

CHAPTER 4. FISH PROCESSING FINANCIAL BASICS

Analyzing your finances is a critical part of planning a fish processing business: Two kinds of financial analysis are most important:

- **Profit and loss analysis.** This is thinking about your revenues and your costs, which determine how much money your plant is likely to make or lose.
- **Cash flow analysis.** This is thinking about *when* you'll be earning and spending money, and whether you'll have enough cash on hand when you need it.

This chapter describes the basics of these two kinds of financial analysis. In all the other planning you do for your fish plant—from how you will buy fish to how you will process, transport and sell it—you need to think about how each step will affect your costs, revenues, and cash flow.

In analyzing your finances, you'll need to use your best judgment. Until you actually build your plant, you won't know for sure what your facilities and equipment will cost. Until you actually operate your plant, you won't find out how many fish you can buy, or what you have to pay fishermen to be competitive, or what prices you can sell your products for.

As you begin planning your fish plant, it's OK to start simple, with ballpark estimates of your costs, revenues and cash flow. A simple analysis may be enough to tell you whether you have a reasonable chance of achieving your financial objective. As you continue planning, you'll need to do a progressively more detailed analysis, with more careful estimates of your costs, revenues and cash flow. You'll need this to write a business plan and to apply for a grant or a loan.



“You need to think about the finances before you even get to the fun stuff, which is laying out your plant and buying all the shiny equipment.”—An experienced Alaska fish processor.

Profit and Loss Analysis

Profit and loss analysis is thinking systematically about your revenues and your costs, which determine how much money your plant is likely to make or lose. The table below shows a simple example of a profit and loss statement (also called a P&L or a “pro-forma” statement) for a hypothetical fish processing plant.

Financial accounting terminology can be confusing. Not everyone uses the same terms. The table shows terms commonly used in the fish processing business, as well as corresponding standard accounting terms.

The plant in this example buys 1 million pounds of fish each year. The processing yield is 60%, so the total product weight is 600,000 pounds. The plant’s products sell for \$3.00/lb, so the total sales are \$3.00/lb x 600,000 lbs = \$1,800,000 (Row 1).

**Summary of a Profit and Loss Statement for a Hypothetical Fish Processing Plant
Processing 1,000,000 Pounds with a 60% Yield**

Row	Terms			Sales, costs and profit		
	Common term used in fish business	Standard accounting term	What the component includes	Total	Per round pound	Per processed pound*
1	Sales	Revenues	Sales value of finished products	\$1,800,000	\$1.80	\$3.00
2	Fish cost	Cost of raw material	The total cost of the fish you buy, including payments to fishermen, the cost of services for fishermen (such as ice), tendering, and taxes	\$700,000	\$0.70	\$1.17
3	Processing cost	Production cost	Direct costs of processing your fish, such as processing worker wages, packaging, utilities, storage and freight.	\$1,000,000	\$1.00	\$1.67
4	Gross profit	Gross profit	Sales - fish cost - processing cost	\$100,000	\$0.10	\$0.17
5	Overhead	Operating expenses	Costs not directly related to processing fish, such as management, insurance, professional services, office supplies, repairs, replacement and maintenance.	\$250,000	\$0.25	\$0.42
6	Net profit	Net profit	Gross profit minus overhead	-\$150,000	-\$0.15	-\$0.25

Note: The costs and prices used in this example are for illustration only. Actual costs and prices may vary widely.

How well is this plant doing financially? The table shows two measures:

Gross profit (line 4) shows the sales value of the fish minus the direct costs of buying and processing the fish. In this example, the plant is making a gross profit of \$100,000, or \$.10 per round pound. Unless you’re willing and able to lose a lot of money, it’s essential to have a positive gross profit (rather than a gross loss). Otherwise you’re losing money on every fish you buy.

Net profit (line 6) shows the sales value of the fish minus all the costs of operating the plant. These costs include overhead, or the costs not directly associated with processing

fish, such as management and insurance. In this example, the plant is losing \$150,000, or $-.15$ per round pound. It won't make money operating at this scale. But if it processed more fish, so that the overhead costs per pound were lower, it might be possible for the plant to make money.

As you begin planning your fish plant, you should do a profit and loss analysis like that shown in the example. At first you will have to base your analysis on rough estimates of your revenues and costs. As your planning becomes more detailed, your estimates should become more accurate, and you should get a better understanding of how much money your plant is likely to earn or lose.¹

Important Things to Remember in Thinking about Your Finances

As you think about your expected costs, revenues and profits, here are seven of the most important things to keep in mind.

1. Make sure you compare costs and revenues on the same weight basis.

In the example, the plant's total costs are $\$1.95$ per round pound ($\$.70$ /lb fish cost, $\$1.00$ /lb processing cost, and $\$.25$ /lb overhead cost).

The plant's products are selling for $\$3.00$ per processed pound. Since $\$3.00$ /lb is a lot more than $\$1.95$, it might sound like this plant is very profitable. But $\$3.00$ per processed pound works out to only $\$1.80$ per round pound—which is less than the total cost of $\$1.95$ per round pound. So the plant is actually losing money.

The plant's costs add up to $\$3.25$ per processed pound ($\$1.17$ /lb fish cost, $\$1.67$ /lb processing cost, and $\$.42$ /lb overhead cost)—which is more than the $\$3.00$ /lb that the product is selling for.

As you think about your plant's finances, you can measure costs and revenues either per round pound or per processed pound—but it's important to compare them using the same measure.

2. Processing yield matters!

Processing yields are very important for a fish plant. You don't sell the same weight of fish as you buy. As you remove fish heads, guts, bones and other parts, the weight of the final products you get from a fish is typically only about 50-70% of the "round weight" of the fish that you buy from fishermen—depending on the product.

Our fish plant is buying 1 million pounds of fish every year, and selling its product for $\$3$ per pound. Every 1% loss in yield is a 1% loss in revenue. If the yield goes down by 1% the plant's revenues go down by $\$30,000$.

¹ A useful reference for preparing a profit and loss analysis may be *Simple Financial Analysis for a Small Fish Processing Plant*, by Gunnar Knapp, available at www.iser.uaa.alaska.edu/iser/people/knapp.

If the plant was able to increase its yield from 60% to 70%, its total revenue would go up from \$1,800,000 to \$2,100,000—and it would go from losing \$150,000 to making a profit of \$150,000. So everything you can do to improve processing yield at your plant is important. Even a relatively small change in your revenues can make a big difference in your profit.

Effect of Processing Yield on Revenues and Profits for a Hypothetical Fish Processor

	Total		Per round pound	
	60% yield	70% yield	60% yield	70% yield
Total round pounds	1,000,000	1,000,000		
Total processed pounds	600,000	700,000		
Wholesale Price	\$3.00	\$3.00		
Revenue	\$1,800,000	\$2,100,000	\$1.80	\$2.10
Fish cost	\$700,000	\$700,000	\$0.70	\$0.70
Processing cost	\$1,000,000	\$1,000,000	\$1.00	\$1.00
Gross profit	\$100,000	\$400,000	\$0.10	\$0.40
Overhead	\$250,000	\$250,000	\$0.25	\$0.25
Net profit	-\$150,000	\$150,000	-\$0.15	\$0.15

3. Production volume matters!

Your fish plant’s direct costs—which include fish costs and processing costs—stay about the same per pound regardless of how much fish you process. The more fish you process, the more you have to pay fishermen and the more you have to pay for labor and boxes.

However, your fish plant’s *overhead* costs don’t go up as much when you process more fish. For example, you’ll have to pay your plant manager about the same regardless of how much fish you process. So if you process three times as much fish, the manager will cost you only one-third as much per pound.

If your plant processed and sold three times as much fish, and spent three times as much for fish cost and processing cost but held the overhead costs the same, it would go from losing \$150,000 to making \$50,000.

Effect of Volume on Revenues, Costs and Profits for a Hypothetical Fish Processor

	Total		Per round pound	
	Plant processes 1,000,000 round pounds	Plant processes 3,000,000 round pounds	Plant processes 1,000,000 round pounds	Plant processes 3,000,000 round pounds
Yield rate	60.0%	60.0%		
Total processed pounds	600,000	1,800,000		
Wholesale Price	\$3.00	\$3.00		
Revenue	\$1,800,000	\$5,400,000	\$1.80	\$1.80
Fish cost	\$700,000	\$2,100,000	\$0.70	\$0.70
Processing cost	\$1,000,000	\$3,000,000	\$1.00	\$1.00
Gross profit	\$100,000	\$300,000	\$0.10	\$0.10
Overhead	\$250,000	\$250,000	\$0.25	\$0.08
Net profit	-\$150,000	\$50,000	-\$0.15	\$0.02

The more fish you process, the more money you earn to help cover your overhead cost. This is one reason why it's difficult for small processing plants to compete with large plants that can spread overhead costs out over more fish.



The more business you do, the more absolute profit you make in a good year. It is heavily scale-dependent. People think, well I'm just going to do a small one. Well, they probably won't because of scaling issues. They probably won't make enough to satisfy themselves.
—An experienced Alaska fish processor

4. Product mix matters!

In thinking about the finances of a fish plant, people often forget that not every fish you sell is a #1 and not every fish gets a #1 price. Some fish are lower quality and can only be made into products which sell for lower prices. That cuts into your revenues and your profitability.

In our example we assumed that the plant's products all sold for \$3.00/lb so that it earned total revenues of \$1,800,000. But if 30% of production was #2 product which sold for a lower price of only \$2.00/lb, then the average sales price would only be \$2.70/lb.

Effect of Product Mix on Revenues of a Hypothetical Fish Processing Plant

	100% #1	70% #1 and 30% #2		
	Total	#1 product	#2 product	Total
Production volume	600,000	420,000	180,000	600,000
Sales price	\$3.00	\$3.00	\$2.00	
Sales revenue	\$1,800,000	\$1,260,000	\$360,000	\$1,620,000
Average sales price	\$3.00			\$2.70



Keep in mind that that the market doesn't want every fish that you can buy or catch. There's going to be fish that the market will not take. However, your costs of handling even those non-marketable fish is going to be close to the same. That is really going to cut into the bottom line.
—An experienced Alaska fish processor

5. If the price you can sell your products for goes up, the price you have to pay fishermen will probably go up too.

One of the challenges in the fish processing business is that when markets for your products are good, they're also good for your competitors. If you get a good price for your products, your competitors will too—if they're producing similar quality.

If prices go up and your competitors are making money, they will probably try to buy more fish—by raising the price they pay fishermen. You're probably going to have to match the prices your competitors pay. That's good for fishermen, but it makes it harder for fish processing plants to make a profit.

Remember to allow for this as you plan your finances. If you think the prices for your products are going to go up, that doesn't necessarily mean your plant will get more profitable—because if the price you pay fishermen is probably going to go up too.



“The reality is you’re going to have to pay the cash buyer price. And you’re probably going to have to pay the cash buyer price for most of the season. And that’s why you lose money. There’s no easy way to skin the cat.”—An experienced Alaska fish processor.

6. Plan for unexpected extra costs.

As you do your financial analysis, remember that not everything goes according to plan in the fish processing business. All kinds of problems can happen. Machines can break, so you may lose several days of production. Bad weather can keep planes from flying—so that you have to freeze your fish rather than selling them fresh. Customers may not pay their bills—leaving you with less money than you had been promised.

While you can't predict *what* will go wrong, you can be pretty sure that *something* will go wrong. As you do your financial planning, it's a good idea to build in contingency factors for unexpected costs and for bills that don't get paid. Even though these problems may not be your fault, they will still affect your costs and revenues and whether your plant can be profitable. So plan for them.

7. Focus on the big costs.

Some costs are much more important than others for your financial planning. In particular, costs of fish, labor, utilities and transportation will probably be the biggest costs for your plant. As you think about your finances, focus on the costs that are going to be most important. Every cost matters. But it's much more important to have an accurate estimate of what wages and transportation will cost you than it is to have an accurate estimate of what insurance or office supplies will cost you.



“To start thinking about the cost of your plant, look at the big costs that make up the top 80% or so. Wages and the cost of fish—those are the two biggies by far. And then utilities and shipping costs. If you looked at no others and just did those four, you would know pretty much whether your plant was going to be feasible.”--An experienced Alaska fish processor.

Cash Flow Analysis

As you plan your fish plant finances, it isn't enough to think about your total costs and revenues over the year. It's also very important to think about your cash flow—when you will need to spend money and when you will be earning money. If you don't have money when you need it, you won't be able to stay in business.



If the money comes in four months after you go broke, it doesn't help. More businesses have gone under because they couldn't get the cash when they needed it.—An experienced Alaska fish processor

Cash is king. It doesn't matter how much money you're going to make on paper. If you don't have it in your pocket when you need it, you're dead.—An experienced Alaska fish processor

*All you gotta do is be a couple weeks late paying your fishermen and you're not going to get any volume.
—An experienced Alaska fish processor*

A lot of people tend to manage by what's in their wallet. 'If I have money in my wallet, I must be doing fine.' Well, that is one level of cash flow management. But if you've got a big thumping bill coming up, and you haven't got enough to pay it, you're dependent on more money coming in the door between now and then. It's really common sense. But a lot of people don't do that step or they don't think about it seriously. They don't think about the risks associated with not getting the cash when you think you're going to get it.—An experienced Alaska fish processor

Cash flow is very important in the fish processing business because you need to spend a lot of money before you get paid for your fish. You have to spend money before the season to ship in supplies and fly in workers. Usually you need to pay the fishermen, plant workers and airlines who catch or handle your fish before you get paid by the customer who finally buys the fish.

To analyze your cash flow, think about each kind of cost your plant will face and when you'll be spending the money. You'll have to spend a lot of money gearing up before the season, buying and shipping in supplies such as packaging, and getting the plant ready to process. You'll spend a lot of money during the season buying fish and paying workers. Some of your costs will be spread over the entire year, such as the manager's salary.

Also think about when you'll have money coming in from fish sales. The money will probably come in from fish sales later than the money goes out to pay fishermen and processing workers.

The table shows an example of a cash flow analysis for a hypothetical fish plant. The plant has total costs of \$1,950,000 (like in our other examples) but \$2,000,000 in sales—so it has the potential to be a profitable plant.

The plant has to spend \$600,000 before the season to gear up. So if it starts the year with only \$500,000 in cash, by the end of May it won't have enough cash to pay its bills—and it will go out of business. Even if it starts the year with \$700,000 in cash, it will still run out of cash by the end of June, because not enough money will have come in from sales yet to pay fishermen for the fish they delivered in June and to pay processing workers for the work they did in June. The plant needs to start the year with \$800,000 in cash to get through June with \$75,000 in cash—which isn't very much of a reserve in case something goes wrong and the plant faces an unexpected major expense.

Cash Flow Analysis for a Hypothetical Fish Processing Plant

	Money going out				Money coming in from fish sales	Cash balance at the end of the month		
	Before the season to gear up	During the Season	Year round	Total		Starting cash balance of \$500,000	Starting cash balance of \$70,000	Starting cash balance of \$800,000
Fish cost		\$700,000		\$700,000				
Processing cost	\$500,000	\$500,000		\$1,000,000				
Overhead cost	\$100,000	\$100,000	\$50,000	\$250,000				
TOTAL	\$600,000	\$1,300,000	\$50,000	\$1,950,000	\$2,000,000			
January	\$0	\$0	\$4,167	\$4,167	\$0	\$495,833	\$695,833	\$795,833
February	\$0	\$0	\$4,167	\$4,167	\$0	\$491,667	\$691,667	\$791,667
March	\$0	\$0	\$4,167	\$4,167	\$0	\$487,500	\$687,500	\$787,500
April	\$300,000	\$0	\$4,167	\$304,167	\$0	\$183,333	\$383,333	\$483,333
May	\$300,000	\$0	\$4,167	\$304,167	\$0	-\$120,833	\$79,167	\$179,167
June	\$0	\$433,333	\$4,167	\$437,500	\$333,333	-\$225,000	-\$25,000	\$75,000
July	\$0	\$433,333	\$4,167	\$437,500	\$666,667	\$4,167	\$204,167	\$304,167
August	\$0	\$433,333	\$4,167	\$437,500	\$666,667	\$233,333	\$433,333	\$533,333
September	\$0	\$0	\$4,167	\$4,167	\$333,333	\$562,500	\$762,500	\$862,500
October	\$0	\$0	\$4,167	\$4,167	\$0	\$558,333	\$758,333	\$858,333
November	\$0	\$0	\$4,167	\$4,167	\$0	\$554,167	\$754,167	\$854,167
December	\$0	\$0	\$4,167	\$4,167	\$0	\$550,000	\$750,000	\$850,000

Getting enough operating capital—cash to get you through the season—can be a major hurdle for a new processing plant. An established plant with a track record of successfully processing fish can get a “pack loan” from a bank. But banks are much less likely to lend to a new business. So you will probably have to use your own money or that of other investors for operating capital to get your plant started. And it will be your own money that's at stake if your business isn't profitable.



What do you bring to the table? Do you bring empty pockets? There's no substitute for energy and creativity, but there's no substitute for hard cash. —An experienced Alaska fish processor