.6	224.7	934.3
2533	Veneers and manufactured boards of wood	76	4.7	146.2	808.7
2537	Hardwood wood chips	12	0.7	28.6	339.2

(a) Data in this table exclude the operations of single establishment businesses with less than four persons employed. (b) Australian Standard Industrial Classification. (c) Includes working proprietors. (d) Excludes the drawings of working proprietors.
Source: Manufacturing Industry, Australia (8221.0).

16.4 PRODUCTION OF TIMBER AND SELECTED TIMBER PRODUCTS(a)

Item	*Quantity*	*1988–89*	*1989–90*	*1990–91*	*1991–92*
Sawn Australian grown timber(b)	'000 cu m	3,225	3,172	2,685	2,846
Woodchips (green weight)					
Hardwood (broad leaved)	'000 tonnes	n.a.	r5,169	r5,019	4,839
Softwood	'000 tonnes	n.a.	718	r960	1,307
Particle board(c)	'000 cu m	n.a.	768	625	644
Wood pulp					
Mechanical	'000 cu m	438,775	430,665	428,464	427,962
Other	'000 cu m	597,160	599,711	593,374	591,202
Paper and paperboard					
Newsprint	tonne	401,269	383,657	394,990	403,728
Tissue and sanitary papers	tonne	n.p.	163,072	r133,800	n.p.
Graphic	tonne	n.a.	n.p.	n.p.	331,541
Other paper and paperboard	tonne	n.a.	r766,690	777,407	806,770

(a) Excludes production of small single establishment enterprises with fewer than four persons employed and establishments engaged in non-manufacturing activities but which may carry on, in a minor way, some manufacturing. (b) Source: Australian Bureau of Agricultural and Resource Economics. (c) Particle boards and similar boards of wood or other ligneous material. Excludes laminated.
Source: Manufacturing Production, Australia: Building Materials and Fittings (8361.0) and Manufacturing Production, Australia: Wood and Wood Products (8369.0).

Government administration

Land management is primarily the responsibility of State and Territory Governments. Each State has a forest authority responsible for the management and control of publicly-owned forests, in accordance with the Forestry Acts and Regulations of the State or Territory concerned.

The Department of Primary Industries and Energy (DPIE) and the Department of the Arts, Sport, the Environment and Territories (DASET) are the two key agencies responsible for forest management at the national level. Close liaison is maintained between the two agencies on relevant issues. DPIE's main responsibilities are the development of a national approach to forest management; providing advice to the Commonwealth Minister responsible for forest matters; administration of export licensing responsibilities in relation to unprocessed timber; liaison with State, national and international organisations concerned with forestry; provision of a Secretariat for the Australian Forestry Council; and management of policy and program initiatives.

DASET also has significant direct responsibilities for forest matters. DASET advises its Minister and the Government on policy for the conservation and ecologically sustainable development of Australia's forests.

DASET's Environment Program manages and develops forest policy through a range of sub-programs including national forest strategies, biological diversity, climate change, international forest and environmental economics. The Australian Heritage Commission, the Australian National Parks and

Wildlife Service and the Commonwealth Environmental Protection Agency (government administrative bodies within DASET) undertake assessment, management and monitoring roles in respect to Australia's forests.

DPIE and DASET, in close cooperation with the State, Territories and Ministerial Councils, have been extensively involved in the development of the ecologically sustainable development working group on forest use report, the National Forest Policy Statement and the National Forest Inventory.

The Australian Forestry Council (AFC) consists of State, Territory, Commonwealth and New Zealand Ministers responsible for forests. The Commonwealth Minister for Resources is the chairman of the Council. Since its formation in 1964, the Council has worked to provide leadership and facilitated cooperation at the national level.

Initiatives fostered by the AFC are aimed at promoting the enhanced management of the nation's forest resource in the general interest of the community. Most recently it has been involved in the development of a National Forest Policy Statement in cooperation with the Australian and New Zealand Environment and Conservation Council.

Commonwealth government initiatives

The National Forest Policy Statement has been developed under the joint auspices of the Australian Forestry Council and the Australian and New Zealand Environment and Conservation Council, with ongoing consultation with industry and the conservation and trade union movements. The Statement is a response to three major reports on forest issues: the Resource Assessment Commission Forest and Timber Inquiry (released in March 1992); the Ecologically Sustainable Development Working Group on Forest Use; and the National Plantations Advisory Committee. A draft Statement was released in July 1992 for public comment.

The Statement outlines a shared vision for Australia to be a world leader in the ecologically sustainable management and use of its forest estate. Important aspects of this vision are for Australia to have an extensive forest estate, to protect forest conservation values, to increase the size and the productivity of the plantation base, and to develop an internationally competitive and ecologically sustainable forest products industry.

To achieve this vision and ensure the community obtains a balanced and equitable return from all forest uses, a number of national goals are proposed, specifically:

- maintenance of a permanent native forest estate and conservation of a range of non-commercial forest values including biological diversity, heritage, Aboriginal and other cultural values;
- development of a dynamic, internationally competitive, and ecologically sustainable wood production and forest products industry that can maximise efficient use of wood resources, develop value adding industries and generally improve industry productivity and create sustained employment and economic matters;
- improving the land use decision making processes by reducing fragmentation and duplication between the States and the Commonwealth;
- ensuring private native forests are maintained and managed in an ecologically sustainable manner as part of the permanent native forest estate, as a resource in their own right, and to complement the commercial and nature conservation values of public native forests;
- increasing the extent of plantings of softwood and native hardwoods to provide an additional, reliable, high quality wood resource and in some cases to rehabilitate degraded farmland and improve water quality;
- ensuring availability of high quality supplies from forest land and protection of catchment values;
- fostering community understanding of and support for ecologically sustainable forest management and providing opportunities for effective public participation in decision making;
- managing forests in an ecologically sustainable manner for a range of uses including tourism and recreation and for the creation of employment opportunities;
- increasing the national forest research and development effort and ensuring that it is well coordinated, efficiently undertaken and effectively applied; and

- promoting nature conservation and sustainable utilisation of forest outside Australia and ensuring that Australia fulfils its obligations under relevant international agreements.

The One billion trees (OBT) Program is designed to encourage community participation and involvement in vegetation establishment and retention projects.

The program was initiated by the Commonwealth Government in 1989 as part of the Landcare initiative. It is the Commonwealth Government's principal vegetation management program. The OBT Program was designed with the primary aim of having a billion more trees established around Australia by the year 2000.

The Commonwealth, through the Australian National Parks and Wildlife Service, has provided $4,300,000 for 1992–93 to Greening Australia, a non-profit community-based organisation to implement most of the OBT Program. State and Territory Greening Australia staff provide technical information, advice and practical support to help individuals and groups to develop community-based landcare and conservation activities.

Greening Australia conducts school based and community education projects to develop a knowledge and understanding of the processes of vegetation decline, land degradation and remedial vegetation management.

The Australia-wide network of Greening Australia staff and volunteers conduct trials and demonstrations on how to establish and sustain vegetation, how to develop seed banks and collect seed from local species, conduct species trials, and coordinate major revegetation projects.

To provide a further incentive for community groups to become involved in the OBT Program, the Commonwealth has provided $900,000 for 1992–93 for cooperative projects involving revegetation for land and nature conservation. Projects that may attract assistance include wildlife habitats and corridors, shelterbelts and livestock havens, species trials, seed collection, preservation of remnant vegetation, beautification and amenity planting, and land degradation control and prevention. Emphasis is placed on community involvement and self-help, and on maximising the extent of community benefit. The program is closely linked to the Save the Bush program with a number of projects attracting funding from both programs.

National forests inventory. In many of the debates over forest management, the information base on forest attributes, such as timber, fauna and flora, has been found to be incomplete. Accordingly in late 1988, the Government initiated a National Forest Inventory (NFI).

Achievements to-date in the NFI include: the development of a strong relationship with the State partners in the program, the progressive development of uniform data standards, a continental overview of forests and the development of regional scale inventories in priority areas. In addition, NFI data is being used to assist in the preparation of national forest reports, environmental impact statements and local management plans.

In mid-1992, representatives of governments developed a new Strategic Plan identifying the focus, priorities and expected results of the NFI cooperative effort over the next three years. The further development of regional datasets are key elements of the Plan. They will compliment the NFI's continental scale inventory by providing detailed information on a range of forest attributes, including forest types, ownership, topography, geology, fauna and flora.

A comprehensive information base will lead to more informed discussion and decision making about the future of our forests by identifying and describing forest communities and their current conservation status, and information to enable the planning of efficient sustainable forest utilisation.

Tropical forests. Over half of the world's known plant and animal species are found in rainforests. Rainforests are the traditional home of many tribal peoples and also play an important role in contributing to global climatic stability. However, destruction of tropical forests in developing countries is occurring because of activities largely associated with population pressures and poverty. The clearing of land for agricultural purposes and inadequate or inappropriate forestry management practices are major concerns.

As a developed country which has already taken measures to conserve its own remaining

tropical forests, Australia can make a positive contribution to the improvement of forest management practices in developing countries, by providing education, training and technical expertise.

In June 1992 the Commonwealth Government announced its policy on international trade in tropical timber. A key aspect of the policy is a commitment to the Year 2000 target set by the International Tropical Timber Organisation by which trade in tropical timber products should be derived from sustainably managed forests. Other aspects of the policy include support for the protection of biodiversity, reforestation through agroforestry and plantations, and the provision of technical and scientific assistance to other countries — largely in the Asia–Pacific region — to promote better forest management practices.

The policy measures will complement initiatives arising from the Rio Earth Summit including the Conventions on Climate Change and Biodiversity, Agenda 21 and The Statement of Principles on Forests.

Pulp mill guidelines. In December 1989 the Commonwealth established environmental guidelines for the development of new bleached eucalypt kraft pulp mills. To ensure the effective implementation of the Commonwealth guidelines and to streamline approval processes, the Commonwealth has concluded agreements with Tasmania, Western Australia and Victoria. These agreements make provision for the review of the guidelines to be brought forward if a major new mill was about to be considered and there have been commercially proven major new advances in pulping and bleaching technology.

To ensure that the Commonwealth guidelines remain current with global developments in pulping and bleaching technologies, the Government also announced in December 1989 the establishment of a National Pulp Mills Research Program (NPMRP). The NPMRP is a cooperative venture involving the Commonwealth Government and State Governments, community interest groups, industry and the CSIRO. The Program has as its principal objectives: expansion of basic knowledge in pulping of eucalypt woods and bleaching of the pulps, improving the currently available technology and developing more relevant and superior biological monitoring systems for the receiving waters.

The NPMRP has already commenced preparatory work towards reviewing the Commonwealth guidelines which will effectively begin in 1993. It is envisaged that the review will be completed in December 1994. This review will consider the issue of the appropriateness of the kraft technology for the Australian industry in the light of recent global developments, as well as the expansion of the scope of the guidelines to include emergent technologies. The review process will draw heavily on the results from research projects commissioned by the NPMRP, as well as continuing advances in global research and development in pulping and bleaching technology.

Research

The National Forest Policy Statement provides for the establishment of a Forest and Wood Products Research and Development Corporation by the Commonwealth Government in partnership with the forest industries. Its charter will be to identify priorities and to commission, administer and subsequently evaluate research into a broad range of issues relating to wood production, extraction, processing, economics and marketing.

Commonwealth Scientific and Industrial Research Organisation (CSIRO) forestry research is conducted primarily within the Division of Forestry and the Division of Forest Products. The emphasis is on strategic research concerned with the commercial production and processing of wood from both native eucalypt forests and plantations of eucalypts and softwoods.

The Division of Forestry is centred in Canberra with stations in Hobart, Mount Gambier and Perth. The Cooperative Research Centre for Temperate Hardwood Forestry is co-located with the Division in Hobart. The Division of Forest Products is based at Clayton, Melbourne.

Research is conducted in programs which are closely aligned to major forest resources and industry sectors: Softwood Plantations, Hardwood Plantations, Regrowth Forest Management, Australian Tree Resources, Paper and Paper Products, Composites and Chemical Products, Biodeterioration and Preservation and Wood Science and Technology. Prominent academic disciplines are tree physiology,

nutrition, genetics, chemistry and engineering. CSIRO scientists have contributed to the formulation of guidelines for new bleached kraft eucalypt pulp mills.

Australia's trade deficit in forest products is $1.4 billion per year; reducing this deficit is a major target of governments, industry and research organisations. Sustained high production has long been a major goal of forestry research and plantations and regrowth of better native eucalypt forests are a focus of attention. Both types of forest will be important to meet national needs for pulp and paper.

FISHING

Fisheries resources

Australia's fisheries stocks are extremely diverse but, by world standards, its marine ecosystem is relatively unproductive. The Australian Fishing Zone covers an area 16 per cent larger than the Australian land mass and is the third largest fishing zone in the world. However, Australia's fish production is insignificant by world standards. This reflects low productivity of the oceans rather than under-exploitation of the resource.

Over 3,000 species of marine and freshwater fish occur in and around Australia and at least an equal number of crustacean and mollusc species. Despite this, less than 100 of these are commercially exploited. Australia's major commercially exploited species are prawns, rock lobster, abalone, tuna, other fin fish, scallops, oysters and pearls. Australian fishing operators concentrate their efforts on estuarine, coastal, pelagic (surface) species and demersal (bottom living) species that occur on the continental shelf.

The level of fishing effort exerted by the fishing fleet has increased rapidly over the last decade to the point where almost all the major known fish, crustacean and mollusc resources are fully exploited. Some major fisheries such as southern bluefin tuna, gemfish and shark have suffered serious biological depletion.

Australia has enjoyed a relatively long history of success in the farming of the Sydney rock oyster. Pearl culture operations and ornamental fish farming are well established. The production of juveniles of several species of fin fish, molluscs and crustaceans has been undertaken for some years, initially for restocking wild populations and subsequently for grow-out operations. As in many other developed countries, there has been a surge of interest and investment in many types of aquatic farms over the last decade. Notable successes are the salmonid industry in Tasmania and commercial cultivation of the Pacific oyster, blue mussel and rainbow trout.

Developmental work is active in a number of areas such as barramundi, freshwater crayfish (yabbies and marron), prawns, mussels and algae and research is continuing into the hatchery rearing of species such as abalone, scallops, giant clams, flat and pearl oysters. Over half of the established aquaculture output by value goes to markets other than for direct consumption. However, the newer emerging industries are producing mainly food. Although the responsibility for aquaculture is invested with the fisheries authorities in each State or Territory, the Federal Government is developing a national strategy to provide for the orderly development of Australian aquaculture.

Production, processing and exports and imports of fisheries products

Value of fisheries production. Table 16.5 shows the gross value of the Australian commercial fishing industry. As the value of materials used in the course of production is not available, it is not possible to show net values. Gross value of production is the value placed on recorded production at the wholesale price realised in the principal markets. In general, the principal markets are the metropolitan markets in each State, although, in cases where commodities are consumed locally or where they become raw material for a secondary industry, these points are presumed to be the principal markets.

The gross value of fisheries production in 1991–92 is estimated to have been $1,289 million, a seven per cent rise on the production of the previous year. The types of seafood which have increased substantially in value include rock lobster, tuna and scallops. The main factor behind the increase in the value of tuna was the increase in the proportion of tuna caught by long-lining for the high value Japanese sashimi market.

16.5 GROSS VALUE OF FISHERIES PRODUCTION
($ million)

Period	*Value*	*Period*	*Value*
1974–75	108	1983–84(a)	449
1975–76	146	1984–85(a)	522
1976–77	206	1985–86(a)	635
1977–78	233	1986–87(a)	702
1978–79	279	1987–88(a)	828
1979–80	326	1988–89(a)	1,022
1980–81	330	1989–90(a)	1,092
1981–82(a)	344	1990–91(a)	1,202
1982–83(a)	423	1991–92(a)	1,289

(a) Estimates provided by the Australian Bureau of Agricultural and Resource Economics and the Australian Fisheries Service.

16.6 GROSS VALUE OF SELECTED MAJOR FISHERIES CATEGORIES
($ million)

	1988–89	*1989–90*	*1990–91*	*1991–92*
Prawns	274	226	263	226
Rock lobster	280	245	277	340
Tuna	19	66	57	114
Other fin fish(a)	215	278	270	264
Abalone	86	91	91	91
Scallops	21	26	42	48
Oysters	41	35	43	43
Pearls	65	96	129	133
Other(b)	22	30	31	30
Total	**1,022**	**1,092**	**1,202**	**1,289**

(a) For human consumption (excludes aquaculture). (b) Other aquaculture not elsewhere included.
Source: Australian Bureau of Agricultural and Resource Economics.

16.7 AUSTRALIAN FISHERIES PRODUCTION(a)
(tonnes)

	1989–90	*1990–91*	*1991–92p*
Fish			
Tuna	8,206	11,353	12,573
Other	120,930	145,199	127,359
Total	*129,136*	*156,552*	*139,932*
Crustaceans			
Prawns	23,316	28,986	24,530
Rock lobster	15,734	14,369	17,500
Other	3,228	3,773	3,775
Total	*42,278*	*47,128*	*45,805*
Molluscs			
Abalone	5,132	5,152	5,025
Scallops	6,304	14,453	17,290
Oysters	6,620	9,267	9,293
Other	4,002	3,607	3,410
Total	*22,058*	*32,479*	*35,018*
Total quantity	**193,472**	**236,159**	**220,755**

(a) Includes estimated value of aquaculture production but excludes inland commercial fisheries.
Source: Australian Bureau of Agricultural and Resource Economics.

16.8 COMMONWEALTH FISHERIES PRODUCTION
(tonnes)

	1989–90	*1990–91*	*1991–92p*
Northern prawn			
Prawn			
Tiger	3,333	3,364	3,874
Banana	2,541	6,987	2,331
Endeavour	978	727	915
King	106	109	81
Total	*6,957*	*11,187*	*7,202*
Torres Strait			
Prawn			
Tiger	374	674	513
Endeavour	415	933	698
King	21	57	42
Other	5	9	7
Total	*816*	*1,673*	*1,260*
Tropical rock lobster	211	171	161
Spanish mackerel	114	106	102
Total	*1,141*	*1,950*	*1,523*
Other fisheries(a)	310	355	420
South east			
Orange roughy	37,901	33,111	18,478
Jackass morwong	1,038	1,053	809
Tiger flathead	2,275	2,120	2,127
Gemfish	1,594	1,120	325
Blue grenadier	1,372	3,347	2,700
Ocean perch	1,890	156	168
School whiting	1,563	1,840	990
Ling	581	720	506
Redfish	763	1,007	1,216
Mirror dory	460	297	198
Tasmanian trevalley	503	1,043	1,254
Other	4,690	6,522	5,823
Total	*54,630*	*52,337*	*34,594*
Great Australian Bight			
Orange roughy	1,712	959	423
King flathead	356	365	503
Gemfish	12	27	31
Bight redfish	143	172	262
Jackass morwong	38	32	32
King dory	9	1	1
Blue grenadier	16	1	1
Spiky oreo	8	1	1
Ling	8	1	2
Squid	11	14	32
Other	216	571	883
Total	*2,529*	*2,144*	*2,173*
Southern shark			
School and gummy	3,300	3,000	2,600
Other	400	300	300
Total	*3,700*	*3,300*	*2,900*
East coast tuna			
Yellowfin	532	569	570
Southern bluefin	4	8	8
Albacore	62	86	90
Bigeye	57	14	20
Billfish	26	36	30
Skipjack	1	—	—
Other fish	n.a.	283	280
Total	*682*	*997*	*998*

For footnotes *see* end of table.

16.8 COMMONWEALTH FISHERIES PRODUCTION — *continued*
(tonnes)

	1989–90	*1990–91*	*1991–92p*
East coast purse seine			
Yellowfin	10	40	40
Skipjack	2,138	6,000	6,000
Total	*2,148*	*6,040*	*6,040*
Southern bluefin tuna			
Domestic	4,200	3,059	2,395
Joint venture	793	941	2,070
Other	n.a.	44	800
Total	*4,993*	*4,043*	*5,265*
Total production	**77,090**	**82,353**	**61,115**

(a) Includes North West Slope and Kimberley Coast prawn fisheries.
Source: Australian Bureau of Agricultural and Resource Economics.

Processing of fish, crustaceans and molluscs. There is very little value added processing of fish products in Australia. Processing establishments vary in size, scope of operations and sophistication of technologies employed. The majority of establishments undertake only the most basic cleaning, filleting, packing and freezing processes, but others have the capacity for significant product transformation.

Fish, crustaceans and molluscs intended for export are processed in establishments registered under the Export (Fish) Regulations. Edible fish for local consumption is mainly dispatched fresh-chilled to markets.

Exports and imports. Exports of fisheries products comes under Commonwealth jurisdiction, while domestic market activity comes under that of the corresponding State or Territory.

A significant proportion of Australian fisheries production is exported. In 1991–92 the value of exports was $830 million and this amounted to approximately 64 per cent of the total value of Australian production. The Australian fisheries export industry depends on a limited range of products sold on a few major markets and in 1991–92 exports to Japan and the United States accounted for about 60 per cent of the value of all exports. In 1991–92 the most valuable exports included rock lobster ($378 million), prawns ($143 million) and abalone ($129 million).

16.9 DESTINATION OF AUSTRALIAN FISHERIES EXPORTS

	1989–90		*1990–91*		*1991–92*	
Country	*$m*	*%*	*$m*	*%*	*$m*	*%*
Japan	296	44.0	356	49.4	347	41.9
USA	168	24.9	129	18.0	161	19.4
Taiwan	62	9.3	73	10.1	141	16.9
Hong Kong	61	9.0	71	9.9	91	10.9
Spain	32	4.8	35	4.9	21	2.5
Singapore	23	3.4	18	2.4	21	2.5
France	3	0.4	3	0.5	9	1.1
Thailand	4	0.5	8	1.2	6	0.7
Saudi Arabia	—	0.1	1	0.1	6	0.7
Malaysia	1	0.1	1	0.2	5	0.6
Other	23	3.5	24	3.4	22	2.7
Total	**674**	**100.0**	**720**	**100.0**	**830**	**100.0**

Source: ABS Foreign Trade statistics.

In the same period, Australia imported $475 million of seafood, 37 per cent of which came from Thailand and New Zealand. The most valuable categories of seafood imported included prawns from Thailand ($40 million), canned fish from Canada ($32 million) and frozen fish fillets from New Zealand ($24 million).

16.10 SOURCE OF AUSTRALIAN FISHERIES IMPORTS

	1989–90		*1990–91*		*1991–92*	
Country	*$m*	*%*	*$m*	*%*	*$m*	*%*
Thailand	74	17.4	83	18.6	92	19.4
New Zealand	63	14.8	70	15.6	82	17.3
Canada	41	9.7	35	7.8	36	7.6
Malaysia	29	6.8	39	8.8	32	6.8
USA	28	6.6	22	4.8	25	5.3
Japan	27	6.4	25	5.6	22	4.6
Chile	16	3.7	16	3.5	16	3.3
Vietnam	11	2.7	13	2.8	15	3.2
Korea, Republic of	16	3.8	12	2.7	14	2.9
Indonesia	8	1.9	15	3.4	13	2.8
Other	112	26.3	118	26.4	127	26.7
Total	**425**	**100.0**	**447**	**100.0**	**475**	**100.0**

Source: ABS Foreign Trade statistics classified to SITC Rev3. Division 03.

Fisheries legislation and territorial arrangements

The Commonwealth Parliament has enacted a number of laws dealing with fisheries in Australian waters beyond territorial limits, and has fishing agreements and arrangements with a number of other countries.

The fisheries laws of the States and the Northern Territory apply to all kinds of fishing within the territorial sea and inland waters. These laws require the licensing of persons and boats in the commercial fisheries and provide a range of other regulatory powers.

In July 1992 Australia ratified the Convention on Prevention of Fishing with Long Driftnets in the South Pacific Region.

The Australian Fishing Zone and foreign fishing. Establishment of a 200 nautical mile Australian Fishing Zone (AFZ) in 1979 covering a total of 8.9 million square kilometres, brought portions of oceanic tuna stocks, and demersal and pelagic fish stocks previously exploited by foreign fishing vessels, under Australian control.

Australia has an international obligation under the Law of the Sea Convention, to allow foreign nations access to resources within the AFZ that are surplus to domestic fisheries requirements and where such access does not conflict with Australian management and development objectives.

Licensed vessels are currently permitted to operate in Australian waters either under bilateral agreements or joint venture arrangements with foreign governments or fishing companies/organisations.

Following the introduction of controls on the length of gillnets which can be used, foreign pelagic gillnet operations have ceased. Japan is permitted, under agreement, to long-line, principally for tuna, off certain areas of Australia. Negotiations between Australia, New Zealand and Japan have resulted in an agreed total quota for southern bluefin tuna for 1991–92. These negotiations are a continuing attempt to arrest the depletion of the resource.

In February 1990 the Governments of Australia and the Soviet Union signed a fisheries cooperation agreement which provides a framework for fishing to take place under subsidiary agreements. The agreement also establishes principles under which port access by Soviet trawlers for repairs, revictualling, refuelling and landing of catch might be authorised. Two joint venture operations were established in December 1991 involving one

Russian and one Ukrainian vessel to operate outside the AFZ and land fish in Australia.

Whales are a protected species in the Australian Fishing Zone.

Fisheries Act 1952. This Act applies to commercial fishing for swimming species by Australians in waters extending from 3 to 200 nautical miles seaward of the territorial sea baseline of Australia and external territories excluding the territorial sea of another country, and by foreign boats in the 200 nautical mile AFZ. The AFZ extends 200 nautical miles seaward of the territorial sea baseline of Australia and the external Territories but does not include waters adjacent to Australia's Antarctic Territory or waters exempted from the AFZ by proclamation under section 7A of the Act.

Australia has made maritime delimitation agreements with Indonesia, Papua New Guinea, the Solomon Islands and France. Australia has yet to make a marine delimitation with New Zealand. There are proclamations in force under section 7A of the Act for all overlappings of the AFZ with neighbours' exclusive fishing zones, whether or not Australia has made a delimitation agreement with the country concerned.

This Act requires the holding of licences and empowers the Minister to prohibit fishing activities as necessary for the conservation of resources and the management of the fisheries. The Fisheries Act authorises the publication of management plans having the force of law in relation to particular fisheries.

In recent years, most domestic fisheries have been subject to biological and economic pressure due to increased effort. In 1985 the Commonwealth Fisheries Act was amended to allow formal management of Commonwealth fisheries. Since then major elements in management policy have included:

- quotas;
- catch restrictions;
- limited entry arrangements;
- boat replacement policy;
- seasonal and periodic closures and gear restrictions;
- voluntary unit buy-back schemes;
- permanent closure of nursery grounds;
- long-term freeze on licence transfers;
- research into sustaining long-term biologically viable fisheries; and
- international management agreements.

Legislation was passed by the Australian Government in 1991 to establish the Australian Fisheries Management Authority (AFMA) to manage federal fisheries.

Refer to *Year Book Australia 1990* for a detailed account of the following Acts: *Continental Shelf (Living Natural Resources) Act 1968; Torres Strait Fisheries Act 1984; Foreign Fishing Boats Levy Act 1981; Fisheries Agreements (Payments) Act 1981;* and *Fisheries Levy Act 1984.*

Research

The main aim of fisheries research in Australia is to provide a background of biological, technical and economic information which will provide guidance for the efficient and sustainable utilisation of fisheries resources. To this end much of the research already undertaken has been directed at formulating recommendations for management of various fisheries. Research work, including feasibility fishing projects involving foreign fishing vessels, is also carried out and is expected to lead to the development of new fisheries, the expansion of under-exploited fisheries, greater economy in operations and the use of more efficient equipment and methods.

The Fisheries Development Trust Account (established under the *Fishing Industry Act 1956*) and the Fishing Industry Research and Development Trust Fund (established under the *Fishing Industry Research and Development Act 1987*) are available to support, financially, projects for the development and management of the fisheries and fishing industry which are consistent with the purposes of those Acts. The former was established with the proceeds of the sale of the assets of the Australian Whaling Commission and is funded by annual Commonwealth appropriation. The latter is a matching fund into which is paid each year an appropriation from Commonwealth government revenue. Total Commonwealth funds are linked to amounts collected from the fishing industry by the State Fisheries Authorities and paid into appropriate State research accounts for the same purpose. Priority areas for research and development include resource assessments, fish diseases and toxins, post-harvest activities, economics and marketing and management of the environment.

Organisations in Australia at present engaged in research into fisheries matters are:

- CSIRO Division of Fisheries Research, which has its headquarters and main laboratory at Hobart, Tasmania, and regional laboratories in Western Australia and Queensland (fisheries science);
- CSIRO Division of Oceanography, which has its headquarters and laboratory at Hobart, Tasmania;
- CSIRO Division of Food Research, conducts research into handling, storage, processing and transportation of fish at its laboratory in Hobart, Tasmania;
- The Australian Fisheries Service, Department of Primary Industries and Energy, Canberra;
- Bureau of Rural Resources, Department of Primary Industries and Energy, Canberra;
- Australian Bureau of Agricultural and Resource Economics, Department of Primary Industries and Energy, Canberra;
- State fisheries departments (research vessels are operated by all States);
- Great Barrier Reef Marine Park Authority (GBRMPA) located in Townsville and Canberra universities; and
- Private fishing companies (surveys of fisheries resources, research into handling, processing and marketing).

BIBLIOGRAPHY

ABS Publications

There are no ABS publications devoted to forestry and fishery statistics for Australia as a whole, although there are some State based publications. Forestry and fishery statistics are available in publications on broader subjects or in unpublished ABS data, which can be obtained on request.

Manufacturing Industry: Summary of Operations, Australia (8202.0)

Manufacturing Production, Australia: Building Materials and Fittings (8361.0)

Manufacturing Production, Australia: Wood and Wood Products (8369.0)

Other Publications

AUSTRALIAN BUREAU OF AGRICULTURAL AND RESOURCE ECONOMICS. Agriculture and Resources Quarterly (various issues)

AUSTRALIAN BUREAU OF AGRICULTURAL AND RESOURCE ECONOMICS. Australian Fisheries Statistics 1992

DEPARTMENT OF PRIMARY INDUSTRIES AND ENERGY. AUSTRALIAN FISHERIES SERVICE, Australian Fisheries

FOR MORE INFORMATION

The ABS has a far wider range of information on Australia than that contained in the *Year Book*. Information is available in the form of regular publications, electronic data services, special tables and from investigations of published and unpublished data.

For further information contact ABS Information Services at one of the addresses listed on the page facing the Introduction to the *Year Book*.