



Financial Management

A Fact Sheet for Connecticut Fishermen

AQUACULTURE FACT SHEET

*Dr. Robert Pomeroy
Connecticut Sea Grant Extension
Department of Agriculture and Resource Economics
University of Connecticut*

Sea Grant is a unique partnership between the nation's universities and its primary ocean agency, the National Oceanic and Atmospheric Administration (NOAA). Connecticut Sea Grant, based at the University of Connecticut, collaborates with maritime industries and coastal communities to identify needs, and fund research, outreach, and educational activities that have special relevance to Connecticut and Long Island Sound. Its mission is to foster the wise use and conservation of our nation's coastal and marine resources.

Contact by telephone:

Connecticut Sea Grant
Extension: (860) 405-9127

Access to and management of financial resources has become the key to a successful aquaculture operation. Proper financial management provides a projection of the financial needs of the aquaculture enterprise of the use of the producer and his creditors. Financial management permits control of the enterprise through record-keeping and preparation of financial statements. Evaluation and adjustment of the business enterprise on the basis of the financial statements and analysis of the operation with financial ratios is required for continued success.

Financial management is built upon accurate, detailed and complete records of the aquaculture operation. The information provided by the records permits the construction and use of enterprise budgets, cash flow statements, balance sheets, income statements, and financial ratios. The aquaculturist should consult with an accountant for more assistance with financial management.

An enterprise investment analysis must consider the financial resource base of the potential producer. Interest is not limited to the net worth statement and ability to finance the enterprise; it includes the effect of the aquaculture enterprise on the overall business environment. How much time will the enterprise need to grow and produce a profit? What are the initial and annual capital requirements? What resources (land, machinery, equipment) are owned and which will have to be purchased or leased? What will be the effect of the new aquaculture enterprise on an existing aquaculture or agricultural operation?

These questions are important to an analysis of the production, management and marketing requirements of the aquaculture operation.

Cost of Production

Understanding this concept is basic to understanding the profit potential of an enterprise. It is often overlooked or severely underestimated. An aquaculturist should evaluate all costs associated with producing the selected species, including variable costs of inputs, and fixed costs associated with loan repayment, taxes and insurance. These latter costs may not all be involved in producing the product but the product undoubtedly will be required to contribute to their payment. Producers should remember that being realistic in their production cost estimates reduces the risk inherent in the enterprise.

The easiest way to develop and evaluate production costs is through an enterprise budget. Enterprise budgets are tools for business planning and profitability analysis. The enterprise budget provides detailed estimates of variable (operating), fixed and total costs, total cash returns, resource requirements per unit (acre, pond), and capital investment requirements for a particular enterprise. Enterprise budgets can be used to call attention to the inputs and production practices required by an enterprise. They also provide much of the information necessary to project the cash flow from the business, to provide information for comparison of alternative enterprises, and to

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provide the basis for a total farm plan.

Pro forma enterprise budgets provide input, cost and return information for the aquaculture operation based on certain assumptions and recommended best management practices. These *pro forma* budgets, whether used as is or adjusted based on the individual situation, should only be used as a guide to enterprise costs and returns. The budget should use realistic values. Input costs, such as fingerlings and feed, mortality rates or feed conversion rates, should represent your specific farm situation. Breakeven price or yield allow the user to quickly estimate the price and yield necessary to recover variable costs and/or fixed costs. The budget also provides estimates of total investment requirements necessary for the aquaculture enterprise. These estimates will change based on site-specific factors.

Pro forma aquaculture enterprise budgets are available for various species from Sea Grant and the Cooperative Extension Service. Actual enterprise budgets are prepared by the farmer from records to determine whether any money has been made from the aquaculture operation.

Cash Flow Statement

Many aquaculture enterprises have relatively large establishment costs that must be incurred prior to any inflow of income. These costs may occur for several years before any income is possible. It is important to know the level of these start-up costs and how the enterprise will be supported during the years of no income. It is important for the success of the operation that the aquaculturist not be under-capitalized. An assessment must be made to determine whether the producer can afford to delay income from the time the construction is started until the first harvest is sold. Sufficient operating capital must be available to maintain the cash flow needs of the operation.

In addition to evaluating the total costs and returns associated with an enterprise, it is also important to know the amount and timing of these costs and returns. The cash flow statement summarizes estimated cash inflows (receipts) and outflows (expenditures) of a business over a specific time period. The accounting period usually is a year divided into months. The cash flow statement allows a farm manager or lender to: (1) estimate when specified amounts of cash will be available or needed; (2) determine when any borrowed funds will be needed; and (3) determine the debt repayment capacity of the business. The cash flow statement helps in quantifying the amount of debt the operation can support and in scheduling repayment.

Project Income

This term represents an estimate of income expected from the enterprise. Income generally is calculated by multiplying the price of the product by the quantity of product produced. It is apparent that a producer must estimate two items to obtain project income – the price and the yield.

Several questions must be answered before an aquaculturist can estimate expected income. First, what is the source of information that can be used in the estimation process? Second, is this information directly applicable to the particular aquaculture operation.

For many aquaculture species, price and yield information are available from governmental (US Department of Agriculture, Sea Grant, Cooperative Extension Service, university) and private (producer organizations, aquaculture companies) sources.

Once the price and yield information is obtained, it must be viewed in light of the proposed aquaculture operation. It is not wise to develop only one income estimate. Generally, three estimates are needed to consider the best, the most common, and the worst possible outcomes. These estimates provide a potential producer with an estimate of the income risk associated with the enterprise. It is a truism that prices and yields vary. Many producers cannot control this variation, and should, therefore, plan for it in their initial analysis. This is especially critical for enterprises with high start-up costs and long payback periods.

An example will illustrate the planning process. The 10-year average price for catfish at the farm gate is \$0.67 per pound. The highest reported price was \$0.80 per pound and the lowest price was \$0.51 per pound. The total cost of producing catfish in a 40 acre operation is estimated at \$0.71 per pound. It is apparent that a producer who intends to grow catfish faces a fairly wide range of price variation. An aquaculturist who used only the 10-year average price, or any single price estimate, would not be

accounting for the price variation, and any decision would be at risk from the start.

Yield variability from an aquaculture system is related to a number of factors as diverse as managerial capability and weather conditions. A new aquaculture operation may take several years to reach projected "normal" production levels. As with price information, a range of yield data for aquaculture enterprises should be conservatively estimated to approximate risk.

After price and yield estimates have been developed, the next step is to project a range of income. It is important to remember that there is interest in more than one estimate of income. A price and yield variation analysis can provide a range of net returns for an aquaculture enterprise.

Payback Period

When will money invested in the enterprise be paid back from income produced by the enterprise? This question is applicable to enterprises with high start-up costs and long-run income potential. This is an important criterion in long-term analyses of aquacultural enterprises. It emphasizes the need to review the cash flow position of the enterprise in non-paying years. While the aquaculture enterprise can be quite profitable, producers must be able to subsidize such enterprises in the early years.

The potential for risk increases with longer term investments. Chances are good that cost and income projections made in planning the enterprise will change appreciably over time. This can be the result of changes in price or yield or both. Hence, the realized profit could be different from the estimates. Long-term investments, even though potentially profitable, must be critically evaluated. Non-paying years can result in burdensome cash flow requirements on existing enterprises or on other financial resources which can result in failure of the aquaculture enterprise.

Other Financial Management Tools

The balance sheet, which is sometimes called a net worth statement, is one of the most frequently used financial statements to assess the economic well-being of a business operation. This statement is used to list the assets and liabilities and can be used to analyze the financial position of a farm.

The balance sheet is an accounting statement which describes the financial position of a business at a specific point in time. It shows the cumulative results of past decisions to the point when the balance sheet is completed. The basic objective is to provide the user (aquaculturist or lender) with an accurate statement of the liquidity, solvency and wealth of the business at a specific accounting date. When balance sheets from several time periods are compared, they reveal whether the business is growing or contracting, but they do not tell why the changes are occurring.

The term balance sheet is used to reflect the basic equation: **Assets - Liabilities = Net Worth**

Assets are the items of value which make up the business, including all claims held against others.

Liabilities refer to all financial obligations owed to others against assets of the business.

Net worth, the residual, is the claim held by the owner against the business assets.

The profit summary for the business is called by different names such as income statement or profit and loss statement. The purpose is to measure the net value of a business's production over a specific accounting period. Unlike the balance sheet, which considers only a point in time, the income statement is a summary of economic events over a specified time period, usually one year.

Two potential problems in preparing an income statement are the measurement of income and expenses and the type of accounting (cash basis or annual basis) used in preparing the income statement. Income statements can be used as a projection of future operations.

