



Hunter and Central Coast Sustainable Aquaculture Strategy

Readers' Note

This document is part of a larger publication. The remaining parts and full version of the publication can be found at:

<http://www.dpi.nsw.gov.au/fisheries/aquaculture/publications/general-management-and-policy/hunter-and-central-coast-sustainable-aquaculture-strategy>

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Business Planning

Hunter and Central Coast Sustainable
Aquaculture Strategy
Land Based Aquaculture

A NSW Government Initiative

Hunter and Central Coast Sustainable Aquaculture Strategy

A NSW Government initiative of Department of Primary Industries, Department of State and Regional Development, Department of Environment and Conservation, Department of Lands, Department of Infrastructure, Planning and Natural Resources and NSW Premiers Department to encourage sustainable aquaculture in New South Wales.

Business Planning

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1. Sound Business Planning is the Key to Success

Land based intensive aquaculture in its various forms requires a fair degree of technical skill as well as prudent business planning and management. It is often said *most people do not plan to fail, they simply fail to plan*. Sound planning is the key to the success of an aquaculture business. A business plan provides for a rigorous evaluation of the business idea and a blue print for the future operation and growth of an aquaculture business. A business plan may be the only tangible aspect of a business in its early stages of development.

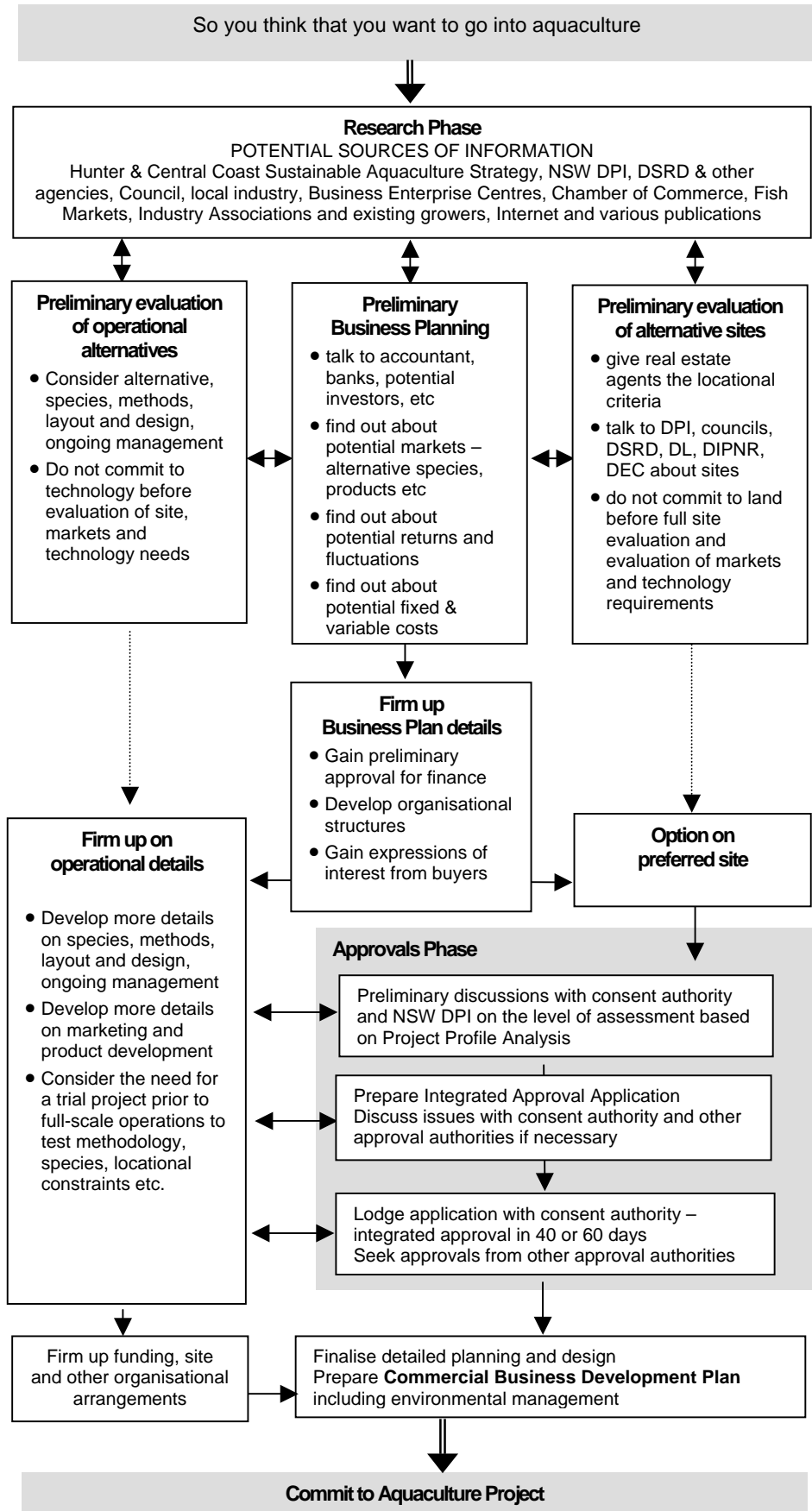
It is recommended that a business plan be prepared before making any financial commitments in terms of land, plant or equipment. The plan will identify the potential profitability of the enterprise. The business plan should establish the objectives for the business and provide performance targets that can be measured.

A written plan provides the means to think through all aspects of a new business and to examine the consequences of a range of alternative management, marketing, finance and human resource strategies. A business plan will help prevent mistakes being made which could be anticipated and solved on paper.

In addition to identifying the expectations of the business owners in terms of goals, the business plan provides the information needed by potential lenders or investors to evaluate the venture when seeking external financing or a business loan. This is most important as many investors or financial institutions are not familiar with aquaculture. The business plan needs to demonstrate the solid reasoning behind the venture and the justification for financial support. A thorough business plan automatically becomes part of a financial proposal that will meet the requirements of most lenders and investors.

An action plan for implementing the business plan should then be drawn up with detailed staging and schedules for tracking the steps to implement the plan. A number of useful project management software packages are available for undertaking this task. They provide an important and useful means of storing, documenting, reporting and monitoring the implementation of the project.

Figure 1. Business and Project Planning



2. Business Structure

Aquaculture is a business and like other businesses, potential investors should evaluate the pros and cons of various business structures and select a structure that offers them the most advantages.

Factors in the choice of business structure for an aquaculture enterprise include access to resources, management issues, long term plans, interrelationships, liability and taxation issues. While currently sole proprietorship is the most common organisational structure for aquaculture enterprises, there is likely to be an increase in other structures in the future.

Advice should be sought from a business planner, accountant or legal advisor regarding the business structure that best meets the needs of the aquaculture enterprise at its particular phase of development.

Common Business Structures

Sole Proprietor

The principal advantage of a sole proprietor structure is that it provides total management control and is probably the simplest in terms of start-up and record keeping. However resources are often limited and personal assets are often put at risk. Farm efficiency will vary with the abilities (and often health and well being) of the sole proprietor.

Partnerships

Partnerships involve more than one individual and while still having many of the characteristics of sole proprietorship, have the added advantage of additional resources in terms of assets and additional personnel. The structure of the partnership (limited or general) will affect factors such as liability, management responsibilities and ease of exiting the partnership. As a structure, it offers little advantage for estate planning or continuity of operation over the sole proprietorship.

Corporation

The primary advantage of a corporation is access to resources, limited liability of participants and continuity of operation. Depending on the structure of the corporation, there can also be tax advantages. However there is likely to be increased complexities in decisions making as control is shared between shareholders, the board and management (depending on the structure). There can be a significant increase in complexity in accounting and record keeping. Incorporation of a farm business can however help to provide for the transfer of shares to new owners and can simplify estate planning.

3. Outline of a Business Plan

The business plan should contain marketing, production and financial strategies for the establishment and operation of the business with a program to monitor the implementation of these strategies to achieve the business performance targets.

The business plan should outline what will be produced, where it will be sold and how profitable the activity is likely to be. This may include the production of existing product lines in existing markets or new product lines and new markets. The big questions to be addressed in business planning are:

Market feasibility:	What product is to be produced? Who will buy it and for how much?
Production feasibility:	How much will it cost to produce and sell?
Financial feasibility:	Will the profit exceed the costs?

There are a number of different formats for business plans depending on the type and source of funding sought. The following format includes the key issues that would normally need to be addressed.

OUTLINE OF A BUSINESS PLAN

Executive Summary

- Objectives of Business
- Current Analysis
- Profit Projections
- Capital Funding Requirements
- Key Factors

The Business

- Resume of Owner(s)/Proprietor
- Business Structure: Partnership, Company, etc.
- Main Activities/Unique Features
- The Business Objectives
- An outline of all aspects of the business
- Development schedule
- Strengths and Weaknesses - Past experience - Current Performance
- Opportunities and Constraints – markets, locations, relationships etc.
- People: Customers; Staff; Suppliers; Contractors/Services

Market Feasibility

1. Industry Analysis

- Overview of the Industry
- Industry Characteristics
- Economic Trends
- Consumer Trends
- Social and/or Political Considerations
- Price Sensitivity of Industry

2. *Product Range/Service*

- Product Description
- Strengths/Weaknesses
- Opportunities/Threats
- Future Development

3. *Marketing*

- Marketing Strategy
- Target Market/Customer Profile
- Market Size/Market Share/Market Potential
- Competition/Pricing Policy
- Key Factors Influencing Market/Research and Analysis
- Advertising and Promotion
- Sales and Distribution

Production Feasibility

4. *Production/Harvesting/Processing*

- Quality Control
- Strengths/Limitations
- Expansion/Capacity/Scheduling
- Equipment Requirements
- Material Requirements

5. *Management and Staffing Strategy*

- Key Management
- Staffing Requirements – full time/part time/peak activities
- Training and Skills
- Duties and Responsibilities

Financial Feasibility

6. *Financial Information*

- Current Position
- Income and Expenditure Projections/Profit Budget/Balance Sheet/Cash Flow Forecast/Break Even Analysis
- Start-up Capital/Operational Capital Requirements
- Sources of Finance
- Timing and Stages of Finance
- Fixed Asset Requirements
- Tax issues

7. *Supporting Documents and Miscellaneous*

- Business Advisers, Accountant, Solicitor, Banker
- Legal Documents/Leases or Contracts
- Letter(s) of Intent
- Research Documents/Patents or Trademarks

4. Market Feasibility

A marketing strategy is often the hardest part of an aquaculture business plan but it will fundamentally influence its profitability. Issues that need to be addressed in a market feasibility analysis include:

- Should the farm concentrate on a single species and a single product or a number of species and a number of products?
- Should the farm concentrate on high value/low volume products or high volume/low value throughput?
- Should the products be sold directly to the customers or through retailers, wholesalers or the Fish Markets? What is the implication for market size and return per unit?
- How should the farm interact with other aquaculture businesses with regard to marketing? Should the farm try to differentiate its products from others in the market place and how?
- How should the farm interact with the tourism/recreational market?

The market analysis should demonstrate that there are enough customers for the proposed product and that there is potential for growth or diversification in the market. This analysis should influence the choice of species to be grown and may influence the site selection (See *Species and Site Selection* section).

4.1 Potential customers

Potential customers need to be identified within the “market” area. These include wholesalers, restaurants, seafood stores, supermarkets, institutional buyers, and individuals. In addition to markets for food consumption, supplementary market niches for fishing bait or pet food particularly in relation to waste minimisation could also be considered. The short term and also longer term potential customers should be identified. Regional Development Boards, Department of State and Regional Development, Chambers of Commerce or the Yellow Pages are some of the potential sources of information of business and consumer data that can help to identify the numbers and location of potential customers. In addition the Sydney Fish Market is a key source of important information on market trends and opportunities and updated sales figures can be accessed on the Internet daily.

The market for crustacean, fin fish and shellfish can be particularly variable (See *Species* section). Each market segment can have its own pattern that can affect quantities and types of product purchased, price and demand for “value-added” products. It is critical that potential customers are consulted about their likely needs and how these could change during the year or in response to other factors. For example, the sizes of the product required, whether they want them live, fresh or frozen or whether they want them whole or headed and gutted. In addition the likely demand for value-added products such as smoked, special fillets or other processing should be identified. Consideration should be given to whether certain species are in short supply at certain times of the year. Can these species be grown and harvested to meet these periods of short supply? Can the harvest cycle be managed so that it does not coincide with periods of oversupply or when there are plentiful substitutes? The likely price differentials and sensitivities should be identified.

4.2 Positioning the product

It is important to identify where the competition is likely to come from in terms of other aquaculture producers, products caught in the wild, imports and substitute products. Many fish products command high prices as luxury food items that are characteristically in short supply. Since demand is limited, increased production could result in reduced product returns unless new “luxury” markets are identified. Other fish products command lower prices and compete with substitutes such as chicken, beef and pork as well as cheap overseas imports. As the quantity of fish consumed per person remains relatively low, growth in this “bulk” market is likely to be very competitive.

In some cases, the product can be “positioned” to maximise returns by creating or taking over a high return boutique market. Market advantages should be recognised and used. For example, for some products there is a perception that farm-raised fish or prawns are fresher, healthier and of higher quality than wild-caught species. The positioning of the product may require innovative packaging, pricing or promotion to achieve and maintain that position. In some cases, this can be achieved by individual producers, by a group of producers in a region (e.g. Hunter Valley) or by an industry sector as a whole (e.g. the NSW Silver Perch Growers Association Inc.). Emphasis on careful handling, cleaning, processing, packaging, transport and reliable quality service is important to develop, maintain or expand the market.

4.3 Promotion

Promotion of products creates customers. One of the best forms of promotion is the product itself, where the reputation of a high quality product within the market place serves as the promotion of the product. In addition however, time and resources should be set aside to promote the product. This promotion may dovetail with the promotion of the Hunter Valley Region or the industry as a whole (e.g. silver perch industry). However, for small scale operations, personal promotion with regular contact with the customers is probably more effective, particularly as it provides opportunity for feedback from the customers. In addition, some on-site promotion can help to emphasize the non-price attributes of the product and provide customers with a better understanding of aquaculture. Either approach could be reinforced by promotional tools such as recipes or other forms of industry wide promotion such as flyers and posters.

4.4 Distribution

Another very practical issue in determining the size and type of market is the issue of market access and how the products reach the customers. It is important to determine what delivery options are currently available (using agents, distribution companies or own staff). Determine the area which can/could be reached using these options or combinations of these options. With a small operation, allocating staff for sales and deliveries will impact upon other production activities. Direct deliveries to speciality markets often have the greatest potential for the highest return per kilogram but the full costs in terms of staff time and transport costs should be considered. A budget should be developed, keeping in mind that it is usually more expensive to establish a new market than to service an existing market.

4.5 Factoring in tourism

Another issue is the potential for additional returns from the interaction with the tourist industry. In addition to the potential for sale of product at the door, there is the potential to charge access to tour groups. However it is important that the full costs of additional facilities (e.g. customer amenities, sales display area and equipment, additional staff costs) and the costs associated with disruption to the daily operations of the farm are fully considered. The other potential fringe activity for fin fish farms is the stocking of fishout ponds for recreational fishing activities (see *Planning and Design section*).

5. Production Feasibility

Having determined that there is a market for the potential product, it must then be determined that production is feasible and that the product can be produced reliably, efficiently and economically.

A production feasibility analysis needs to consider the fixed and variable costs associated with factors such as the site, species to be produced, production methods, infrastructure requirements, human resources and quality controls. Feed and costs associated with feeding are often the most important variable cost and the profitability of the enterprise will depend on the feed costs and feeding efficiency. In the production feasibility analysis, consideration should be given to changing feed costs to test the sensitivity of the production viability with these changing costs. (See *Planning and Design* and *Operating the Farm* sections)

Start up costs will depend on the extent to which land, plant and equipment are available or have to be purchased for the aquaculture enterprise. As the land costs are a significant start up cost, site selection is a key business planning issue. The availability of a large enough block of land which meets the “preferred” selection criteria will vary within the region, as will the cost. In addition, a range of variables in terms of temperature, rainfall, access and cost of water, distance to markets and sources of fry will also affect start up and operational costs. These factors should be considered in the selection of sites (see *Site Selection* section). Choice in terms of capital investment will also affect variable and fixed costs – say in relation to plant and equipment and construction of dams, ponds, sheds and other facilities.

The production feasibility should also consider the management of the enterprise and the ability of management to make decisions and take actions for the reliable production of product. Issues include the availability of suitably experienced and skilled staff or advisers and/or access to appropriate training and instruction so that the enterprise can be run smoothly.

6. Financial Feasibility

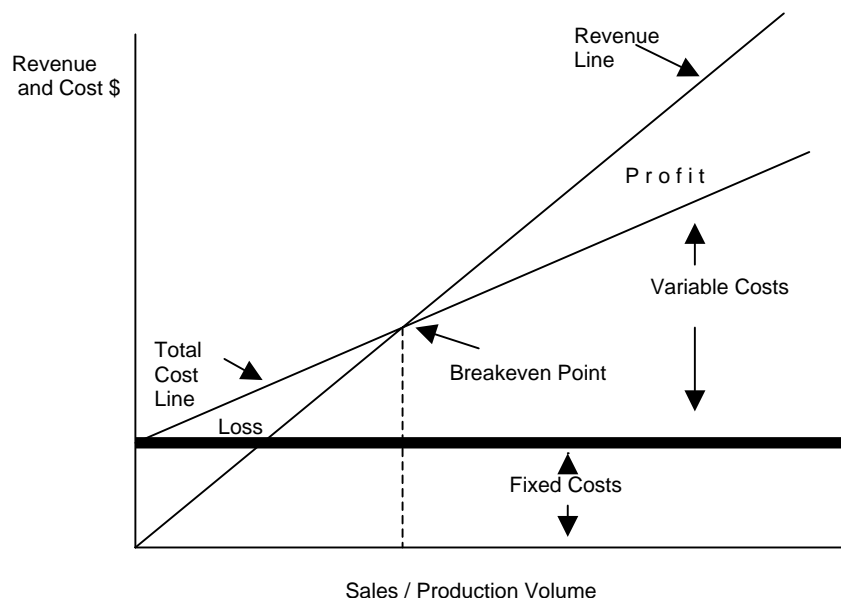
A cash flow projection is one of the most important of the financial documents included in a business plan. It forecasts cash inflows and outflows and ensures that money is available when needed. The cash flow statement should show how much money is required, when it is required, and when it will be available. This is particularly critical for those enterprises where there will be a single harvest per year while the expenses will be spread out over the year.

The cash flow statement will help predict if there is likely to be a cash deficit. It should also include timing of capital investments and managing of borrowings, particularly if future expansion of the operation is proposed in the business plan. A cash flow projection plan should include monthly budgets for at least the first 18 months, but preferably for 3 years or until the operation is likely to be 'in the black'. In many operations, expenditure occurs in spurts, with a high level of costs at stocking and harvest times and a lull in between.

The business plan should distinguish between fixed and variable costs.

- Fixed costs are associated with those costs that do not change as production volume changes such as full time employee salaries, overheads, insurance and depreciation (on ponds/tanks, plant and equipment).
- Variable costs change with production levels and include costs of juveniles, feed, chemicals, water, electricity and casual labour.

Figure 2. Considering fixed and variable costs



On the revenue side, there can be difficulties in predicting variability in prices and quantities likely to be harvested. In developing the plan, the assumptions used to arrive at the predictions should be included. Advice should be sought from Department of Primary Industries if necessary. The sensitivity and risk analysis should consider variations in sale price for various products in various markets as well as variations in costs including feed, water and transport. The risk analysis should also consider the short

and longer term viability of the enterprise if various scenarios should occur such as disease outbreaks, constraints on water supply because of droughts, extreme flood events, variable interest rates or domestic or overseas market constraints.

One of the most common reasons for business failure is the failure to recognise and plan for expenses such as professional fees and taxes. It is recommended that advice be sought from the accountant/business adviser on estimates to cover legal, accounting, insurance and taxes that may be incurred by the business.

Economic model: Yabby Farms

An economic model developed by the Department of Primary Industries and Resources South Australia indicates that the cost of establishing a yabby farm with 3.3ha of ponds (semi-intensive farming) is \$34,312. This does not take into account the cost of land and assumes that much of the machinery and excavation equipment is already owned by the farmer, but does take into account the construction of 3.3ha of drainable ponds. The model also takes into account the opportunity cost of using the land for yabby farming based on a value of \$500/ha, at 6ha of land used for the farm.

At a stocking density of 4 yabbies per m², a yield of 650kg/ha can be achieved, with a grow-out time of 3-11 months (>50g animals). Cost of production per kg of yabbies in this model is \$8.19/kg, split as follows:

Feed	9.8%
Labour	58.6%
Fertilisers	0.7%
Power	12.2%
Repairs and Maintenance	3.7%
Administration	5.7%
Capital	9.3%

Based on a sale price of \$9/kg with an annual production of 2,145kg, this gives the farm a gross income of \$19,303 p/a. This returns the farm only a modest profit of \$1,741 per annum, although included in the production costs are wages paid to the owner/operator at a rate of \$20/hr for 8 hours per week. This means that the owner is receiving an annual income from the farm of \$10,080. The payback period for the farm is 12 years, and based on the above figures gives an internal rate of return of 7% per annum. This would increase substantially with an increase in market price.

The farm used in this example is based on an actual farm operating in South Australia, and is a diversification of existing primary production on the property. Other economic analysis have indicated that an intensive farm with a minimum size of 4ha of pond would be required. It is difficult to nominate an optimum sized farm however, and current trends in NSW for the production of yabbies are based on small scale extensive farming in farm dams and constructed ponds, with often much lower production rates than above (<300kg/ha).

It is believed the future of yabby production in Australia is in intensive production, with research currently underway into hybridisation and mono-sexing. Market analysis for yabbies in Australia have indicated that supply is currently much lower than demand. As a consequence prices have remained strong with the 2000/2001 NSW production period estimating the average price of farmed yabbies at \$13.14/kg. Some farms are receiving up to \$20/kg for larger animals >120g.

7. Planning for Continued Success

Business planning doesn't stop once the business has been established. The Business Plan needs to be checked from time to time to ensure the marketing, production and financial strategies remain internally consistent and supportive of each other. The implementation of the plan should be monitored using production, sales, cost and other information to keep track of how the business is progressing and whether the goals are being met.

7.1 Potential threats to long term success

A number of studies have been undertaken in the USA to identify why some aquaculture enterprises succeed and others do not. While the situation in the USA is not the same as NSW, the results of the studies are of interest.

The most important factors identified for continued successful operation of aquaculture farms include the recognition that:

- (a) aquaculture requires continued and constant commitment;
- (b) fish are living animals that need to be "nurtured" like other animals;
- (c) good reliable workers and managers with business skills are critical;
- (d) it is better to start small while learning or when changing species/technology/equipment (e.g. pilot stage to test new approaches);
- (e) it is better to grow a high value product than to deal in the high volume market;
- (f) reliable good quality service is key;
- (g) marketing is where the money is made; and
- (h) it is critical to always manage the enterprise recognising that aquaculture can be a risky business.

The key causes of failures include:

1. For family operations, the death of the key person (who understood how to operate the farm) or marital/divorce problems or attempting to support too many family members, especially during start up times;
2. Natural disasters such as flood, hurricane, extreme heat or cold;
3. Speculation without proper research to identify realistic returns and /or tax minimisation driven investment decisions;
4. Over-dependence on collateral (especially when interest fluctuates) or inappropriate loan structure;
5. Poor production management;
6. Poor management of the marketing/lack of flexible marketing program to deal with changing markets;
7. Poor monitoring or record keeping of the production, financial and/or marketing aspects;
8. Appropriate/adequate information not used for decision making;
9. Poor money and time management with extensive effort spent on non-productive and non-profitable activities at the expense of profitable, productive activities. (80 – 20 rule); and
10. Poor "business" skills (Note: the failure rate for aquaculture farms is similar to non-farm businesses where 60% fail in the first 5 years).

7.2 Insurance

An essential consideration in any business venture (including aquaculture) is that of insurance. Some insurance policies are compulsory by law while others are essential to mitigate potential risks to the business. Aside from those required by law a good starting point would be to assess the extent to which the business is at risk from potential hazards.

Examples of insurances that aquaculture business operators should consider include:

- Workers Compensation;
- Sickness and Accident;
- Key Person;
- Product Liability;
- Public Liability;
- Loss of Profits;
- Fire;
- Burglary; and
- Machinery Breakdown.

You should discuss your insurance requirements with an insurance broker, insurance company, accountant or legal advisor prior to commencing business. Insurance cover should be reviewed on a regular basis. Under insurance as well as lack of insurance could endanger your business.

7.3 Ongoing business planning

The business plan should be a living document, which is revisited and updated especially when major events or changes occur. It is good practice to formally review the plan on a regular cycle. Issues that need consideration in the review include the following:

Review past performance

The production yields and cost, quality and any other defined performance variables should be reviewed. The same applies to marketing and financial performance measures. It is then possible to compare actual with planned performance and make any necessary adjustments to the strategies.

Analyse strengths and weaknesses

In reviewing the past performance, it is wise not only to monitor the performance of the farm, but also be aware of what other growers are doing and how they are performing. Comparing the performance of the enterprise with others (quantity as well as quality and costs of production) will give some indication as to how the farm is performing relatively – a benchmarking approach. Department of Primary Industries information may be valuable in this exercise.

Look for opportunities and threats

It is important to be aware of changes in markets and the potential for competition from within the region as well as interstate and overseas. Other changes in value adding, harvest size, transport, technology, species, species management, interest rates, etc. may offer opportunities as well as threats.

Adjust the plan as necessary

There is nothing wrong with making changes to a business plan as threats appear and opportunities evolve. Business planning is an attempt to be systematic about guiding the direction of the business. It also provides the basis upon which to recognise and make the most of opportunities that may not have been envisaged in the original business plan.

8. Information Sources

There are many publications available to assist with preparing a business plan. Assistance can be accessed from Department of Primary Industries, Department of State and Regional Development, Economic Development groups, industry associations, chambers of commerce, Business Enterprise Centres, business advisers or accountants. In addition the Internet is a useful source of overseas and interstate information on aquaculture management and business planning in general.

Department of Primary Industries

The Fisheries Management branch at the Port Stephens and Grafton Department of Primary Industries Research Stations are key sources of the latest information on aquaculture species and management techniques – critical input in the business plan. In addition, useful information regarding the latest research and publications which may be found on the DPI website <http://www.dpi.nsw.gov.au/>.

Fisheries Management Branch Agriculture & Fisheries Division Department of Primary Industries Port Stephens Fisheries Research Centre Private Bag 1, Nelson Bay 2315 Ph: 02 4982 1232	Fisheries Management Branch Agriculture & Fisheries Division Department of Primary Industries Grafton Fisheries Research Centre PMB 3 Grafton 2460 Ph: 02 6644 7633
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NSW Food Authority

NSW Food Authority is the first point of contact for information and advice on required food safety programs. Information on the latest developments can be sourced from www.foodauthority.nsw.gov.au .

NSW Department of State and Regional Development (DSRD)

DSRD is the first point of contact within Government for companies wishing to establish or expand their operations in New South Wales.

With its head office in Sydney, eighteen offices in the State's major regional centres, including the Hunter and Central Coast regions and an international network including offices in London and Tokyo, DSRD is committed to working with potential aquaculture investors by

- assisting with site location, project feasibility and other investigations;
- coordinating the necessary regulatory and approvals processes;
- facilitating discussions with suppliers of key services such as electricity, water and transport;
- providing introductions to business and financial partners;
- helping companies to develop new domestic and export markets;
- providing advice and assistance in such areas as business planning, marketing, exporting and quality assurance; and

- providing tailored financial assistance packages for particular investment projects.

Contact: Hunter Regional Office
NSW Department of State and Regional Development
Level 3, 251 Wharf Road
NEWCASTLE NSW 2300

Ph: 4908 7333
Fax: 4929 7096

Central Coast Office
PO Box 7096
KARIONG NSW 2250

Ph: 4340 8700
Fax: 4340 1005
<http://www.business.nsw.gov.au/>
<http://www.smallbiz.nsw.gov.au/>

Sydney Fish Market

The Sydney Fish Market holds the largest seafood auction in Australia every weekday morning from 5.30am selling 1000 crates every hour and 65 tonnes of fresh catch daily. The Market sells on behalf of fishermen, aquaculture growers and seafood suppliers. While the majority of produce is sold through the Dutch Clock Auction, a traditional voice auction is used for live crustaceans. The Sydney Fish Market provides details of the daily market price on its web site <http://www.sydneyfishmarket.com.au/>. The Sydney Fish Market is developing an Internet sales facility, specifically to meet the needs of aquaculture farmers who are interested in trialling the concept. The Fish Market considers that advantages for the aquaculturist would include listing products on the Sydney Fish Market's Internet sales web site and using the Sydney Fish Market as a Sydney delivery depot with payment guaranteed by Sydney Fish Market on the Friday following the week of sale.

Seafood Services Australia

A recent joint national industry/government initiative has been the formation of Seafood Services Australia. This organisation combines all the services previously provided by the Australian Seafood Extension & Advisory Service (AUSEAS), the National Seafood Centre (NSC) and Seaqual Australia under the one 'umbrella' name and in one location. As a result, Seafood Services Australia now provides three core services to the Australian seafood industry:

- Information and advice on technical issues;
- Guidance on food safety, quality management and standards;
- Assistance with adding value to your business through developing new products and processes.

One of the aims of Seafood Services Australia is to support commercially focussed, value-adding projects that can stimulate industry development and subsequent production activities. The priority is to add value to fish and fish products through:

- Planning, funding and managing short-term market-focussed applied research and development with the potential for high return; and
- Keeping the Australian seafood industry aware of opportunities and technical developments through promotion of research and development results and fostering collaboration between industry and R&D agencies.

The Australian Seafood Industry Quality Assurance (QA) Project has produced easy-to-follow best practice manuals for five seafood sectors: farmed prawns, wild-caught prawns, mullet, spanner crabs and reef fish. The ISO Best Practice Manuals, developed under the Australian Seafood Industry Quality Assurance Project can assist in achieving the internationally recognised ISO Quality Standards. The manuals are designed to assist in implementing a Hazard Analysis Critical Control Point (HACCP) based quality assurance system for business, a necessary prerequisite to having the QA system certified to an international standard such as ISO9002.

For further information contact:	Seafood Services Australia, PO Box 2188, Ascot, Qld 4007 Phone: 1300 130 321 Fax: 07 3633 6776 Email:- ssa@seafoodservices.com.au Web Site: http://www.seafoodservices.com.au/
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Aquafin CRC

The Aquafin CRC is a collaborative venture bringing together researchers from universities, CSIRO, state governments and industry to undertake research into the development and management of aquaculture. The Aquafin CRC has been focusing on issues such as genetics, breeding, rearing, feeding, disease, product quality and water quality issues and has developed a computer program *Pondman 2* which can be used to manage individual prawn ponds as well as the whole prawn farm including stocking, feeding and harvest scheduling.

For further information contact:	Aquafin CRC Director, Phone: 02 9514 1385 CSIRO Marine Science 233 Middle St, Cleveland, Qld 4163 Phone: 07 3826 7200.
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Your local council

Contact the Economic Development Manager with your local council for advice on site selection and planning issues.

Your local tourist authority

Your local tourist authority may be able to provide advice on the tourism potential of a site, particularly if establishing a fishout or public sale outlet and how it may be linked with other regional tourism facilities.

Your local Business Enterprise Centre (BECs)

BECs are able to assist with business start up and business planning issues.

Hunter Business Enterprise Centre
265 King Street
NEWCASTLE NSW 2300
Ph: 4925 2566
<http://www.businesscentre.com.au/>

Lower Hunter Business Enterprise Centre

Cnr Barton and Methyr Street
KURRI KURRI NSW 2327
Ph: 4936 2557

Business Central Coast

PO Box 240
OURIMBAH NSW 2258
Ph: 4349 4949

Queensland Department of Primary Industries

An Aquaculture Market Monitor is located on the Department of Primary Industries (DPI) web site <http://www.dpi.qld.gov.au/> and includes market prices, conditions and commentary of aquaculture products in Sydney and at the Sydney Fish market auction. The DPI has also developed two economic models for the guidance of barramundi or redclaw farmers. Titled "*Barraprofit*" and "*Redclawprofit*", the CD-ROMs are available from DPI. 'Barraprofit' is an interactive CD Rom package for potential investors and existing producers in barramundi farming. 'Barraprofit' aims to provide an economic based decision tool package to help potential investors in barramundi aquaculture understand the economic requirements, such as capital investment and operating costs, and the risks involved in farming barramundi, such as the impacts of disease, water quality, feed conversion and markets. It will aid existing farmers to develop their own farm model and apply it to the farm's operation. Farmers can observe the impact on profitability of price changes for inputs such as feed, fingerlings, electricity, packaging and transport. It can also be used to evaluate improvements in genetics and other methods of stock improvement, evaluate future development of farms, such as the addition of ponds, or change in production style. The whole farm model incorporates information on services offered by the Australian Barramundi Farmers Association (ABFA) and supports the growth of the industry in Australia.

Fisheries Victoria

Generic software packages such as *AQUAFarmer* produced by Fisheries Victoria provides a useful framework for financial feasibility assessment. Of particular use in financial assessment is a robust methodology for determining capital and operating costs (including relevant depreciation) and sensitivity analysis associated with variable growth rates and economies of scale. The Fisheries Victoria have other useful information at <http://www.dpi.vic.gov.au/>

National Fishing Industry Education Centre

The National Fishing Industry Education Centre (NFIEC) located in Grafton provides a number of tools which may be of assistance in establishing aquaculture enterprises. The NFIEC is an alliance between TAFE NSW and the Australian Fishing Industry. The Australian Fishing Industry has recognised the need for more systematic training for its workforce including those involved in the growing, processing and marketing of aquatic plants and animals. The NFIEC is committed to providing relevant, credible and accessible vocational education and training by face to face and flexible delivery, focusing of learners' needs. The Centre's courses include modules on farm design and construction, feeding, stocking and sampling, health management and water quality management.

National Fishing Industry Education Centre
Locked Bag 5
Grafton, NSW 2460
Phone: 02 6641 4400 Fax: 02 6644 7767
Web site: <http://www.natfish.tafensw.edu.au/>
Email:- natfish@tafensw.edu.au

Hunter Institute of Technology

The Hunter Institute of Technology provides courses in aquaculture and seafood industry.

Kurri Kurri TAFE

PO Box 135 KURRI KURRI NSW 2327
Phone: 02 4936 0300 Fax: 02 4936 0360.

Central Coast TAFE

PO Box 127 OURIMBAH NSW 2327
Phone: 02 4349 4529 Fax: 02 4349 4785.

HGT Australia NSW Centre for Seafood, Fisheries & Maritime Studies

Level I 148 Lampton Road Broadmeadow NSW 2292
Phone: 02 4903 3444 Fax: 02 4952 8070.

Professional and trade sources

Equipment suppliers can also be a useful source of information on the latest in technology. Professional associations will also have helpful general information on the planning and operating a successful aquaculture enterprise.

NSW AQUACULTURE ASSOCIATIONS

Industry associations can be a very useful source information on the aquaculture industry in Australia. By becoming an active member of these associations, growers benefit from the shared experience of other members and information disseminated by them.

Table 5. NSW Aquaculture Associations

Association	Contact Details	Function / Mission Statement
Australian Prawn Farmers Association PO Box 3128 SOUTH BRISBANE Qld 4101	Nick Moore, President Martin Breen, Exec Officer Phone: (07) 3255 1070 Fax: (07) 3844 7307 Mobile: 0417 006 639 info@apfa.com.au www.apfa.com.au	To represent the interests of the Australian prawn farming industry.
NSW Aquaculture Association Inc PO Box 3 KARUAH NSW 2324	Brian Leader, President Steve Barker, Vice President Rob McCormack, Secretary Phone: (02) 4997 3002 Fax: (02) 9688 4645 nswaqua@hotmail.net.au	To promote, develop and improve freshwater aquaculture in NSW and Australia.
Gilgandra Aquaculture Association Inc "Havilah" GILGANDRA NSW 2827	Ken Bardon, President Phone: (02) 6848 3526 Fax: (02) 6848 3555	To develop aquaculture in the Gilgandra and surrounding regions.
Jervis Bay Mariculture Association Inc 83 Attunga Ave KIAMA HEIGHTS NSW 2533	Barrie Bamford, Secretary Phone/ Fax: (02) 4233 1988	Lobby for the development and establishment of shellfish farming in Jervis Bay, NSW.

Association	Contact Details	Function / Mission Statement
NSW Cultured Mussel Growers Association PO Box 365 PAMBULA NSW 2549	Erick Hyland, President Phone/Fax: (02) 6496 3485 Mr Chris Boyton, Secretary Ph: (02) 6495 6998 or 0429 956 988 email: boyton@netspeed.com.au	To promote sustainable mussel farming, and lobby government for a viable mussel industry in NSW.
NSW Farmers Association (Oyster Section) GPO Box 1068 SYDNEY NSW 1041	Mark Bully, President Rachel King, Exec Officer Phone: (02) 8251 1856 Fax: (02) 8251 1752 kingr@nswfarmers.org.au	To represent the NSW oyster farming industry.
Oyster Farmers Association of NSW Ltd PO Box 254 TURRAMURRA NSW 2074	Tony Troup, President Ray Tynan, Deputy President. Lesley Spencer, Manager Phone: (02) 9487 3566 Fax: (02) 9487 1849 oyster@oysterfarmers.asn.au http://www.oysterfarmers.asn.au	To represent the interests of the NSW oyster farmers.
NSW Silver Perch Growers Association Inc	Ian Charles - President Noel Penfold, Secretary Phone: (02) 69229447 Fax: (02) 69229448 mdfish@ozemail.com.au	Network with government and industry bodies on behalf of members to gain information, technical expertise, training, funding and infrastructure; provide an initial point of contact for intending growers; increase public awareness of silver perch.
Native Fish Growers Co-op Ltd PO Box 244 GLOUCESTER NSW 2422	Lindsay Fraser - President Marcia Thompson - Secretary Phone/Fax: (02) 6558 8321 marsia@bigpond.com	To facilitate the collection of information; to share ideas and labour for on-farm operations; and coordinate the development of a viable, sustainable industry in the local area.
Central Coast Aquaculture Foundation Building 50 Mt Penang Gardens KARIONG NSW 2250	Soo Man Heng – Chairman Tim Shaw – Vice-Chairman tsem@ozemail.com.au	Community group dedicated to the development of the aquaculture industry on the Central NSW Coast in an ecologically responsible manner.
Pet Industry Association of Australia PO Box 7108 BAULKHAM HILLS Business Centre NSW 2153	Peter Nobbs Phone: (02) 96595811 Fax: (02) 96595822 info@piaa.net.au	To create an environment that grows the commercial pet industry by fostering responsible supply, care, sale and ownership of companion animals (representativeness includes the aquarium sector of the aquaculture industry). Specifically, to achieve a strong positive public perception; speak influentially and credibly for the industry; promote high standards within the industry; build and maintain a strong financial base; protect industry; communicate effectively.

Reference Sources

Hyde K (1997) *The New Rural Industries*, A handbook for Farmers and Investors, Rural Industries Research & Development Corporation, Canberra, Australia

NOFARIC 1995 *Marketing Silver Perch (Bidyanus bidyanus)*. Prepared by Ruello & Associates, NOFARIC, Sydney, Australia.

NOFARIC 1995 *A Model of a Feasibility Study and Business Plan for Aquaculture*. Prepared by the Pacific Seafood Management Consulting Group Pty. Ltd., NOFARIC, Sydney, Australia.

NOFARIC 1995 *Potential for Commercial Marine Fish Farming for NSW*. Prepared by the Pacific Seafood Management Consulting Group Pty. Ltd. NOFARIC, Sydney, Australia.

NSW Fisheries 1999 *Silver Perch Market Assessment*. Prepared by Ruello & Associates. Sydney, Australia.

DSRD Small Business Website (www.smallbiz.nsw.gov.au)

- Guide to Business Planning
- Guide to Business Review
- Export Market Planning
- Winning Exports Workbook