

A Village Fish Processing Plant: Yes or No?



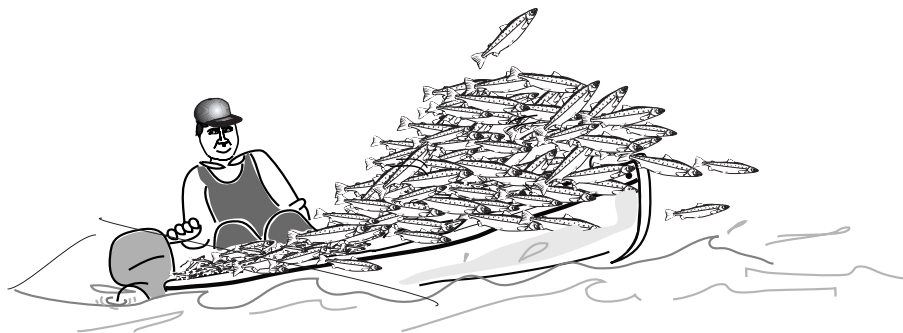
A Planning Handbook

Prepared by
Institute of Social and Economic Research
University of Alaska Anchorage
May 2001

People in many Alaska villages are interested in starting fish processing plants. A fish processing plant can provide markets for fishermen, processing jobs and income for village residents, and many other benefits. But starting and operating a village fish processing plant is not easy, and fish processing plants may not work in every village.

This handbook is to help you get started in planning a fish processing plant in your village. It can help you think clearly about whether or not you should start a fish processing plant. It provides step-by-step advice about questions you need to ask and decisions you need to make.

As part of this handbook, we have included case studies of experiences some western Alaska villages have had with fish processing plants. These may give you ideas of things to do—and things to avoid—when you are thinking about a fish processing plant for your village.



Handbook Summary A Village Fish Processing Plant: Yes or No?

Sponsored by the Economic Development Administration
Prepared by the Institute of Social and Economic Research

University of Alaska Anchorage

May 2001



People in many Alaska villages are interested in starting fish processing plants. Every year, the Economic Development Administration (EDA) in Alaska receives requests from villages for help in building and equipping small processing plants. A fish processing plant can provide markets for fishermen, processing jobs and income for village residents, and many other benefits. But starting and operating a fish processing plant is not easy, and fish processing plants may not work in every village. The EDA sponsored this planning handbook to help you decide whether a fish processing plant could work in your village.

Here we summarize some of the main points you need to think about in planning a fish processing plant. The rest of this handbook provides many more details. Most of what we do in this summary and in the handbook is ask you questions. We also explain why having answers to these questions is important and suggest ways of finding out what you need to know.

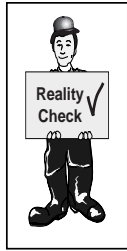
A good way to start thinking about whether a fish processing plant makes sense in your village is to ask your-

self some “reality check” questions—for instance, whether you can get enough fish for a processing plant. If you can answer “yes” to these basic reality check questions, then a fish plant could work in your village. But if you can’t answer yes to every question, it would probably be difficult for a fish processing plant to succeed in your village.

After you consider the reality check questions, then you can move on to the “planning step” questions. These ask you to think about many different things involved in starting and running a fish plant—such as what products you will produce, what markets you will sell to, and what kinds of building and equipment you will need. If you answer these planning step questions, you’ll have much of the information you need to apply for a loan or grant to build a fish plant.

The biggest question is whether you can earn enough money to stay in business. Doing a financial analysis can help you think about this question. Even if you get a grant to pay for your buildings and equipment, your plant will still have many other costs every year, such as buying fish and paying workers. For your financial analysis, you need to estimate these costs and add them up to see how they compare with how much money you expect to earn from selling your fish. You also need to think about how unexpected circumstances—such as low fish runs or low selling prices—might affect your plant’s finances.

Planning a fish plant is a lot of work—but building, equipping, and operating a fish plant is much more work. Careful planning at the beginning can help you decide whether you can make enough money for the plant to operate successfully—and to make all that work worthwhile.



Reality Check Questions

There are many “reality check” questions you should ask yourself before planning a fish processing plant. Here we discuss seven of the most important. If you can’t answer “yes” to all of them, it would probably be difficult for a fish processing plant to succeed in your village.

1. Will there be enough fish?



In the Alaska fish business, there's no guarantee that there will always be fish. The run failures in western Alaska in recent years are a reminder of one of the biggest risks in the fish business—not enough fish.

Think carefully about whether your fish plant will be able to process and sell enough fish to cover your costs. In a low-run year, when you don't sell many fish, you still have to



pay fixed costs such as loans and plant maintenance. If these fixed costs aren't spread out over enough fish, your costs per pound of fish can be very high.

2. Will fishermen sell you the fish?



Having a fish processing plant in your village doesn't guarantee that fishermen—even the fishermen from your village—will sell their fish to your plant. Other buyers may compete with you for fish. They may offer fishermen higher prices than you can offer. They may offer better services, such as tendering or cash loans. You need to think about whether you will be able to compete with other buyers.

Even if there isn't any competition at the moment, there might be in the future. The best years, when there are lots of fish or high prices, are also the years when you're most likely to have competition from other buyers.



3. Can you get a good plant manager?

To succeed, a fish plant must have a good manager. During the season, being a fish plant manager is a full-time job, 7 days a week, 24 hours a day. Managers need to be good with people: good at hiring people who can do the work, teaching them how to do it, and getting them to do the work well. Managers need to be good with equipment—from boat engines to ice-making machines to vacuum sealers. They need to know how to use equipment, how to maintain it, and how to fix it when it breaks—or how to find someone who can fix it.

Managers needs to be good at keeping track of how much money is being spent and how much money is coming in. They need to find ways of not spending too much. They have to know what supplies are needed and to order them in time.

Can someone in your village manage your fish plant? If not, every year you will need to find someone who can come to the village to manage the plant during the season.

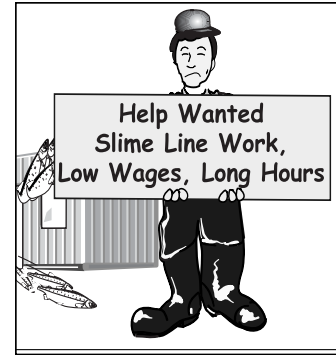


4. Can you get the workers you need?

Fish plant workers have to be there whenever fish are delivered, ready to work until all the fish are processed. If there are a lot of fish, they may have to work overtime and on holidays, bingo nights, or other special days when most people would rather not work. Fish processing needs to be done carefully so your products are good quality and can sell for a good price. Each worker needs to be trained—which costs time and money—so you need workers who will stay all season and come back in other years.

You will need to keep your costs down, so you won't necessarily be able to pay your workers high wages. Probably you won't be able to pay much more than other fish plants are paying.

Are there local residents who will do the work you need? If not, every year you will need to hire people from outside the village. Those workers will need places in the village where they can live and eat.



5. Can you get the water, power, and waste disposal you need?

A fish plant uses a lot of water and a lot of electricity. It also makes a lot of fish waste that has to be disposed of in ways that are strictly regulated. If the power goes off and you can't process fish or keep them cold, you can lose a lot of fish and a lot of money very quickly. If the waste disposal system isn't working, inspectors can shut the plant down. Can you get water and power and waste disposal—where and when you need it—at a price you can afford?

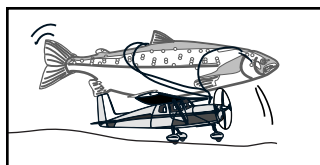
6. Can you find markets for your products?



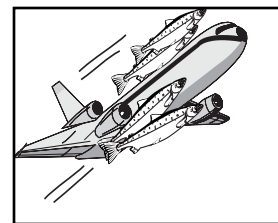
A fish plant can't succeed just by producing high-quality products. You also have to be able to sell your products, at prices high enough to cover your costs. Chances are that customers won't come to your village to find you. You'll need to have someone working for you—either directly or as an agent—who knows about finding customers and selling fish. Finding customers and selling fish takes time and costs money.

You need to make sure your plant makes products customers want. They probably won't pay more for your products than they pay other fish processors for similar products. What they are willing to pay may vary widely, even from week to week, depending on what other choices they have. You need to plan how you will sell your fish before you process them—especially if you're selling fresh fish. You need to think just as carefully about selling fish as you do about processing fish—and be just as good at it.

7. Can you get reliable transportation to take your product to market?



Even if you produce high quality fish and have customers who want to buy them, your fish plant can't succeed unless you have a reliable way to get the fish to your customers at a reasonable cost. If you're selling fresh fish that need to be shipped by air, your transportation costs and reliability will depend mostly on what length runway your village has, what kind of planes can land on it, how often they can't fly because of bad weather, and how far they need to fly to get to a larger airport with jet service.





Planning Steps for a Village Fish Processing Plant

There are many steps in planning a fish plant. Here are some of the most important questions you'll need to answer in planning your fish plant, deciding whether it can work, and getting financing. It takes experience and expertise to plan a fish plant. You'll probably need advice. Make sure you get advice from people who understand fish markets, fish processing, and the special conditions in building and operating fish plants in Alaska villages.

Goals: *Why do you want to start a fish plant in your village?* Frequently mentioned goals are markets and better prices for fishermen, and processing jobs and income for village residents.

Financial objectives: *How much money does the plant needs to make?* Even if making money isn't your main goal, you still need to think about how much money you need to make to stay in business.

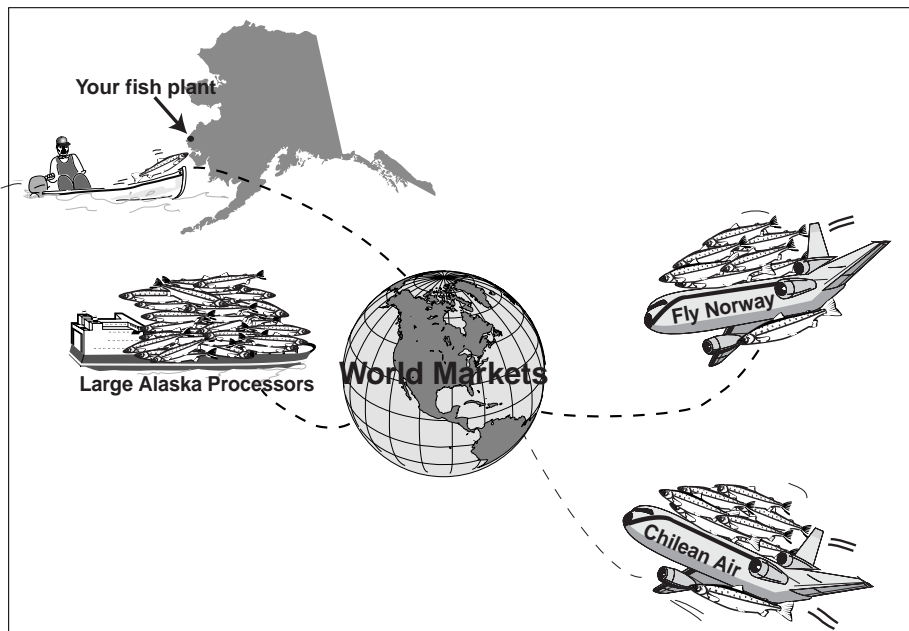
Manager: *Who will manage the plant?* A good manager is critical, particularly for your first season, when you are getting started.

Products: *What products will the plant produce?* Which products make the most sense will depend on your fish resources and your costs, compared with those of your competitors.

Markets: *What are your markets?* What kinds of buyers will want your products? What are their needs and expectations? Thinking about your markets *before* you build your plant is absolutely essential. Buying and processing fish without markets where you can sell your products is a sure way to fail.

Prices: *What prices will buyers pay for your products?* Fish prices rarely stay the same. They will probably go up or down in the future. Think about how prices may change, due to factors such as changes in the fish supply or changes in demand in markets for your products.

Competitors: *Who will you be competing with?* Your competitors may be other Alaska processors, or even fish farmers from other countries. Your products will have to be as good as their products—and you will have to match their prices.



Sales: *Who will market and sell your products?* You may handle your own sales, or work with a broker. Either way, selling fish takes time and costs money. And it is just as important for your plant as making good products.

Fish buying: *How much fish will you buy?* Think carefully about fish runs in your area, competition from other buyers, and how you will get fishermen to sell to you instead of to other buyers.

Fish costs: *What prices will you pay fishermen?* You will probably need to match the prices other buyers are paying. What you pay for fish will probably change from year to year, along with the prices you and your competitors are receiving for fish products.

Fish quality: *How will you get good quality fish?* You'll need to make sure your fishermen handle their fish carefully so your products can meet the rising market quality standards. You may need to provide ice.

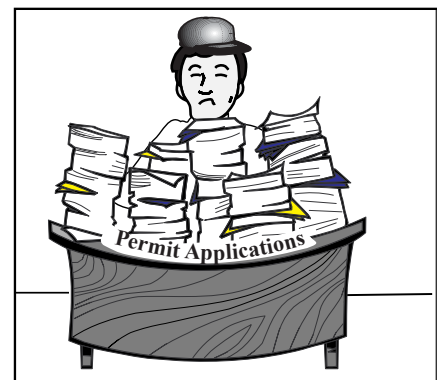
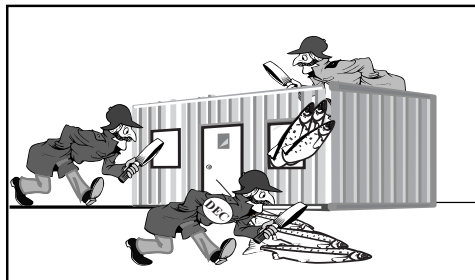
Tendering: *How will you get fish to the plant?* If fishermen can't deliver their fish to your plant, you will need to provide tendering.

Plant capacity: *What is the most fish you will need to process per day?* How big a plant you need depends on how much fish you plan to buy and also on the timing of the harvest.

Plant location: *Where will your plant be?* You need a location where fishermen or tenders can deliver fish, with suitable soil conditions for building, and access to electricity, fresh water, and waste disposal.

Utilities: *How will you get electricity, water, and waste disposal?* You need to plan how much power, water and waste disposal you will need—and how you will get those services.

Regulations: *How will you meet government regulations?* Fish processing—like all food processing—is highly regulated, because fish that aren't processed safely can make people sick or even kill them. You'll need to meet many regulations and obtain permits from many agencies before you'll be allowed to operate.



Building: *What type of building will you need?* Your fish plant must comply with special regulations for fish plant construction. It must be laid out so fish move efficiently from offloading to processing to storage.

Equipment: *What equipment will you need?* The equipment you buy will determine what products you can produce, how many workers you need, how much power you need, and your maintenance costs.

Workers: *How many workers will you need?* Also think about when you will need workers, what kinds of skills they will need, and whether you can hire workers from your village. If you bring in workers from outside the village, you need to plan for where they will live and eat.

Training: *What kinds of training will workers need?* Every year, new workers will need training in the many different kinds of work involved in fish processing.

Transportation: *How will you transport your products to market?* If you are producing fresh products, you also need to plan ways of dealing with problems, such as bad weather, that might delay shipments.

Business structure: *What type of business will the fish plant be?* Some of the options includes cooperatives, corporations, or private family businesses. It is important to get a good Board of Directors that learns enough about the fish processing business to make good decisions.

Financing: *Where will the money come from?* There are many costs in building a plant, buying equipment, and starting up the plant. How you finance these costs—from equity investments, grants, or loans—will determine how much debt you will need to pay back, as well as who controls the plant. You may need financing from more than one source.

Financial Analysis

A critical part of planning a fish plant is a financial analysis to see whether you can meet your financial objectives. For your financial analysis, you need to add up all your costs, and compare them with the money you expect to make from selling your fish.

Adding up Your Costs

Building and operating a fish plant involves many kinds of costs. Part of a financial analysis is estimating and adding up these different costs. Here are some of the most important costs you will need to think about:

- **Building and equipment costs:** If you get a grant to finance your plant, it may pay for your buildings and equipment. But if you borrow money, then you will have to make loan payments each year until the loan is paid off.
- **Overhead costs:** These include the manager's salary; building and equipment maintenance; insurance, accounting services, training and marketing.
- **Fish costs:** These include payments to fishermen, as well as costs of ice, tendering, and fish taxes. The price you pay fishermen will probably vary from year to year, depending on what other buyers are paying and what prices you sell your products for.
- **Processing costs:** These include employee wages and benefits, utilities, and packaging. Your processing costs will depend partly on how efficiently you use your labor—do the workers spend lots of time waiting for fish or equipment repairs? Costs will also depend on your processing *yields*—the weight of your final product compared with the weight of fish you buy.
- **Selling costs:** These include costs of shipping your product to market, cold storage charges, and sales commissions.



Comparing Revenues and Costs

You can estimate your revenues based on the volumes you expect to sell of each product and the prices you expect to receive. By comparing your estimated revenues with your estimated costs, you can see how much money the plant is likely to make or lose.

You won't know exactly what your costs and revenues will be until you actually build and operate your plant. Many important factors—such as prices and production volumes—are very difficult to predict in advance. As part of your financial analysis you should calculate how your plant's financial performance might be affected if your production or prices end up higher or lower than you expect. Your financial analysis can also help show you which products are most profitable and which kinds of equipment are most suitable. Government and lending organizations will usually want to see a financial analysis before giving you grants or loans.

Village Experience

About 15 local fish plants have been built in western Alaska in the past 20 years. The history of these plants is mixed. Some of them are no longer operating, and some have operated only intermittently or never operated. Some have had trouble finding markets for their products. Some have had trouble getting workers. Some have had problems with equipment that wasn't what they needed. Some have had trouble getting the state and federal permits they need to operate. Most have had trouble getting enough fish in recent years, with the disastrous crash in salmon runs in western Alaska.

But some village processing plants overcame these problems and operated and provided economic benefits to their villages. Two factors that helped plants succeed were reliable supplies of fish and dedicated managers. The most successful plants have mostly been smaller operations that didn't depend on having lots of fish, lots of workers, or lots of money.

Village processing plants can provide jobs for rural Alaskans: Emmonak residents filleting thawed chum salmon, April 2000.



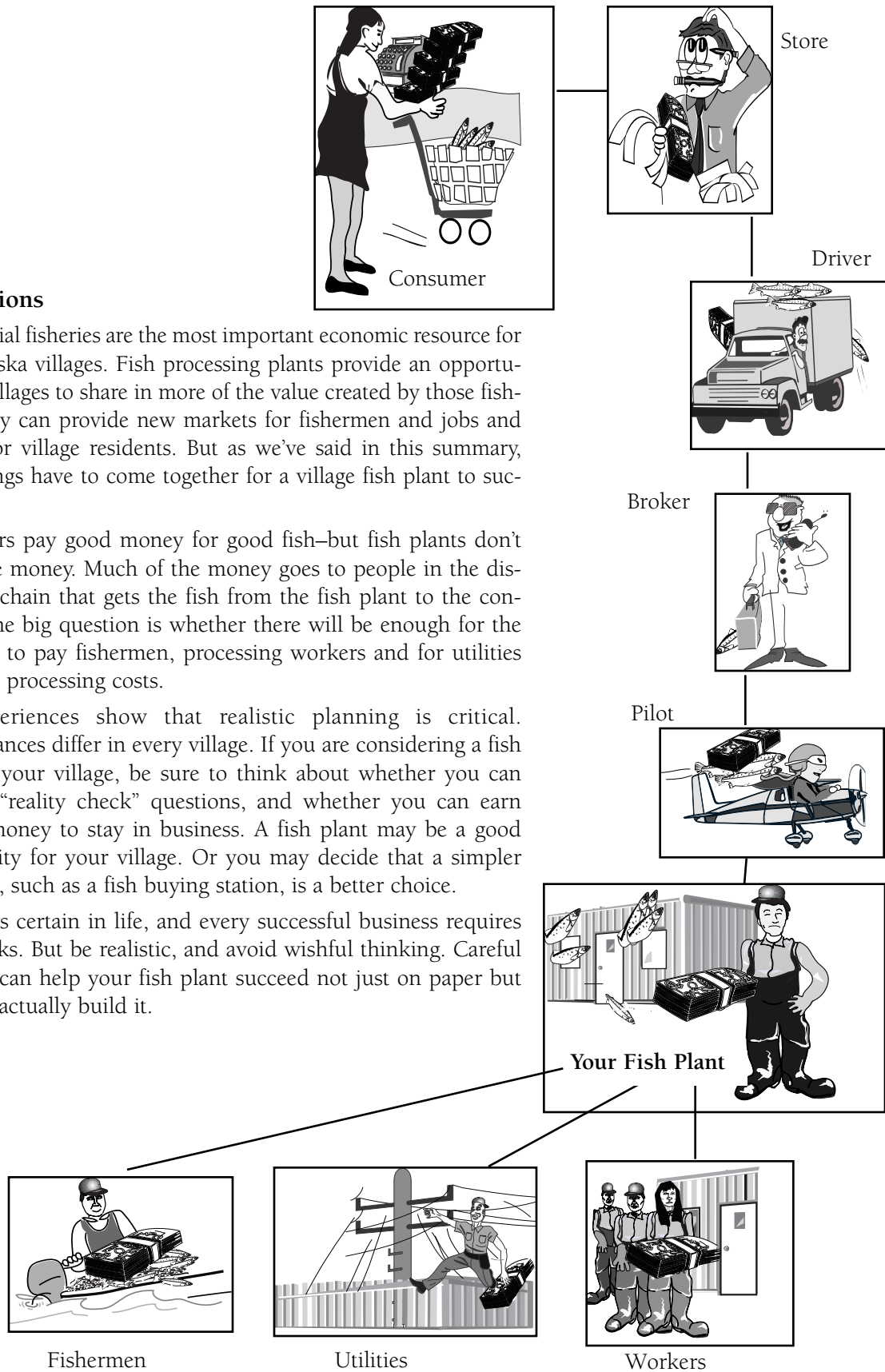
Conclusions

Commercial fisheries are the most important economic resource for many Alaska villages. Fish processing plants provide an opportunity for villages to share in more of the value created by those fisheries. They can provide new markets for fishermen and jobs and income for village residents. But as we've said in this summary, many things have to come together for a village fish plant to succeed.

Consumers pay good money for good fish—but fish plants don't get all the money. Much of the money goes to people in the distribution chain that gets the fish from the fish plant to the consumer. The big question is whether there will be enough for the fish plant to pay fishermen, processing workers and for utilities and other processing costs.

Past experiences show that realistic planning is critical. Circumstances differ in every village. If you are considering a fish plant for your village, be sure to think about whether you can pass the "reality check" questions, and whether you can earn enough money to stay in business. A fish plant may be a good opportunity for your village. Or you may decide that a simpler operation, such as a fish buying station, is a better choice.

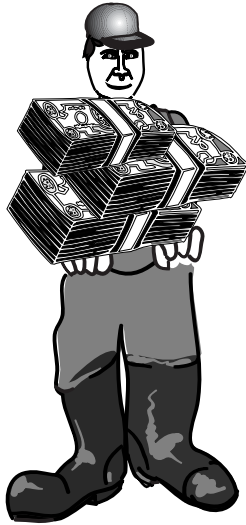
Nothing is certain in life, and every successful business requires taking risks. But be realistic, and avoid wishful thinking. Careful planning can help your fish plant succeed not just on paper but after you actually build it.



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A Planning Handbook

May 2001



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I. INTRODUCTION

The purpose of this handbook is to help you get started in planning a fish processing plant in your village. It provides step-by-step advice about what you need to think about. It can help you to figure out whether a fish processing plant can succeed in your village.

What is a “Village Fish Processing Plant”?

There are many different kinds of fish buying and processing operations in Alaska. This handbook focuses on *locally owned operations in western Alaska villages that buy or process fish*. For simplicity we use the term *fish plant* for these operations—although they may also process other products such as meat or berries.

A fish processing plant can bring a lot of benefits to a village. It can provide a market for fishermen. It can provide jobs and income for village residents. It can provide opportunities to process other food resources, such as reindeer or subsistence foods.

But starting and operating a fish processing plant is not easy. It is a lot of work to plan the operation, get the funding, build the facility, buy and install the equipment, get the required permits, and hire the workers. And once you are ready to start processing fish, a lot of things can go wrong. Sometimes the fish don't show up. Sometimes critical equipment breaks. Sometimes people don't do the work they are supposed to. Sometimes transportation and marketing arrangements don't work out the way you expected. For these and many other reasons, a village fish processing plant may not earn enough money to pay for its costs.

This handbook can help you think clearly about both the benefits of starting a fish plant and the things that can go wrong. It can also help you to prepare the information that you will need to apply for a grant or loan for a fish processing plant.

Most of what this handbook does is ask you questions you need to think about as you plan a village fish processing plant. The main way this handbook can help you is by reminding you of the most important questions you need to ask. As we ask each question, we explain why it is important. We also give you suggestions about how you can find answers for it. But only you can provide the answers that fit your village, your fishery resources, and your ideas for a fish plant.



“Planning Steps”

In this handbook, you will find many "planning step" questions in boxes marked with a stepping boot symbol. If you answer these questions, you will have much of the information you will need to apply for a grant or a loan to build a fish plant.

How This Handbook is Organized

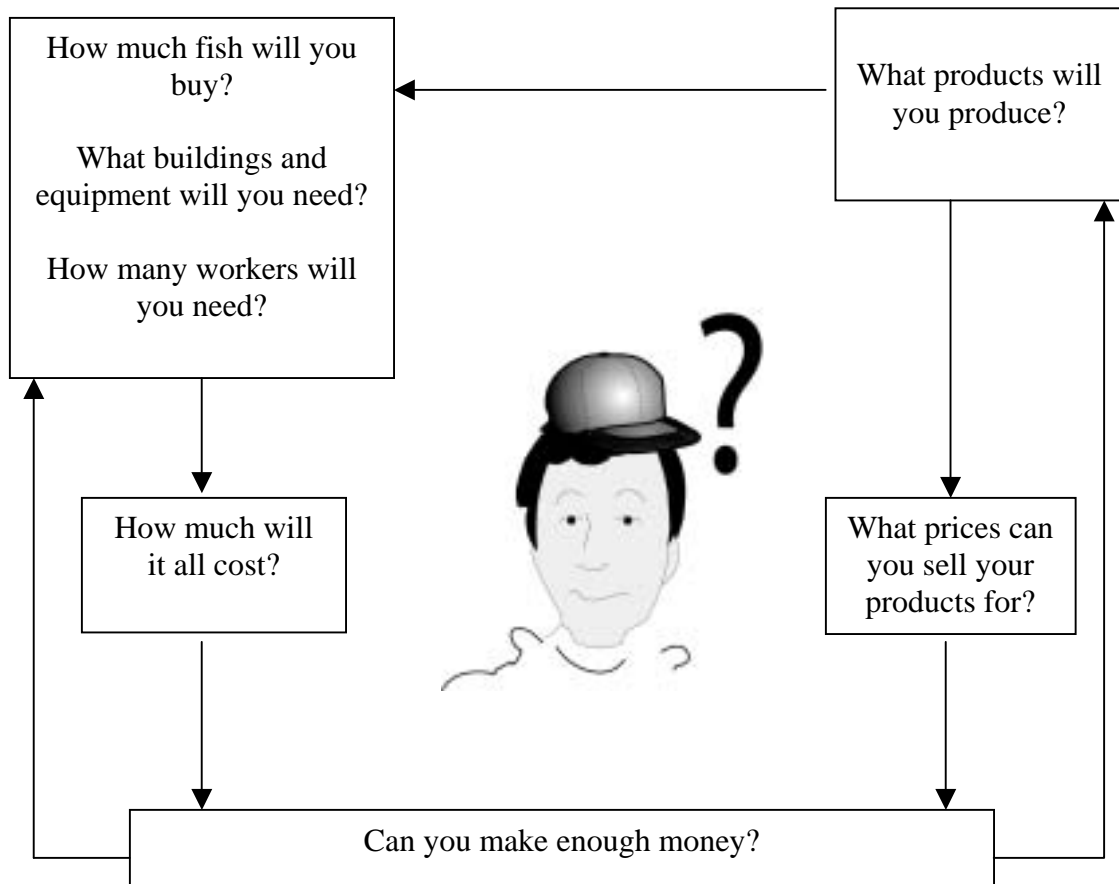
There are ten chapters in the Handbook. Chapter 2 is a short overview of some western Alaska village processing plants. We use the experiences of these plants as examples in other parts of the handbook.

The remaining chapters discuss different basic topics in planning a fish plant. For each of these topics, the handbook asks planning questions. You won't necessarily be able to answer the different questions in order, however. That's because the answers to some questions depend on how you answer other questions.

Chapter		Key Planning Steps
1	Introduction	
2	Examples of Village Processing Plants	
3	Defining Your Goals	Goals. <i>Why do you want to start a fish plant in your village?</i> Financial objectives. <i>How much money does the plant need to make?</i>
4	Researching Your Markets	Products. <i>What products will the plant produce?</i> Markets. <i>What are your markets?</i> Prices. <i>What prices will buyers pay for your products?</i> Competitors. <i>Who will you be competing with?</i> Sales. <i>Who will market and sell your products?</i>
5	Buying Fish	Fish buying. <i>How much fish will you buy?</i> Fish costs. <i>What prices will you pay fishermen?</i> Fish quality. <i>How will you get good quality fish?</i> Tendering. <i>How will you get fish to the plant?</i>
6	Buildings and Equipment	Plant capacity. <i>What is the most fish you will need to process per day?</i> Plant location. <i>Where will your plant be located?</i> Utilities. <i>How will you get electricity, water, and waste disposal?</i> Building. <i>What type of building will you need?</i> Equipment. <i>What equipment will you need?</i>
7	Plant Workers	Workers. <i>How many workers will you need?</i> Training. <i>What kinds of training will workers need?</i>
8	Plant Operations	Regulations. <i>How will you meet government regulations?</i> Transportation. <i>How will you transport your products to market?</i>
9	Plant Ownership, Financing & Management	Business structure. <i>What type of business will the fish plant be?</i> Manager. <i>Who will manage the plant?</i> Financing. <i>Where will the money come from?</i>
10	Financial Analysis	Financial analysis. <i>Can you make enough money?</i>

For example, the buildings and equipment you will need depend on the products you will produce. But the products you choose to produce will depend on your financial analysis of which products are most profitable. But that depends on the cost of your buildings and equipment! As you plan for your plant, you may need to revise your plans until you have figured out what kinds of products and what kind of fish plant can work best for you.

**Planning a Fish Plant: Everything Depends on Everything Else
(or sometimes it seems that way)**



The most complicated part of planning a fish plant is the *financial analysis*, which we discuss in Chapter 10 at the end of the handbook. The purpose of the financial analysis is to add up all the different costs of your plant and to compare them with your expected sales revenues—so you can see whether the plant will be able to make enough money to meet your financial goals. Many of the different planning steps in the handbook ask for information you will need for your financial analysis. Depending on whether the financial analysis shows that your plant can earn enough money, you may wish to change the plan.



“Reality Checks”

In different parts of the handbook you will find "reality check" boxes marked with a check symbol. Answering these questions can help you think about whether the kind of fish plant you are planning is likely to succeed or not, and whether you should make changes in your plans.

At the back of the handbook is reference information which may be useful in answering some of the planning questions.

It's a lot of work to go through the different planning steps in this handbook. But keep in mind that planning is easy compared with actually building, equipping, and operating a fish plant.



Are there people in your village who are willing to do a lot of work to plan for a fish processing plant, to get it built, and to operate it?

CHAPTER 2. EXAMPLES OF VILLAGE PROCESSING PLANTS

In this chapter we briefly describe eight village processing plants that have been built in seven western Alaska villages over the past two decades. The villages are shown on the map below. Parts of this handbook use experiences of these plants as examples.

These eight village fish processing plants differ in many ways. They differ in size. They differ in the kinds of fish that they buy and the products they produce. They differ in how they are owned and managed. They differ in the kinds of challenges they have faced, and how successful they have been in overcoming these challenges.

The descriptions of the plants in this chapter are very short and don't tell the "whole story." The "whole story" for each plant is much more complicated. Different people who were involved with each plant might have different perspectives about what happened and why it happened and what went well or didn't go well.

Different people would draw different lessons from the experiences of these plants. Here are two of the most important lessons:

- There are many challenges in operating a village fish processing plant.
- It is possible for village processing plants to overcome these challenges and operate and provide economic benefits to their villages.



Dainty Island Seafoods

For many years Sidney Huntington operated a small fish processing plant on Dainty Island, about 25 miles up the Yukon River from Galena. The Dainty Island Seafoods operation evolved over several decades. It began as a family fish camp in the 1960s. Later Sidney Huntington began to sell traditional style smoked salmon strips, first locally and then in stores in Kotzebue, Barrow and other Northwest Alaska communities and to friends throughout Alaska. The demand for this product grew over time and was more than he could satisfy, partly because the product was reliably good and was consistently available.

In the 1980s Sidney Huntington ran into problems meeting Alaska Department of Environmental Conservation (DEC) regulations. He went through major remodeling and retrofitting so that his plant could meet these standards, which took several years and technical help from many sources. The operation received several small grants to assist in these upgrades. Afterwards the plant continued to produce smoked salmon strips. Sidney Huntington retired from the business in the late 1990s and it now operates intermittently on a smaller scale.

The plant was located in a plywood building about 30' by 40' with a butchering room, cooking room, brining area, and smoke room. Equipment included an oil furnace used to maintain steady heat for smoking and a generator for power. The operation used both chums and kings, most of which were caught by Sidney Huntington himself, although he also bought some fish from local fishermen. The operation involved heading, gutting, filleting, smoking and freezing the smoked product. At its peak, the plant produced about 10,000 pounds of fish and employed two or three local residents.



Sidney Huntington's fish camp on Dainty Island. The tall building is the smoke room part of the fish processing plant.

Maserculiq Fish Processors, Inc., Marshall

Maserculiq Fish Processors, Inc. is located in Marshall on the lower Yukon River. The plant was one of several constructed with financing from the Community Enterprise Development Corporation (CEDC) during the late 1970s. It began operating in 1977 and processed about a million pounds of fish in 1978 and 1979, mostly chums and kings.

The operation began in a 60' x 30' metal building. After the successful 1978 season, the two-story Quonset style building shown in the picture was added. The plant operated several 27' tender boats. In some years product was shipped in a flatbed truck to the Marshall airport and flown in small planes to Bethel; in other years it was shipped by river to St. Mary's. The operation provided as many as 20 jobs.

For a period of time in the 1980s the owners leased the plant facilities to a Seattle-based company which continued to buy fish from local fishermen. The company was not able to hire enough workers locally so it brought in workers from outside the village.

In the mid-1990s the plant stopped processing fish and operated only as a buying station, providing ice and then tendering fish to St. Mary's. It operated in 2000, using new smoking equipment purchased with a grant. However, it only produced a small volume due to very low Yukon River salmon returns.

The company's new smoked products are marketed under the name Yukon King Seafoods. Their product "Yukon King Seafoods Traditional Salmon Strips" won the Grand Prize in the 2001 Alaska Symphony of Seafood competition. The judges praised the product for its color and smooth taste and noted that the company was able to produce a traditional "Indian candy-style" product using an FDA-approved smoking process.

Currently the general manager of the operation, who is also in charge of marketing, is an Anchorage resident. The plant foreman is a Marshall resident.



Maserculiq Fish
Processors, Inc. in
Marshall

Quinhagak Fish Plant

The Quinhagak salmon plant was built in 1992 with federal and state grants and is owned by the Native Village of Kwinhagak IRA Council. The plan was to process fresh salmon from the Kanektok River and Goodnews Bay fishing districts at the mouth of the Kuskokwim River and fly it to Bethel. Traditionally, local fishermen had sold to tenders operating out of Bethel. However, except for the ice machine, the plant did not operate for a number of years. Groups that considered operating the plant decided that it wouldn't be profitable because of several factors including the cost of flying fish out of the community, not enough local workers, and competition from other processing facilities, including their own operations.

In 1999, a subsidiary of Coastal Villages Region Fund CDQ group began to operate the plant but produced only 8000 lbs and lost money because of poor silver salmon runs. However in 2000 the plant did much better, increasing production to more than 400,000 pounds, producing high-quality headed and gutted and filleted fish, and paying relatively high prices to local fishermen. Fish were flown in wetlock boxes to Bethel and then on to Anchorage and the Lower 48. Coastal Villages Seafoods, LLC plans to expand production substantially in 2001 and is making major new investments to add new equipment and a bunkhouse and mess hall complex. By doing more of the processing in Quinhagak, they hope to reduce shipping costs and also create more local income.

The original plant was in a 30' x 60' modular building, with an attached ice room and cold storage room and a separate 30' x 40' refrigeration building. The current upgrades will double that size. During the 2000 season the plant employed about 40 people.

A talented and dedicated manager from the village has played an important role in successfully starting up the plant. The plant also benefits from the high quality of fish caught in ocean bright condition near the plant and consistent fishery openings over the season. Some of the challenges faced by the plant include the cost and logistics of flying fish in small planes and finding enough workers. The plant has offered employment to workers from other villages in the region.



Refrigeration building at the Quinhagak fish plant, Summer 2000.



Unloading king salmon at the Quinhagak fish plant dock, July 2000.



Cutting line in the Quinhagak fish plant, July 2000.

Mekoryuk Fish Plant

A small halibut processing plant was built in Mekoryuk on Nunivak Island in the early 1980s to provide opportunities for local fishermen to harvest halibut and have a place to sell their catch. The processed halibut are flown to Bethel for air transport to the fresh market.

At first, the Mekoryuk plant was operated by Bering Sea Reindeer Products, Inc., a subsidiary of the Native Village of Mekoryuk, which also operated a reindeer processing plant at Mekoryuk. The plants befitted from the exceptional management skills of Mekoryuk resident Ted Moses. Tragically Mr. Moses was killed in June 3, 1996, when the helicopter he was piloting crashed near the village.

After 1995, prices for the plant's halibut fell when the IFQ program expanded the supply of fresh halibut from other parts of Alaska, and the plant lost money. Since 1999, the plant has been operated by Coastal Villages Seafood, LLC, a subsidiary of the Coastal Villages Region Fund CDQ group.

This picture shows the Mekoryuk halibut processing plant in 1994. The trailer on the right, with doors wide open on both sides, is the actual halibut processing facility. The trailer in the middle is the shaved ice making unit. The large building on the left is the Mekoryuk subsistence freezer.



Tanana Fish Plant

During the early 1980s a fish processing plant was constructed with private funding in the village of Tanana. The total cost of the building and equipment was more than one million dollars. The plant operated only briefly and the building and equipment was eventually abandoned. At one point it was bought as a tax write-off by several Oregon ranchers. Two very basic problems faced by the Tanana plant were the lack of adequate local fish supply and lack of a realistic business plan. At first the would-be operators didn't even know the location and timing of the fish runs. They tried to buy fish lower down the river and fly them to the plant—an extremely expensive and impractical way to get fish.

The Tanana fish plant is a worst-case example of what can go wrong with a fish plant. It illustrates a simple but very important principle: a successful fish plant requires much more than a building and equipment, starting with a business plan and good management.



The abandoned
Tanana Fish Plant



Abandoned
cardboard fish boxes

Yukon Delta Fish Marketing Coop, Emmonak

The Yukon Delta Fish Marketing Coop is a fisherman's coop established in the late 1960s in Emmonak. At present the Coop has about 260 members, and a 9-member Board of Directors.

After beginning with a small shore-based plant, the coop now operates a large salmon freezing facility on a barge, as well as several tender boats, and has a supply and office building on shore. Funding for the Coop's facilities and equipment has been provided by a number of grants, including a major refurbishing of the barge in the mid-1990s.

The plant produces frozen headed and gutted king salmon which are sold to Japanese buyers, as well as fresh and frozen H&G chum salmon. During the 1990s at the height of the run the plant employed as many as 100 people working on the barge, tender vessels, and onshore supply operations.

The Coop has survived for many years in the difficult Alaska fish business, and has provided a market for its members and jobs for local residents. However, it has also faced a variety of challenges. The most serious problem at present is the disastrous decline in Yukon River salmon runs, which has affected not only fish supply but also made it difficult for fishermen to repay loans made by the Coop. Other challenges have included competition for fish from other Lower Yukon River buyers and difficulties with the management of the Coop. Although the original plan was that the Coop would pay dividends to members from its profits, the Coop has never paid a dividend.



Yukon Delta Fish
Marketing Coop
Processing Barge

Yukon Delta Products, Emmonak

Yukon Delta Products is a small value-added processing plant in Emmonak owned by the Emmonak Tribal Council. A state grant in the late 1990s provided funding for the plant's buildings and equipment. The facility was purchased as a modular unit in vans. A small office building has been added, and a refrigerated freezer van serves as a cold storage.

The plant doesn't have a primary processing permit and doesn't purchase directly from fishermen. Instead it buys headed and gutted fish from the Yukon Delta Fish Marketing Coop and other Lower Yukon River processing operations. Frozen H&G fish are stored for later thawing and processing.

The plant produces hot-smoked vacuum packed smoked salmon fillets. Steps in the production process include thawing, filleting, soaking in brine, drying, smoking, vacuum packing.

The facility is operated by a full-time manager with extensive earlier experience in fish processing, and employs as many as ten workers at peak periods.

Despite producing good quality products, the plant has faced several problems. Costs of operation are high. Some of the original equipment purchased with the plant did not work. The operation has had problems successfully marketing its products.



Yukon Delta Products modular smoker processing facility. The wooden building on the right is the new processor office.

Unalakleet Fish Plant

A series of locally-owned fish processing plants have operated in Unalakleet since the 1960s. The first plant was destroyed by a flood. A second plant was built in 1968 with assistance from the Community Enterprise Development Corporation. In 1973, Unalakleet fishermen organized the Norton Sound Fishermen's Coop (NSFC) which purchased the plant and began operations. During the mid-1970's the Coop was profitable for several years and created up to 60 processing jobs. In 1978, the Coop expanded operations and almost tripled purchases, buying fish from beyond Norton Sound, but lost money due to greatly increased costs.

Facing growing competition for fish from cash buyers, the Coop stopped operating in the early 1980s. In 1984 the Unalakleet Native Corporation took over the plant. From 1986 through 1992 Whitney Fidalgo leased the plant from the Native Corporation and operated it only as a fish buying station. Over time the plant deteriorated physically. In 1993 a grant from Norton Sound Economic Development Group (NSEDG), the CDQ group for the region, paid for renovations, and NSEDG used the facility to head and gut kings, chums and cohos for sale on the fresh market.

In the late 1990s, the old plant was torn down and a new \$2 million plant was constructed with state and federal grants. The new plant is owned by the Native Village of Unalakleet and managed by Norton Sound Seafood Products (NSSP), a subsidiary of NSEDG. NSSP also operates several other seafood processing facilities in the region. The new plant began operating in 1998. The first years of operation of the new plant were not profitable but the plant was able to continue operating with financial backing from NSEDG, and purchased smoking equipment for value-added processing.

The Unalakleet airstrip has a 6000' runway with jet service, which helps lower the cost of flying fresh fish to market.



Unalakleet Fish Processing Plant in April, 2000. The main processing area is in the tall part of the building.

CHAPTER 3. DEFINING YOUR GOALS

The starting point in planning for a fish plant—like any other business—is *defining your goals*. To think clearly about whether your fish plant can succeed, you first have to think about what you are trying to do.

People have lots of different reasons for starting village fish plants. Here are some of the goals people often mention:

- **A market for fish.** If there aren't any fish processors in your area—or if processors only operate some of the time—then a fish plant may provide a market for fishermen from your village.
- **Better prices for fish.** Even if there are fish processors in your area, having your own fish processing plant may make it possible to pay fishermen better prices.
- **Jobs and income.** A fish processing plant may create jobs in your village and bring money into the village.
- **Other processing.** A fish plant may also provide opportunities for commercial processing of reindeer or other meat products. A fish plant can also be used to process locally harvested subsistence food better or more easily.
- **Making money.** If a fish plant makes money, it can be a source of income for a Native corporation, a village council, a CDQ group, or other organizations.



Marshall Fish Plant Goals

Here's how the feasibility study for the Marshall fish plant described the benefits the plant would provide to the community:

- *“Increased employment: the addition to the local economy of one full-time position and 32 season positions, which will generate approximately \$80,000 in personal income annually.”*
- *“Increased income for fishermen: the fishermen will be able to harvest more of their resource, as they will not be restricted by harvest quotas previously applied by processors.”*
- *“Increased capital: the profits can be used as investment capital to finance other ventures or to expand the fish processing endeavor.”*



Unalakleet Fish Plant Goals

Here's how the 1996 Unalakleet Fish Plant Proposal described the goals for the plant:

"The ability to produce market ready products within our region moves us closer to our goal of regional empowerment and enables us to create marketing related businesses which otherwise would be sacrificed to other communities outside the Norton Sound region At present, the resource is totally in the control of a commodities-type market whose prices are set by outsiders. [3]

"Increasing the value of the fishing industry through higher prices will undoubtedly increase the value of the Limited Entry Permits, and in turn will hinder the current practice of fishermen selling their Limited Entry Permits instead of using them for fishing operations themselves. . . . Eliminating this anti-economic practice will contribute directly to greater regional fishermen employment while creating fish processing jobs." [3]

"The plant will retain 270 employees and create another 163 positions in all areas of the economy, which benefits from this proposed plant and the industry it will produce." [6]

"Due to climactic conditions and control of processing activities by outside interests, certain fisheries have not had buyers. The winter crab fishery is a good example. When the new plant is in place, we anticipate that 100,000 pounds of crab can be harvested commercially by and for the benefit of local fishermen."

Sometimes different goals for a fish plant may conflict with each other. One potential conflict is between paying more money to fishermen and providing income for people working in the plant or earning profits. All the money you pay fishermen, the wages you pay people working in the plant, and any profits have to come out of the money you earn from selling your products. The more you pay fishermen, the less you can afford to pay plant workers or keep as profits. So having your own fish plant doesn't necessarily mean that you will be able to pay fishermen a higher price *and* pay workers a high wage *and* earn profits. As you plan, you may need to think about which goals are most important to you.

As a first "planning step," you should write down your own goals for starting a fish processing plant in your village. Try to be as specific as possible. This can help you think about whether your goals are realistic. If you apply for a grant or a loan, the organization you apply to will also want to know about your goals.



Planning Step: Goals.

Explain why you want to start a fish plant in your village. What are your goals?



Are your goals realistic? Do any of your goals conflict with each other?

Financial Objectives

Even if “making money” isn’t your main goal, you still need to think about how much money you need to make to stay in business. Most business operations need to at least “break even”—to cover their operating expenses and make any loan payments that are due. If you can’t pay your bills, you can’t stay in business.

If another organization is willing to help cover losses, your fish plant may not necessarily need to break even. But you still need to think about how much help you may be able to get. If it costs too much, other organizations may change their mind about helping to keep your fish plant going.



Planning Step: Financial Objectives

What are your financial objectives for your fish plant? How much money do you need to make? Do you need to make a profit, just break even, or can you afford to lose money? If you can lose money, who will cover the losses?



**Village processing plants can provide jobs for rural Alaskans:
Emmonak residents filleting thawed chum salmon, April 2000.**



CHAPTER 4. RESEARCHING YOUR MARKETS

Before you decide to build or operate a fish plant, you should have a good idea of what types of customers will buy your products and what they are willing to pay for them. Research about markets is the first step in planning a successful fish plant.

Until you've done research about markets, you won't know what products your fish plant can produce most profitably. Until you've done research about markets you won't know what kinds of buildings and equipment you will need.

Many Alaska seafood companies have invested time, money and effort to build processing plants that produced excellent products, only to go out of business when they could not sell their products at a price that allowed them to make a profit. Many of these companies failed because they didn't do enough market research and they didn't understand the markets for their products.

Here are some of the things you need to do as part of your market research:

- Learn about the seafood distribution system and seafood markets.
- Identify potential products your plant could produce.
- Identify potential customers for products your plant could produce.
- Talk to potential customers to learn about their needs and expectations.
- Determine whether you can produce products that meet the needs and expectations of potential customers.
- Determine what potential customers would be willing to pay for these products and what kind of sales volume you could reasonably expect from them.
- Do a price analysis so you can see what similar products sell for in your target markets.
- Do a competitive analysis to determine your strengths and weaknesses in the market.
- Develop a marketing plan for selling your products.
- Determine whether you will sell your products yourself or rely on other companies to sell your production.

Market research is absolutely essential for any business. Just making products and hoping that someone will buy them is the fastest way to business failure.

In the reference materials at the end of this handbook is a short section on "Seafood Market Basics," which can give you some tips for getting started in researching your markets and developing a marketing plan.

Here we focus mainly on what you will need to do, rather than how to do it. Researching markets is a lot of work and requires expertise about the seafood market. So as you plan for your plant, you may want to work with a consultant who can help you with your market research.



Are you willing to research your markets carefully *before* you make the decision to build a fish plant in your village?

Learning About the Seafood Distribution System

If you're going to have a fish plant then you need to learn as much as you can about who the different kinds of players are in the seafood distribution system—from fishermen to retailers—and what their needs are and how they operate. You need to think carefully about where you might fit into this system, and what kind of buyers you should be selling your products to.

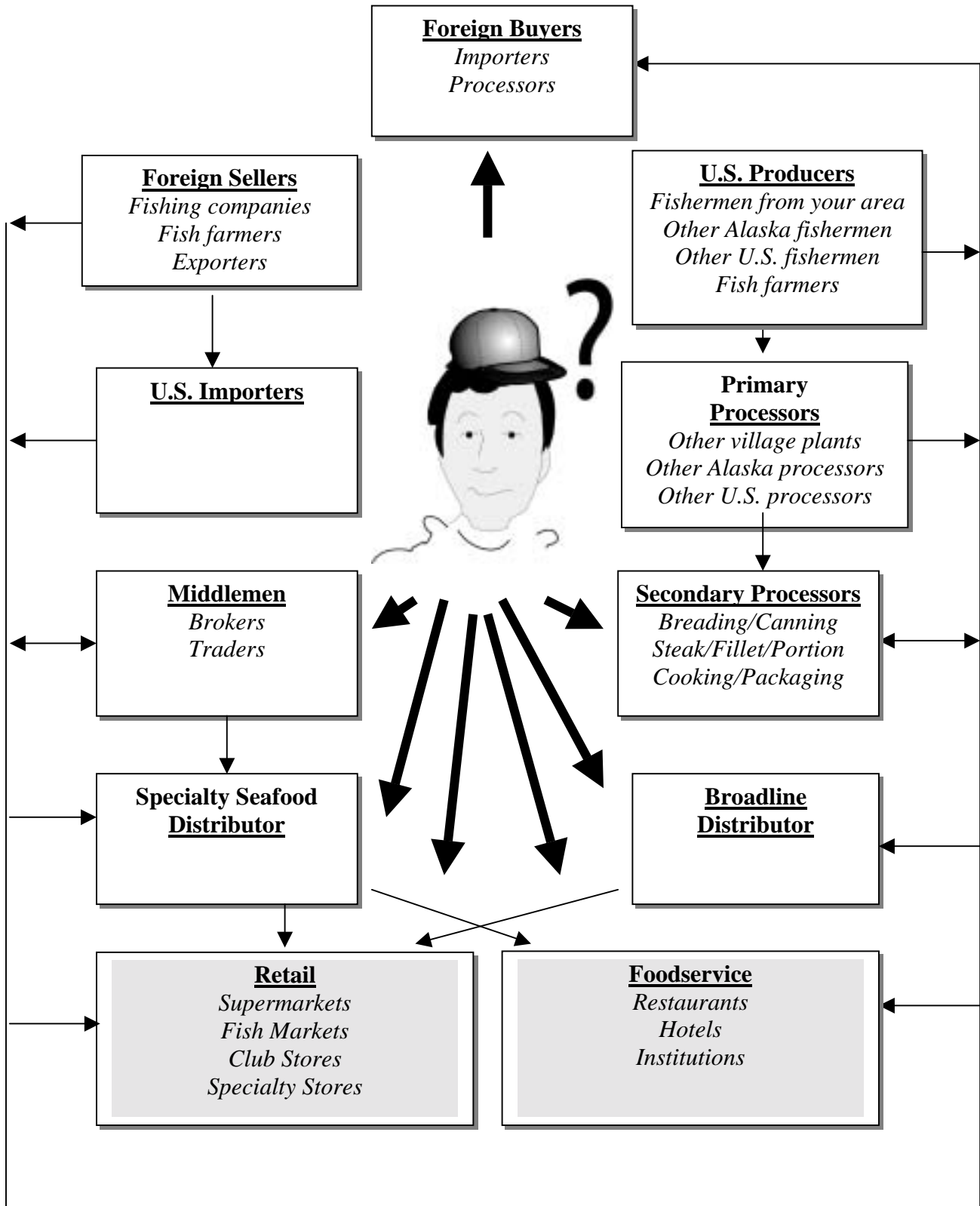
Depending on the products you produce and the volumes you produce, it may make sense for you to sell your products to another processor, a trader or distributor, or directly to a retailer or food service operation. It may make sense for you to sell your products yourself or to have a broker sell your products for you for a commission.

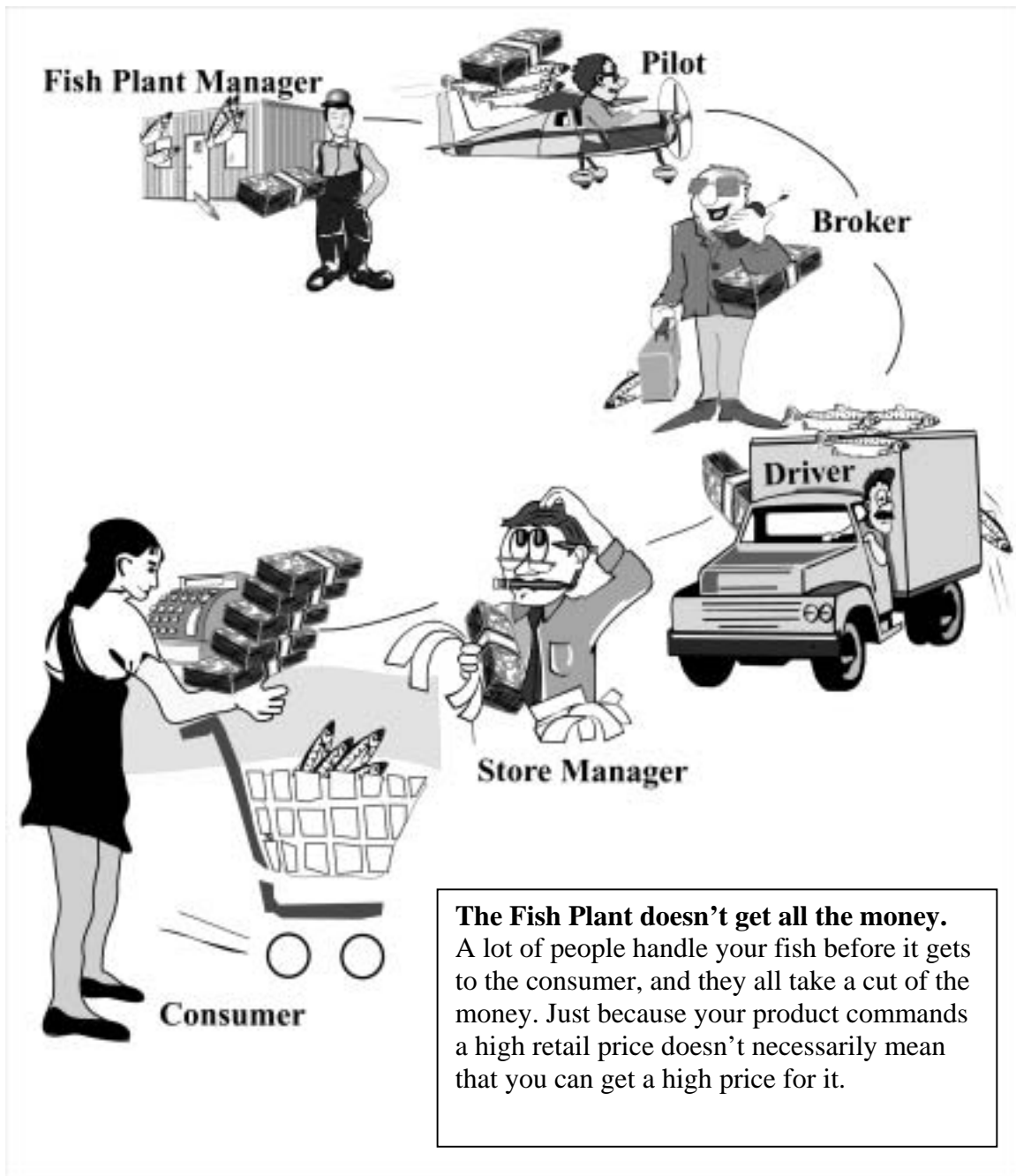
Learning About Seafood Markets

If you're going to have a fish plant then you need to learn as much as you can about seafood markets. You need to learn about the factors that can affect prices, and why prices you can get for your products vary from day to day, from month to month, and from year to year.

Market conditions for Alaska fish are changing rapidly. One reason is the rapid growth in farmed salmon production. More and more farmed salmon is being sold every year. Farmed salmon is sold fresh year-round, much of it as convenient boneless, skinless fillets. This is making it harder to sell wild salmon. Farmed salmon is getting cheaper, and quality standards that buyers expect are becoming more and more rigorous.

U.S. Seafood Distribution Flow
Where Do You Fit In?

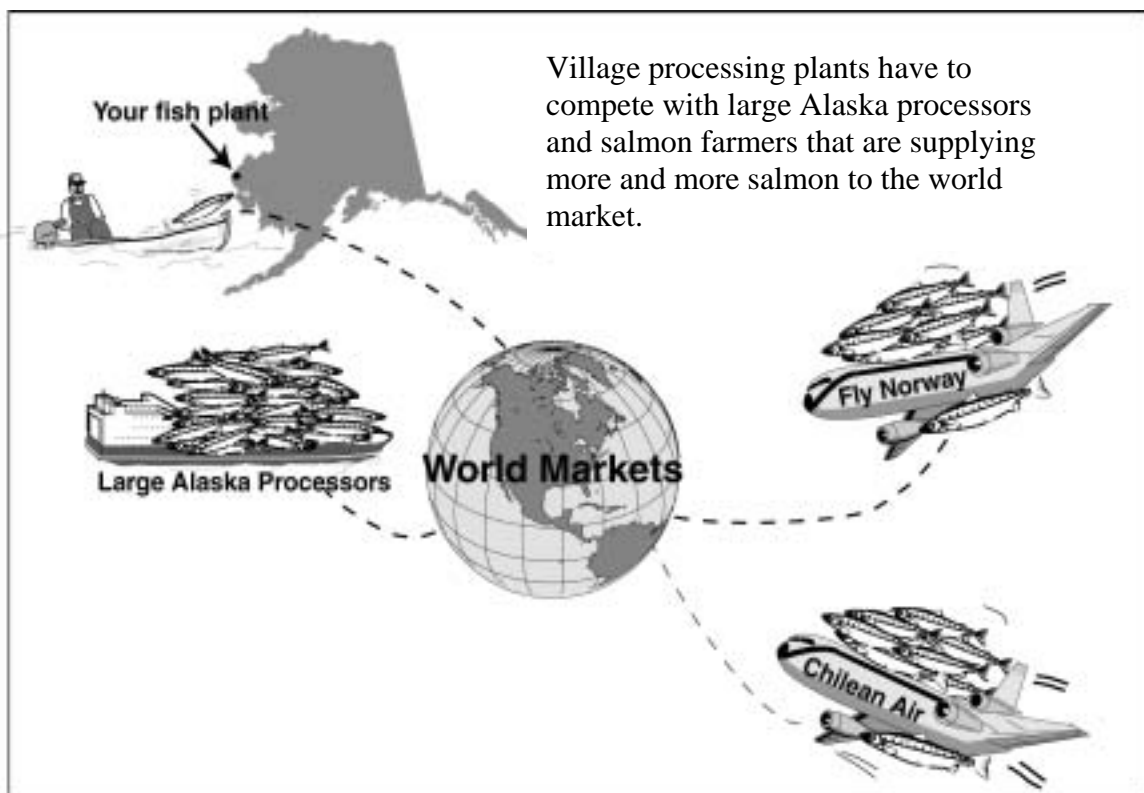




Your fish plant won't be competing just with farmed salmon. You will also be competing with other Alaska salmon processors—many of whom have lower transportation costs and can get fresh salmon to market quicker. What kinds of products they produce and how much they produce will affect the prices you can get for your products.

When you are in the business of processing and selling fish you will need to pay close attention to market conditions and how and why they are changing. You should talk to your potential customers about market conditions. You should subscribe to publications which report about market conditions. You can also find a lot of market information on the Internet. You need to learn to use this information so you can make reasonable forecasts about how the prices you get for your products are likely to change from year to year.

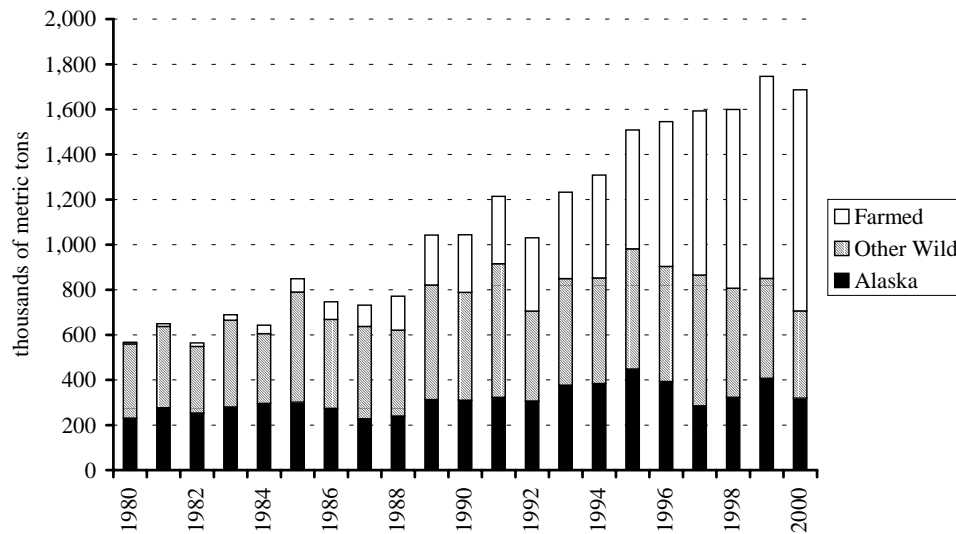
Fish prices are difficult to predict, but one thing you can be sure of is that they won't stay the same.



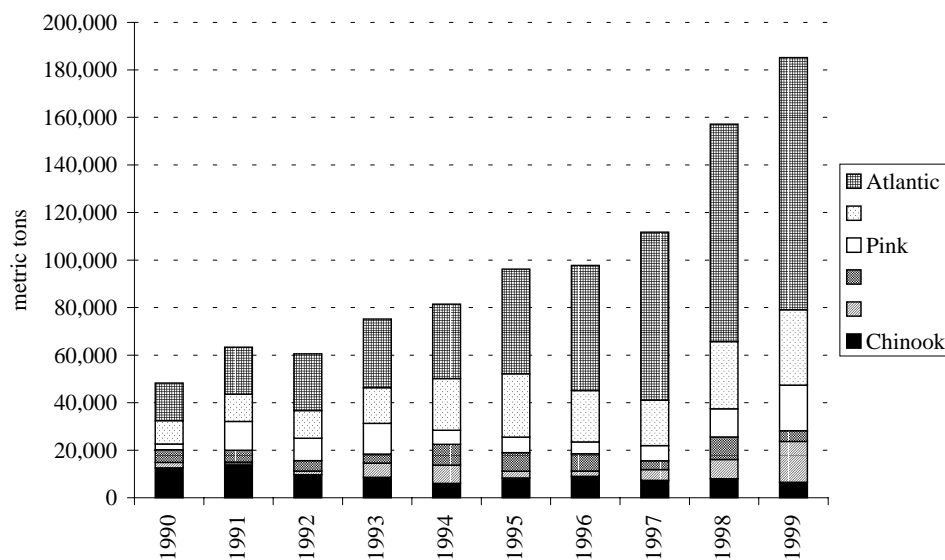


Rapidly increasing farmed salmon production is changing world salmon markets. The world is now producing—and Americans are eating—more farmed salmon than wild salmon.

World Salmon Supply: Wild and Farmed



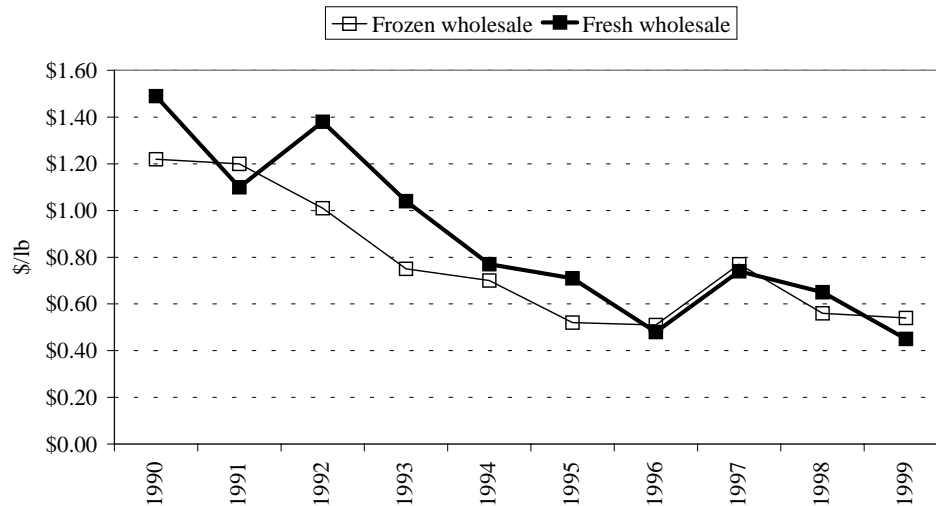
Estimated U.S. Consumption: Fresh & Frozen Salmon





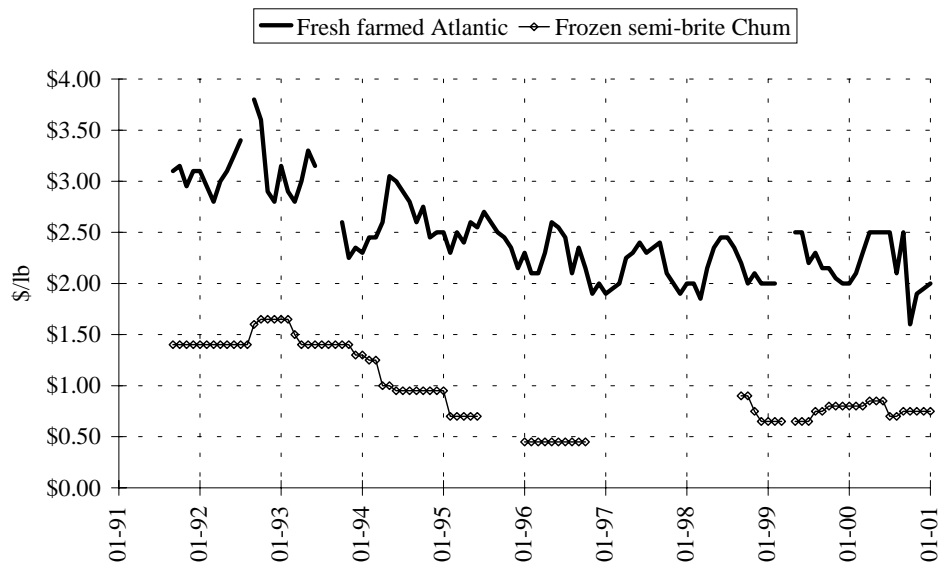
Prices Alaska processors received for chum salmon fell sharply during the 1990s. Among the causes were growing competition from farmed salmon, record Alaska chum harvests, and large Japanese chum harvests.

Average Wholesale Prices Alaska Processors Received for Chum Salmon



Source: Alaska Department of Fish and Game, Commercial Operator Annual Reports.

U.S. Wholesale Prices: Fresh Atlantic and Frozen Chum



Source: Urner Barry Publications, Inc., Seafood Price Current. Prices are low list prices for first of month. Sizes are 6-9 lbs for frozen and 6-9 lbs or 4-6 lbs for fresh.



Changing halibut markets

During the 1980s, small halibut processing plants were built in Toksook Bay, Tununak, and Mekoryuk to provide opportunities for local fishermen to harvest halibut and have a place to sell their catch. When the plants were built, the halibut season in the eastern Bering Sea (Area 4E) lasted all summer, while in other parts of Alaska it lasted only a few days. That gave the plants a marketing advantage because they could sell fresh halibut at times when it wasn't available from other areas. After the halibut IFQ system began in 1995, the season in other areas of Alaska was extended from March to November. The small Bering Sea plants no longer had a marketing advantage, and their prices fell, making it harder for them to break even.

Identifying Products Your Plant Could Produce

As you learn about markets for different products, you should also make a rough estimate about what it might cost to produce them. As you learn more, you may give up on some products and focus your market research on the most promising products. You will also need to think more carefully about the costs of these products, and many other factors that may affect which products are best for your plant.

What products are best for your plant?

Less value added (*H&G*)

- Higher production capacity
- Lower labor costs
- Less skilled labor needed
- Lower equipment costs
- Fewer things to go wrong
- Easier marketing

But

- Lower sales prices
- Fewer processing jobs



More value added (*fillets, smoked fillets, etc.*)

- Higher prices
- More processing jobs

But

- Lower production capacity
- Higher labor costs
- More skilled labor needed
- Higher equipment costs
- More things to go wrong
- More difficult marketing



Value-adding isn't necessarily profit-adding.

Many people believe that they will make more profit by producing a “value-added” product such as smoked salmon or fillets. A long time fish processor near Circle, Bill Straub, said that he tried every kind of value-adding he could think of for the Yukon King Salmon that he caught. In the end, he decided that every time he touched his fish it cost him money. His final operation consisted of heading, gutting and freezing his fish at his fishing site and trucking his season's catch in a freezer van to Fairbanks at the end of the season. His operation was successful because he and his wife worked long hours and kept their operation simple.



Value-added isn't necessarily more money.

Sidney Huntington, owner of Dainty Island Fisheries near Galena, for many years turned all of his fish into traditional native-style salmon strips. Late in his career, he learned that he could make more money by making fillets and shipping them fresh to Fairbanks.

Remember that from a buyer's standpoint your product is a combination of the product itself, its price, your promotion program, and the distribution method you use to get the product to the buyer. So your product from the buyer's viewpoint is a combination of the product and the services that make it easy to obtain.

Try to have more than one product and more than one market. Not every fish that you buy will be a #1 fish. You need a way to process and sell lower-quality fish without hurting the market for your higher quality fish. And it's better to have choices if a problem develops with one market.



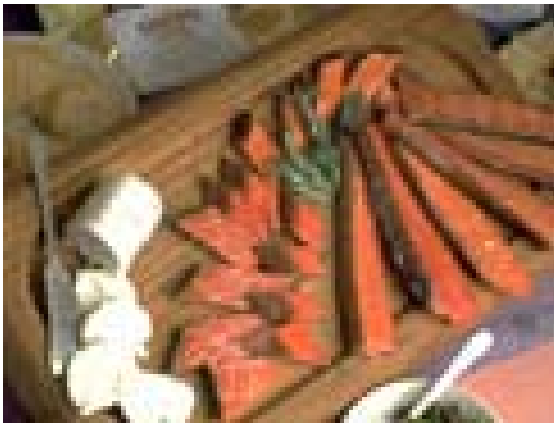
Some Western Alaska Village Fish Processing Plant Products



Freshly sliced King salmon strips produced by Dainty Island Seafoods



Hot-smoked vacuum packed salmon produced by Yukon Delta Products in Emmonak.



Yukon King Seafoods traditional salmon strips, produced by Maserculiq Fish Processors in Marshall. This product won the Grand Prize in the 2001 Alaska Symphony of Seafood.

Talking to Potential Customers

After you have an idea of a range of products your fish plant could produce, when it could produce them, and what it would cost to produce them, then you should talk to potential customers to learn what their needs are and learn how you can meet their needs. Different buyers will have different requirements and expectations for quality, packaging, volume, timing of purchases, prices, and other factors. Here is some of the information you should try to learn from potential buyers:

- The types of seafood products they buy that are similar to the products you plan.
- Their expectations about quality.
- How often they may want to buy your products.
- The volume of your products they might want to buy, and the prices they might be willing to pay (remember, how much they might want to buy will depend partly on the price).
- Who they buy similar seafood products from now (this will help you learn who your competitors are so you can determine what your strengths and weaknesses are).
- How you could help them meet their needs better (for example, better service, higher quality, better price, better product forms).
- How they like to buy products (i.e., would they want to buy your products directly from you, or would they prefer to buy them from a distributor).
- Their typical payment terms. (Do they pay in 15 days? 30 days? By Letter of Credit?)
- The type of inspection of your product they require.

Developing a Marketing Plan

After you have done your preliminary market research by learning about the market and talking to buyers, you should develop a marketing plan. This marketing plan should be an important part of whether or not you decide to build or operate a fish plant.

As you prepare your marketing plan, make every effort to be conservative in your projections. People you talk to may be optimistic in their projections, whether it's the price they will pay for your product or the amount of your product they might want to buy. It's much better to have positive surprises than negative ones.

Your marketing plan should include:

- **A Description of Your Market.** This will include a list of your most likely customers, the products they are likely to buy, and the volume they are likely to buy. What geographic region are you targeting (your local region, other parts of Alaska,

markets in the Lower 48, markets in other countries)? What kinds of buyers will you target (food distributors, seafood markets, grocery stores, casinos, gift shops)? As you think about your market, remember that it is critical to have more than one customer!

- **Market Trends for Your Products.** What kinds of prices are your potential customers presently paying for the kinds of products you will produce? What is the price trend over the past few years for the kinds of products you will produce? What kinds of people are the end customers for these products? Are the markets for these products growing, shrinking, or stable?
- **A Pricing Strategy.** You should think about the best way to price your products compared with your competitors. If you believe your quality is higher than your competition, you will probably want to price your product higher than your competitors' products. On the other hand, if you can produce fish at a lower cost, then you may want to price your fish lower than your competitors do, so you can have a competitive advantage.
- **Competitive Analysis.** You should describe who your competitors in the market are and your strengths and weaknesses compared with them. Think about why a buyer would buy from you instead of another processor.
- **A Marketing and Sales Strategy and Budget.** How will you make potential customers aware of your company and your products? What will it cost you? Marketing takes money and you'll have to include money in your budget for activities such as advertising and participating in trade shows.
- **A Payment Strategy.** What payment arrangement and terms will you establish with buyers? How will you protect yourself against buyers who pay slowly or don't pay?



Can you describe the kinds of customers who will buy your products?

Can you make a realistic estimate of what prices you will receive for your products?

Can you describe your competitors and why you will be able to successfully compete with them?

Planning How You Will Sell Your Products

Selling fish costs money. Some seafood processors figure it costs them as much as 25 cents a pound in salary and overhead to sell their fish. So make sure you plan for the costs involved in selling your fish.

How much it will actually cost you to sell your fish—as well as the prices you get—will depend on your sales and marketing strategy. It may make sense to have an in-house sales staff employed by your company. If so, you'll also have to decide where they should be located: in your village, in a larger Alaska community, or nearer your potential customers, perhaps in a city like Seattle.

Or it may make more sense for your company to sell its fish through brokers or traders. Many smaller processors decide that this is the best strategy for them, since it reduces the time and money company management has to spend hiring and managing an in-house sales staff. Be sure to factor into your business plan the fees that brokers typically charge. Their commission fees will typically range from 3 to 7 percent of the value of the seafood they sell.

Regardless of what sales strategy you decide is best for your fish plant, you need to understand that fish no longer sells itself. In the past, Alaska processors could focus primarily on producing fish, which they could easily find buyers for. These days, seafood buyers have a lot of alternatives and your company will have to work hard to find buyers.



Do you have a plan for who will sell your products, and what selling your products will cost?

Choosing People to Sell Your Fish

It's not easy finding good people to sell your fish. It is important to understand that selling seafood successfully depends to a great degree on the relationship a sales person has with a buyer. Buyers will often buy mostly from people with whom they have good relationships. To a certain extent, this is human nature. That is why good sales people tend to be very outgoing and friendly.

Most seafood companies will hire sales people or brokers that already have a good track record selling the kinds of products they produce. This is generally a low-risk proposition, as these people will already know who the buyers are for these products and they will have good relationships with many of these buyers. Depending on the types of products you produce, this may be best for your company.

However, you may also want to consider hiring someone who is new to the seafood industry, if your sales position requires a lot of new market development. Sometimes people who are new to the seafood industry will be more motivated and will work harder

at developing new markets for your products. While experienced seafood sales people can be quite good at selling to buyers with whom they already have relationships, they are often not willing to make a lot of the “cold calls” needed to find a lot of new buyers.

Keep in mind that by their very nature, sales people tend to be optimistic. If you are interviewing prospective brokers or sales persons, for example, they will probably tend to give you overly optimistic sales projections. They are in effect trying to sell you that they are the best for the job. While that may be true, it’s wise to discount any projections you get from sales people before putting them in your business plan.

Before you select a person to sell your fish, be sure to take the time to do some background checking. Ask for a list of customers he or she has been selling to as a reference. Then call these people to see what they have to say about the person you want to have represent your company. You may be surprised at what you learn.

Hiring the right people to sell your fish is critical to the success of your company. Make sure you go about this task carefully. It could make or break your company.



Good fish don’t sell themselves.

Here’s how the manager of a Yukon River village fish plant described the importance of marketing: "The Yukon has Alaska’s best salmon—but it’s Alaska’s best kept secret. Copper River has the reputation, but people ask: ‘the what-kon?’ It’s an uphill battle. If you start out here with the mentality ‘I’ll build it and they will come’ you might starve to death while you wait. Our sales guy was trying to operate out of the village. But that doesn’t work. You’ve got to have somebody meeting with people in town."



Don’t forget markets for your #2 fish.

Here’s what one village fish plant operator said about his #2 fish: “Our #1 fish on the fresh market sells well. The biggest problem we’re having right now is that our #2 fish is devalued to where you don’t make any money at all—you almost have to give the fish away to get rid of them. So now we hope to use the number two fish in our smoking operation. That could help our profitability.”



Planning Step: Products and Markets

What products will the plant produce?					
What kinds of buyer will each product be sold to?					
Over the first five years, what is the average price you expect to receive for each product (\$/lb)?					
What is the lowest price you might receive?					
Who will be your competitors in producing this kind of product for sale to this kind of buyer?					
What kinds of advantages and disadvantages will you have compared with your competitors?					
Who will be responsible for sales (finding buyers) for the product?					
If a different company will be responsible for sales, what will be the sales commission (%)?					



Planning Step: Sales Timing

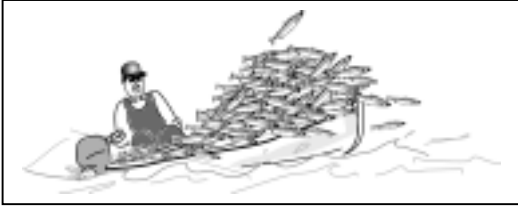
For each product that you will produce, what percent do you expect to sell in each month?

Product					
June					
July					
August					
September					
October					
November					
December					
January					
February					
March					
April					
May					
If you will have to pay for cold storage of the product until it is sold, what cold storage price will you have to pay per pound?					

CHAPTER 5. BUYING FISH

Fish Resources

A fish processing plant can't succeed unless it can get fish to process. Fish runs and harvests can change a lot from year to year. So in planning a fish plant, you need to think carefully about the fish resources in your area and how they may change in the future.



It may not be easy to predict how runs may change in the future. Even the Department of Fish and Game only makes projections for one year in the future. But the success of your plant will depend on more than just one season, so you need to make the best guesses

you can about future fish runs. Talk to the Fish and Game biologists. Talk to the elders in your area who have been fishing for a long time.

The volume of fish that might be available for you to buy will depend on more than just the run size. How the fishery is managed will also matter. Changes in the commercial fishing regulations and the subsistence fishing regulations can affect when the fishery is open and how much fishermen will be allowed to catch. So you also need to think about how management might change.



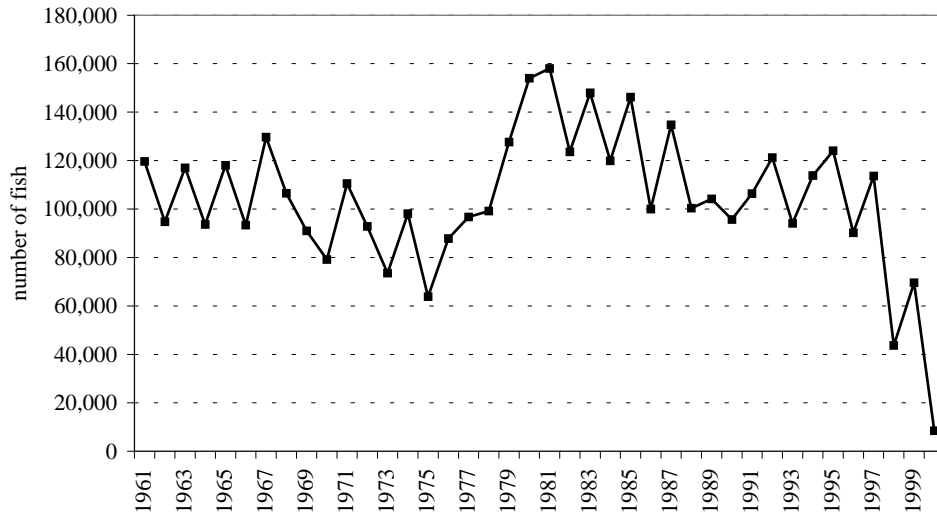
Village fishermen watch as their catch is weighed at the Mekoryuk halibut processing plant (1994).





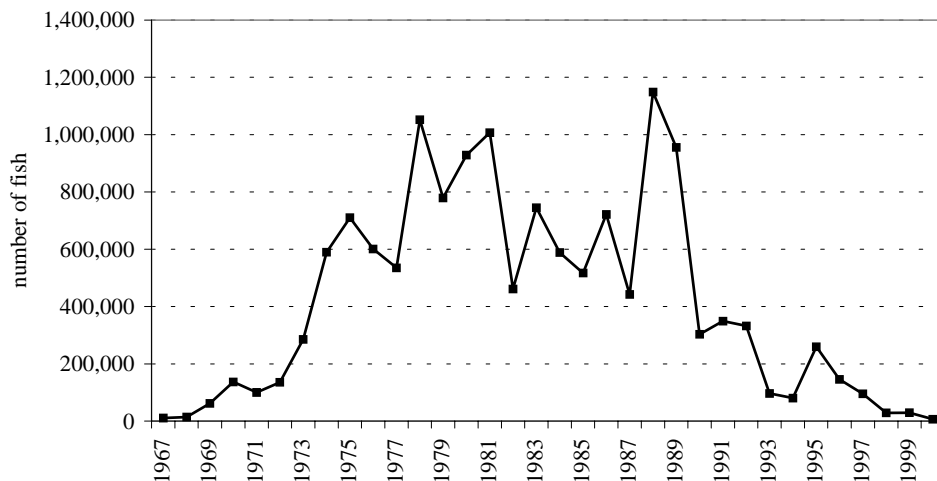
The disastrous Yukon River salmon returns in 2000 were a reminder of one of the risks faced by village fish processing plants. A processing plant can't make money unless it can get fish to process. The low chum harvests in the mid-1990s were partly caused by low prices—not just run conditions.

Yukon River Alaska Commercial Chinook Salmon Harvests



Source: ADF&G, Annual Management Report, Yukon Area, 1999, Regional Information Report No. 3A01-01, January 2001, Table A.5, page 92; Preliminary 2000 Yukon Area Chinook and Summer Chum Salmon Fishery Summary, October 3, 2000.

Yukon River Alaska Commercial Summer Chum Salmon Harvests



Source: ADF&G, Annual Management Report, Yukon Area, 1999, Regional Information Report No. 3A01-01, January 2001, Table A.5, page 92; Preliminary 2000 Yukon Area Chinook and Summer Chum Salmon Fishery Summary, October 3, 2000.



The Salmon Disaster and the Kaltag Fish Plant. These two stories from the *Anchorage Daily News*—written just two years apart--help show how lack of fish can change the outlook for a fish plant.

April 18, 1998:

Kaltag Fisheries Association said it has secured more than \$1 million in federal grants to build a seafood processing plant that could be operating as soon as next year. . . Richard Burnham, a fisheries association member, said an existing plant . . . will be obsolete under stricter processing rules imposed by the Department of Environmental Conservation. Plans call for a concrete and steel structure that should satisfy regulators, he said. "It'll allow us to not only do things with the (salmon) egg roe, which is our primary product right now, but also start utilizing the fish and doing more value-added-type things," Burnham said.

September 11, 2000:

So few salmon swam upriver this year that some villagers are wondering whether the plant will have to be mothballed before it slices its first fillet. "We took for granted that the fish were always going to be here," Mayor Violet Burnham said. "Now we have to think there may not be fish, and what are we going to do?"



Planning Step: Fish Harvests and Buying

Describe the area in which the plant will buy fish.

		Fish Species the Plant Will Buy		
Over the past 10 years, what were the total harvests (in pounds) of each species you plan to buy from the areas in which you plan to buy?	Year			
10 years ago				
9 years ago				
8 years ago				
7 years ago				
6 years ago				
5 years ago				
4 years ago				
3 years ago				
2 years ago				
Most recent season				
Over the past 10 years, what was the average, lowest, and highest harvest in these areas for each species?				
Average				
Lowest				
Highest				
What is your best estimate of total harvests of each species from these areas over the next five years?				
Average				
Lowest				
Highest				
Once the plant is operating, how much fish will the plant buy each year (pounds)?				
In an average year				
In a low-harvest year				
In a high-harvest year				



Will the fish resources in your area be enough to provide the volume of fish you plan to buy?

Competition



Having good fish runs doesn't necessarily mean there will be enough fish for your plant. Having a fish processing plant in your village doesn't guarantee that fishermen—even the fishermen from your village—will sell their fish to your plant. Other buyers may compete with you for fish.

Other fish buyers in your area will want fish just as much as you do, especially if runs are low. So you need to think about how you will compete with other buyers. You will probably

need to pay the same or better prices as other buyers offer fishermen. You will need to offer the same or better services such as tendering and loans. If fishermen are in debt to other buyers, it may be difficult to persuade them to sell fish to you.



In 1999 twelve companies registered with the Alaska Department of Fish and Game that they planned to buy salmon on the Yukon River. These included several village fish processing plants.

Yukon River Salmon Processors and Buyers, 1999

Name of Operation	Location	Districts	Products		
			Frozen	Fresh	Roe
Yukon Delta Fish Marketing Coop, Inc.	Emmonak	1, 2	X	X	X
Bering Sea Fisheries, Inc.	Lamont Slough	1, 2	X		X
Boreal Fisheries	Old Andreafsky	1, 2		X	X
North Alaska Fisheries	Emmonak	1, 2		X	
Maserculig Fish Processors	Marshall	1, 2, 3		X	X
Yutana Fisheries	Kaltag	3, 4, 5, 6	X	X	X
	Manley				
Great Northern Seafoods	Anvik	4	X		X
Sea Crest	Galena	4, 5	X	X	X
Interior Alaska Fish Processors	Fairbanks	4, 5, 6	X		X
	Nenana				
	North Pole				
Brian Asplund	Nenana	5	X	X	X
Steven's Fisheries	Nenana	6	X	X	X
Alfred Wright	Fairbanks	5		X	

Source: Alaska Department of Fish and Game, *Annual Management Report, Yukon Area, 1999*.
Regional Information Report No. 3A01-01, January 2001, Table 7.

Established buyers who have bought fish in your area in the past will have advantages over you at first. One reason is that they already have experience in processing and marketing salmon from your area. Another reason is that fishermen who have dealt with them in the past may have greater confidence that they will get paid when they deliver to established plants than when they deliver to a new company. Fishermen may feel that they need to keep delivering to plants if they have received loans from them.

Even if there isn't any competition at the moment, there might be in the future, especially if your plant is successful. The best years—when there are lots of fish or high prices—are also the years when you're most likely to have competition from other buyers. Sometimes competitors may only operate at the peak of the season, when the fishing is best. This may cut into your fish deliveries when processing can be most profitable.



Your competition won't necessarily be just buyers from outside your area. It may also include other village fish processing plants. In most parts of Alaska there are enough fish for some villages to have successful processing plants. But there aren't enough fish for every village to have a successful fish processing plant.



**Competition for village fish processing plants:
Bering Sea Fisheries operation on the Lower Yukon**





Competing with cash buyers.

Here's how the former manager of a western Alaska village fish plant described competition from cash buyers: "Fish buyers started seeing the reputation of the quality of the fish we had. Cash buyers started coming in. They started setting up shop right at the mouth of the river, where they would just set up signs. If we were paying \$.75/lb for kings they had signs over here saying "\$.80/lb cash." Whereas we were financing fishermen. We bought their nets, we bought their boats, we bought motors, we bought gear for them—so we had accounts receivable from fishermen. So when they come to deliver to the fish plant 50% maybe of their delivery would go to their account, so they'd only get half the money. But with the cash buyer there's a sign saying a penny or two higher. But it would be cash. So that would be lucrative for them. And they came in basically for the kings or the cohos and then they were gone. We ended up with all the low-value fish, the chums and the pinks. We had overhead, we had loan payments, whereas the cash buyer he'd get their fish and fly them out and recover all of that. So we just couldn't beat the cash buyers, couldn't compete with them, with our higher overhead and higher operating costs."



Planning Step: Competition

What processors have bought fish in this area in the past three years? Describe where they were located, what kind of operation they had, and who they bought fish from.

How is the competition in this area likely to change over the next three years?

How many fishermen will you need to buy fish from?

Why do you expect these fishermen will sell fish to your plant instead of to another processor?



Will fishermen be willing to sell you the volume of fish you plan to buy?

Fish Quality

As competition increases in world fish markets, quality standards for fish products are rising. Finding and keeping a good market for your fish will depend on delivering consistently high quality products. To make good quality fish products you need to start with good quality fish. In many parts of Alaska, that means changes in how fishermen handle fish, shortening the time period between when fish are harvested and when they are delivered and icing the fish to keep them cool. Fishermen may need training about what they need to do to deliver good quality fish. They may need ice. They may need new equipment, such as totes to hold iced fish.

It may not be easy to get fishermen to meet your quality standards. Handling fish carefully takes time and can cost money. If you insist on higher quality standards than your competitors, some fishermen may stop delivering to you. And it may be hard to refuse to buy from fishermen who aren't meeting your quality standards, if they are from your village.



Planning Step: Fish Quality

What will fishermen need to do in order to deliver fish that will meet the quality needs of the plant (icing, handling, etc.)?

What will you need to do to make sure that the fishermen you are buying from meet these quality standards?

If you provide ice to fishermen, what will it cost you per pound of delivered fish?

Fish Prices

The cost of fish is one of the biggest costs of a fish-processing plant. In planning your plant, you need to think carefully about what you will need to pay for your fish.

That may be different from what fish buyers in your area paid this year or last year. Fish prices change from year to year. Fish prices in the future won't necessarily be the same as they have been in the past. In planning for your plant, you need to think about how and why fish prices may change.

Fish prices are affected partly by local conditions in your area. If the harvest is low in your area, your plant and your competitors may bid prices up as you try to buy at least a minimum supply of fish. Or instead your competitors may not even try to buy fish.

Fish prices are also affected by market conditions for the products you and your competitors produce. If other buyers in your area are getting good prices for their fish products, they are likely to raise the prices they offer fishermen to try to get more fish. You will probably have to match the prices offered by other buyers.

What you assume about the prices you will have to pay fishermen should be consistent with your assumptions about the prices you will get for your fish products. If you get a high price for your products, other buyers will probably also be getting high prices, and chances are the fish price will go up. If you get a low price for your fish products, other buyers will probably also be getting low prices, and chances are the fish price will go down. So one way to think about fish prices is to think about the spread—or margin—between the wholesale price for fish products and the ex-vessel price paid to fishermen. It will probably stay about the same in the future as it has in the past.



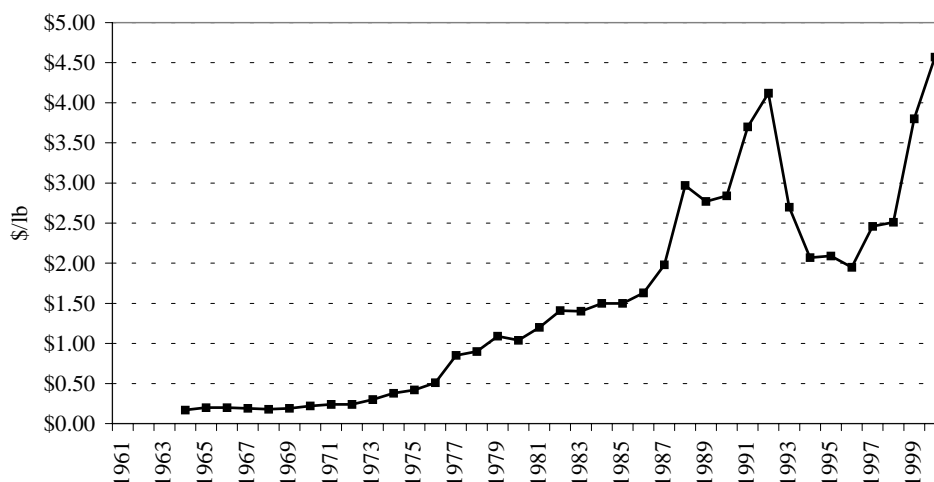
A different perspective on fish prices

The establishment of the Alaska CDQ program in the 1990s put some Alaska Native small boat fishermen in new ownership and management roles. Traditionally they had believed that large fish processors were taking advantage of them on the price they paid for fish. When the fishermen became fish buyers, they realized that many factors affect the price of fish and that a low price is not necessarily an unfair price.



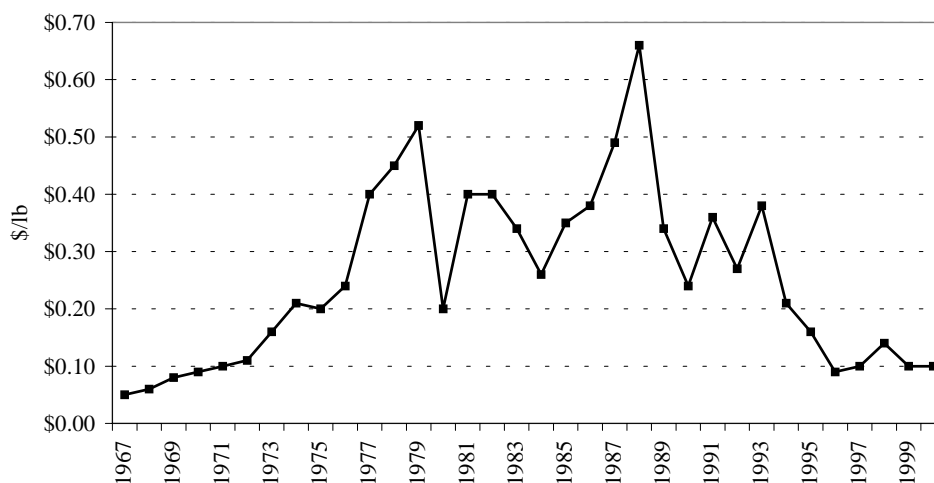
Prices processors pay to fishermen vary from year to year. Markets vary for different species. As these Yukon River prices show, the recent past is not necessarily a guide to price conditions in the future.

Average Prices Paid to Fishermen for Chinook Salmon, Lower Yukon Area



Source: Alaska Department of Fish and Game, Annual Management Report, Yukon Area, 1999. Regional Information Report No. 3A01-01, January 2001, Table A.11, page 99; Preliminary 2000 Yukon Area Chinook and Summer Chum Salmon Fishery Summary.

Average Prices Paid to Fishermen for Summer Chum Salmon, Lower Yukon Area

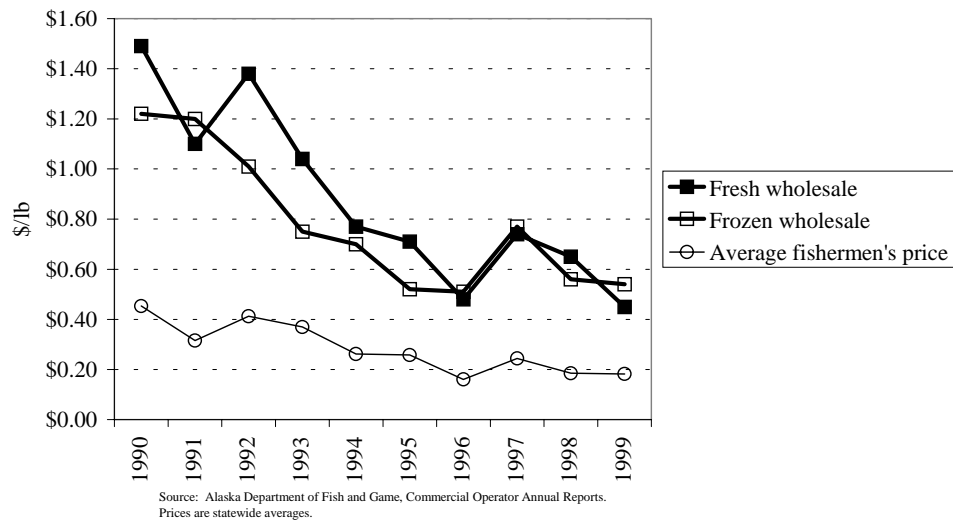


Source: Alaska Department of Fish and Game, Annual Management Report, Yukon Area, 1999. Regional Information Report No. 3A01-01, January 2001, Table A.11, page 99; Preliminary 2000 Yukon Area Chinook and Summer Chum Salmon Fishery Summary.

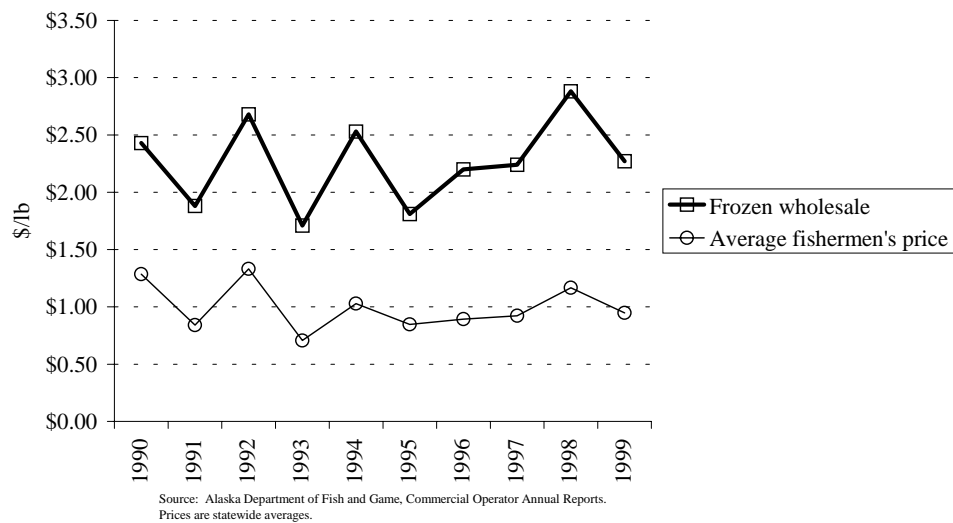


Fishermen's prices reflect the wholesale prices received by processors. If you get higher wholesale prices, you will probably pay fishermen more. If you get lower prices, you will probably pay fishermen less.

Alaska Wholesale Prices and Fishermen's Prices: Chum Salmon



Alaska Wholesale Prices and Fishermen's Prices: Sockeye Salmon





Planning Step: Fish Prices


Over the past 5 years, what was the average price per pound fishermen were paid in your area for the species you plan to buy?	Year	Fish Species the Plant Will Buy		
5 years ago				
4 years ago				
3 years ago				
2 years ago				
Most recent season				
What prices per pound do you expect to pay for fish over the first five years?				
Average				
Highest possible price				
Lowest possible price				

Delivering Fish to the Plant

Part of buying fish is getting them to the plant. If your plant is close to where the fishermen are catching the fish, they may be able to deliver the fish to the plant directly. Otherwise, you may need to provide tendering (or trucking, if the fish are being caught by set-nets).

As part of your financial planning, you will need to estimate what tendering will cost you per pound. This will depend partly on whether you contract with someone else to do your tendering for you, or whether you operate your own tender boats.

Remember, in a low-run year, your tendering costs per pound may be higher than in a high-run year. It costs almost as much fuel and time to pick up a few fish as a lot of fish. So the tendering cost per pound should vary between a low-run and a high-run year.

			
Planning Step: Delivering Fish to the Plant			
How will you get fish to the plant? Will fishermen deliver directly to the plant, or will the fish be tendered to the plant?			
If the fish are tendered, will this be done by your own boats or will you contract for it?			
What do you expect tendering will cost you per pound of fish?	Fish Species the Plant Will Buy		
In an average-run year			
In a low-run year			
In a high-run year			



Tender boats owned and operated by the Yukon Delta Fish Marketing Coop in Emmonak (top) and Maseculiq Fish Processors in Marshall (bottom)



Season Timing

You can't plan a fish plant just by thinking about the total volume of fish you will buy over a whole season. You also need to think about *when* you will be buying and processing fish. What months will your fish plant be operating? How much fish are you likely to buy each week? Will your buying and processing be spread out evenly over the week or will you get all the fish in one day? The answers to these questions will affect how much space and equipment you need in your plant, how many processing workers you will need, and how long you will need them.



Planning Step: Season Timing

Describe the run timing for each species of fish you plan to buy. What months (or weeks) will you be buying and processing each species? When will be the peak times when you will be processing the most fish? Will you be getting more fish every day at peak times, or only on some days of the week?

What is the most fish you will need to process in one day? (number of pounds)	Fish Species the Plant Will Buy		
In an average-run year			
In a low-run year			
In a high-run year			

Fish Taxes

Part of your costs in buying fish will be fish taxes. The State of Alaska has several different kinds of taxes paid by fish processors and fishermen. A village fish processing plant has to pay two kinds of taxes:

- The **Fisheries Business Tax** is paid by businesses that process fish. The Fisheries Business Tax rate for shore-based plants is 3% of the value paid to fishermen (except for canned salmon, for which the tax rate is 4.5%).
- The **Seafood Marketing Assessment** is also paid by businesses that process fish. The rate is 0.3% of the value of seafood products produced in Alaska.

So the combined tax rate paid by most village fish processing plants is 3.3% of the value paid to fishermen.

Alaska salmon fishermen are also charged a **Salmon Marketing Tax** of 1% of the value of their salmon catches. The state collects this tax from salmon processors, who collect it from salmon fishermen. So your fish plant will also need to pay this money to the state—but you can deduct it from the money you pay to fishermen.

You can get more information about these taxes, as well as copies of the tax forms, from the Alaska Department of Revenue's web-site at www.tax.state.ak.us/divisions/fisheries.htm.

In some parts of Alaska, such as the Bristol Bay Borough, local governments also collect fish taxes. You need to think about whether there are any local fish taxes in your area.



Planning Step: Fish Taxes

What percent of ex-vessel value will you have to pay in fish taxes? _____

CHAPTER 6. BUILDINGS AND EQUIPMENT

The buildings and equipment you need for your plant depend on how much fish you plan to process and what products you plan to produce—which should depend on your fish resources and on the markets and costs for different products. Remember that to design your plant you need to think carefully about your fish resources, markets and costs—before you build your plant.

It takes experience and expertise to design and equip a fish plant. You will probably need advice. Make sure you get advice from people who understand fish processing, who understand Alaska construction and fish processing regulations, and who understand the special conditions in building and operating processing plants in Alaska villages. Watch out for people who may be more interested in selling you something than in giving you good advice.

Plant Capacity

Your plant design should be based on the daily production capacity you want for different kinds of products. You don't want your capacity to be too low, so you can't handle the fish you will be buying, or you have to use it in a less profitable way. But you also don't want to have more capacity than you will use, because then you will be paying more than you need to for buildings, equipment, maintenance, and utilities.

Conditions change from year to year, and so your plant capacity will never be perfect for your needs. If you design your plant well, some years you will still have too much capacity and other years you won't have quite enough capacity. But you will avoid losing big opportunities by having far too little capacity, or losing big money by having far more capacity than you can use.

Even if some value added products are highly profitable, you shouldn't necessarily install enough capacity to process all your fish into these products. The more money you spend on expensive value-added processing equipment, the greater the risks you face of losing money if prices or runs turn out different from what you expect. If you can produce a range of products, you can adjust more easily to different run and market conditions.



Planning Step: Plant Capacity

List the products your plant will produce.					
What daily capacity do you want for each product?					



Will you be able to buy enough fish to efficiently use the capacity you are planning for?

Will the capacity you are planning for be enough to handle the fish you plan to buy?

Plant Location

Location is important for a fish processing plant. Your plant should be located on or near the water where fishermen or tenders can deliver fish. It should be located at a place with suitable soil conditions for construction. If the ground is wet or there is permafrost, your plant will need to be on a gravel pad or pilings, which will add to the cost.

The plant should have access to the utilities that are essential for a fish plant: electricity, water, and waste disposal. Avoid the temptation to locate your plant at a place where the land is cheap or easy to get—but which won't work for a fish plant.



Make sure the land is legally yours.

It is vital to own the land you are going to build on or to be able to prove that you legally control it. Sydney Huntington, a successful small producer of traditional smoked salmon strips, established his operation on Dainty Island, which was his traditional fish camp. The Alaska Department of Environment Conservation regulations applied to Sydney's product and required that he upgrade his plant. Sydney used his own money for the upgrades but also applied to federal and state agencies for grant money. He discovered that he could not qualify for grant money because he did not own or legally control the land that was his fish camp site. Eventually he was able to lease the land and get grants to help build his plant but it took a year or more to get the lease.



Planning Step: Plant Location

Where will your plant be located?

How will you get the land for the plant?

Are soil conditions suitable for building a fish plant at this location?

Describe how tenders or fishing boats will deliver fish to this location.

Describe the access to electricity at this location.

Describe the access to fresh water for processing use at this location.

Describe the access to waste disposal facilities at this location.

Building Design

There are many factors you need to take into account as you design the building or buildings for your processing plant. First, make sure that the building complies with regulations for the construction of fish plants, especially Alaska Department of Environmental Conservation (DEC) regulations. (For more information about DEC regulations, see Chapter 8 of this handbook.) Make sure that you get advice from someone who understands these regulations.

Second, plan your building to include all the spaces you will need. You probably need to include space for all following activities:

- Offloading and storing unprocessed fish
- Processing
- Blast freezing or chilling
- Packaging
- Cold storage
- Storing other products not kept in cold storage
- Storing packaging and supplies
- Quality testing
- Lavatory, laundry, and eating room facilities
- Utility equipment (heat, hot water, well water, electric)
- An office

If you bring in workers from outside your village, you may also need a bunk house and a mess hall to house and feed these workers.

Third, plan your building so that the different spaces fit together in a way that is efficient and convenient. Make sure that fish move smoothly through your plant from when they are offloaded through processing, freezing, packaging and storage. Make sure that activities that might introduce contamination are separated from processing. Spaces where you handle raw fish need to be physically separated from spaces where you handle final product. This is particularly important for ready-to-eat products such as smoked fish, jerky or pickled products.

As part of your planning, you should draw a diagram showing where different activities will take place in the plant and where different pieces of equipment will be located.

Thinking carefully about your processing operation when you are designing your building can save you big headaches later on.

The United States Food and Drug Administration (FDA) issues “Good Manufacturing Practice” regulations which apply to all food manufacturing operations in the United States, including seafood processing. A copy of the full regulations is in the reference materials at the end of this report. Here are the regulations which apply to plant construction and design:

Subpart B--Buildings and Facilities, Sec. 110.20 Plant and grounds.

(b) **Plant construction and design.** Plant buildings and structures shall be suitable in size, construction, and design to facilitate maintenance and sanitary operations for food-manufacturing purposes. The plant and facilities shall:

(1) Provide sufficient space for such placement of equipment and storage of materials as is necessary for the maintenance of sanitary operations and the production of safe food.

(2) Permit the taking of proper precautions to reduce the potential for contamination of food, food-contact surfaces, or food-packaging materials with microorganisms, chemicals, filth, or other extraneous material. The potential for contamination may be reduced by adequate food safety controls and operating practices or effective design, including the separation of operations in which contamination is likely to occur, by one or more of the following means: location, time, partition, air flow, enclosed systems, or other effective means.

(3) Permit the taking of proper precautions to protect food in outdoor bulk fermentation vessels by any effective means, including:

(i) Using protective coverings.

(ii) Controlling areas over and around the vessels to eliminate harborages for pests.

(iii) Checking on a regular basis for pests and pest infestation.

(iv) Skimming the fermentation vessels, as necessary.

(4) Be constructed in such a manner that floors, walls, and ceilings may be adequately cleaned and kept clean and kept in good repair; that drip or condensate from fixtures, ducts and pipes does not contaminate food, food-contact surfaces, or food-packaging materials; and that aisles or working spaces are provided between equipment and walls and are adequately unobstructed and of adequate width to permit employees to perform their duties and to protect against contaminating food or food-contact surfaces with clothing or personal contact.

(5) Provide adequate lighting in hand-washing areas, dressing and locker rooms, and toilet rooms and in all areas where food is examined, processed, or stored and where equipment or utensils are cleaned; and provide safety-type light bulbs, fixtures, skylights, or other glass suspended over exposed food in any step of preparation or otherwise protect against food contamination in case of glass breakage.

(6) Provide adequate ventilation or control equipment to minimize odors and vapors (including steam and noxious fumes) in areas where they may contaminate food; and locate and operate fans and other air-blowing equipment in a manner that minimizes the potential for contaminating food, food-packaging materials, and food-contact surfaces.

(7) Provide, where necessary, adequate screening or other protection against pests.



Planning Step: Building Design

Describe the type of building you will have. How will it be built? How big will it be?

Draw a diagram showing the design of the building. Show where each activity will occur and how product will move through the plant.

Estimate the total cost of the building. Explain what your estimate is based on.

When will the building be built? Who will build it?

Equipment

At the same time as you plan your building you need to plan for the equipment you will use for processing. As with the design for your building, it is important to get good advice about what equipment will make the most sense for your processing plant. The equipment that is best for your plant is not necessarily what is best for other plants in other places. What is best for you depends on many different factors, including how much space you have, the cost of power, how many workers you have and their skill levels, and the volume of fish you wish to process.

An important decision in the design of your plant is whether you should install freezing equipment. You can save money if you don't, but you will also greatly reduce your options as to what products you can produce and when you can sell them. Be sure to get good advice about what kind of freezing equipment is best for your operation.

Should you have a freezer?

No

- Lower equipment costs
- Lower utility costs
- Lower cold-storage costs
- Immediate sales

But

- Less flexibility
- Risk of not getting product to market in time
- Fewer market options
- Risk of having to sell even if the price is low



Yes

- More flexibility
- More product and market options
- Ability to sell when the price is right

But

- Higher equipment costs
- Higher utility costs
- Cold storage costs
- Interest costs on stored fish
- Risk of freezer breakdowns



Not every freezer is right for your plant.

In the mid-1990s, a small fish processing plant in a western Alaska village bought a “package deal” of several kinds of equipment. The equipment included a freezer which used a special freezing fluid which was expensive and difficult to obtain. The plant was unable to use the freezer and had to discard it.

A fish processing plant in southcentral Alaska bought a high-capacity immersion freezer which used liquid nitrogen to freeze fish very quickly. While this kind of freezer works very well for small fish, it didn’t work well for salmon, because it froze the outsides of the fish too quickly, so that the fish twisted and cracked from the pressure as the insides froze.

Another important choice is whether or not you should buy labor-saving machines such as a filleting machine or a pinbone-pulling machine. You should carefully compare the cost of the machine with the amount of money you can save on labor costs. You should also compare the product yield with and without the machine, the quality of the product, and how having the machine might affect your production capacity.

Hand Labor or Machines?

Hand labor

Lower equipment costs
Lower utility costs
More flexibility
Higher yields?

But

More workers needed
Higher labor costs
Lower capacity



Machines

Fewer workers needed
Lower labor costs
Higher capacity
Higher yields?

But

Higher equipment costs
Higher utility costs
Less flexibility



More equipment = more problems.

A village fish plant manager observed: “The more equipment you purchase, the more problems you purchase. This summer we’ve got a specialist on refrigeration, an electrician, and an engineer. These guys are costing us \$600 per day, and then you’ve got airfare and all the rest. Compare that with Sydney Huntington’s operation, where one guy basically did it all himself.”



Planning Step: Equipment

List the equipment your plant will use. For each piece of equipment, estimate the cost and the amount of power that it will use.

In your design of the building, show where equipment will be located.

Equipment Costs

The table on the following three pages lists some of the kinds of equipment you may wish to buy and approximate costs for new equipment. These prices are from suppliers' catalogues or from equipment suppliers listed in the references at the end of the handbook. The prices do not include the cost of freight for getting equipment to the village. Remember that equipment prices vary, depending on the manufacturer and the distributor. Used equipment is also often available and is generally 50% to 60% of new cost.



Equipment and supplies cost money.

Marshall plant ice-making equipment. A new 5-ton ice machine with trailer may cost \$30,000.



Marshall plant totes. Totes may cost \$300 each.



Loading Quinhagak plant wetlock boxes on a plane. Wetlock boxes may cost \$6 each.



Unalakleet plant conveyor belt. A conveyor belt may cost \$12,000.



Approximate Costs for Selected Fish Processing Equipment

<i>Activity</i>	<i>Type of equipment</i>	<i>Unit cost (new)</i>
Receiving	Crane (Electric hoist & generator)	\$12,000
	Crane (2 ton hydraulic)	\$23,000
	Brailer	\$350
	Scale	\$3,000
	Slush-ice bag release	\$250
	Tote (insulated - 1500 lb)	\$390
	Forklift	\$20,000
	Tote keeper for forklift (dumping)	\$5,000
	Plastic Shovel	\$37
Holding	Ice machine - 5 ton (and enclosure)	\$45,000
	Ice machine - 10 ton (enclosed)	\$83,000
General processing	Tote dumper	\$7,500
	Pallet jack	\$600
	Double Hopper	\$10,000
	Feed chute and receiving table	\$4,500
	Process line-belt conveyor (\$/foot)	\$850
	Process line-pocket conveyor (\$/ft)	\$1,800
	Rinse tank	\$3,000
	Table - grading with bins	\$3,000
	Boxing Roller - (5' X 2' section)	\$130
	Knife - 8"	\$22
	Steel	\$17
	Knife sharpener	\$220
	Hand truck	\$350
	Utility tub & lid	\$300
	Tub cart	\$400
	Sink-hand wash	\$330
	Sink-3 compartment	\$700
	Eye wash system	\$55
	Rubber mat (to stand on)	\$45
H&G processing	Header - (automatic)	\$30,000
Fillet processing	Fillet machine	\$69,000
	Splitter	\$25,000
	Fillet line (belt driven)	\$800
	Pinbone machine (5-10 fish/min)	\$32,500
	Pinbone trim line, belt driven (\$/ft)	\$850
Smoking	Smoker-horizontal flow-500 lb cap.	\$46,000
	Smoker - vertical flow-500 lb cap.	\$36,000
	Fish screens (1 set of 14)	\$1,330
	Extra truck and screens (14 tier)	\$3,000
	Chart recorder	\$1,200
Brining	Drum & lid (make/store brine)	\$75
	Dolly (6 tub capacity)	\$300
	Tub (brine fish)	\$7
	Auto injector - 16/64 needle	\$35,300
	Auto injector 2nd needle set	\$124

This table continues on the next page.

Approximate Costs for Selected Fish Processing Equipment

<i>Activity</i>	<i>Type of equipment</i>	<i>Unit cost (new)</i>
Freezing/Chilling	Chiller	\$25,000
	Blast Freezer (20,000 lbs/day)	\$50,000
	Freezer/cold storage	\$45,000
	Freezer van - used (cold storage)	\$3,000
	Truck & rack to hold fish	\$1,000
	Glazing bin (dip-spray)	\$12,000
	Gel machine with bag sealer 3	\$2,700
	Gel ice freezer	\$5,000
Canning	Retort with controls	\$21,000
	Retort boiler (used)	\$5,000
	Can seamer	\$21,000
	Cart dolly	\$110
	Hoist system	\$1,000
Meat cutting	Knife - 6" 2	\$15
	Knife - 12" 2	\$31
	Knife Scabbard	\$11
	Racks for holding utensils	\$25
	Band saw	\$5,000
	Saw blade	\$8
	Meat slicer	\$2,453
	Bench scale	\$970
	Spice scale	\$185
	Meat hand saw	\$60
	Hand saw blade	\$2
	Meat lugger (tub)	\$7
	Dolly-6 lug capacity	\$300
	Dolly - 2 lug capacity	\$215
	Bone scrapers	\$6
	Block scrapers	\$4
	Ham pump (multi-needle injector)	\$1,200
Meat grinding/stuffing	Grinder	\$6,500
	1/8 inch plate (C1-32)	\$43
	3/16 inch plate (C1-32)	\$43
	1/4 inch plate (C1-32)	\$43
	Knife N1-32	\$12
	Mixer 100#	\$6,500
	Piston stuffer with table	\$12,000
	Stuffing horn	\$115
	Replacement part kit	\$500
	Freezer paper dispenser	\$40
	Spice scoop - 6 oz	\$4
	Spice scoop - 12 oz	\$5
	Spice scoop - 64 oz	\$3
	Stainless steel zip tier	\$120
	Dial thermometer+C150	\$13

This table continues on the next page.

Approximate Costs for Selected Fish Processing Equipment

<i>Activity</i>	<i>Type of equipment</i>	<i>Unit cost (new)</i>
Packaging	Scale - bench (300 lb)	\$1,000
	Scale stand	\$500
	Strapping machine	\$8,500
	Max pac clipper	\$575
	Box Stapler	\$195
	Vacuum packer - double	\$22,000
Waste disposal	Grinder	\$10,000
	Offal transport system to grinder	\$3,000
Office/Break room	Desk	\$400
	Table - office	\$100
	Chair	\$75
	FAX	\$250
	Computer	\$2,000
	Copier	\$500
	Printer	\$350
	Phone	\$200
	Filing Cabinet	\$200
	Book/Storage Shelf	\$200
	Coffee Pot - office	\$50
	Bench	\$100
	Tables - break room	\$100
	Industrial Coffee Pot	\$200
	Microwave	\$150
	Toaster	\$50
	Oven	\$1,000
	Stove	\$1,000
	Refrigerator/Freezer	\$1,500
	Dishware (sets of 4)	\$25
	Flatware (sets of 4)	\$15
	Plastic garbage cans 1	\$15

Utilities

A fish plant uses a lot of water and a lot of electricity. It makes a lot of fish waste which has to be disposed of in ways that are strictly regulated. If the power goes off and you can't process fish or keep them cold, you can lose a lot of fish and a lot of money. If the waste disposal system isn't working, inspectors can shut the plant down.

Utilities are critical to your fish plant operation and a big part of costs. It is important to think carefully about utilities in planning your fish plant buildings and equipment.

You can get electricity from your local utility or generate it for yourself. Usually it is cheaper and simpler to buy power from a utility. If you generate your own power you take on an extra set of headaches associated with running and maintaining a generator—and a big risk if the generator stops working.

If you buy power from the local utility, make sure that you get the right kind of power. Power may be single phase, V-phase, or three-phase. While single-phase power is adequate for most houses, three-phase power is usually used to operate power machinery, because it delivers power more efficiently. If three-phase power is available, it's almost certainly the best way to power your plant, because it will lower your electric bills. If your local utility doesn't generate three-phase power or you can't get it to your plant, your next best option may be to convert single-phase power into three-phase power. You need special equipment to do this and it increases the cost of the power, because some of the power is used up in conversion.

It is important to think carefully about how you will dispose of fish waste. Your options may include grinding it and dumping it in a river or bay near the plant, or grinding it and barging it to be dumped farther away. You will need a fish dumping permit to dump it in the water. You won't be allowed to dump it near the plant unless there is a strong current.



Planning Step: Utilities

Estimate the electricity requirements for your plant.

Describe how you will get your electricity and what it will cost.

Estimate the water requirements for your plant.

Describe how you will get your water and what it will cost.

Estimate the waste disposal requirements for your plant.

Describe how you will dispose of wastes and what your waste disposal will cost.



Will the electricity that you get match the power needs of your equipment?

Can you get the electricity, water and waste disposal you need at prices you can afford?

Can you get the permits you will need for water and waste disposal?

CHAPTER 7. PLANT WORKERS

A fish plant needs workers to process the fish. As you plan your plant, you should think carefully about how many workers you will need and where you will find them. Finding workers for a village fish plant can be difficult. Even though it's hard to find jobs in most villages, not everyone wants to work in a fish plant.

Fish plant workers have to be willing to work whenever fish are delivered, until all the fish are processed. If there are a lot of fish, the workers may have to work overtime and on holidays, bingo nights or other special days when most people would rather not be working.

You need to keep your costs low enough, so you won't necessarily be able to pay your workers high wages. Probably you won't be able to pay much more than other fish plants pay.



If there are other job opportunities in your villages during the fishing season, people may prefer those jobs. The people with the most skills are also the most likely to have a chance to get other jobs. Even if people don't have other jobs they may prefer to go fishing or hunting rather than work in a fish plant.



If you can't find enough workers in your village, you may need to hire some people from outside the village to work in the plant. You may need to pay their travel costs to get to your village, and you will have to find places for them to live and eat while they are working in the plant. This adds to your costs and means more work for the plant manager.

People may quit in the middle of the season. If that happens, you need to be able to get new workers.



Quinahagak Fish Plant processing workers, July 2000




Quinahagak
resident John
Henry packing
fish



Checking
salmon roe

Planning Your Worker Needs

To plan for how many workers you will need, think about all the work that will need to be done in the plant before, during, and after the season. Think about the different kinds of jobs or positions for which you will need workers and the kinds of skills workers will need for each position. Based on when you will be processing fish and how much you expect to process, think about how many workers you will need for each type of position and when you will need them. Finally, use all of this information to estimate how many hours, days, or months of work you will need to pay for.

	Planning Step: Number of Workers			
List the different types of positions for which the plant will need workers.				
Describe what kinds of work and skills each position requires.				
For each type of position, describe how many workers you will need and when you will need them. For each week the plant will be operating, estimate how many workers you will need and how many hours they will be working.				
How many workers will you need for each type of position when the plant is working at full capacity?				
Estimate the total number of worker hours, days or months you will need for each type of position.				

After you have thought about how many workers you will need and the kinds of skills you will need, think about where you will find your workers. Based on what you know about the people in your village and their skills and interests, estimate how many of your workers will be from your village and how many workers you will need to bring from outside your village.



Planning Step: Finding Workers

How will you recruit workers from the village to work in the plant?

Can you get enough workers from your village to do all the jobs in your fish plant?

If you can't get enough workers from your village, how many workers will you need to bring in from outside the village? Where and how will you find them?

Where will workers who come from outside the village live? Where will they eat?



Are there people in your village who can do the work needed for your fish plant?

If you need to bring in workers from outside the village, is there a place for them to live in the village while they are working in your fish plant?

Estimating Your Labor Costs

After you have thought about how many workers you will need and where you will find them, you can begin to estimate what they will cost. Think about what wage rate you will need to pay to get good workers. You should consider what other fish plants are paying for workers, and what people are paid for other jobs in your village.

You will have other labor costs beside wages. Some of the most important are employer contributions to Social Security (including Medicaid), federal unemployment insurance contributions, and workers compensation insurance. Together these may add about 25% over and above your direct wage costs. If you bring in workers from outside the village, you may also need to pay for their travel, housing, and food.

For getting started in your planning and your financial analysis, you may wish to use estimates of average labor cost per pound for different products, rather than estimating all the details of your labor costs. People with experience in operating fish plants can estimate what labor costs per pound are likely to be for different kinds of products in different kinds of plants.

This table shows some estimates of average labor costs per pound for different chum salmon products that different processors from around Alaska told us they had actually experienced. The table shows the averages of a wide range of costs. For example, the range of costs for producing headed and gutted fresh salmon ranged from as low as 14 cents per finished pound to as high as 22 cents per finished pound.


Potential Labor Costs for Processing Chum Salmon

Product	Labor cost per pound of finished product
H & G and box (fresh)	\$0.18
Fillet-pin bone in-skin on-freeze-box	\$0.35
Fillet-pin bone out-skin on-vac-freeze-box	\$0.45
Fillet-pin bone out-skin off-vac-freeze-box	\$0.50
Fillet-smoke-pin bone in-skin on-fr.-box	\$0.40
Fillet-smoke-pin bone out-skin on-fr.-box	\$0.50
Can or jar-smoke-pin bone in-skin on	\$1.30
Ikura (not including technician costs)	\$0.25

The estimates are for plants in different parts of Alaska and for different years. Most of these plants were larger than most village processing plants are likely to be. For all these reasons, you should be very careful using these labor costs—or other estimates of average labor costs—in estimating the labor costs for your own plant.

Remember that labor costs may vary widely from plant to plant and from year to year. Labor costs depend on many factors, including what kinds of equipment you have, how efficient and skilled the workers are, what they are paid per hour, how much fish they are processing, and how much you have to pay them for “down time” when they are waiting for fish to work with or for equipment to be started up or fixed.

Over the season, and sometimes on the same day, workers may process different kinds of products. Sometimes workers do work other than processing fish, such as building or equipment maintenance. So even when your own plant starts operating, it may be difficult to figure out exactly what your processing labor costs are for each product.

 Planning Step: Labor Costs				
List the different types of positions for which the plant will need workers.				
For each type of position, what wage rate do you expect to pay?				
For each type of position, what other costs, such as unemployment insurance, will you have to pay?				
Estimate the total number of worker hours, days or months you will need for each type of position (<i>see the "Number of Workers" planning step</i>).				
Estimate your total worker costs.				
If you will need to bring in workers from outside the village, what will you need to pay for their travel, housing and food?				
List the products your plant will produce.				
Estimate your labor cost per pound for each type of product.				

Training

Fish processing work needs to be done carefully, so your products are good quality and can sell for a good price. Each worker needs to be trained—which costs time and money. You need to plan for how new workers will be trained and allow time for training at the beginning of the season. When the plant is first getting started, you may wish to send some of your processing workers to training courses, such as those offered by the University of Alaska’s Marine Advisory Program or Indian Valley Meats.



Planning Step: Training

What kinds of training will plant workers need?

Where, when and by whom will workers be trained?

What will the training cost?

Specialists with the University of Alaska’s Marine Advisory Program offer training on many different technical aspects of operating fish processing plants. They can also help answer many technical questions you may face in planning your fish plant. For more information, call the Marine Advisory Program office in Anchorage at 907-274-9691, or send an e-mail message to at aymap@uaa.alaska.edu.

Indian Valley Meats, a successful fish and game processing company near Anchorage, offers fish processor training courses for people from Alaska villages. To learn more about their training courses, call Doug Drum at 907-653-7511.



There's a lot to learn in operating a fish plant.

Here are some of the topics taught in the fish processor training courses offered by the University of Alaska Marine Advisory Program.

Seafood production	Quality assessment and control	HAACP
Plant design	Economic impacts of quality	Hazards
Plant set-up	QC systems: Deming's principles,	Prerequisite programs
Product flow	Total quality management, and ISO 9000	Hazard analysis
Traffic flow	Causes of quality loss	Control measures
Employee flow	Preservation methods	Verification
Information flow	Quality evaluation: sensory and chemical	Record keeping
Scheduling	Fish parasites: roundworms,	HACCP regulations
	tapeworms and protozoans	Critical control points
Fish handling	Shelf life extension methods: chemical,	Critical limits
Heading	heat treatments, enzymes, bacteria, & chemical	Monitoring
Gutting	Ozone research	Corrective Actions
Filleting	Chlorine dioxide research	GMPs
Pinbone removal	Packaging technology: MAP and CAP	Establishing an SSOP
	Packaging technology: vacuum,	FDA Hazards Guide
Secondary processing	films, labeling	Seafood Hazards
Brining		Where to go for Help
Dry salting	Better process control	HAACP plans: fresh/frozen finfish
Mincing	Botulism	HAACP plans: Cooked RTE crustaceans
Extruding	Microbiology	HAACP plans: Smoked fish
Pickling	Food container handling	Sanitation monitoring
	Principles of thermal processing	
Canning	Process room instrumentation	Food plant sanitation
Closing	Process room equipment and operation	Safety of water
Seam inspection	Still retorts: pressure processing in steam & water	Food contact surfaces
Retorting	Acidified foods	Cross contamination
	Records for product protection	Hand washing facilities
Packaging and shipping	Food plant sanitation	Adulteration
Vacuum packaging	Closures: metal & glass containers	Toxic compounds
Shipping	Retesting	Employee health
	Measuring pH	Pest control
Fish smoking	Water activity and chlorine	SSOP plans and records
History	Can seams	
Plant layout		Regulatory requirements
Equipment	Low temperature storage	FDA, EPA, DEC
Salt and salting	Terminology	Inspections
Additives	Refrigeration cycle	
Drying	Refrigeration components	Business management
Hot smoking process	Chill storage	Business plans
Cold smoking process	Partial freezing	Plant records
Product cooling	Freezing	
Smoke	Temperature measurement	Seafood marketing
Post producing handling	Ice machines	Quality considerations
Packaging	Storage in ice, CSW & RSW	Permits, licenses and reports
Shelf life	Frozen seafood storage	Bonds
Quality tests	Frozen seafood thawing	Taxes

There's a lot to learn in operating a fish plant.

Here are some of the topics taught in the fish processor training courses offered by Indian Valley Meats:

Heading	Knife sharpening
Hand filleting	Filleting machine use and maintenance
Steaking	Skinning machine use and maintenance
Salting fillets	Sizing machine use and maintenance
Freshening salted fillets	Pin bone machine use and maintenance
Brining	Tumbler use and maintenance
Pickling and wine sauces	Tumbler seasonings
Seasoning and cures	Vessel sanitation
Making salmon jerky	Water supply chlorinating and testing
Smoke producers	Ultraviolet water purifiers
Kippering (hot smoking) regulations	Sanitation (hand, foaming with air, steam cleaning, sanitizers)
Lox (cold smoking) regulations	
Strip (cold smoke) regulations and certifications	Boiler-maintenance, setup, and demonstration
Tote icing	Can teardown
Tote rotation and marking	Retort operation and record keeping
Glazing	Product receiving procedures
Sharp freezing	Calculating recovery rates
Boxing for shipping	Safeguards on equipment
Vacuum packing	First aid

Village fish processors training at Indian Valley Meats. The people in this training session were from Quinhagak, Anvik, Kotzebue and Ouzinkie. Doug Drum, the owner of Indian Valley Meats, is in the center of the top left picture.



CHAPTER 8. PLANT OPERATIONS

In planning a fish plant, in addition to planning for buildings, equipment, and workers, you need to think about many other details of your processing operations. This chapter discusses some of these details, including regulations and permits, processing yields, supplies, and transporting your products to market.

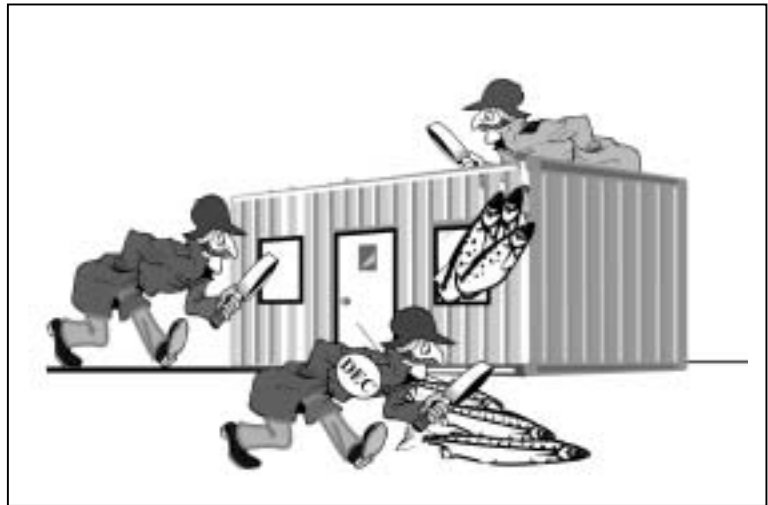
Regulations and Permits

Fish processing is part of the food business, and the food business is highly regulated. There is a good reason for this. Fish products that are not processed safely can make people sick or even kill them. If that happens, it can harm not only the person that got sick and the plant that processed the fish, but the entire Alaska seafood industry.

To operate your fish plant, you will need to comply with many different regulations and obtain permits from many different agencies. Some of the regulations may seem unnecessary and arbitrary. But you still have to comply with them. If you don't, your fish plant can be shut down.

Start thinking about regulations and permits as soon as you begin planning your plant. Otherwise you run the risk that you will not be able to get a permit, and you may have to make expensive alterations to your plant before you are allowed to operate.

The Alaska Department of Environmental Conservation (DEC) has the most detailed regulations affecting fish processing plants. As soon as you begin planning your plant, you should learn more about the requirements for getting a DEC seafood-processing permit. At the back of this handbook are copies of the form and instructions for applying for a DEC permit. You can obtain more details from the DEC Web site at:



www.state.ak.us/local/akpages/ENV.CONSERV/foodhome.htm.

Here is some of what you will need to do to get a DEC seafood processing permit:

- Submit profile and floor drawing plans for your plant.
- Submit plumbing plans for the plant which show that you meet state requirements for plumbing facilities
- Provide water samples

- Submit waste disposal plans which meet state and federal laws

DEC may also require that you obtain other permits, such as a Wastewater Disposal Permit or a Solid Waste Management Permit.

Other permits you will need each year include:

- An Alaska Business License
- A Certification of Measuring/Weighing Devices from the Alaska Division of Measurement Standards. The scales you use to weigh fish are checked every year by the division.
- A Fisheries Business Tax bond for the Alaska Department of Revenue, for an amount double your estimated fisheries business taxes.
- A Processor Surety Bond to cover employee wages and payments to fishermen. If you process more than 30,000 pounds per year, you need to post a bond for \$10,000.

If you receive any federal funding for your plant, the Fish and Wildlife Service may need to certify that your plant won't harm any threatened or endangered species.

You will need to meet federal processing requirements called the Hazard Analysis and Critical Control Points (HAACP) system. Federal and state regulations require each Alaska processor to have a plan which federal Food and Drug Administration (FDA) and state Department of Environmental Conservation (DEC) inspectors can review at any time. This plan must identify the "critical control points" where a food safety hazard could occur, and which specifies how safety hazards will be prevented.





A fish processing plant needs a lot of different permits every year. This is the Department of Environmental Conservation (DEC) permit obtained by the Yukon Delta Fish Marketing Coop in Emmonak in 1999.

STATE OF ALASKA
Department of Environmental Conservation
Division of Environmental Health
PERMIT TO OPERATE

This permit is granted to:
YUKON DELTA FISH MKT. COOP., INC.
YUKON DELTA, ALASKA
1770 S.W. MARSH STREET
SHELLEIGH, AK 99581

Doing business as:
YUKON DELTA FISH MKT. COOP., INC.
a large seafood processing facility, as required
by AS 11.25 AND 12 AND 13, SUBJECT TO IMPLANT INSPECTION

Addressed to:
Emmonak, Alaska

This permit is:
Annual
and may be renewed at any time

Expiry date:
December 31, 1999

May 3, 1999
DATE ISSUED

22-245
PERMIT NUMBER

Wm. J. Lewis
Director, Environmental Conservation

Michael J. Gentry
Division Permit Administrator

This permit is not transferable and is the property of the Department of Environmental Conservation.



A health inspection report for a village fish processing plant. Inspectors check for many details. In observation #2, the inspector wrote: “Observed the firms processing water (from a city source). Was checked 3 times in different areas in the processing building and observed no residual chlorine.” The inspector was concerned because regulations require that processing water be chlorinated.

Address to: Compliance Officer, Seward

DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
LOCAL AND STATE HEALTH DIVISION

DISTRICT ADDRESS AND PHONE NUMBER
22201 25th Dr. SE
Bellevue, WA 98001
(425) 486-3788

NAME OF INDIVIDUAL TO WHOM REPORT MADE
[Redacted]

DATE OF INSPECTION
7/04/99

TITLE OF INDIVIDUAL
[Redacted]

TYPE OF ESTABLISHMENT INSPECTED
Salmon Freshwater Processing

NAME OF FIRM, BRANCH OR UNIT INSPECTED
Same

ADDRESS ADDRESS
[Redacted]

STREET ADDRESS OF PREMISES INSPECTED
Same

CITY AND STATE ZIP CODE
Same

EXAMINER'S DESCRIPTION OF YOUR FINDINGS (MANDATORY)

1. Observed a basket of King Salmon on sitting on the processing room deck which had blood, viscera, and other filth in flowing water. Also observed all raw baskets in the egg room stacked on the floor.
2. Observed the firm's processing water (from a city source) was checked 3 times in different areas in the processing building and observed no residual chlorine. Checked in the afternoon when water usage



Regulations can shut down your business.

Even though it was already a successful business, Dainty Island Seafoods faced a major new hurdle in the early 1990s when new health regulations banned commercial sale of traditional strips, as described in this 1993 newspaper article:

“A cold-smoke processing plant that cures fish the Native way is the target of state health codes regulating the time and temperature at which fish may be preserved. Sidney Huntington, an Athabascan Indian and veteran member of the state Board of Game, said he was seeking a way around rules that bar the sale of smoked salmon known as “squaw candy” that is dried and smoked for weeks. New guidelines enforced by the Department of Environmental Conservation require fish sold commercially to be smoked in 24 hours or less.

Manny Soares, a state seafood program development manager, said traditional cold-smoking never produces temperatures hot enough to kill bacteria. He said bacteria found in cold-smoked fish include listeria, which can be lethal to the elderly and children. Huntington encountered a problem in February when the state refused to renew his processing permit. Officials called for upgrades and adherence to the processing standards. . . “I think the common sense factor is what we need to get to people like that,” he said.

After improvements that he says cost thousands of dollars, Huntington was granted a limited permit in August too late to take advantage of summer sales of smoked salmon. Huntington may sell only to a cannery which does further processing that destroys any remaining bacteria, Soares said. Huntington may not sell to stores or retail customers.

Huntington's process, his own invention, injects smoke into the fish and uses an oil furnace. He says he consulted a doctor, who Huntington claimed has opposed cold-smoke processing, and asked for an inspection. No bacteria was found, Huntington said. “We wanted it done to prove the Native fish was safe food to eat,” he said.

Soares said the new guidelines affect few smoke-dried processors since most have switched to techniques that meet the standards and produce a similar product. Regulations do not cover cold-smoke processed fish that is for home consumption.

“There are bootleggers out there,” said Patsy Perkins, a state environmental health officer in Fairbanks. Smokehouses caught selling their wares at stores or fairs will be advised they must have permits, Perkins said.”

(From an Associated Press article reprinted in the *Anchorage Daily News*, 1993).



Planning Step: Regulations and Permits

Prepare a checklist of all the regulations your fish plant will need to meet and how you plan to meet each regulation.

Prepare a checklist of all the permits your plant will need to obtain each year and what is involved in obtaining them.



These are the land-based processors in western Alaska listed as approved by DEC to produce fresh, frozen, salted or formulated seafood products at a land-based facility, or which had submitted applications, as of March 2001. (Processors from Bristol Bay, the Alaska Peninsula, the Aleutians, the Pribilof Islands, and Fairbanks are not shown.)

<i>Plant</i>	<i>Location</i>
Arctic Circle Fish	Circle
Arctic Salmon, Inc. - Bethel Facility	Bethel
Bering Sea Fisheries, Inc.	Emmonak
Coastal Villages - Chefnak Halibut Plant	Chefnak
Coastal Villages - Mekoryuk Halibut Plant	Mekoryuk
Coastal Villages - Quinhagak Salmon Plant	Quinhagak
Coastal Villages - Toksook Bay Halibut Plant	Toksook Bay
Coastal Villages - Tununak Halibut Plant	Tununak
Kaltag Fish Processing Plant	Kaltag
Maserculig Fish Processors	Marshall
Norton Sound Seafood Products - Nome Facility	Nome
Norton Sound Seafood Products - Savoonga Facility	Savoonga
Norton Sound Seafood Products - Unalakleet Facility	Unalakleet
Yukon Delta Barge	Emmonak
Yukon Delta Products	Emmonak

Processing Yields

As you plan your production, you need to estimate the processing yields you will obtain, or the finished product weight as a percentage of the round pound weight of fish you buy. Processing yields are an important factor in your costs. The lower your yields, the higher your fish costs for any product volume.

The table below shows average Alaska salmon processing yields for selected products in a study conducted by the University of Alaska Marine Advisory Program. You can get a copy from the Marine Advisory Program by calling 907-274-9691. These yields can give you a general idea how your final product weight might compare with the round weight of fish you buy. But remember that yields can vary widely from plant to plant, and will depend on the skill of your workers, the kinds of machines you use, and the size and quality of fish you are working with.



Typical Alaska salmon processing yields reported in Chuck Crapo, Brian Paust, and Jerry Babbitt, *Recoveries and Yields from Pacific Fish and Shellfish*, University of Alaska Marine Advisory Bulletin #37 (1993).

Average Alaska Salmon Processing Yields

Product	Species			
	Sockeye	King	Coho	Chum
H&G	74%	72%	75%	74%
Fillet - bone in, skin on	53%	55%	57%	60%
Fillet - boneless, skin off	35%	36%	38%	38%
Fillet - boneless, skin on (est.)				50%
Smoke - bone in fillet, skin on	33%	34%	36%	35%
Smoke - boneless, skin on (est.)				35%
Can or jar (bone in)	67%		67%	67%
Roe	4%	6%	7%	8%

These are average salmon processing yields reported in Marine Advisory Bulletin No. 37, University of Alaska Fairbanks



As you estimate your processing yields, remember that not all fish are good quality. Part of this fillet can't be used—which will lower the plant's yield and increase its costs.



Supplies

Every year your fish plant will need to buy a wide variety of supplies. The table shown below lists some of the supplies you may need to buy and their approximate costs (not including freight).

Example of Supply Costs for a Hypothetical Village Processing Plant

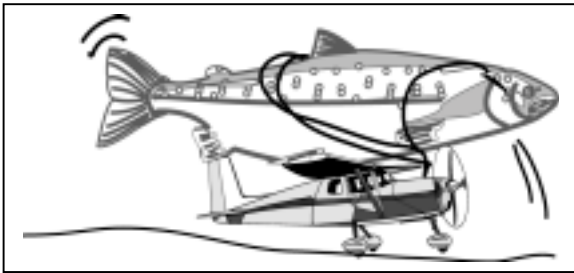
<i>Type of Supply</i>	<i>Item</i>	<i>Unit price</i>	<i>Quantity</i>	<i>Total Cost</i>
Unloading/holding supplies	Slush-ice bags	\$100.00	100	\$10,000
General processing supplies	Aprons	\$10.00	60	\$600
	Raingear	\$60.00	5	\$300
	Hats/Hair restraints	\$15.00	90	\$1,350
Cleanup supplies	Totes/tubs for sanitizers	\$56.00	3	\$168
	Hoses/nozzles	\$35.00	3	\$105
	Scouring pads	\$13.00	8	\$104
	Brushes	\$11.00	6	\$66
	Brooms	\$72.00	3	\$216
	Scrubbing pads/squeegees	\$9.00	12	\$108
	Detergents (5 gal pail)	\$0.00	10	\$0
	Sanitizers (6 gal case)	\$0.00	3	\$0
	Mop heads	\$4.00	12	\$48
	Mop handles	\$11.00	2	\$22
	Squeegee handles	\$9.00	3	\$27
	Mop bucket	\$60.00	1	\$60
	Garbage cans	\$12.00	4	\$48
Safety equipment	Hard hats	\$6.00	6	\$36
	Ear plugs (per box of 100)	\$21.00	20	\$420
	First aid kit	\$50.00	1	\$50
	Net meat cutting gloves	\$0.60	72	\$43
	Fish cutting gloves	\$13.00	24	\$312
	Support belts	\$15.00	10	\$150
Preservation supplies	Brine salts	\$11.00	50	\$550
Packaging supplies	Boxes - ("mini" 50 Lb)	\$3.05	11,500	\$35,075
	Boxes - (Export 50 Lb)	\$2.60	450	\$1,170
	Box liner - 50 Lb (110/Roll)	\$58.00	105	\$6,090
	Soaker pads (1000/case)	\$310.00	12	\$3,720
	Fish sleeves (1500/pack)	\$52.00	40	\$2,080
	Vacuum bags (500/case)	\$130.00	400	\$52,000
	5 gal. Bucket/lid (eggs)	\$8.00	1,500	\$12,000
	Strapping (9000'/coil)	\$75.00	10	\$750
	Box staples (2000/box)	\$12.00	90	\$1,080
	Gel crystals (40 lb box)	\$165.00	3	\$495
	Gel ice bags (24 oz) - 2000	\$85.00	7	\$595
	Labels (per 1000)	\$100.00	14	\$1,400
	Tape machine 2	\$25.00	3	\$75
	Tape	\$3.00	72	\$216
	Butcher twine 2	\$9.00	15	\$135
	Box markers	\$0.00	1	\$0
	9/16" clips (boxes)	\$14.00	30	\$420
	Freezer paper - 18"	\$36.00	12	\$432
	Steak paper - 10"	\$4.25	12	\$51
TOTAL				\$132,567

To give you a rough sense of how much of different supplies your plant might need, the table shows rough estimates of the supply needs for a hypothetical plant processing 1,000,000 pounds of chum salmon into fresh H&G, frozen boneless fillets, and smoked boneless fillets. Your own supply needs will depend on how much of each product you make.

The prices in the table were provided by vendors or were taken from supply catalogs. Although they can give you a general idea of prices, you should check with suppliers in estimating your own prices. Remember that an important part of the cost of supplies is the freight cost for getting them to your village. The freight costs will vary, depending on where you are and what kind of transportation you can use.

Transportation

Transportation is one of the biggest challenges facing village fish processing plants. It costs more—sometimes much more—to ship fish products to U.S. or foreign markets from most western and interior Alaska villages than it does from processing plants on the coast of southeast or southcentral Alaska. It also costs more to bring in supplies.

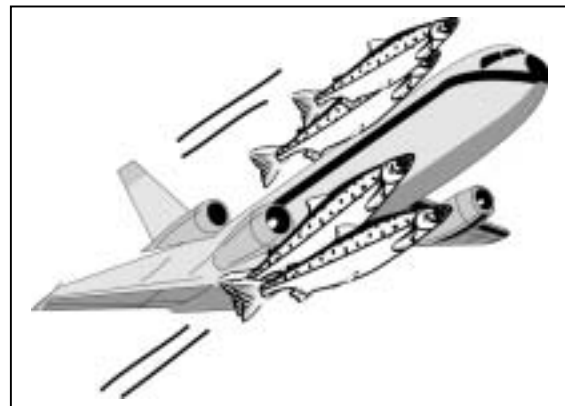


It's important to think realistically about what your transportation costs will be and what you can do to keep them as low as possible. Higher transportation costs can make it difficult for village fish plants to compete with plants in other parts of Alaska. If you sell your products for the same prices as your competitors, but you

have higher costs, then you can't make as much money.

If you need to ship your products by air, your transportation costs will depend on what length runway your village has, what kind of planes can land on it, and how far they need to fly to get to a larger airport with jet service. If you have to fly product a long way in small planes, it may be more difficult to operate a fish plant successfully in your village than in other villages.

You also need to think about whether you can get reliable transportation so you can get your products to your customers when they are expecting them. This is especially important if you are selling fresh products which can go down in value—or even have to be thrown away—if they don't get to your customers in time. If bad weather, mechanical problems with planes, or not having enough planes make it impossible for you to ship your fresh fish, this can cause you very serious problems.





Boxes of fresh halibut ready to be trucked from the Mekoryuk Fish Plant to the Mekoryuk airstrip. Every step in handling fish—like this one—costs money.



Flying fish from Quinhagak

Getting fresh fish from Quinhagak to Bethel and then on to Anchorage is one of the biggest challenges for the Quinhagak fish plant. Until a new airport with a longer runway is completed, the biggest load that can be flown out of Quinhagak is a little more than 5,000 pounds. During the 2000 season, flying the fish from a 50,000 pound fishery opening sometimes took more than 12 flights per day—so that the plant needed every aircraft available to get the fish out. Another problem during the 2000 season was the lack of a cool storage space in Bethel. Sometimes fish stored in Bethel during the day while waiting for evening flights to Anchorage were too warm for fresh sales by the time they reached Anchorage. For the 2001 season Coastal Villages Seafoods, LLC has placed a refrigerated van at the Bethel airport to hold product.



Complications in flying fresh fish. These two pictures show two of the planes used to fly fresh fish from Quinhagak to Bethel during the 2000 salmon season. The plane in the top picture is a Twin Otter and the plane in the bottom picture is a Caravan. The Twin Otter is a scheduled mail passenger plane which flies every day. Regularly scheduled flights charge a fixed price per pound and are usually the least expensive. But the plant can't predict how much the plane will be able to carry, because mail and passengers have priority. The Caravan was chartered by the plant and can carry a bigger load. But unless the plane flies with its full payload of 3300 lbs transportation costs per pound can get very high.





Planning Step: Transportation

List the products your plant will produce				
Where will you need to transport each product before you sell it?				
How will you transport each product to where you sell it?				
What will be the transportation cost per pound?				
What kinds of risks might you face that could delay transportation of your product to market or add extra transportation costs?				



Can you ship your products to market at a reasonable cost?

If you are selling fresh fish, can you get reliable transportation to get your products to market quickly?

Expediting

If you operate a fish processing business in a village, you will frequently need to do business with people in the city, usually in Anchorage or Seattle. You may need to purchase parts for equipment that has broken down, or supplies such as boxes, bags or bolts. You may need to deal with shipping problems in getting your products on the right plane to the right place. You may need to arrange for permits or paperwork.

It can be difficult, frustrating, and expensive to do this kind of business at a distance over the phone. In planning your plant, you should think about having someone in the city who can help you with big or little problems when you need help. It will probably be too expensive for you to hire a full-time employee, unless that person can combine helping you with doing another job, perhaps working for other organizations based in your village or your area. You may instead want to contract with someone to help you out on an as-needed basis.



Expediting is essential.

A former manager of a Yukon River village fish processing plant described the importance of the expediting assistance provided by the Community Economic Development Corporation as follows: “You can't start a fish plant without expediting support. To run a fish business you have to have backup managerial help and backup parts, you have to have these things or you can lose your ass in one weekend. I could call them at 10:00 Friday night and tell them I need a carburetor by 10:00 tomorrow morning or we can't get our fish to the airport.”



Planning Step: Expediting

How will you arrange for help you may need outside your village?

Overhead Costs

In addition to the direct costs of processing fish, your plant will have other costs that need to be paid every year but are not directly tied to how much fish you process. These are called overhead costs. Here are some of the costs that you need to plan for:

- **Loan payments.** If you take out a loan, you will need to make payments on the loan every year.
- **Rent payments.** If you rent any land or buildings, you will need to make rent payments.
- **Salaries.** You will need to pay salaries for your manager and any other administrative workers such as secretaries. Although some of these people may work only part of the year, the manager will need to work for several months before and after the season, finishing up with business for the season and making plans for the next season.
- **Building maintenance.** Every year you will need to do at least minor maintenance and sometimes major maintenance. As a rough rule of thumb, you should plan on spending at least 2% of the value of the building on maintenance each year.
- **Equipment maintenance.** Every year you will need to do maintenance on your machinery, including trucks, to fix problems caused by normal wear and tear. Sometimes you will need to do major maintenance on equipment that breaks down.
- **Insurance.** You will need insurance for your buildings and equipment. As a rough rule of thumb, this might cost 1% of the total value of your buildings and equipment. You will also need liability insurance and insurance for any commercial vehicles the plant owns. Under state regulations, you will also need a Fisheries Business Tax Bond and a Fish Processors Bond.
- **Telephone and Utilities.** You will have to pay telephone bills and for regular utilities, over and above the water and electricity used in your processing operations.
- **Professional Services.** You will probably need help each year from an accountant. You may also need to hire lawyers or consultants. These services will probably cost you at least several thousand dollars per year.
- **Travel.** Your manager and sometimes other plant employees will need to travel to places like Anchorage and Seattle to purchase equipment and supplies, make transportation arrangements, meet with consultants and sales representatives and potential customers, and attend trade shows and other meetings. You need to include costs of plane tickets and hotels for this travel in your overhead costs.



Planning Step: Overhead Costs

Estimate the annual overhead costs in operating your plant. Describe each type of cost and what your estimate is based on.

CHAPTER 9. PLANT OWNERSHIP, FINANCING, AND MANAGEMENT

Business Structure and Ownership

An important step in planning your fish plant is deciding who will own the plant and how the business will be structured. These decisions affect how much money there is to build and equip the plant, who makes management decisions, how hard it is to get loans for the plant, who is responsible for debts, and who gets to share in the profits.

There are many options for the business structure of a fish plant. Some of the options include corporations, cooperatives, and private family businesses. Usually the owners of a fish plant will be the organizations or people who have invested money in it.

The Board of Directors can play an important role in the success of your fish plant. Even though the Board of Directors doesn't usually get involved in day-to-day operations, the directors make the most important decisions, such as hiring the manager and other key people and approving major decisions. A good Board of Directors takes an active interest in the plant and learns enough about the fish processing business to make good decisions. Try to get the best people you can for your Board of Directors.



Planning Step: Ownership

What type of business will the plant be?

Who will own the plant?

How will the Board of Directors be chosen? What kind of expertise will the Board of Directors have in operating a fish plant?

Financing

You will need financing to build your plant. This funding may come from equity investments by the plant owners, grants, loans, or profits that you reinvest. The more funding you raise, the bigger the plant you can build and the more equipment you can purchase—but the more money you may owe and the more people who may have a say in your business.

How much money should you borrow?

Smaller loan

Less debt
Greater independence

But

Less money for buildings,
equipment and start-up



Bigger loan

More money for buildings,
equipment and start-up

but

More debt
Less independence



Planning Step: Financing

Where will the money come from to build your plant, to buy equipment, and to begin operations? How much money will come from equity investments? Who will the investors be?

How much money will come from grants? Who will provide the grants? What are the conditions the plant must meet in order to receive these grants?

How much money will come from loans? Who will provide the loans? What is the schedule for repaying the loans?

Fish Plant Manager

A critical part of any business is having a good manager. For your fish plant to succeed, you need to have a good manager running it.



The manager has to think about everything that needs to be done to make the plant a success—and make sure that it gets done. Sometimes he may have to do it himself.

Your manager needs to be good with people: at hiring people who can do the work, teaching them how to do it, and getting them to do the work well. Your manager needs to be good with equipment— from boat engines to ice-making machines to vacuum sealers. He or she needs to know how to use equipment, how to maintain it, and how to fix it when it breaks, or how to find someone who can fix it. Your manager needs to be good at keeping track of how much money is being spent and

how much money is coming in, and not spending too much money. Your manager has to know what supplies are needed and order them in time.

During the season, being a fish plant manager is a full-time job, seven days a week, twenty-four hours a day. The manager has to be ready to deal with problems at any time— equipment breakdowns, power failures, injured workers.

For your plant to succeed, the manager will have to make tough decisions. If markets aren't good, the manager may have to decide to pay fishermen lower prices than they want. The manager may have to decide not to buy fish from fishermen that aren't handling their fish carefully enough. The manager may have to fire workers who aren't doing their jobs.

Getting a good manager is particularly important the first season, since you will be doing everything for the first time and that's when the most problems are likely to occur.



Usually it takes experience in the fish business to manage a successful fish processing plant. If there isn't someone in your village who can manage your fish plant, you will need to find someone who can come to the village to manage the plant during the season.



Sidney Huntington



One of the major factors in the success of Dainty Island Seafoods was that the owner and operator—Sidney Huntington--was talented, energetic, resourceful, highly respected both locally and statewide, and willing to work long hours to face up to regulatory challenges and to meet the demands of his growing market. This picture was taken in 1993.



A manager has to know about more than just processing fish.

Operating a fish processing plant is more than just processing fish. A manager of a Yukon River fish plant recalled an incident shortly after his arrival: “Wetlocks sitting in the sun can spontaneously combust--the heat builds up --and they torched off. I said ‘grab the fire extinguisher!’ and they all looked at me and said ‘what are they?’ They were stacked right next to the plant. No one had had fire drills and there wasn't anything in the fire extinguishers anyway. They hadn't been recharged.”



Fish plants are people-dependent.

A former village fish plant operator commented: “All these operations are people dependent. It’s one or two people that can bring them up, and one or two people can bring them to disaster if they walk off. “



Fish Plant Manager Job Description

The 1996 Unalakleet Fish Processing Plant proposal included this job description for the plant manager:

Obtains all necessary federal and state permits for processing seafood for either the fresh or frozen markets

Prepares plans and budgets as it relates to the purchasing and the processing of herring, salmon and crab in the Norton Sound area.

Prepares Quality Control Guidelines for the processing of herring, salmon and crab for the Plant Foreman and seafood processors.

Prepares equipment maintenance schedules for plant foreman to insure that all equipment will operate properly during the entire fishing season.

Directs preparation and distribution of all employee and fisherman payroll and benefits.

Works closely with Marketing manager to insure top dollar is received on the sales of herring, salmon and crab.

Prepare all Federal and State reports that are required at the end of each fishing season. Prepares Annual Operations profit/loss reports for the NEDC Board, and recommended changes for the next year's operations.

Is responsible for the entire operations of the Unalakleet Fish Processing Plant.



Planning step: Manager

Who will manage the plant during its first season? Does this person have the necessary experience and training for starting up a fish plant?

If you don't have someone in mind yet to manage the plant, how will you find a manager?

A Different Option: Leasing Your Fish Plant

What if you want a fish plant in your village to provide markets for fishermen and jobs in the community, but you don't have the expertise to run a fish plant, or don't want to take on the responsibility or the risks? One option is to build a fish plant, but lease it out to another company to operate the fish plant and make all these decisions.

If you lease out your plant you will have less responsibility and less financial risk. If you lease your plant to a company with experience in processing and marketing fish, it may be able to operate more successfully than if you tried to operate it yourself. However, you will have less control over decisions, such as who gets hired and what fishermen get paid, and you won't receive as much of any profits.

Operate your plant yourself or lease it out?

Operate it yourself

More control
More money if the plant is profitable

but

More responsibility
More financial risk
Harder to take unpopular decisions



Lease it out

Less responsibility
Less financial risk
Easier for the operators to take unpopular decisions which may be needed for the success of the operation

but

Less control
Less money if the plant is profitable



Different management choices

During the 1980s, small halibut processing plants were built in Toksook Bay, Tununak, and Mekoryuk to provide opportunities for local fishermen to harvest halibut and have a place to sell their catch. Each was managed in a different way. The City of Toksook Bay leased its plant to an individual who operated it for his own profit. The Tununak Elders Traditional Council operated their plant as their only business operation. The Mekoryuk plant was operated by Bering Sea Reindeer Products, Inc., which was a subsidiary of the Native Village of Mekoryuk. Now all three plants are operated by Coastal Villages Seafoods, Inc., a subsidiary of the Coastal Villages Region Fund CDQ group.

CHAPTER 10. FINANCIAL ANALYSIS

After you have planned how much fish you will buy, what products you will make, what kind of facilities and equipment and labor you need, how you will market your products, and how you will finance your plant, you are ready to do a financial analysis of your fish plant. To do a financial analysis, you add up all your costs and all your sales revenues, and see how they compare.

To do a financial analysis, you need to use your best judgment. Until you actually build your plant, you can'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 actually buy, or what you have to pay fishermen to be competitive, or how much you can earn from selling the products you make. So for planning purposes you make your best guesses, or assumptions, about what your costs and revenues will be. Doing a financial analysis means systematically laying out assumptions about your plant's costs and revenues.

Financial Analysis Form

The table on the next page shows a blank "financial analysis form" which you can use to do a financial analysis for your fish plant. You don't have to use this particular form. There are many other ways to show a financial analysis. But they all involve the same kinds of calculations—they just show them in different ways. We designed this financial analysis form to fit all the assumptions and calculations on one page, and to show the calculations as simply as possible.

Our financial analysis form simplifies many of the steps of financial planning. For example, it only asks you to provide an estimate of the labor cost per pound in processing fish. Before someone would give you a grant or a loan to help build a fish plant, you would probably have to do a more detailed financial analysis showing how many workers you would actually hire and the total amount you expect to pay for their wages and their unemployment insurance each month. But our financial analysis form is a good starting point for comparing your likely costs and sales revenues and seeing whether your plant is likely to be profitable.

The page after the blank form explains how to fill out the financial analysis form. All the blank spaces without shading are for assumptions, which you provide. If you have worked through the planning steps in this handbook, then you have already prepared these assumptions. All the shaded spaces in the form are for calculations based on your assumptions.

<p>It is much easier to do a financial analysis if you use a computer spreadsheet. If you would like a spreadsheet copy of our financial analysis form, with the formulas for the calculations already filled in, we can e-mail it to you. To request a copy, send a message to Gunnar.Knapp@uaa.alaska.edu.</p>

Financial Analysis Form for a Village Fish Processing Plant

OVERHEAD COSTS	1	Loan payments	
	2	Fixed labor costs	
	3	Building maintenance	
	4	Equipment maintenance	
	5	Insurance	
	6	Professional services	
	7	Other fixed costs	
	8	Total overhead costs	

The blank spaces in the form are for assumptions which you provide. The shaded spaces are for calculations based on the assumptions.

FISH COSTS	9	Species	
	10	Round pounds purchased	
	11	Price paid to fishermen per pound	
	12	Tendering and ice cost per pound	
	13	Combined fish taxes rate	
	14	Payments to fishermen	
	15	Tendering and ice costs	
	16	Fish taxes	
	17	Total fish cost	

PROCESSING AND SELLING COSTS	18	Products					
	19	Round pounds processed					
	20	Product yield					
	21	Direct labor cost per pound					
	22	Utilities, packaging & supplies cost/lb					
	23	Cold storage cost per pound					
	24	Freight cost per pound					
	25	Sales commission (%)					
	26	Production (finished pounds)					
	27	Direct labor cost					
	28	Utilities, packaging & supplies cost					
	29	Cold storage cost					
	30	Freight cost					
	31	Sales commission cost					
	32	Total processing and selling costs					
SALES REVENUES	33	Sales price per pound					
	34	Sales revenues					

TOTAL COSTS, REVENUES, AND PROFIT	35	Total overhead costs	
	36	Total fish cost	
	37	Total processing and selling costs	
	38	Total costs	
	39	Total sales revenues	
	40	Profit or loss	

COSTS, REVENUES, AND PROFIT PER ROUND POUND	41	Products				
	42	Overhead cost per round lb				
	43	Fish cost per round lb				
	44	Processing & selling cost per round lb				
	45	Roe profit per round lb				
	46	Total cost per round lb				
	47	Sales price per round lb				
	48	Profit per round lb including overhead				
	49	Profit per round lb excluding overhead				

How to Fill Out the Financial Analysis Form for a Village Fish Processing Plant

OVERHEAD COSTS	1	Loan payments		Write in your best estimates of these fixed costs.
	2	Fixed labor costs		
	3	Building maintenance		
	4	Equipment maintenance		
	5	Insurance		
	6	Professional services		
	7	Other fixed costs		
	8	Total overhead costs		Add up Lines 1-7

FISH COSTS	9	Species		Write in the species you will purchase. Use as many columns as necessary.
	10	Round pounds purchased		Write in your best estimates for each species
	11	Price paid to fishermen per pound		
	12	Tendering and ice cost per pound		
	13	Combined fish taxes rate		Write in the total tax rate (usually 3.3%)
	14	Payments to fishermen		Multiply Line 10 x Line 11
	15	Tendering and ice costs		Multiply Line 10 x Line 12
	16	Fish taxes		Multiply Line 13 x Line 14
	17	Total fish cost		Add up Lines 14-16

PROCESSING AND SELLING COSTS	18	Products		Write in the products you will make. Use as many columns as necessary.
	19	Round pounds processed		Write in the round pounds you expect to process into each product. The total for each species should equal Line 10. Leave this row blank for roe products.
	20	Product yield		
	21	Direct labor cost per pound		Write in your best estimates for each product
	22	Utilities, packaging & supplies cost/lb		
	23	Cold storage cost per pound		
	24	Freight cost per pound		
	25	Sales commission (%)		
	26	Production (finished pounds)		Multiply Line 19 x Line 20. For roe products, multiply Line 10 by Line 20.
	27	Direct labor cost		Multiply Line 21 x Line 26
	28	Utilities, packaging & supplies cost		Multiply Line 22 x Line 26
	29	Cold storage cost		Multiply Line 23 x Line 26
	30	Freight cost		Multiply Line 24 x Line 26
	31	Sales commission cost		Multiply Line 25 x Line 34
	32	Total processing and selling costs		Add up Lines 27-31
SALES REVENUES	33	Sales price per pound		Write in your best estimates for each product
	34	Sales revenues		Line 26 x Line 33

TOTAL COSTS, REVENUES, AND PROFIT	35	Total overhead costs		Same as Line 8
	36	Total fish cost		Same as Line 17
	37	Total processing and selling costs		Same as Line 32
	38	Total costs		Add up Lines 35-37
	39	Total sales revenues		Same as Line 34
	40	Profit or loss		Subtract Line 38 from Line 39

COSTS, REVENUES, AND PROFIT PER ROUND POUND	41	Products		Write in the products you will make, but don't include roe products. Use as many columns as necessary.
	42	Overhead cost per round lb		Divide Line 8 by Line 10
	43	Fish cost per round lb		Divide Line 17 by Line 10
	44	Processing & selling cost per round lb		Divide Line 32 by Line 10
	45	Roe profit per round lb		For the roe column for this species, subtract Line 32 from Line 34. Divide the result by Line 10.
	46	Total cost per round lb		Line 42 + Line 43 + Line 44 - Line 45
	47	Sales price per round lb		Same as Line 33
	48	Profit per round lb including overhead		Subtract Line 46 from Line 47
	49	Profit per round lb excluding overhead		Subtract line 42 from Line 48

An Example of Financial Analysis for a Village Fish Plant

To explain how to do a financial analysis, we will work through an example for a hypothetical village fish processing plant, which we call the “Salmon Island Fish Plant.” **You can do the same kind of financial analysis for a fish plant in your own village—but you will have to use different assumptions! The assumptions that would be right for your fish plant may be very different from those we use for our example.**

The “Salmon Island” Fish Plant

For our example of how to do a financial analysis, we will use a hypothetical value-added fish processing plant in the imaginary village of "Salmon Island." The Salmon Island Fish Plant plans to buy 1,000,000 pounds of chum salmon per year and process it into fresh headed and gutted salmon, frozen vacuum packed fillets (pin-bone-out, skin-on), frozen vacuum-packed smoked fillets, and chum salmon ikura. Other parts of this handbook show estimates of equipment and supplies costs and other production assumptions for this fish plant.

Remember that a plant in your village might be similar to the "Salmon Island" plant, or it might be very different. You can do your financial analysis in the same way as our example. But you will have to use different assumptions that make sense for your plant.

Scenarios

The results of any financial analysis depend on the assumptions you make. Some assumptions are very important, but they depend on factors that are difficult to predict, such as the run size and market conditions. So it's a good idea to rely on not just one financial analysis but instead do several different financial analyses to see how your financial results might vary in different circumstances with different assumptions. Each different analysis is called a "scenario."

For our financial analysis of the Salmon Island Fish Plant, we do analyses for five different scenarios. Scenario #1 is a financial analysis for our "most likely" assumptions.

The financial analysis form provides a way of comparing your costs and revenues over a given time period. The most common time period is a year. When you do a financial analysis for your fish plant, you should specify what time period it is for. You may want to do different financial analyses for different years of operation of your plant, if you expect that the plant will be changing—for example, processing more fish or producing different products.

Financial Analysis for "Salmon Island Fish Plant"

Scenario #1: "Most likely" assumptions

OVERHEAD COSTS	1	Loan payments	
	2	Fixed labor costs	\$65,000
	3	Building maintenance	\$16,000
	4	Equipment maintenance	\$6,000
	5	Insurance	\$22,000
	6	Professional services	\$5,000
	7	Other fixed costs	\$40,250
	8	Total overhead costs	\$154,250

FISH COSTS	9	Species	<i>Chum salmon</i>
	10	Round pounds purchased	1,000,000
	11	Price paid to fishermen per pound	\$0.12
	12	Tendering and ice cost per pound	\$0.17
	13	Combined fish taxes rate	3.3%
	14	Payments to fishermen	\$120,000
	15	Tendering and ice costs	\$170,000
	16	Fish taxes	\$3,960
	17	Total fish cost	\$293,960

PROCESSING AND SELLING COSTS	18	Products	<i>H&G</i>	<i>Frozen fillets</i>	<i>Smoked fillets</i>	<i>Ikura</i>	TOTAL
	19	Round pounds processed	300,000	600,000	100,000		1,000,000
	20	Product yield	74%	50%	35.0%	5%	
	21	Direct labor cost per pound	\$0.18	\$0.45	\$0.50	\$1.00	
	22	Utilities, packaging & supplies cost/lb	\$0.21	\$0.40	\$0.43	\$0.68	
	23	Cold storage cost per pound	\$0.00	\$0.06	\$0.06	\$0.00	
	24	Freight cost per pound	\$0.22	\$0.22	\$0.22	\$0.22	
	25	Sales comission (%)					
	26	Production (finished pounds)	222,000	300,000	35,000	50,000	607,000
	27	Direct labor cost	\$39,960	\$135,000	\$17,500	\$50,000	\$242,460
	28	Utilities, packaging & supplies cost	\$46,620	\$120,000	\$15,050	\$34,000	\$215,670
	29	Cold storage cost	\$0	\$18,000	\$2,100	\$0	\$20,100
	30	Freight cost	\$48,840	\$66,000	\$7,700	\$11,000	\$133,540
	31	Sales commission cost	\$0	\$0	\$0	\$0	\$0
	32	Total processing and selling costs	\$135,420	\$339,000	\$42,350	\$95,000	\$611,770
SALES REVENUES	33	Sales price per pound	\$0.90	\$1.75	\$4.00	\$7.00	
	34	Sales revenues	\$199,800	\$525,000	\$140,000	\$350,000	\$1,214,800

TOTAL COSTS, REVENUES, AND PROFIT	35	Total overhead costs	\$154,250
	36	Total fish cost	293,960
	37	Total processing and selling costs	\$611,770
	38	Total costs	\$1,059,980
	39	Total sales revenues	\$1,214,800
	40	Profit or loss	\$154,820

COSTS, REVENUES, AND PROFIT PER ROUND POUND	41	Products	<i>H&G</i>	<i>Frozen fillets</i>	<i>Smoked fillets</i>	<i>Average</i>
	42	Overhead cost per round lb	\$0.15	\$0.15	\$0.15	\$0.15
	43	Fish cost per round lb	\$0.29	\$0.29	\$0.29	\$0.29
	44	Processing & selling cost per round lb	\$0.45	\$0.57	\$0.42	\$0.52
	45	Roe profit per round lb	\$0.26	\$0.26	\$0.26	\$0.26
	46	Total cost per round lb	\$0.64	\$0.76	\$0.62	\$0.71
	47	Sales price per round lb	\$0.67	\$0.88	\$1.40	\$0.86
	48	Profit per round lb including overhead	\$0.02	\$0.12	\$0.78	\$0.15
	49	Profit per round lb excluding overhead	\$0.18	\$0.27	\$0.94	\$0.31

Overhead Costs

In the first part of the financial analysis form (Lines 1-8) you calculate your "overhead costs." These are costs that you will need to pay to operate the plant, regardless of how much fish you end up buying or processing. Overhead costs may also be referred to as "fixed costs" or "indirect costs."

Overhead costs can be a big part of the total costs for a small fish plant. Overhead costs make it important to think carefully about how much fish you will be able to buy and process. The less fish you process, the higher your overhead costs per pound will be. Overhead costs can make it difficult for a small fish plant to compete with big companies, which can spread their overhead costs over large volumes of fish.

Loan payments (Line 1) to repay loans for your building or equipment or season start-up costs can be a big part of overhead costs. However, in our first scenario the Salmon Island Fish Plant doesn't have any loan payments to make (perhaps because a grant paid for the plant and equipment).

"Indirect labor cost" (Line 2) includes the cost of the plant manager and other administrative and maintenance personnel not directly associated with fish processing operations. The Salmon Island Fish Plant has indirect labor costs of \$65,000 (most of which is for the manager's salary and a part-time secretary).

Write in your other overhead costs in Lines 3 through 7. See the chapter in this handbook on "Plant Operations" for more information on these other kinds of overhead costs.

Add up your total overhead costs in Line 8. In Scenario #1, the Salmon Island Fish Plant has total overhead costs of \$154,250.

Fish Costs

In the second part of the financial analysis form (Lines 15-23) you calculate your "fish costs." These are all the costs involved in buying fish and getting them to the plant. Your fish costs will depend mostly on how much fish you buy and the prices you pay.

In Line 9, write in the names of the fish species you will buy. If you buy more than one species, you will need to add more columns to your "Fish Costs" section of the form, including a "Total" column to add up your fish costs for different species.

In Line 10, write in the total pounds of fish you plan to purchase. You multiply the volume of fish by the price per pound you will pay fishermen (Line 11) to calculate the total payments to fishermen (Line 14). You multiply the volume of fish by the cost per pound of tendering and icing (Line 12) to get total tendering and icing costs (Line 15). You multiply payments to fishermen (Line 14) by the combined fish taxes rate (Line 13) to calculate your fish taxes. Calculate your total fish costs by adding up lines 14 through

16. In Scenario #1, the Salmon Island Fish Plant has total fish costs of \$293,960, including \$120,000 for payments to fishermen and \$170,000 for tendering and icing.

Processing and Selling Costs

In the third part of the financial analysis form (Lines 18-32) you calculate your "processing and sales costs." These are all the costs of processing and selling fish.

In Line 18, write the names of the fish products you will produce. You will need a column for each product, as well as a "Total" column. This will allow you to compare the profitability of different products you produce and to see how changing your mix of products might affect your profits.

In Line 19, write in how many round (unprocessed) pounds of fish you plan to process into each product. The total round pounds you process for each species should add up to the "round pounds purchased" for each species shown in line 10. Don't write anything in the columns for your roe products (because your roe is from the same fish as your other products). In Scenario #1, the Salmon Island Fish Plant is processing 300,000 pounds of fish into fresh H&G salmon, 600,000 pounds into frozen fillets, and 100,000 pounds into smoked fillets.

Write the yields that you expect for each product in Line 20. Multiply Line 20 by Line 19 to calculate the final product weight (Line 26). For roe products, multiply Line 10 (total round pounds processed) by Line 20 to calculate the total product weight. In Scenario #1, the Salmon Island Fish Plant is processing 300,000 round pounds of fish with a 74% yield into 222,000 finished pounds of headed and gutted fish. It is processing ikura from 1,000,000 pounds of fish purchased with a 5% yield, for a total ikura production of 50,000 pounds.

Write the direct labor cost per finished pound for each product in Line 21. Multiply Line 21 by the product weight (Line 26) to calculate the direct labor cost for each product (Line 27). In Scenario #1, the Salmon Island Fish Plant has direct labor costs of \$242,460.

Write the combined utilities, packaging and supplies cost per finished pound for each product in Line 22. Multiply Line 22 by the product weight (Line 26) to calculate the combined utilities, packaging and supplies cost for each product (Line 28). In Scenario #1, the Salmon Island Fish Plant has direct utilities, packaging and supplies costs of \$215,670.

Write the cold storage cost per finished pound for each product in Line 23. Multiply Line 23 by the product weight (Line 26) to calculate the cold storage cost for each product (Line 29). In Scenario #1, the Salmon Island Fish Plant has cold storage costs of \$20,100. It only pays cold storage costs for frozen fillets and smoked fillets, because the fresh headed and gutted fish and the ikura are sold right away.

Write the freight cost per finished pound for each product in Line 24. Multiply Line 24 by the product weight (Line 26) to calculate the freight cost for each product (Line 30). In Scenario #1, the Salmon Island Fish Plant has the same freight cost of 22 cents per pound for each product, for a total freight cost of \$133,540.

Write the sales commission percentage for each product in Line 25. Multiply Line 25 by your sales revenues (Line 34) to calculate the sales commission cost for each product (Line 32). In Scenario #1, the Salmon Island Fish Plant is not paying any sales commissions. (The manager is handling all of the sales, so the costs of sales are included in "fixed" labor costs.)

Calculate your total processing and selling costs (Line 32) by adding up Lines 27 through 31. In Scenario #1, the Salmon Island Fish Plant has total processing and selling costs of \$611,770.

Sales Revenues

Write the sales price you expect for each product in Line 33. Multiply Line 33 by your finished product weight (Line 26) to calculate your sales revenues (Line 34). In Scenario #1, the Salmon Island Fish Plant has total sales revenues of \$1,214,800.

Total Costs, Revenues, and Profit

Now that you've written in all of your assumptions and calculated your different costs, you can compare your costs and revenues to see if your plant is profitable. In Lines 35 through 37, write in your total overhead costs (from Line 8), fish costs (from Line 17) and processing and selling costs (from Line 32). Add up these costs to calculate your total costs (Line 38). Write in your total sales revenues in Line 39. Your profit (Line 40) is your total sales revenues (Line 39) minus your total costs (Line 38). In Scenario #1, the Salmon Island Fish Plant is making a profit of \$154,820.

Costs, Revenues, and Profit per Round Pound

To compare how much profit you are earning from different products, it is useful to calculate your costs, revenues, and profit per round pound. This way you can find out whether you could earn more money by producing a different mix of products.

In Line 41, write in the names of the products you are producing. But don't include columns for your roe products. Because you produce roe when you produce your other products, you can think of the profits you earn from roe as adding to your profits for other products (or reducing your costs). Instead of a "total" column, include a column for calculating your "average" costs, revenues, and profit per round pound.

Calculate your overhead cost per round pound (Line 42) by dividing your total overhead costs (Line 8) by the total round pounds of fish you will purchase (Line 10). In Scenario #1, dividing the Salmon Island Fish Plant's total overhead costs of \$154,250 by

1,000,000 pounds of fish works out to an overhead cost of 15 cents per round pound. This overhead cost per round pound is the same for all of your products.

Calculate your fish cost per round pound (Line 43) by dividing your total fish costs (Line 17) by the total round pounds of fish you will purchase (Line 10). In Scenario #1, dividing the Salmon Island Fish Plant's total fish costs of \$293,960 by 1,000,000 pounds of fish works out to a fish cost of 29 cents per round pound. This fish cost per round pound is the same for all of your products.

Calculate your processing and selling cost per round pound (Line 44) by dividing your total processing and selling costs for each product (Line 32) by the total round pounds of fish you used to produce each product (Line 19). These processing and selling costs per round pound are different for each product. For example, in Scenario #1, the Salmon Island Fish Plant's processing and selling costs per round pound are 45 cents/lb for fresh headed and gutted fish, compared with 57 cents/lb for frozen fillets.

There are two reasons why processing and sales costs per round pound are different for each product. One reason is that the processing and selling costs per finished pound (Lines 21-25) are different for each product. The other reason is that the product yields (Line 20) are different for each product. In Scenario #1, even though the processing and selling costs per *finished* pound are much higher for smoked fillets than for fresh headed and gutted fish, the processing and selling costs per *round* pound are lower for smoked fillets (42 cents/lb) than for fresh headed and gutted fish (45 cents/lb). This is because the yield for smoked fillets (35%) is much lower than for fresh headed and gutted fish (74%).

Calculate your roe profit per round pound (Line 45) by subtracting your total roe processing and selling costs (Line 32) from your total roe sales revenues (Line 34), and dividing by the total round pounds of fish you will purchase (Line 10). In Scenario #1, subtracting total roe processing and selling costs of \$95,000 (Line 32) from total roe sales revenues of \$350,000 (Line 34) works out to total roe profits of \$255,000 (this number isn't shown on the form). Dividing total roe profits by 1,000,000 round pounds of fish works out to a roe profit of 26 cents per round pound. This roe profit per round pound is the same for all of your products.

Calculate your total cost per round pound (Line 46) by adding up your overhead cost, fish cost, and processing and selling costs per round pound (Lines 42 through 44) and subtracting your roe profit per round pound (line 45). You can think of the profits you earn from roe as reducing your costs in processing other fish. In Scenario #1, the Salmon Island Fish Plant's total costs per round pound are 64 cents/lb for fresh headed and gutted fish, 76 cents/lb for frozen fillets and 62 cents/lb for smoked fillets. All the difference between products is because of differences in processing and selling costs per round pound.

Calculate your sales price per round pound for each product (Line 47) by dividing your total sales revenue (Line 34) by the total round pounds of fish you used to produce each product (Line 19). Another way to calculate the sales price per round pound is to multiply

the sales price per finished pound (Line 33) by the product yield (Line 20). For example, in Scenario #1, the sales price per *finished* pound for smoked fillets is \$4.00/lb (Line 33). Multiplying this sales price by the product yield of 35% (Line 20) gives a sales price per *round* pound of \$1.40 per pound.

Finally, you can calculate your profit per round pound including overhead (Line 48) by subtracting your total cost per round pound (line 46) from your sales price per round pound (Line 47) for each product.

In Scenario #1, the Salmon Island Fish Plant's profit per round pound is 2 cents/lb for fresh headed and gutted fish, 12 cents/lb for frozen fillets and 78 cents/lb for smoked fillets. Smoked fillets are much more profitable per round pound than frozen fillets because they have a much higher sales price per round pound (\$1.40/lb compared with 88 cents/lb) but a lower total cost per round pound (62 cents/lb compared with 76 cents/lb). This shows that the Salmon Island Fish Plant could theoretically make more money by making more smoked fillets and less of other products, which are less profitable per round pound. (However, other factors such as smoking capacity may limit whether it is actually possible to switch to making more smoked fillets.)

Calculating your profits per round pound can help to show you which products would be most profitable for your plant to produce. Comparing profits per *round* pound (rather than per finished pound) is important because it takes account of differences in product yields. A product that is more profitable per finished pound won't necessarily earn you more money if it has a lower yield so you can't produce as much of it.

You can calculate your profit per round pound excluding overhead (Line 49) by subtracting your overhead cost per round pound (Line 42) from your profit per round pound including overhead (Line 48). Later in this chapter we will discuss why it is useful to calculate your profits per round pound excluding overhead.

Other Scenarios: Financial Analysis With Different Assumptions

After you have prepared a financial analysis based on your "most likely" assumptions about how much fish you will buy, what you will produce, and your costs and sales prices per pound, you should calculate other scenarios to see how your financial analysis is affected by changing your assumptions.

As an example of how to do this, the next four pages show four alternative scenarios for the Salmon Island Fish Plant that use different assumptions than our first scenario. After those pages is a summary table that compares the key assumptions and calculations for all five scenarios. In reading through this section, you should look at each alternative scenario as well as the summary table to see how the different calculations work out and why each scenario is different.

Financial Analysis for "Salmon Island Fish Plant"

Scenario #2: LOW RUN

OVERHEAD COSTS	1	Loan payments	
	2	Fixed labor costs	\$65,000
	3	Building maintenance	\$16,000
	4	Equipment maintenance	\$6,000
	5	Insurance	\$22,000
	6	Professional services	\$5,000
	7	Other fixed costs	\$40,250
	8	Total overhead costs	\$154,250

FISH COSTS	9	Species	<i>Chum salmon</i>
	10	Round pounds purchased	400,000
	11	Price paid to fishermen per pound	\$0.12
	12	Tendering and ice cost per pound	\$0.17
	13	Combined fish taxes rate	3.3%
	14	Payments to fishermen	\$48,000
	15	Tendering and ice costs	\$68,000
	16	Fish taxes	\$1,584
	17	Total fish cost	\$117,584

PROCESSING AND SELLING COSTS	18	Products	<i>H&G</i>	<i>Frozen fillets</i>	<i>Smoked fillets</i>	<i>Ikura</i>	TOTAL
	19	Round pounds processed	120,000	240,000	40,000		400,000
	20	Product yield	74%	50%	35.0%	5%	
	21	Direct labor cost per pound	\$0.18	\$0.45	\$0.50	\$1.00	
	22	Utilities, packaging & supplies cost/lb	\$0.21	\$0.40	\$0.43	\$0.68	
	23	Cold storage cost per pound	\$0.00	\$0.06	\$0.06	\$0.00	
	24	Freight cost per pound	\$0.22	\$0.22	\$0.22	\$0.22	
	25	Sales commission (%)					
	26	Production (finished pounds)	88,800	120,000	14,000	20,000	242,800
	27	Direct labor cost	\$15,984	\$54,000	\$7,000	\$20,000	\$96,984
	28	Utilities, packaging & supplies cost	\$18,648	\$48,000	\$6,020	\$13,600	\$86,268
	29	Cold storage cost	\$0	\$7,200	\$840	\$0	\$8,040
	30	Freight cost	\$19,536	\$26,400	\$3,080	\$4,400	\$53,416
	31	Sales commission cost	\$0	\$0	\$0	\$0	\$0
	32	Total processing and selling costs	\$54,168	\$135,600	\$16,940	\$38,000	\$244,708
SALES REVENUES	33	Sales price per pound	\$0.90	\$1.75	\$4.00	\$7.00	
	34	Sales revenues	\$79,920	\$210,000	\$56,000	\$140,000	\$485,920

TOTAL COSTS, REVENUES, AND PROFIT	35	Total overhead costs	\$154,250
	36	Total fish cost	117,584
	37	Total processing and selling costs	\$244,708
	38	Total costs	\$516,542
	39	Total sales revenues	\$485,920
	40	Profit or loss	-\$30,622

COSTS, REVENUES, AND PROFIT PER ROUND POUND	41	Products	<i>H&G</i>	<i>Frozen fillets</i>	<i>Smoked fillets</i>	<i>Average</i>
	42	Overhead cost per round lb	\$0.39	\$0.39	\$0.39	\$0.39
	43	Fish cost per round lb	\$0.29	\$0.29	\$0.29	\$0.29
	44	Processing & selling cost per round lb	\$0.45	\$0.57	\$0.42	\$0.52
	45	Roe profit per round lb	\$0.26	\$0.26	\$0.26	\$0.26
	46	Total cost per round lb	\$0.88	\$0.99	\$0.85	\$0.94
	47	Sales price per round lb	\$0.67	\$0.88	\$1.40	\$0.86
	48	Profit per round lb including overhead	-\$0.21	-\$0.11	\$0.55	-\$0.08
	49	Profit per round lb excluding overhead	\$0.18	\$0.27	\$0.94	\$0.31

Financial Analysis for "Salmon Island Fish Plant"

Scenario #3: LOW SALES PRICE

OVERHEAD COSTS	1	Loan payments	
	2	Fixed labor costs	\$65,000
	3	Building maintenance	\$16,000
	4	Equipment maintenance	\$6,000
	5	Insurance	\$22,000
	6	Professional services	\$5,000
	7	Other fixed costs	\$40,250
	8	Total overhead costs	\$154,250

FISH COSTS	9	Species	<i>Chum salmon</i>
	10	Round pounds purchased	1,000,000
	11	Price paid to fishermen per pound	\$0.12
	12	Tendering and ice cost per pound	\$0.17
	13	Combined fish taxes rate	3.3%
	14	Payments to fishermen	\$120,000
	15	Tendering and ice costs	\$170,000
	16	Fish taxes	\$3,960
	17	Total fish cost	\$293,960

PROCESSING AND SELLING COSTS	18	Products	<i>H&G</i>	<i>Frozen fillets</i>	<i>Smoked fillets</i>	<i>Ikura</i>
	19	Round pounds processed	300,000	600,000	100,000	
	20	Product yield	74%	50%	35.0%	5%
	21	Direct labor cost per pound	\$0.18	\$0.45	\$0.50	\$1.00
	22	Utilities, packaging & supplies cost/lb	\$0.21	\$0.40	\$0.43	\$0.68
	23	Cold storage cost per pound	\$0.00	\$0.06	\$0.06	\$0.00
	24	Freight cost per pound	\$0.22	\$0.22	\$0.22	\$0.22
	25	Sales commission (%)				
	26	Production (finished pounds)	222,000	300,000	35,000	50,000
	27	Direct labor cost	\$39,960	\$135,000	\$17,500	\$50,000
	28	Utilities, packaging & supplies cost	\$46,620	\$120,000	\$15,050	\$34,000
	29	Cold storage cost	\$0	\$18,000	\$2,100	\$0
	30	Freight cost	\$48,840	\$66,000	\$7,700	\$11,000
	31	Sales commission cost	\$0	\$0	\$0	\$0
	32	Total processing and selling costs	\$135,420	\$339,000	\$42,350	\$95,000
SALES REVENUES	33	Sales price per pound	\$0.72	\$1.40	\$3.20	\$5.60
	34	Sales revenues	\$159,840	\$420,000	\$112,000	\$280,000

TOTAL COSTS, REVENUES, AND PROFIT	35	Total overhead costs	\$154,250
	36	Total fish cost	293,960
	37	Total processing and selling costs	\$611,770
	38	Total costs	\$1,059,980
	39	Total sales revenues	\$971,840
	40	Profit or loss	-\$88,140

COSTS, REVENUES, AND PROFIT PER ROUND POUND	41	Products	<i>H&G</i>	<i>Frozen fillets</i>	<i>Smoked fillets</i>	<i>Average</i>
	42	Overhead cost per round lb	\$0.15	\$0.15	\$0.15	\$0.15
	43	Fish cost per round lb	\$0.29	\$0.29	\$0.29	\$0.29
	44	Processing & selling cost per round lb	\$0.45	\$0.57	\$0.42	\$0.52
	45	Roe profit per round lb	\$0.19	\$0.19	\$0.19	\$0.19
	46	Total cost per round lb	\$0.71	\$0.83	\$0.69	\$0.78
	47	Sales price per round lb	\$0.53	\$0.70	\$1.12	\$0.69
	48	Profit per round lb including overhead	-\$0.18	-\$0.13	\$0.43	-\$0.09
	49	Profit per round lb excluding overhead	-\$0.03	\$0.03	\$0.59	\$0.07

Financial Analysis for "Salmon Island Fish Plant"
Scenario #4: MORE VALUE ADDED PRODUCTION

OVERHEAD COSTS	1	Loan payments	
	2	Fixed labor costs	\$65,000
	3	Building maintenance	\$16,000
	4	Equipment maintenance	\$6,000
	5	Insurance	\$22,000
	6	Professional services	\$5,000
	7	Other fixed costs	\$40,250
	8	Total overhead costs	\$154,250

FISH COSTS	9	Species	<i>Chum salmon</i>
	10	Round pounds purchased	1,000,000
	11	Price paid to fishermen per pound	\$0.12
	12	Tendering and ice cost per pound	\$0.17
	13	Combined fish taxes rate	3.3%
	14	Payments to fishermen	\$120,000
	15	Tendering and ice costs	\$170,000
	16	Fish taxes	\$3,960
	17	Total fish cost	\$293,960

PROCESSING AND SELLING COSTS	18	Products	<i>H&G</i>	<i>Frozen fillets</i>	<i>Smoked fillets</i>	<i>Ikura</i>	TOTAL
	19	Round pounds processed	100,000	700,000	200,000		1,000,000
	20	Product yield	74%	50%	35.0%	5%	
	21	Direct labor cost per pound	\$0.18	\$0.45	\$0.50	\$1.00	
	22	Utilities, packaging & supplies cost/lb	\$0.21	\$0.40	\$0.43	\$0.68	
	23	Cold storage cost per pound	\$0.00	\$0.06	\$0.06	\$0.00	
	24	Freight cost per pound	\$0.22	\$0.22	\$0.22	\$0.22	
	25	Sales commission (%)					
	26	Production (finished pounds)	74,000	350,000	70,000	50,000	544,000
	27	Direct labor cost	\$13,320	\$157,500	\$35,000	\$50,000	\$255,820
	28	Utilities, packaging & supplies cost	\$15,540	\$140,000	\$30,100	\$34,000	\$219,640
	29	Cold storage cost	\$0	\$21,000	\$4,200	\$0	\$25,200
	30	Freight cost	\$16,280	\$77,000	\$15,400	\$11,000	\$119,680
	31	Sales commission cost	\$0	\$0	\$0	\$0	\$0
	32	Total processing and selling costs	\$45,140	\$395,500	\$84,700	\$95,000	\$620,340
SALES REVENUES	33	Sales price per pound	\$0.90	\$1.75	\$4.00	\$7.00	
	34	Sales revenues	\$66,600	\$612,500	\$280,000	\$350,000	\$1,309,100

TOTAL COSTS, REVENUES, AND PROFIT	35	Total overhead costs	\$154,250
	36	Total fish cost	293,960
	37	Total processing and selling costs	\$620,340
	38	Total costs	\$1,068,550
	39	Total sales revenues	\$1,309,100
	40	Profit or loss	\$240,550

COSTS, REVENUES, AND PROFIT PER ROUND POUND	41	Products	<i>H&G</i>	<i>Frozen fillets</i>	<i>Smoked fillets</i>	<i>Average</i>
	42	Overhead cost per round lb	\$0.15	\$0.15	\$0.15	\$0.15
	43	Fish cost per round lb	\$0.29	\$0.29	\$0.29	\$0.29
	44	Processing & selling cost per round lb	\$0.45	\$0.57	\$0.42	\$0.53
	45	Roe profit per round lb	\$0.26	\$0.26	\$0.26	\$0.26
	46	Total cost per round lb	\$0.64	\$0.76	\$0.62	\$0.72
	47	Sales price per round lb	\$0.67	\$0.88	\$1.40	\$0.96
	48	Profit per round lb including overhead	\$0.02	\$0.12	\$0.78	\$0.24
	49	Profit per round lb excluding overhead	\$0.18	\$0.27	\$0.94	\$0.39

Financial Analysis for "Salmon Island Fish Plant"

Scenario #5: **HIGH OVERHEAD**

OVERHEAD COSTS	1	Loan payments	\$200,000
	2	Fixed labor costs	\$65,000
	3	Building maintenance	\$16,000
	4	Equipment maintenance	\$6,000
	5	Insurance	\$22,000
	6	Professional services	\$5,000
	7	Other fixed costs	\$40,250
	8	Total overhead costs	\$354,250

FISH COSTS	9	Species	<i>Chum salmon</i>
	10	Round pounds purchased	1,000,000
	11	Price paid to fishermen per pound	\$0.12
	12	Tendering and ice cost per pound	\$0.17
	13	Combined fish taxes rate	3.3%
	14	Payments to fishermen	\$120,000
	15	Tendering and ice costs	\$170,000
	16	Fish taxes	\$3,960
	17	Total fish cost	\$293,960

PROCESSING AND SELLING COSTS	18	Products	<i>H&G</i>	<i>Frozen fillets</i>	<i>Smoked fillets</i>	<i>Ikura</i>	TOTAL
	19	Round pounds processed	300,000	600,000	100,000		1,000,000
	20	Product yield	74%	50%	35.0%	5%	
	21	Direct labor cost per pound	\$0.18	\$0.45	\$0.50	\$1.00	
	22	Utilities, packaging & supplies cost/lb	\$0.21	\$0.40	\$0.43	\$0.68	
	23	Cold storage cost per pound	\$0.00	\$0.06	\$0.06	\$0.00	
	24	Freight cost per pound	\$0.22	\$0.22	\$0.22	\$0.22	
	25	Sales commission (%)					
	26	Production (finished pounds)	222,000	300,000	35,000	50,000	607,000
	27	Direct labor cost	\$39,960	\$135,000	\$17,500	\$50,000	\$242,460
	28	Utilities, packaging & supplies cost	\$46,620	\$120,000	\$15,050	\$34,000	\$215,670
	29	Cold storage cost	\$0	\$18,000	\$2,100	\$0	\$20,100
	30	Freight cost	\$48,840	\$66,000	\$7,700	\$11,000	\$133,540
	31	Sales commission cost	\$0	\$0	\$0	\$0	\$0
	32	Total processing and selling costs	\$135,420	\$339,000	\$42,350	\$95,000	\$611,770
SALES REVENUES	33	Sales price per pound	\$0.90	\$1.75	\$4.00	\$7.00	
	34	Sales revenues	\$199,800	\$525,000	\$140,000	\$350,000	\$1,214,800

TOTAL COSTS, REVENUES, AND PROFIT	35	Total overhead costs	\$354,250
	36	Total fish cost	293,960
	37	Total processing and selling costs	\$611,770
	38	Total costs	\$1,259,980
	39	Total sales revenues	\$1,214,800
	40	Profit or loss	-\$45,180

COSTS, REVENUES, AND PROFIT PER ROUND POUND	41	Products	<i>H&G</i>	<i>Frozen fillets</i>	<i>Smoked fillets</i>	<i>Average</i>
	42	Overhead cost per round lb	\$0.35	\$0.35	\$0.35	\$0.35
	43	Fish cost per round lb	\$0.29	\$0.29	\$0.29	\$0.29
	44	Processing & selling cost per round lb	\$0.45	\$0.57	\$0.42	\$0.52
	45	Roe profit per round lb	\$0.26	\$0.26	\$0.26	\$0.26
	46	Total cost per round lb	\$0.84	\$0.96	\$0.82	\$0.91
	47	Sales price per round lb	\$0.67	\$0.88	\$1.40	\$0.86
	48	Profit per round lb including overhead	-\$0.18	-\$0.08	\$0.58	-\$0.05
	49	Profit per round lb excluding overhead	\$0.18	\$0.27	\$0.94	\$0.31

Effects of Changing Key Assumptions on Financial Analysis for "Salmon Island Fish Plant"

Scenario		1 "Most likely" assumptions	2 Low run	3 Low sales prices	4 More value added	5 High overhead
Key Assumptions	Total overhead costs	\$154,250	\$154,250	\$154,250	\$154,250	\$354,250
	Round pounds purchased	1,000,000	400,000	1,000,000	1,000,000	1,000,000
	Price paid to fishermen per lb	\$0.12	\$0.12	\$0.12	\$0.12	\$0.12
	Round pounds processed:					
	H&G	300,000	120,000	300,000	100,000	300,000
	Fillets PBO skin-on	600,000	240,000	600,000	700,000	600,000
	Smoked fillets PBO	100,000	40,000	100,000	200,000	100,000
	Sales price per pound					
	H&G	\$0.90	\$0.90	\$0.72	\$0.90	\$0.90
	Fillets PBO skin-on	\$1.75	\$1.75	\$1.40	\$1.75	\$1.75
Total costs, revenues, and profit	Smoked fillets PBO	\$4.00	\$4.00	\$3.20	\$4.00	\$4.00
	Chum ikura	\$7.00	\$7.00	\$5.60	\$7.00	\$7.00
	Total overhead costs	\$154,250	\$154,250	\$154,250	\$154,250	\$354,250
	Total fish cost	293,960	117,584	293,960	293,960	293,960
	Total processing & selling costs	\$611,770	\$244,708	\$611,770	\$620,340	\$611,770
	Total costs	\$1,059,980	\$516,542	\$1,059,980	\$1,068,550	\$1,259,980
Costs, revenues, and profits per round pound	Total sales revenues	\$1,214,800	\$485,920	\$971,840	\$1,309,100	\$1,214,800
	Profit or loss	\$154,820	-\$30,622	-\$88,140	\$240,550	-\$45,180
	H&G					
	Total cost per round lb	\$0.64	\$0.88	\$0.71	\$0.64	\$0.84
	Sales price per round lb	\$0.67	\$0.67	\$0.53	\$0.67	\$0.67
	Profit per round lb inc. overhead	\$0.02	-\$0.21	-\$0.18	\$0.02	-\$0.18
	FILLETS PBO SKIN-ON					
	Total cost per round lb	\$0.76	\$0.99	\$0.83	\$0.76	\$0.96
	Sales price per round lb	\$0.88	\$0.88	\$0.70	\$0.88	\$0.88
	Profit per round lb inc. overhead	\$0.12	-\$0.11	-\$0.13	\$0.12	-\$0.08
	SMOKED FILLETS PBO					
	Total cost per round lb	\$0.62	\$0.85	\$0.69	\$0.62	\$0.82
	Sales price per round lb	\$1.40	\$1.40	\$1.12	\$1.40	\$1.40
	Profit per round lb inc. overhead	\$0.78	\$0.55	\$0.43	\$0.78	\$0.58
	AVERAGE					
	Total cost per round lb	\$0.71	\$0.94	\$0.78	\$0.72	\$0.91
	Sales price per round lb	\$0.86	\$0.86	\$0.69	\$0.96	\$0.86
	Profit per round lb inc. overhead	\$0.15	-\$0.08	-\$0.09	\$0.24	-\$0.05

Scenario #2: Low Run

To see how a lower than expected run would affect the financial analysis for the Salmon Island Fish Plant, in Scenario #2 we reduced the total round pounds purchased (Line 10) to 400,000 pounds, compared with 1,000,000 pounds in Scenario 1. We assumed that the plant would continue to produce products in the same proportions (Line 19).

Buying less fish results in lower fish costs, lower processing and selling costs, and lower sales revenues. However, the overhead costs for the plant remain the same. As a result, in Scenario #2 the fish plant has a loss of \$30,662.

A different way to look at the effects of buying less fish is to look at costs, revenues and profits per round pound (Lines 42-49). The only thing that changes from Scenario #1 is the overhead costs per round pound, which increase from 15 cents/lb in Scenario #1 to 39 cents/lb in Scenario #2. Overhead costs per pound go up because the same total overhead costs are being spread over a smaller volume of fish.

With higher overhead costs per pound, the plant loses money on headed and gutted fresh fish (-21 cents per round pound) and frozen fillets (-11 cents per round pound, but it still makes money on smoked fillets (55 cents per round pound). On average it loses money (-8 cents per round pound).

Scenario #3: Low Sales Prices

To see how lower sales prices would affect the financial analysis for the Salmon Island Fish Plant, in Scenario #3 we reduced the sales price for each product (Line 33) by 20%. With lower sales prices, the plant earns less sales revenues, and instead of making a profit the plant has a loss of \$88,140.

All the costs per round pound are the same, but the roe profit per round pound is lower and the sales prices per round pound are lower. The plant loses money on headed and gutted fresh fish (-18 cents per round pound) and frozen fillets (-13 cents per round pound, but it still makes money on smoked fillets (43 cents per round pound). On average it loses money (-9 cent per round pound).

Scenario #4: More Value Added Production

To see how doing more value added production would affect the financial analysis for the Salmon Island Fish Plant, in Scenario #4 the plant produces less headed and gutted fresh fish and more frozen and smoked fillets (Line 19). Because these products are more profitable, the plant's profits increase to \$240,550.

The costs and the sales price per round pound are the same for each product. But because production shifts towards the more profitable products, the average profits per round pound are higher (24 cents/lb compared with 15 cents /lb in Scenario #1).

Scenario #5: High Overhead

To see how higher overhead costs would affect the financial analysis for the Salmon Island Fish Plant, in Scenario #5 we assumed that in addition to its other overhead costs the plant also has to make a loan payment of \$200,000 (Line 1). This increases total overhead costs to \$354,250 (Line 8).

Without the loan payment, the plant was making a profit of \$154,820 (Scenario #1). Having to pay a \$200,000 loan payment means that the plant instead has a loss of \$45,180.

Higher overhead costs for the same volume of fish cause the overhead costs to go up from 15 cents per round pound to 35 cents per round pound. The plant loses money on headed and gutted fresh fish (-18 cents per round pound) and frozen fillets (-8 cents per round pound), but it still makes money on smoked fillets (58 cents per round pound). On average it loses money (-05 cents per round pound).

Other Scenarios

The five scenarios we have looked at are only a few examples of the scenarios we could calculate for the Salmon Island Fish Plant. If your financial analysis is in a computer spreadsheet, you can quickly and easily see how your fish plant's profitability would be affected by many other kinds of changes in your assumptions. For example, you could see how profits are affected by changing your yield, costs, or price assumptions for just some products. You may also wish to see how changing several different assumptions at once affects your profits—for example, if you bought less fish but prices were higher.

Using Financial Analysis for Planning Your Fish Plant

Once you have prepared a financial analysis spreadsheet for your fish plant you can use it to help plan your plant and to make important decisions.

Understanding Your Plant's Finances

A financial analysis is a very useful tool in understanding your plant's finances and seeing how they are affected by different factors. Putting together all your assumptions about costs, sales prices, how much fish you will buy, and what you will produce can help you see things you might not have thought of. For example, it may show you that a particular product isn't profitable because your yields are too low, or transportation costs are too high. It may show you that making your plant bigger won't pay because it will add too much to your overhead costs—or that it will pay because it will allow you to install machinery that will reduce your labor costs. It may help you to spot areas where your costs are unusually high. You can use this kind of information to change your plans so your plant can be more profitable.

As you prepare your financial analysis, get other people to review it. They may spot mistakes you have made or think of things you have forgotten. They can provide a reality check for your assumptions about costs, yields, and sales prices.

Deciding Which Products to Produce

In addition to showing whether you can meet your financial objectives, your financial analysis can help you decide which products your plant should produce. Your calculations of profits per round pound (Line 48) can help show you which products are most profitable. For example, Scenario #4 showed that the Salmon Island Fish Plant could make more money by producing more value added products.

However, your plant won't necessarily be able to produce only the most profitable products. What you can produce may be limited by the availability of transportation, freezer capacity, equipment capacity, the number of workers you have, and many other factors. So you may have to produce some products that earn you less profit per round pound, but can be processed fast and can keep up with peak deliveries.

Your financial analysis may show that you are losing money on some products when you include overhead costs per pound. For example, in Scenario #2, the Salmon Island Fish Plant is losing 21 cents per round pound on fresh headed and gutted fish (Line 48).

However, even if you are losing money when you include overhead costs per pound, it may still make sense to produce that product if you don't have the option of producing other, more profitable products—as long as the product is profitable when you don't include overhead costs. That's because your overhead costs are fixed: you have to pay them regardless of what you produce. If you are going to operate the plant anyway, as long as you make more money from selling a product than the cost of buying the fish and processing and selling it, it makes sense to produce the product even if you don't earn enough to fully cover the overhead costs per pound.

For example, in Scenario #2, the Salmon Island Fish Plant would be making profits of 18 cents per round pound on fresh headed and gutted fish if overhead costs were not included (Line 49). If the plant is going to operate anyway, and if the plant doesn't have the option of switching to more profitable products, it still makes sense for it to continue to produce fresh headed and gutted fish. Even though the plant will lose money, it won't lose as much money.

Raising Financial Support

A very practical use of your financial analysis is that you can show it to people and organizations you are asking for loans or other financial assistance. Government and lending organizations will almost always want to see a financial analysis before they will be willing to give you grants or loans. They will want to see whether your financial analysis shows that your fish plant is likely to meet its financial objectives. They will also use the financial analysis as a measure of how careful you have been in your planning. If

you have done your financial analysis well, they are more likely to think your fish plant will be run well, and they will treat your request for financial assistance more seriously.

Deciding Whether or Not to Build and Operate Your Plant

The most important decision, of course, is whether or not you should build your plant and operate it. This depends on your financial objectives and what your financial analysis tells you about your ability to meet your financial objectives.

If you have thought carefully about your financial objectives (see the "Financial Objectives" planning step) then you have thought about whether your objective is to make a profit or to just break even, or whether you can afford to lose some money (although your fish plant probably won't be able to operate very long if it regularly loses money, even if you get help from other organizations such as a CDQ group or government agencies).

You should use your financial analysis to think carefully about whether or not you are likely to be able to meet your financial objectives. Is your fish plant likely to make profits, break even, or lose money? How much money are you likely to make or lose compared with your financial objectives?



As our different scenarios for the Salmon Island Fish Plant showed, how much money your fish plant is likely to make or lose will depend on factors that may be hard to predict, such as how much fish you can buy and your sales prices. Your financial analysis may show that your plant is neither a sure success nor a sure failure. Whether you can meet your financial objectives may depend on what happens to fish runs, fish prices, and other factors beyond your control.

In deciding whether or not to go ahead with the plant, you will need to balance how likely it is that you will or won't be able to meet your financial objectives against what kind of risk you are willing to take.

In deciding what kind of risk you should take, you also need to think about the potential consequences of not meeting your financial objectives. If you didn't make enough money, who would be hurt, and by how much? If you are building and operating the plant with your own money, then you probably want to be very careful about risking your money if the plant doesn't meet your financial objectives.



If someone else is giving you a grant or a loan to start the plant, then you may not care as much if the plant doesn't meet its financial objectives. But, whoever is providing the grant or loan may care a great deal. That is why lenders will probably want to see a careful financial analysis that demonstrates the plant is likely to be able to meet its financial objectives and that you will be able to pay back any loans they make for the plant.



Planning step: Financial Analysis

Prepare a financial analysis for your plant. You can use the financial analysis form from this handbook, or you can show your assumptions and calculations in another way. What is important is to write down your assumptions about your overhead costs, your fish costs, your processing and selling costs, and your sales prices, and to use those assumptions to estimate your total costs, revenues and profits. Be sure to include all the kinds of costs shown in the financial analysis form, and any other costs that may apply to your plant.

In addition to preparing a financial analysis based on your "most likely" assumptions, prepare other versions or scenarios showing how your costs, revenues and profits would be affected by using other assumptions. In particular, you should show how your plant's financial performance would be affected by lower production or by lower prices than you used for your "most likely" assumptions.

Under your "most likely" assumptions, will your plant make a profit, break even, or lose money? What is your "most likely" level of profits or losses?

How would low fish runs in your area affect your plant's financial performance?

How would your plant's financial performance be affected if the prices you receive for your products are lower than your "most likely" assumptions?

What other difficult-to-predict factors might affect your plant's financial performance? How would they affect it?

What are the biggest financial risks your plant faces?



Planning Step: Comparing Financial Analysis and Objectives

Compare the results of your financial analysis with your financial objectives. Is the plant likely to meet your financial objectives?

What circumstances might keep the plant from meeting your financial objectives? How likely or unlikely is it that those circumstances could occur?

If the plant doesn't meet your financial objectives, what will the consequences be? Who will be affected, and how will they be affected?



Have you done a careful financial analysis for your Fish Plant?

Are your assumptions about fish purchases, yields, costs, and selling prices realistic? Did you avoid wishful thinking?

Have you thought about how your plant's financial performance would be affected if fish harvests or prices are lower than you assumed?

Have you thought about how likely you are to meet your financial objectives?

Have you thought about the consequences if you don't meet your financial objectives?

More Detailed Financial Analysis

Our financial analysis form simplifies many of the steps of financial planning. It is a useful way to start financial planning for your Fish Plant. But to get a loan or grant to help build a Fish Plant, you will probably need to do a more formal financial analysis called a business plan. Here are some other financial estimates you may need to prepare for your business plan:

“Pro Forma” Income Projections. This shows your projected annual expenses, revenues, and profit or loss. It is similar to our financial analysis form except that it lists expenses and revenues by standard accounting categories (A "pro forma" financial statement is one that shows how the actual operations of a business will turn out if certain assumptions are realized.)

Pro-Forma Monthly Cash Flow Statement. This shows your monthly projected cash receipts, spending, and cash balances. For a seasonal business like a Fish Plant, often you have large expenses—such as buying supplies and starting up the plant—before you start getting income from selling your fish. A cash flow statement shows the timing of your projected income and expenses, including when you may need to borrow money and when you will pay it back.

Break-Even Analysis. This shows the sales price and volume levels at which all of your Fish Plant’s expenses would be met, including your overhead costs, fish costs, and processing and selling costs.

Capital Equipment List. This shows the facilities and equipment you have, or will need to buy, to begin operating your plant and what each item is worth or will cost.

Sources and Uses of Funds Estimate. This shows where you will get your funding to start the plant and what you will use it for.

Balance Sheet. This shows the assets, liabilities and net worth of your fish plant business. It provides a snapshot of the financial condition of the business at one point.

You will probably need to get help from an accountant or financial consultant in preparing these kinds of financial estimates. But if you have done the financial analysis described in this chapter, you will have already done much of the work for preparing these estimates.

APPENDICES

A. OTHER INFORMATION SOURCES

There are many organizations, publications and web-sites which can provide you with information and assistance in planning a fish processing plant. These include federal agencies such as the Economic Development Administration; state agencies such as the Alaska Department of Community and Economic Development; units of the University of Alaska such as the Marine Advisory Program; regional organizations such as CDQ groups, and private non-profit organizations such as Alaska Village Initiatives—to name just a few examples.

Below we list just a few organizations. Contacting these organizations can quickly lead you to many other sources of information.

University of Alaska Marine Advisory Program (MAP)

Specialists with the University of Alaska Marine Advisory Program have written many publications to assist Alaska seafood processors and fishermen. Some of the most useful publications for planning small processing plants include the following:

- *Planning Seafood Cold Storage*. Written by Edward Kolbe and Donald Kramer. Marine Advisory Bulletin No. 46 (Second Edition, 1997). This 50-page report describes basic steps in planning a cold storage facility for a seafood plant. It includes estimates of equipment needs and potential costs for five hypothetical cold storage facilities. The same authors are writing a similar report on *Planning Seafood Freezing Operations*.
- *Air Shipment of Fresh Fish: A Primer for Shippers and Cargo Handlers*. Written by Chuck Crapo and Brian Paust. Marine Advisory Bulletin No. 32 (Revised 1991).
- *Recoveries and Yields from Pacific Fish and Shellfish*. Written by Chuck Crapo, Brian Paust, and Jerry Babbitt. Marine Advisory Bulletin No. 37 (1993).
- *Care and Handling of Salmon: The Key to Quality*. Written by John Doyle. Marine Advisory Bulletin No. 45 (1995).

These and other Marine Advisory Program publications are available from:

Alaska Sea Grant College Program
University of Alaska Fairbanks
Fairbanks, Alaska 99775-5040
907-474-6707 (telephone)
907-474-6285 (fax)
<http://www.uaf.alaska.edu/seagrant/>

Alaska Seafood Marketing Institute (ASMI).

The Alaska Seafood Marketing Institute (ASMI) has a wealth of information and materials (including free videos) which can assist you in planning your marketing and in producing quality products. Much of this information is available on the ASMI website at www.alaskaseafood.org.

You can also contact ASMI at:

311 N. Franklin Street, Suite 200
Juneau, AK 99801-1147
(800) 478-2903
(907) 465-5560
Fax: (907) 465-5572
www.alaskaseafood.org

Alaska Department of Fish and Game (ADF&G)

The Alaska Department of Fish and Game has detailed data on commercial fisheries landings. Contact your area management biologist about the best way to obtain information for your area.

The Alaska Department of Fish and Game also compiles data from the Commercial Operators Annual Reports (COAR Reports) filed by processors each spring. You can use this data to get a sense of the average prices processors earned for different products in your area in past years. For more information about the COAR data contact:

Alaska Department of Fish and Game
Division of Commercial Fisheries
1255 W. 8th Street
Juneau, AK 99801
P.O. Box 25526
Juneau, AK 99802-5526
Phone (907) 465-4210
Fax (907) 465-2604
www.cf.adfg.state.ak.us/cf_home.htm

Alaska Village Initiatives

Alaska Village Initiatives is a non-profit, membership-based company which works to strengthen the well-being of rural Alaska communities by embracing their cultural values and strengthening their self-reliance through training, assistance, advocacy and economic development. It was formerly known as the Community Enterprise Development Corporation, and since its formation in 1968 it has assisted in the establishment of several village processing plants. For more information contact:

Alaska Village Initiatives
1577 C Street, Suite 304
Anchorage, AK 99501
1-800-478-2332.
e-mail: avi@ruralak.org

Alaska Division of Community and Business Development

The State's Division of Community and Business Development has a number of programs supporting economic development of Alaska's seafood industry. More information about the Division may be found at the web page of the Department of Community and Economic Development at www.dced.state.ak.us or by contacting:

Alaska Division of Business Development
P.O. Box 110809
Juneau, Alaska 99811-0809
907-465-2017

Economic Development Administration

The federal Economic Development Administration, which sponsored this handbook, supports a wide variety of economic development projects in rural Alaska. For more information, contact:

Economic Development Administration
550 West 7th Avenue, Suite 1700
Anchorage, AK 99501
(907) 271-2272 (telephone)
907-271-2273 (fax)

APPENDIX B. ALASKA DEC SEAFOOD PROCESSOR PERMIT APPLICATION FORM AND INSTRUCTIONS

Instructions for Alaska Department of Environmental Conservation Seafood Processor Permit Application Form

Note: these pages are part of a larger form that is used to apply at the same time for permits from the Alaska Department of Environmental Conservation, the Alaska Department of Fish and Game and the Alaska Department of Revenue
www.state.ak.us/dec/deh

Alaska Department of Environmental Conservation (ADEC) Contacts

Joe Donohue 907.269.7637

Fax 907.269.7510

Mike Ostasz 907.269.7638 Fax 907.269.7510

www.envircon.state.ak.us

Up to 60 days may be required to process the DEC Permit application. Therefore, we suggest that you submit your application at least 2 months before your anticipated startup.

Seafood Processor Information

Processing or preparing seafood for human consumption and commerce requires an ADEC seafood-processing permit. Live shipments of Shellfish (molluscan bivalves) and Snails also require a permit due to the hazard of marine toxins. A complete application (pages 1, 2, 5, 7, & 8) must be submitted for all new and for those renewing permits that are required to do so for the given year indicated on top of page 7 (once every 3 years). Renewing permit numbers not required to submit a full application may submit a short application consisting of pages 1 and 2.

Identify the species utilized, the type of processing to be performed, and the end user. This will enable ADEC to determine which, if any, approvals and permits are necessary for a specific operation. In addition, the

following ADEC permits may be required depending on the specific type and volume of operation.

Other Permits

- *Plan Review and Approval of Sewage or Sewage Treatment Works*
- *Air Quality Control Permit to Operate*
- *Wastewater Disposal Permit*
- *Solid Waste Management Permit*
- *Plan Review and Approval of Public Water Systems*
- *US EPA NPDES Permit*
- *Food Service Permit*

In most cases, these permits and approvals can be issued on the basis of information provided in a complete application. The Department will contact an applicant if additional information is needed.

The permit issued by ADEC authorizes the process activity described in the completed application only. Changes in ownership, additional products or processing operations, or facility modifications require amended pages 1 and 7 or additional application and facility drawings to be submitted.

Required Submittals

Applications for new or recently modified operations must furnish the following plans and specifications for their facility.

Shore-based Facility Plans

Submit profile and floor plan drawings that meet the requirements of 18 AAC 34.055 and are drawn to a reasonable scale (1" = 8 feet or larger) and applicable plot plan information including a North point of the compass as it relates to each drawing.

Vessel Facility Plans

Submit profile and deck drawings which meet the requirements of 18 AAC 34.055 in a reasonable scale (1" = 4 feet or larger) showing overall dimensions of the vessel.

Instructions

Plumbing.Plans

Submit plumbing plans in accordance with 18 AAC 34.055 which meet the requirements of 18 AAC 34.075 and toilet and handwash requirements given in 18 AAC 34.085 or incorporate them into the facility plans if the information can be shown clearly using color coded lines.

Water Supply and Ice Sample Results

For all facilities except direct market fishing vessels, sampling must be performed and results submitted as required in 18 AAC 34.080. Contact your local ADEC office or website for a list of approved laboratories and sample procedures.

Equipment and Utensils

Submit plans in accordance with 18 AAC 34.055 showing placements and specifications which meet the requirements of 18 AAC 34.070, 18 AAC 34.090, and 18 AAC 34.400.

Processing Waste Disposal

Submit waste disposal plans in accordance with 18 AAC 34.055 which meet the requirements of 18 AAC 34.075 and 18 AAC 34.095.

Ingredients

If you use two or more ingredients in processing or seafood formulation (dips, Salmon hams, etc.), you must submit a list of all ingredients and specify the formulation that makes up the final seafood product. You may attach a copy of the label that you use for the final product.

Thermal Processing

If you are thermal processing, provide a copy of the following: FDA Canning Establishment Registration form; the schedule process from the processing authority; the establishment code; and equipment specifications indicating compliance to 21 CFR Part 113 or an approval letter detailing exceptions. A

schedule process must be submitted for each new process.

NPDES Permit Requirement

If you discharge more than 1,000 lbs./day and more than 30,000 lbs./year of seafood processing wastes in U.S. waters, you must have an U.S. EPA NPDES permit

NPDES Permit Questions?

Call EPA at 907.271.5079 in Anchorage or 206.553.1761 in Seattle.

Submittal address for new:

U.S. EPA
NPDES Permit Unit (OW-130)
200 Sixth Avenue
Seattle, WA 98101

Do not send copies of this application to EPA if you already have an NPDES permit.

Electronic Funds Transfer

The Department of Revenue offers electronic funds transfer through the Alaska State Automated Payment System (ASAP). Information and forms are available on our website at the address given on schedule A of the application. Make all checks payable to the State of Alaska. All applications and license and permit fees must be submitted to:

Department of Revenue
Tax Division
PO Box 110420
Juneau, AK 99811-0420

Failure to send forms and payments to this address will result in a serious delay in the issuance of your license.

**2001 Alaska Seafood Processor and Exporter
DOR License and DEC Permit Application
ADF&G Intent to Operate**

SCHEDULE D

Name	Federal EIN or SSN	ADEC Permit or Shellfish Number
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SCHEDULE D - ADEC INFORMATION

ADEC Contact: Joe Donohue E-mail: Joe_Donohue@envircon.state.ak.us Phone: 907.269.7637 Fax: 907.269.7510
Mike Ostasz E-mail: Mike_Ostasz@envircon.state.ak.us Phone: 907.269.7638 Fax: 907.269.7510

This page must be completed by all new applicants, applicants that add or change processes, and those processors required to update their information as indicated by the last three numbers in their permit (AK number) for the year shown below:

AK #s from 000-300 submit complete application in years ending in 0, 3, and 6
AK #s from 301-600 submit complete application in years ending in 1, 4 and 7
AK #s from 601-999 submit complete application in years ending in 2, 5, and 8
AK #s over 1000 use the last 3 digits to determine which year to submit a complete application
Renewals do not need to complete this form except during the above years
(approximately every 3 years)

PRODUCT AND PACKAGING DETAIL (Complete the following for new, changed, and to update information as required)

Product/Species (See Page 1) List Each Product as Identified on Product Label	List Processes (See Page 1) List Processors Used for Production	Max. Pounds of Fisheries Used in Production /day	Product Storage: refrigerated/ frozen/ shelf - stable	Packaging Material used for Finished Product	Check Months of Anticipated Processing											
					JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

INGREDIENTS AND ADDITIVE INFORMATION (List all ingredients and additives used for any product listed above)

Brining ingredients	
Formulation ingredients	
Additives	
Source of ice (list if produced on premise or bought)	Permitted Source? <input type="checkbox"/> Yes <input type="checkbox"/> No

FOOD SERVICE - Answer all questions

Contact: Cory Willis 907.269.7631 or Mike Gentry 907.269.7596

Number of employees	Food service provided? <input type="checkbox"/> Yes <input type="checkbox"/> No
Permit Number (if issued):	Check if: <input type="checkbox"/> Previously issued <input type="checkbox"/> New <input type="checkbox"/> Less than 10 people

WATER (Complete information below that is applicable to each drinking, processing, or cooling system)

Contact: Sherri Trask 907.269.7618

Water Type	ID# or Source	Gallons/Day	Disinfectant Used	PPM	Method (circle one)
Public Water System	ID#				Injection Batch
Processing/other Fresh Water	Source				Injection Batch
Processing using Salt Water					Injection Batch

**2001 Alaska Seafood Processor and Exporter
DOR License and DEC Permit Application
ADF&G Intent to Operate**

SCHEDULE D

Continued

Name	Federal EIN or SSN	ADEC Permit or Shellfish Number
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SEWAGE DISPOSAL (For disposal of toilet, shower, kitchen, and bathroom sink waste)

Contact: Bill Rieth 907.269.7519

Check if discharged at: ☐ Shore-based facility (Within 1/2 mile of shore) ☐ At sea Indicate distance from shore _____

Shore-based Facility Location: Latitude _____ Longitude _____

Shore-based Facilities

Treatment Type	Disposal Method	Description of Permit #	Capacity
<u>Municipal system</u>	<u>Direct connection to:</u> City of: _____ Municipality of: _____ Village of: _____	NPDES #	Gallons/day (gpd)
<u>Package treatment plant</u> ADEC Plan Review #:	<u>Marine Discharge:</u> Water body: _____ Other: _____	Permit #	Gallons/day (gpd)
<u>Septic system</u> ADEC Plan Review #:	<u>On-lot to subsurface:</u> Bed: <input type="checkbox"/> _____ SF Trench: <input type="checkbox"/> _____ SF Other: <input type="checkbox"/> _____ SF	Permit #	Gallons/day (gpd)
Other (Describe)	Other (Describe)	Authorization (Describe)	Gallons/day (gpd)

Vessels

USCG Approved System	Discharge Depth	Holding Tank Volume	System Capacity
Type 1: _____		Gallons	Gallons/day (gpd)
Type 2: _____		Gallons	Gallons/day (gpd)
Other: _____		Gallons	Gallons/day (gpd)

WASTE DISPOSAL IN WATER (Disposal of fish heads, carcasses, fish gurry, shells, etc.) in water for shorebase facilities and vessels:

Contact: EPA in Seattle 1.800.424.4372

Land burial (See Other Solid Waste below)	Fishing grounds?	Daily Amount (_____ lbs.)
Grinder (type) _____	Size of waste particle (_____ inch)	Yearly Amount (_____ lbs.)
Water depth of discharge below Mean Lower Low Water (MLLW): (_____ ft)		
Discharge distance in nautical miles from shore at MLLW <input type="checkbox"/> less than 0.5 <input type="checkbox"/> between 0.5 and 1 <input type="checkbox"/> 1 nautical mile and more		

Name of water body(ies) to which facility discharges _____

Name of adjacent larger water body(ies) _____

☒ If discharges occur within 1 nautical mile from shore at MLLW, attach

(1) Area map of facility and outfall(s) based upon NOAA or USGS chart of scale resolution from 1:20,000 to 1:65,000

(2) Bathymetric chart of receiving water within 1 nautical mile of discharge and showing discharge points

☒ If discharges occur within 3 nautical miles of national parks, preserves, wildlife refuges, state game sanctuaries, refuges,

critical habitat areas or impaired water bodies, list specific areas: _____

SOLID WASTE DISPOSAL ON LAND (Circle waste types and predisposal methods)

Contact: Tracy Mitchell 907.269.1099

Identify waste type (circle applicable types)	animal/fish	wood/plastic	scrap metal	used oil/antifreeze	kitchen waste	ash	other
Predisposal method (circle applicable types)	incineration	baling	recycle	shredding	dewatering	other	
Weekly quantity of waste disposed:	pounds	kilograms	cubic yards				
Names of Ports/Communities where solid waste disposal occurs.							

AIR QUALITY (Permits to construct and operate may be required for any of the following. Check all that apply)

Contact: Bill MacClarence 907.269.7575

☐ Diesel generators rated cumulative of over 500 hp or over 375 kw

☐ Fish meal plant

☐ Fuel tanks with capacity of over 10,600 gallons

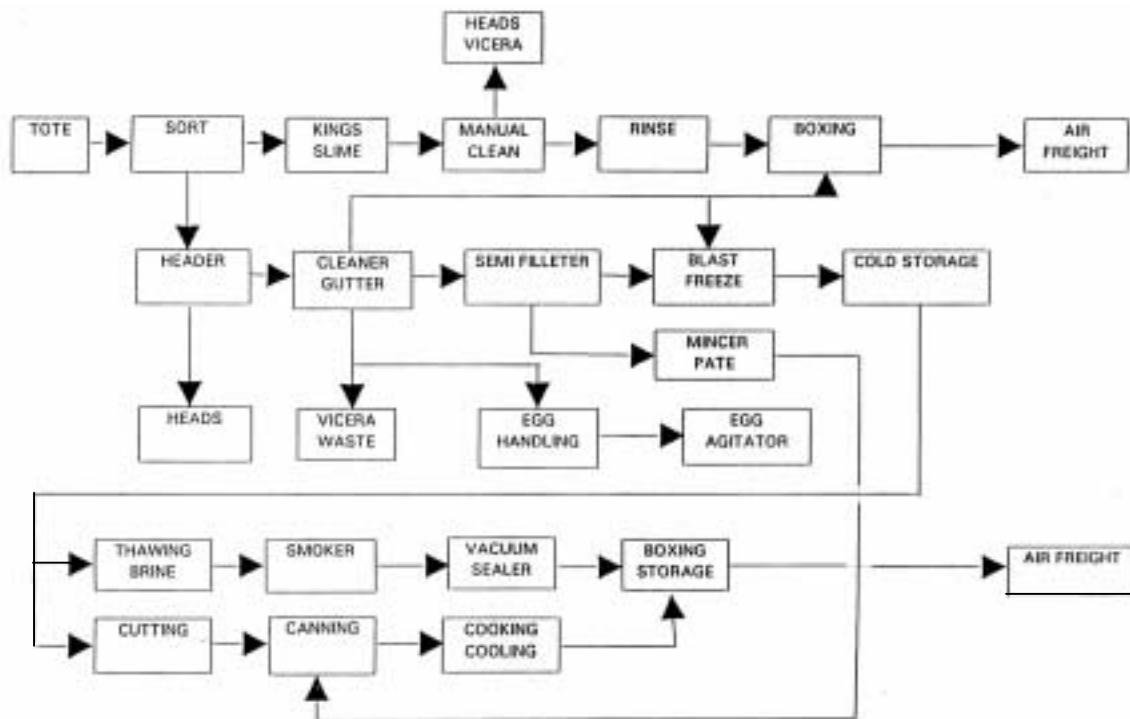
☐ Boilers rated over 10mmBtu/hr

Form 04-573 (Rev 10/00)

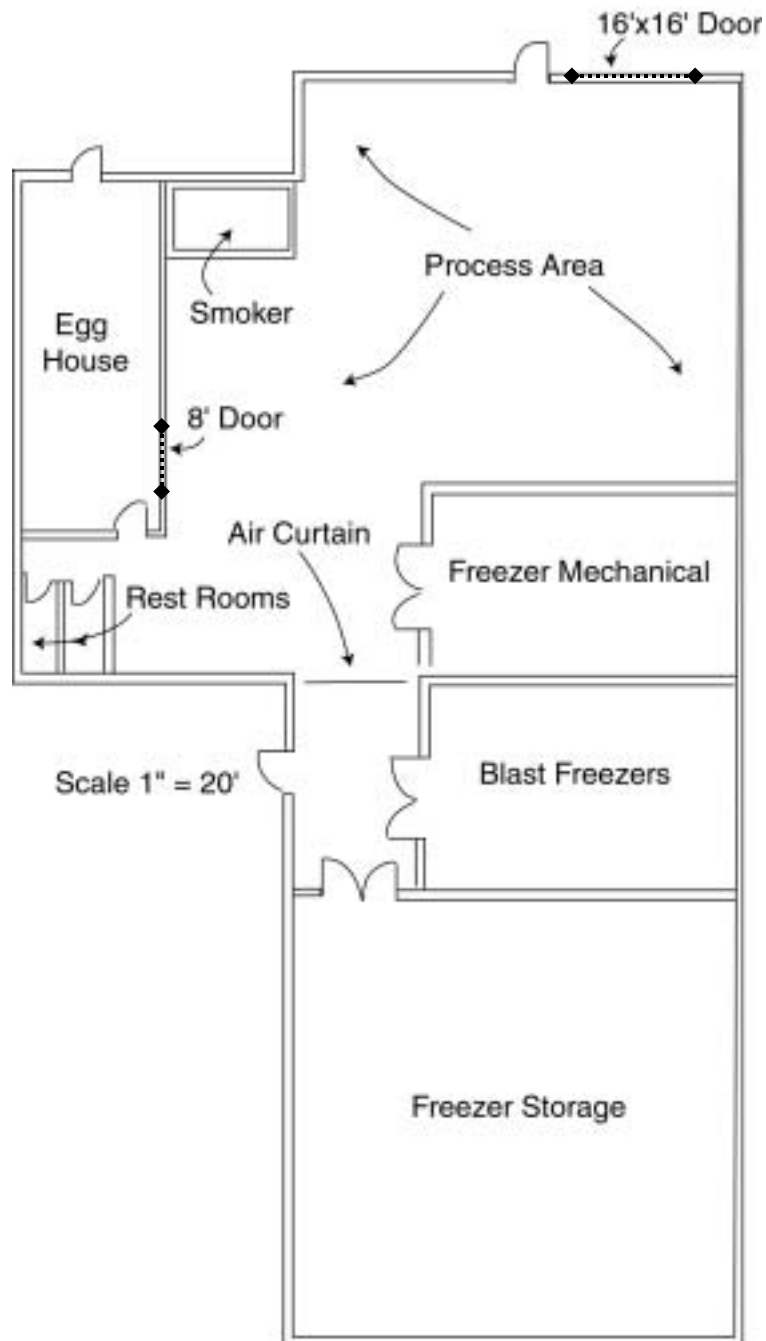
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**APPENDIX C. EXAMPLES FROM
VILLAGE FISH PROCESSING PLANT PLANNING DOCUMENTS**

**Processing Flow Diagram from the
1996 Unalakleet Fish Plant Proposal**



**Proposed Layout from the
1996 Unalakleet Fish Plant Proposal**



Pro-Forma Income Statement from the 1977 Marshall Fish Plant Feasibility Study

MASERCULIQ FISH PROCESSORS CORPORATION Pro-forma Income Statement for 1977 and 1978

Income:	<u>1977</u>	<u>1978</u>
Fish Products Sales	\$430,656	\$487,315
Less: Fish Purchases	<u>187,817</u>	<u>217,076</u>
Subtotal	\$242,839	\$270,239
Merchandise Sales	5,383	7,317
Less: Beginning Inventory	\$0	\$1,035
Purchases	\$5,176	\$6,000
Ending Inventory	\$1,035	\$1,407
Cost of Goods Sold	<u>\$4,141</u>	<u>\$5,628</u>
Gross Profit	\$244,081	\$271,928
Less: Operating Costs:		
Salaries	\$79,735	\$84,231
Payroll Taxes	\$8,372	\$8,844
Plant Supplies	\$16,191	\$16,000
Repairs and Maintenance	\$2,000	\$4,000
Transportation	\$58,464	\$62,118
Fuel Expense	\$8,720	\$9,720
Depreciation Expense	\$29,172	\$29,922
Utilities	\$0	\$1,000
Licenses and Misc. Tax	\$3,024	\$3,455
Vehicle Expense	\$800	\$900
Insurance Expense	\$7,950	\$8,745
Workmen's Compensation	\$4,784	\$5,475
Office Supplies	\$1,000	\$1,000
Interest Expense	<u>\$8,500</u>	<u>\$13,688</u>
Total Expenses	\$228,712	\$249,098
Net Profit	\$15,369	\$22,830
Income Tax	<u>\$3,389</u>	<u>\$5,023</u>
Net Income	\$11,980	\$17,807

**Equipment Cost Estimates and Depreciation Schedules
from the 1977 Marshall Fish Plant Study**

**MASERCULIQ FISH PROCESSORS CORPORATION
Equipment Depreciation Schedule**

Quantity	Item	Expected Life (Yrs)	Price	Depreciation
2 Each	Insect Electrocutors	3	\$500	\$167
8 Each	Wall Tents, 8' x 10'	3	500	167
8 Each	Wall Tents, 10' x 12'	3	670	233
8 Each	Wall Tents, 12' x 14'	3	875	292
60 Each	KT-8 Fish Tubs	3	3,600	1,200
25 Each	Stovepipe, 6" lengths, galv.	2	50	25
25 Each	Stovepipe, 5" lengths, galv.	2	30	15
2 Each	Hydraulic Pallet Jacks, 3,000 Lbs.	3	1,000	333
6 Each	flanging Scales With Buckets	3	4,500	1,500
1 Each	Detecto Scale on Wheels	3	3,000	1,000
1 Each	Roller Set, 8', 18" Wide	3	100	33
3 Each	Roller Set, 10', 18" Wide	3	300	100
1 Each	Air Curtain, 6'	3	500	167
1 Each	Air Curtain, 8'	3	500	167
	Office Equipment; desks, files, etc.	-	1,000	
	Tools	-	4,000	
2 Each	Trucks	7	27,000	3,860
6 Each	26' Tenders	15	36,000	2,412
12 Each	8S HP TXLR Johnson outboard	3	26,000	8,667
1 Each	Stapler &, Staplers	3	800	267
8 Each	KT-11 Fish Tubs	3	600	200
8 Each	KT-11 Undercarriages	3	800	267
6	Imprinters		<u>450</u>	<u>150</u>
	Total Equipment		\$112,775	\$21,222
	Building	20	<u>159,000</u>	<u>7,950</u>
	Total		\$271,775	\$29,172

APPENDIX D: SUPPLIERS OF EQUIPMENT AND SERVICES

The following companies helped in supplying information for this handbook. They are companies who sell equipment, supplies, or services to fish and meat processing firms or are processors themselves. You may wish to contact these suppliers as you plan your own processing plant.

Alaska Warehouse Equipment and Supply

7720 Schoon Street
Anchorage, Alaska 99518
907-522-3842

Forklifts, hoists, pallet jacks, generators

Alaska Village Electric Cooperative, Inc.

4831 Eagle Street
Anchorage, AK 99503
907-561-1818

Assists with analysis of rural electric costs for commercial operations

Alpak Food Equipment

18298 Andover Park West
Seattle, WA 98188
800-622-6743

Full line of food manufacturing equipment including vacuum packaging and smoking

Carnitech U.S. Inc.

1112 N.W. Leary Way
Seattle, WA 98107-5133
206-781-1827

Large array of mechanized processing equipment and processing line components, plant design and layout assistance

Coastline Equipment, Inc.

2235 E. Bakerview Rd.
Bellingham, WA 98226
360-734-8509

Wide assortment of mechanized processing equipment and processing line components, plant design and layout assistance

DACO

18715 East Valley Highway
Kent, WA 98032-1241
1-800-345-3226

Totes, tubs, sanitation supplies, conveyor systems, general material handling equipment.

Dan O'Neil

The Fisheries Network
24001 Crystal Lake Rd.
Woodinville, WA 98072
425-483-1915

Sanitation and janitorial supplies for fish processing. Networks processors with manufacturers and sellers of complete line of equipment, supplies, and services

Dixie Canner Company

786 East Broad Street
Athens, GA 30601
706-549-1914

Can packaging and processing equipment

Enviro-Pak

15450 S.E. For Mor Ct.
Clackamas, OR 97015
1-800-223-6836

Food processing smokers, ovens, and dryers in several sizes and configurations for fish and meat processing

Frontier Paper Inc.

1848 Ship Avenue
Anchorage, AK 99501
907-272-4000

Packaging and sanitation supplies used in fish processing - Boxes, pails, gel ice and more

Hobart Food Equipment

C/O JMR Company, Inc.
District Sales Agency
219 E. 51st Avenue
Anchorage, AK 99503
907-563-3100

Food processing equipment including meat processing and packaging equipment

Hydra-Pro

4259 22nd Ave W.
Seattle, WA 98199
206-285-9579

Hydraulic cranes and other hydraulic machinery and equipment

Indian Valley Meats

HC 52 Box 8809
Indian, AK 99540
907-653-7511

Meat, fish, and game processing – commercial and custom.
Training programs for village fish and game processing operations

Larsen Consulting Group (Civil Engineers)

3710 Woodland Dr.
Anchorage, AK 99517
907-243-8985

Construction engineering with rural Alaska processing plant design experience

Movers Inc. Air Freight

4041 W. International Airport Road
Anchorage, AK 99502
907-243-4305

Northern Air Cargo

3900 W. International Airport Road
Anchorage, AK 99502
907-243-3331
800-727-2141

Scheduled and custom air cargo service throughout Alaska - special fish season rates

Phillips Scale Company of Alaska

6727 Greenwood St.
Anchorage, AK 99518
907-344-2134

Scales of all sizes used in fish processing and fish unloading

Redbow Industries

P.O. Box 775
Redmond, WA 98073
425-376-2827

Design, fabrication, and supplier (sales agent) of seafood processing equipment

Ribelin Lowell & Company Insurance Brokers, Inc.

3111 C Street, Suite 300
Anchorage, AK 99503-3925
800-478-1251

Full line of insurance for all kinds of businesses including seafood processing

Robert Reiser & Co., Inc.

725 Dedham Street
Canton, MA 02021
781-821-1290

Vacuum packaging and automatic brine and flavor injecting equipment

Freight forwarding by air, truck, and ship including consolidation, shipping, and tracking

Rooney Machine Company

2801 St. Paul Street
Bellingham, WA 98226
360-733-5470

Can sealers and vacuum pumps for canning operations

T & K Refrigeration

2241 Jennison Circle
Anchorage, AK 99508
907-337-5339

Ice machines, chillers, and freezers - sales, installation, and service (rep for several manufacturers including Northstar)

University of Alaska Marine Advisory Program

2221 E. Northern Lights Blvd.
Anchorage, AK 99508
907-274-9691

Training courses in HACCP, Better Process Control (canning), sanitation practices, and quality assurance/quality control. Specialized training and consulting in best processing practices, fish smoking, and shelf life extension.

APPENDIX E: SEAFOOD MARKET BASICS

How Seafood Gets Distributed

Because seafood distribution channels are relatively complex and can be confusing, any village fish plant must know what the roles of the various companies are that buy and sell Alaska fish. This will help you understand where you are most likely to find markets for the fish you plan to produce.

Seafood reaches consumers in most countries through a multi-level system, which may involve at least three or four transactions before a product is purchased by a consumer in a supermarket or fish market or eaten in a restaurant. In most countries, the channels of distribution incorporate locally caught and processed seafoods with items imported from around the world. For example, in the U.S. and Japan, the two largest markets for Alaska seafood, almost two-thirds of the seafood consumed is imported.

In some cases, the lines between the roles of companies in the seafood distribution channel get blurred, particularly when one company performs two functions, such as an importer that also manufactures seafood into consumer products or a distributor that also imports seafood directly.

In addition, seafood is processed into a wide variety of product forms (head on, head off, steaks, fillets, portions, smoked). Seafood can also be packaged either minimally or extensively and sold live, fresh, frozen or canned. Products may move directly from fish plant to end-user or through a myriad of sales and distribution channels where value may be added through additional processing.

Here's a brief guide to the kinds of companies that buy and sell fish and an explanation of how they fit into the distribution system.

Exporters – Seafood exporters purchase a product and sell it to a buyer, known as an importer, in another country. The seafood an exporter buys can be purchased from a seafood processor, or a trading company that has purchased the product from a processor. Many large seafood processors in Alaska do their own exporting and sell their seafood directly to buyers in other countries.

As a rule, exporters will not purchase a product until they know they have a buyer for it. Exporters are usually paid for their products by a Letter of Credit (LC) or by a direct bank wire transfer (TT). Depending on the terms of the sale, an exporter may be paid either when the product is shipped or when it is received by the importer.

Importers - Seafood importers purchase products from foreign suppliers that export seafood. Importers normally purchase products outright and pay for them either on shipment or on receipt of the products in their own countries. In many cases, though, payment will be subject to clearance by local health authorities, such as the FDA in the U.S.

Most well-established importers have long-standing relationships with their foreign suppliers and may or may not be looking for additional sources of supply. Often, an importer will look for additional suppliers only if his current supplier is unable to fill his needs, or if he can get a lower price from a new supplier.

In some cases, large seafood distributors, restaurant chains, or supermarkets will do their own importing and buy direct from foreign suppliers. The Red Lobster restaurant chain, for example, operates a buying office in Singapore that sources shrimp from processors throughout Southeast Asia. Red Lobster buys this shrimp directly from shrimp processors and imports it into the U.S.

Seafood Processors – Primary seafood processors (which include Alaska village fish processing plants) buy fish and shellfish from fishermen and aquaculture producers. How much processing a processor does can vary greatly, depending on the product and the market. In the case of fresh salmon and halibut, for example, a large volume of fish is simply headed, gutted, washed and put into a box before it is sold to a buyer. In the case of other products, such as crab or canned salmon, the processing is more extensive.

Although processors usually must pay for their fish as soon as they receive it from fishermen, they may not sell their fish for as long as a year after they pay for it. As a result, processors must have access to loans from banks to finance their inventory. The cost of financing inventory and paying to hold it in a cold storage normally costs between 1 and 2 percent of the value of the product each month.

Secondary seafood processors buy products from seafood processors and do additional processing into more convenient product forms. A secondary processor in Seattle, for example, may buy H&G salmon from a fish plant in Alaska and have it processed it into skinless, boneless salmon portions. Traditionally, secondary processors did their processing in the U.S. More and more secondary processing, however, is being done in developing countries like China and Thailand, due to lower labor costs and a large, skilled work force.

Many primary Alaska seafood processors also perform secondary processing functions. In this case, primary processors reprocess their own product, as well as raw material they buy from other primary processors. Primary processors will also buy raw material from traders, since processors will not always sell directly to competing processors.

Brokers act as the sales agents for the actual owners of the product (foreign or domestic processors in many cases, or importers) and receive a commission on any sales they transact. Brokers, who do not normally take title to goods, often work a specific region of a country where they have developed relationships with buyers. Brokers normally sell to wholesale distributors or to higher-volume end users such as restaurant chains or supermarket chains.

Traders purchase seafood and sell to other traders, exporters, importers, distributors, foodservice operators or retail supermarket chains. Traders usually specialize in a few specific seafood commodities and minimize market risk by doing “back-to-back” deals where they do not buy products until they have identified a customer. While brokers earn commissions from sales, traders earn a profit on the margin between their purchase price and their sales price. Volume is important for traders because of the small margins realized on each sale.

Distributors - Distributors purchase products from processors, traders, importers or wholesalers and provide physical delivery of products to foodservice operations (restaurants, hotels, schools, hospitals) or retail markets (supermarkets, fish markets). In general, distributors do not spend a great deal of time “selling” new items and species or developing new markets. Two types of distributors handle seafood: broadline distributors and specialty seafood distributors.

Broadline Distributors - Broadline distributors, who usually specialize in either the foodservice or supermarket markets, sell a very large range of food and non-food items. Foodservice broadliners sell thousands of food, table, and kitchen items to restaurants, hotels, and food operations at hospitals, schools, cruise lines, and other outlets where food is prepared and sold or served. Retail broadliners, on the other hand, will supply supermarkets with a comprehensive, although less extensive variety of items. In a number of cases, retail broadliners are a cooperative owned by a regional group of independent supermarkets.

While seafood is but one of many food items offered by broadline distributors, it is an important commodity. The largest national broadline distributor in the United States, Sysco Corp., sells approximately \$1 billion worth of seafood annually to its foodservice accounts. Generally, broadline distributors do not purchase seafood directly from foreign suppliers but deal with importers, processors, and brokers. Most of the seafood carried by broadline distributors is frozen. However, a growing number of broadline distributors carry some fresh seafood items that are available on a regular basis.

Specialty Seafood Distributors - Specialty seafood distributors, as the name indicates, specialize in seafood or seafood-related products, with an emphasis on fresh products. Specialty seafood distributors sell to both foodservice and retail accounts. Most major U.S. cities have one or two specialty seafood distributors that dominate the market and a number of smaller seafood distributors. Seafood distributors normally make deliveries directly to individual restaurants or retail stores as often as five days a week. In the case of larger supermarket chains, though, a seafood distributor may deliver to a central warehouse and the chain will make deliveries to its individual units. Specialty seafood distributors purchase seafood from importers, processors, brokers, traders and other distributors.

Foodservice Buyers- The foodservice industry includes restaurants and institutions (including hospitals, schools, factories, and large offices). The restaurant segment of food service includes large seafood chains, such as Red Lobster, Long John Silver’s and

Captain-D's; family restaurants such as Chili's, Perkins and Denny's; and casual dining and independent restaurants. While most foodservice operations buy from distributors, the purchase decision is often made after a sales presentation of a new product by an importer, processor or broker. Each foodservice operation has individual requirements as to price, product form, packaging, frequency of delivery, and other factors.

Retail Buyers - The retail market segment for seafood consists primarily of large regional supermarket chains. However, in recent years mergers have created some powerful chains with national reach. For example, Kroger Stores, based in Ohio, has purchased major supermarket chains in California, Washington, and Oregon, while Safeway and Albertson's have increased their holdings across much of the U.S. In most cases, seafood purchasing decisions, particularly for fresh products, are made at the national or regional division level. Rarely are purchasing decisions made at the level of the individual supermarket.

Of the 31,000 supermarkets in the U.S. with annual sales in excess of \$2 million, approximately 10,000 have full-service seafood counters. As a rule, a supermarket will not operate a full-service seafood counter unless it can sell at least \$5,000 worth of seafood a week, since the labor costs associated with running a full-service counter are high. A full-service seafood counter in a busy store in an affluent neighborhood can sell \$20,000 to \$40,000 worth of seafood a week.

Large volumes of fresh and frozen seafood are also sold through warehouse/club stores such as Costco and Sam's Club. Most seafood purchasing decisions for club stores are also made at the national and regional levels. For some fresh seafood items—like farmed salmon—that are readily available, club stores will sign a contract for guaranteed pricing for a 3-or 6-month period. Depending on the product, club stores will buy direct from processors, importers, or seafood distributors. As a general rule, club stores buy fresh seafood from seafood distributors and frozen seafood directly from processors and importers.

Independent fish markets are still important retail outlets on the East Coast of the United States, but less so in the West. A retail fish market will generally move considerably more seafood than a seafood counter at an individual supermarket.

The seafood distribution system is complex. For every rule about how things work, there are exceptions. Knowing how, where, why, and to whom your product is sold is critical to developing and understanding a successful marketing strategy.

Seafood Pricing Basics

When discussing seafood prices, it is important to understand that the price of a particular seafood is very often a moving target. Because supply and demand for many seafood commodities change often, the price for many seafood commodities is relatively volatile and will fluctuate considerably.

On any given day, the market price for a particular seafood commodity can vary as much as 10 or \$.25 cents a pound, depending on a variety of factors. So when you do the market research and financial analysis for your fish plant, make sure to include a range of prices.

One of the most important reasons for this difference in fish prices is the knowledge of a particular buyer or seller. A fresh fish distributor in Seattle, for example, can sell the same amount of wild Alaska king salmon to two different customers in Sun Valley, Idaho for a price difference that might be 50 cents a pound or more. Obviously, the buyer who is not as up to date on the market will pay the higher price.

Not all processors get the same price for their fish. If a processor is not up to date on the most current market conditions, he may end up selling his fish for a price that is less than the prevailing market price. In addition, if a processor needs to sell fish quickly to generate cash – perhaps to make a payment on a bank loan he took out to finance the purchase of his fish – he will probably have to lower his price to a level that is below the prevailing market to generate a fast sale.

Timing also determines how much your fish plant may get for its fish, especially H&G fish that is sold as a commodity. For example, if your fish plant is producing good volumes of fresh salmon in late June, when other areas of Alaska are producing very few fish, you will likely get more money for your fresh fish than you will later in the summer, when most other parts of Alaska are also producing large volumes of salmon.

Timing is also very critical with frozen fish. Typically, if Alaska fishermen catch large quantities of a certain species, the market price will decline after the season is over and buyers begin to understand the size of the catch. In years where catches are very good, processors who sell their fish relatively early in the season will often get a higher price than processors who sell after the season is over and the market price has declined.

On the other hand, in a year when catches are lower than average, a processor who sells early in the season may well end up getting a lower price than a processor who sells later, after the market has risen because of the reduced supply.

Margins and Mark-Ups

Profit margins and mark-ups vary greatly throughout the seafood distribution system. A trader, for example, may mark up a truckload container of salmon or cod 5 cents a pound or less.

Here's a description of the typical margins and mark ups of companies in the seafood distribution chain. Keep in mind that this is only a general analysis, and in some cases these margins and mark ups may be quite different, depending on the individual circumstances. Also, it is important to understand that the seafood industry is not considered to be a high-margin business. Many companies in the seafood business are quite happy if they generate a net profit of 3 to 5 percent on their sales.

Exporter and Importers: Exporters and importers often specialize in certain high-volume commodities, such as salmon, cod, squid, or shrimp. These companies need to deal in high-volume commodities since their margin (the difference between what they buy and sell product for) is normally relatively low. The margin for an importer or exporter will vary, depending on the volume of the transaction. Most importers and exporters will work on a margin that averages between 2 and 4% of the value of the seafood. In some cases, importers will hold on to their product and take a market risk. In cases like this, importers can make (or lose) 20% or more. Increasingly, though, importers will minimize their market risk by selling the product as quickly as they can.

Seafood Processors: Unlike most other companies in the seafood distribution chain, primary seafood processors do not work on a set margin. Processors generally have to pay a competitive price to fishermen or fish farmers to get fish, which they will then try to sell for as much as they can. In some years, when market conditions are in their favor, processors will do very well. It is not unusual in a good year, for example, for a processor to make a gross margin of 20% or more on some seafoods. In bad years, however, processors may absorb losses that can amount to 20 or even 30% of the value of their product.

Secondary seafood processors, on the other hand, will try to work on a set margin because they know what their raw material and marketing costs are and they know what they have to charge to their customers to make an adequate profit. How much a secondary processor marks up his product is a function of costs, which can vary widely.

A big company like Gorton's – a large producer of branded value-added breaded fish products – that markets its products nationally with a large, branded advertising campaign, will have to have a much larger mark up on its products than a small Seattle company that sells battered halibut to a club store chain like Costco.

Traders: Traders will make whatever margin they can on any given transaction. Because most traders have very little overhead and often work independently in small offices, they can work on a very small margin if the volume of the transaction is large enough. A trader selling 1,000 metric tons of Alaska cod to a buyer in China, for example, can make \$22,050 on the sale if he marks up the price just a penny a pound. On smaller volume transactions, though, a margin of 5 cent a pound. is typical. For example, a trader selling a truckload of fresh Alaska chum salmon to a supermarket buyer in Boston will make \$2,000 on a 40,000-pound truckload if he marks it up 5 cent a pound.

Traders can also make a higher margin, if they see a special opportunity that can arise when either the companies they are buying from, or the companies selling to, are not fully aware of the market conditions. In cases like this, it is possible for a trader to make 10 cents or more a pound.

If a trader has to invest a lot of time and effort into a sale, or find a market for a new product, he will normally require a higher margin. A trader trying to develop a new

market for, say, a skinless, boneless chum salmon fillet, may not be interested in committing the necessary time and effort unless he thinks he can make a margin of at least 25 or 50 cents a pound on the initial orders. As the business is developed and the volume increases, however, a trader is normally willing to work on a lower margin.

Brokers: Depending on the product, a broker may earn a sales commission between 2 and 7% of the sales price. As a rule, the commission on high-value frozen items like crab or shrimp will be 2%. Broker commissions on fresh fish, though, can be as high as 7%, since the volume is usually smaller.

Distributors: The size of the mark up on seafood taken by broadline distributors will vary considerably. A broadline distributor like Associated Grocers that delivers to supermarkets will typically mark up frozen seafood items 5 to 10%. Fresh seafood items, on the other hand, may be marked up 15 to 20%, since they require more handling. In addition, the “shrink” – seafood that must be thrown away because it has gone bad – is much higher with fresh seafood. Broadline distributors that sell to supermarkets can mark product up less, because they deliver a very large volume of orders per stop.

Although broadline distributors with foodservice accounts will generally try to get a 15 to 20% mark up if they can, the average mark up typically ranges between 10 and 20%. However, the actual size of the mark up will fluctuate widely. If they have to compete with seafood distributors on a certain product, broadline distributors may take a very small mark up to get the business on that item. In some cases, this markup may only be 3% on an expensive item like shrimp. After broadline distributors have the business, though, they will normally try to increase the mark up. How high the distributor can mark the product up is largely a function of the knowledge of the buyer. Since sales people for most broadline distributors are paid largely on a commission basis, they will charge their customers as much as they can.

Because their deliveries are limited to seafood, specialty seafood distributors have a higher delivery cost than broadline distributors, because the total dollar value of their order is usually lower. However, the higher delivery cost is offset by the fact that seafood distributors have lower overall operating costs. As a result, specialty seafood distributors will normally mark up seafood products about the same amount as broadline distributors, usually in a range between 10 to 15%, depending on the value of the product.

For expensive products, such as shrimp or crab, which sell for \$10/lb. or more, a seafood distributor will take a lower mark up if necessary, since he will generate the same profit dollars. For example, a seafood distributor can make a margin of 50 cents a pound on king crab that costs him \$10 a pound, if he marks it up 5%. On the other hand, on chum salmon that costs the distributor \$2 a pound, he will make just 30 cents a pound if he marks it up 15%.

It is important to keep in mind, though, that a distributor can make more money selling an inexpensive seafood item because the sales volume will be much higher. For example, a distributor may sell 5,000 pounds of king crab to a small supermarket chain in a month,

generating a gross profit of \$2,500. On the other hand, the distributor can sell 40,000 pounds of chum salmon to the same chain over the same period and make a gross profit of \$12,000.

There is also a growing trend for seafood distributors to supply large customers such as supermarket chains on a cost plus basis. Under this arrangement, a distributor will mark product up a negotiated amount above the distributor's actual cost. Typically, this markup can be anywhere from 6 to 10 percent above cost, depending on the sales volume of the customer and the level of merchandising support the distributor has to supply.

Foodservice Operators: Most restaurants try to operate with a food cost that runs between 30 and 35%. That means for a \$12 entree, the cost of the food will typically be around \$4. A restaurant that pays \$8 for a pound of a king salmon fillet, will typically price that salmon portion of that entree (seafood portions are typically six- to-eight ounces) at about \$12. By the time the vegetables and starch are added, a king salmon entree may run \$16 to \$20, depending on the restaurant. Restaurants need a high mark up on their food to cover their high operating costs, which include labor and real estate.

Retail Markets: Supermarkets with full-service seafood departments typically mark up the price of seafood between 35 and 45 percent. To arrive at a retail price, a supermarket takes the price its pays for fish and divides it by the remainder of one minus the desired margin. For example, to get a margin of 40 percent on a fish that it pays \$2 a pound for, the supermarket will divide by .60 (1 minus .40 = .6), yielding a retail price of \$3.33 a pound.

A supermarket's high mark up is necessary to cover its high overhead costs, including the labor required to staff a full-service seafood counter. In addition, supermarkets, like other buyers, have to account for the "shrink" associated with seafood. When a supermarket does a product demonstration and hands out cooked samples, for example, this product is considered shrink. Product that cannot be sold and has to be discarded is also considered shrink. Furthermore, seafood – which is over 70 percent water – will dehydrate over time and lose moisture, which is, of course, weight. In a refrigerated case, this dehydration can be as much as 1% a day.

When a supermarket has a special advertised promotion – such as a July 4th grilling promotion – it will take less of a markup, in an effort to draw more traffic to its stores. A supermarket selling fresh chum salmon, for example, on a special promotion may pay 85 or 90 cents a pound for whole chums and retail them for 99 cents a pound. As more and more supermarkets are under pressure to make their seafood departments profitable, however, the tendency is for retailers to put less emphasis on these "breakeven" promotions and generate acceptable margins instead.

Because of their higher sales volume and lower overhead, club stores will take a much smaller mark up on items. This markup is typically 10 to 15 percent.

Talking to Potential Customers

After you have an idea of the of products your fish plant could produce, when it could produce them, and what it would cost to produce them, then you need to talk to a wide range of potential customers throughout the seafood distribution chain to learn what their needs are and how you can meet those needs. Different buyers have different needs, so you'll have to do the necessary work to find buyers for your products.

Determining which buyers are most likely to buy your fish is relatively simple, but it will take considerable time and effort. One way to start is by purchasing a directory of buyers.

Here are examples of Buyer's Directories which can usually be purchased for under \$500:

Progressive Grocer's Marketing Guidebook (Lists the buyers for more than 800 supermarket chains and wholesalers). Contact: Progressive Grocer, 770 Broadway, New York, NY 10003. Phone: (646) 654-4500. Fax: (646) 654-7463.
www.grocerynetwork.com

Chain Store Guide (Lists buyers for both restaurants and foodservice wholesale distributors). Contact: Lebhar-Friedman, Inc., 425 Park Avenue New York, NY 10022 Phone: (212) 756-5000. www.lf.com

Who's Who in the Fish Industry (Lists top seafood processors, importers, exporters, traders and seafood distributors). Contact: Urner Barry Publications, Inc. P.O. Box 389, Toms River, New Jersey 08754-0389. Phone: (732) 240-5330. Fax: (732) 341-0891.
www.urnerbarry.com

Be sure to take advantage of the Alaska Seafood Marketing Institute (ASMI). It has very good lists of both foodservice and retail buyers who sell Alaska seafood.

While directories and buyer lists are a very useful starting point to identify potential buyers, it will take a lot of old-fashioned hard work and perseverance to make contact with potential buyers. As a rule, the bigger the buyer, the busier the buyer. In most cases, it will take more than a few calls before you will likely have a conversation with them. Although you may get frustrated, have patience and don't be afraid to be persistent. Many buyers are open to hearing about new products and new sources of supply. Like you, they are always looking for ways to increase their sales.

Be sure to leave detailed messages on potential buyers' voice mail that clearly explain why you want to contact them and what products you think they would be interested in. You may also want to obtain their e-mail addresses from their secretaries, so you can e-mail them detailed messages. One advantage of e-mail is that you can also attach an information sheet or a product brochure to a message. The more information you are able to provide a potential customer about your company and your products, the better chance you have of ultimately getting them as a customer.

When you talk to a buyer, make sure you take the time to ask questions so you can learn how he uses products and who he buys from. A medium-sized seafood restaurant chain in Dallas, Texas, for example, may be interested in buying your fish, but it may not want to buy directly from you. Most individual restaurants and restaurant chains will buy seafood only from distributors. In this case, you will sell your fish to the distributor, who in turn will sell it to the restaurant.

Keep in mind that most restaurants use relatively small volumes of seafood. Even a relatively high volume restaurant will use less than 200 pounds of any particular fish in a week. For that reason, it is more than likely that you will want to sell most of your fish to distributors that sell to a large number of restaurants.

Supermarket chains, on the other hand, can move large volumes of fish, especially when they feature seafood in a promotion. A chain with 100 stores, for example, can sell 40,000 pounds, or one truckload, of whole fresh salmon in a week-long summer promotion.

Even though they can move large volumes, many supermarkets will still want to buy their fresh seafood through a seafood distributor because of the logistical complexities involved with buying and selling a highly perishable commodity like fresh fish. Other supermarkets, on the other hand, will buy fresh fish directly from primary processors. When you talk to buyers, make sure you learn whether they like to buy direct, or whether they prefer to buy fish through a distributor. Typically, a supermarket chain will buy all its fresh fish from one or two distributors.

Finding Out What Your Customers Want

The buyers you talk to will have certain requirements and expectations that you must be able to meet. These requirements can vary from buyer to buyer.

Take quality, for example. The quality of the fish your plant produces will probably vary somewhat, even if you make the extra effort to produce the highest quality product possible. Some salmon, for example, may have darker skin and paler flesh than other salmon. Because of this, you'll have to find different buyers for the various quality grades your plant will produce.

Buyers for supermarket chains, for example, may want to buy only bright fish with good, red meat color. Buyers for the lower quality grades, on the other hand, could include other Alaska processors that send H&G fish to China for reprocessing into skinless, boneless fillets and portions.

Buyers will also have certain expectations when it comes to how your product is packaged. Some supermarket chains, for example, won't accept fish in any box that weighs over 50 pounds. In the case of fresh fish, many buyers will also require you to use enough gel packs or ice to ensure that your fish arrives with a core temperature no higher

than 38° F. If your fish arrives at a temperature higher than what the buyer specifies, it will be rejected.

If your fish is rejected because it doesn't meet your customer's requirements – which is not that uncommon – your sales staff will have to be prepared to find another customer who doesn't have such stringent requirements. If you've had fresh fish rejected and your sales staff can't find another customer relatively quickly, you may end up having to dispose of your fish and you will receive nothing for it.

Having to throw fish away is one of the unpleasant realities of the seafood business that proper planning, communication, and execution can almost always avoid. Nevertheless, because it does happen, your company should factor in some product loss when doing financial projections.

When you talk to potential buyers, you should try to learn the following information.

- The types of seafood products they buy that are similar to the products you plan to produce.
- Their quality expectations.
- Their purchasing frequency and the level of service they expect.
- The volume of product they are likely to sell of your products (this will help you determine how many customers you will need) at different price levels.
- The price they are likely to pay for your products (remember, price will affect sales volume).
- Who they buy similar seafood products from now (know who your competitors are so you can determine what your strengths and weaknesses are).
- How you can meet their needs better (for example, better service, higher quality, better price, better product forms, more merchandising material such as recipe cards).
- How they like to buy products (i.e., would they want to buy your products from a distributor, or would they buy direct).
- Their typical payment terms (do they pay in 15 days? 30 days? By Letter of Credit)?
- The type of inspection they require (some buyers, especially supermarket buyers, will require your company to pay for an inspection by the U.S. Department of Commerce or by a private independent inspection service).

It's Your Responsibility to Market Your Fish

Even though you will likely end up selling most of your fish plant's production to a distributor instead of an end user like a supermarket or a restaurant, you will need to develop relationships with end users yourself and get them motivated to buy your products. This is known as "pull-through" marketing.

Very few distributors will invest the time or money to develop new markets for you. They are too busy handling the day-to-day challenges of their business, which involves selling hundreds (in some cases thousands) of different products. However, they will be happy to sell your product to a restaurant or a supermarket if the end users say they want to buy your product.

As a primary producer, it is in your best interest to develop relationships with as many buyers as possible. Ultimately, no one is in a better position – and no one has more motivation – to sell your fish than your company. You are in the best position to explain your company's background, how it operates, and your product's benefits. In addition to contacting end users such as restaurant operators and supermarket buyers, it will be worthwhile to talk to potential brokers, traders, and even other Alaska processors to determine the best marketing and sales strategy for your fish. Exporters, brokers, traders, and processors will already have relationships with buyers and they may be interested in selling your production, too.

It is wise, however, not to rely completely on any one company to sell your fish. For various reasons, a company that wants to sell your fish may end up promising more than it can deliver. If that is the case – and it's not that unusual – your fish plant will be in a difficult position, as you will be producing fish that you no longer have a buyer for. As a general rule, people you talk to who say they are interested in selling your fish will tend to be overly optimistic about their ability to sell your fish. Some of the people you talk to about selling your fish may want an exclusive territory where they are the only people allowed to sell your fish in a certain geographic area. They may also want your company to sign a contract to this effect. Be very careful when signing these contracts, unless you are very certain that the company you are talking can deliver the sales results. Be sure to get names of other seafood processors that these companies sell fish for. Then make some calls and see how well the company that wants to sell your fish has performed for these other companies.

Analyze the Cost of Selling Your Product

Selling fish costs money. Some seafood producers figure it costs them as much as 25 cents a pound in salary and overhead to sell their fish. As a result, when developing a sales and marketing strategy for your fish plant, make sure your planning process takes into account how much it will cost you to sell your fish. How much it will actually cost you to sell your fish will vary considerably, depending on your sales and marketing strategy. These costs will need to be included in your budgeting process.

If you decide to sell most of your fish to buyers in the U.S. – especially if most of it is frozen – it probably makes sense to have an in-house sales staff with at least one full-time sales person employed by your company. You'll also have to decide if it makes sense to locate your sales staff near your fish plant, or if it would be more advantageous to have your sales staff located nearer your potential customers, perhaps in a city like Seattle.

The amount of service your sales staff has to provide will vary, depending on the type of buyer you decide to sell to. Broadline distributors, for example, usually require their suppliers to keep a steady supply of product moving in to their distribution system on a regular (often weekly) basis. This means that your staff will have to be constantly filling orders and ensuring that the product gets shipped on time to the distributor.

Most customers have very little patience with seafood companies that cannot meet the required commitments they have agreed to. Always keep in mind that your company will be operating in a “buyer-driven” environment, which means that you will have to adapt to meet the requirements of your customers to be successful.

You may decide it makes more sense for your company to sell its fish through a network of brokers and traders. Many seafood companies, especially smaller ones, decide this is the best strategy for them, since it reduces the time and money company management has to spend hiring and managing an in-house sales staff. If that is the case, be sure to factor the fees that brokers typically charge into your business plan. These commission fees will typically range from 3 to 7 percent of the value of the seafood they sell.

And if you plan to rely on traders to sell your fish, you will want to take into account the fact that you may have to sell your fish at a slight discount to the prevailing market price so the trader can make a satisfactory margin when he sells your fish.

Regardless of what sales strategy you ultimately decide is best for your fish plant, your company needs to understand that fish no longer sells itself. In the past, that may have been true and Alaska processors could focus primarily on producing fish, which they could easily find buyers for. These days, though, seafood buyers have a lot of alternatives and your company will have to work hard to find buyers if you want to get the most money for your fish.

Develop a Marketing Plan

Finally, after you have done your preliminary market research by talking to potential buyers about your company and what types of seafood products you plan to produce, you should develop a marketing plan. This marketing plan will be an important part of whether or not you decide to build or operate a fish plant. Being able to execute a good marketing plan is critical to the success of any business.

As you prepare your marketing plan, make every effort to be conservative in your projections. As previously mentioned, the people you talk to will naturally tend to be optimistic in their projections, whether it's the price they will pay for your product or the

amount of your product they tell you they will be able to sell. It's best to discount these projections. It's much better to have positive surprises than negative ones. Elements of the marketing plan should include:

- **A Description of Your Target Market.** This will include a list of your most likely customers, the products they are likely to buy, and the volume they are likely to buy.
- **A Pricing Strategy.** After you determine what types of products your fish plant can produce and what it costs to produce them, you'll need to determine the market prices for these products. Then, you'll have to determine how you want to price your products so you can make a profit. For example, if you believe your quality is higher than your competition's, you will probably want to price your product higher than your competitor's products. On the other hand, if you have the ability to produce fish at a lower cost than your competitor, you may want to price your fish under your competitor's so you can have a competitive advantage.
- **Competitive Analysis.** This will include a description of who your competitors in the market are, including an analysis of their strengths and weaknesses. This should also include an analysis of your company's strengths. For example, why should a buyer buy from you instead of another processor?
- **Description of Your Products.** This will include an analysis of your products from your customer's perspective. Is your fish a higher quality than he has been able to buy previously? Do you have better quality? A unique product? A better price?
- **A Promotional Strategy.** How do you plan to make potential customers aware of your company and your products? There are a number of options, including advertising, trade shows, networking, and trade missions.
- **A Merchandising Plan.** Some buyers will expect you to provide merchandising materials that will help them sell your products. Supermarkets, for example, may ask if you have recipe cards they can use. Restaurants may ask for cards describing your product that they can clip on to their menus
- **A Marketing Budget.** Marketing takes money, and you'll have to include money in your operational budget for marketing. Types of items that should be included are trade advertising, trade show participation, and direct mail promotions.

Choosing People to Sell Your Fish

It's not easy finding good people to sell your fish. It is important to understand that selling seafood successfully depends to a great degree on the relationship that a sales person has with a buyer. Since so many of the seafood products they buy from suppliers are very similar, buyers will often buy mostly from people with whom they have a good relationship. To a certain extent, this is human nature. That is why good salespeople tend to be very outgoing and friendly.

Most seafood companies will hire sales people or brokers that already have a good record selling the kinds of products they produce. This is generally a low-risk proposition, as

these people will already know who the buyers are for these products and they will have good relationships with many of these buyers. Depending on the types of products you produce, this may be best for your company.

However, you may also want to consider hiring someone who is new to the seafood industry if your sales position requires a lot of new market development. Often times, people who are new to the seafood industry will be more motivated and will work harder at developing new markets for your products. While experienced seafood salespeople can be quite good at selling to buyers with whom they already have relationships, they are often not willing to make a lot of “cold calls” that are needed to find a lot of new buyers.

Keep in mind that by their very nature, salespeople tend to be optimistic. If you are interviewing prospective brokers or salespeople, for example, they will probably tend to give you overly optimistic sales projections. They are in effect trying to sell you that they are the best person for the job. While that may be true, it’s wise to discount any projections you get from salespeople before putting them in your business plan.

Before you select a person to sell your fish, be sure to take the time to do some background checking. Ask for a list of customers they have been selling to as a reference. Then call these people to see what they have to say about the person you want to have represent your company. You may be surprised at what you learn.

Hiring the right people to sell your fish is critical to the success of your company. You may even want to hire a professional recruiter if you decide to have an in-house sales staff. Regardless, though, make sure you put a lot of time and effort into this task. It could make or break your company.

