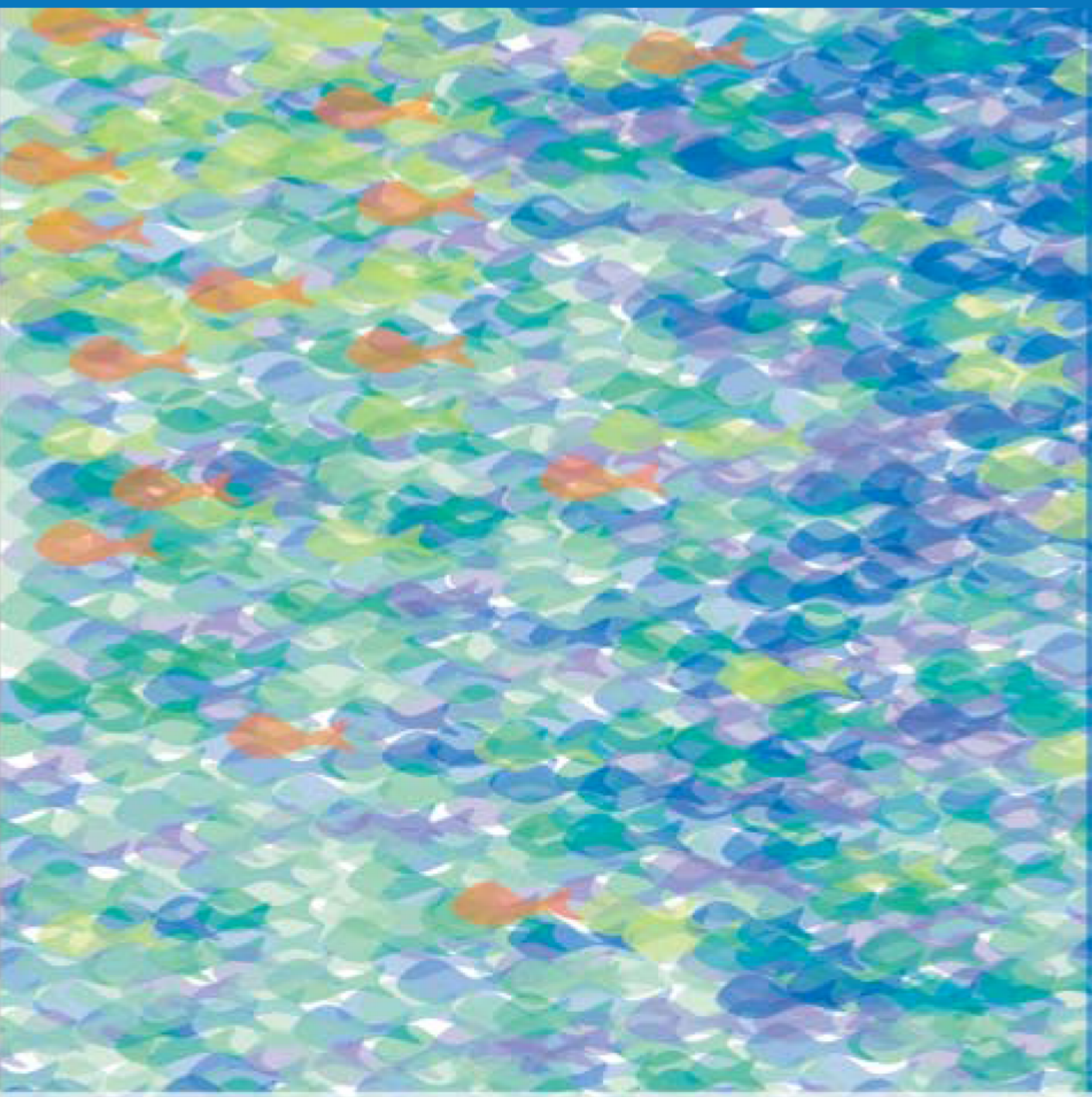

Department of AGRICULTURE FISHERIES & FORESTRY - AUSTRALIA

NATIONAL AQUACULTURE DEVELOPMENT COMMITTEE

AQUACULTURE INDUSTRY ACTION AGENDA

DISCUSSION PAPER

JUNE 2001

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This paper was prepared by Matthew Dadswell, Aquaculture Action Agenda Taskforce, Commonwealth Department of Agriculture, Fisheries and Forestry – Australia (AFFA) on behalf of the National Aquaculture Development Committee.

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Disclaimer

The purpose of this discussion paper is to stimulate discussion on a range of issues during the development of the Aquaculture Action Agenda. Accordingly, the views and opinions expressed in this discussion paper do not necessarily reflect those of the National Aquaculture Development Committee or Commonwealth Government, Ministers or their Departments.

Comments on any aspect of this paper are welcome and can be sent to:

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This paper and other information can be accessed from the Aquaculture Action Agenda website at:
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Printed copies of the Discussion Paper may be requested by contacting the Aquaculture Action Agenda Taskforce at the above addresses.

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FOREWORD

The Australian aquaculture industry has great potential. Since 1991 the industry has grown in value by an average of 13 per cent per year. While it has performed well to date, there are impediments that are affecting the industry's growth. There are also significant opportunities. How industry and governments address these impediments and opportunities over the next couple of years will be the difference between stagnation or growth, small-scale industry or world competitive producer.

The announcement of an Aquaculture Action Agenda last year marked a key point in the development of the Australian aquaculture industry. It was recognition that the aquaculture industry has become an industry of national importance. It also recognised that future industry growth will require the cooperation of industry and governments at a national level.

The aim of an Action Agenda is to identify impediments to growth for specific industry sectors and to remove them, to find out where the opportunities lie and to take advantage of them. Action Agendas are about industry and government doing a better job using existing resources.

The opportunity for growth that this Action Agenda provides our industry is tremendous. I urge you to join the National Aquaculture Development Committee and myself in making the most of this opportunity.

Brian Jeffriess
Chair
National Aquaculture Development Committee

1 INTRODUCTION

This discussion paper has been prepared to assist the aquaculture industry and public to participate in the development of the Aquaculture Action Agenda.

A National Aquaculture Development Committee (NADC) was established last year to advise the aquaculture industry and Commonwealth Government on development of the Aquaculture Action Agenda (refer Appendix 1).

The NADC has identified the major opportunities and impediments to the industries future growth. These opportunities and impediments are described in this discussion paper.

A draft Action Agenda will be prepared by the NADC and the Commonwealth Government, based on comments and recommendations made by industry participants and other stakeholders on the issues raised in this discussion paper.

The NADC and Commonwealth Government are aiming to finalise the Aquaculture Action Agenda by the end of 2001. The final Action Agenda will identify key actions to deliver growth and who will undertake them. The key actions will then be implemented over the following two to three years.

1.1 Objective

The objective of the Aquaculture Action Agenda is to move the Australian aquaculture industry to a higher and sustainable growth path by:

- increasing productive investment;
- expanding market access;
- maximising the benefits of research and innovation;
- improving the competitiveness of Australian aquaculture businesses;
- building long-term ecological sustainability;
- delivering an efficient business environment;
- building industry cohesion; and
- promoting the aquaculture industry.

1.2 Scope

The objective will be achieved by:

- undertaking a strategic analysis of industry's competitive position;
- developing an agreed industry "Vision" including objectives for industry growth to 2010;
- identifying impediments and opportunities to the industry's sustainable growth;
- developing a set of actions, allocating responsibilities and setting a timetable.

1.3 Definition

Aquaculture is defined as "The farming of aquatic organisms including fish, molluscs, crustaceans and aquatic plants, with some sort of intervention in the rearing process to enhance production, such as regular stocking, feeding, protection from predators, etc. Farming also implies individual or corporate ownership of the stock being cultivated (FAO 1989)."

The aquaculture industry in Australia encompasses producers, processors, marketers and support services, such as equipment manufacturers, suppliers and feed manufacturers.

Its production involves the breeding, hatching, rearing and processing for sale of aquatic organisms including fish, molluscs, crustaceans and aquatic plants.

2 THE SUCCESS STORY OF AUSTRALIAN AQUACULTURE

2.1 Introduction

Aquaculture commenced in Australia in the late 1800s with the successful introduction of trout from the northern hemisphere and cultivation of the native Sydney rock oyster. The industry remained centred on these two species until the 1950s when the first cultured pearl farm was established in north-western Australia.

A new wave of aquaculture development began in the 1980s with the beginning of the Atlantic salmon industry in Tasmania and commercial cultivation of native freshwater finfish, freshwater crayfish, prawns and Pacific oysters.

The value of aquaculture production increased significantly in the 1990s based on increased production and processing of Pacific oysters, prawns, Atlantic salmon, pearls and southern bluefin tuna.

2.2 Production and value

Today aquaculture is established throughout Australia. While over 40 species are being produced commercially, five main species — pearls, oysters, salmon, prawns and tuna — account for over 85 per cent of the gross value of production (Fig. A). The species that are cultured vary widely between regions, mainly reflecting different climatic conditions (Fig B).

Fig. A: Australian aquaculture species by value – 1999/00

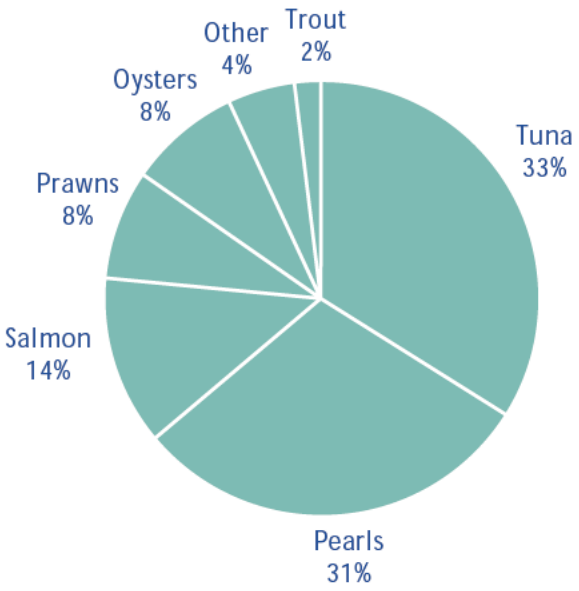
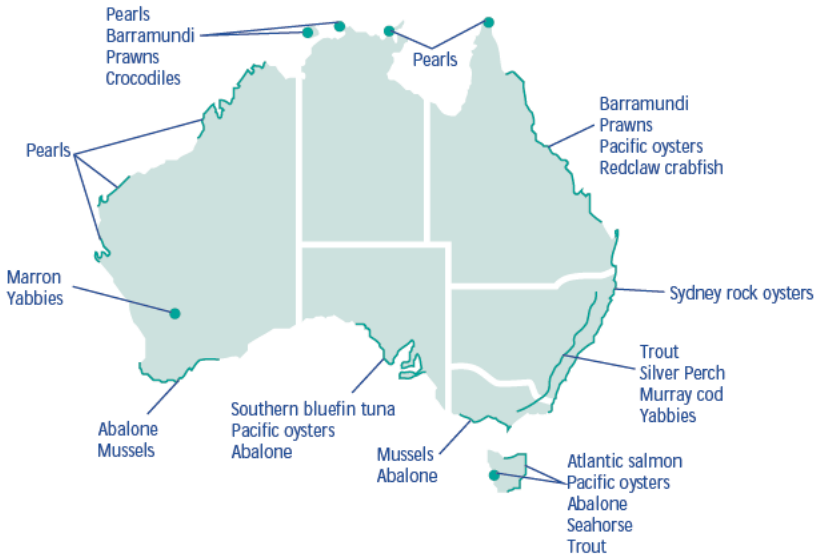
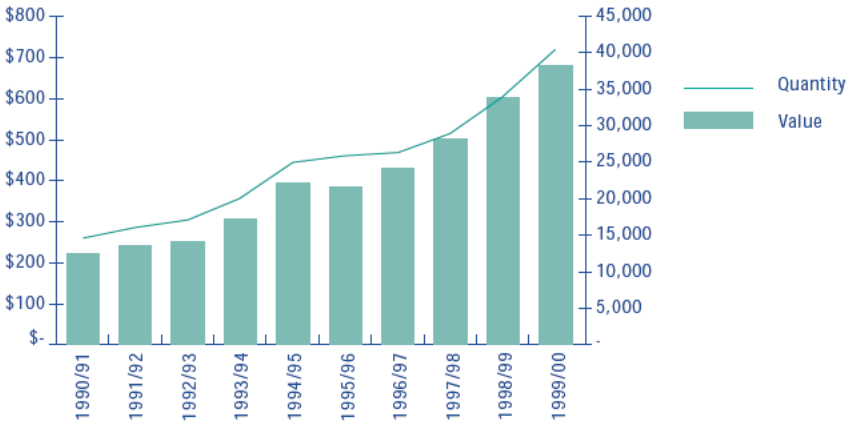


Fig. B: Location Of Major Australian Aquaculture species



The gross value of Australian aquaculture production was estimated to be worth over $678 million in 1999/00. Value of production has grown 12 per cent in the last year and at an average of 13 per cent per year since 1990/91 (ABARE 2001) (Fig C).

Fig. C: Australian aquaculture production: 1990/91 - 1999/00



Source: ABARE 2001

In 1999/00, aquaculture production constituted approximately 29 per cent of the total annual value of Australian fisheries production. About 95 per cent of Australia's aquaculture production and businesses are situated in marine coastal areas and estuaries along the Australian coastline. The remaining five per cent of production is located inland, in ponds, dams, raceways and tanks using saline and fresh waters (ABARE 2001).

The aquaculture industry is based largely in regional Australia and therefore makes a significant and positive contribution to regional development. In addition to direct and indirect employment, aquaculture provides diversity to a region's economic base and creates demand for secondary educational industries and training, extension services, infrastructure and locally produced goods.

The value of Australian aquaculture, like other primary industries, is estimated and reported in terms of the gross value of production at the "farm-gate". Not included in the reported estimates are the additional contributions of the aquaculture industry to the economy through processing, marketing, retailing and freight transport.

In the last ten years a number of aquaculture producers have been vertically integrating processing, marketing, retailing and transport into their businesses to add more value to the farmed product and to increase efficiencies in the supply chain from producer to consumer. For example, the estimated gross value of salmon production in 1999/00 was $84.9 million (ABARE 2001), however, the total reported sales (includes value adding, marketing, freight) by salmon farming companies in the same year was about $136 million (Deloitte 2000). A similar situation exists for tuna farming in South Australia. Estimated gross value of production in 1998/99 was $167 million (ABARE 2001) however in the same year the total reported sales were closer to $265 million (EconSearch 1998).

For industries with less value-adding and transport costs the difference is much less. For example, estimated gross value of shellfish production in Tasmania in 1999/00 was $15.0 million (ABARE 2001), however, the actual sales, allowing for errors in the estimates, were virtually the same at $14.3 million (Deloitte 2000).

There are a number of estimates of employment in the Australian aquaculture industry. The Cooperative Research Centre for Aquaculture (CRC 1999), estimated that over 7,000 people were directly employed (casually and full time) in aquaculture in 1997/98 (Table A).

On the other hand, the Australian Bureau of Statistics (ABS) estimated that 4,200 people were directly employed in the industry in 1997/98 (ABS 1999). The ABS number underestimates employment in aquaculture as it excludes owner-operator enterprises not employing labour, and respondents who do not identify aquaculture as their primary business.

Table A: Aquaculture employment in Australia by State and Northern Territory 1997/98a

	NSW	Vic	Qld	SA	WA	Tas	NT	Australia
Direct employment	2800	440	800	550	1200	1150	350	7290
Indirect employment b	8700	1250	2000	900	3600	4600	1050	22100
Total direct And indirect	11500	1690	2800	1450	4800	5750	1400	29390

a. Employment includes both full time and casual.
b. Indirect employment is based on an assumed multiplier factor of three, or as provided by State aquaculture agencies.
Sources: Cox, Davies, Hardcastle and Stubbs 2001, CRC for Aquaculture 1999.

A study by EconSearch Pty Ltd on the economic impacts of aquaculture in South Australia and the Eyre Peninsula region (EconSearch 1998) found that in 1998/99, for every job directly generated by the aquaculture industry, another 2.2 jobs were created in the rest of the State. For every dollar of sales generated, another $1.86 was earned by related businesses throughout the State. The majority of these benefits occurred in the Eyre Peninsula region (EconSearch 1998).

A survey completed recently of the Tasmanian aquaculture industry by Deloitte Touche Tomatsu for the Tasmanian Aquaculture Council reported that actual industry sales in 1999/00 were around $151 million, with projected sales to increase by 85 per cent to $280 million by June 2003. In 1999/00 the industry paid wages of $32.3 million, with these forecast to rise to $40.8 million by June 2003. In 1999/00 the industry also paid a total of $2.5 million in charges and taxes to the Tasmanian Government (Deloitte 2000).

2.3 Organisation and management

There are well over 2000 aquaculture licences held in Australia. The majority of the industry comprises small scale operations, often owner/operators or family owned with one or two employees. For some owner/operators or families, aquaculture may not be the primary source of income. There are less than 100 large-scale, commercial producers who nevertheless account collectively for the majority of production and employment. The industry is represented by over 50 associations and councils at national, state/territory and grower levels.

The Commonwealth Government has no specific statutory responsibility for aquaculture management in Australia. Commonwealth legislation relating to ecologically sustainable development, food safety, aquatic animal health, quarantine, trade and taxation apply to aquaculture to varying degrees depending on the situation.

The Commonwealth Government's role in developing aquaculture in Australia includes ensuring ecologically sustainable development of the industry; funding research and education; providing quarantine and inspection services; coordinating fish health management; coordinating food safety issues; facilitating market access and trade; developing international relations; assisting with business development; and working with the States and the Northern Territory on issues requiring national coordination (Box 1).

The Department of Agriculture, Fisheries and Forestry – Australia (AFFA) is the first point of contact for aquaculture issues in the Commonwealth Government.

State and Northern Territory Governments have statutory responsibility for day-to-day management and regulation of aquaculture. State/Territory Government support for aquaculture includes promotion of the sustainable growth of the sector, aquaculture licensing and management; funding research and education; fish health diagnostics; food safety; extension and advisory services; facilitating exports and assisting with business development.

Box 1: A brief history of Commonwealth aquaculture policy development

In 1988 the growing importance and potential of aquaculture was highlighted in the Australian Science and Technology Council's report Casting the Net. This report recommended that a review be undertaken of the current national status and future potential of aquaculture.

Consequently, the Standing Committee on Fisheries and Aquaculture (SCFA) directed the Working Group on Aquaculture (comprising of representatives of all States, Territories and the Commonwealth Government agencies), to prepare, along with industry, a National Strategy on Aquaculture.

The National Strategy on Aquaculture in Australia was completed in 1994 with the aim of providing a context for management and a framework within which government and industry could cooperate to foster growth (SCFA 1994). The strategy identified key issues and goals central to the future growth and development of the industry. Issues covering industry structure and organisation, environmental management, marketing and product development, quarantine and research and development were addressed in the strategy.

Since the strategy was implemented, significant progress has been made in many areas, including the development of State/Territory land and water management plans, research into new species, improvements in food technology, education and training, and the formation of a peak industry body called the Australian Aquaculture Forum (renamed the National Aquaculture Council in 2000).

In 1997, the Aquaculture Committee of SCFA completed a review of the progress of the National Strategy on Aquaculture in Australia (SCFA 1997). The review found the strategy had been successful in that the aquaculture industry had

experienced significant growth. Existing sectors (pearls, oysters, salmon, prawns and tuna) had expanded and emerging sectors (for example abalone and native fish) had attracted considerable investor interest.

However, the review noted that there still remained areas that needed to be addressed further. The review concluded that progress in the areas of resource access; environmental framework and market access would be particularly significant in aiding the future development of aquaculture.

Following the review, the Commonwealth Government became more actively involved in ensuring that aquaculture developed into an internationally competitive and sustainable industry. In 1997/98, the Commonwealth Government moved towards a national approach to fish health and worked with industry to put in place a national Aquaculture Code of Conduct. In 1998, Australia also became a member of the Network of Aquaculture Centres in the Asia-Pacific (NACA). The role of NACA is to promote the sustainable development of aquaculture in the Asia-Pacific region to increase food production, improve rural income and employment, diversify farm production and increase foreign exchange earnings and savings.

In 1999 the Commonwealth Government convened a national aquaculture workshop to discuss the future direction and growth of the Australian aquaculture industry. As part of this workshop the Commonwealth Government, in conjunction with industry and the State/Territory Governments, agreed to develop a national action plan for the Australian aquaculture industry to target key impediments and opportunities for future growth. At the workshop a revitalised peak aquaculture industry body, the National Aquaculture Council (NAC) was formed to replace the Australian Aquaculture Forum.

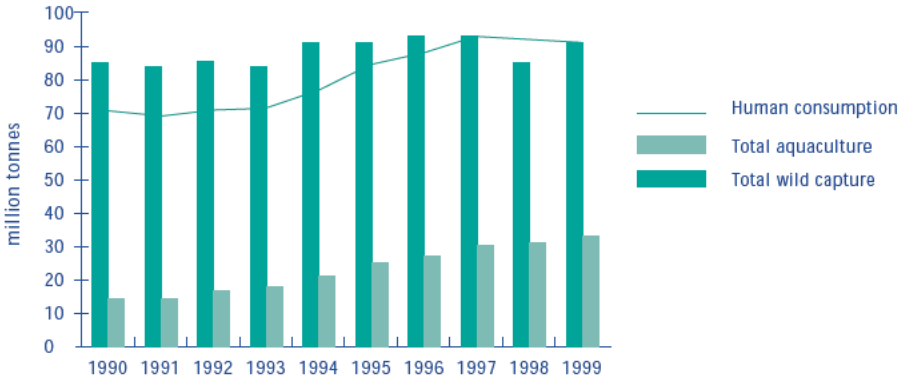
In May 2000, the Commonwealth Government announced that it would assist the aquaculture industry to develop a national Aquaculture Action Agenda to target key impediments and opportunities for future growth.

Source: Cox, Davies, Hardcastle and Stubbs 2001.

2.4 International comparisons

Total world production of fisheries products in 1999 was estimated at around 125.2 million tonnes. The overall contribution of aquaculture to world fisheries production rose sharply over the 1990s from 15 per cent in 1990 to 26 per cent (32.9 million tonnes) in 1999 (FAO 2000).

Fig. D: World fisheries production and human consumption, a



Source: FAO 2000, 1999,1997
a excludes non-edible consumption of fishmeal and oil

The Asian region dominates both wild catch and aquaculture production, accounting for over 90 per cent of the world aquaculture production in 1998 (Table B). Much of this is due to the significant increase in production by China over the last 15 years. In 1998 China accounted for 60 per cent of total world aquaculture production (Brown and Connell 2001).

Aquaculture is well established as a mainstream source of meat protein in Asia. In regions such as North America, Europe and Australia the major sources of meat protein are beef, pork, chicken and lamb. Aquaculture production in North America, Europe and Australia is mainly focussed on a limited range of species, mainly catfish, salmon and tuna respectively, for specific markets (Brown and Connell 2001).

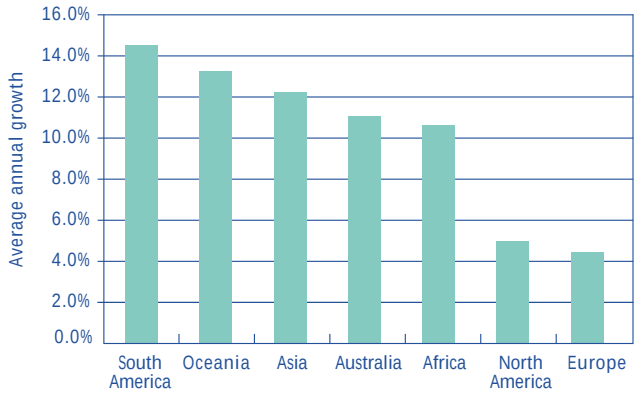
Table B: Global aquaculture production by continent a

	1991 '000 t	1992 '000 t	1993 '000 t	1994 '000 t	1995 '000 t	1996 '000 t	1997 '000 t	1998 '000 t
Asia (mostly China)	15 955	18 881	22 173	25 206	28 563	30 955	32 732	35 814
Europe	1 445	1 379	1379	1 505	1 608	1 690	1 766	1 960
South America	257	295	287	342	409	556	660	670
North America	470	525	541	532	560	563	644	656
Africa	93	101	93	96	105	120	119	189
Oceania	53	54	56	53	70	81	83	111
Australia	15	17	18	20	25	26	27	30
Total	18 287	21 253	24 547	27 754	31 340	33 992	36 031	39 431

a Includes aquatic plants.
Source: FAO 2000.

Australia is a minor contributor to total global aquaculture production. In 1999, it contributed only 0.09 per cent of total global volume and 0.6 per cent of total global value.

Fig. E: Average annual growth in aquaculture production (by volume): 1991 - 1998



Source: FAO 2000.

Australia is a relative latecomer to aquaculture, compared to other countries in Asia, North America and Europe. Because of its late development, aquaculture production by volume in Australia over the last decade has been growing at a faster rate than Europe and North America and at a comparable rate to Asia (Fig. E). The rapid growth in South America is also due to a previously low production base and is driven by the availability of sites and significant foreign investment in Atlantic salmon farming.

Aquaculture development in Australia is likely to follow the same path as the industry has in Europe and North America. In Europe and North America there has been a consolidation of growers and feed manufacturers in the larger sectors. For major aquaculture species such as Atlantic salmon, some of the major feed and fish farming companies have merged or taken over operations to compete more

effectively and increase production. There are early indications that this may also happen in Australia. Similar to Europe and North America, there is likely to remain a considerable number of hobby and small-scale commercial farms producing selected species for specific domestic and overseas markets.

2.5 Domestic market overview

The Australian aquaculture industry is based around production of high value and high quality product for local and overseas niche markets.

With the exception of pearls and ornamental species, Australian aquaculture producers are in the food business. The food business is one of the world's most global and competitive industries. In the domestic marketplace the major competitors for aquaculture products include imported seafood; wild-capture seafood; and other meat products, such as beef and poultry.

In 1998/99, per capita consumption of seafood in Australia was 10.9 kg. Since 1993/94, total seafood consumption has increased by 6.1 per cent. This increase is due mainly to the increasing consumption of seafood outside the home. Consumption of beef and lamb has declined steadily over the same period (ABS 2000).

About 40 per cent of total aquaculture production is sold domestically to supermarkets, fishmongers and restaurants. This includes products such as oysters, prawns, salmon, barramundi, silver perch and various species of freshwater crayfish. The majority of aquaculture product sold on the domestic market is sold by individual growers or by regional cooperatives.

2.6 International market overview

The Australian fisheries industry generated $1.99 billion in exports during 1999/2000. Rock lobster; pearls; prawns; abalone and tuna comprised 86 per cent of exports (ABARE 2001).

Records of Australian fisheries exports are not differentiated on the basis of whether the product comes from aquaculture or wild fisheries. Table C provides an estimate (probable underestimate) of the level of aquaculture exports over the last couple of years. Pearls and southern bluefin tuna dominate Australian aquaculture exports. Together these two sectors comprise about 60 per cent of the value of Australian aquaculture production and the majority of exports by value and volume. Aquaculture exports are primarily sold to overseas-based wholesalers or trading houses.

Table C: Estimated Aquaculture Exports a

	1998/99		1999/00	
	t	$'000	t	$'000
Fish				
Salmon	767	7 847	854	9 179
Tuna	6 365	166 700	7 803	202 295
Crustaceans				
Prawns	154	8 000	241	9 600
Molluscs				
Oysters	73	613	152	2 884
Pearls	n/a	182 647	n/a	190 510
Abalone	21	900	n/a	n/a
TOTAL	7 380	366 707	9 050	414 468

a Estimates of exports based on gross value of production.
ABARE 2001, Ross Lobegeiger, Queensland Fisheries personal communication March 2001, O'Sullivan and Dobson 2000.

Asia is Australia's major market for seafood and aquaculture exports. In 1999/00, it accounted for about 70 per cent of total exports. The United States accounted for about eight per cent and the majority of remaining exports went to Europe (ABARE 2001).

Japan is the major customer for Australian seafood and aquaculture products. In 1999/00, Japan imported, by value, 35 per cent of Australian seafood and aquaculture products. Hong Kong and Chinese Taipei are the next biggest markets. Economic growth in key Asian markets for Australian seafood, plus the continued low value of the Australian dollar against the US and Japanese currencies has meant that Australian seafood exports have remained competitively priced over the last couple of years (ABARE 2001).

White pearls are produced in Australia, Japan, Indonesia, the Philippines and China, with Myanmar and some South Pacific Islands increasing production. Black pearls are mainly produced in Tahiti and the Cook Islands. Europe, North America, Japan and Hong Kong are the major export destinations for Australian pearls. Demand for Australian pearls is high because of their superior quality and limited availability. Future increases in production will be driven by consumer demand.

In international markets the major competitors to Australian aquaculture exports are European, North and South American and New Zealand producers of high value products such as salmon, trout, oysters and mussels.

3 THE FUTURE OF AUSTRALIAN AQUACULTURE

Based on the outcomes of the 1999 National Aquaculture Beyond 2000 Workshop, the National Aquaculture Development Committee has suggested the following vision and mission for the aquaculture industry:

VISION

By 2010 a sustainable, vibrant and rapidly growing Australian aquaculture industry will achieve at least $2.5 billion in annual sales by being the world's most globally competitive aquaculture producer.

MISSION

Total commitment to economic, social and environmental benefits from aquaculture.

The Action Agenda process provides the opportunity for the aquaculture industry to review the vision and/or mission before it is finalised in the final Action Agenda report. The vision and mission must be something that the majority of the aquaculture industry believes is achievable because it is within the context of the vision and mission that the industry can evaluate its future growth.

The vision of achieving $2.5 billion in annual sales by 2010 is based on forecast production targets for key species (Table D). These forecasts were made by industry representatives attending the 1999 National Aquaculture Beyond 2000 Workshop (ACIL 1999).

Forecasting increases in production for key species is extremely difficult. Even those industry members who have been involved in the aquaculture industry for many years can at best only look two to three years into the future with any degree of certainty. The forecasts set out below reflect the general optimism of industry for future growth in major sectors. Since the 1999 workshop all of the industry sectors, excluding lobster, have recorded increases in production. In fact, oysters have already surpassed the forecast for 2010 and southern bluefin tuna is likely to reach its forecast target of $300 million within the next couple of years.

Table D: Forecast aquaculture production - 2009/2010

	Estimated value in 1998/99 i.e when 2010 forecasts were made ($million)[a]	Estimated value in 1999/00 ($million)[a]	Forecast value in 2009/10 ($million)[b]	Increase in value 1998/99 to 2009/10 (no. of times)
Atlantic Salmon	71.5	84.9	1,000	14.0
Pearls	182.7	190.5	500	2.7
Southern Bluefin Tuna	166.7	202.3	300	1.8
Prawns	42.2	51.7	200	4.7
Abalone	0.9 [d]	n/a	150	>150
Lobster	0	0	100	n/a
Oysters	45.2	52.0	50	1.1
Others [c]	95.0	96.9	200	2.1
Total	604.2	678.3	2,500	4.1

a ABARE 2001
b ACIL 1999; values based on zero movement in CPI from 1999 - 2010.
c Other species include: seaweeds/algae, mussels, scallops, marine fish, other pearls, trout, barramundi, silver perch and other native fish, aquarium fish, crocodiles, freshwater crayfish and eels.
d O'Sullivan and Dobson 2000

In general, the prospects for the future growth of the aquaculture industry are good. This is based on the established record of sustained growth in the industry over the last ten years, as well as anticipated investment in research and commercial farms over the next two to three years. To achieve $2.5 billion in annual sales by 2010 the current industry growth rate of 13 per cent per annum will need to be maintained.

The Food and Agriculture Organisation of the United Nations (FAO) predicts that from 2001 any further increases in global consumption of seafood is expected to be met by aquaculture. The FAO has also predicted that this trend will continue to the point that by 2030, aquaculture will dominate fish supplies and less than half of the fish consumed will come from capture fisheries (FAO 1999, 2000). Demand for pearls should also increase with increasing consumer affluence in current markets and additional promotion.

Australian aquaculture producers have a number of competitive advantages that put them in the prime position to capitalise on future demand. These advantages include:

- Australia's reputation for producing high quality and safe, seafood and other fisheries products in a "clean and green" environment;
- close proximity to major markets in Asia;
- Australia is relatively free of major aquatic diseases;
- the excellent eating qualities of Australian native species; and
- counter-seasonal production compared to Northern Hemisphere aquaculture producers and wild-capture fisheries.

The Australian aquaculture industry must exploit its competitive advantages if it is to grow. It can do this by increasing access to physical; financial; and human resources and making better use of these resources through improved ecologically sustainable practices; education; training; marketing; research; and management.

The key impediments and opportunities for industry growth have been identified by the NADC and are discussed in Chapter four under the following headings:

- Communications and Promotion
- Resource Access and Sustainability
- Investment Environment
- Regulatory Framework
- Research and Development
- Education and Training

4 STRIVING FOR GROWTH – Impediments and Opportunities

4.1 Communication and Promotion

4.1.1 Objective

To improve the competitiveness of Australian aquaculture businesses through industry cohesion, promotion and communication.

4.1.2 Summary of impediments and opportunities

- Lack of industry cohesion on national issues.
- Opportunities to develop stronger linkages between stakeholders.
- Lack of industry and product promotion.

4.1.3 Communication

There are over 50 aquaculture associations and councils. These associations and councils represent members' interests in various fora at national, State/Territory, regional and grower levels as well as providing information to members and potential investors.

The diverse nature of the aquaculture industry at a species and product level makes it difficult for industry members to see value in belonging to State/Territory or national organisations. However, for other issues such as industry policy, research, marketing, fish health, food safety and promotion, strong representation at a State/Territory and national level is vital.

Additionally, there is a lack of communication between aquaculture associations and councils. Poor communication is most evident when a major issue is reported and news reporters seek comment from the various industry sectors. Slightly different or even contradictory comments from various sectors of the industry can portray the industry as fragmented and disorganised.

A key goal of the 1994 National Aquaculture Strategy was the identification of a peak body to act as a contact point for government agencies and industry groups on national issues. The Australian Aquaculture Forum (AAF) was formed in 1996 as the peak national aquaculture body. The AAF was renamed the National Aquaculture Council (NAC) in 2000 to better reflect its status as the national peak body for the aquaculture industry.

Funding is one of the major issues for the NAC. It needs the urgent financial support of industry. To gain this support the NAC needs to demonstrate that it can deliver value to industry.

There are strong and complimentary links between wild-fisheries and aquaculture industries. Unfortunately, some parts of the wild-capture industry see aquaculture as a competitor in markets. While this may be the case for some species and products, both sectors have the opportunity to benefit from collaborating in areas such as trade, quarantine, fish health, food safety, regional development, infrastructure, research, enhancement of wild-stocks and promoting increased seafood consumption.

It is vital that strong linkages are in place between Commonwealth, State and Territory Governments and the aquaculture industry. Aquaculture development advisory bodies have been established by some State/Territory Governments to improve the interaction between the aquaculture industry and governments. Membership of the advisory bodies comprises key representatives of the main aquaculture

species farmed in each State/Territory. This model would appear to be an efficient method for facilitating industry-government interactions and could be applied at national and regional levels.

Linkages should also be developed between the aquaculture industry and local communities, non-government organisations and indigenous groups on specific issues, such as site access, planning, sustainability and regional development. Such linkages can provide a valuable mechanism for sharing information and views on aquaculture development and provide the opportunity to promote the benefits of the aquaculture industry to the community.

The State/Territory Governments have played a significant role over time in providing extension advisory services to the aquaculture industry and are well placed to undertake this task. Equally well placed are the various aquaculture industry associations and councils. Some States/Territories have been steadily downgrading or removing their extension services because of reductions in funding; where costs cannot be recovered from industry; or because email and the internet provide a more efficient means of providing advice and information. In the absence of government extension officers, various aquaculture associations and councils should take the lead.

Is industry representation important at a national level? How can it be made most effective? What structure is most appropriate?

What needs to be done to strengthen the role of the National Aquaculture Council and ensure it is adequately resourced?

What support do industry associations and councils need to provide better extensions services to their members?

How can better linkages be developed between aquaculture the wild-fisheries sector, related industries, governments, local and indigenous communities?

4.1.4 Promotion

A key driver of aquaculture growth in the future will be the public's attitudes to aquaculture. Ultimately, it is the public's attitude to issues which drives political attitudes that are in turn reflected in policies and regulations.

Many of the impediments and opportunities to growth identified in this discussion paper, such as gaining access to suitable sites, demonstrating environment sustainability, increasing seafood consumption and attracting investment, are influenced by the perceptions of others about the aquaculture industry.

In the case of the consumer there may be a perception that aquaculture products don't taste the same as those from the sea; for the investor it may be that aquaculture is a risky investment; for the holiday house owner it may be that aquaculture has a negative effect on the environment. Changing these perceptions will improve the growth of the aquaculture industry.

In the case of the consumer the key message might be that fish from aquaculture tastes just as good; for the investor it may be about providing information to demonstrate that aquaculture it is no more risky than any other business if a sound business plan is in place; for the holiday house owner it may be about the positive economic contribution the industry makes to the local community, as well as highlighting that aquaculture can be a responsible and sustainable user of resources.

It is up to industry and governments to spread good news stories and facts. It is also up to industry to develop high-profile advocates in industry, the local community, politics and the media to promote the industry.

Australia's environmental laws are some of the tightest in the world. The Australian aquaculture industry has an opportunity to promote its environmental credentials in Australia and overseas by complying with these laws as well as implementing world class best management practices.

In summary, there is an urgent need for development of an aquaculture communication and promotion strategy to promote the benefits of aquaculture, increase sales and to develop communication linkages within the industry, with government and with communities.

What messages should the aquaculture industry be promoting and who should they be aimed at?

What role does the aquaculture industry and government have in promoting the industry? How can the industry best use its advocates?

What will it take to develop aquaculture communication and promotion strategies at a national/State/Territory/regional level?

4.2 Resource Access and Sustainability

4.2.1 Objective

To improve access to resources and continual improvement of ecologically sustainable aquaculture practices.

4.2.2 Summary of impediments and opportunities

- Lack of available and suitable sites for aquaculture.
- Delays in gaining access to resources.
- Lack of security of tenure.
- Minimising any adverse impacts of aquaculture on the environment and other resource users.

4.2.3 Resource access

Growth of the Australian aquaculture industry depends on the availability and quality of natural resources, such as land, water and broodstock. As these resources are not limitless and are often sought for other uses such as coastal urban development, tourism and recreation, there is a need to for mechanisms to allocate these resources efficiently between users, as well as to seek out and develop new resources.

About 95 per cent of Australia's aquaculture production and businesses are situated in marine coastal areas and estuaries along the Australian coastline. From the last population census in 1996, 15.3 million people (83 per cent of Australia's population) lived within 50 km of the coastline. Water resources in the coastal zone are publicly owned and managed by State/Territory Governments.

Given the concentration of aquaculture and the Australian population along the coast it is understandable that the aquaculture industry is finding it increasingly difficult to gain access to, and long-term leases over, public resources in this area. At various times, the industry has experienced some negativity from coastal communities over their perceived loss of aesthetic and recreational values, as well as concerns expressed over the possible negative impact of aquaculture on the environment.

Well managed and consistent State/Territory and local government zoning and planning regulations and consultation processes are vital to ensure an equitable and efficient allocation of resources for all users and to ensure sustainable use of resources.

Planning regimes in Australian States/Territories are either aquaculture-specific or based broadly around coastal regions and are generally the joint responsibility of State/Territory and Local Governments (Table E). Most of these planning systems are reviewed every five to ten years to take into account changes in user values (Cox, Davies, Hardcastle and Stubbs 2001).

Table E: Status of marine aquaculture planning regimes

	Mechanism	Coverage	Status	Area	Time horizon
New South Wales	Case by case assessment by inter-agency focus groups including planning authorities	Aquaculture only, emphasis on environmental impact - non-estuarine	Implemented	Entire coast	For the life of the aquaculture lease
Victoria	Coastal Action Plans	Overall coastal management	Implemented	Selected regions	Reviewed within five years of endorsement of the plan
Queensland	Local Government Planning Scheme	Zoning of land use including aquaculture activities	Implemented	Entire coast	Must be reviewed at least every six years
Western Australia	Development Plans	Aquaculture only (excl. white pearls)	Some regions implemented, some draft	Selected regions	Some 5 year review period, some none specified
	Case by case assessment and consultation	White pearls only	Implemented	Exmouth Gulf to NT border	No review period specified
South Australia	Aquaculture Management Plans	Aquaculture only	Implemented, under review	Selected regions	Should be reviewed every five years as part of monitoring water resources
Tasmania	Marine Farming Development Plans	Part of an integral coastal management strategy	Implemented, under review	Selected regions	Reviewed at least every ten years
Northern Territory	Control Plans	Zoning of land use activities including aquaculture	Implemented	Selected regions	Review should be undertaken every five years

Cox, Davies, Hardcastle and Stubbs 2001, Tina Thorne, WA Fisheries personal communication April 2001.

One of the impediments to industry growth is the lack of certainty and delays in gaining access to resources. An aquaculturalist wishing to gain access to a site can expend significant investment in time and money in identifying the site and then seeking access without any guarantees that access will be granted. If, in the first instance, sites could firstly be identified as being suitable from a resource aspect for aquaculture and subsequently zoned for that use, the time and cost to the aquaculturalist can be reduced.

While each State and the Northern Territory has some form of zoning or planning system, none of them has yet been through the process of formally mapping the entire coast and allocating specific zones to aquaculture (Cox, Davies, Hardcastle and Stubbs 2001).

The regulatory authorities may not always be responsible for delays in assessment and approval of applications. Sometimes delays are the result of poorly prepared applications by an applicant. In this instance, applicants would benefit from improved access to information and assistance on licensing requirements.

The success of various mechanisms for managing resource conflict in aquaculture is difficult to determine. Few studies have been done that have assessed the effectiveness of management strategies.

A study by ABARE (Holland and Brown 1999) of aquaculture policy and planning experiences overseas found that, in the longer term, the current dominant effect of regulations, such as zoning systems, is unlikely to continue to reflect the preferences of resource users and community expectations. To avoid imposing greater costs on the community, it was suggested that economic instruments like those used to manage access to wild-fish stocks such as bidding or charging systems for licences and for water use or waste emissions releases could be applied to aquaculture, to more accurately reflect the true costs of using the resource. While such as system would increase the costs to resource users, it would also improve the efficiency of site allocation, which would benefit those seeking access to the resource.

A lack of security over tenure is another potential impediment to industry growth in some States/Territories of Australia. Some States/Territories do not grant exclusive possession of a lease to the leaseholder. The term of leases between States/Territories can range anywhere from four years to in perpetuity, although most are about 15 to 21 years in duration. Consideration should be given to providing leases for longer and granting exclusive possession to the leaseholder. Regular monitoring and reporting conditions built into aquaculture licences ensures responsible management of the lease.

Promotion of aquaculture, as a responsible user of resources and valuable contributor to local communities, would go some way in strengthening industry claims for greater resource access and security of tenure. Consistent with this, industry should tidy up sites when a licence or lease expires, and be careful to ensure safe disposal of rubbish and processing wastes on farms. Promoting aquaculture is discussed further in section 4.1 Communication and Promotion.

How can resource management and planning legislation and policies be strengthened to ensure aquaculture interests are taken account of and security of tenure improved?

Are economic instruments a better mechanism for allocating public resources? Are there others?

4.2.3.1 Aquaculture in other areas of Australia

One possible response to reduced resource availability and lengthy approval processes in high-demand coastal areas is to undertake aquaculture in coastal areas with fewer users, in off-shore areas or inland.

Greatest demand for coastal resources occurs along the eastern seaboard and around capital cities. There are less used areas of coastal waters, particularly in southern, western and northern Australia that could be used potentially for aquaculture, although the number of protected sites available are limited. Research to determine suitable sites; species; production techniques; transport to key markets; and provision of infrastructure (e.g. three-phase power and roads) will need to be addressed if aquaculture is to expand into coastal areas with fewer users.

Australia has vast oceans for which there are a large number of sites available for cage mariculture. However, off-shore aquaculture requires advanced technologies that must be imported and adapted for Australian conditions and species, or developed in Australia. Off-shore cage culture will only be suitable for some fish species.

There are opportunities for aquaculture in inland fresh and saline waters, either as stand-alone operations or through multiple and sequential water use within an integrated agri-aquaculture system. Integrated agri-aquaculture systems can provide positive benefits for existing farmers by providing an additional source of farm income, as well as assisting regional development. More efficient use of scarce water resources is of both economic and environmental benefit. As most land is privately owned, there is a reduced likelihood of conflict over resource use. The flexibility to trial species in various locations, without taking out a full aquaculture licence, could assist in the expansion of aquaculture into remote areas.

Agri-aquaculture is well developed in some countries such as Israel and China. There is an opportunity to develop linkages with these countries and to adapt foreign experiences and technologies to the Australian environment and species. Research and development plans have been completed recently for agri-aquaculture and saline aquaculture and now need to be implemented.

Research and development alone will not be sufficient to drive investment in inland aquaculture. Market opportunities for species that are suitable for inland farming must firstly be identified before significant investment will happen. There is a wide range of aquaculture species that have been farmed in inland areas for a number of years yet none have seen the same growth that some of the marine aquaculture sectors have experienced for the same period. Most of the inland freshwater species are endemic to a given region or States/Territories and, with the exception of barramundi, have had little market exposure or promotion domestically or overseas.

Indigenous people are the traditional owners of significant areas of coastal and inland areas some of which are suitable for aquaculture. Many Australian indigenous communities have expressed a strong interest in aquaculture. The industry is culturally in harmony with the lifestyles of indigenous people and well suited for development in isolated coastal and inland areas where many indigenous communities are located.

Development of new or improved production systems such as intensive recirculation makes possible the culture of some species wherever there is sufficient and reliable access to good quality water. However, recirculation systems are capital intensive, especially in the critical start-up phase. Additionally, only some species are suited to farming in recirculation systems.

Recently, the concept of "clustering" has been promoted as one way of developing a critical mass in a region to support industry and regional development. Through clustering, interested parties such as government and industry agree to congregate services and business in a region and, through their collective contributions, build a critical mass and collective knowledge that all participants can leverage off. In its simplest form, clustering is about nurturing collaborative instincts and trust (Brown 2001).

Port Lincoln in South Australia is an excellent example of how clustering, or collaboration between researchers, government, educators and industry, can assist each of the participants to collectively grow their business. Development of aquaculture-based clusters in other areas of Australia may offer one solution to developing the critical mass needed to increase access to sites; improve the collective knowledge about industry and regional development techniques; improve infrastructure and services; and development of regional marketing initiatives.

What can industry and governments do to encourage more aquaculture in inland, off-shore and remote coastal regions of Australia?

4.2.4 Environmental sustainability

While aquaculture depends on the quality of resources and on the health of aquatic stock, it can also affect the surrounding environment. There is therefore a need for industry and government policies to ensure the environmental sustainability of aquaculture (Holland and Brown 1999).

Ecologically sustainable development (ESD) is the cornerstone of all natural resource management in Australia. The National Strategy for ESD defines ESD as "using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased" (Commonwealth of Australia 1992). It requires changes in the nature of production and consumption so that we can better satisfy human needs while using fewer raw materials and producing less waste.

How ESD is measured and implemented changes over time with changes in knowledge and how the community views the use of its resources.

The Commonwealth, State and Territory Governments have in place laws to ensure ESD. Through the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the *Wildlife Protection (Regulation of Exports and Imports) Act 1982* (WP(REI) Act) the Commonwealth Government promotes ESD and protects the environment, particularly those matters of national environmental significance. The

Department of Environment and Heritage is the Commonwealth agency responsible for administering Commonwealth environmental legislation and programs (refer Appendix 3).

Under the EPBC Act, any aquaculture development that is likely to have a significant impact on a matter of national environmental significance requires the approval of the Commonwealth Environment Minister. Matters of national environmental significance are, World Heritage properties; Ramsar wetlands of international significance; nationally threatened species and ecological communities; migratory species and Commonwealth marine areas.

The primary object of the WP(REI) Act is to enable Australia to comply with its obligations under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and further the protection of Australian wild flora and fauna by regulating the export and import of certain plant and animal products.

An amendment in September 2000 of Schedule 4 of the WP(REI) Act removed the blanket exemption from export control for fisheries, including those species that are farmed. For the aquaculture industry this means that from 31 December 2003, exports of all species will only be allowed if it can be demonstrated that they are being farmed on an ecologically sustainable basis, and are not having a detrimental impact on matters of national environmental significance.

Recently, Australian fisheries management agencies have begun a project to develop a national reporting and assessment framework to demonstrate how well they are meeting the objectives of ESD for all fisheries. The project is being coordinated by the SCFA. Some States are also undertaking assessments of their fisheries directly against the EPBC and WP(REI) guidelines.

State/Territory Governments also have in place environmental protection and management legislation which aquaculturalists have to comply with when developing a site and applying for an aquaculture licence or permit.

Complying with relevant legislation is one step towards achieving ecological sustainability. To reap the full benefits of ESD, industry needs to go beyond compliance and take steps, such as developing and implementing Best Management Practices (BMPs), to use resources as efficiently as possible and to integrate environmental management into each stage of their operations. By reducing energy and material inputs, streamlining operations and managing wastes effectively, aquaculturalists can not only achieve better environmental outcomes, but also reduce their costs and increase their competitiveness.

BMPs can be developed and incorporated as part of a code of practice (Box 2), as a condition of membership to an industry association and as part of a marketing/certification strategy. They also demonstrate to government and communities where industry stands on ESD at national, State/Territory and grower levels. The credibility of best management practices, codes of practice etc., can be strengthened through independent, third party auditing.

Box 2: Code of Conduct for the Australian Aquaculture Industry

In 1998, a code of conduct initiated by the Australian Aquaculture Forum (renamed the National Aquaculture Council in 2000) and developed with assistance from the Fisheries Research and Development Corporation (FRDC) and the Department of Environment and Heritage's Coasts and Clean Seas Program was released (Australian Aquaculture Forum 1998). This Code of Conduct states that industry will work in conjunction with government and other stakeholders to ensure that aquaculture development is managed in a sustainable way.

This is accomplished by aquaculture farmers adhering to five guiding principles for environmental best practice. The five principles are to comply with regulations; respect the rights and safety of others; protect the environment; treat aquatic animals humanely; and promote the safety of seafood and other aquatic foods for human consumption. Adherence to the Aquaculture Code of Conduct is one condition of being a member of the National Aquaculture Council.

One impediment to growth identified by industry is the administrative burden that both State/Territory and Commonwealth environmental legislation may impose on existing and new aquaculture developments. Excessive or drawn-out administrative processes increase the time taken to assess and approve new aquaculture developments, which in turn can discourage investors who see the regulatory process as taking too long. This issue is discussed further in section 4.4 *Regulatory Framework*.

There is a mistaken perception in some parts of the community that aquaculture is ecologically unsustainable and a major polluter of marine and estuarine areas. These concerns originate largely from prawn farming in Asia where large-scale intensive and unregulated development caused significant environmental damage. Unfortunately, public perception of prawn farming and aquaculture in general has been tarred with the same brush.

Improving the community's perception of the aquaculture industry's environmental performance is an ongoing challenge for industry and governments. This challenge should be addressed at least at the grower and association level and, ideally, at a national level, as part of a broader communication and promotion strategy. This issue is discussed further in section 4.1 *Communication and Promotion*.

Are the benefits of ecological sustainable management well understood by industry and other stakeholders? What can be done to promote the benefits?

How can a culture of continual improvement in ESD be fostered in the aquaculture industry?

How can governments and industry work better together to achieve compliance with environmental legislation and to ensure ecologically sustainable development?

How can the development and implementation of best management practices for aquaculture be encouraged?

4.3 Investment Environment

4.3.1 Objective

To increase productive investment in Australian aquaculture and expand market access.

4.3.2 Summary of impediments and opportunities

- Encouraging investment in aquaculture.
- Improving the tax treatment of aquaculture businesses.
- Improving marketing capabilities.
- Identifying key markets in Australia and overseas.
- Removing barriers to international trade in fisheries products.
- Exploiting the aquaculture industry's competitive advantages.

4.3.3 Investment

Commercial success in aquaculture depends on making a positive return on investment and being competitive. Like any other new business venture, aquaculture requires detailed research and business planning before investment decisions should be made.

New investors often see aquaculture as an appealing lifestyle choice, as well as an easy way to make money. Farming of most aquatic species is difficult and requires an intimate knowledge of their biological requirements. Many new investors enter the aquaculture industry with the intention of

producing one particular type of species and forget to even consider if there is a market for what they want to produce.

In a recent study on the profitability of selected aquaculture species, ABARE identified that site characteristics, distance to markets, staff and management expertise are the major factors that can affect the profitability of an aquaculture business (Weston, Hardcastle and Davies 2001). Type of species farmed, scale of operation, feed costs and market demand are other factors determining profitability.

The aquaculture industry is sometimes perceived to be 'high risk' by corporate investors, financial institutions and insurance agencies. This perception may be based on a number of factors including the failure of a few high profile but poorly managed aquaculture schemes in the past; lack of long-term tenure over aquaculture sites (refer section 4.2 *Resource Access and Sustainability*); and high levels of regulation. A detailed research and business plan is required to properly evaluate any risks.

Larger and more established aquaculture businesses are more skilled at attracting investment. Growth of smaller-scale aquaculture businesses is most often constrained by their inability to attract capital. This is due largely to a lack of financial skills and lack of knowledge on where to look for funding.

In the majority of cases new aquaculture ventures are more suited to venture capital funding than debt funding from banks, especially where there is no external cash flow. Banks are more risk averse in their lending practices because they are lending other people's money and not their own (Hird 2000).

Before committing funds, external investors or lenders need to know the previous financial record of the owner/manager; how much funding is being contributed by the owner/manager; the level of security being offered in case the business fails; the cash flow schedule; the business plan; insurance cover; marketability of the product being produced; and the level of experience and skills of the owner/manager (Hird 2000).

Improvements to resource access and security of tenure (refer section 4.2 *Resource Access and Sustainability*), improved availability of technical and market information and promotion of successful aquaculture developments (refer section 4.1 *Communication and Promotion*) would encourage more investment in aquaculture. More broadly, the general economic environment will also effect the level of investment.

A number of State Governments have developed species-based production and economic models to assist potential investors better understand the range of factors contributing to the profitability of aquaculture.

How can the aquaculture industry and governments attract investment in aquaculture and make that investment more effective?

What can industry and governments do to improve the availability and quality of technical and market information to aquaculture farmers and new investors?

What can industry and governments do to effectively promote positive examples of aquaculture investment and development?

4.3.4 Taxation

Taxation can influence the profitability of, and level of investment in, aquaculture.

The taxation laws as applied to aquaculture are interpreted with either the wild –catch fisheries sector or traditional land based primary industries in mind. This opens up the possibility for taxation laws to disadvantage the industry in some circumstances.

Industry dissatisfaction with taxation laws such as research and development concessions, stock valuation, sales tax and eligible activities under the off-road Diesel Fuel Rebate Scheme, have been

identified previously. There is currently a lack of information concerning taxation issues and their impact on aquaculture industries.

Does the aquaculture industry have a good understanding of how current taxation laws apply to aquaculture?

Do some tax laws need to be improved to assist aquaculture development? If so, which ones?

4.3.5 Marketing

The Australian aquaculture industry is production, rather than market driven.

Most aquaculture businesses are operated by one or two people, who are the grower, scientist, lawyer, accountant, engineer and marketing agent all in one. The initial emphasis is on producing the product in the first place and the marketing aspects are often the last to be considered.

With insufficient time to consider marketing issues, most small-scale farmers are at a disadvantage in negotiations with middlemen and retailers on pricing; fail to fully understand what the market wants in terms of product size, colour, texture and taste; fail to adequately identify and develop efficient supply chains to market; and fail to fully promote their products.

There are a number of ways in which these shortcomings may be addressed. Marketing, food handling and management skills of farmers can be improved, through provision and access to education and training (refer section 4.6 *Education and Training*).

Farmers could also pool their resources by joining or forming cooperative or grower associations. Cooperatives or associations have the capacity to pool and disseminate marketing and pricing information; organise and conduct training; and undertake generic promotion, labelling and sales (refer section 4.1 *Communication and Promotion*).

More information for farmers could also be provided through research aimed at identifying consumer needs, supply chains, food handling and packaging technologies.

A survey of seafood consumption in Sydney in 1999 found that three quarters of interviewees were not concerned whether the fish was wild-caught or farmed (Ruello 1999). This finding would suggest that the wild capture and aquaculture industries should cooperate in their efforts to increase seafood consumption in major markets.

Some of these opportunities could be implemented through a national generic marketing campaign. This idea has been proposed before. Major impediments in the past have been a lack of agreement and organisation between aquaculture and wild-capture seafood sectors and lack of willingness by industry to fund such an initiative because some industry members - who are unwilling to provide funding - will also benefit.

For any national marketing effort to be effective, collaboration with the wild-capture seafood industry is necessary and all or nearly all beneficiaries must contribute to funding. In the absence of a generic marketing campaign, market development and promotion is best undertaken at a cooperative level, on a regional and/or species basis.

4.3.5.1 Domestic markets

In 1998/99, annual per capita consumption of seafood in Australia was 10.9 kg per head, or about ten per cent of total unprocessed meat intake (ABS 2000). If seafood consumption in Australia could be increased then the demand for Australian seafood and aquaculture would also increase. Unfortunately, this is not as simple as it sounds.

Despite increased consumption in 1998/99, the consumption of Australian fish fell by 7 per cent to 3.6 kg per capita, while consumption of imported fish rose by 7.8 per cent to 4.5 kg (ABS 2000). In 1999/00, Australia seafood imports were worth $780 million. Australia's largest seafood imports were low value ($2 - $5 per kg), ready to eat products in the form of frozen fish fillets, canned fish and prawns (Brown and Connell 2001). The majority of these products are sold through supermarkets and fast food outlets.

For domestic aquaculture production to replace imports, the costs of production of seafood such as barramundi, murray cod, silver perch, snapper and prawns will need to decrease by around 50 per cent. Given current technologies and price structures, the Australian aquaculture or wild-catch seafood industries are unlikely to be able to replace the large volumes of low priced seafood that Australia imports currently for sometime yet (Brown and Connell 2001). In the domestic market the main opportunities for aquaculture exist in expanding demand for premium quality, live and fresh seafood.

There have been a number of studies undertaken on seafood consumption and demand in Australia. In the most recent survey of seafood consumption in Sydney in 1999 price; lack of consumer information; and food safety (refer section 4.4 *Regulatory Framework*) were identified as the main impediments to increased domestic consumption (Ruello 1999).

Domestically, the aquaculture industry should seek to take advantage of their unique capacity to produce live and fresh product on demand, and of consistent size, colour, texture and taste.

Seafood Services Australia (SSA) is a program established and funded by the FRDC that provides assistance and information to the seafood industry on developing new products and processes, food safety and quality systems and post-harvest technical issues (see Appendix 3).

There are opportunities for small to medium producers to increase sales of high value live and fresh fish in Australia. However, a small population (i.e. market), low per capita consumption and cheap imports mean that producers will need to look to the bigger markets overseas if they are seeking significant sales growth.

What can be done to stimulate domestic demand for seafood in Australia?

How can aquaculture producers increase market access to domestic meat and seafood markets?

4.3.5.2 International markets

Australian aquaculture producers face an unreliable world market characterised by distortions and subsidies. They face increasingly strong competition from producers in the Asia–Pacific, North America, Europe and, more recently, South America.

Worldwide, more sophisticated markets for agricultural produce are developing, with the growing importance of brand marketing. Increasingly, competition in food markets is developing as chain versus chain. Producers are forming networks and partnerships to share information, and pooling skills and resources. Such strategic alliances help to shore up markets and develop a critical mass in the production and supply chain. It is vital that Australian producers capture the competitive advantage by cooperating both horizontally and vertically in supply chains and working with governments to facilitate trade (DPIE 1998). 'Supermarket to Asia' is one Commonwealth Government program that provides information and funding assistance to producers, to develop supply chains and to access overseas markets (refer Appendix 3).

Australian aquaculture producers have little impact on supply and prices in global markets and are mainly price takers. However, Australian aquaculture producers do have a number of competitive advantages over their international counterparts that put them in a prime position to access and hold niche markets and demand premium prices.

For example, Australia is relatively free of many of the infectious diseases that limit or prevent aquaculture in other countries. Australia has in place quarantine procedures to maintain this disease free status. Recent changes to import restrictions for some aquaculture products, have increased industry concerns of disease outbreaks in Australia (refer section 4.4 *Regulatory Framework*).

A history of regular environmental monitoring by industry and government largely ensures that aquaculture production in Australia is carried out in an ecologically sustainable manner and in a clean environment. Australian produce, in general, has a reputation overseas of coming from a 'clean and green' environment and being of a high quality and safe to eat. The opportunity is there for Australian aquaculture producers to exploit this perception. To do this, producers should continue to improve ecological sustainability; comply with environmental regulations; and ensure that they have implemented comprehensive food safety plans.

Many Australian native species such as Murray cod have excellent eating qualities that make them attractive to overseas consumers. As the first to domesticate and exploit these species, Australian producers have a natural advantage over their competitors, although more promotion is needed in new markets to raise product awareness.

The capacity to produce product out-of-season with northern hemisphere producers and wild-fisheries offers Australian aquaculture producers another opportunity to gain a foothold in niche markets.

One of the major issues faced by Australian aquaculture producers in accessing and maintaining overseas markets is an inability to produce sufficient and consistent amounts of product. As the Australian aquaculture industry is still relatively young there are a large number of small to medium businesses looking to export, but lacking the scale of production to do so. Formation of joint marketing ventures and cooperatives are two options for improving export capacity.

Consumption of fisheries products in developing countries in Asia increased by around 8.5 per cent a year over the period 1991/93 to 1995/97. Consumption has increased rapidly in China (94 per cent), Malaysia (89 per cent) and Thailand (27 per cent). The increased consumption is due to an increasing ability to afford seafood and a one per cent annual increase in population (Brown and Connell 2001).

In developed countries such as Europe, United States, Japan and Hong Kong, demand for fisheries products has shown reasonable growth during the 1990s. This demand has been driven by a number of key trends, including increasing affluence, an increase in eating outside the home, a trend toward eating healthier foods, greater diversity in food intake and improvements in the availability of seafood (Brown and Connell 2001).

It would appear that Australian aquaculture producers should continue to focus their efforts on creating and accessing niche markets in developed countries for high value and quality seafood. In the longer term, increased economic development in developing countries, such as China, may result in emerging opportunities to develop niche markets for high quality and value products.

If the aquaculture industry is to be competitive it must exploit its competitive advantages; constantly adapt to changing preferences and expectations of consumers; and adapt to changing market conditions. To do this, the industry needs to focus on meeting market demands (Cox, Davies, Hardcastle and Stubbs 2001) and develop marketing and export strategies at grower, regional and national levels.

How can the aquaculture industry better exploit its competitive advantages?

What assistance does industry need to develop strategic alliances to access markets and develop critical mass in the production and supply chain?

How can industry get better access to market intelligence to identify and develop new niche markets?

What will it take to develop marketing and export strategies at grower, regional and national levels?

4.3.5.3 Market Access and Trade

Fishery products are one of the most internationally traded of all foodstuffs, with between 35 and 40 per cent of fisheries production traded annually. International trade in fishery commodities was estimated to be US$53.4 billion dollars in 1999 (FAO 2000).

Imports of fisheries products are highly concentrated in a limited number of mainly developed countries. Japan is the world's largest individual market for fisheries products, importing 23 per cent of all imports of fishery products in the world in 1998, while the United States accounted for a further 16 per cent. These two countries together with the European Union account for three-quarters of all imports of fishery products in the world (FAO 2000).

Australia engages in a range of international fora such as the World Trade Organisation (WTO); Asia-Pacific Economic Cooperation (APEC) and Organisation for Economic Cooperation and Development (OECD), in order to facilitate access for Australian commodities into overseas markets and ensure Australia's trade interests are protected.

Governments and private companies also engage with other countries through bilateral arrangements. For example, substantial lobbying of the European Union (EU) over recent years by the Australian Prawn Promotion Association and the Commonwealth Government saw EU import tariffs for prawns reduced, albeit on a temporary basis.

Trade barriers provide an impediment to efficient trading in seafood and a barrier to Australian exporters. Import tariff rates for seafood products in the APEC region (Table F) are directly related to the level of processing, with higher tariffs for higher levels of domestic processing (Brown and Connell 2001).

Table F: Tariffs on seafood imports in selected APEC countries, 1998 a, b

	China %	Hong Kong %	Japan %	Chinese Taipei %	Korea %
Tuna (all products)	-	-	3.5	-	-
Live, fresh or chilled	15-20	-	-	12.5-20	20
Frozen	15	-	-	12.5-35	10
Fillets	30	-	-	35	10-20
Rock lobster (all products)	30	-	-	-	20
Live, fresh or chilled	-	-	1.0	42.5	-
Frozen	-	-	1.0	35	-
Dried, salted or in brine	-	-	-	35	-
Prawns (all products)	30	-	1.0	-	20
Live, fresh or chilled	-	-	-	22.5	-
Frozen	-	-	-	22.5	-
Dried, salted or in brine	-	-	-	37.5	-
Scallops (all products)	-	-	-	15	20
Live, fresh or chilled	30	-	-	-	-
Frozen	-	-	-	-	-
Dried, salted or in brine	-	-	-	-	-
Abalone (all products)	40-45	-	7	-	20
Live, fresh or chilled	-	-	7	-	-
Salted or in brine	-	-	5.3-15	-	-
Dried	-	15	9-10.5	-	-

a The rates presented in this table are on a most favoured nation basis.
b Tariffs can differ according to the species. Source: APEC, Brown and Connell 2001.

The majority of Australian seafood exports are subject to non-tariff barriers, such as import quotas, food safety regulations, quarantine regulations, subsidies to domestic producers, and even delays by the importing country in clearing and forwarding imported goods. Meeting increasingly strict food safety and quarantine import requirements from countries adds to the cost of exporting. Given the relative elusiveness of non-tariff barriers, it is difficult to estimate the extent to which Australian exports are impeded. Nevertheless, it is likely that non-tariff barriers have influenced trade to a much greater degree than have tariff barriers (Hartman, Klijn and Cox 2000). Food safety and quarantine are discussed in more detail in section 4.4 *Regulatory Framework*.

Requirements by importing countries for certification and labelling, to identify environmental sustainability and/or genetically modified organisms (GMOs) in human foods and feed for animals destined for human consumption are other forms of non-tariff barriers.

Despite steady reductions in tariffs on fish and aquaculture products in recent years, tariffs and non-tariff measures continue to adversely impact on Australian exporters. If trade barriers were to be reduced then the volume of world seafood trade would increase to the benefit of Australian producers.

How can industry and government work together to reduce tariff and non-tariff barriers in key overseas markets?

What support does industry require to identify and meet domestic and international market demands? Are existing government assistance and incentive schemes (refer Appendix 3) adequate?

4.4 Regulatory Framework

4.4.1 Objective

To ensure an efficient business environment.

4.4.2 Summary of impediments and opportunities

- Removing the administrative burden of regulations on aquaculture businesses.
- Ensuring regulations meet government and industry needs.

4.4.3 Management

The key challenge facing governments and industry is to work together to ensure that aquaculture regulations and approval processes are soundly based, equitable, enforceable and, where appropriate, consistent throughout Australia.

Commonwealth legislation and regulations for ecologically sustainable development, food safety, aquatic animal health, quarantine, trade and taxation also apply to aquaculture.

State/Territory and Local Governments have direct management control over aquaculture in most areas within their boundaries. State/Territory regulations are in place to ensure ecological sustainable development and environmental protection, allocation and management of resources, disease notification, access to broodstock or juveniles and compliance with State/Territory food safety regulations. Local Governments are responsible for providing some facilities for aquaculture and for ensuring that planning and zoning processes under their control do not adversely affect the environment and other resource users.

The Ministerial Council of Forestry, Fisheries and Aquaculture (MCFFA), SCFA and the Aquaculture Committee of SCFA (Box 3) are the main mechanisms for coordinating Commonwealth and State/Territory Government actions on aquaculture. These groups meet anywhere from one to four times

a year. Given the extensive membership of these groups it is often difficult to discuss issues fully and to coordinate responses to resource and conservation issues.

Box 3: Commonwealth, State and Territory Coordination

The linkage between Commonwealth and State and Territory fisheries and aquaculture management is through the Ministerial Council on Fisheries, Forestry and Aquaculture (MCFFA). The Ministerial Council is supported by a number of Committees including the Standing Committee on Fisheries and Aquaculture (SCFA) which provides a mechanism for State, Territory and Commonwealth Directors of Fisheries and Aquaculture to discuss and resolve issues that affect Australia's fisheries nationally.

An SCFA sub-committee comprising State, Territory and Commonwealth Directors of Aquaculture and the CSIRO discusses, coordinates and reports to SCFA on those issues that affect Australia's aquaculture industry nationally.

Aquaculture Management in Australia

The Australian and New Zealand Environment and Conservation Council (ANZECC) and the Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) are other governmental committees dealing with issues relevant to aquaculture, such as resource and conservation management, and food safety.

There are many Commonwealth, State/Territory and Local government authorities that have direct and indirect responsibility for regulating aquaculture. In the absence of a coordinating mechanism there is an increased likelihood that inconsistencies will arise in respect of the scope and application of regulations between and within jurisdictions and duplication of processes and data between authorities. Poor coordination increases the costs to governments and industry of administering and complying with regulations.

A process likely to reduce the complexity of dealing with multiple authorities is the 'one stop shop' approach to processing site applications, whereby applicants deal with a single agency that interacts with each of the consenting bodies.

Tasmania is the only State/Territory that has introduced a complete 'one stop shop' system for aquaculture. The Tasmanian Department of Primary Industries, Water and the Environment approves

site allocations, licenses and conducts environmental assessments. Other States have 'one stop shops' in place for each of the three individual processes. For example, in terms of site allocation, some States/Territories have a 'one stop shop' system in place for marine aquaculture. These include Western Australia, New South Wales, Victoria and the Northern Territory. New South Wales, Western Australia, Victoria, Northern Territory and South Australia have developed 'one stop shops' for aquaculture licensing (Cox, Davies, Hardcastle and Stubbs 2001).

Many of industry's concerns about the administrative burden of legislation relate to application of environmental legislation. This is not surprising given the complex nature of applying and monitoring ESD.

It is difficult to determine the extent to which delays in administration of assessment and approvals under environmental legislation might have hindered aquaculture development. That the above issues were also raised in the 1994 National Aquaculture Strategy (SCFA 1994), in an Australian Seafood Industry Council discussion paper "Australian Coastal Aquaculture: Economic, Social and Ecological Perspectives" in 1996 (ASIC 1996) and at the 1999 National Aquaculture Beyond 2000 Workshop (ACIL 1999) suggests that for some time industry has been frustrated by environmental assessment and approval processes in general. It also indicates that neither governments nor industry have been overly successful to date in simplifying or streamlining processes.

One option to streamline the process is for the Commonwealth Government to accredit State/Territory assessment processes for the purposes of Commonwealth legislation. Commonwealth and State/Territory Governments are currently working to accredit State environmental assessment processes for the purpose of the Commonwealth EPBC Act. Accreditation of State/Territory assessment processes would do away with the need for detailed assessments under Commonwealth laws. Negotiations are under way between the Commonwealth Government and State/Territory Governments to develop bilateral agreements on accreditation of assessment processes in accordance with the EPBC Act. While this process is underway, the aquaculture industry and governments need to identify other ways in which they can work better together in administering and complying with environmental and other regulations.

How can the existing working relationships between the key industry, State and Commonwealth agencies involved in aquaculture policy and management be improved?

Do Commonwealth and State/Territory Government regulation and policy frameworks reflect and address community perceptions of aquaculture?

Do 'one-stop-shops' work? If so, should all States/Territories be encouraged to implement them? Would this concept be feasible at the national level?

Would a Commonwealth policy for aquaculture assist development? If so, what should the national policy focus on

What can governments do to minimise any adverse administrative impacts of environmental legislation on the aquaculture industry?

4.4.4 Food safety

Consumers expect that the food they eat will not make them sick. Consumer concerns over seafood safety is one of the major impediments to increased domestic consumption of seafood (Ruello 1999). Therefore food businesses (including aquaculture producers, processors and retailers) need to provide assurances to the public and have in place plans to ensure that the food they produce and handle is safe to eat.

The Australian New Zealand Food Authority (ANZFA) is a statutory authority operating under the *Australia New Zealand Food Authority Act 1991*. ANZFA works with the Australia New Zealand Food Standards Council (ANZFSC) of health Ministers to develop and maintain laws and systems that regulate food in Australia and New Zealand.

ANZFA develops food standards and other regulatory measures for Australia and New Zealand. Food standards are published in the *Food Standards Code* once they are approved by ANZFSC. The Authority is currently reviewing the *Food Standards Code* to deliver food regulations that are consistent, easier to interpret, less prescriptive, more generic and fewer in number.

Currently, all food producers, including those in the aquaculture sector, have an obligation to make and sell 'safe' food under the *Food Standards Code* and State and Territory Food and/or Health Acts. The food safety standards have been developed to provide the means to ensure that this legal obligation is met.

Every aquaculture business should have in place a comprehensive food safety plan that identifies the potential food safety hazard in an operation and the actions necessary to reduce the chances of a food poisoning outbreak occurring.

Seafood Services Australia (SSA) is a program established and funded by the FRDC that provide information to the seafood industry on food safety and quality systems (see Appendix 3).

While food safety plans are relevant to all aquaculture producers, they are not sufficiently specific for some species. For example, bivalve molluscs, such as mussels and oysters, are often farmed in estuaries and rivers, which are, occasionally subjected to pollution from a range of human activities including run-off from urban and agricultural areas. The Australian Shellfish Sanitation Control Program (ASSCP) was established by Commonwealth, State and Territory Governments to provide a reasonable assurance for consumers and producers that bivalve molluscs are safe for human consumption. It is mandatory that all exports of bivalve molluscs be accredited under the ASSCP program. Unfortunately, shellfish sold on the domestic market do not require this level of accreditation.

What can be done to strengthen consumer confidence in the safety of aquaculture products?

How can the aquaculture industry apply in a feasible manner the same minimum export-standards for food safety to domestic production?

How do governments and industry ensure that new and existing food regulations do not put excessive requirements on industry, whilst making sure industry meets appropriate standards and adopts relevant codes of practice?

4.4.5 Chemicals and residues

Aquaculture producers occasionally need access to a range of agricultural and veterinary chemicals to control pests and diseases on their farms, and maintain water quality. The possibility of chemical residues in food is an important issue both domestically and in trade. The health and safety of farmers using chemicals is also an issue.

Importing countries, such as the USA, are becoming increasingly aware of drug and chemical residue issues in food products and are requiring certification and testing as part of the import approval process for food products.

Under the *Chemical and Veterinary Chemicals Code Act 1994*, all chemicals must be registered by the National Registration Authority for Agricultural and Veterinary Chemicals (NRA) before they can be supplied, sold or used in Australia. There is a need to ensure that adequate data on the intended chemical use, withholding periods etc., can be collected to enable the NRA to register a chemical for use in aquaculture. Refer to Appendix 3 for more information on the NRA.

The Australian aquaculture industry does not need to use significant amounts of chemicals because it is free of many diseases found in other countries. The challenge remains for the aquaculture industry, governments and regulatory authorities to develop strategies that combine efficient production methods without detrimental effects to food products, the environment, the safety of target animals, and the

safety of persons who administer the compounds (Percival 2000). There are opportunities to streamline and reduce the cost of the registration process for chemicals by taking a national approach to data collection and registration.

Is national coordination of registration of chemicals required? If so, how should it be set up and who should pay for it?

4.4.6 Aquatic animal health

Disease is currently a major constraint to aquaculture growth in many countries and many exotic pathogens would pose a serious threat to aquaculture producers if they were introduced in Australia. Thus, the maintenance of fish health; minimising the risks of disease incursions and outbreaks; and development of programs enabling rapid detection and response to any health or disease problem is critical to ensuring further industry development (ACIL 1999).

In December 1999, the Commonwealth Government released the National Aquatic Animal Health Plan (AQUAPLAN) (AFFA 1999). AQUAPLAN is a comprehensive strategy, developed jointly by industry and government, that outlines objectives and projects to develop a national approach to emergency preparedness and response and to the overall management of aquatic animal health in Australia. AQUAPLAN addresses aquatic animal health issues in eight key strategic programs. These are international linkages; quarantine; surveillance, monitoring and reporting; preparedness and response arrangements; awareness; research and development; legislation, policies and jurisdiction; and resources and funding. The AQUAPLAN programs are now at various stages of implementation.

The current outstanding issues regarding implementation and maintenance of AQUAPLAN include weak communication links between key stakeholders; no established compensation arrangements; lack of ownership of the program; and importantly the need to secure resources from government and industry for the on-going implementation and maintenance of the program. It has also become apparent that there is a general lack of qualified fish health experts in Australia to undertake and develop diagnostic services.

Incursions of endemic and exotic pests, weeds and diseases in the aquatic environment need to be managed to maintain biodiversity and to protect the aquaculture industry from disease.

Australia will develop and implement a National System for the Prevention and Management of Marine Pest Incursions during the next two years, including prevention systems to reduce the risk of importation and translocation of introduced marine pests; coordinated emergency responses to new incursions and translocations; and ongoing control of introduced marine pests already in Australia.

Australia reports to the *Office International des Epizooties* (OIE) which is the World Organisation for Animal Health. The OIE provides animal health guidelines and standards relating to the diagnosis of disease, risk assessment, import/export procedures and trade certification. Member countries provide regular reports against a list of notifiable diseases. The WTO recognises OIE standards as the international benchmark.

Are the current arrangements for handling aquatic pests and aquatic diseases considered adequate? How can they be improved?

How can industry and government improve diagnostic capacity in terms of skilled fish health personnel and technologies?

What industry resources and commitment to health management programs, particularly the AQUAPLAN, needs to be undertaken?

How can the fish health management capacity of aquaculturalists be improved?

4.4.7 Quarantine

The importation of aquatic animals and animal products involves a degree of disease risk to Australian aquaculture. Australia's quarantine, agriculture and food export laws are a national responsibility and are administered by the Australian Quarantine and Inspection Service (AQIS) and Biosecurity Australia within AFFA (refer Appendix 3).

Biosecurity Australia is responsible for developing new policy or reviewing existing quarantine policy on imports of animals and plants and animal and plant products. The development and review of quarantine policy is undertaken as an import risk analysis (IRA). Biosecurity Australia consults with stakeholders through Animal Biosecurity Policy Memoranda (ABPMs), and Plant Biosecurity Policy Memoranda (PBPMs).

In applying quarantine restrictions, countries under the WTO, such as Australia, must demonstrate that any restriction constitutes an appropriate level of protection (ALOP). WTO member countries define their ALOP in accordance with their views on such risks. The ALOP concept also protects WTO members against trade discrimination through the inconsistent application of import protection regimes. What actually constitutes an ALOP is clarified and refined continually in practical terms via cases before the WTO (Wilson 2000).

Recently completed IRA relevant to aquaculture include marine finfish; non-viable salmonids; and ornamental finfish. Given the potential impact of a disease outbreak from imported products, it is important that an IRA is conducted in a transparent manner and industry is fully consulted.

On quarantine matters, the aquaculture industry has expressed concerns over diseases entering Australia through imports of aquaculture products from overseas, real and perceived inequalities between countries on ALOP for products, as well as lack of resources to adequately respond to IRA and WTO related processes. These issues were highlighted by the salmon industry's involvement recently in the IRA and WTO case on the importation of uncooked Atlantic salmon meat from overseas.

What can the aquaculture industry do to put itself in a stronger position to respond to any changes in import quarantine protocols for aquatic products?

How can the aquaculture industry and Commonwealth Government work together to better respond to any overseas challenges on import quarantine restrictions for aquatic products?

4.5 Research and Development

4.5.1 Objective

To maximise the benefits of research and innovation.

4.5.2 Summary of impediments and opportunities

- Increasing funding for aquaculture R&D.
- Keeping current R&D focussed on meeting core needs.
- Improving transfer of R&D between researchers and industry.
- Improving management and protection of intellectual property.

4.5.3 Funding

The three key elements in the innovation process include:

- strengthening the ability to generate ideas and undertake research;
- accelerating the commercial application of those ideas; and
- developing and retaining Australian skills (ISR 2001).

Much of the research and development in aquaculture is carried out or funded by State/Territory and Commonwealth government departments and universities. In 1996/97 total Commonwealth and State/Territory government expenditure on aquaculture research was $22.9 million or 5.2 per cent of the gross value of production for the same year (Cox, Davies, Hardcastle and Stubbs 2001). Commonwealth government R&D programs and providers are listed in Appendix 3.

State/Territory Governments together fund and undertake more aquaculture research and development than the Commonwealth. State/Territory Governments have research centres responsible for aquaculture that are attached generally to the department responsible for aquaculture.

In general, research by industry, while difficult to measure, is comprised of on-farm experimentation within companies. Industry also contributes to and cooperates with public sector agencies and funding sources (Cox, Davies, Hardcastle and Stubbs 2001). The amount of funding contributed by the aquaculture industry varies markedly across the States/Territories and between sectors of the industry within the States/Territories. Industry contributions to the FRDC are voluntary. Under current arrangements the industry could attract more government funds if it was prepared to contribute more itself (ACIL 1999). Many small to medium scale aquaculture producers are either unable to or are not convinced that it is worth investing in collaborative R&D.

How can the aquaculture industry take full advantage of R&D tax deductibility provisions and government funding incentives?

How can the aquaculture industry encourage all sectors of the industry to contribute to R&D funding?

4.5.4 Focus

One of the major issues raised by industry participants at the 1999 National Aquaculture Beyond 2000 Workshop concerned the lack of strategic targeting of R&D, to make best use of limited resources. This issue was also considered in the 1994 National Aquaculture Strategy.

There are currently over 70 aquaculture species being researched by Australian research institutions. The FRDC is funding research projects for 35 species. It is highly unlikely that all these species will be commercially successful, particularly given that just five species account for over 85 per cent of the gross value of production of Australian aquaculture. While it is not reasonable to expect a 100 per cent success rate with research and development projects, there does appear to be scope for rationalising the number of species being researched through public funding. This has the potential to better concentrate available funds on those species considered to have a substantial probability of commercial success (Cox, Davies, Hardcastle and Stubbs 2001). A number of methodologies have been suggested for setting R&D priorities.

In its 2000-2005 strategic plan, the FRDC has stated that it will only invest in the five most valuable species or other species that have been successfully commercialised or have high potential for commercialisation (FRDC 2000).

Traditionally, much of previous R&D in aquaculture has focussed on new research, rather than development and extension of existing research.

At the 1999 National Aquaculture Beyond 2000 Workshop it was suggested that research should only be funded for those species for which there was a good knowledge of the biology of the species; market potential; and where marginal advantages are able to be exploited in Australia (ACIL 1999).

It is a difficult task to focus and coordinate aquaculture R&D at a national level because Commonwealth and State/Territory Governments, researchers and industry often have different research priorities. As a minimum, a mechanism needs to be in place to ensure there is no duplication of effort in research between providers. A further step could be to develop and introduce a consistent set of national evaluation criteria that all research providers agree to use to identify research subjects. For example, agree to fund research of only those species that are marketable, capable of domestication within a reasonable timeframe and will be profitable (ANZFAC 1992b). The Commonwealth Government and National Aquaculture Council are well placed to assist with coordination and focusing of aquaculture R&D at a national level.

Many aquaculture species in Australia have only been cultured commercially for the last 20 years, so there is still considerable potential to realise productivity benefits from selective breeding and other biotechnology. Domestication of new native species; improved disease diagnosis and treatment; improved aquaculture systems; improved environmental management systems; and identifying key markets are some of the major research needs identified by the aquaculture industry.

Advances in gene technology has the potential to provide significant benefits to the Australian aquaculture industry, directly through higher productivity, and indirectly from lower feed costs flowing through from increased crop production, because of higher crop yields. The Commonwealth Government, through various regulatory agencies, monitors the use of gene technology.

To date, there has been a lack of aquaculture industry interest in the use of genetically modified organism (GMO) technology to enhance industry prospects. This attitude is due to uncertainty surrounding whether such products, if produced, would be marketable, based on current consumer attitudes. This is a reasonable approach given that Australian aquaculture produce commands premium prices, based on its superior quality and clean, green, natural image. Additionally, some countries may soon elect to ban imported GMO foods. Despite current trends away from consumption of GMO food, there may well come a time when competitive pressures, combined with increasing consumer acceptance of GMOs make the adoption of GMO technology in aquaculture necessary to maintain competitiveness.

It is still unclear whether all or only parts of the Australian aquaculture industry support a position of not using GMO technology. The industry needs to clarify its position in respect of GMO use so that it is in a better position to influence and respond to government policy and consumer needs and attitudes.

Some of the industry's major sectors have an on-going dependency on imported and fish based feeds. Feed constitutes a substantial proportion of production costs and much research has been undertaken in the past (and still needs to be undertaken) to develop cheaper, grain-based and locally manufactured feeds capable of replacing expensive imports of feed fish and fish-based feeds.

What can be done to empower industry to take a stronger role in prioritising and undertaking research?

Are the current funding structures delivering the best return on investment for research and development?

Do producers have access to the critical technology they need for growth?

Is industry identifying key technologies that they are already world leaders in and how well are they using them to gain a competitive advantage?

What should a national aquaculture industry policy on genetically modified organisms cover?

4.5.5 Technology transfer

Technology transfer is about improving the productivity and competitiveness of industry by facilitating implementation of research. It is therefore vital that appropriate mechanisms and incentives are in place for building strong links between funding bodies, research providers and industry.

One existing mechanism is the Commonwealth Government's Co-operative Research Centres (CRC) program administered by the Department of Industry, Science and Resources. The CRC program provides matching funding to State/Territory Government and industry contributions to facilitate long-term collaborative research between industry and researchers in key industry sectors. A CRC for Aquaculture was funded from 1994 to 2000. Recently funding has been allocated to a Sustainable Aquaculture of Finfish CRC (Aquafin CRC) that will undertake key research in salmon and tuna over the next seven years. Other Commonwealth Government programs aimed at facilitating technology transfer are described in Appendix 3.

Other options for building stronger linkages between industry and research include establishment and collaboration in technology networks; demonstration projects; and workshops.

How can new technologies be effectively and efficiently implemented or applied?

How can arrangements between governments, industry and researchers be improved to facilitate the sharing of information and to reduce duplication of effort? What is the potential for e-mail/internet versus extension officers?

How can the links between producers, extension officers and researchers be strengthened?

4.5.5.1 Strengthening international alliances

Developing international alliances between industry, governments and researchers can also facilitate technology transfer. There is an opportunity to sell Australian research and technology overseas. There are also benefits to be derived from learning from overseas research and experience. Sales of Australian expertise and learning from overseas experience can be facilitated through participation in collaborative projects; workshops; study tours; trade shows; exchanges and accessing major international research facilities.

The Commonwealth Government has established formal information and trade sharing agreements with China and Thailand. Technology and trade alliances can also be facilitated through Australian membership of the Network of Aquaculture Centres in the Asia-Pacific (NACA), Food and Agriculture Organisation (FAO), and Asia-Pacific Economic Cooperation Forum (APEC).

With membership to the above organisations there is significant opportunity for technical exchange with overseas countries, yet to date, much of this opportunity has remained untapped.

One example of the benefits that can be gained through collaborative research is the joint research Australian researchers have been doing with their Asia-Pacific counterparts, facilitated by NACA and APEC, on aquaculture of tropical reef fish. Live reef fish are currently caught from tropical reefs in the Asia-Pacific region for Asian markets. Prices for live reef fish have remained high, despite the Asian economic crisis, with some species fetching average wholesale prices of $140 - $150/kg (Rimmer 2000). While Australian researchers are still some years away from developing reliable aquaculture techniques for reef fish, the collaborative research with international institutions has brought us much closer to establishing a valuable reef fish farming industry than would have otherwise been the case.

How can Australian industry and researchers develop better linkages with their international counterparts?

4.5.6 Intellectual property

The significant investment by the aquaculture industry in new species and processes in Australia raises the issue of protecting the resultant intellectual property. Some sectors of the aquaculture industry have expressed concern that current exports of live Australian native fish species could lead to overseas competition. For example, red claw, marron, silver perch and golden perch are all produced overseas. On the other hand, Australia's relatively disease free status provides opportunities for on-going export sales of certified pathogen free seedstock. The proximity of Australia, particularly the tropical north, and the potential for out of season seedstock sales, provide other advantages (O'Sullivan 2001).

Given the often-complex nature of farming aquatic products, much of the intellectual property may not so much be found in key technologies or species but rather in the corporate knowledge accumulated over time. Special attention should be made to protect corporate knowledge by retaining key staff.

To what extent is it possible to protect intellectual property?

Should Australian manufacturers be encouraged to expand their production through the sale of live fish, equipment and technology overseas? Will this erode our competitive advantages?

4.6 Education and Training

4.6.1 Objective

To develop the capacity of the aquaculture industry to convert the intellectual capital of its workforce into a highly competitive product or service.

4.6.2 Summary of impediments and opportunities

- Improving access to education and training resources that meets industry needs at all levels.
- Improving work practices and workplace environment.

4.6.3 Focus

There are now a wide variety of educational institutions in all States/Territories offering aquaculture education and training and supply now probably exceeds demand. In the past, the aquaculture industry has been characterised by low levels of formal qualifications amongst workers and a lack of clearly defined career paths. However as the seafood industry is experiencing significant growth, there is an identified need for more integrated forms of education and training to develop a high-level multi-skilled workforce.

As the demand for aquaculture products increases in the domestic and international market place, so will the need for a highly flexible workforce that can maintain high levels of competency in all areas, particularly food safety and total quality management.

Closing the gap between research and development requires the integration of high-level education, hands on skills and management training to maintain a competitive advantage. As the aquaculture industry adopts new research and technologies, there will be an increased reliance on trained employees. Changing technologies are impacting upon work practices at all levels of industry and will result in the further growth of in-house and specialist courses.

The growing strength of aquaculture, both locally and globally, will also have a significant impact on the processing and value-adding sector. It is expected that strong employment growth in both sectors will result in a high demand for training both at the entry level and through up skilling programs.

There is a growing trend for the aquaculture industry to embrace training as a key component of business operation, but as many operations are outside metropolitan areas, the need for flexible training to meet individual enterprise requirements has been highlighted.

As a response to this need, the Australian seafood industry established Seafood Training Australia to manage the introduction of competency based training through the development of training packages for the Australian seafood industry. To accomplish this task, it draws upon assistance from industry and government programs such as the FRDC, Australian National Training Authority and the Commonwealth Department of Education, Training and Youth Affairs.

Seafood Training Australia is currently implementing a National Seafood Training Package across Australia. The National Seafood Training Package will provide more relevant training and meet the needs of both new entrants and existing industry personnel, who require access to individual competencies rather than whole courses.

It is expected that the biggest change relating to education and training will be through the delivery of workplace training, as more industry members are keen to manage their training on site. Access continues to be a major issue for an industry that is widely dispersed throughout regional and rural Australia. Recognition of prior learning (RPL) is also an area with strong growth with an increase in the demand for workplace assessors to facilitate the process on site.

In contrast, higher education courses have continued to produce an oversupply of graduates for a limited number of technical and scientific officer positions. Industry demand for these types of courses remains quite limited with existing graduates continuing to compete for a relatively small number of specialist positions. Consideration needs to be given towards higher level education and training to become less focussed on research outcomes and more supportive towards integrated industry development, which includes a stronger emphasis on management and marketing.

Current training and education courses need to be more enterprise relevant and meet industry needs. There has been recent evidence that a number of graduates of diploma and to degree courses have been recruited by the industry at a traineeship level, in order to gain more practical competencies (Seafood Training SA Industry Training Plan 2001-2003).

Does the aquaculture industry have adequate access to training?

Is the Seafood Industry Training Package sufficient to underpin the hands-on aspect of workforce education and training? If not, what must be done to reduce any shortcomings?

What specialist courses and training needs should be implemented to raise industry's technical and management capacity?

4.6.4 Workplace relations

The ability of industries to grow and adapt successfully to an increasingly competitive world-trading environment depends on part on the skills and flexibility of both management and the workforce.

The workplace relations system in Australia has undergone significant changes and reform during the past few years. The introduction of the Workplace Relations Act 1996 provided employers and employees with the opportunity to enter into more flexible working arrangements. Agreement making is now the main focus of the national workplace relations system.

The biggest issue regarding workplace relations in the aquaculture industry concerns the occupational health and safety of employees. Depending on the species cultured, some aquaculture farmers and employees may need to work with hazardous chemicals or in potentially dangerous situations such as diving around and working on ocean-based cages and nets or in and around large tanks and dams. Employers should ensure employees receive regular training in the proper and safe use of equipment, as

well as providing appropriate protective gear and safe workplaces. Development of guidelines for safe work practices for various sectors of the industry may assist.

Is workplace relations an issue for either employers or employees in the aquaculture industry?

Are current guidelines for safe work practices satisfactory? If not, how can they be improved?

5 GLOSSARY OF ABBREVIATIONS AND ACRONYMS

AAF	Australian Aquaculture Forum (now NAC)
ABARE	Australian Bureau of Agricultural and Resource Economics
ABPM	Animal Biosecurity Policy Memoranda
ABS	Australian Bureau of Statistics
AFFA	Commonwealth Department of Agriculture, Fisheries and Forestry - Australia
ALOP	Appropriate Level of Protection
ANFAC	Australian and New Zealand Fisheries and Aquaculture Council (now MCFFA)
ANZECC	Australian and New Zealand Environment and Conservation Council
ANZFA	Australian New Zealand Food Authority
AQIS	Australian Quarantine and Inspection Service
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
ASIC	Australian Seafood Industry Council
ASSCP	Australian Shellfish Sanitation and Control Program
ATO	Australian Taxation Office
BRS	Bureau of Rural Sciences
BMPs	Best Management Practices
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CRC	Cooperative Research Centre
CSIRO	Commonwealth Scientific and Industrial Research Organisation
ESD	Ecologically Sustainable Development
FAO	Food and Agriculture Organisation of the United Nations
FRDC	Fisheries Research and Development Corporation
GMO	Genetically Modified Organism
IP	Intellectual Property
IRA	Import Risk Assessment
ISR	Commonwealth Department of Industry, Science and Resources
MCFFA	Ministerial Council on Fisheries, Forestry and Aquaculture
NAC	National Aquaculture Council
NACA	Network of Aquaculture Centres in the Asia-Pacific
NADC	National Aquaculture Development Committee
OECD	the Organisation for Economic Cooperation and Development
OH&S	Occupational Health & Safety
OIE	Office International des Epizooties
PBPM	Plant Biosecurity Policy Memoranda
RPL	Recognition of Prior Learning
SCFA	Standing Committee on Fisheries and Aquaculture
SSA	Seafood Services Australia
WTO	World Trade Organisation

6 BIBLIOGRAPHY

ABARE (Australian Bureau of Agricultural and Resource Economics) 2001, *Australian Fisheries Statistics 2000*, Canberra.

ABS (Australian Bureau of Statistics) 2000, *Apparent Consumption of Foodstuffs, 1997-98 and 1998-99*, cat. no. 4306.0, Canberra.

ABS 1999, *Business Register Counts*, cat. No. 8132.0.45.002, Canberra.

ACIL 1999, *Aquaculture Beyond 2000 Workshop: Facilitator's Report*, Report prepared for Fisheries and Aquaculture Branch, Agriculture, Fisheries and Forestry – Australia, Canberra.

AFFA (Agriculture, Fisheries and Forestry – Australia) 1999, *AQUAPLAN: Australia's National Strategic Plan for Aquatic Animal Health 1998 – 2003*, Commonwealth of Australia, Canberra.

ASIC (Australian Seafood Industry Council) 1996, *Australian Coastal Aquaculture: Economic, Social and Ecological Perspectives: A Discussion Paper*, Canberra.

Australian Aquaculture Forum 1998, *Code of Conduct for Australian Aquaculture*. Canberra.

Australian and New Zealand Fisheries and Aquaculture Council (ANZFAC) Working Group on Aquaculture 1992a, *Draft National Aquaculture Strategy – Discussion Paper*, Canberra.

ANZFAC Working Group on Aquaculture 1992b, *Draft National Aquaculture Strategy – Technical Papers for Discussion*, Canberra.

Batterham, R. 2000, *The Chance to Change, Final Report of the Australian Science Capability Review*, Canberra.

Brown, R. 2001, Clusters, *Innovation and Investment: Building global supply chains in the New Economy*, Australian Project Developments Pty Ltd, Canberra.

Brown, D. and Connell, P. 2001, Market Demand for Australian Aquaculture Products, Report prepared for the Fisheries Resources Research Fund, Canberra, January.

Commonwealth of Australia. 1992, *National Strategy for Ecologically Sustainable Development*, Canberra.

Cox, A., Davies, L., Hardcastle, S. and Stubbs, M. 2001, *Aquaculture Development in Australia: A Review of Key Economic Issues*, Report prepared for the Fisheries Resources Research Fund, Canberra, May.

CRC (Cooperative Research Centre) for Aquaculture 1999, *Fish Bites*, Newsletter of the CRC for Aquaculture, Issue No 19, Autumn 1999.

Deloitte Touche Tohmatsu, 2000, (unpublished), *Tasmanian Farmed Aquaculture Industry Survey 2000*, Report prepared for the Tasmanian Aquaculture Council, Hobart.

DPIE (Department of Primary Industries and Energy) 1998, *Chains of Success: Case studies on international and Australian food businesses cooperating to compete in the global market*, Canberra.

DTRS (Dept. of Transport and Regional Services) 2001, *The Rural Book*. 2001 Edition, Canberra.

EconSearch Pty Ltd 1998, *The Economic Impact of Aquaculture in the Eyre Peninsula Region and South Australia 1998/99*. Report prepared for Aquaculture Group, Primary Industries and Resources, South Australia.

FAO (Food and Agriculture Organisation of the United Nations) 1989, *Aquaculture production (1984-1986)*. FAO Fisheries Circular, 815, Rome.

FAO 2000, *State of World Fisheries and Aquaculture 2000*, FAO Fisheries Department, Rome (and previous issues).

FRDC (Fisheries Research and Development Corporation), 2000, *Investing for tomorrow's fish: the FRDC's research and development plan, 2000 to 2005*. Canberra.

Hartmann, J., Klijn, N. and Cox, A. 2000. *Seafood Trade Liberalisation in the APEC region*, ABARE Research Report 2000.3, Canberra.

Hird, M. 2000, *A Banker's View of Aquaculture*, Presentation at Aquafest 2000, Hobart.

Holland, P. & Brown, D. 1999, *Aquaculture Policy: Selected experiences from overseas*. ABARE Research Report 99.7, Canberra.

ISR (Dept. of Industry, Science and Resources) 2001, *Backing Australia's Ability - An innovation action plan for the future*, Canberra.

O'Sullivan, D. 2001, *Issues Paper for the Aquaculture Action Agenda*, Dosaqua Pty Ltd, Adelaide.

O'Sullivan, D. and Dobson, J. 2000, *Status of Australian Aquaculture in 1998/99*. AustAsia Aquaculture Trade Directory 2000, Turtle Press, Hobart.

Percival, S. 2000, *Registration of Aquaculture Chemicals*, FRDC Research Report Project 96/314, Canberra.

Rimmer, M. 2000, *Reef fish aquaculture symposium attracts wide interest*, Article in 'Aquaculture Asia', Vol. 5, No. 4, October – December 2000, Network of Aquaculture Centres in the Asia-Pacific.

Ruello & Associates 1999, *A study of the retail sale and consumption of seafood in Sydney*. Fisheries Research and Development Corporation Project 1998/345, Canberra.

SA Fishing and Seafood Industry Training Council 2000, *Seafood Training South Australia Industry Training Plan 2001 – 2003*. Adelaide

SCFA (Standing Committee on Fisheries and Aquaculture) Working Group on Aquaculture 1994, *National Strategy on Aquaculture in Australia*, Canberra.

SCFA (Standing Committee on Fisheries and Aquaculture) Aquaculture Committee 1997, National Strategy on Aquaculture in Australia: Implementation Review, Canberra.

Weston, L., Hardcastle, S. and Davies, L. 2001, *Profitability of Selected Aquaculture Species*, ABARE Research Report 01.3, Canberra.

Wilson, D. 2000, *Appropriate level of protection*. Paper presented at Quarantine and Market Access - Playing by the WTO rules forum, 6-7 September 2000, Canberra.

APPENDIX 1: National Aquaculture Development Committee

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NATIONAL AQUACULTURE DEVELOPMENT COMMITTEE

TERMS OF REFERENCE

The National Aquaculture Development Committee will:

1) Advance the development of a sustainable, internationally competitive and export oriented aquaculture industry capable of achieving $2.5 billion in annual sales by 2010.

2) Develop and implement the Aquaculture Action Agenda including:

   a) develop a communication strategy;

   b) identify impediments to development of the industry and suggest solutions;

   c) identify and prioritise outcomes necessary to enhance growth;

   d) identify and prioritise actions required to achieve outcomes;

   e) develop a timetable for undertaking priority actions and achieving outcomes;

   f) allocate responsibility amongst stakeholders for each action;

   g) regularly review and report on progress of the action agenda.

3) Gain industry and community support for continued aquaculture development.

4) Encourage economic, social and environmental sustainable aquaculture development.

5) Encourage mutual trust and cooperation between government and the aquaculture industry.

6) Disseminate information to industry and governments regarding the Committee's business

APPENDIX 2: National Aquaculture Council

Chair

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Email: pshelley@appanel.com.au

Members

NSW Farmers Association – Oysters

Australian Tuna Boat Owner's Association

Aquaculture Council of Tasmania

South Australian Oyster Grower's Association

Australian Prawn Farmers Association (Queensland)

Pet Industry Joint Advisory Council

Victorian Aquaculture Council

Aquaculture Council of Western Australia

APPENDIX 3: Commonwealth Government programs relevant to the Australian aquaculture industry.

Following are a number of specific Commonwealth Government programs relevant to the Australian aquaculture industry.

Excellent sources of information on Commonwealth and State/Territory Government programs are:

The Rural Book 2001
For copies contact:
The Commonwealth Government Information Service
GPO Box 594
CANBERRA ACT 2601
Phone: 1800 026 222
Download a copy from the internet:
http://www.dotrs.gov.au/regional/pub

Commonwealth Government Information Service
Freecall: 1800 026 222
9am – 6pm (EST) Monday - Friday

Commonwealth and State Government Programs Supporting Innovation in Firms
For copies contact:
Innovation Systems Research and Evaluation
Department of Industry, Science and Resources
GPO Box 9839
CANBERRA ACT 2601
Phone: 02 6213 7352
Download a copy from the internet:
http://www.isr.gov.au/industry/innovation/programs.pdf

Australian Government's Business Entry Point
Internet: http://www.business.gov.au

INDUSTRY DEVELOPMENT AND INVESTMENT ASSISTANCE

Ausindustry

Ausindustry is the Commonwealth Government's business unit, designed to help Australian businesses become more innovative and internationally competitive. It does this by providing a range of commercial incentives and information services for Australian businesses through the following programs.

R&D Start Programme

The R&D Start Programme is a competitive, merit-based programme that supports businesses undertaking research and development.

R&D Tax Concession

On 29 January 2001 the Commonwealth Government announced as part of the *Backing Australia's Ability'* initiative an increase in the tax concession for companies investing in research and development. In addition to the existing 125 per cent R&D tax concession, companies that increase R&D expenditure will be able to access a premium rate of 175 per cent on the additional investment.

Co-operative Research Centres

Co-operative Research Centres (CRCs) are long-term collaborative arrangements between researchers in universities, Commonwealth and State Government research agencies and research users-either in industry or the public sector.

Technology Diffusion Programme

The Technology Diffusion Programme comprises two elements, Technology Alliances and Technology Transfer. Technology Alliances seek to improve Australia's access to global science and technology. Technology Transfer aims to improve industry productivity and competitiveness by promoting the uptake of leading-edge technologies, particularly by small and medium-sized enterprises.

Innovation Investment Fund

The Innovation Investment Fund aims to develop a venture capital market for early-stage companies to develop technology-based firms that are commercialising R&D, Funding is matched by private-sector investors on a 2:1 basis over a 10-year period.

Pooled Development Funds

The Pooled Development Funds Programme is designed to increase the supply of equity capital for small and medium-sized enterprises (SMEs).

These Pooled Development Funds are private - sector companies, established by legislation that raise capital from investors and use the capital to take equity in Australian SMEs through new shares. In return, pooled development funds and their shareholders are taxed at a lower rate on income generated through fund activities.

Commercialising Emerging Technologies (COMET)

COMET is designed to increase the commercialisation of innovative products, processes and services. It does this by providing individuals, early-stage growth firms and spin-off companies with a tailored package of support to improve their potential for successful commercialisation. Assistance is available over a maximum of two years. Two forms of assistance are offered: management skills development and tailored assistance for commercialisation.

Project By-law Scheme

The Project By-law Scheme provides import duty concessions on capital equipment used in major mining, resource processing, manufacturing and agriculture-based industries. Assistance is only available where the total value of capital equipment (from Australia and overseas) used for each significant phase of a particular project exceeds $10 million.

Tradex

Tradex provides relief to exporting companies via an up-front exemption from Customs duty and GST on imported goods intended for re-export or to be used as inputs to exports. The Scheme removes the need to 'drawback' these charges after export.
Ausindustry

GPO Box 9839
Canberra ACT 2601
Phone: (02) 6213 6000
Business Hotline: 13 28 46 (local call fee)
Internet: http://www.ausindustry.gov.au

Invest Australia

Located within the Department of Industry, Science and Resources, Invest Australia, in partnership with Austrade, has the task of promoting Australia as an attractive and competitive investment location and facilitating both domestic and foreign direct investment. Invest Australia facilitates major projects and provides a diverse range of key investor services to foreign and domestic companies considering establishing or investing in operations within Australia.

The services of its Investment Commissioners in eleven overseas locations are provided under an agreement with the Australian Trade Commission (Austrade), while the Invest Australia's offices in Sydney and Melbourne are staffed jointly by Austrade and the Department.

Feasibility studies

Invest Australia can provide financial assistance, in conjunction with State or Territory governments, to eligible companies to undertake pre-feasibility or feasibility studies into major investments.

Regional Headquarters Programme (RHQ)

Invest Australia administers the Regional Headquarters Programme, which facilitates the establishment of regional headquarters and regional operations of overseas companies. The Programme provides investors with access to tailored immigration agreements for streamlined immigration of expatriate employees and tax concessions for establishment costs.

Other assistance

Investors may also be eligible for a range of government industry programmes in areas such as research and development, export development, training and education.

Invest Australia
Level 6, 20 Allara Street
Canberra City ACT 2601
Phone: (02) 6213 6700
Phone: 1800 623 261
Fax: (02) 6213 6705
Internet: http://www.ausindustry.gov.au/

INFORMATION FOR BUSINESS

Business Entry Point

Business Entry Point is a Commonwealth Government business internet portal, providing access to a wide range of information from the Commonwealth Government and State, Territory and local governments, and access to a growing range of on-line transactions.

Business Entry Point covers a range of topics encountered by most businesses, 'Including employing staff, taxation, superannuation, starting and operating a business, exporting and importing, and legal and licensing issues.

Business Entry Point is a free service and is located on the internet at:
http://www.business.gov.au.

BizLink 2000

BizLink 2000 is the major product of the National Business Information Service. It is designed to provide small business and business advisers with easy access to comprehensive, relevant and up-to-date information on business regulation and assistance. It does this by providing information on all licences, permits and codes of practice required for business to operate

It also contains essential information on important business-related issues such as taxation, record keeping, superannuation, occupational health and safety, customs, intellectual property and workplace relations.

Bizlink 2000 is available through key government business portals such as the Business Entry Point (www.business.gov.au) and the Ausindustry website.

Ausindustry
GPO Box 9839
Canberra ACT 2601
Phone: (02) 6213 6000
Business Hotline: 13 28 46 (local call fee)
Internet: http://www.ausindustry.gov.au

Seafood Services Australia (SSA)

SSA operates under a joint agreement between the FRDC, the Centre for Food Technology of the Queensland Department of Primary Industries and the Queensland Seafood Industry Association.

SSA offers an Australia-wide service to anyone in the business of catching, farming, processing, transport, wholesaling, retailing, exporting, importing or cooking seafood. SSA offers information and advice on technical issues, guidance on food safety, quality management standards and assistance with adding value to a business through developing new products and processes.

Seafood Services Australia
Phone: 1300 130 321
Fax: 07 3406 8677
Email: xxx@xxxxxx.xxx
Internet: http://www.ssaust.com

EDUCATION, TRAINING AND SUPPORT FOR SMALL BUSINESS

The Department of Education, Training and Youth Affairs (DETYA) - New Apprenticeships

The aim of this initiative is to provide formal, nationally recognised training against the requirements of industry developed Training Packages. The financial incentives are provided to employers to help reduce the real cost of training.

The incentives available include:

- An incentive available to most employers engaging a New Apprentice

- Incentives to employ and train a New Apprentice in a skill classified as being 'in shortage' in rural and regional Australia
- Assistance to employ and train a person with a disability

New Apprenticeships website:
http://www.newapprenticeships.gov.au
New Apprenticeships Call Centre: 1800 639 629

Advice and self training

The Commonwealth Government has published a range of booklets which provide useful advice and self-training for prospective established small business managers. These publications include the Big News for Small Business series of over 60 easy-to-read booklets and training packages that cover all aspects of small business management. These include information to help people start, build, budget, sell, survive and grow.

AusInfo Teleinfo on 13 24 47 and from Government Info Shops.

Small Business Enterprise Culture and Incubator Programmes

The Small Business Enterprise Culture Programme fosters skills development initiatives and mentoring services for small business and supports women in small business.

Small Business Incubators are designed to assist new and growing businesses to become established and profitable by providing premises, advice, services and other support. The incubation period is normally from one to three years, during which time fledgling businesses can become established before graduating into the wider business community

Office of Small Business, Department of Employment, Workplace Relations and Small Business

GPO Box 9879
Canberra ACT 2601
Phone: (02) 6121 6000
Internet: http://www.dewrsb.gov.au

Indigenous Small Business Fund

This programme, jointly funded by the Aboriginal and Torres Strait Islander

Commission and the Department of Employment, Workplace Relations and Small

Business, provides funding to organisations for projects that identify and facilitate Indigenous business opportunities.

Examples of projects that may be funded include those that help develop business management skills, provide skills development and mentoring and help with market development.

Indigenous Employment Programme Infoline
1800 679 304

ENVIRONMENT

Department of Environment and Heritage (DoEH)

DoEH administers Commonwealth environmental legislation and programs, which include programs to help Australian industry to improve its environmental management. Information and publications are available from the Community Information Unit, 1800 803 772.

DoEH
GPO Box 787
Canberra ACT 2601
Phone: (02) 6274 1111
Fax: (02) 6274 1123
Email: ciu@ea.gov.au
Internet: http://www.environment.gov.au

ASSISTANCE FOR EXPORTERS

Australian Trade Commission

The Australian Trade Commission (Austrade) helps Australian companies, especially small to medium enterprises, to sell their services and products overseas, and promotes inward and outward investment.

Austrade has more than 90 offices overseas and 14 offices in Australian metropolitan areas and major cities. This is further supplemented by a network

of 21 offices in regional and rural Australia. About half of Austrade's staff are located overseas. Its overseas market specialists work with export counsellors and industry specialists based in Australia to deliver a unique export market development service to Australian business.

Through its network of regional trade commissioners and State offices, Austrade takes its services directly to clients in regional, rural and city areas.

Austrade's services are tailored to meet the needs of Australian business, ranging from first-time exporters to well established exporters. Austrade helps companies:

- seeking general information and advice about exporting;
- selecting, understanding and entering new export markets; and
- expanding existing export markets.

Austrade offers a range of services to exporters, including practical export information and advice, identification of overseas opportunities and on-the-ground exporting and investment support overseas and in Australia. Other services include a comprehensive trade display programme, services to identify potential overseas business partners, services to research and access high potential markets for Australian companies, and strategic export planning and network formation services for firms and groups of commercial operators pursuing long-term international business.

Austrade On-line: http://www.austrade.gov.au.

Export Marketing Development Grant Scheme

The Export Marketing Development Grant Scheme provides $150 million worth of grants to thousands of smaller Australian companies each year to offset overseas marketing costs. Firms can apply for a grant if a minimum of $20,000 is spent on marketing overseas. First-time applicants to the fund can accumulate this expenditure over two years.

The Grant Scheme strongly supports small companies, with more than 65 per cent of grants going to companies with 25 or fewer employees. Claimable categories in the Scheme cover: overseas representation and market visits; communications, literature and advertising; product promotions and trade fairs; and short-term marketing consultants.

Austrade 13 28 78 or Export Finance and Insurance Corporation 1800 685 109.

Getting into export workshops

'Getting into Export' is a management workshop for decision-makers, such as the chief executive officers, general managers and marketing and business managers of companies that may be considering export for the first time. The workshop is designed to help companies decide whether they are ready for exporting.

A workbook has also been designed as a practical guide to take firms unfamiliar with exporting through the stages of export preparation.

Austrade Export Hotline 13 28 78.

Export access

One of the primary objectives of the Export Access Programme is to help small to medium-sized enterprises start exporting on a sustainable basis. Export Access Programme provides participants with professional counselling and hands-on assistance in preparing and implementing an export strategy.

Austrade Export Hotline 13 28 78.

Market Access

The Department of Foreign Affairs and Trade offers a range of trade, economic and socio-economic statistics and publications that can be obtained as publications or as a specific request using its Market Information Service.

Services include advice on access to overseas markets and international business networks; briefings and seminars on trade-related issues; opportunities to meet and discuss trade and foreign policy issues with visiting heads of Australian diplomatic missions overseas; and access and advice on the Department's research and publications.

Specific requests to the Market Information Service may be made by calling (02) 6261 3186.

Internet: http://www.dfat.gov.au

Trade Watch

TradeWatch is a new interactive on-line information service for Australians doing business overseas. The service focuses on market access issues in a progressively expanding range of our key markets. It enables business to feed in directly market-specific concerns which will be factored into the government's market access strategies. TradeWatch will respond to e-mail enquiries via the new TradeWatch feedback system.

TradeWatch: http://tradewatch.dfat.gov.au.

BizAPEC

BizAPEC.com, developed by the Department of Foreign Affairs and Trade on behalf of the Asia Pacific Economic Co-operation (APEC) member economies, provides business with access to information to help identify and access markets more easily and quickly. BizAPEC.com allows an APEC exporter to explore business opportunities, compare export markets, check tariff levels, customs and standards requirements, access relevant laws and regulations, find business visa information and make contact with government agencies and industry associations around the region, all through a single APEC web address. Contact BizAPEC at www.bizapec.com.au.

Regional Australia: Exporting to the World

This website (http://dfat.gov.au/regionalexporters/index.html) outlines the role of trade in individual regions across Australia. It showcases a range of local exporters and identifies market access gains of potential benefit to regional industries. This information is also available in brochure form by telephoning (02) 6261 2608.

Supermarket to Asia

The Government's Supermarket to Asia strategy brings together government and industry leaders to work on improving the competitiveness of Australia's fresh and processed food exports to Asia.

A key element is the food and fibre supply chain programme that is designed to build stronger and more co-operative relationships along the supply chain from the producer to the consumer. Typical projects will help Australian producers and exporters achieve the critical mass, reliability, consistency and quality required by the international supermarket and food service chains.

Supermarket to Asia 1300 130 360
Internet: http://www.supermarkettoasia.com.au

Customs Information Centres

Customs Information Centres, located in each State or Territory capital city, provide information on:

- requirements applying to imported or exported goods,
- duty concession or deferral opportunities applying to certain imported goods and the circumstances under which they are available;
- concessions available to returning international travellers; and
- a range of community protection-related activities.

Customer Information Centres: 1300 363 263
Email: information@customs.gov.au
Internet: http://www.customs.gov.au

QUARANTINE AND INSPECTION SERVICES

The Australian Quarantine and Inspection Service (AQIS)

AQIS is charged with protecting Australia from exotic pests and diseases while helping the international movement of people and providing export certification for agricultural produce and other commodities.

All plants, animals and associated products that are to be imported to Australia are subject to quarantine. The Commonwealth resumed responsibility for the direct delivery of quarantine services from New South Wales, Victoria, Queensland and South Australia in late 1995, and the Australian Capital Territory in early 1996.

People intending to import animals, animal products, plants or plant products should, in the first instance, contact their AQIS area office for assistance. A range of publications on quarantine issues is available from all AQIS offices and the web site: http://www.aqis.gov.au/publications.

Australian Quarantine and
Inspection Service (AQIS)
GPO Box 858
CANBERRA ACT 2601
Phone: (02) 6272 3933 or
Phone: 1800 020 504 (freecall)
Internet: http://www.aqis.gov.au

Animal imports

All materials of animal origin, whether for food, commercial or scientific use, are assessed for risk of entry of disease. Where imports are allowed, detailed quarantine requirements must be met. These requirements may involve some form of processing or other procedure.

Plant imports

All imported plants and plant products are subject to inspection on arrival and most material destined for propagation is grown in quarantine.

Importers are encouraged to obtain their plants from overseas suppliers who have been accredited by AQIS for disease screening. This reduces the time required for post-entry quarantine.

Australian Quarantine and Inspection Service 1800 020 504.

Animal and plant health

Australia is free of many serious animal and plant diseases. Active surveillance is essential to ensure that any outbreaks of disease are detected quickly so that eradication action can be taken immediately. State and Territory Governments have laws to prevent the spread of animal and plant pests and diseases into, and within, their jurisdictions.

Sightings of any unusual or serious signs of sick or diseased animals should be reported to the Australian Animal Health Council's Disease Watch Hotline on 1800 675 888. If plants are suspected of being affected by new pests or diseases, the State or Territory department of agriculture should be called.

Disease Watch Hotline 1800 675 888

Inspection

AQIS provides inspection and certification services to clients from a broad commercial and private base, through programmes delivered through locations across Australia and overseas. Since 1991, it has been Government policy for AQIS to fully recover its user-attributable costs for all quarantine and inspection services.

Details of current AQIS charges can be obtained from the nearest AQIS area office in each State, from AQIS in Canberra or by phoning AQIS toll free on 1800 020 504.

Inspection - Rural produce

Virtually all bulk agricultural produce exported from Australia is inspected by AQIS. This includes meat, dairy products, seafood, grains, and fruit and vegetables. The inspection ensures that export premises are up to standard, that product description, labelling and documentation are in accordance with regulations, and that the requirements of

importing countries and Australian statutory marketing authorities are met.

Inspection, health testing and certification of exported animals, semen and embryos provide access to overseas markets for these commodities. Advice on export requirements is available from AQIS or State agriculture departments.

Under a variety of quality management systems approved by AQIS, exporters can take responsibility for the quality of their product. These systems also enable exporters to reduce the direct involvement of AQIS personnel in export inspection.

Export Facilitation Programme

The Export Facilitation Programme, in partnership with industry and other service providers, facilitates trade in agricultural and fishery commodities in accordance with Australian and importing country requirements. Facilitators provide information on the following topics: other countries import conditions; legislative requirements for export; quality assurance arrangements; premises registration requirements; inspection procedures; AQIS fees and charges; and documentation - export permits and health, phytosanitary and other certificates.

Inspection - phytosanitary certification

Certain overseas countries require Australian phytosanitary certificates stating that produce is free of the pests determined to be a quarantine concern of that country. This can only be attested by AQIS inspectors/authorised officers inspecting a random predetermined amount of the consignments, and passing the consignment free of pest and disease at the time of inspection.

Inspection - Imported foods

All imported foods are liable to inspection and sampling, at varying rates, by AQIS. All imported foods must comply with the Australian Food Standards Code, which is available from Ausinfo. Analysis, where required, is carried out by Australian Government Analytical Laboratories.

Australian Quarantine and Inspection Service
1800 020 504.

Biosecurity Australia

Biosecurity Australia, a group within the Commonwealth Department of Agriculture, Fisheries and Forestry - Australia was established in 2000 to take responsibility for: assessing the quarantine risks associated with commodity imports (ie import risk analyses (IRAs) and to undertake technical negotiations on export market access issues with overseas counterpart agencies.

Previously the Australian Quarantine and Inspection Service (AQIS) was responsible for IRAs.

Biosecurity Australia
AFFA
GPO Box 858
CANBERRA ACT 2601
AUSTRALIA
Phone: (02) 6272 4436 (animal)
Fax: (02) 6272 3399 (animal)
Phone: (02) 6272 5094 (plant)
Fax: (02) 6272 3307 (plant)
Internet:
http://www.affa.gov.au/outputs/marketaccess.html#2

Analytical testing of rural produce

The Australian Government Analytical Laboratories provide a wide range of testing services to primary producers, the rural sector and associated environmental areas. The testing services include analysis of meat, fish, fruit, vegetables, wine, honey, dairy products, eggs, grain, soil, water and sludge. This may be for nutritional labelling, compliance with Federal, State, Territory or local government health, environmental and agricultural regulations, and/or to meet export requirements.

The Laboratories' analyses, which are backed by the Australian Government, are of special significance to goods bound for the overseas market. as the Laboratories testing certificates are accepted by our trading partners.

Australia Government Analytical Laboratories services are available on a quoted or fee-for-service (hourly) basis, or by negotiated contract for continuous or bulk analysis requirements.

Australian Government Analytical Laboratories
Level 10, 20 Allara Street
Canberra ACT 2601
Phone: (02) 6213 6075
Phone: 1800 020 076 (freecall)
Fax: (02) 6213 6815

Australian National Residue Survey

The Australian National Residue Survey is a programme conducted by Agriculture, Fisheries and Forestry - Australia. Its primary function is to monitor chemical residues and environmental contaminants in the products of participating industries.

Residue monitoring is an important part of an overall strategy to minimise unwanted residues and environmental contaminants in food. It serves to identify potential problems and indicates where follow-up action is required. Surveys for chemical residues are also important as a measure of overall product quality, particularly for exporting countries such as Australia.

National Residue Survey
GPO Box 858
Canberra ACT 2601
Phone: (02) 6272 3446
Fax: (02) 6272 4023
Internet: http://www.brs.gov.au/residues

National Registration Authority

The National Registration Authority for Agricultural and Veterinary Chemicals assesses and registers agricultural and veterinary chemicals. The Authority works in partnership with the States and Territories and with other Commonwealth agencies.

The States and Territories have responsibility for the regulation of use, including surveillance, managing and investigating field compliance. In addition, the Australian Quarantine and Inspection Service must approve any substance of biological origin-entering Australia, the Genetic Manipulation Advisory Committee must approve any substance derived from or containing genetically manipulated organisms, and the Working Party on Antibiotics of the Department of Health and Aged Care must assess all new anti-microbials.

Summaries are prepared for public comment before the release of new chemicals intended for use in or on food and/or fibre plants or animals. A trial permit from the National Registration Authority is needed to test a chemical on plants or animals that are destined for human consumption.

National Registration Authority
GPO Box E240
Kingston ACT 2601
Phone: (02) 6272 5158
Fax: (02) 6272 4753
Publications: (02) 6272 3794
Internet:
http://www.affa.gov.au/nra/welcome.html

ASSISTANCE FOR PRIMARY PRODUCERS

Agriculture - Advancing Australia (AAA) package

The Government announced the Agriculture - Advancing Australia (AAA) package in September 1997 to reflect confidence in the capacity of farmers to master change and in recognition that government has a role in supporting farmers to make the most of changing market conditions. The package is administered by the Commonwealth Department of Agriculture, Fisheries and Forestry – Australia.

AAA - FarmBis

There are two elements to FarmBis funding - the ongoing FarmBis programme jointly funded by the Commonwealth and the States, and the new national component, AAA - FarmBis Australia.

The Joint Commonwealth-State component of FarmBis provides funding to members of a farm management team comprising principal operator, spouse, family members, partners and staff employed in a management capacity. FarmBis assists these people to build on their existing skills by providing direct financial contributions towards the cost of training activities. Activities supported include skills development, farm management planning, business and financial planning, farm performance benchmarking, quality assurance, risk management, skills auditing, leadership development and marketing.

From 1 July 2001, the Commonwealth-State component of FarmBis and the Property Management Planning (PMP) Programme will be integrated. This new amalgamated programme will offer farmers more assistance and will be more accessible white continuing to make advances in business and land management training. Until then, FarmBis and PMP will continue to operate as they currently do in each State.

AAA - FarmBis Australia

The national component of FarmBis, AAA - FarmBis Australia, supports strategic national projects to enhance the business management skills of Australia's agricultural industries and associations. It focuses on the broad education, training and skills development needs of industries rather than individual business requirements. Companies, associations and groups committed to agricultural, horticultural, pastoral. aquacultural, commercial fishing and apiculture industries are invited to apply for grants.

AAA - Women in rural industries

Special emphasis under AAA - FarmBis Australia is given to training projects for women in rural industries which offer benefits in more than one State. AAA-FarmBis Australia funding also includes a grants programme for rural women's national non-government organisations in their leadership roles in supporting women's contributions to rural industries.

AAA - Young people in rural industries

AAA - FarmBis Australia will also give emphasis to projects that benefit young people committed to achieving more for their industry

Agriculture, Fisheries and Forestry - Australia
AAA - FarmBis Australia
Rural Support and Adjustment
Phone: 1800 686 175
Internet: http://lwww.affa.gov.au/farmbis/australia

AAA - Farm Innovation Programme

The Farm Innovation Programme provides grants to eligible farming, food, fishing and forestry businesses to adopt innovative practices, processes or products. The Programme is being administered by Agriculture, Fisheries and Forestry - Australia (AFFA) as a pilot over the 2000-02 financial years. Applicants need to be registered businesses in the farming, food, fishing and forestry industries and have an annual turnover in the range of $50,000 to $3 million in any of the preceding three years. They need to be willing to work with AFFA in profiling their project throughout the rural sector. Selected projects will be funded up to a maximum of 50 per cent of the eligible project costs, with no minimum or maximum funding levels being set for this Programme. Four funding rounds are planned over the two financial years:

Round 1 closed: 29 September 2000
Round 2 closed: 28 February 2001
Round 3 closes: 29 June 2001
Round 4 closes: 31 October 2001

Agriculture, Fisheries and Forestry – Australia
GPO Box 858
CANBERRA ACT 2601
Phone: (02) 6272 3933
Internet: http://www.affa.gov.au
Phone: (02) 6272 4622

AAA - Rural Partnership Programme

The Rural Partnership Programme provides rural communities with the opportunity to address economic development, structural adjustment, natural resource management and social issues in their region through the development and implementation of co-operative strategies.

The Programme is currently providing funds for twelve strategies developed in consultation with rural communities and with the Commonwealth Government and State Governments. These are in the following regions: Atherton Tablelands (Qld); Desert Uplands (Qld); South West Queensland; WEST 2000 (NSW); Sunraysia (NSW & Vic); Loddon-Murray (Vic); Alpine Valleys (Vic); Riverland (SA); Eyre Peninsula (SA); Gascoyne-Murchison (WA); South Coast (WA) and the Murrumbidgee irrigation Area (NSW).

Commonwealth Government Information Service: 1800 026 222.

AAA - Farm Growth through Export Growth – Bilateral Cooperation Agreements

This initiative is aimed at further developing markets and facilitating bilateral trade and investment opportunities for the agriculture and food sectors. Through enhancing and developing existing and new bilateral cooperation arrangements with key trading partners, the Government aims to facilitate the reduction of regulatory, technical and economic impediments to our farm and food exports. Such impediments are not normally addressed in trade negotiations but are essential to realise the full potential of trade liberalisation and require government to government cooperation in partnership with industry.

A number of trading partners see follow up support and bilateral cooperation as an integral part of export sales. The bilateral cooperation agreements, implemented in close liaison and partnership with agricultural and food industry participants (including producers, processors and exporters) as well as interested State/Territory governments, provide opportunities for industry to enhance networks both at government and industry levels, to develop markets and to address impediments through activities such as joint ventures and collaborative training and research.

Commonwealth Government Information Service: 1800 026 222.
Internet:
http://www.affa.gov.au/docs/industry_develop/aaa/farmgrowth/index.html

AAA - Farm Management Deposit

The Farm Management Deposit scheme provides farmers with an effective tax linked savings mechanism to allow them to set aside pre-tax income from the good years to help them better manage their businesses during the more difficult years.

Farm Management Deposit Scheme
Rural Industries Operating Environment
Department of Agriculture, Fisheries and Forestry - Australia
GPO Box 858
Canberra ACT 2601
Freecall: 1800 686 175
Email: fmds@affa.gov.au
Internet:http://www.affa.gov.au/docs/operating_environment/farm_management_deposits/index.html

AAA- Farm Help - Supporting Families through Change

Farm Help is a Commonwealth program for delivering improved welfare support and advice to the farm sector, as well as providing assistance to farmers who wish to exit the industry. Farm Help extends and enhances the successful Farm Family Restart Scheme which commenced in December 1997. Farm Help is delivered by Centrelink on behalf of Agriculture, Fisheries and Forestry - Australia.

Application forms from any Centrelink Office.
Centrelink Call Centre: 13 2850
Internet:
http://www.affa.gov.au/docs/industry_develop/aaa/farm_help/index.html

New Industries Development Program (NIDP)

The NIDP seeks to address the impediments and barriers to the development of successful new industries and products, through initiatives that:

- Improve access of SMEs in Australian agribusiness to 'quality' information on new product development opportunities.
- Promote understanding of the need for and improve access to commercial skills, experience and in-market contacts.
- Facilitate a change in the culture and structures within the sector to promote cooperation across state and regional boundaries along the potential supply chains for new products and services.
- Build investor confidence in Australia's ability to develop new high value products and improve the use of risk management strategies by SMEs involved in new ventures.

New Industries Development Program
Agriculture, Fisheries and Forestry – Australia
GPO Box 858
CANBERRA ACT 2601
Phone: (02) 6272 3111
Fax: (02) 6272 3025
Email: nidp@affa.gov.au
Internet: http://nidp.affa.gov.au

Exceptional circumstances

Exceptional Circumstances (EC) assistance is designed to provide short term targeted support to assist long term viable farm businesses to cope with the adverse impacts of exceptional events, including drought.

State and Territory Governments are required to assess the merits of each case for Exceptional Circumstances before they submit an application to the Commonwealth. The Commonwealth Government will however, also accept EC applications from peak industry bodies.

Exceptional Circumstances assistance is provided by way of interest rate subsidies and/or the Exceptional Circumstances Relief Payment (ECRP). Interest rate subsidies provide business support and the ECRP provides farm families with income support and special access to Health Care Cards, Family Payments, Youth Allowance and AUSTUDY.

Commonwealth Government Information Service:
1800 026 222.
Internet:
http://www.affa.gov.au/docs/industry_develop/aaa/exceptional_circumstances/index.html

RESEARCH AND DEVELOPMENT

Australian Research Council (ARC)

The ARC is the main funding agency in Australia for basic research. It supports research in essentially all fields from science, engineering and new technologies through to social sciences, humanities and the creative arts.

Australian Research Council
GPO Box 9880
CANBERRA ACT 2601
Phone: (02) 6284 6605
Fax: (02) 6284 6601
Email: info@arc.gov.au
Internet: http://www.arc.gov.au

Commonwealth Scientific and Industrial Research Organisation (CSIRO)

The CSIRO is Australia's largest, and one of the world's most diverse, scientific organisations. It conducts strategic research in a wide range of areas including agriculture, minerals and energy, manufacturing, construction, communications, and the environment.

In order to help people access the wealth of information services and resources, a national telephone inquiry centre has been established in Melbourne.

CSIRO Inquiries 1300 363 400.

Australian Bureau of Agricultural and Resources (ABARE)

ABARE is an independent economic research agency. It provides information about the economics of the agricultural, forestry, fishing, minerals and energy industries. Every year, ABARE holds the OUTLOOK Conference, the leading forum for discussing Australia's rural and resource industries.

ABARE publishes a range of re search reports as well as regular reports such as Australian Commodities. A free catalogue of ABARE publications is available from the publications officer.

Australian Bureau of Agricultural
and Resource Economics (ABARE)
GPO Box 1563
CANBERRA ACT 2601
Phone: (02) 6272 2000 or
Phone: 1800 244 129 (freecall)
Fax: (02) 6272 2001
Publications: (02) 6272 2211
Internet: http://www.abare.gov.au

Bureau of Rural Sciences (BRS)

BRS is an independent scientific bureau within the Commonwealth Department of Agriculture, Fisheries and Forestry - Australia. It provides scientific advice to government in the support of more profitable, competitive and sustainable Australian agricultural, food, fisheries and forest industries.

Bureau of Rural Sciences
GPO Box E11
KINGSTON ACT 2604
Phone: (02) 6272 4690
Publications: (02) 6272 4430
Internet: http://www.brs.gov.au

The Fisheries Research & Development Corporation (FRDC)

The FRDC is a national organisation responsible for planning, funding and managing fisheries and aquaculture research and development programs.

The FRDC funds R&D as a result of an annual public invitation to apply and by initiating specific R&D projects.

Fisheries Research and Development Corporation
PO Box 222
Deakin West ACT 2600
Phone: (02) 6285 0400
Email: frdc@frdc.com.au
Internet: http://www.frdc.com.au/

The Rural Industries Research and Development Corporation (RIRDC)

RIRDC is a national organisation responsible for planning, funding and managing rural industry research and development programs.

Project applications for research support are invited through advertisements in major newspapers in August each year. Post-graduate scholarships are advertised around September.

The Rural Industries Research
and Development Corporation
PO Box 4776
Kingston ACT 2604
Phone: General (02) 6272 4539
Email: rirdc@rirdc.gov.au
Internet: http://www.rirdc.gov.au

TAXATION

Australian
Taxation Office (ATO)
National Office
GPO Box 900
Civic Square ACT 2608
Phone: (02) 6216 1111
Fax: (02) 6216 2830
Internet: http://www.ato.gov.au

Telephone advice is available from:

- the General Inquiry Helpline for Individuals: 13 28 61
- the Tax Reform Information Line for Business: 13 24 78
- the Tax Reform Information Line for the General Public: 13 61 40
- the ATO Small Business Information Line:
- 13 28 66 the Australian Competition and Consumer Commission: 1300 302 502

Written advice is available from GST Technical Advice:

by e-mail: replyin5@ato.gov.au
by fax: 1300 139 031
by mail: PO Box 9935 in your capital city
For Field Advisor visits, telephone: 13 24 78.

Useful web sites include:

- ACCC web site: www.accc.gov.au
- ATO web site: www.ato.gov.au
- Family Assistance Office: www.familyassist.gov.au
- GST web site: www.taxreform.ato.gov.au
- Review of Business Taxation: www.rbt.treasury.gov.au
- Forms and Publications ordering: www.agps.gov.au
- Start up assistance: www.treasury.gov.au/gststartup
- New start up assistance web site: www.gststartup.gov.au
- Online ABN registration: www.business.gov.au

Off-road Diesel Fuel Rebate Scheme

The Commonwealth Government collects an excise duty on diesel fuel that is produced in Australia and a customs duty on imported diesel fuel.

The off-road Diesel Fuel Rebate Scheme provides a rebate of the customs or excise duty paid on diesel and 'like' fuels used in defined off-road activities within certain categories of use such as agriculture, fishing and forestry. A general guide to eligible activities is included in the Diesel Fuel Rebate: Guide for Claimants.

The off-road rebate applies to fuel purchased until 30 June 2002.

At the moment, rebate rates vary between eligible categories. Averaging provisions will mean that by 1 January 2001, all categories will receive the highest rebate rate, currently received by primary production, marine transport and rail transport categories.

The rebate rates for each category are available on the ATO Internet site at www.ato.gov.au and are updated monthly.

To register and claim for the off-road rebate, you need to complete and Lodge a registration and initial application form. You can obtain this form by ringing the:

Diesel Fuel Information Line: 1300 657 1 62.
Internet: http://www.taxreform.ato.gov.au.

On-road Diesel and Alternative Fuels Grants Scheme

The on-road Diesel and Alternative Fuels Grants Scheme was introduced on 1 July 2000.

The Scheme provides a grant for the use of diesel and alternative fuels in certain on-road transport activities and benefits regional and rural Australians in particular. With input tax credits, the grant reduces the cost of diesel by around 24 cents per litre.

The on-road scheme applies to fuel used from 1 July 2000 to 30 June 2002.

Generally, the grant is available to businesses and other entities for the on-road use of diesel and alternative fuels in vehicles that have a gross vehicle mass (GVM) of 4.5 tonnes or more and which are registered for use on public roads.

Detailed information on eligibility requirements is included in the Diesel and alternative Fuels Grants Scheme: Information for Claimants booklet, available by calling the Diesel Fuel Information Line.

Diesel Fuel Information Line: 1300 657 162
Internet: http://www.taxreform.ato.gov.au

Primary Production Industry Partnership

The Primary Production Industry Partnership is a collaborative partnership between the Australian Taxation Office and the following associations: Agriculture, Fisheries & Forestry - Australia (AFFA); Australian Seafood Industry Council (ASIC); National Association of Forest Industries (NAFI); and National Farmers Federation (NFF).

The Primary Production Industry Partnership was established as a process of clarifying GST and related New Tax System issues that are identified by the Primary Producer Sector as having significant impact on their sector.

Through this process a range of specific questions have been and continue to be identified by the sector which required clarification. The questions and answers have been disseminated via newsletters and are published on the Australian

Taxation Office web site:
http://www.taxreform.ato.gov.au/ind_partner/primary/primary.htm

Significant GST issues discussed by the Primary Production Industry Partnership include Livestock sales, sate of farmland, cane production assignment, Del Credere Agency arrangements, and model tax invoices.

If you have a question you think has an industry-wide application please contact one of the associations listed above. Whether the question should be addressed by the Industry Partnership can then be discussed.