AUSTRALIAN
AQUACULTURE
information requirements for investors

Prepared for Fisheries Resources Research Fund

Graham Love
October 2003
foreword

Australia’s aquaculture sector, if it is to deliver sustainable industry growth, will require substantial capital investment in large and small aquaculture businesses. Increasing the level of investment in aquaculture is one of the initiatives identified in the Aquaculture Industry Action Agenda approved by federal Cabinet in December 2002.

As an emerging industry, aquaculture has at times struggled to find access to development capital. To assist fisheries and aquaculture policy makers and managers to focus on some of the key issues concerned with attracting investment in aquaculture, the Fisheries Resources Fund (FRRF) engaged ABARE to investigate and report on information requirements for investors in Australian aquaculture.

This report contains the results of this investigation. The main perceived problems associated with attracting investment in aquaculture are identified. Potential aquaculture operators and investors are given indicators of the type of information that they may need when seeking finance to establish new, or expand existing, aquaculture operations.

BRIAN S. FISHER
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October 2003
acknowledgments

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The National Aquaculture Development Committee’s 2002 report to government and industry concluded that the Australian aquaculture industry could triple its yearly sales to $2.5 billion (valued at the last point of sale for the primary producer) by 2010 if it could successfully exploit its competitive advantages to meet increasing domestic and global demand for fisheries and aquaculture products. However, to achieve this vision of a sustainable and rapidly growing industry sector, a number of challenges will need to be overcome, including the need for the sector to attract sufficient investment funds for continued growth.

To assist fisheries and aquaculture policy makers and managers to focus on some of the key issues concerned with attracting investment in aquaculture, the Fisheries Resources Research Fund (FRRF) engaged ABARE to investigate and report on information requirements for investors in Australian aquaculture. This report identifies and highlights the main perceived problems associated with attracting investment in aquaculture, and provides potential aquaculture operators and investors with an idea of the type of information they may need when seeking finance to establish new, or expand existing, aquaculture operations.

The main investors in aquaculture, particularly in the startup or early stage expansion phase, are usually the operators themselves. Typically they finance operations from private sources (their own funds, or borrowings from family and friends), or attempt to borrow from banks or other financial institutions. The latter will require detailed information about the proposed investment by the operator before considering a loan. While loan managers verbally advise applicants about what information they will need to make an assessment, these requirements are not well reported in the public domain, and so are discussed in some detail in this report.

Another potential source of finance is venture capital. Venture capital companies, including those able to avail themselves of incentive arrangements for small and medium sized Australian businesses, may provide funds for business expansion, obtaining a return on these funds not through the repayment of interest on a loan but through the eventual sale of the business by public listing or to a third party. The type of information that venture capital companies typically require from applicants is also discussed in detail in the report.
Both the federal and the state and territory governments have a number of programs designed to assist small and medium business. Aquaculture operators may be able to avail themselves of advice through these programs and thereby enhance their prospects of obtaining investment finance.

**Problems associated with attracting investment**

With the exception of pearling and Sydney rock oysters, aquaculture in Australia is often characterised as a ‘young’ industry. However, while many aquaculture industries have not been in existence as long as some other rural industries, many have now been operating for at least 10–15 years. Since 1991-92, the real value of Australia’s aquaculture production has almost trebled from $256 million (in 2001-02 dollars) to $733 million in 2001-02, while aquaculture production has also nearly trebled from 16 150 tonnes to 44 300 tonnes.

Growth in industry production and value over this period has been concentrated in only a few industries, however, such as southern bluefin tuna, Atlantic salmon and prawns. Nonetheless, the farming of native inland finfish such as silver perch, Murray cod, golden perch and jade perch of freshwater crayfish (yabbies, redclaw and marron), of land and sea based barramundi, and of marine finfish such as yellowtail kingfish, abalone, and shellfish, is increasing.

There are a number of impediments that may be making it difficult for aquaculture to attract investment capital. These, reviewed in a number of recent reports, and well known within the industry, comprise a mixture of institutional, physical and/or commercial, and structural. On institutional impediments, it is perceived that federal, state, territory and local governments and their agencies need to deliver a ‘whole of government’ view on aquaculture and work with industry to arrive at a realistic balance between environmental protection and aquaculture industry development.

Physical and commercial impediments such as a lack of suitable sites, and falling product prices, are also seen as making it difficult for the industry to attract capital. Government and industry may have a role in reducing these impediments through the provision of information and research. There is also a perception that the industry needs to ‘get its own house in order’ and better plan industry strategy, promotion and marketing, thereby reducing structural impediments.
Information required when seeking finance or investment

Many aquaculture operators, particularly at the ‘seed’ stage of a project, finance new activities through their own funds, or borrow money from family and friends. Although this may obviate the need to deal with banks or other financial institutions in the short term, to ensure that funds are being put to their best possible use, it will still benefit the operator to make a formal assessment of the likely profitability of the operation. Such an assessment could also form the first stage in a more formal approach to a financial institution.

A number of studies and reports contain specific ‘checklists’ of the key factors needed to be considered by operators starting, or expanding, an aquaculture business. These factors fall under five general categories: management, siting, production, marketing and risk. When applying to a financial institution for a loan, operators will need to demonstrate to the potential lender that these factors have been considered. In discussing the selection criteria used to assess applications and the information required from applicants for business loans, loan managers stated (broadly) that they preferred an operator who could demonstrate a profitable trading record of at least three years and whose operation was not too highly geared (more than 30 per cent). Aquaculture startup operations were treated with some caution because of past experiences with failed operations.

Loans managers further commented that there tended to be a lack of good, current, public information on the aquaculture sector and its prospects, and that it was difficult to access the same sort of public domain information that was obtainable for the mainstream agricultural industries such as broadacre cropping and livestock.

When reviewing aquaculture applications, many loans managers relied on advice from aquaculture consultants — when they could find them. Over the years there had been a number of well publicised failures with aquaculture operations, which had reinforced the general perception among loans managers that aquaculture operations were high risk activities. The market for aquaculture capital was perceived to be relatively thin, so the ratio at which banks were prepared to lend against aquaculture assets tended to be conservative. Loan applicants needed to demonstrate a high level of equity funding in the initial project, and additional reserves to meet unexpected difficulties, design changes, and so on.
The venture capital industry tended to provide more public information on selection criteria and information requirements for applicants than the financial institutions, but aquaculture operators found it difficult to access venture capital because potential venture capital investors require a very high rate of return, and a clear ‘exit path’ for their investment. A study by Price Waterhouse Coopers (PWC) in Perth for the Aquaculture Council of Western Australia that examined the investment attraction for the abalone aquaculture industry in Western Australia found that potential investors generally considered the returns from farmed abalone inadequate when weighed against the risks.

Some venture capital companies suggested that while aquaculture had unique advantages in being able to produce a product (seafood) that was an established and traditional part of people’s diets but whose wild caught producers were unable to satisfy growing world demand, proponents of aquaculture operations needed to demonstrate that the markets in which they planned to sell were high value, and sustainable. Biotechnology and pharmaceutical companies (for example) were able to sustain high profits through the barriers to entry by competitors by holding the patents to unique products and processes, but aquaculture did not have the same barriers to entry. Many who had invested in the salmon industry, for example, had failed to foresee that massive investment worldwide would cause the world farmed salmon supply to grow much faster than expected, and prices to fall sharply as farmed salmon became a ‘commodity’.

**Government programs**

Various grants, funding programs and industry assistance packages for starting and expanding the business, research and development, innovation and exporting are available to small and medium Australian businesses from federal, state and territory governments. One federal program able to be used by aquaculture producers (and primary producers generally) is the Agriculture – Advancing Australia (AAA) package of programs. These programs provide funding for business management training and education, support for innovation, financial management tools, financial support and professional advice, improved climate information, and improved access to markets.

Another federal program is the Pooled Development Funds Program, designed to increase the supply of equity capital for growing Australian small and medium size enterprises. There are also a number of other programs potentially able to be used by aquaculture operators to directly
assist their operations or to assist them with business planning, such as AusIndustry’s Small Business Answer Program.

In September 2003, the Australian government launched The FishBook – A Guide to Commonwealth Government Programs, Grants and Services for the Australian Seafood Industry. This publication is designed to provide the seafood industry with a comprehensive, easy to use guide to a full range of assistance available. The FishBook details a number of key information sources, as well as a brief narrative and contact point for each industry relevant Australian government department and/or associated agency. In addition, the guide will provide contact points for accessing the seafood assistance programs available in each state and territory.

Role for government

This review suggests that there does not appear to be any intrinsic distortion in the capital market militating against investment in aquaculture, but rather, for various reasons, many potential investors perceive the risks of investment outweigh the returns. Government and the industry may have a role in undertaking actions to reduce or ameliorate some of the factors that presently make aquaculture appear excessively risky to investors. For example, aquaculture experts, financiers and venture capital companies suggested that ‘excessive’ regulation tended to draw out the approvals process for operations, increasing startup costs. A review of available information suggests that many of the relevant authorities do provide information on the approvals process. Nonetheless, there appears scope to continue to work toward making this process as efficient as possible.

Another ‘risk factor’ was the perceived lower security of tenure for many aquaculture operations relative to land based primary production, where land tenure and mortgagees’ rights were generally well established. More secure tenure arrangements, particularly for marine aquaculture, could lower the level of risk for potential investors.

Aquaculture experts, financiers, and the venture capital companies also considered the lack of information about the current state and prospects for the aquaculture industries may be undermining investor confidence, especially the lack of information on ‘success stories’ in aquaculture. Government and industry may have a role in the provision of information on the status and profitability of the aquaculture industries, possibly through some ongoing survey or reporting.
introduction

Project objectives

The National Aquaculture Development Committee’s report to government and industry (Aquaculture Action Agenda Taskforce 2002) concluded that the Australian aquaculture industry could triple its yearly sales to $2.5 billion (valued at the last point of sale for the primary producer) by 2010 if it could successfully exploit its competitive advantages to meet increasing domestic and global demand for fisheries and aquaculture products. However, to achieve this vision of a sustainable and rapidly growing industry sector, a number of challenges will need to be overcome.

One of these, listed in NADC’s report as key initiative no. 7, and subsequently as key initiative no. 6 in the final list of initiatives approved by federal Cabinet in December 2002, was the need for aquaculture to attract sufficient investment funds for continued growth. Specifically, the NADC report noted:

‘To achieve a $2.5 billion aquaculture industry by 2010 will require substantial capital investment in large and small aquaculture businesses. As an emerging industry, aquaculture has at times struggled to access development capital. Given Australia’s resource potential and ecologically sustainable development framework, any activities that provide easier access to development capital will deliver sustainable industry growth’ (Aquaculture Action Agenda Taskforce 2002, p. 24).

On 13 December 2002, in a joint statement, Senator Ian Macdonald, federal Minister for Fisheries, Forestry and Conservation, and Mr Ian Macfarlane, federal Minister for Industry, Tourism and Resources, declared that significantly increasing Australia’s aquaculture production and the consequent creation of new jobs were the cornerstones of the federal government’s Aquaculture Industry Action Agenda. Among the list of Australian government commitments to the agenda was one to explore the issues associated with capital investment in the industry (Macdonald 2002).

To assist fisheries and aquaculture policy makers and managers to focus on some of the key issues concerned with attracting investment in aquaculture, the Fisheries Resources Research Fund (FRRF) engaged ABARE to investigate and report on information requirements for investors in Australian aquaculture.

The objectives in the project were to:
identify and highlight the main perceived problems associated with attracting investment in aquaculture; and to

provide potential aquaculture operators and investors with an idea of the type of information that they may need when seeking finance to establish new, or expand existing, aquaculture operations.

Main issues

The main issue to be addressed is whether Australian aquaculture suffers from unique problems or constraints that potentially reduce its attractiveness to investors, and as a consequence, make it uniquely difficult for investors to finance new, or expand existing, operations.

The main investors in aquaculture, particularly in the startup or early stage expansion phase, are usually the operators themselves. Typically they finance operations from private sources (their own funds, or borrowings from family and friends), or borrow from banks or other financial institutions. Even when borrowing from banks, operators are still, in effect, drawing on their own funds, as they have to repay the loan. What they are drawing on is future income rather than past income (savings) or current income (cash flow). The main hurdle to accessing future income is convincing the bank or other financial institution that the investment will generate sufficient income to allow the loan to be repaid. The financial institution ‘invests’ in aquaculture only to the extent that they assume some of the risk that the enterprise will fail and the loan to the operator will not be repaid.

Because of the risk of loan default, loans managers require detailed information about the proposed investment by the operator before approving a loan. The type of information required by these managers can usually be obtained by individuals in their initial phone contact with the manager. However, the information is not well documented in the public domain, so it is useful to set it out here for the information of potential new operators.

Venture capital companies, including those able to avail themselves of incentive arrangements for small and medium sized Australian businesses, are also potential investors. The company will coinvest in the operation, providing funds for business expansion, and obtaining a return from these funds not through the repayment of interest, but through the eventual sale of the business by public listing or to a third party. Many of the venture capital companies document the type of information that they require from businesses seeking capital, the industry sectors in which they invest, and the preferred stage of development of the business, on their web sites. New operators may be able to increase their ‘success rate’ in obtaining venture capital by appropriate targeting of applications.

Finally, through various federal and state and territory government programs, the general community is an indirect investor in small and medium Australian businesses and, to the extent that aquaculture operators have been able to obtain this type of business assistance, the general community is an indirect investor in aquaculture. Web sites such as the federal government’s Business Entry Point and the Department of Industry, Tourism and Resources’ AusIndustry site contain comprehensive information; however, it is useful to summarise some of the main programs likely to be of relevance for new operators and existing operators.
Outline of the report

The report is divided into three main information sections. In the first, statistics are presented on the production, gross value of production, and location of Australia’s aquaculture industries. Trends in production over the past ten years are also discussed, together with the capital costs of setting up aquaculture operations.

In the second, drawing on both public sources and individual contact with aquaculture experts, some of the perceived impediments to attracting investment in Australian aquaculture are discussed. While the difficulty in attracting capital investment is often perceived as a direct impediment to further industry growth, it is also apparent that many other factors indirectly contribute to the problem of attracting sufficient capital for growth.

In the third, information requirements for operators and investors seeking funding from both financial institutions such as banks and the venture capital market are discussed in detail. Some of the government programs potentially able to be accessed by operators are also summarised.

The possible role for government in changing perceptions of the attractiveness of investment in aquaculture is then discussed.
Australia’s aquaculture industries

Production, value and location
Australia’s aquaculture sector had a gross value of production of $733 million in 2001-02, with seven industries (Southern bluefin tuna, pearling, Atlantic salmon, prawns, edible oysters, freshwater trout and barramundi) making up around 95 per cent of aquaculture’s GVP (table 1). The industries that made up the remaining 5 per cent in 2001-02 included other marine and freshwater finfish (predominantly yellowtail kingfish, snapper, silver perch, murray cod golden perch, jade perch, eels, and aquarium fish), freshwater crayfish (yabbies, redclaw and marron), and other molluscs (mainly mussels and abalone) (tables 2–4).

Trends in production and value
With the exception of pearling and Sydney rock oysters, aquaculture in Australia is often characterised as a ‘young’ industry. However, while many aquaculture industries have not been in existence as long as some other rural industries, many have now been operating for at least 10–15 years (tables 1–4). Since 1991-92, the real value of aquaculture production (including pearls) has almost trebled from $256 million (in 2001-02 dollars) to $733 million in 2001-02, while production has also nearly trebled from 16 150 tonnes to 44 300 tonnes. As can be seen in table 5, most of the increase in both production and real gross value of production of the edible aquaculture industries (that is, excluding pearling) has occurred in only a few industries, primarily southern bluefin tuna, Atlantic salmon and prawns.

Capital costs of setting up operations
The increases in production and real gross value shown in table 5 indicate that there has been substantial investment in additional capacity in some industries, but more modest investment in others.

The amount of investment required to produce an additional tonne of production per year varies across industries. Rothlisberg (1998) reported that the estimated capital cost to fully develop a prawn farm in Queensland, with all appropriate equipment, ponds, buildings, and processing facilities, was between $20 000 and $60 000 per hectare of pond, not including land costs. The large range in capital cost was driven by costs varying with site selection and depending on proximity to local infrastructure, site topography, vegetation and seawater access.

For freshwater crayfish, Weston, Hardcastle and Davies (2001) estimated that the initial cost of setting up a 20 hectare semi-intensive stand alone yabby farm, including land costs, was
Australia’s largest aquaculture industries

<table>
<thead>
<tr>
<th></th>
<th>GVP (2001-02)</th>
<th>Production (2001-02)</th>
<th>Main areas b</th>
<th>First established</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern bluefin tuna (marine)</td>
<td>$260.5</td>
<td>9,245</td>
<td>South Australia</td>
<td>Sea cage farming developed in South Australia after successful trials in Port Lincoln in 1991</td>
</tr>
<tr>
<td>Pearl oysters</td>
<td>$175.1</td>
<td>–</td>
<td>Western Australia, Northern Territory</td>
<td>Began around Broome in Western Australia in the 1880s</td>
</tr>
<tr>
<td>Atlantic salmon and ocean trout (marine)</td>
<td>$112.1</td>
<td>14,356</td>
<td>Tasmania (99%), South Australia (1%)</td>
<td>Commercial sea cage farming began in Tasmania in the latter half of the 1980s</td>
</tr>
<tr>
<td>Prawns</td>
<td>$65.4</td>
<td>3,792</td>
<td>Queensland (90%), northern NSW (9%), Northern Territory (1%)</td>
<td>Although prawn farming began in northern New South Wales in the 1980s, most subsequent development has been in Queensland</td>
</tr>
<tr>
<td>Edible oysters</td>
<td>$56.9</td>
<td>9,644</td>
<td>Sydney rock oysters: New South Wales (98%), southern Queensland (2%); Pacific oysters: South Australia (50%), Tasmania (44%), Port Stephens New South Wales (6%)</td>
<td>Cultivation of the Sydney rock oyster in New South Wales dates from 1872, Commercial farming of the Pacific oyster began in Tasmania in the 1960s and in South Australia in 1969</td>
</tr>
<tr>
<td>Freshwater trout</td>
<td>$13.0</td>
<td>1,888</td>
<td>Victoria (84%), New South Wales (13%), South Australia and Western Australia (3%)</td>
<td>Trout was initially introduced for recreational fishing. The first commercial growout farms were established in the 1960s</td>
</tr>
<tr>
<td>Barramundi (marine and freshwater)</td>
<td>$11.2</td>
<td>1,251</td>
<td>Queensland (67%), South Australia (20%), New South Wales (5%), Northern Territory and Western Australia (8%)</td>
<td>Commercial farming in ponds began in north Queensland in the mid-1980s, followed by recirculation tank production in the cooler southern areas of Australia</td>
</tr>
</tbody>
</table>

a In terms of gross value of production (GVP). b Percentages based on tonnage produced in 2001-02.
Sources: ABARE (2003); Love and Langenkamp (2003), which includes final 2001-02 figures for Queensland released in May 2003.
2 Other aquaculture industries – finfish

<table>
<thead>
<tr>
<th>Fish Type</th>
<th>GVP (2001-02)</th>
<th>Production (2001-02)</th>
<th>Main areas</th>
<th>First established</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver perch (freshwater)</td>
<td>$3,048</td>
<td>348</td>
<td>New South Wales (80%), Queensland (13%), Western Australia (7%)</td>
<td>Commercial farming developed in the past 10–15 years</td>
</tr>
<tr>
<td>Yellowtail kingfish (marine)</td>
<td>na</td>
<td>na</td>
<td>South Australia</td>
<td>Commercial operations commenced several years ago; first significant harvests expected in 2002-03</td>
</tr>
<tr>
<td>Murray cod (freshwater)</td>
<td>na</td>
<td>98b</td>
<td>Victoria, New South Wales</td>
<td>Commercial farming developed in the past 10–15 years</td>
</tr>
<tr>
<td>Golden perch (freshwater)</td>
<td>16</td>
<td>1</td>
<td>New South Wales</td>
<td>Commercial farming developed in the past ten years</td>
</tr>
<tr>
<td>Jade perch (freshwater)</td>
<td>295</td>
<td>46</td>
<td>Queensland</td>
<td>Commercial farming developed in the past ten years</td>
</tr>
<tr>
<td>Snapper (marine)</td>
<td>220</td>
<td>24</td>
<td>New South Wales</td>
<td>First commercial harvest in 2001-02</td>
</tr>
<tr>
<td>Eels (freshwater)</td>
<td>1,444</td>
<td>124</td>
<td>Queensland (58%), Victoria (35%), New South Wales (7%)</td>
<td>Commercial farming developed in the past ten years</td>
</tr>
<tr>
<td>Aquarium fish (marine and freshwater)</td>
<td>4,550c</td>
<td>na</td>
<td>Victoria (66%), Queensland (20%), New South Wales (7%), Western Australia (7%)</td>
<td>Commercial production has been undertaken for many decades</td>
</tr>
</tbody>
</table>

*a Percentages based on tonnage produced in 2001-02, except for aquarium fish, which are based on gross value of production. b Reported New South Wales production plus estimated production for Victoria. c Total for New South Wales, Victoria, Queensland and Western Australia. na Not available.

Sources: ABARE (2003a); Love and Langenkamp (2003), which includes final 2001-02 figures for Queensland released in May 2003.
around $810,000. However, if the yabby farm was integrated into an existing broadacre farm and some of the farm infrastructure was shared, the initial capital cost (excluding land) for a 20 hectare farm could be around $332,000. Jones (1998) reported that the initial establishment cost of a ‘model’ redclaw crayfish farm with a total ponded area of 4.7 hectares (comprising forty growout ponds and seven juvenile production ponds each of 1000 square metres) was around $348,000, while Lawrence (1998) reported that the establishment costs for a semi-intensive marron farm, including pond construction, consolidation, bird netting, electricity, aeration and drains, was around $50,000 to $60,000 per hectare of water area of ponds constructed.

For molluscs, Weston, Hardcastle and Davies (2001) estimated that the capital cost of setting up a farm comprised of tanks for the land based growout of 20 millimetre juvenile greenlip abalone to a market size of 70 millimetres was around $3 million for a 100 tonne a year farm and $5.4 million for a 200 tonne a year farm, including land costs. The estimated capital cost of setting up a farm producing mussels using longline technology was around $260,000 for a 100 tonne a year farm and $400,000 for a 200 tonne a year farm, including land, boats, shed, longlines, and other equipment. The smaller of the two farms was assumed to use 10 double-backbone longlines 70 metres long, and the larger farm was assumed to use 20 longlines.

For freshwater finfish, Weston, Hardcastle and Davies (2001) estimated that the capital cost of setting up a 5 tonne a year and a 10 tonne a year semi-intensive tank system producing murray cod was $133,000 and $209,000 respectively, including land costs, while the capital cost of setting up a 30 tonne a year intensive recirculation system to produce murray cod was around $430,000, including land costs. Rawlinson and Forster (2000) estimated that the

### Other aquaculture industries – crustaceans

<table>
<thead>
<tr>
<th></th>
<th>GVP (2001-02)</th>
<th>Production (2001-02)</th>
<th>Main areas a</th>
<th>First established</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Yabbies</strong></td>
<td>2,078 $’000</td>
<td>173 tonnes</td>
<td>Western Australia (60%)</td>
<td>Species native to the eastern states. Translocated to Western Australia in 1932. Commercial farming developed in Western Australia and Victoria in the 1970s</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>New South Wales (18%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Victoria (18%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>South Australia (4%)</td>
<td></td>
</tr>
<tr>
<td><strong>Marron</strong></td>
<td>1,381 $’000</td>
<td>58 tonnes</td>
<td>Western Australia (80%)</td>
<td>Commercial farming developed in the past 10–15 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>South Australia (20%)</td>
<td></td>
</tr>
<tr>
<td><strong>Redclaw</strong></td>
<td>1,007 $’000</td>
<td>75</td>
<td>Queensland</td>
<td>Commercial farming developed in the past 10–15 years</td>
</tr>
</tbody>
</table>

a Percentages based on tonnage produced in 2001-02.
Sources: ABARE (2003a); Love and Langenkamp (2003), which includes final 2001-02 figures for Queensland released in May 2003.
4 Other aquaculture industries – molluscs

<table>
<thead>
<tr>
<th>GVP (2001-02)</th>
<th>Production (2001-02)</th>
<th>Main areas</th>
<th>First established</th>
</tr>
</thead>
<tbody>
<tr>
<td>$’000</td>
<td>tonnes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue mussels</td>
<td>8 063</td>
<td>3 035</td>
<td>Victoria (52%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Western Australia (33%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tasmania (7%)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>South Australia (6%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>New South Wales (2%)</td>
</tr>
<tr>
<td>Abalone</td>
<td>2 532</td>
<td>47</td>
<td>South Australia and Victoria; projects also under way in Tasmania and Western Australia</td>
</tr>
</tbody>
</table>


5 Edible aquaculture production: 1991-92 to 2001-02

<table>
<thead>
<tr>
<th>1991-92</th>
<th>2001-02</th>
<th>Share of increase in total real value since 1991-92</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity</td>
<td>Value</td>
<td>Real value (in 2001-02 dollars)</td>
</tr>
<tr>
<td>tonnes</td>
<td>$’000</td>
<td>$’000</td>
</tr>
<tr>
<td>Atlantic salmon and ocean trout</td>
<td>3 300</td>
<td>39 600</td>
</tr>
<tr>
<td>Freshwater trout</td>
<td>2 183</td>
<td>14 213</td>
</tr>
<tr>
<td>Southern bluefin tuna</td>
<td>97</td>
<td>1 843</td>
</tr>
<tr>
<td>Other finfish b</td>
<td>440</td>
<td>4 755</td>
</tr>
<tr>
<td>Prawns</td>
<td>907</td>
<td>10 760</td>
</tr>
<tr>
<td>Yabbies</td>
<td>115</td>
<td>1 187</td>
</tr>
<tr>
<td>Marron</td>
<td>18</td>
<td>433</td>
</tr>
<tr>
<td>Edible oysters e</td>
<td>8 202</td>
<td>44 846</td>
</tr>
<tr>
<td>Other d</td>
<td>885</td>
<td>3 049</td>
</tr>
<tr>
<td>Total</td>
<td>16 146</td>
<td>120 686</td>
</tr>
</tbody>
</table>

a Percentage increase (or decrease) since 1991-92. No percentages are shown for southern bluefin tuna as they are extremely large. b Predominantly barramundi, plus other native finfish such as silver perch and Murray cod. c Pacific oyster production has been increasing and Sydney rock oyster production decreasing, resulting in little change in the aggregate figure for edible oyster production. d Mainly other crustaceans (predominantly redclaw) and other molluscs (predominantly blue mussels). Source: ABARE (1992, 2003).
capital cost of setting up a 25 tonne intensive recirculation system for murray cod production was around $416 000, excluding land, while the capital costs of setting up larger systems producing 50 tonnes a year and 150 tonnes a year were $916 000 and $2 525 000 respectively. The Victorian Aquaculture Council (1999a) estimated that the capital cost of setting up a closed system for the production of murray cod or barramundi was around $2 million for a 120 tonne a year operation, excluding land.

Weston, Hardcastle and Davies (2001) also estimated that the capital costs of setting up two different sized semi-intensive pond culture operations for the growout of silver perch, including land purchase, were $470 000 for a 50 tonne a year 12 hectare farm incorporating 5 hectares of growout ponds, and $775 000 for a 100 tonne a year 25 hectare farm incorporating 10 hectares of growout ponds. Rowland (1998) reported that the capital cost of setting up a stand alone silver perch operation comprising 10 hectares of ponds was around $1 million, including land and equipment purchase and pond construction. Capital costs would be lower on farms that already had available land, infrastructure and equipment.

For trout, the Victorian Aquaculture Council (1999b) reported that the setup cost of a production only trout farm with an output of 100 tonnes a year would be about $1 million. About 10 hectares of land with access to cool pristine quality flow-through water would be required. A 100 tonne a year operation would be about the minimum commercial size for a production-only trout farm. The cost of setting up a larger production-only farm with an output of 200 tonnes a year would be about $1.5 million.

For marine finfish, Weston, Hardcastle and Davies (2001) estimated that the capital cost of setting up a 100 tonne a year snapper farm using seacage technology would be around $667 000, while the capital cost of setting up a 200 tonne a year operation would be around $1.04 million. The largest capital cost item would be the sea cages themselves (including nets, mooring, and other equipment), followed by boats, and land for shore facilities for processing, net repairs, maintenance and an office.
main perceived problems associated with attracting investment in aquaculture

Review of selected public documents
Problems associated with attracting investment in aquaculture have been examined in a number of reports and papers, six of which are summarised here. The first two examine Australian aquaculture from a national perspective, while the second two offer more detailed state perspectives for Victorian and Queensland. The final two relate to perceived problems in specific industries — freshwater crayfish and marine finfish aquaculture.

PMSEIC Working Group report
Reporting recently on the issue of sustainable aquaculture industry development in Australia, an independent working group of the Prime Minister’s Science, Engineering and Innovation Council (PMSEIC 2002) conducted a ‘Strengths–Weakness–Opportunities–Threats’ (SWOT) analysis for the industry that identified low investment as one of the aquaculture sector’s perceived weaknesses. Other perceived weaknesses included the sector’s fragmentation, the long startup time for projects, a lack of specific animal and husbandry knowledge, a lack of site knowledge, a lack of industry skills related to fish health and disease, and the small scale of many operations (table 6).

On the issue of low investment, the PMSEIC working group report noted:

‘A lack of tax-incentives exists to attract investment in this young industry. There are still relatively few successful enterprises that have overcome the obstacles to provide inspiration to others’ (PMSEIC 2002, p. 38).

National Aquaculture Development Committee report
In its report to government and industry, the National Aquaculture Development Committee also identified low investment as one of the key factors constraining further growth in aquaculture. The committee suggested a number of reasons for this, including the ownership structure of aquaculture enterprises, the long startup phase for many operations, production risk, security of tenure and macroeconomic settings and policies (table 7).
6 Summary of SWOT analysis on Australian aquaculture

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong export seafood</td>
<td>Fragmentation</td>
<td>Industry vision</td>
<td>Pollution and environmental</td>
</tr>
<tr>
<td>markets developed</td>
<td>Slow startups</td>
<td>National planning</td>
<td>backlash</td>
</tr>
<tr>
<td>Land and water</td>
<td>Low investment</td>
<td>Strategic research and</td>
<td>Feed costs and shortfall of</td>
</tr>
<tr>
<td>resources</td>
<td></td>
<td>development setting and priorities</td>
<td>supply</td>
</tr>
<tr>
<td>Science, engineering and</td>
<td>Lack of specific</td>
<td>Learning and education</td>
<td>Foreign fish diseases and lack</td>
</tr>
<tr>
<td>technology base</td>
<td>animal and husbandry</td>
<td></td>
<td>of registered treatment agents</td>
</tr>
<tr>
<td></td>
<td>knowledge</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lack of site knowledge</td>
<td></td>
<td>Lack of research and innovation</td>
</tr>
<tr>
<td></td>
<td>Lack of industry skills</td>
<td></td>
<td>Weakening overseas markets;</td>
</tr>
<tr>
<td></td>
<td>related to fish health and</td>
<td></td>
<td>foreign competition</td>
</tr>
<tr>
<td></td>
<td>disease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scale</td>
<td></td>
<td>Action Agenda implementation</td>
<td>Land and water resources could</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>be allocated for other uses —</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eg. marine parks, coastal</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>developments, commercial and</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>recreational fishing</td>
</tr>
</tbody>
</table>

Source: PMSEIC (2002).

7 Investment constraints – National Aquaculture Development Committee report

<table>
<thead>
<tr>
<th>Constraint</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ownership structure of aquaculture</td>
<td>The prevalence of private companies, partnerships or trusts in aquaculture may create serious obstacles to financing by preventing access to equity financing from the public or from institutional investors such as superannuation funds.</td>
</tr>
<tr>
<td>enterprises</td>
<td></td>
</tr>
<tr>
<td>Long startup phase</td>
<td>Aquaculture experiences great variations in returns, especially in the startup phase. The inability to pass on or offset losses and liquidity of buying into and out of an aquaculture business may be preventing investment in the industry.</td>
</tr>
<tr>
<td>Production risk</td>
<td>Apart from the normal risks faced by any production business, the aquaculture industry has an extra dimension of uncertainty associated with climatic and other environmental factors. Droughts, floods, water temperature, water quality and disease all represent factors that are largely beyond the control of individual farmers. The only option for farmers is to anticipate and, where possible, put in place economic and production risk management procedures. This is an area not well understood in the aquaculture industry and for which there is a considerable lack of data.</td>
</tr>
<tr>
<td>Security of tenure</td>
<td>Where aquaculture depends on access to public resources, some degree of security of tenure or access is required to underpin an investment by the farmer or additional investors.</td>
</tr>
<tr>
<td>Macroeconomic settings and policies</td>
<td>The aquaculture industry is highly sensitive to general economic conditions. New investment and sales are subject to financial factors, such as the prevailing interest rates and the taxation arrangements that apply to primary industries.</td>
</tr>
</tbody>
</table>

Source: Based on discussion in Aquaculture Action Agenda Taskforce (2002).
Review of regulatory arrangements in Victoria

The Victorian government’s 1998 policy statement on aquaculture, the Victorian Aquaculture Strategy, identified a need to ensure the existing legislative, regulatory and administrative government framework for aquaculture was not acting as a constraint to growth. After reviewing this framework, an Aquaculture Task Force recommended a number of reforms that would assist industry growth, while maintaining consistency with the principles of ecologically sustainable development. The task force recommended:

- a single point of entry to the state government for aquaculture operators;
- clear guidelines outlining state and local government requirements for aquaculture applicants;
- published criteria for assessing aquaculture licence applications involving movement of exotic and noxious species and the culturing of threatened species;
- published guidelines for local councils concerning aquaculture planning issues;
- access to industrial zones for closed system, recirculating aquaculture operations;
- long period Crown land leases for marine aquaculture; and

Speaking at the Victorian Coastal Conference in April 2002, the Director of Fisheries Victoria outlined the Victorian government’s plans to increase the area available for marine and land based aquaculture in Port Philip Bay, and marine aquaculture at Westernport and Portland. He also reported that there had been significant investment in Victorian aquaculture in every year in the previous five years — for example, there had been around $15 million in capital investment in the abalone farming sector (McLoughlin 2002).

Queensland aquaculture industry discussion paper

A recent Queensland Department of State Development (2002) discussion paper identified access to capital as one of eight key challenges to growth and innovation in the state’s aquaculture industry (table 8).

Specifically on the issue of access to capital, the discussion paper noted that there were numerous institutions that lend money to aquaculture projects in species and systems that are well established, such as prawn aquaculture. However, with the issues surrounding licence approvals and the long lag time between application for, and notification of, approval (or denial of approval), investors were finding it increasingly difficult to secure capital for startup operations. When unable to obtain capital from Australian financial institutions, several operators had obtained capital from foreign institutions more prepared to lend for aquaculture. Some of the main reasons why Australian financial institutions appeared unwilling to lend for aquaculture were:

- limited knowledge of Australian lenders of the aquaculture industry;
Challenges to growth and innovation – Queensland aquaculture industry

- Lack of faith by lenders in the regulatory and business climate in Queensland; and
- Relatively weak business planning skills and knowledge of financial markets by some aquaculture businesses.

The report also noted that a number of efforts and actions were under way to address these issues (Department of State Development 2002).

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to production sites</td>
<td>Currently investors can spend up to two years and several thousand dollars in an attempt to gain approval for operations on a site that may be considered unsuitable by regulators and licensing agencies.</td>
</tr>
<tr>
<td>Concern about environmental impacts</td>
<td>While concerns, particularly about the impact of marine aquaculture, appear to be related to potential rather than observed impacts, nonetheless, this concern and the associated negative perception of aquaculture can present an obstacle to aquaculture development.</td>
</tr>
<tr>
<td>Lack of strategic and development plans</td>
<td>Although the Queensland industry has until now been regarded as a new and small industry, the size and structure of which did not necessarily warrant a major planning exercise, with the recent and increasing interest by investors in aquaculture development in the state, many of which are of a size significantly larger than existing operations, the industry is approaching a new phase of development that warrants good planning.</td>
</tr>
<tr>
<td>Accommodating development within existing state policies</td>
<td>There are numerous pieces of state legislation and related policies that provide direction on where and how development may occur, but there is a need to identify key areas where policies may conflict.</td>
</tr>
<tr>
<td>Lack of intellectual property protection</td>
<td>Both a policy for intellectual property protection and a commercialisation support strategy for aquaculture research must be in place if Queensland is to realise a return on the investment it makes into research.</td>
</tr>
<tr>
<td>Commonwealth/state regulatory issues</td>
<td>Under two pieces of recently enacted Commonwealth legislation — GBRMP Regulation (Aquaculture) 2000, and the EPBC Act 1999 — aquaculture developments may need assessment and approval by the federal government as well as the state government. Queensland has been seeking accreditation by the federal government of its assessment and approvals process for aquaculture under the Great Barrier Reef Park Regulation (Aquaculture).</td>
</tr>
<tr>
<td>Access to capital</td>
<td>While there are numerous institutions that lend money to aquaculture projects in species and systems that are well established, it may be difficult for investors to access capital for startup operations.</td>
</tr>
<tr>
<td>Supply chain development</td>
<td>Given the high number of small scale aquaculture enterprises, it will be important to create supply chains, and to attract larger players into the industry, through networking and collaboration in the marketing and distribution of Queensland products.</td>
</tr>
</tbody>
</table>

a This topic, the subject of ongoing negotiation, is discussed in more detail in the original DSD report, available from www.sd.qld.gov.au/aquaculture (see references).

Source: Compiled from Department of State Development (2002).
Potential for expansion of the freshwater crayfish industry

In early 2000, CSIRO Livestock Industries researchers surveyed a number of growers and processors in the freshwater crayfish industry (Piper 2000). One of the sections of the questionnaire asked these growers and processors their views on the main impediments to industry expansion. Responses to this section were many and varied and often reflected local issues. However, some of the more common responses were:

- lack of understanding of rural based aquaculture by government and local government authorities who place unreasonable and restrictive conditions on development applications;
- inability to attract major investors or finance due to perceived low and inconsistent productivity and profitability of freshwater crayfish aquaculture;
- regulations in all other states except Western Australia that restrict production from existing farm dams (this impediment was removed during 1999-2000 in Victoria and New South Wales by the introduction of new multiple site/water licensing arrangements);
- translocation regulations designed to protect local species or production;
- processor capacity;
- import tariffs and bans, particularly on live product in some countries;
- lack of industry coordination, research and promotion funding;
- a need for more cost effective diets and husbandry systems;
- possible future problems with chemical contamination, particularly of farm dam water; and
- lack of resources for technology transfer.

Investing in (marine finfish) aquaculture

A paper presented at ABARE’s 1996 OUTLOOK conference (Nel 1996) discussed a number of impediments specific to marine finfish aquaculture. In the paper it was suggested that, based on a number of advantages held by Australia, including abundant resources, good technology and infrastructure, and proximity to the world’s biggest marketplace (Asia), that the large scale, intensive culture of high value marine finfish is potentially Australia’s most lucrative aquaculture industry. However, with the exception of diadromous species such as salmon and barramundi, the marine finfish sector of the industry was virtually undeveloped. The main impediments to further development of marine finfish aquaculture were suggested to be:

- inadequate financing;
- insufficient attention being paid to markets and marketing factors;
- inappropriate selection of species;
- poor site selection;
- too much regulation;
inadequate or poorly developed culture technologies and production systems; and

inexperienced management.

The author argued that despite assertions to the contrary and, with few exceptions, the aquaculture industry in Australia, particularly the marine finfish sector, was still in its infancy. There was little, if any, vertical integration, critical marketing factors were often ignored or overlooked, and business plans frequently conspicuous by their absence. The advantages that aquaculture held over wild catch fishery (the ability to manufacture to order and to produce a dependable supply of a product with a consistently high quality) were not being exploited, with the concept of manufacturing to order, or producing and delivering to customers’ specifications, being rarely attained.

Aquaculture expert views

Main impediments

To obtain a ‘grass roots’ view of the current prevailing impediments to investment, ABARE contacted a number of aquaculture industry experts, including producers, industry association spokespersons, and extension officers in the state and territory departments responsible for fisheries and aquaculture. These experts noted a wide range of impediments, some specific to particular industries, some more general, including:

Institutional

■ a ‘multilayered’ complex of government bureaucracy and environmental regulation.

Physical/commercial

■ a lack of suitable sites, particularly for marine aquaculture;
■ industry fragmentation and geographic dispersion;
■ the long time frame from establishment to commercial production; and
■ falling prices for ‘luxury’ seafood products.

Structural

■ a lack of demonstrated ‘success stories’ to attract investors;
■ a well remembered history of failure of aquaculture enterprises;
■ the small scale of production, leading to an inability to guarantee regular supplies of product; and
■ a failure by many farmers to apply currently known ‘best practice’.

In line with the findings of the PMSEIC report, the experts suggested that the industry was fragmented, and leadership was needed to strengthen the industry’s approach to planning, promotion, information sharing, and government–industry partnership. The experts also echoed the PMSEIC report view that the approval process for new operations was lengthy and unpredictable, and could prolong the startup process for years. The small scale of many operations was also seen as a problem.
In some contrast to the findings of the PMSEIC report, many experts thought there was already plenty of animal, husbandry and site information and advice available, but that some operators were not accessing information and applying ‘best practice’.

**Institutional impediments**

Many experts considered the ‘multilayered’ complex of government bureaucracy and environmental regulation involved in the approval process to be a significant impediment to further investment. Marine aquaculture was perceived to have particular problems in this regard because it usually involved the use of public waters, was often conducted around coastal and urban areas that had many alternative competing uses (such as residential, conservation, recreational boating and fishing, and so on), and could potentially involve some level of waste discharge into public waters. In contrast, freshwater aquaculture was perceived to be relatively less hindered by ‘bureaucracy’ because it tended to be conducted on private property in the less populated areas, with little or no offsite discharge.

Most experts were of the view that there had been some modest progress toward reducing the multiple layers of government bureaucracy in recent years. However, this modest progress had taken many years to achieve, and new layers appeared to be being added just as quickly as the old ones were being removed. The experts suggested that for a typical new aquaculture project in the $2–5 million range, the cost of seeking and obtaining the necessary approvals could stretch to several hundred thousand dollars, with no guarantee of final success. This added to the cost and the risk of new projects, and reduced their attractiveness for potential investors.

Other expert comments on institutional impediments are summarised in table 9.

**Physical/commercial impediments**

Impediments identified by the experts included a lack of sites with the desired physical attributes for high production (particularly suitable marine aquaculture sites), the dispersed nature of the industry, the long time frame from startup to commercial production that typified aquaculture, and falling prices for ‘luxury’ seafood products. Many of these constraints were seen as fundamentally limiting the international competitiveness of aquaculture in Australia.

### Table 9: Other comments on institutional impediments

<table>
<thead>
<tr>
<th>Industry/state</th>
<th>Impediment to further growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Queensland marine</td>
<td>Environmental regulation; multiple layers of bureaucracy involved in the project approval</td>
</tr>
<tr>
<td>aquaculture</td>
<td>process</td>
</tr>
<tr>
<td>Victorian marine</td>
<td>Environmental regulation; multiple layers of bureaucracy involved in the project approval</td>
</tr>
<tr>
<td>aquaculture</td>
<td>process; lack of access ‘across the beach’; lack of long term security of tenure over water</td>
</tr>
<tr>
<td>South Australian</td>
<td>Environmental regulation; investor concerns over ‘shifting goalposts’ concerning marine</td>
</tr>
<tr>
<td>marine aquaculture</td>
<td>protected areas</td>
</tr>
</tbody>
</table>

*Source: Compiled by ABARE.*
In other words, there was little that government or industry could do about them, and there would be social losses if investment was to be encouraged in activities that were not internationally competitive.

Other expert comments about physical/commercial impediments are summarised in table 10.

### Structural impediments

Of particular interest from the point of view of changing investor perceptions of aquaculture were the many ‘structural’ impediments identified by the aquaculture experts. Many felt that there were few demonstrated ‘success stories’ likely to attract investors to aquaculture. On the other hand, there were many well remembered past failures that tended to deter investors.

The small scale of production was also perceived as a significant problem in some industries. It was suggested that there was a ‘breakthrough’ level of production needed for industry success, and this breakthrough level would not be achieved until one or several large operations began to successfully produce. While production remained below the breakthrough level, it was difficult to assure continuity of supply to buyers. When buyers lost interest in the product, investors lost interest in investing. It was also felt that many farmers were not using current industry ‘best practice’ to achieve the level of yield necessary to make their enterprises viable.

Some experts believed that there had been a past tendency for aquaculture to be seen by the state fisheries and aquaculture departments more as an exercise in ‘farm diversification’ than in ‘industry development’. As a result, it was believed that there were now too many small, nonviable operations and too few large profitable ones that could be shown to potential investors. It was also suggested, however, that as the state departments had been able to accumulate better information on what made for a ‘viable’ operation, they were now discouraging obvious ‘nonstarters’ from even trying to enter the industry. It was stated that experience had demonstrated that the most viable freshwater operations tended to be those established as an additional enterprise on a large, diversified farm, or as the sole enterprise on small to medium sized farms. Small, nonspecialised or ‘hobby’ operations tended to lack some of the fundamental prerequisites for viability such as the capacity to guarantee continuity of supply, or the labor force for periodic, more intensive operations such as harvest.
Other comments on structural impediments are summarised in table 11.

### Summary and discussion

Impediments to further investment in aquaculture as perceived by various aquaculture experts comprised a mixture of institutional, physical/commercial and structural impediments.

Federal, state and territory, and local governments and their agencies were seen to have an important responsibility to deliver a ‘whole of government’ view on aquaculture and to work with industry to arrive at a realistic balance between environmental protection and aquaculture industry development.

A number of physical impediments (for example, lack of suitable sites) and commercial impediments (for example, falling product prices) were identified. While it was recognised that many of these lay beyond the control of either industry or government, both industry and government were perceived as having a possible role in the provision of information and research.

On structural impediments, many experts believed that industry needed to ‘get its own house in order’ and clarify what it perceived as a desirable industry structure, to enable better planning of industry strategy, promotion and marketing.

Despite a number of perceived impediments, it was acknowledged that there had been large recent investment in some industries, notably in sea cage yellowtail kingfish and barramundi, and land based abalone, and that production, and gross value, in these industries was poised for significant growth in the next few years.
information requirements for aquaculture investors

Business funding cycle

Generally, commercial aquaculture proceeds through a series of growth, development and maturity stages that relate to its level and degree of competitiveness and profitability (Nel 1996). When seeking finance, aquaculture operators need to be clear where their operations are in this business development cycle. Table 12 shows the four ‘conventional’ stages of the cycle together with some of the funding sources typically accessed at each stage.

Although generally perceived as concentrating on businesses in the development, growth and expansion stage, venture capital companies invest in businesses at all stages of development. Not all companies will invest in all stages — often companies will specialise in investing in businesses at particular stages.

The annual Australian Venture Capital Journal / Price Waterhouse Coopers Venture Capital Survey indicated that in calendar 2001, of the $1.65 billion placed by venture capital firms into new or continuing investments, 6 per cent of investment funds were in seed stage businesses, 18 per cent in startup and early stage businesses, 31 per cent in expansion stage businesses, and the balance (45 per cent) in other (typically later stage) businesses.

Table 12 The business development cycle

<table>
<thead>
<tr>
<th>Stage of development</th>
<th>Requires funding to:</th>
<th>Typical funding source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed</td>
<td>Develop, test and ready a product for production</td>
<td>Own funds, family, friends</td>
</tr>
<tr>
<td>Startup / early expansion</td>
<td>Commence commercial business operations or operate a relatively new business</td>
<td>High net worth individuals, ‘true believer’, business angel</td>
</tr>
<tr>
<td>Development / growth / expansion</td>
<td>Expand an established and growing business</td>
<td>Venture capital, development fund</td>
</tr>
<tr>
<td>Later established</td>
<td>Continue expansion or make new acquisitions</td>
<td>Trade buyer, overseas investor, debt finance, public listing</td>
</tr>
</tbody>
</table>

Sources: Adapted from Price Waterhouse Coopers (2003a); InterFinancial Limited (2003).
As the capital value of early stage businesses tends to be lower than the capital value of later stage businesses (see box 1), it is useful to examine the number of investments by stage as well as the value of funds invested. In terms of numbers, 25 per cent of the investee businesses were at the seed stage, 41 per cent at the startup and early stage, 25 per cent at the expansion stage, and the balance (9 per cent) at later stages (table 13).

With the exception of pearling and Sydney rock oysters, aquaculture industries are often perceived as ‘young’ industries. Many, however, have now been operating for more than 10–15 years and, as indicated by rising production, have been able to attract investment for growth. In theory at least, well managed firms in these relatively young but established industries should be able to source finance from a wide variety of sources.

Box 1: Capital value of business, by stage

Using slightly different terminology than in table 14, Price Waterhouse Coopers (2003b) note that ‘Stage I’ ventures may have no product revenues to date and little or no expense history. In this stage the management team may still be incomplete but there will be an idea, or a plan, and possibly some initial product development. ‘Stage II’ ventures still have no product revenues, but do have some expense history, suggesting product development is under way. ‘Stage III’ ventures may be showing some product revenues, but still may be operating at a loss. ‘Stage IV’ ventures have product revenues and are operating profitably. For the equity investor, later stage ventures attract higher valuations, as investment risk is reduced (Price Waterhouse Coopers 2003b).

<table>
<thead>
<tr>
<th>Stage of development</th>
<th>Number of investments</th>
<th>Proportion of numbers</th>
<th>Value of investments</th>
<th>Proportion of value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>no.</td>
<td>%</td>
<td>$m</td>
<td>%</td>
</tr>
<tr>
<td>Seed</td>
<td>133</td>
<td>24.5</td>
<td>100.69</td>
<td>6.1</td>
</tr>
<tr>
<td>Startup</td>
<td>90</td>
<td>16.6</td>
<td>74.17</td>
<td>4.5</td>
</tr>
<tr>
<td>Early expansion</td>
<td>131</td>
<td>24.2</td>
<td>224.63</td>
<td>13.6</td>
</tr>
<tr>
<td>Expansion</td>
<td>134</td>
<td>24.7</td>
<td>517.10</td>
<td>31.2</td>
</tr>
<tr>
<td>Other (including later):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– turnaround</td>
<td>9</td>
<td>1.7</td>
<td>19.12</td>
<td>1.2</td>
</tr>
<tr>
<td>– management buy-out</td>
<td>22</td>
<td>4.1</td>
<td>577.25</td>
<td>34.9</td>
</tr>
<tr>
<td>– management buy-in</td>
<td>4</td>
<td>0.7</td>
<td>12.82</td>
<td>0.8</td>
</tr>
<tr>
<td>– replacement</td>
<td>11</td>
<td>2.0</td>
<td>110.68</td>
<td>6.7</td>
</tr>
<tr>
<td>– loan</td>
<td>8</td>
<td>1.5</td>
<td>19.48</td>
<td>1.2</td>
</tr>
<tr>
<td>Total</td>
<td>542</td>
<td>100.0</td>
<td>1 655.93</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Sources of finance

Some of the sources of finance likely to be considered by aquaculture operators and investors are summarised in table 14.

One of the major differences between securing capital through equity investment and through a bank loan or overdraft is that with equity investment, the money is provided by the investor, so that there is usually no principal or interest to repay as with bank loans. Although the investor may receive some dividends as the enterprise grows, the main return occurs when the expanded company is eventually sold or publicly listed on the stock exchange (Van der Westhuizen 2003b).

To offset the high risk being taken, an equity investor will expect a high rate of return on the investment. Generally equity investors will also be looking for businesses that can be expanded

### Possible sources of finance

<table>
<thead>
<tr>
<th>Source</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own funds</td>
<td>Some businesses, for example existing farm businesses, are able to generate sufficient cash flow to accommodate new investments from their own internal funds. This gets around the need to deal with banks or other finance institutions but not the need to carefully evaluate the investment beforehand, and especially to determine whether or not the funds likely to be invested could generate a better rate of return if invested in some alternative enterprise.</td>
</tr>
<tr>
<td>Family and friends</td>
<td>Many businesses source unsecured finance from family members or friends. This gets around the need to deal with banks or other finance institutions but problems can still arise if loans, especially key aspects of the loan such as the repayment schedule and the interest rate, are not properly documented.</td>
</tr>
<tr>
<td>Bank loans</td>
<td>Banks and other financial institutions will usually require security over property as a key requirement when making business or personal loans. Interest rates may be fixed or variable. It may be difficult for fledgling enterprises to access bank loans due to lack of security and/or lack of strong trading history.</td>
</tr>
<tr>
<td>Bank overdrafts</td>
<td>Overdrafts provide a revolving facility that can be drawn as required and paid down with surplus cash. As with bank loans the bank or other financial institution will usually require security over property or possibly a ‘security deposit’ where money is held in a separate account over which the bank has charge. Often an overdraft has a higher interest rate than a loan, is subject to the bank manager’s discretion, and may be called in at short notice.</td>
</tr>
<tr>
<td>Joint ventures</td>
<td>Ventures where funding is sought from others who may be able to contribute skills as well as money.</td>
</tr>
<tr>
<td>Equity investment</td>
<td>A common method of financing fast growing private companies, equity investment involves a third party buying shares in the business, thereby injecting cash, and usually also management skills and access to business contacts. Sources of equity finance include venture capital companies, business angels, management buy-outs and public listing (see table 14).</td>
</tr>
</tbody>
</table>

*Source:* Adapted from Van der Westhuizen (2003a).
from Australia’s relatively small market to an overseas market, and they will not be interested in businesses built primarily around the ‘lifestyle’ of the operator.

The main sources and characteristics of equity finance are summarised in table 15.

**Review of advice for prospective operators**

As discussed in table 14, many operators, particularly at the ‘seed’ stage, finance new activities through their own funds, or borrow money from family and friends. Although this may obviate the need to deal with banks or other financial institutions in the short term, to ensure funds are being put to their best possible use, it will still benefit the operator to make a formal assessment of the likely profitability of the operation. The assessment could also form the first planning stage in a more formal approach to a financial institution at some later time.

**General advice**

Nel (1996), summarising some of the factors that tended to contribute to the failure of aquaculture businesses, included among them the following:

- initial business plans that project unrealistic growth rates and returns on investment within an impractical period;
- undercapitalisation;
- poor selection of species;
- poor site selection;
- inadequate culture technologies and inappropriate selection of production systems;

**15 Main sources and characteristics of equity finance**

<table>
<thead>
<tr>
<th>Source</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Venture capital</td>
<td>Venture capital companies are specialist companies seeking to invest money in a new idea or business venture. Australian venture capital companies usually source funds from banks, superannuation funds, insurance companies or large investment houses and use these funds to invest in a range of emerging growth businesses.</td>
</tr>
<tr>
<td>Business angels</td>
<td>Business angels are individuals or smaller venture capital type investment companies who invest their own capital in undercapitalised businesses.</td>
</tr>
<tr>
<td>Management buy-out or buy-in</td>
<td>Buy-out: when existing companies are purchased by the current management team or by the people working there, usually with borrowed funds. Buy-in: when a new management team buys into a business, again usually with borrowed funds.</td>
</tr>
<tr>
<td>Public listing (stock exchange float)</td>
<td>A method of raising large amounts of money (typically more than $10 million) to fund a business. There are high costs involved and companies need to have a demonstrated track record to secure a listing.</td>
</tr>
</tbody>
</table>

*Source: Adapted from Van der Westhuizen (2003a).*
■ poor financial management;
■ inadequate market research; and
■ unforeseen decreases in market prices.

In contrast, some of the key factors that tend to contribute to a successful commercial aquaculture operation (one that makes a profit on a sustained basis) were considered to include:

■ choosing the right species, or combination of species, according to carefully defined selection criteria, including growth rate, food conversion efficiency, culture technology and marketing;
■ selecting the optimum site according to carefully defined criteria that encompass water quality, topographic and hydrographic features and infrastructure availability;
■ producing a realistic, professional business plan;
■ securing sufficient capital and establishing a proper financing structure;
■ having a suitable operating plan with the appropriate degree of vertical integration;
■ establishing and practising proper husbandry techniques such as feeding schedules and health and hygiene programs;
■ establishing a suitable program for access to hatchery stock;
■ properly managing the operations, particularly the monitoring and control of operating costs and establishing a suitable risk management program; and
■ establishing a research and development program to continuously increase operating efficiency and lower production costs, principally by minimising mortality rates and maximising feed conversion efficiencies and growth rates.

16 Key messages for aquaculture startup

<table>
<thead>
<tr>
<th>Message</th>
<th>Required actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘Before investing initial or additional money in fish farming, do your homework’</td>
<td>Use reliable, updated information in financial analyses; visit commercial farms to learn about the industry from several perspectives; use realistic production levels in financial plans</td>
</tr>
<tr>
<td>‘Marketing is essential’</td>
<td>Evaluate marketing alternatives and opportunities in your local area</td>
</tr>
<tr>
<td>‘Production capacity should be compatible with the marketing plan’</td>
<td>Identify what is required for each component of a plan: management, labor, capital, supplies, financing, assistance, equipment, permits and leases, land, water, power and markets</td>
</tr>
<tr>
<td>‘As most forms of aquaculture are capital intensive, financing will need to be obtained’</td>
<td>Prepare proper financial statements; establish a feasible loan limit; investigate alternative sources of financing to banks, such as equity partnerships</td>
</tr>
</tbody>
</table>

Source: Adopted from PIRSA (2000).
A report produced by Primary Industries and Resources South Australia (drawing on US research) contains four key messages for operators planning to start aquaculture operations, and what actions are required based on these four key messages (PIRSA 2002; table 16).

**Detailed advice**

Further to this general advice, there are a number of studies and reports that contain more specific ‘checklists’ of the key factors needed to be considered by operators starting, or expanding, an aquaculture business. The PIRSA report discussed above contains a checklist of the many factors that should be considered when evaluating a plan and preparing a feasibility analysis, irrespective of the prospective source of finance. The checklist items fall under five general categories: management, siting, production, marketing and risk (table 17).


To assist in attracting and fostering aquaculture investment opportunities in Western Australia, that state’s Department of Fisheries published a Pond Aquaculture Checklist for operators.

### Checklist for prospective aquaculturists

<table>
<thead>
<tr>
<th>Management – ability to obtain:</th>
<th>Suitability of site – from the point of view of:</th>
<th>Production – ability to obtain suitable:</th>
<th>Marketing – are (or is) there suitable:</th>
<th>Risk management strategies for:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required permit/ licence from state agency</td>
<td>Safety of access, including accessibility by boats and vehicles in poor weather</td>
<td>Animal feeds in the quantities required</td>
<td>Dependable local buyers for the size and quantity of product planned</td>
<td>Poor water quality</td>
</tr>
<tr>
<td>Technical assistance available from state agencies</td>
<td>Subsoils (pond culture)</td>
<td>Agricultural chemicals</td>
<td>Alternative interstate or export markets</td>
<td>Fish diseases and parasites</td>
</tr>
<tr>
<td>Required local council approvals</td>
<td>Quantity and quality of water</td>
<td>Breeding stock or juveniles</td>
<td>Knowledge of how buyers may react to the presence of off flavors</td>
<td>Pesticide contamination</td>
</tr>
<tr>
<td>Required approvals from other agencies</td>
<td>Susceptibility to flooding (land based), high tides (marine) and strong winds</td>
<td>Aeration, harvesting, feeding, storage, culture and transport equipment to purge fish</td>
<td>Suitable facilities</td>
<td>Algal blooms</td>
</tr>
</tbody>
</table>

*continued →*
### Checklist for prospective aquaculturists

<table>
<thead>
<tr>
<th>Management – ability to obtain:</th>
<th>Suitability of site – from the point of view of:</th>
<th>Production – ability to obtain suitable:</th>
<th>Marketing – are (or is) there suitable:</th>
<th>Risk management strategies for:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Necessary capital equipment</td>
<td>Drainage facilities, and ability to isolate discharge from adjacent water courses</td>
<td>Skilled and reliable labor</td>
<td>Knowledge of how prices may fluctuate through the season</td>
<td>Off flavours in the product</td>
</tr>
<tr>
<td>An expected rate of return from comparable with expected returns from alternative investments</td>
<td>Ability to prevent entry by wild predatory animals</td>
<td>Dependable disease diagnostic services</td>
<td>Knowledge of price trends and likely future developments in demand</td>
<td>Predation by birds, water rats, seals or other animals or aquatic predators</td>
</tr>
<tr>
<td>A realistic assessment of the sensitivity of rate of return to changes in interest rates, prices, mortality or yield</td>
<td>Ability to prevent escape of aquaculture stock</td>
<td>Species to produce</td>
<td>An alternative marketing strategy</td>
<td>Entry of wild fish</td>
</tr>
<tr>
<td>Working capital and funds for purchasing capital equipment</td>
<td>Existing populations of wild predatory animals</td>
<td>Size animals to purchase or breed</td>
<td>Facilities to transport the product to market</td>
<td>Aquatic weeds and algae</td>
</tr>
<tr>
<td>Carry on funding through the low or zero income stream period until the first crop of fish is sold.</td>
<td>Suitability for harvesting</td>
<td>Power supplies</td>
<td>Facilities, or the need, to process the product on site</td>
<td>Poachers and vandals</td>
</tr>
<tr>
<td>The skills to maintain a suitable record keeping system</td>
<td>Maintaining surveillance</td>
<td>Technical knowledge to assure optimal production</td>
<td>Appreciation of the likely actions of market competitors</td>
<td>Falling prices/rising production costs</td>
</tr>
<tr>
<td>Suffient time and effort to manage the operation</td>
<td>Future expansion of operations</td>
<td>Cash flow</td>
<td>Allowance for advertising</td>
<td>Equipment failure or breakdown</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Opportunities for value adding</td>
<td>Working long hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A quality assurance program</td>
<td>Personal stress from risk management</td>
</tr>
</tbody>
</table>

*Source: Summarised from PIRSA (2000).*

(Machin 2000). The checklist covers site selection, other relevant questions, aquaculture licensing requirements, approvals required from other agencies, markets and marketing, business planning, the temperature and salinity requirements of candidate species for inland aquaculture, and the reports and assistance available from Fisheries Western Australia. The report is available from [www.fish.wa.gov.au/aqua/broc/pondaqua/Pond%20Aquaculture.pdf](http://www.fish.wa.gov.au/aqua/broc/pondaqua/Pond%20Aquaculture.pdf).
In New South Wales, a report describing the *NSW North Coast Sustainable Aquaculture Strategy for Land Based Aquaculture* contains detailed information on business planning, species selection, site selection, planning and design, farm operation, the approvals process, project profiles analysis, and assessment guidelines for the three types of intensive land based aquaculture covered by the strategy (estuarine pond aquaculture for endemic species of prawns and finfish, freshwater pond aquaculture, and tank based high intensity recirculation aquaculture in saline or fresh water) (Stone, Ogbum and Baulch 2000). The report also provides an overview of the North Coast Sustainable Aquaculture Strategy and the contribution of land based aquaculture to the economy of the Northern Rivers area of New South Wales. The report is available from www.fisheries.nsw.gov.au/aquaculture/reports/ncas.htm.

**Aquaculture software**

There are a number of software packages commercially available for financial planning and production decision making for a wide range of aquaculture systems in Australia. For example, the AquaProfit software series, developed by Queensland’s Department of Primary Industries, covers the five core aquaculture industries in Queensland, barramundi, silver perch and jade perch, marine prawns, redclaw and oysters, allowing users to observe and evaluate species requirements in varying management circumstances and climate (DPI 2001).

‘Aquafarmer’, developed by Fisheries Victoria (Department of Primary Industries, Victoria), is a software package for aquaculture feasibility modeling, financial planning, sales and harvesting planning, and management, specifically designed for recirculation aquaculture technology. The software provides current fish farmers and potential new investors with critical information that will allow them to model expected cash flows and associated profit ratios for a particular sized farm growing a particular species of fish or crustacean. A detailed discussion of ‘Aquafarmer’ can be found in the aquaculture section of the Victorian Department of Primary Industries web site (www.dpi.vic.gov.au).

CSIRO Marine Research’s ‘Pondman’, developed for prawn farming systems, allows users to analyse, among other things, feed, growth, stock, harvests, aeration, feed conversion ratios and water quality (CSIRO 2003).

Aqua Assist in Tasmania produces software packages for salmon, trout, tuna, abalone, hatchery, feed production and processing, supporting both stock and cage or tank based data capture (Aqua Assist 2003).

*Note that the discussion of the commercial software packages in this section is for information only and does not constitute endorsement of any of the software mentioned.*

**Information requirements – banks**

**Review of selected public documents**

Banks provide a large percentage of the (nonoperator) finance for aquaculture but there is little specific public information on the criteria used to assess applications. However, at
ABARE’s OUTLOOK conference in 1996, the senior manager of agribusiness at the Queensland Industry Development Corporation in Brisbane comprehensively reviewed this topic based on his own and other bankers’ experiences, noting that ‘unfortunately many of these experiences have been unrewarding, even painful, and as is typical of my profession it takes some time for burnt fingers to heal’ (Emery 1996). Mr Emery added, however, that ‘any close study of the market fundamentals as they apply to aquaculture reveals tremendous opportunity. In fact, there may be no other form of primary food production which offers more opportunity for financial rewards to new venture business’.

The presenter noted that any economic sector that could demonstrate secure and growing markets, and naturally limited wild catch production or substitution, should appeal to business bankers. The financial services sector should, while remaining cognisant of the source of past difficulties, continually review new developments in the aquaculture industry for opportunity. Bankers, however, were ‘a conservative lot’, tending to view new industries without proven performance with suspicion and finding difficulty in coming to terms with an industry (aquaculture) that ‘promised much in terms of cash flow but had little historical basis for projecting such cash flow, offered security that had little value for anything other than aquaculture, and could not even show them its main asset, the livestock’ (Emery 1996).

In Queensland, financiers’ early relationship with the industry in the 1980s had grown from the developing interest in aquaculture at a time that had also coincided with banking deregulation. The mid to late 1980s had been a relatively unrestrained period in the finance industry and aquaculture was not the only industry in which some poor banking decisions had been made at the time. While some of the original new industry entrants had failed, others had continued to trade, even if at lower levels of profitability than their original projections. The relationship between the industry and financiers needed to be two-way — if financiers wished to enter an industry segment they saw as having market potential, then they also needed to develop a high level of understanding of that particular industry.

Customer relationships had been important in the past and would continue to be in the future. While some new aquaculture ventures had not performed as well as first anticipated, past examples of ‘what can go wrong’ needed to be taken onboard to form a basis from which to establish more realistic business plan projections on which ongoing credit support could be based and new ventures evaluated. Well managed ventures with a level of gearing appropriate to the industry’s risk factors and potential volatility of production could still make good banking customers, although bankers were likely to remain cautious and insist on relatively high levels of equity capital at least until they had developed a relationship with a number of well performing business able to provide evidence of a consistently positive cash flow (Emery 1996).

Business bankers had learnt from their experiences of the late 1980s with lending in general, and had made considerable effort to upgrade their capacity to assess credit. Bankers now carefully considered a number of aspects of a business’s likely future performance when evaluating a credit proposal, including industry analysis, business analysis, capacity analysis, and ways out.
When assessing the industry’s prospects, bankers needed answers to a number of key questions. For example, could Queensland secure a sustainable and profitable share of the market for aquaculture products being generated by the rising world demand for seafood, particularly in Asia, Europe and north America, coupled with the prospect of only static or declining production from the world’s wild catch fisheries? Were there high value export ‘niches’, such as for live product in Queensland’s own domestic market, including tourist patronised restaurants in coastal resort areas? Had Australian farmers heeded the lessons of overseas industries where aquaculture operations had resulted in environmental degradation and collapsing production? Were Queensland’s farms properly located with respect to soil types and water temperature range and intake access? Were the species proposed to be farmed suitable for local climatic conditions?

Turning to an assessment of the business itself, bankers needed to be assured that the aquaculture operators understood what business they were in and what market segments they were targeting. The business needed to have a clear product and market vision and adequate capital backing in place before any site purchase or construction was undertaken. Financiers were likely to insist on consultants being involved in such aspects as site selection and construction supervision. Production related expertise was also now available and could supplement employee expertise even on large farms. Emery noted that a number of aquaculture ventures had failed or struggled to achieve projected results from one or a number of deficiencies on the business management side of the venture. These deficiencies had included the use of less than ideal, or even inappropriate, farm sites, a lack of understanding of the technical aspects of stock feeding and/or day to day management, inability to source competent staff (mostly due to a general lack of expertise in the industry) and a lack of general marketing expertise. Where bankers perceived these potential problems with the business they would be reluctant to lend until some stable record of financial performance had been established. A possible exception might be for smaller ventures established on existing farms that were able to draw on other business income or offer a margin of acceptable security.

Examining the financial capacity of a typical aquaculture business, bankers were well aware that all forms of production that rely on the performance of animals under the influence of the natural environment generated a much higher risk profile than businesses over which management had direct control (such as a factory), and had generally adopted credit policies that could take into account the likely requirement to continue financial support through periods of negative income due to poor seasons. Historically, most farm ventures in Queensland had found it difficult to service more than about 30 per cent of debt to total assets, at market value. Aquaculture ventures were also subject to high levels of risk from weather events, and few of the financial projections of the new aquaculture ventures prepared in the mid to late 1980s had been realised in practice. For those operators who had been able to convince bankers of the opportunity available in the industry, early unexpected additional expenditure and lower than projected yields and prices had created difficult relationships with financiers.

Some of the ‘best survivors’ had been smaller operators, particularly those who had established their aquaculture project as an adjunct to some other form of farming. The financial projections now being prepared by new venturers were more realistic than in the past but perhaps still not appropriately reflective of the unexpected.
Finally, any assessment of a credit proposal should include an analysis of how the financier will ultimately recover the debt funding. The intended, and preferred, method is by repayment from cash flow. However, this may not eventuate and to minimise their risk, financiers take security. Where specialised security such as a prawn farm is offered it is difficult to assess its value. The standard method of assessing value is by multiplying after-tax returns by some yield multiplier. But what would be the alternate use of the farm if, for example, disease rendered it nonviable as an aquaculture venture? Bankers were required to be aware of possible downside risks to the value of the operation and make their assessment of value accordingly (Emery 1996).

Selection criteria
To obtain first hand the views of financial lenders, ABARE approached the fourteen of the twenty-two members of the Australian Bankers’ Association known to lend to agribusinesses and asked them to explain what were the main criteria they used when assessing approaches for finance. The banking operation of a major agribusiness company was also approached. The fourteen included the ‘Big Four’ banks, plus the main state/regional banks. The eight banks not approached were specialised branches of overseas banks.

Some of the loan managers spoken to stated that the selection criteria used to assess applications and the information required from applicants could be readily obtained by potential applicants by phoning their local loans manager. However, as there appeared to be no documentation of these criteria in the public domain, the following section of the report may be of use to potential applicants who have not yet made that phone call.

Typically, the loan managers preferred an operator who could demonstrate a profitable trading record of at least three years and whose operation was not too highly geared (more than 30 per cent). Although aquaculture startup operations were not precluded, they were treated with more caution because of past experiences with failed operations. One bank said it had no direct experience with lending for aquaculture but did loan for commercial fishing. Here, new entrants were considered if they could show a convincing five year plan.

A number of general points made by the loans managers give some indication of the various factors that they would consider when assessing an application for finance from an aquaculture operator:

There was a lack of good, current, public information on industry prospects
Managers needed to critically assess the information provided by agribusiness loan applicants. However, there was often a lack of good, current, public information on aquaculture industry prospects, especially for new species. While operators in the existing industries could usually provide some financial history of returns and costs, there was little financial information available on the newer industries. Some managers said they obtained outside advice from farm consultants. However, it was hard to find a farm consultant with a good knowledge of aquaculture operations.

A bank that specialised in agribusiness (40–45 per cent of all business loans) had its own agricultural economist who could be called on by loans managers for additional advice if
need be, including advice on aquaculture. The loans manager noted that the bank was fortunate to be operating in a state where the state department responsible for fisheries and aquaculture provided good public information on aquaculture and where the state’s main aquaculture industries had a 10–15 year ‘track record’ that could be examined by loan managers.

**Aquaculture plant, equipment and earthworks may not add a great deal to the value of the farm**

Several managers stated that while aquaculture plant, equipment and earthworks were expensive to put in place, they added little to the land value of the farm. The market for aquaculture capital was relatively thin, and although the current farm proprietors may be interested in engaging in aquaculture, there was no guarantee that a future proprietor would be. In contrast, plant and equipment for the mainstream agricultural industries had a more ready market and so the more mainstream agricultural capital improvements tended to add more to farm value per dollar invested than aquaculture capital improvements.

Consequently, loans managers tended to hold the view that an aquaculture installation can be difficult to sell if the underlying business has failed. Hence, the ratio at which a bank is prepared to lend against aquaculture assets, if at all, can be low. Consequently, the applicant needed to demonstrate a high level of equity funding in the initial project, and additional reserves to meet unexpected difficulties, design changes, and so on.

**Aquaculture had a history of business failures**

Over the years there had been a number of well publicised failures with aquaculture operations. Some loans managers suggested that the well publicised failures were probably only the ‘tip of the iceberg’ — there were larger numbers of unpublicised failures they could not discuss because of confidentiality.

**Aquaculture had a high production risk**

The loan managers in general considered that there was high production risk associated with aquaculture, even in those industries where businesses had been operating profitably for a number of years. One of the main risks here was the risk of disease, which could result in significant loss of production and therefore cash flow.

More specifically, onshore aquaculture had shown high risks in a number of areas, including cannibalism within species (for example, with barramundi), and high mortality from high temperature or low oxygen conditions (for example, in shallow ponds exposed to high summer temperatures, or recirculation tank systems that experienced power outages). Marine lease aquaculture also demonstrated a number of site and weather related risks, including the risks of contamination, disease, toxic algal blooms, escapes, and so on.

Consequently, and particularly as many species take more than a year to grow out to marketable size, loans managers were concerned to see that the operator had taken reasonable steps to manage production risk through a combination of insurance cover (preferably for loss of profit), and sound risk prevention.
Relative to land based primary production, aquaculture tended to have less security of tenure

Relative to land based primary production, where land tenure and mortgagees’ rights were generally well established, aquaculture tended to have less security of tenure and consequently this added to the weight of difficulties in lending to aquaculture. The infrastructure from which production was derived, either onshore or within a marine lease, was subject to some uncertainties particular to aquaculture. For instance, marine leases could be of short duration and subject to ministerial consent before a new owner is approved, or the lease term extended. Often the government authority that administered the Act covering the marine lease will note a bank’s interest in the lease but not necessarily ensure that the bank’s consent is held before a marine lease transaction is processed.

Many applicants lacked experience in marketing

Many potential operators entered the aquaculture business from the production end, so that while most applicants had experience in production, many had little experience in marketing their expected output. Loans managers wanted to see some evidence that the prospective operator had not only established a market for their product, but had considered and addressed potential market acceptance problems, such as possible buyer resistance to the farmed product if it did not look or taste like ‘wild caught’ product.

In summary, loans managers tended to look for four key things in a potential applicant for finance for an aquaculture operation:

- a successful track record in at least one element of their aquaculture enterprise;
- a willingness to fully secure their borrowings;
- appropriate marketing arrangements for farmed product; and
- access to further capital should the aquaculture enterprise not go according to plan.

Information requirements

For their first meeting with the loans manager, potential applicants will be required to provide some documentation on their proposal. Individual loan managers spoken to said that they generally asked potential applicants to provide documentation along the following lines:

- for existing businesses, annual cash flow information for at least the past three financial years;
- monthly cash flow information for the past twelve months;
- forecast cash flow budgets, including the underlying assumptions made when drawing up the budget;
- background information on the proprietors and their business, including their management expertise and how long they had been in the industry;
- a statement of debts and assets;
- the purpose of the finance;
the repayment structure proposed;

the security being offered;

any additional background information able to be provided on the industry (its structure, markets, future prospects, and so on); and

depending on the size of the loan being sought, a business plan may also be required.

Historical accounts (the three years of financial statements plus year to date management accounts) particularly those relating to privately owned companies, should be accompanied by sufficient notes to identify the underlying business as well as discretionary expenditure, such as staff bonuses. A corporate diagram showing the ownership structure and the purpose of each entity would also be useful. In the detailed monthly budget, while many applicants tended to present only a cash flow or profit and loss budget, it is also useful for the loans manager to see forecasts for capital expenditure so the financial effect of further investment on all parts of the business can be identified. The securities on offer to the bank could include property mortgages, fixed and floating charges over companies (covering stock, debtors, plant and equipment, or uncalled capital), charge over a marine lease, and directors’ guarantees.

A business plan, where required, should concisely address the following issues:

- the applicant company’s position in the market (whether they were a new entrant, or well established) and its direction, together with information about the market in which the applicant operated;
- major competitors and the company’s approach to meeting competition;
- capital expenditure plans, showing which capital items were absolutely necessary, and which were discretionary;
- payment terms provided to debtors and received from creditors, and how these compared with other industry players;
- any potential problems with major debtors or any history of bad debts; and
- the experience and particular strengths (or weaknesses) of management.

More discussion on what should be included in business plans is contained in the following section of the report dealing with the information requirements of venture capital companies.

**Information requirements – venture capital companies**

As the venture capital industry tends to provide more public information on selection criteria and information requirements for applicants than the banks, this section of the chapter provides a review of the available information. However, to try to obtain venture capital company views on aquaculture specifically, a number of companies were contacted and their comments are summarised at the end of this section.
Selection criteria
The Australian Venture Capital Association Limited notes that as venture capitalists are high risk investors, to offset these high risks, they seek a high return on their investment. Specifically, the Association notes:

‘Venture capitalists have differing operating approaches. These differences may relate to the location of the business, the size of the investment, the stage of the company, industry specialisation, structure of the investment and involvement of the venture capitalists in the company’s activities. The entrepreneur should not be discouraged if one venture capitalist does not wish to proceed with an investment in the company. The rejection may not be a reflection of the quality of the business, but rather a matter of the business not fitting with the venture capitalist’s particular investment criteria’ (AVCAL 2003).

The Association lists five criteria considered by venture capital companies when assessing new or potential investments (table 18).

There are around 50 ‘Venture capitalist’ members listed with Australian Venture Capital Association Limited, and 23 of these summarise their individual criteria on their web sites. An examination of the investment criteria provided the following additional perspectives.

Businesses performance
Nearly all the 23 companies that listed their investment criteria stated that they were looking for companies with a ‘strong competitive position’. Factors typically perceived as making for a ‘strong competitive position’ included the company operating in a market segment that displayed rapid growth or some barrier to entry that could guarantee sustainable margins, possessing ownership of some unique intellectual property, or providing strongly differentiated products or services.

18 Key investment criteria used by venture capital companies

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superior businesses</td>
<td>The company should have superior products or services targeted at fast growing or untapped markets with a defensible strategic position. Alternatively, or leveraged management buy-outs, the company should have high borrowing capacity, stability of earnings and an ability to generate surplus cash to quickly repay debt.</td>
</tr>
<tr>
<td>Quality and depth of management</td>
<td>The company should have the quality and depth in its management team to achieve its aspirations.</td>
</tr>
<tr>
<td>Corporate governance and structure</td>
<td>The company should have the willingness to adopt modern corporate governance standards, such as nonexecutive directors, including a representative of the investor.</td>
</tr>
<tr>
<td>Appropriate investment structure</td>
<td>The company should be willing to structure a satisfactory deal to produce the anticipated financial returns to investors.</td>
</tr>
<tr>
<td>An exit plan</td>
<td>The company should have a clear exit route such as public listing (known as an IPO – initial public offering), or a third-party acquisition.</td>
</tr>
</tbody>
</table>

Source: Adapted from AVCAL (2003).
Company management
All 23 companies stressed their fundamental requirement for a highly skilled management team committed to growing the business. Most required the management of potential investees to have a proven track record, and sound business plan and marketing strategy. Although it is apparently sometimes the practice for the potential investor to require the management team to invest some of their own money in the business, only two out of the 23 venture capital companies specifically stated this as a requirement.

Corporate governance
Relatively few venture capital companies explicitly stated that company board representation was one of their investment criteria, however, words such as ‘willingness to work with equity partner’ and ‘must work with the investor to manage the company’ suggested that investor board representation would be the norm in large deals.

Investment structure
Again, although relatively few venture capital companies went into much detail about what exactly they regarded as a satisfactory deal, words such as ‘entry valuation must be realistic’ suggest that they would make their own assessment of investee company value. The required percentage minority position was, where stated, anywhere from 10 to 50 per cent. The desired size of investment, where stated, ranged from $2 million to $20 million. The minimum desired ‘internal rate of return,’ where stated, was at least 25 per cent. Only one of the 23 companies explicitly stated that they required a majority position.

Exit plan
Although only around half of the companies explicitly mentioned that an exit plan was required, it is implicit with equity financing that the investor will recoup their investment through the company either being listed on the stock exchange or sold to a third party. The desired ‘exit’ period, where stated, ranged from three to seven years.

Geographic preferences
A number of the venture capital companies explicitly stated that applicants had to be Australian or New Zealand companies. Of more importance, however, was the often stated requirement by investors that potential investees had to have a strong global outlook and a preparedness to operate in the competitive global market.

Preferred industry sector
The majority of the venture capital companies stated a preference for investing in ‘strongly growing’ and ‘high tech’ sectors such as bioscience, information technology, communications, and specialist high value retailing and services. At least half included food and beverage manufacturing in the sectors that they would potentially consider, although an examination of lists of ‘successful’ investments (where details were provided) revealed that only one venture capital company, First Tasmania Investments Limited, listed an aquaculture company as one of its successful investments (see box 2).

According to data from the Australian Venture Capital Journal / Price Waterhouse Coopers Venture Capital Survey, in calendar 2001, only 0.9 per cent of Australian and New Zealand
venture capital was invested in agribusiness, and only 2.4 per cent in food and beverage manufacture (Australian Venture Capital Journal 2002).

**Excluded industry sectors**
In addition to stating in which industry sectors they preferred to invest, a number of venture capital companies also stated some industry sectors in which they would not invest. Broadly,

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**Box 2: Example of venture capital investor in aquaculture – First Tasmania Investments Limited (FTIL)**

FTIL, a pooled development fund that invests exclusively in Tasmanian businesses, lists a range of major investments including Huon Valley Mushrooms, Strahan Village (tourist accommodation and cruise boats), Webster Limited (producer of apples and onions), Meadowbank Wines, Eels Australis (eel fishing, processing and exporting), Barking Spider (electronic and IT engineering products), Turnaround Solutions (IT consulting and development), Peat Resource Holdings (extraction of peat from bogs) and Abalone Farms Australia Pty Ltd.

On the latter company, FTIL states:

‘Abalone Farms Australia Pty Ltd (AFA) will invest more than $4 million to expand its on-land abalone aquaculture farm at Bicheno, Tasmania. The first stages of construction have commenced and involves increasing the number of tanks and constructing an advanced waste management system which recycles waste to grow food for the abalone. AFA will produce premium quality cocktail sized abalone for local and Asian markets. The science of growing the Australian species of abalone has taken a long time to perfect and AFA now believes it can profitably grow abalone after more than 15 years of trials’ (FTIL 2003).

The investment criteria listed by FTIL were:

- **Management** A highly motivated management team, in place or able to be introduced, that has a proven record of technical, marketing and administrative skills and is experienced in the industry in which the company competes.

- **Products** Products or services that are innovative and provide a competitive advantage will enable the company to rapidly achieve an acceptable market share and level of performance.

- **Markets** Markets that are large and expanding both locally and internationally.

- **Strategy** A well conceived and achievable strategy for the future development of the business.

- **Industry sector** FTIL will consider proposals for investment in all fields of commerce and industry, except retail and property development.

- **Size of investment** Equity provided will normally range from $100 000 upward.

- **Form of investment** FTIL provides equity finance through the acquisition of newly issued shares and will hold a minimum shareholding of 10 per cent of each investee business.

- **Terms of investment** FTIL expects to retain its investments for at least five years. Within that time, businesses should reach a stage of self sustaining growth and profitability that should enable them to gain access to more traditional sources of equity and loan finance.

- **Sale of investment** FTIL will seek to realise its investments, when appropriate to the owners, to other corporations or to the investing public through listing on the stock exchange (FTIL 2003).
where stated, these tended to be sectors such as early stage mining and exploration, property management, or financial or commodity market speculation.

Preferred stage of development
At least half the companies stated their preferences for stage of development. Some stated that they preferred only early stage companies, and others that they preferred only later stage companies. Around a third said they considered businesses at all development stages.

Information requirements
The Australian Venture Capital Association notes that the venture capital firm, when approached, will typically ask prospective investee companies for information on the product or service, the market analysis, how the company operates, the investment required and how it is to be used, financial projections and, importantly, questions about the management team. In reality, all these questions should be answered in the prospective investee’s business plan (AVCAL 2003).

The association further notes that as venture capital companies view hundreds of business plans every year, the plan must convince the venture capitalist that the company and the management team have the ability to achieve the goals of the company within the specified time. The plan should explain the nature of the company’s business, what it wants to achieve and how it is going to do it. The company’s management should prepare the plan and set challenging but achievable goals. The association recommends the length of the business plan should generally be no longer than ten pages, and be explained in plain English, especially if technical details are involved.

The following are considered essential in a business plan:
- Executive summary
- Background on the company
- Product or service
- Market analysis
- Marketing strategy
- Business operations
- Management team
- Financial projections
- Amount of finance required
- Exit opportunities.

More detail on what applicants should include for each of these key areas is available from the association’s web site (www.avcal.com.au). A number of venture capital company and more general business web sites also provide free downloadable ‘sample business plans’ that prospective applicants can use as a template. For example, Nanyang Investments
(www.nanyang.com.au) provide a comprehensive and easy to follow sample business plan, while Australian Business Angels (www.australianbusiness.com.au) provide sample business plans and other financial data templates.

Case study – abalone in Western Australia

Recently Price Waterhouse Coopers (PWC) in Perth was engaged by the Aquaculture Council of Western Australia to examine the investment attraction for the abalone aquaculture industry in Western Australia (PWC 2003a). The background to the investigation was that businesses in the abalone industry, considered to be at the early stage/startup phase of development in Western Australia, were apparently experiencing difficulty obtaining finance, particularly venture capital finance. The investigators therefore contacted a number of financial institutions and venture capital companies that the abalone operators had approached to find out why the proposals had not been accepted.

The study found that the general view among the potential investors was that the returns from farmed abalone appeared inadequate to them when weighed against the risks. Other feedback was that the projects’ proponents had not convinced the potential investors that they had:

- a maturity of approach toward investors;
- a sound business model;
- the existence of a quality management team;
- control of all the technical/production issues;
- carefully evaluated their product markets;
- realistic expectations of future prices;
- sufficiently robust forecasts of financial returns; and
- adequately identified practical exit strategies for investors.

Some more specific comments were that proponents’ proposals appeared supply driven, focusing more on the need for money to do what needed to be done to produce abalone rather than identifying the financial returns needed to attract investors. Some potential investors also criticised the quality of documentation and presentation of proposals, suggesting that many of them lacked sophistication.

Potential investors also expressed concern about the soundness of the business model underlying many of the proposals, suggesting that many of them failed to address the vagaries of the production cycle, world markets, or the risk of crop failure. Investors also wanted to see a credible management team that included an experienced commercial manager backed by a good technical manager and good marketing skills.

Given the perceived high level of technical risk that still surrounds many aquaculture operations, investors were concerned to know whether technical problems had been solved or that any outstanding production issues were being well managed. Past publicised failures
had damaged investor confidence. Investors wanted to see a successful farm up and running as a demonstration that the production technology had advanced beyond the early stage.

There was also a common view among potential investors that marketing issues needed more examination, and that physical expressions of interest such as letters of intent from potential buyers offered more convincing evidence of the potential of the market than more abstract statistical supply and demand presentations.

Investors wanted to be assured that proponents recognised that early stage capital raisings were expensive in terms of selling equity, and see proponents carry a proportion of that risk themselves. A number of investors also questioned the robustness of the forecast financial returns from the operations, including whether the forecast market prices could be achieved in the long term. Finally, investors wanted to see clear exit strategies in the proposals, and an appreciation for the investor’s requirement for exit.

Comments on aquaculture from venture capital companies

A number of venture capital companies (specifically, those who listed the food processing industry among the industry sectors in which they invested), were contacted for their views on aquaculture specifically. Some of their general observations were:

**Past history of aquaculture failures**
Companies looking at aquaculture proposals need to distinguish between perceived and actual risks. The industry has been tarnished by a few well known failures, but there are also undoubtedly successes that have not been as well publicised. As things currently stand, however, an aquaculture proposal ‘needs to look twice as good as anything else’ to attract serious interest from a venture capital investor.

**Aquaculture should present itself as ‘manufacturing’ rather than ‘primary production’**
One major advantage that aquaculture has over wild catch fishery is its ability (at least with intensive systems) to ‘manufacture’ its product to specific customer specifications. Venture capital companies tend to want to invest in high value manufacturing industries rather than primary production. If fact, many exclude primary production from the list of industry sectors in which they are willing to invest because of generally poor returns and high production risk. An operation portrayed as operating as a ‘factory’ is likely to attract more investor interest than one operating as a ‘farm’.

**Aquaculture needed to demonstrate its unique advantages**
Aquaculture had unique advantages in being able to produce a product (seafood) that was an established and traditional part of people’s diets but whose wild caught producers were unable to satisfy growing world demand. However, proponents needed to demonstrate that the markets in which they planned to place their product were both high value, and sustainable. Biotechnology and pharmaceutical companies, for example, were able maintain high profits through the barriers to entry of competitors provided by the holding of patents to unique products and processes. However, aquaculture does not have the type of barriers to entry that could ensure sustainable profits. For example, many who had invested in the salmon
industry had failed to foresee that massive investment worldwide in that industry would result in salmon becoming a ‘commodity’. Many potential producers of a new and apparently profitable species (such as farmed abalone) tended to ‘jump on the bandwagon’, only later to be faced with sharply falling real prices as world supply expanded much further and faster than had previously been expected.

**Aquaculture needed to ‘think globally’**
Venture capital companies were well aware of the limited size of the domestic Australian and New Zealand markets, and sought to invest in companies and industry sectors that had good export expansion prospects. Even then, however, there were risks with selling seafood, as the recent fall in high quality finfish and crustaceans prices in Asia due to SARS had demonstrated. Furthermore, as a general rule, Australian seafood companies did not have control over the product distribution networks in the export markets in which they were sold. The largest share of profits tended to go to the foreign seafood buyer rather than the Australian exporter.

**Exit strategies tended to be difficult with aquaculture**
As discussed elsewhere in this chapter, venture capital companies looked for an ‘exit strategy’ for their investment in the form of public listing on the stock exchange or sale to a third party. But there had been little track record of aquaculture companies successfully listing on the stock exchange, and few large national or multinational seafood companies available as potential third party buyers.

**Transport and logistics present particular problems**
Venture capital companies tended to want to invest in companies that were located near transport hubs to ensure that they could get their product to the market quickly and cost effectively. Aquaculture suffered two disadvantages in this respect. One was that the most highly valued product also tended to be the most highly perishable, so that any temporary disruption in the transport chain could result in loss of product, or ‘panic sale’ of the product at heavily discounted prices. The other was that the main selling point of much high value aquaculture product, the ‘pristine waters’ aspect, almost by definition required the product be produced well away from the main transport hubs, increasing the risk of losses from disruptions in the transport chain.

One of the companies contacted stated that they routinely reviewed up to 2000 proposals a year, and although perhaps a hundred of these were aquaculture proposals, there were only one or two that had been recommended to their investment board, and none that had been accepted. Another company commented that it reviewed a number of aquaculture proposals each year, but had not invested in any to date, for the usual reasons: the ‘incubation’ period between startup and product sale was too long, production risks were too high, the scale of operations was too small, there was no ‘market leverage’ as there was with intellectual property, international seafood prices fluctuated too much, and there was a very high exit risk.

The venture capital companies spoken to also confirmed the standard information requirements for consideration of a business proposal discussed elsewhere in this section, although they made the point that because an investment director reviewing an opportunity can always
ask for more information, an initial proposal need not (and preferably should not) be overly long and detailed but could be an executive summary of a business plan, or information memorandum, of only three or four pages. However brief, though, the document needed to cover all the key required information items such as what the business did, how much money it was seeking, what it intended to do with the money, the company’s current and future expected turnover, and who were the main people involved with management and their expertise.

**Government assistance for business**

Various grants, funding programs and industry assistance are available from federal, state and territory governments for starting and expanding a business, research and development, innovation and exporting. A full list of these is available from the Australian government’s Business Entry Point (www.bep.gov.au/BEP2002).

**Agriculture – Advancing Australia**

One Commonwealth program able to be accessed by aquaculture producers (and primary producers generally) is the Agriculture – Advancing Australia (AAA) package of programs that provide funding for business management training and education, support for innovation, financial management tools, financial support and professional advice, improved climate information, and improved access to markets. There are a number of program elements of AAA, including FarmBis, Farm Growth through Export Growth, Farm Help, and the Farm Innovation Program. In particular, the FarmBis program has a national component that provides assistance to enhance the business management skills of Australia’s primary industry sector through education and training projects, while the federal/state component helps primary producers participate in business and natural resource management training to improve their business.

In July 2001 the federal/state FarmBis program and the Property Management Planning program were combined into an expanded new federal/state program to include assistance for natural resource management training, and expanded its client base to include aquaculture, wild catch fishing and land managers. More information on the AAA package of programs, and the FarmBis program in particular, can be obtained from the Rural Policy and Innovation section of the Australian Government Department of Agriculture, Fisheries and Forestry (web site www.affa.gov.au).

**Development and investment funds**

Another federal program potentially able to be used by aquaculture operators is the Pooled Development Funds program. This is designed to increase the supply of equity capital for growing Australian small and medium sized enterprises. Pooled Development Funds are private sector investment companies established under the *Pooled Development Funds Act* that raise private capital from investors for investment in specific areas such as biotechnology. Decisions on which enterprises to invest in are made on a commercial basis by the private fund managers. The only extent of government involvement is that the returns from these funds receive favorable tax treatment. The venture capital company First Tasmania
Investments Limited, discussed previously, is a Pooled Development Fund. In general there has been little investment in aquaculture via the Pooled Development Funds, although more investment in future should not be ruled out if fund managers become more familiar with prospects in the aquaculture sector.

Another type of fund is the Innovation Investment Fund, which is a venture capital program that invests in nine private sector funds to assist small companies in the early stages of development to commercialise the outcomes of Australian research. In this type of fund, investments by the private sector are matched by government funds. The fund is intended to assist the development of Australia’s high technology industries. While aquaculture is not excluded, any successful aquaculture application would need to incorporate some high technology component. There have been no successful applications from aquaculture to date.

**Business assistance programs**

There are a number of other programs potentially able to be accessed by aquaculture operators to directly assist their operations or to assist them with business planning. For example, AusIndustry’s Small Business Answer Program is a competitive grants program that provides financial grants to organisations to deliver advisory services to small business owners, particularly in regional areas. The Small Business Incubator Program assists startup and developing new businesses by providing shared premises and business services, as well as intensive business advice and support. New entrants to aquaculture could, for example, potentially use the latter program to assist them in preparing business plans and applications for finance prior to the next stage of their enterprise, the construction of the actual facility on the purchased or leased site.

Some other programs of potential use to aquaculture operators are the Enhanced Project By-Laws Scheme (EPBS) and the Tradex Scheme. The EPBS provides tariff duty concessions on eligible capital goods for significant sized projects in the mining, resource processing, food processing, food packaging, manufacturing, agriculture and gas supply industry sectors. Tradex provides relief to individuals or organisations via an up-front exemption from customs duty and GST on imported goods intended for reexport or to be used as inputs to exports.

For more information about the various grants, funding programs and industry assistance available from the federal, state and territory governments, aquaculture producers should examine the information provided on the Australian Government’s Business Entry Point, visit the Australian Government Department of Industry, Tourism and Resources web site (www.ausindustry.gov.au) or ring the AusIndustry hot line 13 28 46.

**The Fishbook**

In September 2003, the Australian Government released *The FishBook – A Guide to Commonwealth Government Programs, Grants and Services for the Australian Seafood Industry*. The publication, produced by the Australian Government Department of Agriculture, Fisheries and Forestry, in conjunction with the Australian Seafood Industry Council and Seafood Services Australia, is designed to provide the seafood industry with a comprehensive, easy to use guide to a full range of assistance available (Fitzgerald 2003).
The FishBook identifies 67 distinct programs relevant to the seafood industry and presents them in a user friendly, one program per page format. Summarised program information includes: program objectives; the type of assistance available; eligibility requirements; contact details; and links to further information. This will allow the reader to quickly identify suitable programs.

The programs are categorised under: primary production (including fishing and aquaculture); exports/imports, customs and quarantine; innovation, research and development; business and taxation assistance; employment and training; and fisheries and environmental management.

The FishBook details a number of key information sources available to the industry, as well as a brief narrative and contact point for each industry relevant Australian government department and/or associated agency. In addition, the guide provides contact points for accessing the seafood assistance programs available in each state and territory.

Copies can be downloaded free of charge from www.affa.gov.au (select ‘Publications’ then ‘Fisheries’).

Summary and discussion

Sources of finance likely to be considered by operators seeking to establish new, or expand existing, aquaculture operations include own funds or family and friends, bank loans or overdrafts, or equity investment, including the innovation investment funds.

For a new or startup operation, even if finance is obtained from a private source rather than a financial institution, aquaculture operators are advised to work through the ‘checklist’ of management, site, production, marketing and risk questions to establish whether or not the operation is likely to be viable.

Loan managers from the banks who provided information on their selection criteria for business loans to agribusinesses expressed a strong preference for aquaculture businesses with a good track record — at least three years of demonstrated profitable investment. They suggested that there had been many failures of aquaculture businesses, both publicised and unpublicised, that have reinforced the perception that aquaculture is a risky industry to lend to. This said, however, many banks said they had some exposure to aquaculture and were willing to lend to well managed, established operations.

Some venture capital companies specialise in looking for investment opportunities at the startup stage. However, aquaculture operators seeking venture capital finance need to closely examine the venture capital companies’ investment criteria to establish whether they satisfy these criteria. If so, once the venture capital company is contacted, they will require detailed on all managerial and financial aspects of the aquaculture operation (usually set out in a business plan). Unlike a bank, venture capital companies do not require repayment of a loan, but rather, recoup their investment on ‘exit’ — that is, through public listing of the company on the stock exchange, or its sale to a third party.
Some venture capital companies specialise in investing in established businesses. The information requirements for operators seeking investment capital for established businesses are much the same as those required from startup operators. Venture capital companies are used to risk and will consider investing in ‘risky’ enterprises for which a bank may not provide a loan, but they will also expect very high returns for taking on this higher risk. There appear to be few aquaculture enterprises where venture capital companies consider the returns potentially obtainable from investing in the enterprise justify the amount of risk involved.
role for government

This review of the main perceived problems associated with attracting investment in aquaculture, and the information requirements for aquaculture operators seeking bank or venture capital company finance, indicates that many potential aquaculture operators have found it difficult to attract investment capital. However, this does not appear to be because of any intrinsic distortion in the capital market, but rather, that for a number of quite valid reasons, financiers and potential venture capital investors view aquaculture as a sector where the potential returns from investment are more than outweighed by the risks involved. To assist the future growth of the sector, action by government and the industry itself needs to focus on reducing or ameliorating some of the factors that make aquaculture risky relative to other industry sectors, and reducing some of the costs of production and marketing in aquaculture.

Aquaculture experts, financiers and venture capital companies consistently identified ‘excessive’ government regulation as one of the key factors adding to the already high level of production risk in the industry. In their view, ‘excessive’ regulation tended to draw out the approvals process for new operations, and so increase startup costs, as well as increase the risk that the project may not be approved at all, owing to the number of different approvals required from different agencies. A review of available information suggests that many of the state authorities do provide information on the approvals process, and so the process should come as no surprise to potential operators. Nonetheless, there appears plenty of scope to continue to try to work toward making the approvals process as efficient as possible.

Another ‘risk factor’ of particular interest to financiers was the perceived lower security of tenure for many aquaculture operations relative to land based primary production, where land tenure and mortgagees’ rights were generally well established. Financiers considered that this added further risk to the already high level of risk caused by the fact that there was a thin market for aquaculture capital and therefore more uncertainty about the sale or salvage value of an aquaculture operation. Governments are likely to have a key role in harmonising the tenure arrangements for different types of primary production.

The lack of information generally about the current state and prospects for the aquaculture industries was another ‘risk’ factor frequently raised by aquaculture experts, financiers, and the venture capital companies. Although some of the business failures in aquaculture had been well publicised, not as much publicity appeared to have been given to ‘success stories’, and bankers’ impressions of the likelihood of aquaculture ventures failing continued to be colored by some of their experiences with past failures. Government and industry may have a dual role here in the provision of information on the status and profitability of the aquaculture industries, possibly through some ongoing survey or reporting.
references


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—— 1999b, Trout Industry Sector Profile, Melbourne.