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Planning for Success in Your Aquaculture Business

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Introduction

"Aquaculture is agriculture" — this has been said often and for good reason: the hands-on skills needed for successfully farming the land are the skills aquaculturists need for farming the water, among them, woodworking, masonry, wiring, welding, plumbing, and equipment maintenance. Equally important are business management skills, such as finance, record keeping, marketing, and personnel management. More aquaculture businesses fail because of poor management than poor production practices. Like farmers and others who run risky businesses, aquaculturists will have to contend with a number of challenges and pitfalls — in developing a well-thought out business plan, you can anticipate many of them, so that you have a better chance of operating a successful business.

First, writing a comprehensive plan will minimize risk. Anticipating potential problems and accounting for financial demands will reduce mistakes, which could possibly have been avoided. A written plan guides you in thinking through start-up and operation. It requires gathering important facts and figures, so that you can question assumptions and findings, and recognize where pitfalls can occur before you begin construction or production.

Second, to attract investment financing, you must have a realistic and convincing plan for success. As it is, investment financing for your business will likely be limited: you will find that many investors are either unfamiliar with aquaculture or they remember a spectacular failure or two. Given that investors base most decisions on figures you provide and they can verify, you need to be as comprehensive as possible and build a factual case on why their investment is good business and has a good prospect of return with a satisfactory profit.

The take home point: demonstrating that your venture has a strong chance for success is essential for obtaining capital.

Business planning is not easy and can take months of research and assessment. While computer-based templates and information sources exist to produce professional looking plans, the real work lies in finding and analyzing the information your plan requires. It is your business on paper, and is a way to test your ideas against reality.

You must ensure that facts and data are well organized and part of a structured process; an organized approach will help you identify information necessary for building a successful business. Whether elaborate or simple, your business plan is critical: while many challenges are generic to all aquaculture businesses, some questions will emerge that are specific to yours. This fact sheet can help you to develop a pathway for thinking through and writing your plan.

Developing Your Business Plan

Your business plan is a logical and structured project. It defines:

- What you will produce
- How you will produce it
- Who you will sell it to
- Whether it will be profitable or not
- Costs of production
- Resources required to set up and operate systems

Seek the best information and determine how it applies to your situation with regard to location, your experience, and markets. Challenge yourself and your information as you build your business on paper. Question your ideas and back them up with credible information. Remember — you will use your plan to convince others that you can organize and manage a profitable company. Investors or lenders need to verify the information you provide.

A complete business plan will include important information such as (1) a *balance sheet* to indicate strengths and weaknesses; (2) an *income statement* to indicate profitability; (3) a *cash flow budget* to show when money will be moving into and out of the operation; and (4) a *resume* of the operator(s) that shows experience in the operational and financial aspects of the business. The complete package provides the information necessary for assessing the potential success or failure of the business.

Successful Expectations

The first-step in business planning is to clearly state your expectations: decide what you want from your business and how much you can give to it. This first step is fundamental: knowing what you want will make it easier to design an operation that can achieve your expectations.

Stating your goals clearly will help you decide on the size and scope of a business. Planning and organizing a business with an expected annual income of $250,000 will differ from one with an expected income of $50,000 a year.

Cash flow is a critical factor that can help you choose one species or production system over another. Production cycles may be a few months for a hatchery or nursery operation or as much as three or more years for rearing market-size shellfish or finfish. While extensive pond culture takes longer than recirculating systems to produce fish, expenses to operate the latter are higher and must therefore be offset by higher returns. Your business plan must carefully assess and account for cost-to-benefit ratios.

Going to Market

A simple fact in aquaculture is that you don't make money by simply raising aquatic products — you make money by selling them profitably. The key is to identify, cultivate, and retain customers. Analysis of prospective markets is essential if you are going to succeed.

Analyze Markets

A. Determine Area

Potential markets can be defined in terms of geographic area: which buyers might want your product, where are they located, and how can you best reach them? When determining potential consumers, delivery time and distance are important considerations, especially with increasing transportation costs.

A large production facility might include trucks and personnel for making deliveries on a regular basis. Smaller operations, where customers could make on-farm purchases, are usually limited to about a ten-mile radius. Transportation costs must be figured into production. While large producers may outcompete small producers for some major markets, small producers can potentially outcompete larger ones for other, perhaps local or niche, markets.

B. Identify Segments

There are many types of customers within your marketing area: direct customers, local seafood markets, farmers markets, supermarkets and chains, wholesalers, and restaurants. You should identify and assess all of them for potential sales, as well as analyze your competition to see how you compare.

Products not destined for food, such as aquatic plants, ornamental fish, and baitfish, may be sold through different outlets. Fee fishing — a form of aquaculture – depends upon customers coming to the farm and paying for the experience of catching fish. There may be several profit centers here, e.g., in entry fees, fish poundage fees, bait sales, tackle sales and rental, cleaning and packing services, and food sales. Some operations also include camping facilities and boat rentals. It is important to identify and target experiences that potential customers may desire.

C. Determine Seasonal and Annual Demand

Aquaculture is an ever-changing business, and it is important to track and anticipate trends that can affect you. It is also important to build relationships with dealers since they have knowledge about seasonal demand,

prices, delivery, and product forms. Customers may vary depending upon populations that a dealer services. For example, markets servicing urban populations may require different species than those markets servicing populations in rural areas. Some religious holiday seasons may also provide higher demand for seafood products than at other times of the year.

Try to talk with producers or consumers to collect information about demand and what their needs are. Also, determine volume requirements, which are important in deciding on production plans. It does little good to build markets for production that you cannot realistically meet.

D. Identify Market Potential

Census data can provide useful information to gauge the size of prospective markets. Economic development agencies in your state and county can provide information on ethnicity, income, employment, and other factors that may influence purchase decisions.

E. Draw Conclusions

Gathering information and analyzing market potential is essential for assessing whether your ideas are worth pursuing, whether they need to be modified, or should even be abandoned. Determining the best potential for marketing your product will provide information on the product form desired. For example, you may find the market for fillets is greater than for whole fish — if producing fillets is, or becomes, your goal, you may have higher sales; however, your costs will increase and thus your investment needs to underwrite processing facilities.

You should draw up a marketing plan to set sales goals for the first several years of the business. These goals should have monthly targets, with volumes and prices determined from your research. It is important that you know how many pounds can be sold by price over how long a time period. The plan should also reflect how you would gain entry to the market over the course of several years in order to build your sales volume over that time. Allocating funds for market development is a critical part of any successful business venture.

Is It Feasible?

In assessing a species and production system, learn as much as you can about the biology of the product and the available culturing systems. This knowledge will help you determine the permits and licenses required, as well as location, space requirements, construction costs, and fixed and variable costs that will determine the final price of the product. You can then put together a matrix that covers the knowledge you've gained about the biology of the species, or several species you may be considering, the production costs, and the markets. This process will better enable you to assess the economic feasibility of your aquaculture business.

Sources of Aquaculture Information

- **On the Web.** AquaNIC (www.aquanic.org), the national aquaculture information center, as well as state Land Grant and Sea Grant extension programs, and the Northeastern Regional Aquaculture Center (http://www.nrac.umd.edu)
- **State Extension Agents and Specialists.** Many have skills and information useful to prospective growers.
- **State Aquaculture Coordinators.** Often located in the Department of Agriculture, they can help provide guidance in obtaining necessary permits
- **Conferences and Seminars.** Valuable sources of information. Some are organized by trade associations or extension services. Some include trade shows where you can meet dealers with aquaculture products and services.
- **Magazines and Periodicals.** May cover international, national, or regional issues and operations. Some states offer newsletters through industry associations or extension services. This information often has research results.
- **Agricultural and Seafood Business Publications.**
- **Other Sources of Information.** Books, libraries, state aquaculture associations.

Caution: Whatever sources you use, be sure they are factual. Internet sources that end with ".edu" or ".gov" are usually credible. Others should be verified by other sources.

Gathering Information

Gather information on all species you are considering, then focus on one to two by visiting libraries, meeting with extension and research faculty, state agency person-

nel, and consulting other resources. Be careful in employing information from the Internet: use only web sites that you have verified as trustworthy.

Aquaculture site selection is critically important: poor sites are often a principal cause for failure. Allocate enough time to search out and verify the attributes of property to make sure that it has the potential for providing maximum benefits to your business.

Speak with state officials who can answer questions about zoning, permits, and operating licenses. State extension specialists can assist you. While some states have a single office that handles and tracks the necessary paperwork, in most you will have to do the work yourself of getting applications, filing them, and tracking progress. You should never underestimate the amount of time that it will take to get the necessary regulatory permits.

Fixed and Variable Costs

All production incurs costs — these are either "fixed" or "variable." Fixed costs do not generally change with the level of production and include such items as depreciation, insurance, licenses, and salaries. Regardless of time expended to get a product to market, fixed costs tend to remain reasonably constant.

Variable costs are those that change with the level of production and species; they include costs for shellfish seed or fish fingerlings, feed, daily or hourly wages, electricity, and chemicals. Variable costs are conditioned by your management objectives, for example, the number of plants or animals that are to be produced, whether the aim is to grow out animals or sell them at early development stages to another producer. You must carefully compute fixed and variable costs before beginning production.

Inputs

Just getting an operation underway incurs costs, which are referred to as "inputs," among them, utilities, fuel, repairs, and chemicals. It is important that you obtain prices for each input for inclusion in extension budgets, so that you can estimate complete costs of your operation. An important input is of course the stock costs: this may be shellfish larvae or seed, fish fry or fingerlings, or small aquatic plants. Feed and labor costs are input expenses for managing them. You must determine all input costs to ensure the accuracy of your business plan.

In addition to stocking rates, production can be affected by density, growth rate, survival, and mortality. Correct information can help you determine profitability based on changes in these rates. Spreadsheet programs are often used to calculate results on profitability when input costs change.

Feed and Nutrition

With many species, especially finfish, feed is a variable cost that dramatically affects profit. Cost varies by amount purchased, feed quality (i.e., its nutritional components), and the equipment and labor required for delivery. Feed conversion, the amount of weight gained by fish per pound fed, is a major concern in finfish culture. Shellfish mostly use natural phytoplankton for growth and must be reared in areas with good water quality and sufficient water flow to ensure adequate supply. Seasonal variation in species and abundance will affect their growth.

There are feed conversion formulas and data on many species, which can be obtained from fact sheets, research reports, and feed suppliers. Because feed prices are based on the quantity purchased, it is less expensive to deliver bulk feed for storage; however, feed deteriorates over time and it may prove more beneficial to get shipments more often than to store large quantities for long periods. Do not neglect the quality of feed, which should always be obtained from reputable suppliers.

Marketing

Marketing your product has costs — do not underestimate them. In the Northeast, many producers are small and deal with niche markets to maximize income. Knowing where your product will be competitive with other producers is crucial for successfully targeting your efforts so they will do the most good. Some oyster producers, for example, have gotten higher prices when targeting upscale restaurants. In servicing this market, your product may have to be delivered as cleanly washed shellstock, with sizes and shapes similar for enhanced customer presentation. Providing shellfish for this market adds to the production costs since aquaculturists must select, grade, clean, and pack the product in smaller containers than for the bulk oyster market; however, the return is higher. Marketing is hardly a trivial cost; at the same time, it can be exciting for producers who seize opportunities by producing products that match a need.

Management and Record Keeping

Aquaculturists must often make quick decisions, especially as crises occur. Having the knowledge and skills to take informed actions are critical. For example, when problems with water quality or disease occur, managers must act promptly to avert potential disaster. Identifying a problem, however, is not the same as acting properly to correct it. You need to judge whether you have the skills yourself or can manage those who are working for you. Related to personnel management, you will like-

ly need to have additional people at different times during stocking, maintenance, harvest, and transport.

Record keeping may be among the most important daily activities. Get into the habit of regularly recording data on such details as feeding patterns, growth rates, and behavior. It is these data that will help you learn where mistakes may have been made and how best to correct them in the future or to deal with unexpected problems. The bottom line is that record keeping helps decrease production costs and increase efficiency and profits.

Financial Protections

It is important to analyze potential financial success: assessing different production scenarios will help you judge whether or how to proceed; it will also help you to adjust and fine-tune your business to maximize profits. There are accepted forms for doing this as part of your business plan.

Cash Flow Statement

It is also important to know not only that you are going to make money, but how much and when it is projected to begin. At start-up, capital will be flowing out as you pay for construction and the acquisition of stock, feed, and related items. You will likely not have income until you begin to market your crop. Your plan must account for this time lag and can be done by developing a cash flow statement, which is critically important in seeking investor support or financing.

Production costs rarely follow a smooth flow of product and revenue: there are always pulses in the crop. Cash flow projections can identify the need for money at particular periods, how much is being returned, and when it is likely to become available. Some crops may take only a few weeks or months to generate income, while others may take years. The analogy with agriculture would be the difference between farming grain with 90-day seed or setting up a vineyard to produce wine, which might take years before income is generated. Projecting cash flow can help you decide when to borrow and how much.

Structured Analysis

Setting up a cash flow projection requires that you plan at least three years ahead, or until your business will operate profitably. Shellfish grown to market size may not be ready for harvest until the third or fourth year, depending upon species, stock size, and location. On the other hand, producing seed in a shellfish hatchery or nursery could be as short as a few months. Finfish projections follow similar time frames.

Cash flow statements should start on the day you begin your business. The starting balance takes into account all funds you have on hand. Payments or disbursements are subtracted from this balance and income or receipts are added to get an ending balance. This balance becomes the starting point for the next period of time. Equipment depreciation and inventory are assessed differently and may warrant special consideration in the cash flow statement.

The start-up balance will have to be calculated according to the financial need you will require. Calculating cash flow requires that you compute the net and cumulative cash flows: net cash flow is the difference between cash receipts and disbursements for a period of time, e.g, monthly or quarterly; cumulative cash flow is the sum of net cash flows from start-up to the present.

Loan repayment is important but estimating it won't be possible until you have researched the amounts required during different periods. Interest charges and repayment amounts for each time period will provide you with knowledge of how much financing you will require at start-up and during operating periods until receipts begin. Banks and financial institutions can provide you with repayment schedules that break down interest and principal over time at different interest rates; these schedules are also available on the web.

In making projections, it is important to understand that actual cash flows are the only ones recorded. If you have sales in one period but offer credit to the purchaser so that receipts are not collected until another period, income is not recorded until the money is received. Expenses are recorded in full as they occur, even though they may be spread over two or more periods. An example would be licenses or insurance. Depreciation, while important in overall financial outcome, is a non-cash expense and is not used in computing cash flow, except when calculating tax liability at the end of the year.

During the first year cash flow statement, you should use monthly time periods. Afterwards, quarterly calculations should be adequate. There might be a large cash outflow at the time of restocking, with a prolonged period for growout of your product. In businesses such as hard clam or oyster culture, it may be adequate to use semi-annual periods during growout and monthly periods for times of high activity. The decision is yours.

Though difficult, it is important that you calculate projections as carefully and realistically as possible. For instance, variability in fish prices occur across seasons and over years, especially when you are competing with natural harvests that may fluctuate wildly. Feed costs can vary depending on energy costs and prices of components such as grain and animal meal. Projecting these costs

years ahead can prove challenging. Underestimating costs and overestimating income is a major cause of business failure — inadequate capitalization is another.

Expenses for legal fees, bookkeeping services, insurance, payroll taxes, and fringe benefits can be obtained from vendors and government agencies. Equipment suppliers can likewise help provide figures on maintenance and repair of machinery.

The Balance Sheet

A balance sheet (Table 1) should be calculated that shows how the business will grow during a year's interval. It must include *assets*, or those items your company owns that have value; most of these will be apparent, such as buildings, land, vehicles, equipment, furnishings, and related items. Against these are the *liabilities*, or those debts that you owe others; these will include short and long-term notes that must be repaid, taxes, and similar debts you have incurred.

Projecting the current year as well as the year ahead will enable you to show how your business is progressing. The balance sheet will reflect your debts and your assets. The difference between them is the *equity* that you have in the business. In a simple example, consider land you have bought: you've made a down payment and borrowed the rest from a lender. The difference between the two amounts at the beginning is your equity. The more you pay on the principal, the more your equity will rise over the year that you pay off the note. If you are fortunate and the real estate market rises, the value of the land will also rise so that your equity may actually increase faster than the note you pay off.

The balance sheet is an important part of the business plan, and one that many lenders or investors believe is one of the most important. It enables them to see whether you, as a borrower, will have sufficient assets to take care of any new loan that they make. It allows them to quickly gauge the financial strengths and weaknesses of your business.

Income Statement

The income, or profit and loss statement (Table 2), helps you to project income and expenses over a multi-year period. It should show how you are going to increase sales to generate income from your business, and where production costs will be. There are many expenses in running a business. Putting together an income statement will enable you to think many of them through and generate a plan that takes them into consideration.

Once you have projected your expected sales, deduct the costs of running the business as expenses: the difference will be the net profit before taxes. The income statement is important in assessing how the business will do in the marketplace.

Admittedly, it is difficult to project some of these expenses several years ahead. Many factors are at work in the world that will make some of them vary widely. Consequently, make sure the assumptions you use for your projections are clearly stated in the business plan — they will reveal to lenders how you anticipate dealing with changes.

What About You?

An important component of the business plan is your resume: it reflects who you are, your strengths in the business you are considering, and your experience and education. Resume writing does not need to be a lengthy process — you should detail your background and any prior training or experiences in aquaculture and business management that would be relevant to the project. If you do not possess hands-on experience, the lender will want to ensure that you have sufficient funds to hire management professionals who can run a successful operation.

Many word processing packages have resume templates. If these are not readily available, you can develop an outline that includes your education, skills, technical knowledge, and work experience. This information will provide the lender with an assessment of your competencies in building and operating your aquaculture business. You must also include several references of those who are familiar with your skills and can attest to your ability to create and operate your company.

Getting Your Project Underway

Once you complete your financial projections and compile the information you will need to assess your chances of success, it's time to decide whether or not to proceed. If you do, then develop a plan of action that lays out the steps required to build your business. Follow the plan carefully and modify it as you gain experience.

The first step is to secure financing. You can do this by taking a loan, which will incur *debt* to you and your venture, or you can give up a portion of ownership, which will be in the form of *equity*. Either or both types of financing can be used but should only be decided on after you consult with professionals such as accountants, lawyers, or other financial advisors. Your ability to obtain capital will be affected by the amount of financing you need, your credit history, and the current lending climate.

Again, aquaculture is a risky business and is sometimes viewed unfavorably by the financial community. Don't be deterred if one or more lenders turns you down — keep looking for adequate financing at affordable rates.

You may find it necessary to combine several sources. It is always a good practice to look for guarantees from government agencies that may limit your exposure in the event of business failure. Examples of these include loan guarantees or crop insurance.

Financing can sometimes be obtained from banks, private investors, and government economic development programs. They will all require similar background information, so do the research in order to write a strong business plan that demonstrates you have investigated options for your venture and have a strong chance of repaying the loan from profits. While venture capital outlets are an option, they usually require substantially higher interest than most other sources, and can make it unaffordable based on the profit generated by most aquaculture ventures.

Think of your business plan as dynamic: adjust it as you get better information on markets, production costs, and culture methods. The goals of your business may remain the same but your business plan should, because of your efforts, become more refined with time and experience.

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Table 1. Simple balance sheet example – categories may be adjusted as necessary.

Assets	**Amount (current) As of mm/dd/yy**	**Amount (projected) As of mm/dd/yy**
Cash	$	$
Accounts receivable (debt owed you)	$	$
Land	$	$
Buildings	$	$
Machinery, tools, equipment	$	$
Inventory	$	$
Total assets	$	$
Liabilities		
Notes payable	$	$
Interest payable	$	$
Short-term notes (w/in 12 months)	$	$
Bank notes payable	$	$
Accounts payable (debt you owe)	$	$
Total liabilities	$	$
Owner equity		
Capital stock	$	$
Retained earnings	$	$
Total owner equity	$	$
Total liabilities	$	$

Table 2. Simple income statement example – categories should be adjusted as necessary.

Revenues	Amount (current)	Amount (1 year)	Amount (2 year)
Cost/goods sold	$	$	$
Gross profit	$	$	$
Expenses			
Salary	$	$	$
Payroll (taxes, etc)	$	$	$
Advertising	$	$	$
Insurance	$	$	$
Legal & professional services	$	$	$
Rent	$	$	$
Utilities (electric, phone, etc)	$	$	$
Printing, postage & stationery	$	$	$
Licenses	$	$	$
Bank & credit card fees	$	$	$
Bookkeeping	$	$	$
Insurance	$	$	$
Other (specify)	$	$	$
Total expenses	$	$	$
Net income	$	$	$