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.
Quinhagak 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

<table>
<thead>
<tr>
<th>List the different types of positions for which the plant will need workers.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Describe what kinds of work and skills each position requires.</td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td>How many workers will you need for each type of position when the plant is working at full capacity?</td>
</tr>
<tr>
<td>Estimate the total number of worker hours, days or months you will need for each type of position.</td>
</tr>
</tbody>
</table>
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.

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### 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?

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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.

<table>
<thead>
<tr>
<th>Product</th>
<th>Labor cost per pound of finished product</th>
</tr>
</thead>
<tbody>
<tr>
<td>H &amp; G and box (fresh)</td>
<td>$0.18</td>
</tr>
<tr>
<td>Fillet-pin bone in-skin on-freeze-box</td>
<td>$0.35</td>
</tr>
<tr>
<td>Fillet-pin bone out-skin on-vac-freeze-box</td>
<td>$0.45</td>
</tr>
<tr>
<td>Fillet-pin bone out-skin off-vac-freeze-box</td>
<td>$0.50</td>
</tr>
<tr>
<td>Fillet-smoke-pin bone in-skin on-fr.-box</td>
<td>$0.40</td>
</tr>
<tr>
<td>Fillet-smoke-pin bone out-skin on-fr.-box</td>
<td>$0.50</td>
</tr>
<tr>
<td>Can or jar-smoke-pin bone in-skin on</td>
<td>$1.30</td>
</tr>
<tr>
<td>Ikura (not including technician costs)</td>
<td>$0.25</td>
</tr>
</tbody>
</table>

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.

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

<table>
<thead>
<tr>
<th>Seafood production</th>
<th>Quality assessment and control</th>
<th>HAACP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant design</td>
<td>Economic impacts of quality</td>
<td>Hazards</td>
</tr>
<tr>
<td>Plant set-up</td>
<td>QC systems: Deming’s principles,</td>
<td>Prerequisite programs</td>
</tr>
<tr>
<td>Product flow</td>
<td>Total quality management, and ISO 9000</td>
<td>Hazard analysis</td>
</tr>
<tr>
<td>Traffic flow</td>
<td>Causes of quality loss</td>
<td>Control measures</td>
</tr>
<tr>
<td>Employee flow</td>
<td>Preservation methods</td>
<td>Verification</td>
</tr>
<tr>
<td>Information flow</td>
<td>Quality evaluation: sensory and chemical</td>
<td>Record keeping</td>
</tr>
<tr>
<td>Scheduling</td>
<td>Fish parasites: roundworms, tapeworms and protozoans</td>
<td>HAACP regulations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Critical control points</td>
</tr>
</tbody>
</table>

**Fish handling**

- Shelf life extension methods: chemical, Critical limits
- Fish handling: heat treatments, enzymes, bacteria, & chemical Monitoring

**Gutting**

- Ozone research Corrective Actions
- Chlorine dioxide reearch GMPs

**Filleting**

- Packaging technology: MAP and CAP Establishing an SSOP
- Packaging technology: vacuum, FDA Hazards Guide

**Pinbone removal**

- Packaging technology: vacuum, FDA Hazards Guide

**Secondary processing**

- films, labeling Seafood Hazards
- Better process control Where to go for Help

**Brining**

- Botulism HAACP plans: Cooked RTE crustaceans

**Dry salting**

- Microbiology HAACP plans: Smoked fish
- Food container handling Sanitation monitoring

**Mincing**

- Food plant sanitation Process room instrumentation
- Botulism HAACP plans: Cooked RTE crustaceans

**Extruding**

- Food plant sanitation Process room instrumentation
- Microbiology HAACP plans: Smoked fish

**Pickling**

- Food plant sanitation Process room instrumentation
- Food container handling Sanitation monitoring

**Canning**

- Food plant sanitation Process room instrumentation
- Botulism HAACP plans: Cooked RTE crustaceans

**Closing**

- Food plant sanitation Process room instrumentation
- Process room equipment and operation Safety of water

**Seam inspection**

- Food plant sanitation Process room instrumentation
- Still retorts: pressure processing in steam & water Food contact surfaces

**Retorting**

- Food plant sanitation Process room instrumentation
- Acidified foods Cross contamination

**Packaging and shipping**

- Food plant sanitation Process room instrumentation
- Records for product protection Hand washing facilities

**Vacuum packaging**

- Food plant sanitation Process room instrumentation
- Closures: metal & glass containers Toxic compounds

**Shipping**

- Food plant sanitation Process room instrumentation
- Retesting Employee health

**Measuring pH**

- Food plant sanitation Process room instrumentation
- Pest control

**Fish smoking**

- Food plant sanitation Process room instrumentation
- Water activity and chlorine SSOP plans and records

**History**

- Food plant sanitation Process room instrumentation
- Can seams

**Plant layout**

- Regulatory requirements FDA, EPA, DEC

**Equipment**

- Low temperature storage FDA, EPA, DEC
- Salt and salting Terminology Inspections

**Additives**

- Refrigeration cycle Business management
- Refrigeration components Business plans

**Hot smoking process**

- Chill storage Business plans
- Partial freezing Plant records

**Cold smoking process**

- Freezing

**Product cooling**

- Temperature measurement Seafood marketing
- Freezing

**Smoke**

- Temperature measurement Seafood marketing

**Post producting handling**

- Ice machines Quality considerations
- 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:*

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