

Transportation Barriers and Recommendations: Lessons learned from building a food hub in Southeast Alaska



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Executive Summary

Southeast Alaska is a region of around 70,000 people spread out over a geographic area of about 35,000 square miles, which is almost the size of the state of Indiana. The majority of communities are dependent on air and water to transport people, vehicles, and goods, including food and basic supplies. The current Southeast Alaska food system is highly vulnerable because it is dependent on a lengthy supply chain that imports foods from producers and distribution centers in the lower 48 states. Threats to this food supply chain include natural disasters (wildfires, earthquakes, tsunami, drought, flooding), food safety recalls, transport interruptions due to weather or mechanical failures, political upheaval, and/or terrorism. More recently, the Covid-19 pandemic led to shelter-in-place precautionary measures at the national, state, and community levels in March 2020. Continued uncertainty around the long-term health and safety of food workers in the lower 48 may lead to even more supply shortages and interruptions in the future.

There is a need to increase food production in Southeast Alaska and improve distribution of the region's food products to its own communities. As the region's most populated city, Juneau, Alaska is the biggest market for local foods. A food aggregation hub was proposed and piloted to build a regional food economy by establishing a regional network to empower local producers, especially in rural communities, to access a larger consumer market. The Salt and Soil Marketplace was established in 2017 with support from a Local Food Promotion Program grant from the United States Department of Agriculture (USDA). This pilot food hub network was run as a non-profit from 2017-2020 to increase access to local consumers and provide marketing support to local producers by aggregating local produce, seafood, and cottage food products from producers around Southeast Alaska.

The planning phase of the food hub identified transportation as the most critical challenge to overcome in order for food producers, especially vegetable farmers, to grow their operations and access larger urban markets. After three years of operation, the pilot food hub network generated lessons learned regarding the challenges that transportation continues to pose for a regional food economy. While other regional studies address general transportation options, this white paper uses the food hub's experiences as a case study to examine the specific barriers, costs, and recommendations for improving transportation options for the region's vegetable producers.¹²

¹ McDowell Group. (2017). *Juneau Business Freight Survey*.

<https://www.mcdowellgroup.net/wp-content/uploads/2018/03/juneau-business-freight-survey-final-report-2017.pdf>.

² McDowell Group. (2018). *Juneau Transportation Survey*.

<https://www.mcdowellgroup.net/wp-content/uploads/2018/03/mcdowell-group-ftfaf-transportation-survey-final-report-3-7-2018.pdf>

Background on Selling Commercial Products on the Salt and Soil Marketplace

Products sold on the Salt and Soil Marketplace in Juneau that have been shipped and aggregated by the food hub include seafood such as oysters and frozen fish, cottage foods, and small amounts of foraged foods. Raw vegetables from farms in Haines, Gustavus, and Petersburg commonly include sturdy, heavier products like carrots, rutabagas, and potatoes. The most cost-effective way of shipping these vegetables is through bulk shipments. These products sell for a relatively high price, are robust to the impacts of transport, and can be stored for a long period of time. If proper air circulation and humidity are maintained, storage for half a year or more can be achieved. Currently, a bulk produce shipment may contain anywhere from a few pounds of potatoes, carrots, and greens sold for as little as \$15 total, to several hundred pounds of carrots and rutabagas worth around \$800-\$1000 in total.

Other high value products include garlic, kale and other sturdy greens, blueberries, and rhubarb. One producer also sells value-added shelf-stable products such as rhubarb vinegar or dried herbs. Longer shelf-life opens up options for the retailer or food hub to store larger amounts of the product until they are sold.

See ***Table 1. Vegetable Crop Ratings and Measures of Return on Investment***, for more information.

Challenges with Regional Shipping Options

Southeast Alaskan communities are not connected to each other or to major land-based shipping routes. As a result, many small rural producers are unable to affordably ship their produce to urban areas with the market demand to support larger production. During the years of the pilot regional food hub, producers outside of Juneau had only three options for transporting their product to the Juneau distribution site: 1) ferry via the Alaska Marine Highway System, 2) air cargo, and 3) barge. This section details the benefits and challenges with each of these options.

Ferry: Alaska Marine Highway System

The Alaska Marine Highway System covers 3,500 miles of coastline and 35 communities that stretch from Bellingham, Washington to Dutch Harbor, Alaska in the Aleutian Chain. For many southern Alaska coastal communities, the ferry supports local food production and distribution as a way for seafood industry and local farmers to transport supplies to their communities and transport product from their communities to retailers and customers in larger cities.³ From 1998 until 2019, this was the main way in which most local produce would be moved between communities in Southeast Alaska. This method is becoming less reliable with reductions in state funding that has reduced service and increased fare prices.⁴

During the first two years of the Salt and Soil Marketplace, vendors were able to send their product via the ferry at minimal cost. Produce could travel with the producer when they traveled to Juneau, or they could send produce with a friend who they knew was riding the ferry. In recent years, severe state budget cuts interrupted and cancelled service to many communities in Southeast Alaska, especially in 2019. Communities that had ferry service twice a week found themselves with a ferry only once every few weeks. Some communities lost ferry service altogether. In 2020, a combination of state budget cuts and the Covid-19 pandemic led to further cuts to ferry service to the point that it is no longer a reliable option for transporting produce, supplies, and people.

To support food security in coastal communities, the ferry system needs a management structure that is adaptable and which allows dialogue and partnering with food producers, processors and other businesses in order to reliably and cost-effectively move products from the rural areas to the urban market centers.

³ McDowell Group. (2015). *The Economic Impacts of the Alaska Marine Highway System*. 6.

McDowell report http://www.seconference.org/sites/default/files/econ_15_0.pdf

⁴ Northern Economics, Inc. (2020). *Draft: Reshaping the Alaska Marine Highway System*.

Air cargo

With less reliable ferry service, producers have increasingly turned to transporting produce and seafood as cargo on Alaska Seaplanes or Alaska Airlines. This option is also much more expensive and can also be cost prohibitive. For example, in 2018, Farragut Farm decided to no longer send produce to the Juneau food hub because the high price of shipping was not recovered by the higher prices Juneau residents were willing to pay for produce than in Petersburg. Likewise, Sunnyside Farm in Haines stopped sending produce in winter of 2018 because profit margins were not worthwhile except when shipping in bulk.

Another disadvantage of for shipping vegetables via air freight is that poor weather and marginal flying conditions frequently delay shipments at any time of year in Southeast Alaska. Lack of cold storage for produce at the airlines has resulted in spoiled product on a number of occasions with both seafood and produce. Lack of storage at the food hub and other local food retailers in Juneau leaves farmers with few options other than shipping small quantities at higher costs which are then passed on to the consumer or absorbed by the producer. On Alaska Airlines Cargo, it costs around \$1 per lb. On Alaska Seaplanes, the cost is \$0.85 per lb on average, with a \$17 minimum.

Barge

Currently, barges are the primary transportation method for shipping food, including non-local produce from the lower 48 states to grocery stores around the region. While barge shipments could be an option for local producers in rural areas, none of the Salt and Soil food hub's producers have ever used this option in the past three years due to the prohibitively high cost and the lack of enough product to justify those costs.

Currently, produce can be shipped from Haines using the Grocery Rate from Alaska Marine Lines.⁵ Dry grocery from Haines to Juneau costs \$13.95 for every 100 lbs. Dry grocery means any food that does not generate condensation. This is a good rate in terms of price per pound, but the food hub in Juneau lacks sufficient cold storage to receive this quantity all at once. Consumers in Juneau are also not accustomed to purchase large quantities of vegetables to store over the winter, so the burden of storage falls on the producer or the retailer until it can be purchased in smaller quantities by customers. Finally, it is uncertain whether a single farmer in Haines produces enough vegetables to ship via this method. Shipping containers are not temperature controlled, so produce quality would decline if it is subject to a range of temperatures from 45-65 degrees in summer when most production and shipping would occur. Also, products travel a minimum of four days to arrive in Juneau; however, poor weather can cause delays. This would

5 (C. Peacock, personal communication, October 10, 2019)

not be an option particularly for delicate produce such as salad greens. This option would offer the best per pound rate if moving bulk quantities of product, such as potatoes and other root vegetables that keep well.

Because transporters tend to bring goods from urban centers to rural communities but return to urban centers empty, there is opportunity for food producers in rural Southeast communities, including farmers, to creatively partner with funders to develop ways to work within the existing freight transportation system to move goods from the rural food producing communities to the urban markets. Examples include modifying a single shipping container into divided sections for freezer, chill, and dry goods to accommodate optimal temporary conditions for transport. Cooperatives of producers within a single sector, such as agriculture, or diverse producers from different sectors, such as seafood and agriculture, can collectively work to purchase and modify shipping containers for its members. This also helps to spread liabilities costs. When not in use, the shipping container can also be leased to other organizations or entities.

Innovative use of existing transportation networks

Aside from ferries, barges, and airplanes, Southeast Alaskans also travel between communities via private boats and flights. Boats are owned and operated by commercial fishermen, subsistence fishermen, charter operators. While the primary purpose of these transporters is not necessarily food-related, connecting these boat captains and pilots with farmers could provide an opportunity to create a decentralized network of transporting food. The low or minimal cost to add small - medium sized shipments of produce or food on these vessels would also supplement these transporters during times of economic downturn, such as with reduced tourism. Examples of this happening informally include private boat owners who already ship nonlocal food to communities for resale. For example, Toshua Parker, the owner of Icy Strait Wholesale, uses his own converted military landing craft to bring groceries and other supplies from Juneau to Gustavus.⁶ Similarly, the Sitka Food Co-Op and the Sitka Conservation Society worked together to bring bulk groceries to the community of Pelican that was left without ferry service in early 2020.⁷ A pilot backhaul network could study the potential benefits of an alternative transportation solution that would transport locally produced seafood and produce in addition to these non-local foods.

⁶ Free, Cathy (2020, May, 20th). *This man travels 14 hours by boat to bring food to his neighbors in Alaska each week.* *Washington Post.*

<https://www.washingtonpost.com/lifestyle/2020/05/20/this-man-travels-14-hours-by-boat-bring-food-his-neighbors-alaska-each-week>

⁷ Snider, Ari. (2020, May, 1st). *Sitka Food Co-op, Conservation Society team up to sail food into Pelican.*

<https://www.ktoo.org/2020/05/01/food-co-op-conservation-society-team-up-to-sail-food-into-pelican/>

Recommendations to overcome transportation barriers for a regional food economy

Instead of accepting the current limitations of the transportation system, building a regional food economy will rely on developing innovations based on diversified, decentralized, relationship-based, and community-centered approaches. In addition to developing alternative transportation networks, this involves addressing holistic changes throughout the food supply chain. This is because although transportation links all of the different stages of the food supply system, changes also need to occur in these stages, ranging from production choices, institutional purchases, consumer education on food storage and preservation, and expanding long-term storage options in both rural and urban communities. Local food organizations such as the Southeast Alaska Watershed Coalition can work with community and regional economic development organizations, local governments, tribal governments, and tribal corporations to plan and develop policies and incentives that prioritize local businesses, farmers, and producers to rely less on unstable state-subsidized services or corporate-owned airlines.

Recommendations for farmers and other rural producers

Next steps:

- Coordinate a network or cooperative of farmers to share shipment costs of shipping bulk vegetables to Juneau and other communities.
- Incentivize extra production to grow large quantities of root vegetables and other storable crops to extend market season for local sales and capitalize on bulk rates of barge shipments to urban centers.
- Expand distribution/marketing/storage support.
 - Develop a distribution plan that includes root cellars or a series of storage options for off-farm storage.
 - Invest in energy-efficient shared storage systems such as community root cellars or other season extending facilities to help local food producers supply local markets to they can sell throughout the year.
- Develop relationships with cold storage operators in Juneau to store produce over the winter.
- Invest in medium and long-range planning to ensure longevity of entrepreneurial ventures.

Resources needed

- Volunteer or paid staff to coordinate a farmers' network or association.
- Distribution and marketing support.
- Supplies for building a root cellar.
- According to a Haines farmer, a 16x20 foot passive root cellar that can store 1000

- pounds of produce on pallet crates, built into side of the hill cost \$25,000 in supplies.
- Portable cooling systems can also be used to regulate temperature, such as a Coolbot® system used by Rob Bishop of Game Creek Orchards in Hoonah, the price is around \$300 but you must also have a window mounted air conditioned unit and an insulated room for it to function properly.

Recommendations for local and regional food advocacy organizations

Next steps

- Develop a proposal for a pilot transporter network including backhauling and/or private watercraft such as fishing vessels and charter boats to ship foods from rural areas to urban areas.

Resources needed

- Pursue planning grants or similar funding to pilot an official backhaul network that coordinates logistics between food producers and local food retailers such as the food hub Juneau.
- Recruit a planning committee, including economic development organizations, fishermen, farmers, charter boat captains, recreational boat owners, and other potential transporters.

SEAK Transportation Case Study: Farragut Farm

Bo Varsano of Farragut Farm sells produce to a tour boat via skiff.

Photo credit: Bethany Goodrich



Farragut Farm has developed one of the most unique food transportation systems for local foods in Southeast Alaska to overcome existing barriers. In addition to being one of the largest and most productive commercial farms in Southeast Alaska, the farm is also one of the most remote. The farm is located 35 miles north of Petersburg. To transport their produce to customers, the farmers load their vegetables from the farm to a skiff. The skiff brings the vegetables down a slough to a catamaran, which then brings the vegetables to Petersburg. Skiff rides and catamaran trips are scheduled around high tide.⁸ The farm operation is designed to be both place-based, high-yield, and afford quality of life for the farmers who have no other source of income. Farragut Farm produces enough produce to feed two full-time farmers, a seasonal crew of interns, and a weekly farmer's market in Petersburg. In 2020, they also sponsored 15 families with \$25 a week in produce through their Healthy Food Healthy Families program. After saturating the market in Petersburg, excess produce is then shipped to urban markets in Juneau via Alaska Airlines Cargo. Shipping this way carries the risk of being delayed or bumped off flights in favor of higher priority shipments. Their produce was sold at a local health food store and on the food hub for several years.

Farragut Farm produces the largest volume and value of vegetables a year in Southeast Alaska. Farragut Farm is an exemplary case study of the potential for high yield commercial production in a remote area where innovative transportation solutions make it possible to reach both rural and urban markets.

⁸ Heifetz, Lia. (2016, May 25th). *Farragut Farm: Bo delivers vegetables to a small cruise ship, the Catalyst, in Farragut Bay.* <https://ediblealaska.ediblecommunities.com/shop/off-the-grid-Alaska%27s-farragut-farm>

Conclusion

Overall, the food hub's experiences and lessons learned about current regional transportation challenges and recommended solutions can better inform rural SEAK producers who seek to distribute their product to urban markets in the region.

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Table 1: Measure of Producer Return on Investment

Table 1. Vegetable Crop Ratings and Measures of Return on Investment

Vegetable	Number of Farmers Growing Vegetable	Avg. Labor Required Rating 1 (low) - 5 (high)	Avg. ROI Rating 1 (low) - 5 (high)	% of Total Farm Vegetable Sales	Avg. Revenue per Square Foot
Garlic	5	2	4	17.8%	\$3.86
Carrots	5	3	4	10.0%	\$3.82
Kale	5	2.3	4.5	8.6%	\$7.25
Salad mix	4	3.75	3.8	8.1%	\$5.42
Salad turnips	2	2	3	6.0%	\$4.69
Peas	5	2.3	3.75	5.4%	\$3.36
Cucumbers	5	3.3	4	5.0%	\$3.55
Potatoes	5	2	3.25	4.6%	\$1.36
Chard	5	2.3	4.25	3.9%	\$8.71
Squash	5	2.5	3.7	3.4%	\$4.73
Beets	5	2	4	2.8%	\$3.09
Cabbage	4	1.7	4	2.8%	\$2.35
Lettuce	2	3	2	2.5%	\$3.94
Tomato	3	3	5	2.2%	\$2.47
Rhubarb	3	1	5	1.9%	\$6.62
Kohlrabi	2	2	3.5	1.4%	\$4.01
Herbs	2	1	4	0.9%	\$2.56
Radish	4	2	2.3	0.4%	\$1.13
Peppers	3	2	3	0.1%	-
Dill	2	2	2	0.1%	\$3.00
Onions	2	5	1	0.1%	\$1.39
Broccoli	2	3	4.5	0.1%	-
Cauliflower	2	4	2.5	0.1%	-

Notes: Data obtained from six Juneau area growers, though not all farmers provided all types of data. ROI refers to Return on Investment.

⁴ McDowell Group, 2017. *Current and Potential Impacts of Locally-Grown Produce in Southeast Alaska*. Prepared for Spruce Root, Inc. and Sustainable Southeast Partnership.