

Final Report: April 2026
Sea Otter Sound Cooperative Mariculture Center
Naukati, Prince of Wales Island, Alaska



Aerial view of a remote oyster farm operated by a member of the Alaska Oyster Cooperative. Jonny Antoni photo

Overview

As part of the Alaska Mariculture Cluster’s over-arching goal of developing mariculture in Alaska, a portion of their EDA funding was dedicated to understanding the most promising avenues and projects to add mariculture processing in the state. The Alaska Oyster Cooperative (AOC) on Prince of Wales Island received a grant to undertake a feasibility study to determine the need for, and the viability of, establishing and operating a Cooperative-owned oyster processing, packing, storage and shipping facility in Naukati Bay on Prince of Wales.

The study is divided into four distinct sections:

- 1) Assessment of existing infrastructure in the state and region
- 2) Assessment of supply and demand for farmed oysters from Alaska
- 3) Architectural and engineering services
- 4) Operational and financial planning

This final report provides detailed information and findings on each of these aspects of establishing a cooperative facility.

Introduction

The Alaska Oyster Cooperative is a cooperative organization based on Prince of Wales Island (POW), Alaska, formed by a group of oyster farmers seeking to collectively support and expand the regional oyster sector. The AOC is currently made up of five member farms: Tommaso Shellfish, Adonai Seafood Delights, Blue Starr Oyster Co., Alaska Gold Oysters, and Oysters LLC. and is led by a Board of Directors. The AOC has acquired both a tidelands lease and an uplands lease in Naukati Bay that will be the home of the proposed shellfish processing facility and equipment. The planning of a processing, packing, and shipping facility has been underway for several years.

Currently, oyster farmers in the Sea Otter Sound area do not have a centralized location to offload, sort, cool, box and stage oysters for shipping. Each farm has its own small on-site “shellfish shipping” facility and strategy to move both seed and market oysters to buyers. The AOC has leveraged the US Department of Agriculture (USDA) USDA Southeast Alaska Sustainability Strategy (SASS), the Alaska Mariculture Cluster (AMC) Build Back Better (BBB) Feasibility Study, and their own funds to obtain leases from the State of Alaska and begin site development leading to the construction of a shellfish processing facility in Naukati Bay. To date the site has been stripped and leveled with shot rock. This future facility will benefit the existing members, future aquatic farmers, and the community in a multitude of ways, including employment opportunities, local food security, and economic development potential.

The shellfish processing equipment and supplies acquired by the AOC builds on equipment purchases approved by the State of Alaska Department of Natural Resources (DNR) Resilient Food Systems Infrastructure (RFSI) and Rounds 1, 2 and 3 of the AMC BBB Equipment funding. This essential equipment includes Conex shipping container systems, a gel ice pack maker (for shipping), a gel ice freezer, a forklift, and an additional product cooler that will provide critical cooling and packing of product and offer security when not in use.

The equipment at the AOC facility will further increase the efficiency and decrease the energy costs of its member farmers’ operations by offering mechanized product sorting, machinery for box assembly, cold storage, and flake ice production to be used during on-farm harvest, and during transport and sorting periods to ensure safe product handling. Due to the remote locations of the member cooperative farms, there are significant benefits in having a land-based processing facility conveniently located on the road system. The facility allows reliable infrastructure and storage to attain broader access to regional, state-wide, and out of state markets, and the connectivity to communities needed to open potential employment opportunities for Prince of Wales Island. This increases the efficiency of member farms and allows for the significant expansion of farm production.

Additionally, consolidation of shellfish sorting and shipping to this land-based site will provide employment opportunities for the local community. Sorting and shipping of oysters using this equipment will lead directly to increased local distribution of food products throughout Prince of Wales Island. The location of the project is in an underserved rural area, Naukati Bay Alaska, that has very limited employment opportunities.

In addition, external funding of equipment and supplies for this member-utilized processing facility reduces the overall investment buy-in that is needed by each of the member farms. Lower capital buy-in allows for lesser-financed operations, now and in the future, to be admitted as full members on an equal footing.

The Sea Otter Sound area is geographically and biologically suited for oyster farming. The main disadvantage to farming in this remote area is the elevated shipping costs. Cooperation amongst farmers is the best solution to reduce this significant competitive disadvantage. A shared processing facility further encourages this kind of beneficial cooperation.

The AOC is working to ensure the facility meets or exceeds the needs of the farmers and the regulatory frameworks of the sector. For example, the restroom system included in this plan is an essential part of any commercial facility and required by the Department of Environmental Conservation (DEC) for operations. The system includes showers and would support farmers and crew during operations, especially in the busy seasons. Engineered wastewater plans for the facility property have been created and approved as part of the BBB Feasibility plan. Future plans that include on-site sales and tours would also necessitate restroom facilities, as there are no public toilet facilities at the marina in Naukati Bay.



Sorting oysters on an AOC member farm, Prince of Wales Island. Jonny Antoni photo

Section 1: Assessment of existing infrastructure in the state and region

As part of the feasibility study for the proposed new facility at Naukati, AOC members observed and analyzed the best practices of the existing larger-scale oyster producers in Alaska:

1. Travel by project team members to tour comparable facilities in Alaska for project related research
2. An assessment of local Southeast Alaska infrastructure crafted in collaboration with AOC farmers

1. Travel to existing comparable oyster facilities in Alaska

Homer, February 28 – Mar 1, 2024

Team members traveled to Homer, Alaska, to tour the Jakolof Bay Oyster Co. shellfish shipping facility, the Kachemak Shellfish Mariculture Association (KSMA) shipping facility and retail shop, and Alaska Shellfish Farms shipping facility. Additionally, they toured the Homer spit commercial pier and saw the unloading dock and ice facility. Homer is not served by Alaska Airlines, but does have regular small plane service, and is connected by road to the main highway system in the state.

Key takeaways:

Jakolof Bay Oyster Co. brings oysters from the farm in a large aluminum skiff. The skiff is trailered at the marina with full lugs (containers) aboard, and towed to the shipping plant, where the lugs are unloaded and hand carried into the facility. Ice is brought out to the farm prior to harvest, and the oysters are iced after loading into lugs. At the plant, if needed, further fresh-water ice is placed on the oysters as they are loaded into a mechanized hopper.

The hopper is the intake to the Hardouin brand, French-made, linear oyster grader. This machine uses weight as the measurement via a weigh bridge to precisely sort oysters into groups. In Europe, oysters are sorted into standardized weight groups. Although the machine is customizable, one size example would be 46-65 grams per oyster, which is known in France as a No. 4. The grader has a conveyor with air-actuated paddles that will place an exact count of each size grade of oysters into baskets. These loaded baskets are then used to pack orders into retail containers or bulk shipping boxes. Ice is made in house. Oysters are transported to local sales outlets in Coleman type coolers.

At the KSMA facility, Kachemak Oyster Cooperative members drop off Coleman type coolers containing oysters, which are then placed in a walk-in mechanical cooler. Product is then distributed to the public directly, or to the oyster bar in the same building. The transport coolers are brought up from the floating dock by hand or on a hand cart. Sorting is by hand.

Alaska Shellfish Farms sorts oysters on the farm using an SED vision grader. Sorted product is bagged in plastic mesh, then loaded into large insulated fish totes and iced. Ice is provided in a

tote from the City of Homer ice plant. The larger totes of iced product are transported via lobster boat from the farm in Halibut Cove to the Homer pier and off-loaded using the city hoist into a pickup truck. The iced totes are then driven to the shellfish shipping plant and unloaded using a forklift. Oysters are boxed and tagged in the plant then held in a mechanical cooler until transport.

Ketchikan, September 24-26, 2024

Team members traveled to Ketchikan to tour Hump Island Oyster Co. and Seagrove Oysters shellfish shipping facilities.

Key takeaways:

Hump Island Oyster Co. has a floating packing facility and mechanical cooler. Oysters are hand sorted on the farm then transported by boat to the shipping facility. Product is off-loaded by hand, then boxed and stored in a walk-in cooler, and subsequently moved by cart up a ramp to shore. On shore the boxes are placed into the back of a truck and taken to local markets or to the Ketchikan airport, which is served by Alaska Airlines every day.

Seagrove Oysters farm is located near Craig, but the sorting and packing facility is in Ketchikan. Oysters from the farm are loaded into iced insulated fish totes which are loaded onto a pickup truck. The next morning the truck is driven to the Inter-Island Ferry and arrives late morning in Ketchikan. Members observed the arrival of a tote of oysters and the loading of the oysters into an SED vision grader. Sized and counted oysters are collected in small baskets which are then held in a walk-in cooler. Later, orders are packed and distributed locally or shipped by air.

2. Summary assessment of local infrastructure

Alaska Oyster Cooperative (AOC) members investigated and summarized the facilities that are currently available to oyster farmers in Southeast Alaska.

Craig, Prince of Wales Island (POW)

Vessel offloading is available for a fee in Craig, using the city pier and a public crane at False Island. Containerized product can be placed directly into or onto a vehicle. A limited quantity of freshwater flake ice is available from the city-operated ice plant, also for a fee. Multiple boat launch ramps are available, but use would require offloading by hand from vessel to vehicle.

However, access from the AOC farms near Naukati to Craig using fast transport vessels requires approximately one and a half to two hours transit time one way, with significant use of engine fuel. Additionally, open stretches of water between the Naukati area and Craig can experience sea states that drastically slow or prevent travel by smaller and faster vessels. All-weather vessel transport, requiring a larger and slower vessel, would double the transit time required to three to

four hours. During winter months of reduced daylight hours, the trip would require operating in the dark. After offloading in Craig, the vessel would need to return to Naukati.

Klawock, POW

Transit time from the AOC farms to Klawock is essentially the same as to Craig. There are also no publicly available dock cranes. There is a highly-used public boat launch ramp that is used for access by a local oyster farm. In this case, the transport vessel with cargo is recovered using a boat trailer, then product is hand loaded out of the vessel.

Ketchikan

The oyster farm on the Ketchikan road system, Hump Island Oyster Co., utilizes a private floating dock and ramp system to hand load product from a transport vessel into a floating shipping facility. After boxing, product is driven up the ramp to land using an ATV and wagon, then hand loaded into a vehicle for transport to market. The Seagrove Oysters operation based in Craig has a shipping facility in Ketchikan; the operator brings unsorted product from the Craig area to the Ketchikan plant by loading a truck with the Craig public crane, that then drives onto the daily ferry from Prince of Wales to Ketchikan. In this case, farm to Ketchikan shipping facility takes an estimated 24 hours of transport time. Oysters are then machine sorted for size. Return to the farm of any rejects due to insufficient size or quality is problematic and another significant contributor to inefficiency.

Wrangell

Canoe Lagoon, an oyster farm located near Coffman Cove on Prince of Wales Island, transports harvested oysters via a small fast vessel to Wrangell. In Wrangell, containerized product is lifted from the vessel using the city offloading dock crane onto a vehicle. Oysters are subsequently machine sorted in a certified shipping facility. The run from the farm is two hours or more and weather dependent. Boxed product for export is held in a walk-in cooler and taken to air cargo weekly at the Wrangell airport, served daily by Alaska Airlines.

Naukati Bay

There are five oyster farm AOC members in the Naukati Bay area (Sea Otter Sound). The farms utilize their own on-farm shellfish shipping facilities and bring boxed product across the community dock by hand. The AOC currently has a small generator-powered cooler on its lease site. This small unit was in use during the summer of 2025, and demonstrated the advantage of an on-land shipping facility. Two farms utilized the cooler and were able to load boxes (in the dark) for truck freight. The small unit was also used to stage shipping boxes and facilitate movement to and from the farm across the small AOC floating dock.

Conclusions:

AOC members made good use of their travel to other regions' oyster producers, and their assessment of the processing and shipping needs in the Southeast, POW and Ketchikan regions. Farms on the road system clearly had some advantages in shipping options, although cooling and handling product still presented challenges. Likewise, the farms in the POW region, including in Ketchikan, have logistical issues in handling and cooling. The farmers on POW who are members of the AOC remain certain that they will benefit from the planned advantages of a new processing and shipping facility at Naukati Bay.

Section 2: Assessment of supply and demand for farmed oysters from Alaska



AOC member inspects oysters for quality. Jonny Antoni photo

The feasibility study for the proposed oyster processing and shipping facility includes a look at the realities of the supply and demand scenario for oysters from farms in Southeast Alaska. As the oyster farmers of Prince of Wales Island make investments to increase production and improve transport efficiency, is it realistic to expect that their existing markets will absorb more product? Will new markets continue to open, and what will it require to identify opportunities, and take advantage of expanded markets? Perhaps most crucial, can Alaska oyster farmers compete on price in the broader US marketplace, given the cost of production, and transport from remote locations?

United States: continuing demand for oysters, with challenges and opportunities

At a national level, the oyster market is robust, according to a recent National Marine Fisheries Service (NMFS) study¹ on the market potential for oysters produced in the United States. According to the study, “U.S. oyster aquaculture has expanded significantly over the past two decades, driven by an increase in demand for half-shell oysters, technological improvements, breeding programs, training, and regulatory changes.”

The study found that this increase in production did not initially cause a decline in prices, as demand and sales have risen. “Refrigerated trucking and year-round availability of quality oysters led to restaurants adding raw bars and an increase in oyster consumption,” the study

¹ <https://www.fisheries.noaa.gov/resource/outreach-materials/fact-sheet-us-oyster-aquaculture-market-outlook>

reports. Production of farmed oysters in states like Rhode Island, Massachusetts, Virginia, and Washington exploded to meet this demand.

However, the study notes that softening demand has been observed since early 2025. Industry participants believe the price for oysters on the half shell may have reached the maximum that consumers are willing to pay. The shucked oyster market is flat, and producers have not seen price increases, despite higher retail market prices and rising costs, according to the study.

Products like tinned or smoked oysters, and frozen “top off” and other oven-ready items offer opportunities, but face competition from imports. Other challenges include limited distribution channels, high profits being made by restaurants and retailers compared to producers, costs and shortages of labor, and low to non-existent marketing programs.

All of these factors can affect Alaska oyster growers. In addition, the NMFS study emphasizes that while Alaska oyster production has grown in recent years, the remoteness of many farms combined with limited transport options present special challenges in accessing the market. This major issue emerges here and elsewhere as one of the biggest obstacles to increasing sales of Alaska oysters in the lower 48 states, and even within the state itself.

Other challenges for oyster producers nationwide include bad press related to consumer advisories and food-borne illnesses. News of harmful algal blooms and norovirus outbreaks related to shellfish pose significant threats and can damage sales for weeks. Inconsistent enforcement for sanitation and harvest closures are related challenges, according to the NMFS study. Access to new or expanding leases for oyster farming is also a significant challenge in the lower 48 states.

Fortunately, the remote and pristine waters of Alaska and the generally lower ocean temperatures contribute to a physical environment that discourages algal growth and waterborne pathogens – a clear advantage for Alaska producers. In addition, the thousands of miles of Alaska coastline provide ample opportunities for farm leases, in comparison to other coastal states.

National Marketing Needs

According to the NMFS study, there is a widely recognized need for market research, and for targeting new consumers and sharing the "farm story." A national marketing effort could promote a consistent message about sustainability, health, and the benefits of aquatic farming for clean water and as habitat for marine life, including recreational and commercially important fisheries. Public education is needed to dispel myths and provide context for public concerns about oyster safety. Government investment in public education could help dispel myths and improve public acceptance.

Opportunities include exploring international markets with government assistance, such as export marketing programs accessed by current seafood marketing groups. The study suggests

marketing messages and public education that emphasize quality and sustainability, in order to increase demand. Value-added products might also pique the interest of consumers.

Alaska oyster supply: production stabilized and increased in 2025

In Alaska, recent information from the Alaska Department of Fish and Game (ADFG), below, indicates that Alaska oyster sales (farm gate) increased from 2024 to 2025, after a short downturn. The number of individual oysters sold to the public or a distributor went from 1,202,052 in 2024 to 1,696,690 in 2025 – an increase of 40%.

Note that the number of oysters is broken out between those sold to market and those sold from a farm or hatchery to other farms. According to ADFG permit coordinator Michelle Morris, these numbers are not broken out by size because that data is not collected. Sales between operations could mean anything from 2mm spat to subadults close to harvest size.

Morris reported that the number of oysters sold to other farms in 2025 is about half compared to 2024 – about eight million compared to four million. Morris said if a hatchery or FLUPSY (Floating Upweller System) does not send one shipment in a single year, the 4M difference is easily explained as the oysters are so tiny.



A FLUPSY owned by a member of the AOC, growing oyster seed to desired sizes. Jonny Antoni photo.

2024 Production Data					
Species Group	Permit Type	Disposition Topic	Disposition Specific	Number sold/subtracted	Pounds sold/ Subtracted from site
Oyster	Aquatic Farm Permit	Sold	Public/processor (farmgate)	1,202,052	0
Oyster	Aquatic Farm Permit/ Hatchery	Sold	To other farm	8,399,847	0
Oyster	Aquatic Farm Permit	Transfer	To other farm	5,509,244	0

2025 Production Data					
Species Group	Permit Type	Disposition Topic	Disposition Specific	Number sold/	Pounds sold/ Subtracted from site
Oyster	Aquatic Farm Permit	Sold	Public/processor (farmgate)	1,696,690	0
Oyster	Aquatic Farm Permit/ Hatchery	Sold	To other farm	4,128,240	0
Oyster	Aquatic Farm Permit	Transfer	To other farm	3,260,000	0

Morris also noted that both the number of oysters reported sold from a hatchery/farm to other farm sites, and the number transferred, may double count some numbers. It depends how many times an oyster gets transferred during a single year. For instance, eyed larvae may come in and get set in spring, then be sent to a FLUPSY a month later, then in summer go to a farm site, and as late as fall go to another site. As such, there is potential for the same oyster to get counted several times.

To be clear, the category reported here for oysters that are not SOLD to another farm, but just TRANSFERRED could include oysters sent to another farm owned by the same grower, or sent to another farm as part of a cooperative agreement between entities. For example, the Kachemak Bay Cooperative operates a FLUPSY from which seed oysters get distributed to the coop members with no direct sales. So, this category captures the movement of oysters between sites, and records that farms are getting seed to produce upcoming inventory.

The data indicate a substantial increase in oysters sold out of Alaska in 2025, although the information collected by ADFG does not include where they were sold; destinations include both in-state and out of state, and direct to the public, restaurants, grocery stores and distributors. It

may be possible in the future to determine the source of the oysters sold to the public – all information that would be useful.

Morris reported that informal conversations with growers reveal that the increase in sales is across the board, mostly from Southeast and Southcentral Alaska. Her information is that growers are getting back into a steady planting and harvest rotation after disruptions caused by the Covid epidemic. Also, some newer farms are coming online with actual sales after a few years of growing seed.

Alaska Oyster Cooperative: current markets and opportunities for expansion

Interviews with several members of the AOC indicated that the oyster farmers currently depend on 1) selling to local markets on Prince of Wales Island, 2) shipping by small plane and ferry to markets in Ketchikan, and 3) shipping by air from Ketchikan to other communities in Alaska and to Seattle. The farmers said that their current markets could take “double the production” and “a lot more oysters” if they had them available, and were able to reliably and more easily ship from POW.

Pursuing markets within the reach of Alaska Airlines service – the market opportunity investigated and described starting on Page 13 – makes sense, especially to destinations where Alaska Airlines has refrigerated storage available at the airport.

AOC farmers are indeed shipping to Alaska communities on the Alaska Airlines network, starting from Ketchikan. Ketchikan itself is adding local outlets: there is an oyster stall at Berth 4 on the waterfront, and another being added in Wards Cove, a cruise ship destination. Food trucks serving the waterfront are doing oyster specials.

Several farmers are also shipping to Seattle, and, less frequently, as far away as California, Minnesota and even New York City. Air shipping costs to NYC are reported to be quite steep.

The oysters must first leave POW in a timely fashion. One established farmer said that his main issue is the “bottleneck” in getting product off the island.

This farmer said he was “entirely dependent on air transport,” and was hopeful that shipping availability would improve and increase. He mentioned hoping to make more use of small seaplanes to ship to Juneau and Sitka, with the ability to reserve space on those flights.

Increasing sales to Anchorage and Seattle is a realistic goal for AOC farmers, with one farmer having a regular outlet in Anchorage, and one supplying a multi-restaurant customer.

“Our biggest single market is Anchorage, by far,” said one established AOC member. “We can do a two-day delivery there, and we work with an excellent outlet that keeps the oysters even cooler than required for top quality.”

“It is about the same cost to ship an oyster to Anchorage from POW as to ship an oyster from Seattle, maybe even a little cheaper. Also, both residents and tourists in Anchorage like the

cachet of having an Alaska product. Even though it's a fairly high price point, there is still capacity for growth," he said.

"The wholesale market in Anchorage can also be developed, but we need a reliable middle man," he said.

"To expand markets anywhere," said the long-time farmer, "we need consistent delivery. The single biggest requirement of wholesalers is consistency of supply.:

In order to have consistency with growth, one of the needs for POW is reliable ferry service, as higher volume cannot be accomplished by flying the oysters to Ketchikan, he said. One of the benefits of the proposed cooperative processing and shipping facility is that the coop will be able to reliably and consistently supply a higher volume of oysters.

"If one member does not have enough oysters, the order can be passed to another member. This cannot be done with one farmer working alone," he said.

Farmers also describe Seattle as being a "great opportunity" for development of both retail outlets and restaurant distribution.

Several farmers mentioned wanting to maintain their individual farm's unique brand name and recognizable "merroir" – taste characteristics attributable to their farm locations. Such a practice can be easily supported through the proposed new AOC facility.

Farmers report that competing on prices further afield than the West Coast becomes more difficult. Oysters from the East Coast and the Gulf can be held longer in those markets, because they have more recently been harvested. "Lower cost and a shorter time to market are significant advantages for growers in the East and Southeast to supply those markets," said one farmer.

"Alaska has price issues, period. We need to hold down cost per oyster to the consumer," he emphasized.

Several farmers mentioned that the state-required testing for Paralytic Shellfish Toxins (PST) is also an expense and time bottleneck, and that more testing locations are badly needed. Sample oysters must be flown to the testing facility and results certified before an oyster shipment can be made. Member of AOC expect that the shipment for testing of oysters from multiple farms can be done all at once when the proposed facility is in place, reducing costs for all members.



AOC member tending oyster cages in a remote bay on Prince of Wales Island. Jonny Antoni photo.

Opportunities: three realistic avenues for increased AOC oyster sales

1. Transport and pathways to market for Alaska oysters - Alaskan Airlines Study

With a unique and vast geography, Alaska presents an interesting but complex issue around the transport of oysters to market. The very aspects of the pristine, remote coastlines that make Alaskan oysters so special also create a logistical challenge of getting those oysters to customers within and outside of Alaska. While local retail options sometimes provide an ideal scenario for short-distance transport, producers need to be able to reach further afield to meet expanded market demand, compete with other producers, and ultimately successfully and sustainably run their operations.

Throughout Alaska, transport challenges, such as major distance or lack of road system, can pose a significant barrier to producers, especially in prominent oyster growing regions such as Southeast (SE) Alaska. Producers must utilize either the ferry service or air transport to get their product to market, sometimes hundreds of miles away. Within SE Alaska, where the Alaska Oyster Coop (AOC) is based on Prince of Wales Island, producers have the benefit of relatively close geographical proximity to main tourist destinations with low to moderate populations of residents: Ketchikan (population 8,000), Sitka (population 8,300), and Juneau (population 31,500).

However, competition with local or larger farms, lack of direct road transport, and relatively small order volumes from these smaller municipalities may require some producers to look

beyond SE Alaska, especially if they must make use of air transport anyway. While Anchorage has long provided an opportunity for decent oyster demand with its higher population (metro population 398,000) and tourist numbers, some producers based out of the AOC may consider looking to the lower 48 for opportunity if they haven't yet.

The AOC, located in Naukati Bay, is within one of many small communities on the island that typically lack the demand for large volumes of oysters; however, there are substantial number of tourists visiting the island annually (i.e., sport fishing and National Forest visitors). The three most populated communities are: Craig (~1,100 residents), Klawock (~700 residents), and Thorne Bay (~470 residents). The AOC facility is located 40 miles by road from the Klawock Regional Airport (KLW) and 65 miles by road from the Hollis Inter-Island Ferry terminal with service to Ketchikan and its Ketchikan International Airport (KTN). The Klawock airport offers daily service to Ketchikan, so timing of deliveries must be coordinated with flight times. There may be cold storage available there in the near future.

Depending on the time of year, flights from Klawock also service Sitka and Juneau. Currently, producers in the region utilize both the Klawock Airport and the Inter-Island ferry to get products off POW to markets in Ketchikan, Anchorage, and other cities where tourism creates high demand for Alaska oysters. However, existing transportation and logistical barriers still pose significant challenges to those farmers getting their product even to Ketchikan.

From the AOC facility, truck transport is available between Naukati Bay and Ketchikan for shipping live oysters. In the event this truck is unavailable, road transport becomes limited and the only alternative is for farmers to drive their product themselves to Klawock or onto the ferry to Ketchikan. This is not sustainable long term or with high volumes and involves extra logistics for keeping oysters cool. The Klawock airport is relatively small with smaller aircraft servicing it, so technical issues or weather events can cause delays and major transport interruptions, especially in the winter. Additionally, during peak seasons when tourists are filling cargo space with sport-caught fish, there is competition and subsequently higher costs for cargo space on the flights out of Klawock.

The same is true for the ferry service, which can experience delays and limited space during peak season. If unforeseen circumstances prevent or delay ground transport, a flight or a ferry can be missed, leading to major delays in shipment of oysters. These transportation realities make it difficult for POW oyster farmers to get their product off the island. The members of the AOC have been working hard to build and maintain the existing transport pathways for their product. Therefore, having a reliable transport option once their product leaves the AOC and when it arrives in Ketchikan is vital for the success of these operations.

Alaska Airlines is the main provider of air transport in Alaska and some farmers in the region are already shipping beyond Ketchikan, within and outside Alaska, with this airline. For example: Hump Island Oysters (Ketchikan) uses Alaska Airlines (or FedEx) to ship their oysters. With their large brand and cargo facilities, Alaskan Airlines can fly cargo, including Alaska oysters,

frequently to a plethora of destinations in Alaska and throughout the lower 48 states, including large urban centers like Los Angeles, San Diego, Phoenix, and Chicago.

Alaska Airlines is already familiar with shipping seafood, so with some additional knowledge, properly shipping live oysters on a consistent basis should be possible. This provides an opportunity for AOC oyster producers to utilize Alaska Airlines to ship oysters to destinations within and beyond Alaska into large urban markets. A caveat here is that not all airport facilities where Alaska Airlines operates have cold storage for holding live oysters. While this does not prevent that destination from receiving oysters, it does pose a significant logistical challenge if a refrigerated ground transport company or customer cannot receive the oysters right away upon arrival at a destination without cold storage.

To better understand the potential and limitations of using Alaska Airlines for oyster transport, a simple database was created to visualize which airports Alaska Airlines flies cargo to and from, and which of those airports have cooler storage for cargo facilities. Based on information from the [Alaska Airlines Cargo website](#), the airline services 20 airports in Alaska, of which 17 (85%) have cooler storage and 76 airports in the lower 48 states and Hawai'i, of which 44 (58%) have cooler storage. Within Alaska, main centers of population and transport such as Anchorage, Fairbanks, Juneau, Ketchikan, Kodiak and Sitka all have cooler storage at the airport. This allows for these locations to act as hubs for the import and export of oysters. The other Alaska Airline airports in Alaska with cooler storage are Barrow, Bethel, Cordova, King Salmon, Kotzebue, Nome, Petersburg, Prudhoe Bay, Wrangell and Yakutat. For the AOC, the Ketchikan airport, via Alaska Marine Highway or regional flight from Klawock Airport, is a good access point for the Alaska Airlines network.

From Ketchikan, oysters from the AOC can effectively reach large urban centers and popular destinations in the lower 48. There are four destinations in Alaska that typically have direct flight paths from Ketchikan: Anchorage, Juneau, Sitka, and Wrangell. There are ~10 destinations in the lower 48 that have a direct route from Ketchikan. Importantly, this includes Seattle WA, Las Vegas NV, and Portland OR, which then offer connections to most other destinations that Alaska Airlines services. While some flight paths may prove to be inconvenient for live shellfish, there are many routes that are able to deliver oysters around the lower 48 within a safe and reasonable timeframe.

So there is potential to reach restaurants and wholesalers in and around major urban centers that Alaska Airlines flies to. While each producer will need to do their own work to reach specific buyers, with the help of the recently launched Alaska Mariculture Brand by the Alaska Mariculture Cluster, there is likely to be more demand and more recognition of Alaska's mariculture products.

Some major challenges identified in this process are 1) matching the supply with the demand in terms of order volumes, and timing of shipments, and 2) competing with costs of oysters from the lower 48 and Canada. Targeting restaurants and wholesalers in large cities means that there is

frequent demand for higher volumes of oysters. Some members of the AOC may find that they cannot meet the desired shipment volumes and/or frequencies for seafood distributors in larger cities. However, finding the right fit of distributor, or selling direct to a small or medium sized restaurant, can mitigate this challenge. An increased demand for oysters in winter months could coincide with a slower time for harvest in Alaska due to weather.

Regarding cost, the additional freight costs for shipping oysters beyond Alaska means that Alaska oysters must compete with oysters coming from growing regions within the lower 48 and Canada with a lower shipping cost and therefore a lower price per dozen. With the logistics of getting the oysters to Ketchikan already fairly costly, getting oysters to destinations such as Los Angeles, Las Vegas, and Chicago create a higher cost per oyster for the end consumer.

Finding buyers willing to pay a premium for Alaska oysters will be a challenge, one that can be met with increasingly creative mariculture marketing and the general demand for premium Alaska seafood. If large enough order volumes can be shipped, together with other AOC members, the cost of freight may be lower for the buyer. However, Alaska Airlines does not seem to offer significant bulk shipping discounts. It will be critical to target urban centers or high-end tourism operations that are more likely to have premium and fine dining experiences where a customer will pay more for an Alaska oyster.

It is worth noting that being able to deliver consistently can also be a challenge in Alaska, especially for smaller operations with lower volumes. As discussed above, weather, transport, and unforeseen circumstances can easily impact any operation, however those issues can be more common in remote Alaskan areas of oyster cultivation. Large operators with higher inventory, or those closer to transport hubs like Ketchikan or Juneau may have fewer issues.

Finally, ensuring safety and cold chain transport for oysters will be critical if producers start using Alaska Airlines for higher volumes of product transport. While Alaska Airlines does have good experience shipping seafood, shipping live oysters is a different process than shipping frozen fish. Once the oysters leave Alaska, the knowledge of the airline's staff may be more limited when it comes to seafood handling. For both food safety and quality assurance, oysters must be kept at specified temperatures to be safely received by a buyer. From the farm to processing to shipping to receiving, there are many steps to be considered to ensure temperature control. The AOC or Alaska Shellfish Growers Association may consider an education campaign for Alaskan Airlines cargo workers to understand safe handling of oysters throughout the entire air transport chain.

To mitigate many of these challenges, in the future the members of the AOC can combine their efforts in shipping, transport, and potentially even product to work towards a more efficient pathway to Ketchikan, and perhaps beyond Ketchikan. Some farmers may consider consolidating their product or combining shipments to certain wholesalers or buyers, helping to achieve lower shipping costs. Member farms may look to combine product to meet order volumes for customers or wholesale buyers in the lower 48, thus maintaining good relationships and accounts

with buyers with higher volume needs that may look elsewhere for product if any delivery interruptions occur. Members can easily share the use of the refrigerated truck transport from Naukati Bay which can get their oysters to the Klawock airport or onward to Ketchikan. From there, Alaska Airlines will offer opportunities to get oysters to a multitude of destinations that can help to grow the demand for Alaska oysters from the AOC members.

2. Tapping into XS (extra small) and S (small) oyster markets within and outside of AK

Alaska oysters are typically known to be large, meaty, and great for grilling and frying. They are delicious this way, with ample room for mignonettes, breading, and flavorful sauces. A 3” plus oyster – the most common size – takes time to grow, often three to five years, and the eater is rewarded with a large portion of delicious shellfish. However, not everyone likes large oysters.

In many cases lately, it’s the smaller the better for the average oyster bar goer looking to try a dozen cocktail oysters on the half shell with a glass of wine. While many seafood lovers want the most oyster for their buck, there is a large population of tourists and visitors, including foodies, fine diners, and shellfish-curious people, looking for local food and premium experiences and who only want to chew their oysters once or twice. First-time oyster eaters, and even some seasoned oyster lovers, can be intimidated by anything medium or large and look to smaller oysters in the world of raw oysters on the half shell.

Many oyster bars and seafood restaurants commonly serve at least one oyster, if not more, that is considered extra-small (XS) and/or small (S), also called petite or cocktail oysters. This can include specialty species like Kumamotos and Olympias which are smaller by nature but mostly consist of smaller versions of Pacific oysters that are 2.5” - 3” in shell length. Currently, farmers in the POW region send out oysters that are at minimum 3”, and typically larger.

This presents an interesting opportunity for the Alaskan oyster farmer who may want to consider the benefits of growing a smaller oyster for markets both within and outside Alaska. As tourism continues to bring in visitors from all around the USA, and the world is looking to taste Alaska seafood, there will be more and more people looking for tiny shooters, happy hour plates, and a variety of oysters to taste. While the demand for larger oysters will certainly continue to exist, oyster farmers in Alaska may benefit from offering a variety of sizes to the market. A smaller oyster takes less time to grow and therefore has a lower chance of dying before it reaches market size. Additionally, smaller oysters can ultimately fetch a similar price to a larger oyster in raw bars when they are bought by the oyster. This phenomenon is interesting and potentially unique to the oyster world where people want smaller product and are willing to pay the same as or more than a large oyster for a smaller one.

While there is no official standard for oyster sizes across the market in the USA, there are some general guidelines for oyster sizing that are typical when shopping direct from producers or seafood markets, or at restaurants. Oysters are typically classified into sizes extra small (sometimes called petite), small, medium, large, and extra-large.

Size Category	Approx. Shell Length	Typical Market Use
Extra Small (petites)	2" - 2.5"	Raw on the half shell
Small	2.5" - 3"	Raw on the half shell
Medium	3" - 3.5"	Raw on the half shell or grilled/baked in shell
Large	3" - 4"	Grilled/baked in shell
Extra Large	4" +	Shucked meat for breading and/or frying. Grilled/baked in shell

However, shell length is not the only factor that determines the size of an oyster. The shell cup depth and shell width factor into the overall size, as well as the oyster weight. All of these factors together strongly indicate how much meat is inside the oyster. If farmers want to consider selling smaller oysters, it is worth noting that total meat content likely will still be important to the consumer.

In France and throughout the European Union, oysters are graded by weight, with a classification system of numbers 0-6, with 0 being the largest and 6 being the smallest. The most-commonly sold size is 3, which equates to 66-85 g per oyster. Currently in Alaska, most oysters are hand sorted or vision machine sorted for size. Using weight is consistent and is known to provide the best meat content per oyster for the consumer.

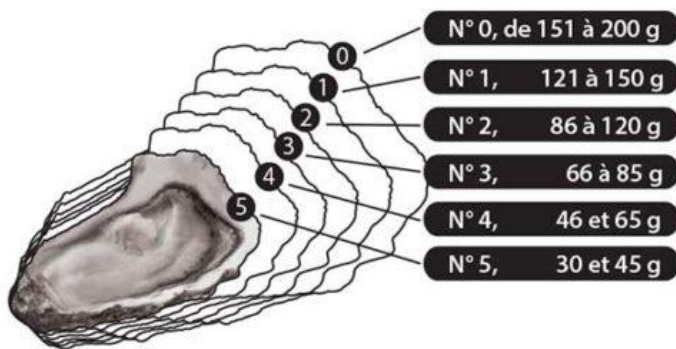


Image source : <https://huitres-cadoret.fr/oyster-size/>

Jakolof Bay Oysters, based in Homer, AK, uses a French weight sorting system, which has been known to be well received by customers. Their size and price list:

- #5 (smallest - 30-45 g): \$20/dz
- #4 ("good size" 46-65 g): \$28/dz
- #2 (biggest 86-120 g): \$34/dz
-

The AOC processing facility will have a French weight sorting machine available for use by the member farms to integrate the European weight system into their operations. Implementing this system will support the farmers in more specifically grading and sorting their oysters for market, including smaller oysters. Weight consistency in oyster orders supports good brand image and relationships with customers, who are looking for a high quality oyster every time.

Alaskan Oyster Examples:

[Kachemak Bay Select Oysters](#) are grown for 4-5 years to 3.5"-4" before harvest. \$40 for 24 pcs, \$60 for 36 pcs, and \$100 for 60 pcs

[Salty Lady Seafoods](#) in Juneau markets her Sweet Petites as 2.5-3.5" (\$18.50/dz) and her Briny Babes as medium at (\$21.50/dz).

Lower 48 and Canada Oyster Company examples of sizes and prices:

[Taylor Shellfish Oyster Offerings](#) example, sizes and prices for 30 pcs:

Totten virginicas - ~ 2-2.5" shell (\$90)

Beach Glass: ~2-2.75" shell (\$75)

Taylor pacific petites: 2.5-3.25" shell (\$65)

Shigokus: 2-2.75" shell (\$80)

Kumamotos: 1-2" shell (\$95)

Sumo Kumo ("big brother to kumamotos"): 2.5-3" shell (\$100)

Olympias: 1-1.5" shell (\$60)

Fat Bastard Oysters (largest of the premium tide-tumbled Pacific's): 2.75-3.75" shell (\$80)

[Hama Hama Oyster offerings](#), sizes and prices for 36 pcs:

Wildcat/Hama Hama/Blue Pools: 2.75-3" shell, (\$75)

Grillers: 3-4" shell (\$79)

[Jamestown Seafood](#), sizes:

Sequim Bay Sapphires: 2.5-4" is considered XS/S

Sequim Bay Jades: 3-6" is considered S/M/L

[Atlantic Oyster Farms](#), sizes and price for 100 pcs:

Barstool Cocktails (small): 2.5-3" (\$205 CAD/\$105 USD)

Sweet Island Kiss (medium): 3-3.5" (\$225 CAD/\$165 USD)

Naked Islanders (large): 3.5”+ (sold out)

3. Winter oyster market opportunity

Some of the producers in the POW region of AK do not harvest as much as they could in the winter, mostly due to harsh weather making access to the farm a challenge. However, there is a growing [demand for oysters in the winter](#) across North America, as this is when oysters are fat and plump, having prepared for a long winter hibernation. Many farms on the East coast of the US and Canada go to great lengths to harvest through the winter and continue their weekly deliveries to customers. The AOC processing facility in Naukati Bay presents an opportunity for the AOC members to remain competitive in winter markets by allowing them to harvest oysters on better weather days and then store them at the facility until they can be shipped out. Without reliable land-based storage, farmers must harvest their oysters within a day or less of the expected shipping date.

Having reliable storage can ensure each farmer can backstock an appreciable number of oysters in the cooler during good weather in the winter months, to have available for shipping through the coming days. The land-based cooler at the facility creates a more reliable system that can reduce seasonal interruptions to income and keep up good sales channels that develop during the summer. Disruptions to supply, even for expected seasonal changes, may cause buyers to look to other sources of oysters to fill their needs.

Ten-year roadmap; marketing and public education to grow consumption of Alaska oysters

Recent federal funding for Alaska mariculture has focused in part on developing an overall strategy to grow the market for Alaska oysters by more than 10 times in 10 years. Through market research and food industry experts, the effort has resulted in a strategic path to industry growth. Federal funds are also supporting a multi-year implementation of market strategy, involving food industry leaders and writers visiting oyster farms and enjoying fresh shellfish from Southeast and Southcentral Alaska. The strategy is creating substantial interest in Alaska oysters, which will benefit oyster growers through the state. More information on the market research and current marketing programs can be found at www.alaskamariculturecluster.org

Section 3: Architectural and engineering services



Naukati Bay facility site, showing the tidelands and uplands leases. Jonny Antoni photo

AOC continued the further development of the Naukati Bay cooperative facility site by engaging RandM Engineering in Ketchikan, under the direction of Trevor Sande. RandM undertook a field topography and bathymetric survey, test holes for a geotechnical investigation, geotechnical design for a functional foundation, facility concept design, electrical design, Corps of Engineers permitting, wastewater planning, fire department permitting, and pier and dock design. The design work culminated in engineering and architectural plans.

An independent appraiser provided the necessary appraisal to obtain the land lease.

A summary of the design work is provided here, and all the facility design documents and related materials are in the Appendix as Attachment A.

Facility Overview

The AOC Shellfish Processing Facility, as shown in the first figure below, will be located on Prince of Wales Island just off National Forest Road 2060 on the shore of Little Naukati Bay. The facility consists of two 8-foot by 40-foot shipping containers which are each divided into two equal 8 x 20-foot spaces, with a 24 x 40-foot open area between the shipping containers. A roof package covers the parallel containers and the open area between them as well as a 10 x 20-foot walk-in reefer cooler with double doors, to accommodate forklift access for pallets.

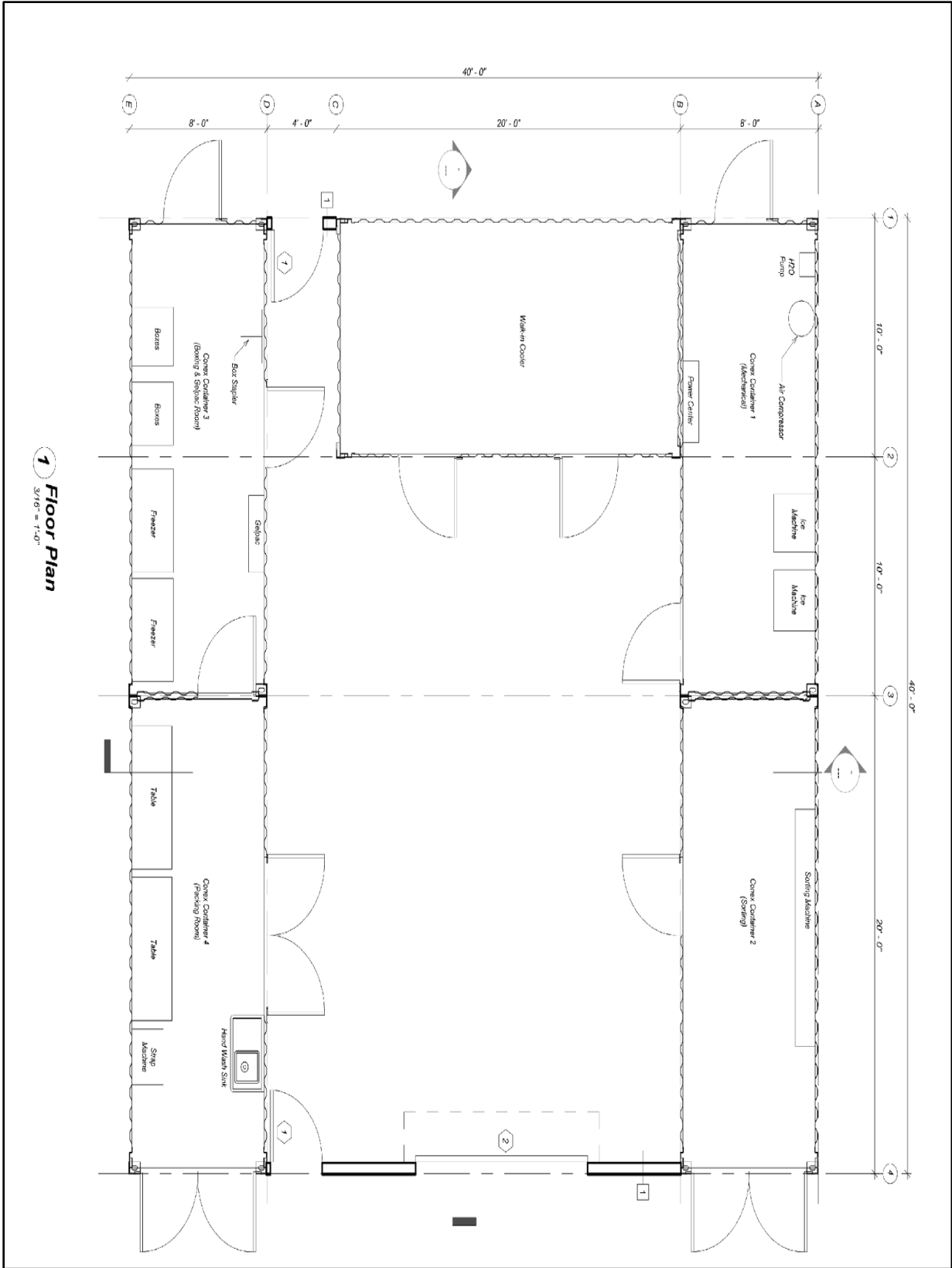
The shipping containers are divided into key production areas that accommodate the needs of members: sorting, mechanical work, box and gel pack assembly and product packing. The figure shows the full facility floor plan.

The predominant product type to be processed in this facility is live, in-shell oysters shipped via refrigerated transport in specialized boxes with frozen gel packs. The desired shelf-life of approximately two weeks is supported by the facility design, along with rigorous cold chain requirements.

The processing facility is designed to accommodate the key aspects of shellfish processing such that a shellfish producer can utilize the space to effectively sort, store, and package their product for market. The space can accommodate more than one producer concurrently.

Adjacent to the packing area is shipping box storage, box assembly equipment, and gel ice pack forming equipment with frozen storage. All food production areas are equipped with food-grade tables and surfaces that can be readily cleaned and sanitized, including floors with drainage.

The facility has shore access, with an adjacent floating dock for vessel moorage and access. Longer-term plans include the construction of a pier adjacent to the facility, which will streamline the offloading process. The pier overview is shown below in the second figure, and the details are in Appendix [as Attachment B](#).



1 Floor Plan
3/16" = 1'-0"

Proposed Naukati Bay Processing Facility Floor Plan

Section 4: Financial and operational planning

AOC and contractors, with the help of Dr. Quentin Fong from the University of Alaska, developed a draft Operational Plan for the proposed facility, as presented here. The draft plan is under discussion by the Cooperative members and will be customized to meet members' needs.

Also, Dr. Fong worked with AOC members and contractors to provide a draft Financial Plan for the proposed facility, also presented below.

Alaska Oyster Cooperative (AOC)

Naukati Processing Facility

Operational Plan

Executive Summary

The Alaska Oyster Cooperative (AOC) is establishing the foundation for a shellfish processing facility in Naukati Bay on Prince of Wales Island to meet the production needs of its five member farms. Demand has grown for a spacious and well-equipped shellfish shipping facility in the region as new oyster farms come online, and existing operations seek to expand. There is a lack of infrastructure to support expanding mariculture businesses in the region, and some farms are constrained by processing and shipping limitations. The AOC processing facility will create the opportunity for business growth and increased revenue for the oyster producers in the area. The more the members' farmed production expands and utilizes the facility, the lower the cost of production per oyster. This allows for the success of both individual farmers and the AOC as a whole.

The AOC processing facility is a shared space that offers the opportunity for effective offloading, sorting, packing, storage, and shipping of oysters. The processing facility is designed to accommodate the needs of the members and allow for quality processing at a larger scale than previously possible for each member individually. This Operational Plan outlines how the facility is organized, managed, and maintained to ensure the smooth operation of the AOC member businesses, opportunities for business growth, and the overall success of the AOC.

The plan describes roles and responsibilities, the duties of the Plant Manager, and how the members collectively utilize the shared processing facility for their production needs while maintaining the necessary shellfish safety protocols. The plan provides context for member expectations, Facility Use Agreements, training and equipment usage and regulation compliance; it intends to ensure that each member has an equal opportunity to contribute to and benefit from the cooperative venture.

The Purpose of this Plan:

To provide maximum benefit to the membership, this plan works to:

1. Keep the AOC facility in good working condition
2. Ensure efficient and fair use of the AOC facility
3. Extend the life of the AOC assets

AOC Mission and Goals:

The AOC is providing shared resources including a processing space to assist member oyster farmers with their production needs and business development. The space is a DEC Certified shipping facility for all members to use.

Participating Cooperative Entities:

- Tommaso Shellfish: James Greeley / President
- Adonai Seafood Delights: Chris Nicholls / Vice President
- Blue Starr Oyster Co: Eric Wyatt / Treasurer
- Alaska Gold Oysters: Mike Sheets / Secretary
- Oysters LLC.: Jerry Ryggs



Alaska Oyster Cooperative members, from left, Eric Wyatt and James Greeley, at the Naukati Bay facility site. Jonny Antoni photo

1. Facility Overview

The AOC Shellfish Processing Facility is located on Prince of Wales Island just off National Forest Road 2060 on the shore of Little Naukati Bay. The facility consists of two 8 foot by 40-

foot shipping containers which are each divided into two equal 8 x 20-foot spaces, with a 24 x 40-foot open area between the shipping containers. A roof package covers the parallel containers and the open area between them as well as a 10 x 20-foot walk-in reefer cooler with double doors, to accommodate forklift access for pallets. The shipping containers are divided into key production areas that accommodate the needs of members: sorting, mechanical work, box and gel pack assembly and product packing. Refer to the blueprint on Page 24, and to Appendix Attachment A, for the full facility plans.

The predominant product type processed in this facility is live, in-shell oysters shipped via refrigerated transport in specialized boxes with frozen gel packs. The oysters are targeted toward local retail and regional, in-state and, to some extent, out-of-state markets. A shelf-life of approximately two weeks is desired, which necessitates rigorous cold chain requirements.

The processing facility is designed to accommodate the key aspects of shellfish processing such that a shellfish producer can utilize the space to effectively sort, store, and package their product for market. The space can accommodate more than one producer concurrently given the physically separated nature of the Conex containers, allowing for optimal use of space. The facility allows for scalability for the member farms, ultimately creating the space needed to expand operations for all members. Additionally, the facility is set up so that when it is not in daily use, the idle costs are minimal.

Each member is responsible for the processing, storage, and management of their product and conducting full cleaning protocols after each use, verified by the manager, unless otherwise previously arranged. The processes that are housed in the facility include: sorting of oysters, cool storage of sorted product, packing of product, cool storage of boxed product. Related processes are also available, including a weigh sorting machine, featuring the required electric, compressed air, and lighting for operation. Importantly, flake ice is made on site to cool the product before and after sorting. The equipment used in these processes is either owned by the AOC or leased from OceansAlaska.

Adjacent to the packing area is shipping box storage, box assembly equipment, and gel ice pack forming equipment with frozen storage. All food production areas are equipped with food-grade tables and surfaces that can be readily cleaned and sanitized, including floors with drainage.

The facility is located on Little Naukati Bay with shore access, with an adjacent floating dock for vessel moorage and access. Currently, incoming product is brought from the farms to the Naukati community dock via small craft, then to the plant via truck. Longer-term plans include the construction of a pier adjacent to the facility, which will streamline the offloading process. Incoming products are put into cool storage as required and will be iced when ambient temperatures warrant. Incoming product would either be stored overnight in the walk-in cooler segregated from boxed outgoing product, or be immediately sorted. Boxed outgoing product will be stored in the walk-in cooler as needed before being shipped via truck transport.

Each member farm will schedule facility use with the Plant Manager, including the use of shared spaces (i.e., the walk-in cooler, storage, outdoor space) in one-day increments. The Plant Manager is responsible for deconfliction with referral to the BOD, as needed.

1.1 Operational Framework and Facility Use Agreement

The operations of the facility as they pertain to the AOC members is outlined in the Facility Use Agreement (FUA) (See Appendix, Attachment C), a formal agreement outlining the rights and responsibilities of each member. Each farm member will review and sign the FUA prior to use of the facility. The FUA will be reviewed annually and updated as needed by the BOD and Plant Manager. The FUA will outline facility management, the terms under which each member accesses the AOC facility, and how the member is expected to comply with operational guidelines.

The FUA holds key processes and procedures for daily operations, including task assignments, decision-making protocols, and reporting mechanisms that the member farms are expected to follow. Important shared usage details are outlined in the FUA, including but not limited to:

1. Member roles and responsibilities
 - Recording of facility use
2. Annual FUA review and renewal process
3. Scheduling
4. Facility and equipment maintenance and upkeep
5. General and operational management
6. Management of taxes, lease renewals, insurance, bills, etc.
7. Facility usage fee and cost sharing structure
8. Guidelines for maintenance of shared spaces

Each AOC member will have access to the facility at any time as needed, subject to schedule approval by the Plant Manager, for the completion of necessary processing for their business. It is expected that each member will follow the scheduling protocols as outlined in the Facility Use Agreement and respect the time and space of other members to ensure smooth operations for all members. The facility will have locked doors for which each member will have a key. Each member will do their due diligence to secure the facility before leaving the premises. Crew of each member farm are permitted at the facility with proper training and written acknowledgment by the member and the Plant Manager. Visitors are permitted under the supervision of an AOC member or the Plant Manager.

1.2 Operational Responsibilities of the AOC and Membership Fees

The AOC, with the assistance of the Plant Manager, will manage important operational documents and processes including the facility lease agreement, facility insurance, facility bills, and facility taxes. The AOC will oversee the timely completion of all necessary processes and logistics for operation of the facility, ensuring members can operate and use the facility as

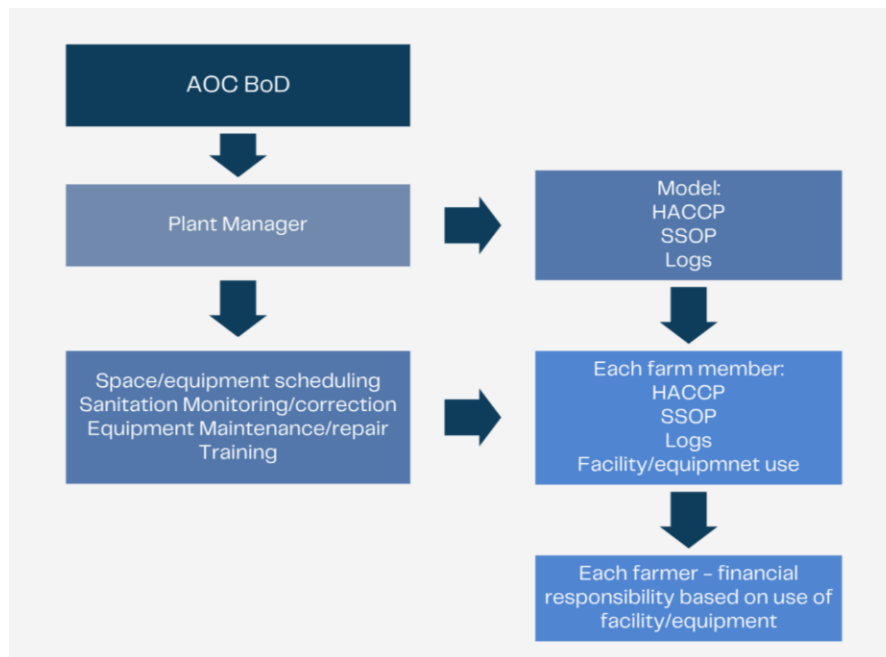
outlined in this plan and the FUA. Completion of these processes is included in the annual member fees.

Member farms will pay an annual membership fee to the AOC which covers operational needs at the facility. This fee is the same amount for all members and is an equal share of the annual fixed overhead costs. Daily use fees for the facility are paid separately and on a monthly basis.

2. Personnel, Organization, and Training

2.1 Personnel, Management, and Communication

The AOC facility is overseen by the Board of Directors (BOD). The BOD will meet periodically to formally address anything needed to ensure the smooth operation of the AOC facility. It is the responsibility of the BOD to hire a Plant Manager to oversee and manage daily operations of the facility.



AOC personnel responsibility flow

The Plant Manager is responsible for maintaining sanitation requirements, managing space and equipment scheduling, conducting maintenance and repair, and training members on the use of the facility. Plant Manager duties include management of the property, including purchasing of shared items (i.e., cleaning supplies) and all required recordkeeping for personnel and equipment. Individual member farms are responsible for the maintenance of and compliance with their individual HACCP and shellfish shipper documents.

The Plant Manager is the first point of contact for members as they use the facility and in the event assistance or general support is needed. The Plant Manager will relay important and necessary information to the BOD as needed and bring issues forward for Board meetings. AOC

members and the Plant Manager will utilize email, text messaging, and verbal communication with each other and among the AOC members. Important documentation will be shared digitally via shared Drive to ensure all members can access information and documents for the AOC, and well as provided via printed material if requested. Importantly, the Plant Manager will manage and approve scheduling to ensure fair and efficient use of the space. The manager will also monitor member use of the facility.

3. Regulations and Compliance Framework

To ensure the AOC maintains quality management and food safety at all points of processing, the facility has developed a model written HACCP plan (Appendix 2) covering each section of the processing workflow, from receiving to shipping, including hazard analysis and critical control points (CCPs), critical limits, monitoring, corrective actions, verification, and recordkeeping.

A model HACCP plan for the facility is available for reference; however, each member is expected to adhere to their own company's HACCP plan in their use of the processing facility as outlined in the Facility Use Agreement. In accordance with the HACCP plan requirements, each member will do their part to complete the necessary daily logging of cooler temperatures, PST testing requirements, and proper tagging of product to maintain compliance and quality assurance within the facility as a whole. A physical copy of each member's documents and HACCP plan will be kept at the AOC facility.

Members will adhere to the PSP testing protocol as required by the ADEC to ensure safety of their product. AOC members may wish to ship lab samples together but it is not required. Members are encouraged to share test results within AOC to ensure general awareness of growing conditions, as is good business practice.

3.1 Sanitation, SSOPs, and Recall Plans

In adherence to the HACCP plan, rigorous Sanitation Standard Operating Procedures (SSOPs) will be followed throughout the facility. A model SSOP will be provided by the Plant Manager, however each farmer member will have their own signed SSOP for their operations. A copy of each member's SSOP will be kept on site.

The SSOPs cover water-use requirements and pre-operational and post-operational sanitation, including cleaning and sanitizing equipment, food-contact surfaces, floors, drains, and cleaning frequency. Members are expected to closely follow the SSOPs and follow the requirements for handwashing, wearing PPE, managing waste, and proper documentation of procedures.

Each member farm is expected to have and follow a recall plan in the event that any product does not meet their company's standard or is in violation of ADEC regulations. This includes communications with the Alaska Department of Environmental Conservation (ADEC) and any wholesale, food service, or retail customers. A model Recall Plan is available for reference, however a copy of the recall plans for each member farm will be kept on site at the AOC facility.

3.2 Shellfish Handling and Time-Temperature Control

Each AOC member is expected to follow state guidelines for shellfish handling in harvest and transport of product from farm to processing facility as per their HACCP plan and the Facility Use Agreement. Upon receiving the product into the AOC processing facility, each member is expected to continue to follow their HACCP plan in the storage, handling, processing and shipping of their product.

During the timeframe of June 15 to September 15 each year, the AOC facility will follow the Alaska ADEC specific Vibrio Control Plan that requires monitoring water temperature at the harvest location, controlling the time from harvest to placement under temperature control, and maintaining internal temperature after refrigeration for safe handling of shellfish in the warmer months.

The following is a chart from the ADEC Vibrio Control Plan:

Time from Harvest to Temperature Control Matrix

Water or Air Temperature at Time of Harvest	Amount of Time until Shellfish Must be Placed Under Temperature Control
≤59°F	5 hours
60 – 67°F	3 hours
≥68°F	1 hour

Additionally, AOC members will maintain temperature control to less than 45 degrees Fahrenheit (Note that the temperature limit for food establishments holding oysters is 41 degrees or less.)

The original dealer must:

1. Take actions following the operation’s HACCP plan, which must include controls, monitoring, and verification procedures to ensure that one of the following temperatures has been reached:

- The internal temperature of oysters has reached ≤50°F (10°C) within 10 hours or less of being placed under temperature control; or,
- The ambient shellfish temperature of oysters has reached ≤45°F (7°C) within 10 hours or less of being placed under temperature control.

2. Record the following items for each lot of shellstock:

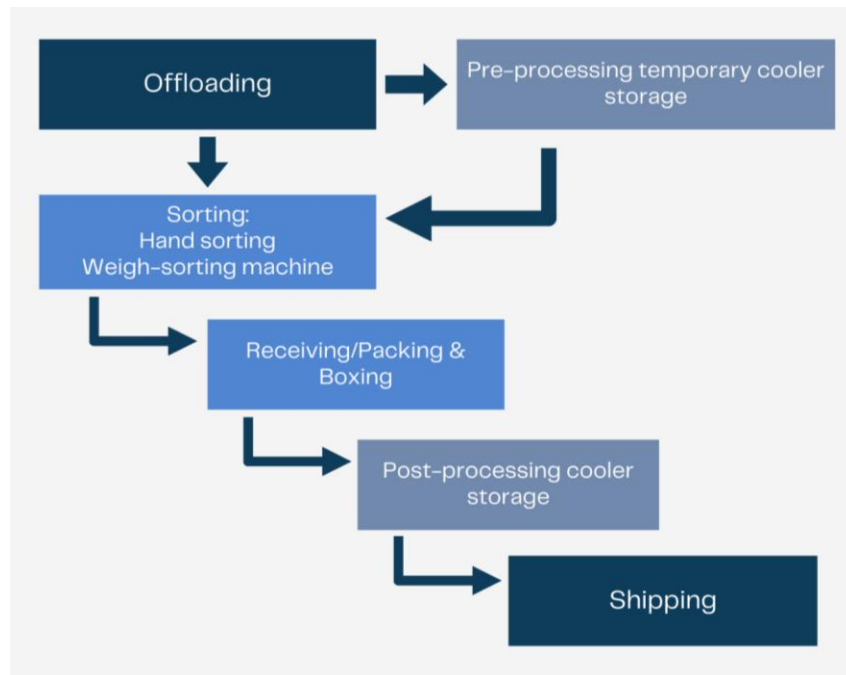
- Record the time and air temperature at time of packing; AND
- Record the time and temperature of shellstock at time of shipping

4. Processing Operations, Equipment, and Standard Operating Procedures (SOPs)

4.1 Processing Operations & Member Supplies

The main processing operations that will occur in the AOC facility, as outlined in Figure 3, are:

- Receiving/offloading
- Temporary storage in cooler, pre-processing
- Sorting - hand sorting and weigh sorting machine
- Packing
- Storage in cooler post-processing
- Shipping



AOC Processing operations flow

AOC members have access to all processing equipment as per the FUA. However, each member is responsible for their own potable water and generator fuel supply. Additionally, other aspects of processing operations require individual member's inputs and supplies. This includes all fuel, boxes for packing, gel for frozen gel packs, other packing materials, and miscellaneous supply material such as gloves and knives needed by the member.

4.2 Equipment

Much of the equipment housed in the AOC processing facility is leased from OceansAlaska and the AOC will bear full responsibility for maintaining this equipment over time. Each member will do their part to ensure the care and upkeep of Co-op equipment. Doing so ensures lower annual maintenance costs for the member farms and reduces the need for hiring external maintenance providers.

The leased equipment is available to all members for oyster production use on a day-use basis. All personnel working with the equipment will complete the necessary training with the Plant Manager (see Section 4.3) and familiarize themselves with relevant SOPs, including for sanitation, before using any AOC equipment. Proper care and recordkeeping are required for all equipment within the facility.

The main processing equipment available includes:

- Weigh sorting machine (oyster weight grader)
- Flake Ice Machine
- Walk-in Cooler
- Box stapler
- Box strapping machine
- Gel Master - ice pack making machine
- Gel Ice Storage Freezer

Additional equipment that requires training includes:

- Forklift
- Pallet Jack
- Electrical generator
- Backup electrical battery system
- Water tank system
- Restroom trailer

Operational training checkoff by the Plant Manager will occur for each piece of equipment listed above prior to use by any member or staff

4.3 Training

Training for the facility's operations and safety policies are created by the Plant Manager with approval from the BOD. The AOC training documents will be reviewed annually and updated as needed by the Plant Manager, with approval by the BOD.

Each AOC member and any personnel working in the AOC facility must take the required training with the Plant Manager for each piece of equipment within the facility, and complete all required documentation before using the facility in any capacity. Upon completion of training, each member will gain access to the facility and be expected to follow all required protocols for facility use as outlined in the training, HACCP plans, and Standard Operating Procedures (SOPs).

4.4 Standard Operating Procedures (SOPs)

SOPs have been developed for each processing step, including the equipment used, within the facility. They will be reviewed in the required equipment training in the FUA and are available to all members for reference both in digital and print format at the AOC facility. Each member is expected to follow the SOPs as outlined. The Plant Manager will review SOPs annually and make updates as needed with approval from the BOD.

4.5 Shipping & Transport, Opportunities & Challenges.

The AOC facility has cold storage available to ensure smooth transport processes from Naukati Bay using cold transport. Forklifts, pallet jacks, and pallets are available to move large volumes of oysters from the cooler to the truck as needed. Members organize shipping and transport for their individual product from the facility. However, the facility presents an opportunity for the farm members to combine efforts in shipping and transportation from Naukati Bay to locations around POW and to Ketchikan. There are currently weekly transport truck shipments for oysters that occur between Naukati Bay and the Ketchikan Airport. Additionally, member farms take freight to the Klawock airport.

There are cost benefits to AOC members in using these existing transport pathways to reduce costs for all members and to help ensure timely deliveries for each farm. With support from the AOC and coordination through the Plant Manager, member farms can collaborate to schedule shipping to best benefit their collective operations. With enough demand, new transport pathways could open and new markets could be reached (e.g., a cold storage facility at the Klawock airport and new markets at Island Air Express/Alaska Seaplanes destinations). Should transport challenges arise, AOC members can support each other in finding solutions to ensure their products get to market. The AOC may also seek to collaborate with other organizations, such as the Alaska Oyster Growers Association, to voice the needs of the members in regional and state-wide transport matters.

5. Maintenance of Equipment, Facility, and Utilities

Ensuring maintenance of the AOC facility and the resident equipment is primarily the responsibility of the Plant Manager. Regular scheduled maintenance of all key processing equipment and utilities will take place as preventative maintenance as per the SOPs, which will vary for each piece of equipment. Facility maintenance will also include the care and calibration for key instruments (i.e., cooler thermometers, scales) necessary for HACCP compliance. The Plant Manager will oversee maintenance and will ensure completion of maintenance logs to track equipment and utilities maintenance and bring any major issues to the BOD. Each AOC member is expected to follow SOPs for equipment and facilities to ensure their care, and to inform the Plant Manager of any issues or maintenance needs immediately.

Facilities care and maintenance are managed by the Plant Manager, however, each AOC member is responsible for sanitation and cleaning after each use of the facility and must record their compliance using the required logbooks.

6. Records, Documentation, and Traceability

The AOC facility will house its own records for equipment maintenance, training, member HACCP and SSOP logs, PSP test results, and all other necessary safety compliance logs.

The Plant Manager's duties, as described in Section 2, include managing and documenting training of facility users, facility maintenance, and SSOPs to ensure compliance with ADEC regulations. The Plant Manager will ensure the required record keeping and documentation occur for the proper operation of the AOC facility.

It is expected that all AOC members will adhere to the required documentation, tagging, and record keeping process throughout their use of the facility as stated in the Facility Use Agreement.

7. Environmental and Waste Management

Processing by-products will be collected and properly disposed of by each member once processing is complete. Members and users will follow SSOP guidelines and keep the facility clean and free of waste that may attract pests, as well as control standing water that may compromise food safety.

All chemical products and non-food-grade substances will be properly labeled and securely stored within the AOC facility. Once used, all chemicals and their containers will be disposed of properly as described in the manufacturer's instructions.

Fuel, oils and lubricants will be stored in a securely designated area of the facility and labeled with appropriate warnings. The necessary spill kits will be available should a spill occur.

General/communal waste from the facility will be frequently removed by the Plant Manager and taken for appropriate disposal. The Plant Manager will be responsible for general pest control and wildlife precautions for the facility. This provision especially applies to large carnivorous animals for which the Plant Manager will be supplied with a large bore weapon or rocket launcher, whichever is preferred.

8. Emergencies

In the event of a major emergency (major injury, fire) at the AOC facility, emergency services will be called as soon as possible by whoever is able. While the Plant Manager will assist as much as possible, each member and crew is expected to assist in the careful and efficient mitigation of emergencies and other issues. The Plant Manager or whoever is able will relay

information about the situation to the AOC members at an appropriate time. The BOD will decide the next steps as needed.

Each AOC member farm is expected to have their own emergency procedures in place in the event of a minor emergency during use of the facility.

**Alaska Oyster Cooperative (AOC)
Naukati Processing Facility
Financial Plan Narrative**

The Alaska Oyster Cooperative (AOC) built a template for a Five-Year Enterprise Budget. The budget was built with certain assumptions/foundations, which are outlined here.

Assumptions:

1. All the operating/processing equipment as well as the physical shelter required to properly run the sorting and processing facility are paid for by the Alaska Mariculture Cluster - OceansAlaska (OA) equipment grant and Resilient Food Systems Infrastructure (RFSI) grants. This funding has made the project possible and greatly reduces the annual and projected five-year costs of the AOC facility.
2. The AOC is purchasing plumbing, electrical wiring, and light fixtures. Installation will be donated by the AOC members. Two of the members are licensed general contractors and will support significant portions of the work.
3. The physical foundation for the facility, including the material for the foundation (concrete), drainage, and the labor and equipment needed to lay the foundation will be donated by the cooperative members. This includes the labor of putting the ConExs together and getting the facility operational.
4. When using the AOC facility, the cooperative members are responsible for supplying their own clean town water in the water tanks, packing material such as insulated boxes, tape, gel ice, miscellaneous supply material such as gloves, knives, etc. Members will also supply their own fuel for generator and electrical use as needed. This system ensures the members are only paying for their own “usable” costs, keeping the overall cost of day use lower.
5. OceansAlaska is providing a significant portion of the equipment to support the facility (see full equipment list below). The AOC is leasing this equipment from OA and will bear full responsibility for maintaining the equipment over time. Except for a few items, it is anticipated all equipment will have a useful life of more than 5 years.
 - a. AOC will pay \$1000 to OA for the lease for the first year, \$0 for years after.
 - b. The rental agreement with OA will include a repair/maintenance log and an annual state of equipment report which will be provided to OA.
6. Maintenance of facility and equipment - 3% annually
 - a. Calculation of yearly maintenance: Capital Costs

	With weigh sorter	Without sorter
OceansAlaska	\$347,600.00	\$237,600
RFSI	\$79,599.82	\$79,599.82
Total	\$427,199.82	\$317,199.82

5% yearly maintenance	\$21,359.99	\$15,859.99
4% yearly maintenance	\$17,087.99	\$12,687.99
3% yearly maintenance	\$12,815.99	\$9,515.99

- b. The 3% yearly maintenance rate was chosen because the AOC Plant Manager and cooperative members will contribute to ongoing maintenance and support of the facility and its equipment throughout the year. This support and continuous maintenance help to reduce the need for/costs of major yearly maintenance from hired professionals.
7. Electricity is generated by the onsite generators purchased through the OA equipment grant. It is assumed not to be cost effective to connect to the grid initially, although this is an available option. As electrical use grows with increased production, electrical service connection will become economically viable. The fuel to run the generators that power coolers, sorter, lights, etc. is the responsibility of the Coop members during their individual use of the facility.
8. The role of the Plant Manager:
 - a. Enforce AOC Facility Use Agreement (FUA) with guidance and authority of the BOD.
 - b. Manage space and equipment scheduling
 - c. Maintain facility accounting and recordkeeping
 - d. Coordinate and perform facility and equipment maintenance and upkeep
 - e. Train cooperative members on use of the facility and its equipment
 - f. Ensure state and federal regulatory compliance for the facility
 - g. Support for members within the facility and communication with the BOD
9. Estimated Plant Manager compensation
 - a. Plant Manager per hour base pay: \$45
 - b. Plant Manager's pay structure: Part-time employment, no extra benefits. \$45 per hour.
 - i. Year One - projected four hours per week for 50 weeks. Annual pay: \$8,000
 - ii. Years Two through Five - hours to increase as required. Estimated 20 hours per week for 50 weeks and an annual pay of \$55,000 by Year Five.
10. The costs for the AOC facility's state lease, insurance, state filing fees, and other annual legal operating fees are contributed by cooperative members (based on four facility user members) within their annual membership fee.
 - a. The annual membership fee is separate from the facility day use fee. The members are charged membership fees yearly regardless of their total use of the facility, this allows full equal access potential to all parts of the site.
 - b. All AOC member fees are paid on an annual basis.
 - c. The facility configuration is such that when it is not in daily use, the idle cost is minimal.

11. It is assumed that over time, each member farm will see an increase in production and capacity via the AOC processing facility. This will ultimately result in higher revenue for each farm and a reduction in processing cost per unit oyster. Increased facility usage is also reflected in increased Plant Manager time and salary.

Break-Even Analysis

Traditional break-even analysis usually determines the minimum production volume required to cover all production costs in a factory. This Cooperative Processing Facility scenario is different because the traditional concept of “production volume” is replaced by "usage" of the facility equipment, which includes the surrounding structure. Currently, there are no plans for member farms to co-mingle their oysters. Members will maintain their individual product and brands while working together to increase efficiency and reduce their individual per unit costs. These two elements are also key to the ability of the members to increase farmed production. Therefore, to explore some useful financial modeling, two cases are explored: a lower-use case and a higher-use case.

Broad assumptions include:

1. While sitting idle or unused, the facility equipment incurs essentially no cost.
2. Use of the facility and its equipment incur costs that increase as that use increases.
3. The cost per unit, or per oyster, will fall as the facility accommodates more throughput, as long as maximum capacity is not reached.
4. In both scenarios, members will pay by the day. Each day is one calendar day and is also considered a “use day”. Multiple members may be using the facility on one calendar day which ultimately is considered multiple “use days” within one calendar day (i.e., if three members are using the facility on one calendar day, this is considered three use days). This has been decided collectively with inputs from those with previous experience in similar projects.
5. Members have the option to use the weigh sorting machine or not. Use of the sorter includes a higher day rate, while not using the sorter has a lower day rate. This is included as an option due to the high unit cost and potentially higher maintenance costs of the relatively complicated machine. The sorting machine is compared to lower cost and lower maintenance items such as the cooler.
6. The time of the Plant Manager is a variable cost over time depending on how much use the facility gets. More use will result in higher cost for the Plant Manager’s annual pay. Opportunities for additional employment, such as sales or part-time work for an individual farm, could help in attracting a qualified person to act as the Plant Manager.
7. Actual use of the facility will most likely start with a "Lower-use case" in Year One expanding to "Higher-use case" in Year Five.

Two use scenarios are presented here to illustrate the variable charges to each member farm based on a facility use fee. Moving from a “low-use case” in Year One to a “higher-use case” by Year Five assumes that this is due to increased oyster farm production and therefore increased oyster processing. If a farm increases its production by about 3.5 times, then the farm’s annual facility use fee per oyster will be halved.

1. Lower-Use Case

- Three farmers are using the facility, one farm at three days per week, one farm at two days per week, and one farm at one day per week.
- Assuming that the facility operates 50 weeks per year, the facility will be used an equivalent of four days per week, with 300 “use days” total.
- The use fee is structured as per day charge, for example:

Equivalent "use days" per week: 6
 Weeks per year: 50
 Equivalent "use days" per year: 300

	<u>All Equipment</u>	<u>No sorter:</u>
Year 1	\$72.72 per day	\$61.72 per day
Year 2	\$92.72 per day	\$87.72 per day
Year 3	\$117.72 per day	\$106.72 per day
Year 4	\$167.72 per day	\$156.72 per day
Year 5	\$226.05 per day	\$215.05 per day

2. Higher Use Case

- This scenario reflects realistic facility use within five grant years. This is not the maximum potential use of the plant, which will most likely increase as production and sales ramp up over time. Increasing oyster farming production is a multi-year endeavor and difficult to capture in short term modeling, yet the short-term data and projections are the most reliable.
- At least five farms are using the facility; one at three days per week, two farms at two days, and one at one day per week.
- Facility is fully utilized and being used an equivalent of eight days per week for 50 weeks per year, with an equivalent of 540 “use days” per year
- The use fee is structured as per day charge, for example:

Equivalent "use days" per week: 12
 Weeks per year: 45
 Equivalent "use days" per year: 540

	<u>All Equipment</u>	<u>No sorter</u>
Year 1	\$40.40 per day	\$34.29 per day
Year 2	\$54.84 per day	\$48.73 per day
Year 3	\$65.40 per day	\$59.29 per day
Year 4	\$93.18 per day	\$87.07 per day
Year 5	\$125.59 per day	\$119.47 per day

AOC Capital Costs

A. Conex Container 1		(Mechanical)		
Item	Price	Quantity	Total	Notes
Fixed Assets				
Conex Container	\$15,000.00	1	\$15,000.00	Lease from OA
Insulation package for Conex containers	\$7,000.00	2	\$14,000.00	
Water Tank (3000 gallon)	\$4,800.00	1	\$4,800.00	Lease from OA
Water Pump	\$600.00	1	\$600.00	Supplies
Air Compressor	\$3,000.00	1	\$3,000.00	Supplies
Power Center (Back up electrical system)	\$15,000.00	1	\$15,000.00	
Flake Ice Machine	\$7,200.00	1	\$7,200.00	RFSI
Flake Ice Machine	\$7,200.00	1	\$7,200.00	RFSI
Portable shipping container cover (roof package)	\$24,000.00	1	\$24,000.00	Lease from OA

B. Walk in Cooler				
Item	Price	Quantity	Total	Notes
Fixed Assets				
Walk in Cooler	\$22,000.00	1	\$22,000.00	RFSI
Bulk containers	\$3,000.00	1	\$3,000.00	Supplies
Pallet Jack	\$1,300.00	1	\$1,300.00	RFSI
Forklift (used)	\$14,720.00	1	\$14,720.00	RFSI

C. Conex Container 3		(Boxing and Gel pack room)		
Item	Price	Quantity	Total	Notes
Fixed Assets				
Conex Container	\$15,000.00	1	\$15,000.00	Lease from OA
Freezer	\$800.00	1	\$800.00	Supplies
Box Stapler	\$1,200.00	1	\$1,200.00	Supplies
Gel Master - ice pack making machine	\$3,395.00	1	\$3,395.00	RFSI
Gel Ice Fast Freezer	\$21,271.83	1	\$21,271.83	RFSI
Gel Ice Chest Storage Freezer	\$1,200.00	1	\$1,200.00	RFSI

Supplies:

Included in the BBB Equipment Grant:			Total	Remaining for other misc. supplies
Round 1	\$3,500.00	Supply items:	\$15,500.00	\$15,000.00
Round 2	\$8,200.00	Water Pump	\$600.00	
Round 3	\$18,800.00	Box Stapler	\$1,200.00	
Total	\$30,500.00	Hand Wash station	\$1,400.00	
		Bulk containers	\$3,000.00	
		SS Tables	\$4,500.00	
		Air Compressor	\$3,000.00	
		Freezer	\$800.00	
		Roller Conveyor	\$1,000.00	

Equipment Lease from OceansAlaska:

Round of Funding	Owner/Subaward	Equipment Name	Description	Cost Budgeted
Round I	OceansAlaska - processing	Shipping Containers (2) 40'	used	\$30,000
Round I	OceansAlaska - processing	Insulation Packages (2)		\$14,000
Round I	OceansAlaska - processing	20' reefer shipping container	walk in /drive in cooler	\$30,000
Round I	OceansAlaska - processing	Forklift	used	\$19,000
Round I	OceansAlaska - processing	Supplies	Pallet Jack	\$1,300
Round I	OceansAlaska - processing	Supplies	Refrigeration unit	\$2,780
Round II	OceansAlaska - processing	Oyster weight grader		\$110,000
Round II	OceansAlaska - processing	Roller Conveyor		\$2,000
Round II	OceansAlaska - processing	Supplies	Compressor, box stapler, roller conveyor	\$6,300
Round II	OceansAlaska - processing	Backup electrical generator		\$20,000
Round II	OceansAlaska - processing	Backup electrical battery system		\$16,000
Round II	OceansAlaska - processing	Portable shipping container cover kit		\$15,000

Round II	OceansAlaska - processing	Flake ice machine, small		\$8,320
Round II	OceansAlaska - processing	Water tanks (2x)	3000 gallons; for processing and ice	\$9,600
Round III	OceansAlaska - processing	Restroom trailer	Two station, bathroom and shower	\$75,000
Round III	OceansAlaska - processing	Supplies	Strapping machine, tables, desk, sink, conveyors	\$18,800
All Rounds	Oceans Alaska - processing	Equipment		\$347,600
All Rounds	Oceans Alaska - processing	Supplies		\$30,500
Grand Total				\$378,100

State of Alaska: Resilient Food System Initiative (RSFI) funded equipment:

Acquisition Date	Invoice # or PO #	Vendor Name	Description of Equipment	Fair Market Value	Cost of the Property	TOTAL
6/9/2025	3,217	Northwest Gel Inc.	Gel Master - gel ice pack making	\$3,296.00	\$3,394.88	\$3,296.00
7/18/2025	S1183-CRA-015-N	Samson Tug & Barge	Gel Master-Freight	\$98.88		
9/22/2025	785,747	KaTom Restaurant Supply	Flake ice machines w/filter	\$13,619.54	\$14,395.93	\$14,395.93
10/8/2025	S1204-THO-005-N	Samson Tug & Barge	Flake ice machines - Freight	\$776.39		
10/10/2025	25,005	Tyler Rental	Forklift - Clark C25L	\$14,000.00	\$14,270.00	\$14,270.00
10/17/2025	C657117	Tyler Rental	Forklift - freight and delivery	\$270.00		
9/27/2025	1,048	Tommaso Shellfish	20 ft Insulated Conex with Cool Bot Cooler	\$25,000.00	\$25,000.00	\$25,000.00
9/18/2025	30,264	Store It Cold LLC	10' 20' walk in cooler complete kit	\$19,136.00	\$21,917.56	\$19,136.00
11/14/2025	S1215-THO-	Samson Tug	Walk in	\$2,781.56		\$2,781.56

	020-N	& Barge	cooler - Freight			
12/5/2025	WN42556841	Home Depot	Pallet jack	\$560.03	\$720.33	\$720.33
12/12/2025	S1225-THO-015-N	Samson Tug & Barge	Pallet jack - Freight	\$160.30		
					Total	\$79,599.82

Five-Year AOC Facility Enterprise Budget - Five-year cash flow

Calculation of yearly maintenance:

Capital Costs

	All processing equipment	No weight sorter
OA	\$347,600	\$237,600
RFSI	\$79,599.82	\$79,599.82
Total:	\$427,199.82	\$317,199.82
5% Yearly	\$21,359.99	\$15,859.99
4% Yearly	\$17,087.99	\$12,687.99
3% Yearly	\$12,815.99	\$9,515.99

The BOD chose **3% yearly maintenance** because the Plant Manager and cooperative members will contribute to maintenance and support.

Full Site Fixed Costs: Membership Fee

Item	Year 1	Year 2	Year 3	Year 4	Year 5
Lease (state)	\$7,500.00	\$7,500.00	\$7,500.00	\$7,500.00	\$7,500.00
Insurance	\$800.00	\$800.00	\$800.00	\$800.00	\$800.00
State filing fees	\$500.00	\$500.00	\$500.00	\$500.00	\$500.00
Taxes	\$500.00	\$500.00	\$500.00	\$500.00	\$500.00
Total per year	\$9,300.00	\$9,300.00	\$9,300.00	\$9,300.00	\$9,300.00
Per member (4 members)/ year	\$2,325.00	\$2,325.00	\$2,325.00	\$2,325.00	\$2,325.00
Per member (3 members)/ year	\$3,100.00	\$3,100.00	\$3,100.00	\$3,100.00	\$3,100.00

Note: member fees will go down as membership goes up

Enterprise Budget (cost)

All equipment variable costs: Daily Use Fee

Item	Year 1	Year 2	Year 3	Year 4	Year 5
Manager *	\$8,000.00	\$16,800.00	\$22,500.00	\$37,500.00	\$55,000.00
Equip lease	\$1,000.00	\$0.00	\$0.00	\$0.00	\$0.00

(OA)					
Maintenance	\$12,815.99	\$12,815.99	\$12,815.99	\$12,815.99	\$12,815.99
Total	\$21,815.99	\$29,615.99	\$35,315.99	\$50,315.99	\$67,815.99

No sorter variable costs: Daily Use Fee

Item	Year 1	Year 2	Year 3	Year 4	Year 5
Manager *	\$8,000.00	\$16,800.00	\$22,500.00	\$37,500.00	\$55,000.00
Equip lease (OA)	\$1,000.00	\$0.00	\$0.00	\$0.00	\$0.00
Maintenance	\$9,515.99	\$9,515.99	\$9,515.99	\$9,515.99	\$9,515.99
Total	\$18,515.99	\$26,315.99	\$32,015.99	\$47,015.99	\$64,515.99

***Plant Manager Salary Projection**

50 weeks per year

	Hours/week	Rate of pay (\$)	Annual Total
Year 1	4	40	\$8,000.00
Year 2	8	42	\$16,800.00
Year 3	10	45	\$22,500.00
Year 4	15	50	\$37,500.00
Year 5	20	55	\$55,000.00



Alaska Oyster Cooperative member Eric Wyatt on the waterfront at the proposed Naukati Bay facility. Photo by Jonny Antoni

Naukati Bay cooperative facility feasibility study credits:

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