

“WE’RE NOT SELLING TOILET PAPER HERE!”

AN ANALYSIS OF PINE BLUFF FISH CO.

In an industry that is consistently demanding more and more *fresh* product, Pine Bluff Fish Co. is struggling to move away from large frozen fish inventories. As the Vice-President of Operations at Pine Bluff Fish Co. sips on his morning coffee and enjoys a donut, he calmly states “we’re not selling toilet paper here” in reference to fresh seafood product which must quickly move through the facility due to its very short shelf-life. Alternatively, frozen seafood inventory is a completely different story.

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Executive Summary

This report analyzes the operations of Pine Bluff Fish Co., a local Pine Bluff seafood processing and distribution plant which serves numerous clients throughout central Arkansas. The paper begins by examining current procedures, from order placement to product delivery, including issues related to inventory management. Our analysis of the business shows that Pine Bluff is a craft-intense operation which relies heavily on visual and olfactory cues. This has resulted in the company having few systematized processes in place, despite the complexity of its work. We also noted that if standardized procedures are in place they often lack accountability measures. In addition, the data they provide is seldom examined or utilized to make informed decisions. Another important observation is that daily operations rely heavily on physical information flows, which results in opportunities for misunderstanding and lost time.

Related specifically to its inventory, our research shows that the company handles fresh and frozen product in very different ways. Pine Bluff relies on a manual inventory management system which does not provide up-to-date sales information and is also time-consuming to calculate. Fresh inventory is extremely perishable and must be sold within several days of arriving at the facility. Frozen fish, on the other hand, has a much longer shelf-life. We discovered that the company holds a substantial amount of capital tied up in frozen inventory, which is stored in an off-site facility and results in significant recurring costs.

The report concludes with our proposed recommendations for Pine Bluff. Specifically related to inventory management, we encourage the company to invest in a computerized inventory management system and to reassess the profitability of its frozen inventory. We further recommend that Pine Bluff systematize and formalize more of its processes, and build accountability measures into procedures. Specifically, the company should improve product labeling for on-site storage and deliveries. Lastly, we strongly urge Pine Bluff management staff to make use of the information that the company currently collects as it can be extremely insightful and helpful in assessing current operations. ***By implementing our proposed recommendations the company could potentially save an estimated \$125,000.*** This figure includes \$36,000 in annual labor costs, \$41,000 in net losses from discounting frozen inventory; \$36,000 in annual, off-site storage costs and at least \$11,800 in returned product.

Overview

Seafood Processing Industry

The seafood processing and distribution industry in the United States is quite large, with over 600 fresh and frozen seafood processors, 1,000 canneries and roughly 2,500 distributors. Often, companies will overlap and operate as processors, distributors and wholesalers, as is the case with Pine Bluff Fish Co. The commercial value of the industry is estimated at \$12 billion.¹ According to our research, the industry appears to be very fragmented; the fifty largest processors in the U.S. control only 45% of the market.² Demand fluctuates wildly, and is driven by trends in fish consumption. It is important to note that the industry is extremely seasonal, with fishing seasons lasting from a few weeks to several months depending on the species. This has led the industry to rely heavily on frozen inventories for off-season demand.

The industry has become highly globalized over the past several decades. It is not unusual for a medium sized company, such as Pine Bluff, to purchase fish from New Zealand or Chile while continuing to procure product from local fishing boats. From fishermen to vendors, the industry-wide process includes multiple steps; it is common practice for seafood to be handled by processors, exporters/importers, wholesalers and distributors before a fish reaches the final customer. The timing of this process depends on the variety of fish; some must be consumed within a few days, while others have a two week shelf-life outside of the water.

Pine Bluff Fish Co.

Established in 1915, Pine Bluff has been processing and delivering quality seafood products to its Central Arkansas clients since its inception. The company processes approximately 10 million pounds of seafood per year and we therefore estimated total sales to be approximately \$40 million³ in 2008. The company has been owned and managed by Jeff Hinkel (President), Bill Carsen (Vice-President, Operations) and Matt Whisper (Vice-President, Sales) since 2002. Currently the business employs 75 staff, 95% of which are full-time.

Pine Bluff is a unique company, operating as a processing plant, buying directly from local fishermen and functioning as an importer. As a wholesaler, Pine Bluff sells to distributors and regional customers. Its seafood is both wild-caught and farm-raised, and similar to the entire industry, the company's operations are highly seasonal. The procedures for processing seafood are relatively simple; however, the sheer variety of fish adds complexity to the business as Pine Bluff sells 100+ different types. For example, Mr. Whisper explains that each fish species requires different handling techniques, and each has a different shelf life. Currently, Pine Bluff handles approximately 80-85% fresh seafood, and the remainder is frozen. The fresh fish yield is usually between 20-60%, depending on the variety.

¹ "Seafood Processing and Distribution Report." Hoovers. 8 Feb. 2009 <http://www.hoovers.com/seafood-processing-and-distribution/--ID_398--/free-ind-fr-profile-basic.xhtml>.

² Ibid.

³ Estimated average sales price of \$4 per pound; 10 million lbs sold in 2008; 4 x 10 mil. = \$40 million total sales

Pine Bluff Fish Co. operates in a 20,000 square-foot facility in Pine Bluff’s harbor, which the company leases from the city of Pine Bluff. The company also rents two off-site deep-freeze storage units, where it keeps additional frozen inventory. In order to make its daily seafood deliveries, Pine Bluff leases 16 delivery trucks, and runs a total of 13 delivery routes per day, six days per week. For seven routes, deliveries are made once a day in the morning. Three local routes (to downtown Pine Bluff, La Jolla and the beach communities) are scheduled twice a day; in the early morning and mid-afternoon. The company’s main clients include regional restaurants, caterers, hotels and casinos (i.e. Marriot, Hotel Pine Bluff, Red Lobster and Sam’s at the River), as well as supermarkets (i.e. Walmart and Costco), distributors and seafood stores (i.e. Point Bluff Seafood). In the facilities, most work happens in the early hours of the morning, and deliveries are scheduled to leave the locale by 7:30 am. Inventory is manually taken twice a day, in the evening and in the morning.

Plant Operations

This section describes the operations that occur during the preparation for the ten daily deliveries. The plant is in full operation from approximately 1:00 am until 10:00 am. Special orders are prepared after the morning rush or simultaneously in the Special Prep Area. We recommend reviewing Diagram 1 (*Plant Layout*) and Diagram 2 (*Operations Flowchart*) while reading this section.

Taking Orders

Pine Bluff Fish Co. receives orders from clients six days a week, either by phone or fax. Orders are taken by one of four or five administrative staff persons in the office, and are quickly noted on the order form. The sales team annotates information regarding seafood product, quantity, and type (i.e. fresh, frozen, size specifications) on this form which comprises four sheets of different colors (blue, yellow, pink and white). Administrative staff is familiar with the available products, and have printed copies of the Inventory Pricelist as a reference. Once the order form has been filled out, staff place the various colored sheets in one of three slots: the blue sheet goes to the Fresh Station, the yellow to the Frozen Station and the pink to the Truck Route Station. Diagram 2 (*Operations Flowchart*) illustrates how this information flows through the facility.

Seafood Order Preparation

Order-makers (*employees who organize the order and ensure all products are available*) from the Fresh Station regularly pick up blue sheets from the office window. Beginning in the late evening (around 9:00 pm) one or two staff members begin making orders for the next day. This comprises of reviewing and organizing fresh fish orders by fish type and amount needed. The information is transferred to pieces of cardboard, and in the early morning (1:00 am) the cardboard orders are handed to the cutters. The cutting station is manned by two or three staff, who work from before dawn until the late morning. Once they receive the cardboard orders, they pull the fish from Cooler #1 or Cooler #2 and begin filleting the fish. Waste is saved for sale (i.e. heads sell for cat food) or thrown into carts for disposal. Once the fish has been prepped and cut, it is weighed and placed in bags on carts, which are then moved to Cooler #3 or directly to the Fresh Station.

Between 4:00 am and 8:00 am, the Fresh Station is staffed by four to seven people, including one supervisor. During this time staff complete orders, pulling processed fish and other seafood (mussels,

scallops, etc.) from one of the three coolers. All orders are labeled by country of origin,⁴ bagged and weighed. The weights are noted on the blue order sheet, which is returned to the administrative office. Administrative staff members then utilize the blue sheet to create an invoice which is taken to the Truck Route Station.

Frozen orders are prepared simultaneously with the fresh ones. The Frozen Station is manned by one staffer, who picks up the yellow order sheet in the office slot sometime between 4:00 and 7:00 am. He then reviews orders and pulls the appropriate product from one of the two on-site freezers. Depending on the order, product may need to be bagged or weighed. Frozen product then joins the fresh portion of the order at the Truck Route Station and is checked for completion.

Delivery Truck Preparation

While the seafood orders are being prepared, the pink order sheet is taken from the administrative office to the Truck Route Station, where the supervisor arranges the orders based on routes. Each route has a clipboard where the pink sheets are laid out on a long shelf for drivers to review. In addition to the supervisor and ten drivers, the loading dock area is staffed by two or three employees, who help load trucks.

Once the Truck Route Station receives the printed invoices from the office, orders are checked, confirmed as complete, and taken to the loading dock. Trucks are loaded while drivers double-check orders and arrange the boxes based on destinations. Trucks depart at approximately 7:30 am. On average, each truck makes approximately eight deliveries with an average invoice price of \$605⁵ (see Exhibit 1). There is a minimum invoice price of \$150 for deliveries.

Personnel

Pine Bluff has 75 employees, 95% of which are full-time. Operational staff comprises 73% of the labor, whereas administrative staff comprises 27%. Most of Pine Bluff's employees are union members. Throughout the financial analysis in this paper, we've assumed an average wage rate of \$20/hour for operational and administrative staff.

Inventory

Control

Pine Bluff maintains inventory on- and off-site. On-site storage includes three coolers, two freezers, and five 18-wheeler containers which act as flexible coolers on the loading dock when necessary. Two additional off-site facilities are currently storing over 150,000 pounds of frozen inventory.

On-site inventory is taken twice a day at Pine Bluff, once after the 7:30 am truck departures and again in the afternoon. Typically, one supervisor counts total inventory by walking through the three coolers and two freezers, checking items against the previous inventory list. When a supervisor is not

⁴ FDA regulations require that seafood sold to supermarkets disclose country of origin; for simplicity Pine Bluff labels all products, regardless of client.

⁵ These figures are rough estimates obtained from a small sample taken during our visit to the facility. One supervisor noted that the average delivery per truck is 15 orders, with invoices ranging from \$300 - \$2,000.

available this is done by two staff members. Separate Daily Inventory Pricelists are maintained for fresh and frozen product. After being updated by administrative staff in the office they are printed and circulated once a day for reference. Even with these frequent inventory calculations, orders cannot be immediately guaranteed because there is no real-time inventory information available when a sale is made. It is important to point out that inventory is only updated after visual inventory is taken; order forms and electronic invoices are disconnected from the electronic inventory and therefore do not automatically subtract stock when sales are confirmed. Off-site inventory at the two rented deep-freeze units is taken much less frequently. Our understanding is that it is rarely taken; however, when items are removed they are subtracted from the Daily Inventory Pricelist.

Labeling

Pine Bluff relies on several methods for labeling inventory, depending on the type. Fresh fish is weighed upon arrival at the plant, using the large scale on the loading dock (see Diagram 1). Once the fish has been weighed, a staff member writes information pertaining to the fish on a cardboard card, which is placed in the bin with fish and ice. In general, the card includes the following information: origin, species, size category (5/up), and total fish weight (i.e. 500 lb. salmon). During our visits we noted that the card is often wet, hard to read, hidden under ice and oftentimes missing vital information, such as arrival date. In some instances, we were unable to locate this cardboard label.

As mentioned, Pine Bluff labels all outgoing product noting its country of origin. This takes place when the order is prepared in the Fresh Station. The company utilizes color-coded labels to help recognize the country of origin (U.S., Canada, Mexico or other). When seafood is packaged for delivery, the box contains no outside label identifying any other information other than client name, which is written on the box by hand.

Packaging and Handling

Fresh inventory is either carried throughout the facility or pushed on carts. Both fresh and frozen inventory is shipped in waxed boxes which prevent damage when exposed to ice. On the loading dock, boxes are moved manually or with forklifts.

Pine Bluff has also started testing the use of reusable plastic bins as an alternative to waxed boxes. To date, several of its customers, mainly restaurants, utilize this service.

Pricing

Seafood prices are determined based on client demand and market prices, and vary depending on a product’s season. Pine Bluff has developed a three-tiered price system; product prices are decreased for the company’s best customers (based on total sales). Also important to note is that *fresh* seafood has a relatively short shelf life. Some varieties can no longer be sold after two or three days in the facility, whereas other varieties can last up to one week in the coolers. Staff visually check fish at all stages of operations; this includes touching and smelling to determine freshness. Once fresh seafood is no longer at its optimal stage (but is still good for consumption) Pine Bluff can either sell it at a discount or freeze it. When freezing fish for this reason, the product’s value reduces by 25-50% and a supervisor logs the activity, noting the amount, type and date of the product (see Exhibit 2).

Analysis

This section discusses our analysis of the findings at Pine Bluff. We have divided our examination into various sections, beginning with the more general observations and subsequently delving into more detailed issues.

Craft-intense Operation

Pine Bluff is a very craft-intense company relying heavily on visual, verbal and olfactory cues. This can be partially attributed to the company's diverse product mix and age, as it was established over 70 years ago by a family of Canadian fishermen. Evidence of "craft reliance" can be seen throughout its operations. For example, staff members appear to utilize their senses more than recorded information, often gauging a product's freshness by smell and touch rather than the information on labels. Another example of the company's reliance on specialized skills can be seen in the importance Pine Bluff places on its cutting staff. These employees are extremely specialized and highly valued by Pine Bluff's management since all cutting is done by hand.

Few Systematized Processes

Along the same lines the company does not have many formally systematized operations, and when systems do exist, the information obtained is not fully utilized. This is evidenced throughout the facility and applies to many areas of operations. An example of an existing informal process is seen in product labeling. Purchased fish arriving at the facility is inconsistently labeled, with critical information oftentimes disregarded. Even when the card includes vital information, employees are not utilizing it to make decisions regarding expiration date, preferring to rely on their senses. Another example at Pine Bluff relates to customer returns, where Pine Bluff collects information but does not utilize it to change ineffective procedures.

One last example is seen at the Fresh Station, where employees review orders and prepare cutting orders for staff at the cutting station. The information given to cutters is hard to read and contains too much data. All the cutters need to know is total pounds of a certain species to cut, yet the information they receive is confusing to read as it is broken down by order.

We also observed that existing processes may not include checks and balances or other accountability measures. The data we have analyzed supports this claim. One clear example is evidenced by customer return information which will be discussed further below.

Complex Information Flow in Daily Operations

To outsiders, daily operations at Pine Bluff can appear quite chaotic. As one of the partners explained, it is "organized chaos." Our *Plant Layout* (Diagram 1) and *Operations Flowchart* (Diagram 2) illustrate the complexity of the system, and break down the process by differentiating between information and product flow. *The dotted lines in these diagrams are strictly physical information flows. Solid lines represent actual product movement through the facility.* By observing the quantity of physical information exchanges that take place in the facility, we see that the plant relies heavily on paper information flows. *Therefore, most of the movements between stations and/or the office do not involve product.*

Information Utilization

Pine Bluff has several systems in place for collecting various sources of information regarding their daily activities. These include inventory, spoilage, and customer returns, as mentioned above. There are most likely other data that Pine Bluff is collecting but we have become most familiar with these three items. This section will expand on spoilage and customer returns data; the following section will discuss inventory.

Spoilage

In February 2009, Pine Bluff discarded about \$8,213 worth of inventory due to spoilage (see Exhibit 3). Roughly \$6,725 of this was lobster bodies, \$488 was trout and the rest was an assortment of cockles, mussels and oysters. Looking more closely at this data, oysters and cockles had both spoiled multiple times during the 28-day time period. This raises concerns because it appears that one of two things is happening: 1) oysters are being purchased unnecessarily, or 2) the oysters being purchased are not good quality.

In addition, the fact that \$6,725 worth of lobster bodies was lost to spoilage raises concerns about whether fresh inventory needs a formalized process to alert managers when product is close to expiration.

Customer Returns

Regarding customer returns, the data collected is very informative. With just three months of data, we recognized that one customer, Clearwater, represented 28.7% of all returned products (See Exhibit 4). Realizing that Clearwater was returning goods on a regular basis, we excluded this company from much of our analysis. We can also see that David drives the Sheridan truck route on Mondays and the Downtown route on Tuesdays. For some unexplained reason, he is reporting a significantly greater amount of customer returns than other drivers (see Exhibit 5). In fact, in the four-month period from October 14, 2008 to February 11, 2009, only six drivers reported a returned product.

Furthermore, just 20% of the drivers (David, Joseph, and John) reported 84% of the customer returns (see Exhibit 6). If we break this down further, this figure jumps to 91% when we only consider returns that *did not* need replacement product. For example, a product would need to be replaced if it was deemed poor quality or too small. On the other hand, a product would not need to be replaced if it wasn't ordered in the first place or if the customer got the product from another vendor first. If we include Clearwater, the same three employees (David, Joseph, and John) account for *94% of products being returned that do not need a replacement*. This immediately raised concerns as it does not seem feasible that only three employees have customers which return products, especially since David is driving for both the Sheridan and Downtown routes. Our concerns may be validated by the fact that those three employees returned goods from 23 different customers during this four-month period; all other drivers only returned products from eight different customers.

Inventory management

Seafood processing is an extremely tricky industry for inventory management because forecasting, for the most part, is customer- and supplier-driven. Large vendors like Sam's Club and Foodmart will set promotions two to three weeks in advance and then require Pine Bluff to have the appropriate type and quantity of fish available. When a large promotion doesn't stimulate demand downstream, Pine Bluff is left holding excess inventory. If this can't be sold to other vendors, it is either thrown-away or frozen. Herein derives the concern with customer-driven inventory levels.

Upstream from Pine Bluff, supply drives high inventory levels because of seasonality and the company's close relationship with local suppliers. Because maintaining these relationships is important, it is often difficult for Pine Bluff to send suppliers away when they catch fish. Thus far, it seems that Pine Bluff has preferred to maintain close relations with local suppliers rather than manage inventory more effectively. This is evident from the 14,000 lbs of frozen White Sea Bass in off-site inventory which was caught and purchased two fishing seasons ago. Furthermore, the erratic nature of fishing restricts Pine Bluff's ability to "order" the fish they need from local suppliers. The fish they catch are the fish that are available. Fortunately, orders are can be placed as needed from non-local suppliers.

Pine Bluff's large quantity of frozen inventory contrasts with the changing market trends which focus on "fresh, fresh, fresh." According to our calculations, Pine Bluff has at least \$1.2 million in frozen inventory (see Exhibit 7). On-site inventory maintains at least \$275,000 worth of frozen fish while the off-site facilities carry over \$900,000 of frozen product. This idle capital with stagnant value also carries large inventory costs.

For explanatory purposes, we have broken these two different types of inventory into fresh and frozen categories as their respective inventory processes are quite different. The frozen inventory represents product with a much longer shelf-life while the fresh inventory is usually pushed through the facility within a week.

Frozen Inventory

Frozen fish consist of 20% of total sales but 80% of total inventory at any given moment. This is due to the seasonality of the industry which allows for purchasing extremely large amounts of fish at low prices during "peak season." Pine Bluff is one of the few vendors willing to take on the risk of purchasing large quantities of fish to keep in storage and sell throughout the year. Most vendors prefer to eliminate high storage costs and purchase frozen fish as needed. This strategy is well aligned with demand as consumers have consistently become more focused on quality through freshness.

As mentioned, Pine Bluff holds roughly 150,000 pounds of frozen fish product in off-site storage. One-third of this is leftover White Sea Bass from the past two fishing seasons. White Sea Bass season is about to begin again. Because the monthly storage costs of keeping this inventory are \$0.02/pound, the company spends roughly \$3,061/month and \$36,733/year in storage costs (see Exhibit 8). In addition, the product in storage is undoubtedly stagnant if not declining in value.

In fact, when frozen inventory is in storage for too long, Pine Bluff drops the price significantly to get rid of it. The 14,000 pounds of frozen Sea Bass from two seasons ago is now going to result in an

estimated \$24,666 gross loss (See Exhibit 9). Storage costs for this inventory add an additional \$5,040 in losses while the opportunity costs of keeping capital tied up in frozen inventory for 18 months is \$4,424. Assuming additional operating costs are 20% of original COGS, net loss hovers around \$41,548. On a per unit basis, every pound of frozen White Sea Bass sold at \$3 results in a \$2.73 net loss. To cover these costs, Pine Bluff has to sell 14 lbs of Frozen White Sea Bass at \$5.99 for every 1 lb sold at \$3.00.

These losses have drastic implications on Pine Bluff’s gross profit margins (see Exhibit 10) and cumulative net profit (see Exhibit 11) for frozen White Sea Bass.

Interestingly enough, we received two different answers for “the goal” with frozen inventory. One partner stated that the goal for frozen inventory is to not have anything in the freezers for longer than one month. Another said that the goal was to sell it within one year. Because 14,000 lbs of frozen White Sea Bass is in inventory right now, almost two years after it was purchased, we can reasonably assume that neither of these goals is being met, at least not for off-site storage.

Fresh Inventory

With the current reliance on visual and olfactory cues, Pine Bluff does a great job of maintaining freshness as fish flow through the facility. The company has a goal of moving product through the facility within one week to maintain quality. Consumers are demanding freshness, forcing fish processors to move product through facilities more rapidly and purchase as necessary. In this manner, the business is quite rigid and forces Pine Bluff to balance its relationship with consumers and suppliers. On the other hand, fresh product that is losing value and freshness can be frozen to hedge losses. Although this reduces the products value, it is still salvageable. It is important to note that a fish’s value drops the longer it sits in Pine Bluff’s facility. Water weight adds significantly to the fish’s value and as it dries up, Pine Bluff loses money. Currently, Pine Bluff assumes a 3% loss in weight when calculating the intended gross profit margins.

Recommendations

The following section provides recommendations for Pine Bluff, based on our analysis. We follow each recommendation with our justification for the recommendation, and when possible, an assessment of the potential financial savings.

1. We recommend that Pine Bluff invest in a computerized inventory management system.

This investment will have the following benefits for the company:

1. It will allow sales staff to access up-to-date inventory information when taking orders;
2. It will give simultaneous access to order information for all staff at different locations in the facility; and
3. It will eliminate the daily inventory calculations.

By investing in an updated inventory system Pine Bluff will decrease its reliance on physical information flows and inventory taking, reducing labor costs. These labor costs savings are illustrated by eliminating all of the paper information flow (dotted lines) in Diagram 1. If an inventory management system eliminates just six hours of labor costs per day, which we think is realistic given our analysis, Pine Bluff will save \$36,000 a year. This represents 1% of total labor hours.

To break even, Pine Bluff only needs to save 3.23 labor hours a day to justify an investment in a computerized inventory management system (see Exhibit 12). This target is a small and very achievable number, representing only 0.54% of total labor hours. After this break-even point, the project would produce a positive Net Present Value (NPV). The assumptions in this calculation include; \$20/hour labor costs, a 10-year project lifespan, and \$55,000⁶ investment with \$3,000 in annual renewal fees, and a 10% required rate.

In addition, these calculations do not take several other benefits into account which would have positive financial implications. These include; fewer mistakes, less spoilage, improved process flow, real-time inventory data, and increased flexibility. These additional benefits would further decrease the labor-hour savings needed to produce a positive NPV.

2. We recommend that Pine Bluff reassess the profitability and management of its frozen inventory. If appropriate, Pine Bluff should strive to eliminate (or drastically reduce) off-site storage over the next year.

As noted earlier, Pine Bluff invests approximately \$36,000 per year in off-site inventory storage. This is done with reasonable intentions, as Pine Bluff is able to purchase product in large quantities at drastically lower prices during the peak fishing season. Storing this product throughout the year allows Pine Bluff to receive greater gross margins than they would by purchasing frozen product directly from competitors. Unfortunately, this strategy also comes with great risk. When Pine Bluff is left with a surplus at the year's end, the price drops below the Cost of Goods Sold, drastically hurting Pine Bluff's profitability. From the leftover White Sea Bass of two years ago, we estimate Pine Bluff's

⁶ \$30,000 software costs, \$15,000 for scanners, \$10,000 for one-time implementation cost. Our research finds that there are inventory management systems for far lower prices; however, we conservatively estimated these prices for explanatory purposes.

net losses to be approximately \$64,180⁷ (see Exhibit 13). To completely recover these losses through frozen White Sea Bass sales, Pine Bluff would have to sell approximately 336,000 lbs of product at a price of \$5.99/lb, assuming a 3% net profit margin.

We recommend that Pine Bluff implement a purchasing strategy that does not exceed annual demand for any frozen good. Assuming Pine Bluff sells 2,000 pounds of frozen White Sea Bass each month, we believe Pine Bluff should store no more than 20,236 pounds of product in frozen inventory at the beginning of the year (see Exhibit 14). When this inventory is exhausted, Pine Bluff should purchase frozen White Sea Bass from vendors, accepting smaller gross margins but removing the risk of excessive inventory losing value. Pine Bluff should purchase 2,195 lbs of frozen, processed White Sea Bass (see Exhibit 15) from other vendors and reorder when stock reaches 200 lbs.

By adopting this type of purchasing strategy, Pine Bluff could reduce frozen inventory storage and move all frozen inventory to its on-site facility within the next year.

3. We recommend that Pine Bluff systematize and formalize more of its processes.

As the company grows its client and product base we think it is important for Pine Bluff to create formalized processes. To date the company has relied heavily on visual and olfactory cues, which we think are essential for the business; however, there are many instances where structured procedures need to accompany the “craft-intense” cues. By instituting additional formalized processes Pine Bluff will be able to streamline operations and ensure consistency in its policies and potentially reduce internal mistakes. Two examples include increased accountability measures and improved labeling.

a. We recommend that Pine Bluff build-in additional accountability measures.

We encourage Pine Bluff to establish formal checks and balances, which will disincentivize foul play. At the same time, checks can act as incentives to report strange behavior while empowering employees.

Related specifically to customer returns, we encourage Pine Bluff to monitor and double-check reported returns with actual credits on client accounts. On a monthly basis, Pine Bluff could save between \$986 and \$2,960 per month⁸ (\$11,838-\$35,515 per year) in returned inventory if all drivers were to return mistakes to the facility as required. This is based on our analysis which finds that drivers should be averaging *at least* one (and potentially up to three) reported mistake(s) per month.

By implementing accountability measures Pine Bluff will avoid creating opportunities for staff members to engage in foul play, while encouraging them to be responsible. While hard to estimate the potential savings beyond those already mentioned, we are confident that Pine Bluff will see financial rewards if it puts these measures in place.

⁷ This includes; \$29,666 in gross losses, \$5,040 in storage costs, \$4,424 in opportunity costs and \$2,417 in operating costs (assuming operating costs are 20% of Gross Margin).

⁸ Our analysis finds that drivers should be returning *at least* one mistake per month. With twelve drivers not reporting mistakes and an average value of \$82 for returned product, estimated losses are \$986 per month. Currently, Joseph is averaging three returns per month, excluding Clearwater, which would result in \$2,960 in estimated losses per month when applied to all twelve drivers.

b. We recommend that Pine Bluff improve its product labeling, for on-site storage and for deliveries.

With regards to on-site labeling, Pine Bluff should create a system for uniformly labeling all its incoming seafood. Specifically, the label card should *always* include: species name, product type, arrival date, total weight, country of origin and SKU barcode. We suggest color-coding the labels by day of the week (see Exhibit 16). By color-coding the labels, employees will be able to easily identify which products were the first to arrive, and therefore which ones should be processed and sold first. To avoid damage, the colored cards should be placed in a clear plastic slip attached to the side of the cart with Velcro; this makes the card easy-to-access, clearly visible and effortlessly removed when necessary. Additionally, if more than one species or product type is in the same cart (as is often the case) various labels can be simultaneously attached to it.

With regards to delivery labeling, Pine Bluff should print stickers with the following information: client name, date of delivery, contents and weight. This would improve current processes by removing the need for dock employees to re-open boxes to verify contents. With the implementation of a computerized inventory system, these labels can be printed with the invoices.

By improving its labeling Pine Bluff could potentially decrease spoilage, throughput time, and delivery mistakes.

4. We recommend that Pine Bluff make use of the information it is currently collecting.

As evidenced in our analysis Pine Bluff is currently collecting important and useful information; however, we do not believe it is being utilized effectively. We urge the company to make use of the data it is collecting, such as customer returns and spoilage, to improve existing systems and formalize them in effective ways. By analyzing the information Pine Bluff already has available, management will have a clear methodology for assessing the profitable and unprofitable processes throughout the company. For example, delivery information is quite helpful for understanding returns, and should be used to make adjustments to the process.

Another example relates to customer returns, where there should be a formalized system for ensuring that mistaken deliveries are being reported. Cutting orders prepared by Fresh Station staff should also be presented in a systematized and legible manner, providing only the necessary information.

Conclusion

Despite the challenges described in this report, Pine Bluff Fish Co. runs an outstanding operation which continuously delivers high quality products to its clients. By implementing our proposed recommendations the company could potentially save an estimated \$36,000 in annual labor costs; \$41,000 in net losses from discounting frozen White Sea Bass; \$36,000 in annual, off-site storage costs; and \$11,800 in returned product. This \$125,000 in savings does not reflect the financial and intangible benefits of improved customer relations, fewer mistakes, less spoilage and quicker process flow which will undoubtedly result from making these proposed changes.

Through this project we both learned a great deal about the complexity and challenges facing the seafood processing industry. We would like to express our appreciation to the Pine Bluff team for welcoming us into their facilities. We’d especially like to thank Matt Whisper and Bill Carsen for spending numerous hours with us as we tried to learn more about the company’s operations. After observing Pine Bluff at work we are confident that the company upholds the highest standards in seafood quality and we will continue to seek out its products for our personal consumption.

Appendix

Exhibits:

- Exhibit 1: Sales per Truck, Orders per Truck, Average Order Size**
- Exhibit 2: Freezing Product**
- Exhibit 3: Spoilage Reported**
- Exhibit 4: Returns by Customer**
- Exhibit 5: Returns per Driver**
- Exhibit 6: Returns per Driver Breakdown**
- Exhibit 7: Capital in Frozen Inventory**
- Exhibit 8 Off-Site Frozen Fish Storage & Costs**
- Exhibit 9: Losses from Current Frozen White Sea Bass Inventory**
- Exhibit 10: Gross Profit per Pound – Frozen White Sea Bass**
- Exhibit 11: Cumulative Net Profit**
- Exhibit 12: Net Present Value Break Even for Computerized Inventory Management System**
- Exhibit 13: Losses from \$3 Frozen White Sea Bass Sales**
- Exhibit 14: Optimal Frozen Inventory Quantity**
- Exhibit 15: Optimal Frozen Inventory Purchasing**
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Diagrams:

- Diagram 1: Plant Layout**
- Diagram 2: Operations Flowchart**

Exhibit 1: Sales per Truck, Orders per Truck, Average Order Size

Route	Sales per Truck	Orders per Truck	Average Order Size
Route 1	\$ 1,725.00	3	\$ 575.00
Route 2	\$ 5,700.00	12	\$ 475.00
Route 3	\$ 4,300.00	7	\$ 614.29
Route 4	\$ 7,300.00	11	\$ 663.64
Route 5	\$ 4,900.00	7	\$ 700.00
Average	\$ 4,785.00	8	\$ 605.58

Note: These route numbers were assigned for descriptive purposes only and do not represent Pine Bluff's route numbering system.

Exhibit 2: Freezing Product

Product Type	Date	Amount	Unit	<i>Fresh Price</i>	<i>Frozen Price</i>	<i>Change in Price</i>	<i>Loss</i>
# 2 Mahi, Sk. Off	1-Feb	200	Pounds	\$ 5.50	\$ 4.25	22.7%	\$ 250.00
# 2 Mahi, Sk. Off	3-Feb	270	Pounds	\$ 5.50	\$ 4.25	22.7%	\$ 337.50
2-4 Malm Portions	3-Feb	277	Pounds				\$ -
11/Up Cat Fillet	4-Feb	210	Pounds	\$ 3.95	\$ 3.40	13.9%	\$ 115.50
1/2 Gae Medium	5-Feb	2	Cases				\$ -
L.S. Whitefish Filet	10-Feb	14.5	Pounds	\$ 9.45	\$ 7.09	25.0%	\$ 34.26
L.S. Whitefish Filet	6-Feb	5	Pounds	\$ 9.45	\$ 7.09	25.0%	\$ 11.81
#2 Tuna Loin	6-Feb	45	Pounds	\$ 9.45	\$ 7.09	25.0%	\$ 106.31
7/9 Cat Filet	10-Feb	120	Pounds	\$ 4.30	\$ 3.23	25.0%	\$ 129.00
5 oz. Trout	13-Feb	80	Pounds	\$ 7.05	\$ 5.29	25.0%	\$ 141.00
5/up Trout	13-Feb	45	Pounds	\$ 6.10	\$ 4.58	25.0%	\$ 68.63
Mahi Filet	16-Feb	67	Pounds	\$ 4.85	\$ 4.25	12.4%	\$ 40.20
Skate Wings	16-Feb	100	Pounds	\$ 3.95	\$ 2.96	25.0%	\$ 98.75
Tai Snapper Filet, Skin on	17-Feb	39	Pounds	\$ 6.25	\$ 4.69	25.0%	\$ 60.94
7/9 Cat Filet	18-Feb	150	Pounds	\$ 4.30	\$ 3.23	25.0%	\$ 161.25
11/Up Cat Fillet	18-Feb	270	Pounds	\$ 3.95	\$ 3.40	13.9%	\$ 148.50
Jar Oyster 8 oz.	24-Feb	2	Jars	\$ 2.80	\$ 2.10	25.0%	\$ 1.40
						Total	\$1,705.04

Notes:

- *Supplier is also listed on spoilage report but not commonly written down.*
- *Information in Italics is not kept on the original spoilage report and was used for analysis purposes only.*

Exhibit 3: Spoilage Reported

Product Type	Date Reported	Amount	Unit	Reason	Fresh Price	Total Loss due to Spoilage
C-B Catfish	4-Feb	45	Pounds	Old	\$ 2.70	\$ 121.50
10 oz. Jars	12-Feb	63	Pounds	Expired	\$ 3.15	\$ 198.45
5/Up Trout	11-Feb	80	Pounds	Old	\$ 6.10	\$ 488.00
100 Ct. B/P Oysters	12-Feb	4	Cases	Expired	\$ 43.00	\$ 172.00
B/P Oysters	12-Feb	21	Pieces	Expired	\$ 0.61	\$ 12.90
8 oz. Oysters	17-Feb	3	Jars	Expired	\$ 2.80	\$ 8.40
10 oz. Oysters	17-Feb	22	Jars	Expired	\$ 3.15	\$ 69.30
Cockles	18-Feb	55	Pounds	Dead	\$ 3.95	\$ 217.25
G. Mussels	18-Feb	15	Pounds	Dead	\$ 2.85	\$ 42.75
Lobster Bodies	19-Feb	500	Pounds	Poor	\$ 13.45	\$ 6,725.00
Cockles	20-Feb	40	Pounds		\$ 3.95	\$ 158.00
					Total	\$ 8,213.55

Notes:

- Information in *Italics* is not kept on spoilage report and was used for analysis purposes.

Exhibit 4: Returns by Customer

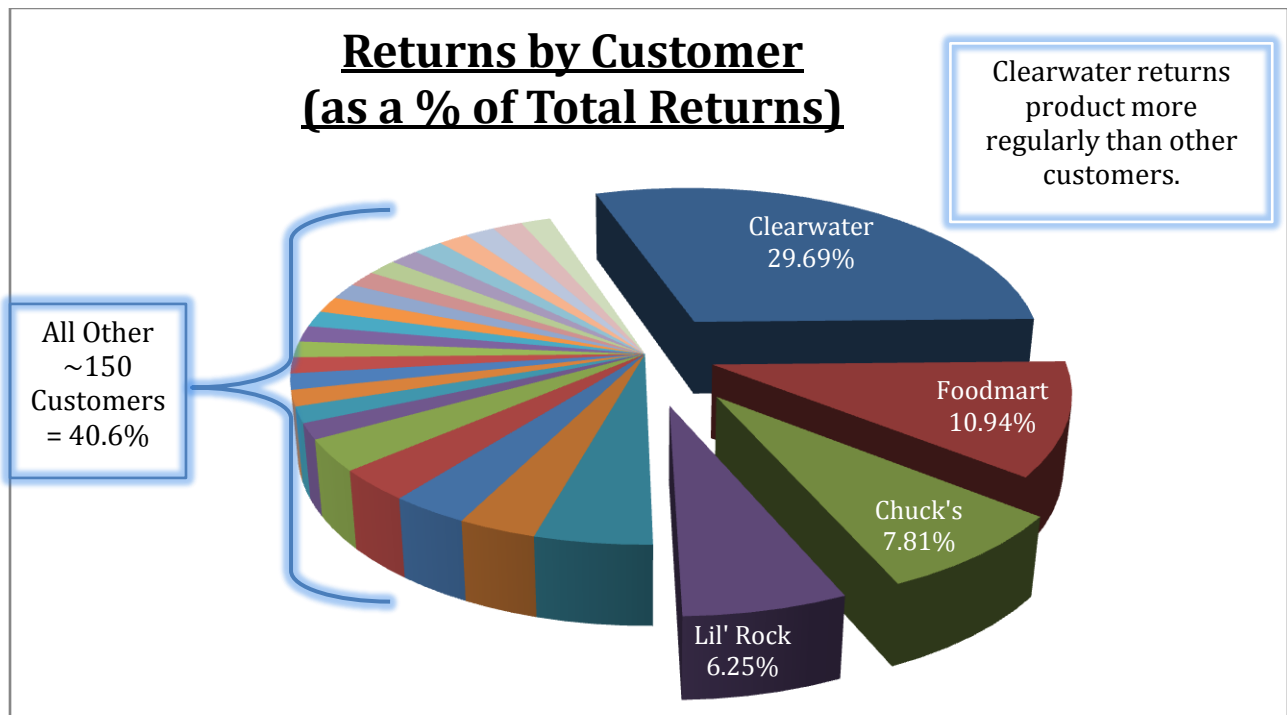
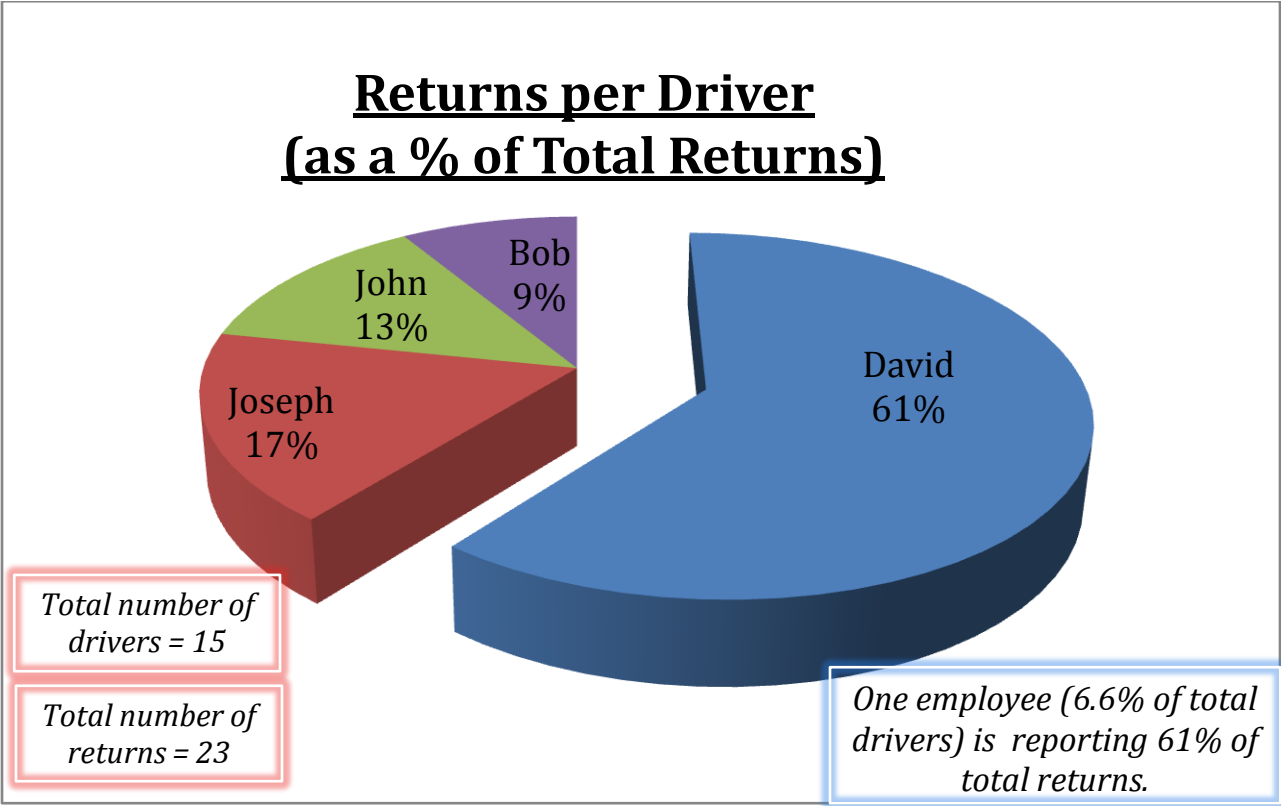
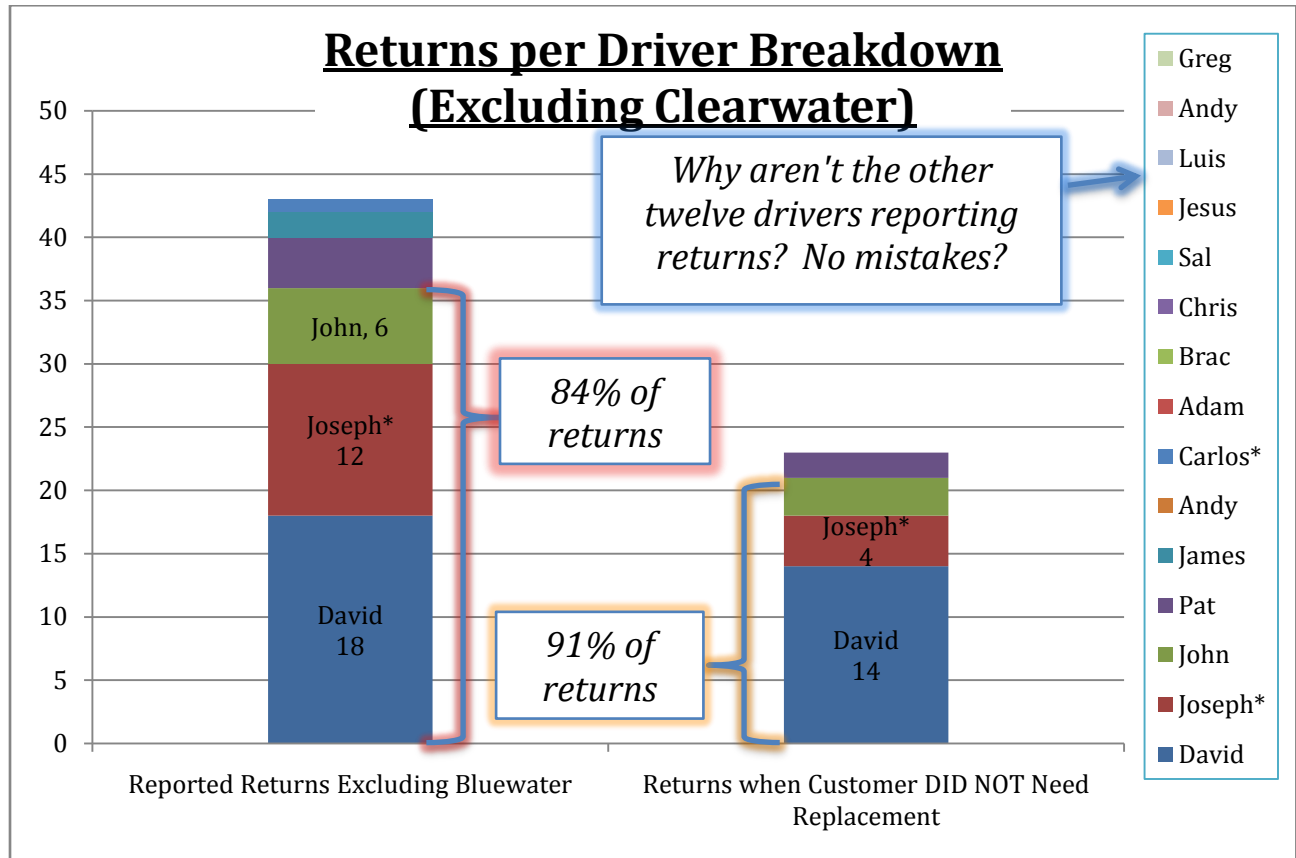


Exhibit 5: Returns per Driver



Notes:
- This is for returns that DID NOT need a replacement product; excludes Clearwater data.

Exhibit 6: Returns per Driver Breakdown



Notes:

- Includes all returns reported from October 14, 2008 to February 11, 2009
- Clearwater has been excluded as they return product regularly.
- *There are two employees named Carlos; two employees named Joseph.

Exhibit 7: Capital in Frozen Inventory

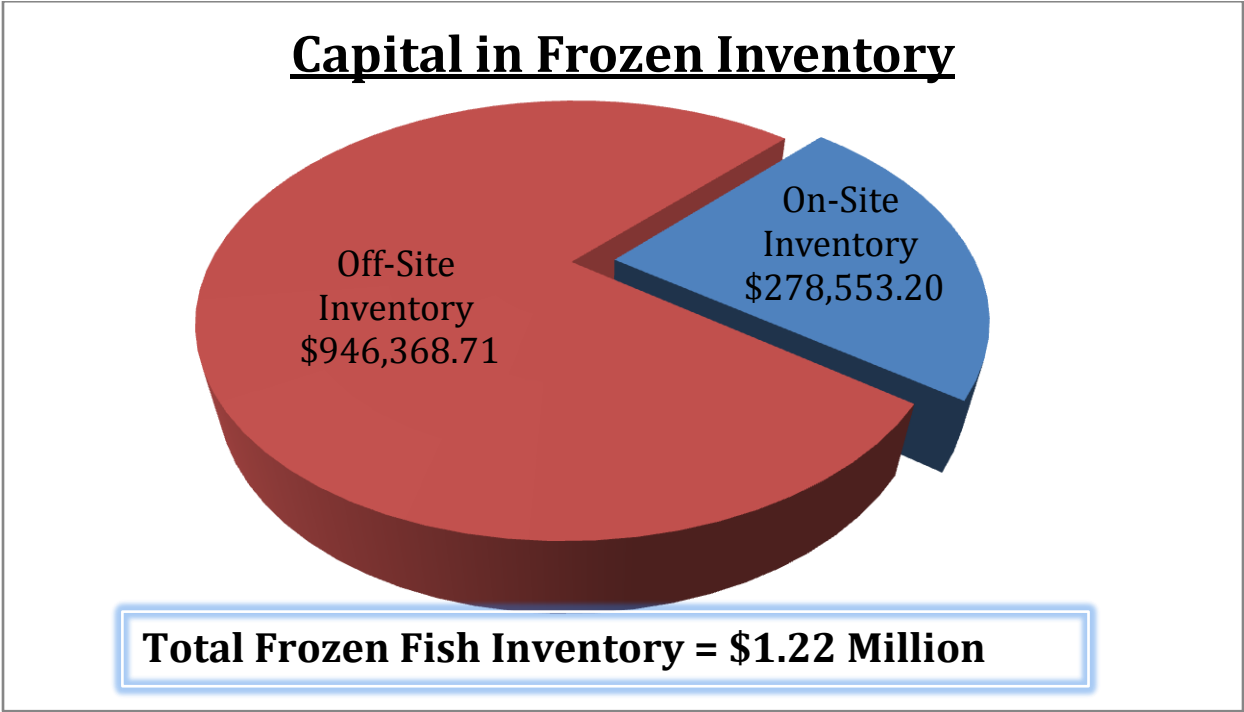


Exhibit 8: Off-Site Frozen Fish Storage & Costs

Product Type	Weight	Price*	Value at Frozen Price	Storage Costs Per Month**	Storage Costs Per Year
Corvina	9660	\$ 3.99	\$ 38,543.40	\$ 193.20	\$ 2,318.40
White Sea Bass #1	36103	\$ 5.99	\$ 16,256.97	\$ 722.06	\$ 8,664.72
White Sea Bass #2	14,239	\$ 3.00	\$ 42,717.00	\$ 284.78	\$ 3,417.36
Thresher Pelagic Loin	5490	\$ 1.00	\$ 5,490.00	\$ 109.80	\$ 1,317.60
Swordfish Loin	65,166	\$ 5.49	\$ 57,761.34	\$ 1,303.32	\$ 15,639.84
Scallops, Dry Tub	22400	\$ 12.75	\$ 285,600.00	\$ 448.00	\$ 5,376.00
Total	153,058		\$ 946,368.71	\$ 3,061.16	\$ 36,733.92

Notes:

* Price is taken from Frozen Fish sale price.

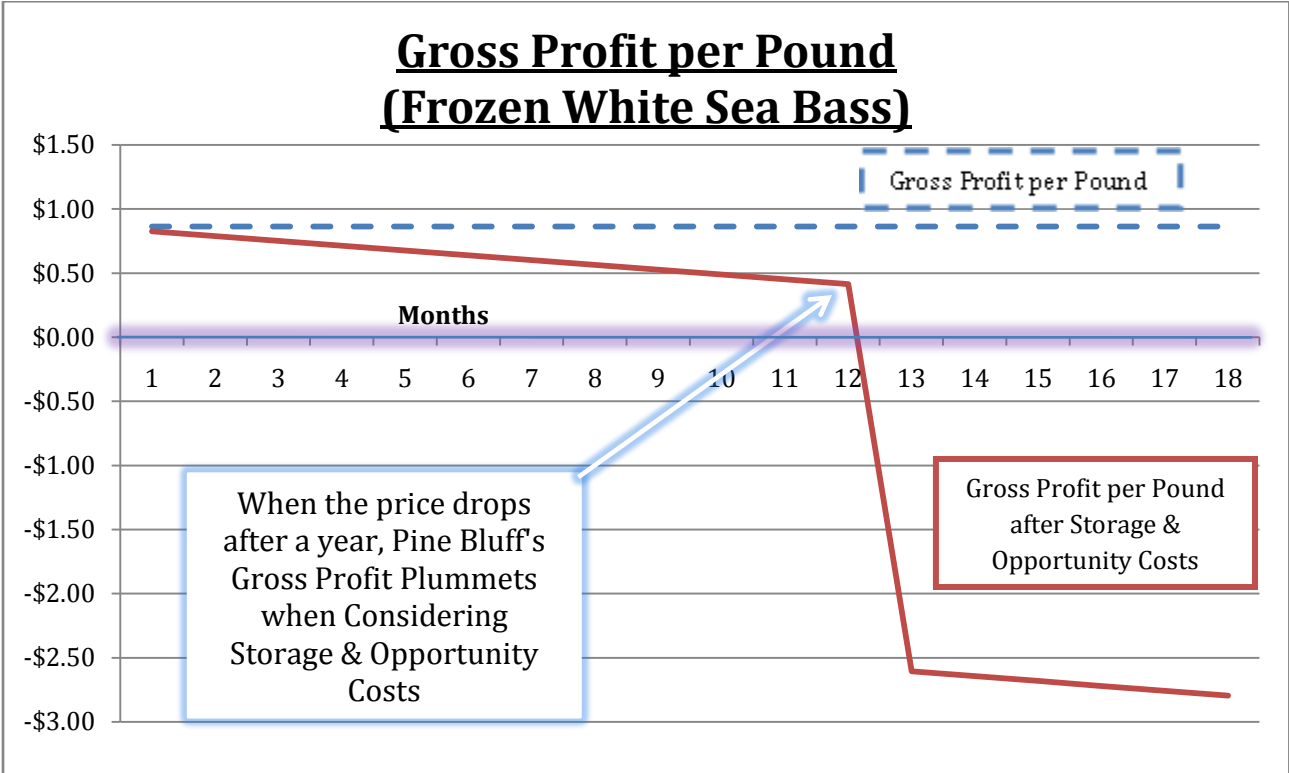
** Monthly storage costs are 2¢ per pound.

Exhibit 9: Losses from Current Frozen White Sea Bass Inventory

Losses from Current Frozen White Sea Bass Inventory	
Expected Gross Losses from additional 14,000 lbs in Inventory	\$ (29,666.67)
Storage Costs	\$ (5,040.00)
Additional Operating Costs	\$ (2,417.67)
Opportunity Costs	\$ (4,424.03)
Total Net Losses	\$ (41,548.36)

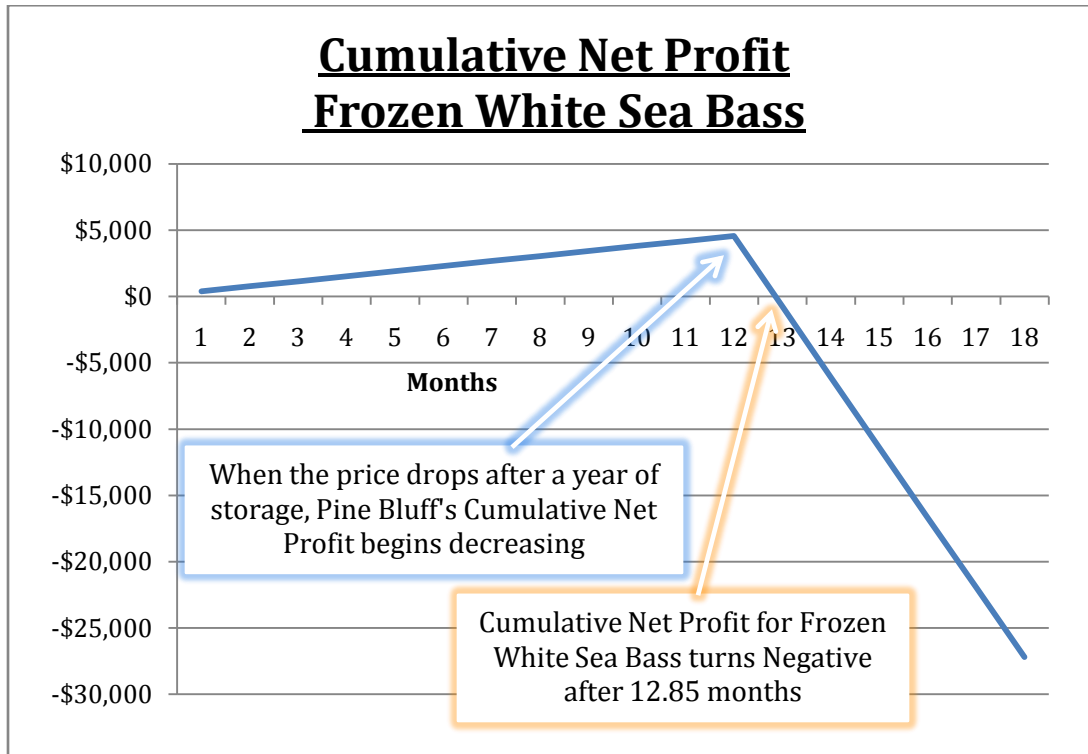
Note: This assumes a revised sales price of \$3.00/lb after 12 months; COGS of \$5.12/lb; 3% inflation; 7% required rate; 0.02¢/lb. in monthly storage costs; additional operating costs of 20% of gross profit.

Exhibit 10: Gross Profit per Pound



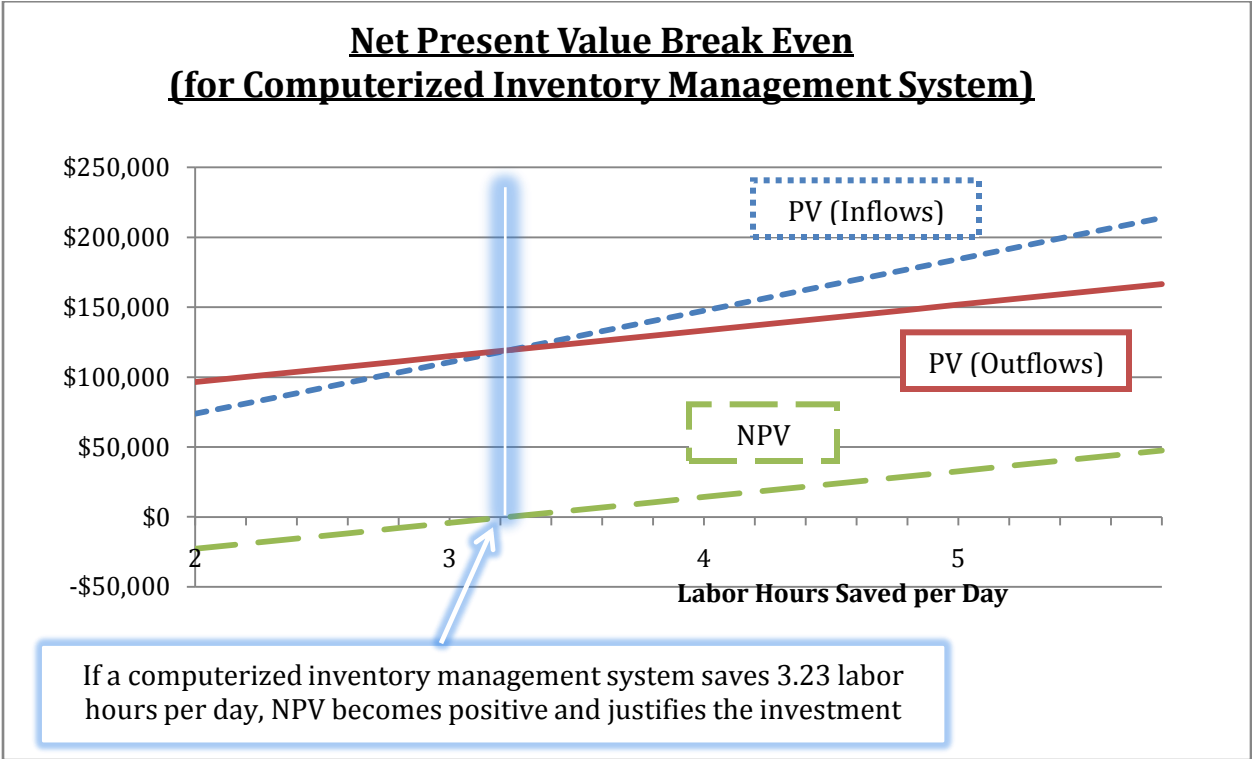
Note: This assumes a 3% Net Profit Margin for Pine Bluff; 50,000 lbs of frozen White Sea Bass inventory in month 0; original sales price of \$5.99/lb and revised sales price of \$3.00/lb after 12 months; COGS of \$5.12/lb; 3% inflation; 7% required rate; 0.02¢/lb. in monthly storage costs; additional operating costs of 20% of gross profit; actual frozen White Sea Bass sales of 2,000 lbs per month.

Exhibit 11: Cumulative Net Profit



Note: This assumes a 3% Net Profit Margin for Pine Bluff; 50,000 lbs of frozen White Sea Bass inventory in month 0; original sales price of \$5.99/lb and revised sales price of \$3.00/lb after 12 months; COGS of \$5.12/lb; 3% inflation; 7% required rate; 0.02¢/lb. in monthly storage costs; additional operating costs of 20% of gross profit; actual frozen White Sea Bass sales of 2,000 lbs per month.

Exhibit 12: Net Present Value Break Even for Computerized Inventory Management System



Note: This assumes 75 full-time employees and labor costs of \$20 per hour; 300 operating days a year; 10 year life-span for the project; \$30,000 initial software investment; \$15,000 investment in scanners; \$10,000 in implementation costs; \$3,000 annual software renewal fees; 10% opportunity cost of capital.

It is important to note that 3.23 labor hours per day represents only 0.54% of total labor hours!

Exhibit 13: Losses from \$3 Frozen White Sea Bass Sales

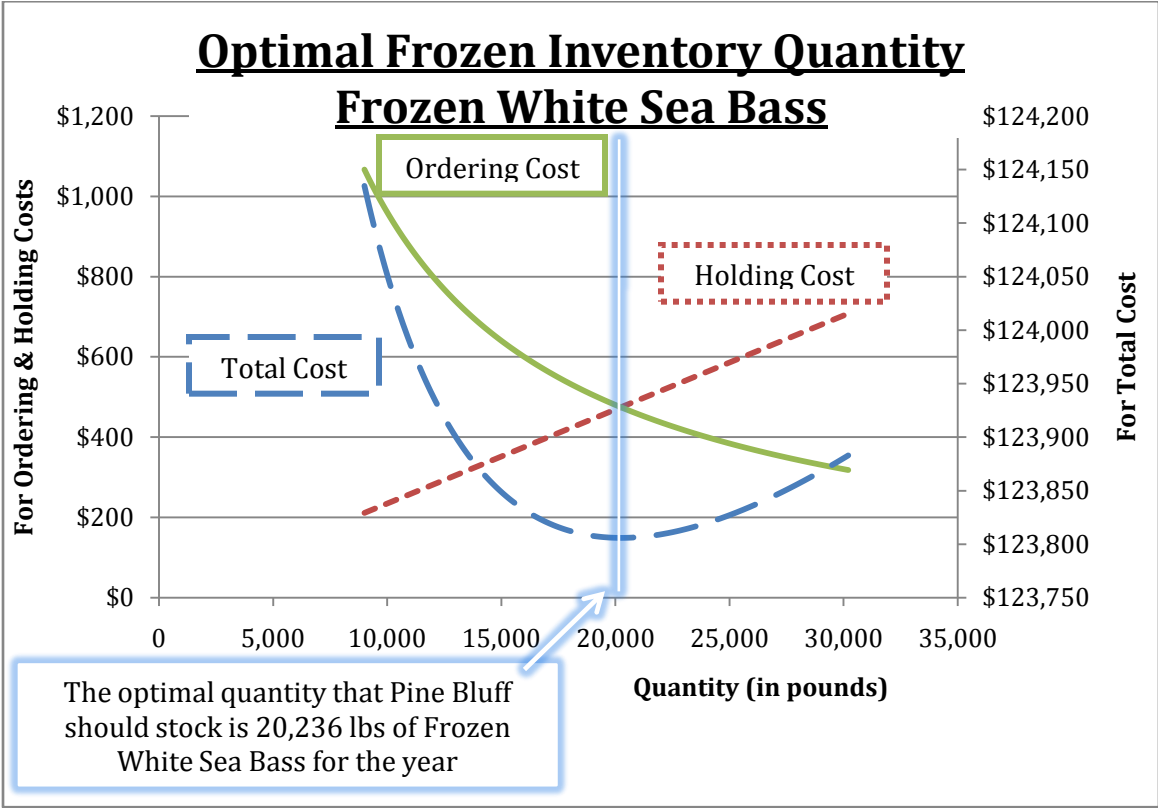
Months	Losses from \$3 Frozen White Sea Bass Sales	
12-18	Total Net Losses (2,000 lbs per month sold)	\$ (22,632.59)
18+	Expected Gross Losses from additional 14,000 lbs in Inventory	\$ (29,666.67)
18+	Costs*	\$ (11,881.70)
18+	Total Net Losses	\$ (41,548.36)
12+	Total Net Losses for ALL Frozen White Sea Bass sold at \$3 per lb.	\$ (64,180.95)
0-11	Net Profit needed to cover losses, assuming 3% net profit margin	\$ 64,180.95
0-11	At \$5.99 per lb, Frozen White Sea Bass needed to be sold to cover total net losses for ALL Frozen White Sea Bass sold at \$3	~ 336,000 lbs**

Note: This assumes a 3% Net Profit Margin for Pine Bluff; 50,000 lbs of frozen White Sea Bass inventory in month 0; actual frozen White Sea Bass sales of 2,000 lbs per month; original sales price of \$5.99/lb and revised sales price of \$3.00/lb after 12 months; COGS of \$5.12/lb; 3% inflation; 7% required rate; 0.02¢/lb. in monthly storage costs; additional operating costs of 20% of gross profit.

*Costs include: Storage costs at 2¢ per lb, operating costs at 20% of gross profit, and opportunity costs of capital.

**Pine Bluff would need to sell 336,000 lbs of Frozen White Sea Bass at \$5.99 per lb during the first twelve months in order to cover the losses from selling Frozen White Sea Bass at \$3.00 per lb after one year.

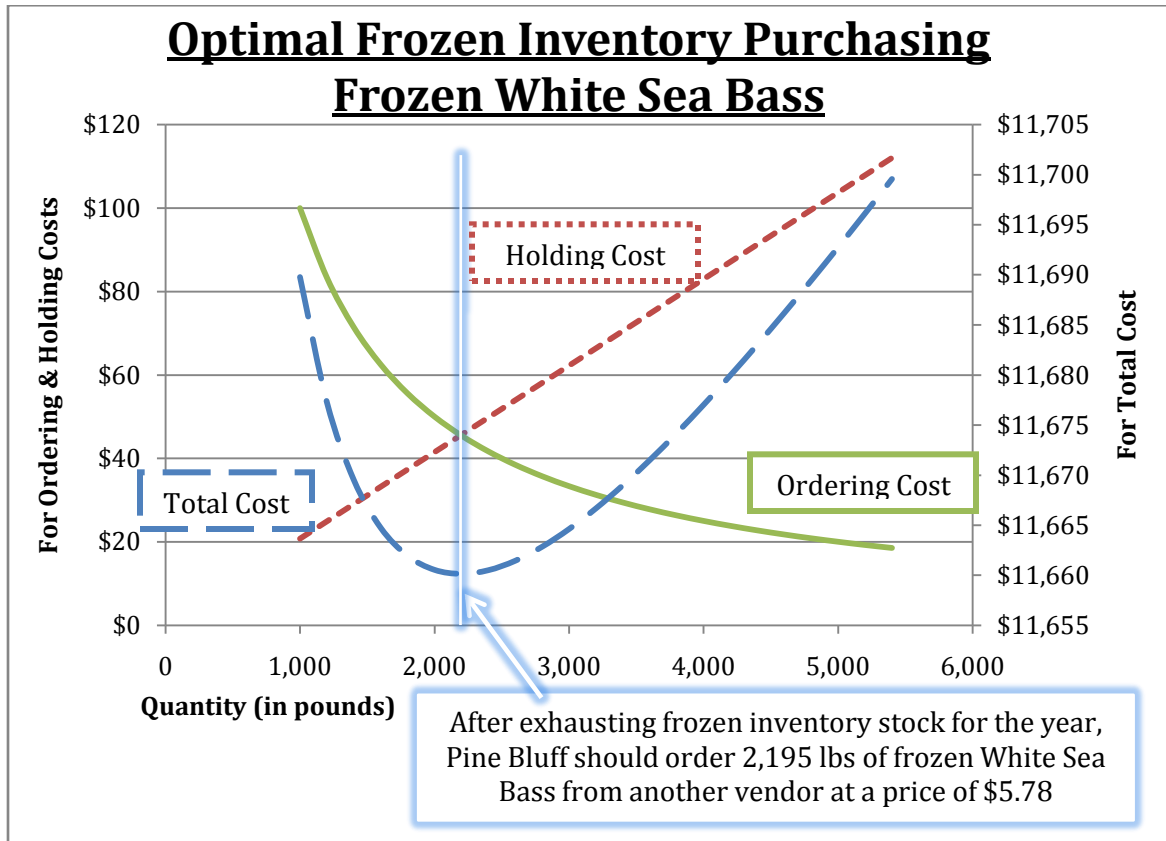
Exhibit 14: Optimal Frozen Inventory Quantity



Note: This assumes \$400 cost for placing an order; 2,000 lbs of monthly demand, storage costs of 2¢ per month, and COGS of \$5.12/lb.

With this data, we recommend that Pine Bluff save no more than 20,236 lbs of Frozen White Sea Bass for the year.

Exhibit 15: Optimal Frozen Inventory Purchasing



Note: This assumes \$50 cost for placing an order; 2,000 lbs of monthly demand, storage costs of 2¢ per month, and COGS of \$5.78/lb. With these figures, Pine Bluff should reorder Frozen White Sea Bass when its stock reaches 200 lbs.

Exhibit 16: Incoming Product Label

Species: Salmon

Product Type: 5/up

Date of Arrival:

Day of week: Sun **Mon** Tues Wed Thurs Fri Sat

Day of the month:

	0	0
	1	1
	2	2
	3	3
		4
		5
		6
		7
		8
		9

Month: Jan Feb **Mar** April May June

July Aug Sept Oct Nov Dec

Total Weight (lbs.): 300

Country of Origin: Canada

SKU BARCODE

Note: This is a recommended sample label used to formalize the identification of incoming products and facilitate fresh inventory management. The "SKU BARCODE" would be utilized if Pine Bluff implements the computerized inventory management system.

To clearly identify which day of the week a product arrives, we recommend a different color for each day of the week, moving along the rainbow spectrum from warmer to cooler colors:



Diagram 1: Plant Layout

(Inserted)

Diagram 2: Operations Flowchart

(Inserted)