

Alaska Food Security and Independence Task Force 2022 Report





Table of Contents

SECTION ONE

Introduction to the Task Force

- 6 Executive Summary
- 8 Background and Context
- 11 Task Force Information

SECTION TWO

Food System Sectors

- 18 Introduction
- 20 Wild Foods
- 43 Production
- 57 Processing
- 68 Distribution and Aggregation
- 75 Access
- 89 Preparation and Consumption
- 97 Waste and Recovery
- 109 Summary

SECTION THREE



Task Force Directives

- 114 Institutional Procurement of Locally Harvested and Produced Food
- 120 Producer Barriers to Launch, Scale, and Access Markets
- 130 Wild Foods and Increasing Abundance
- 142 Fishery Shortfalls and Disaster Response
- 152 Preparing for Disaster: Food Caches
- 163 Alaska Food System Research Needs

SECTION FOUR



Appendices

- 172 Appendix A
Alaska Community Emergency Food Cache System—2013 Plan
- 175 Appendix B
2021–22 Alaska Food System Infrastructure Recommendations and Update
- 181 Appendix C
AFPC USDA Regional Food System Partnership Grant Report—
Alaska Food Security Action Plan Overview
- 192 Appendix D
AFPC Food System Indicators
- 204 Appendix E
Co-management in Alaska, University of Alaska
Fairbanks Center for Arctic Policy Studies
- 206 Appendix F
An Overview of Food Freedom Acts and Cottage Food Laws
- 227 Appendix G
Food System Agencies and Organizations

The Department of Natural Resources has created an accompanying website to provide additional resources. Please view it here: www.alaskafoodsystems.com



A collection of small, light blue, four-pointed stars scattered across the upper half of the page.

SECTION ONE

Introduction to the Task Force



PLEASE NOTE: This report is a **DRAFT** as of **September 30, 2022**. Public feedback will be solicited and subsequently incorporated into the final draft of this report. Despite best efforts and an abundance of expertise, it is certain that perspectives and elements of Alaska's food system are underrepresented or missing in this report. The purpose of the **public comment period** is to fill in these gaps and make the necessary corrections and/or redactions so that this resource is as representative as possible of Alaska's food system opportunities and challenges.



The Department of Natural Resources has created an accompanying website to provide additional resources. Please view it here: www.alaskafoodsystems.com

Executive Summary

BACKGROUND

Alaska's supply chain is vulnerable and in turn, our food supply is unstable, of which 95% of purchased foods are imported. This was most recently highlighted by the 2018 earthquake in Southcentral Alaska and the ongoing COVID-19 global pandemic with its associated supply chain breakdowns. Extreme weather events and seasonality make rural communities, far beyond the end of the road, susceptible to weeks without food delivery and the food that arrives often has a high spoilage rate due to long travel time and poor storage conditions. Additionally, by importing most of our food supplies, around \$2 billion is sent out of state each year. Alaska is past due for activating a strategic approach to creating a more inclusive, equitable, and resilient food system for all.

TASK FORCE FORMATION

On February 9, 2022, Governor Mike Dunleavy issued Administrative Order 331¹ establishing the **Alaska Food Security and Independence Task Force**.² The task force was charged with being "responsible for recommendations on how to increase all types of food production and harvesting in Alaska, and to identify any statutory or regulatory barriers preventing our state from achieving greater food security." **Administrative Order 334** made slight changes to Administrative Order 331,³ expanding composition, extending reporting deadline, and reassigning the Task Force to the Department of Commerce, Community, and Economic Development for administrative support.

The Alaska Food Security and Independence Task Force was created via an application process and resulted in a team of 22, composed of 20 members and two non-voting legislators, with experience and expertise spanning Alaska's food system. The group began meeting during the summer of 2022 and organized into sub-committees, to address each Directive, specified in A.O. 334. starting with an overview of the various sectors of Alaska's food system.

TASK FORCE REPORT OVERVIEW

This report was drafted over three months by the **University of Alaska Fairbanks** and the **Alaska Food Policy Council** on behalf of the Alaska Food Security and Independence Task Force. This report was directly informed by Task Force member input, ideas, feedback and experiences. The report should be used as a tool for building policy and programs to strengthen and grow the state's food system for all Alaskans. Throughout the

“ Over the past two years Alaskans have walked into grocery stores and been greeted by row after row of empty shelves. One of the lessons the pandemic taught us is how vulnerable Alaska could be if the regularly scheduled shipments of food shipped up from Seattle were to suddenly stop—even a few days. The good news is Alaska has tremendous potential to grow, harvest and catch more nutritious food for in-state consumption. The recommendations from the task force will draw a roadmap for my administration, legislators and Alaska's food producers to make Alaska more food secure the next time the supply chain is disrupted.”¹

—Governor Dunleavy, February 9, 2022

drafting process, Task Force members regularly revisited the Administrative Order's mission and discussed the balance and relationship between food security and economic opportunity. As such, this report should be used as a tool for evaluating and improving the food system beyond market-based dialogue.

Understanding how Alaska's food system works and how different sectors interact is paramount to effective policy creation and decision-making to increase food resilience for all. The food system at its base consists of numerous parts—plants, animals, wild harvesters, producers, fishers, processors, distributors, transporters, retailers, marketers, consumers—the list goes on. Each part of the system directly or indirectly affects every other part. At every scale—community, town, region, state, etc.—food is a web, interconnected and, to some degree, dependent on each other. Much like a natural ecosystem, changes in one area affect others and unintended consequences may occur with significant impact to consumers, the economy, and the environment. **Section Two** of this report provides a broad overview of the following sectors, laying a foundation for exploring solutions to improving Alaska's food system:

- Wild Foods
- Production
- Processing
- Distribution and Aggregation
- Access
- Preparation and Consumption
- Waste and Recovery

Administrative Order 334 included eight specific Directives for the Task Force to address. Task Force members were responsible for making recommendations under each of the eight directives on how to increase all types of food production and harvesting in Alaska, and to identify any statutory or regulatory barriers preventing our state from achieving greater food security. **Section Three** distills the ideas and discussion of the Task Force, exploring the following directives:

- Institutional Procurement of Locally Harvested and Produced Food
- Producer Barriers to Launch, Scale, and Access Markets
- Wild Foods and Increasing Abundance
- Fishery Shortfalls and Disaster Response
- Preparing for Disaster: Food Caches
- Alaska Food System Research Needs

Section Four provides additional resources for exploring food system solutions. This section includes information on emergency feeding plans, co-management in Alaska, food freedom and cottage food laws, food system indicators, recommendations on infrastructure, a community-sourced food system action plan, and a list of various agencies and organizations working in Alaska to build the food system.

RESEARCH APPROACH

To fully address food issues and challenges, a systems-based approach is necessary— an interdisciplinary, multi-sectored framework for research and policy aimed at sustainable solutions for a healthy food supply. This approach acknowledges the relationships between the different parts of the food system and the social, economic, and environmental outcomes of activities within the food system. Systems thinking sheds light on non-linear processes in the food system, offering integrative perspectives to policy solutions. A systems approach also expands the perspective when seeking to understand and ameliorate the root causes of problems such as poverty, malnutrition, and the impacts of climate change, in which food sits at the crossroads.

Each food Sector Summary and Directive section can stand alone as a resource—there will be redundancy, as many topics could fall under a number of sections. Additionally, the recommendations found in this report are in no particular order and it is advised that should this plan become actionable, the timeline and methodology for implementation be co-created in consultation with stakeholders. This report is not prescriptive, rather intended to be exploratory and serve as a basis for more in-depth dialogue and intentional action.

HOW TO USE THIS REPORT

This report is intended as a launchpad, rather than a conclusive resource. As this Task Force will sunset in late 2022, HB 298⁴ will establish an Alaska Food Strategy Task Force to continue the work of this group. Additionally, the legislative Alaska Food and Farm Caucus and the myriad of Alaskan food groups, producers, and advocates will certainly add to the discussion. This report should be a living document, to be built upon in subsequent food security discussions and policy development.

To explore this report's accompanying website, please visit alaskafoodsyste.ms.com.



Introduction to the Task Force

Land Acknowledgment

Our University of Alaska campuses reside on the unceded territories of the: Dena People of the lower Tanana River, Eklutna Dena'ina, Tlingit, Central Yup'ik, and Iñupiaq,² however, the scope of this task force report pertains to all Indigenous peoples of Alaska.³ We acknowledge that Alaska Natives have been stewards of the land on which we work and reside since time immemorial, and we are grateful for that stewardship. We recognize the series of unjust actions that attempted to remove Indigenous peoples from their lands, and we honor the sovereign relationships that exist between Alaska Native peoples to their lands, their languages, their ancestors, and future generations. We aspire to work toward healing and liberation, recognizing our paths are intertwined in the complex histories of colonization in Alaska. We acknowledge that we arrived here through deep listening and in the spirit of reconciliation, and will continue to do so as we work together towards a healthier world for future generations.

University of Alaska Fairbanks: Equal Employment Opportunity Statement

In accordance with Federal law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, this institution is prohibited from discriminating on the basis of race, color, national origin, sex, age, disability, and reprisal or retaliation for prior civil rights activity. (Not all prohibited bases apply to all programs.) Program information may be made available in languages other than English. Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotope, and American Sign Language) should contact the responsible State or local Agency that administers the program or USDA's TARGET Center at (202) 720-2600 (voice and TTY) or contact USDA through the Federal Relay Service at (800) 877-8339. To file a program discrimination complaint, a complainant should complete a Form AD- 3027, USDA Program Discrimination Complaint Form, which can be obtained online at <https://www.ocio.usda.gov/document/ad-3027>, from any USDA office, by calling (866) 632-9992, or by writing a letter addressed to USDA. The letter must contain the complainant's name, address, telephone number, and a written description of the alleged discriminatory action in sufficient detail to inform the Assistant Secretary for Civil Rights (ASCR) about the nature and date of an alleged civil rights violation. The completed AD- 3027 form or letter must be submitted to USDA by: (1) Mail: U.S. Department of Agriculture Office of the Assistant Secretary for Civil Rights 1400 Independence Avenue, SW Washington, D.C. 20250-9410; or (2) Fax: (833) 256-1665 or (202) 690-7442; or (3) Email: program.intake@usda.gov. This institution is an equal opportunity provider.

Background and Context

On February 9, 2022, Governor Mike Dunleavy issued Administrative Order 331⁴ establishing the Alaska Food Security and Independence Task Force.⁵ Currently, Alaska imports 95% of its food supplies (excluding wild foods/subsistence foods), sending around \$2 billion out of state each year. The task force was charged with being “responsible for recommendations on how to increase all types of food production and harvesting in Alaska, and to identify any statutory or regulatory barriers preventing our state from achieving greater food security.”

Administrative Order 331 (Initial A0):

February 10, 2022

I, Mike Dunleavy, Governor of the State of Alaska, under the authority of Article III, Sections 1 and 24 of the Alaska Constitution, establish the Alaska Food Security and Independence Task Force (Task Force) to

recommend policies and measures to enhance Alaska's food security, increase the amount of locally grown and consumed food, wild seafood, and mariculture products, and ensure State agencies are leveraging all available resources to promote, purchase, and advance the growth of Alaska's food system.

BACKGROUND AND PURPOSE

The goals of this Order are to increase food security, strengthen local economies, and lessen Alaska's dependence on external foods and supply chains.

The State of Alaska has a vested interest in promoting the health, safety, and wellbeing of its citizens. Other than water, heat, and shelter, a reliable, affordable, and sufficient food supply is the highest need of a society. As an isolated State with limited infrastructure and tremendous dependency on imports, the State of Alaska has a duty to improve the local production, harvest, and growth of foods and increase access to a sufficient supply of nutritious and safe food.

Currently, approximately 95 percent of the food Alaskans purchase is imported, costing roughly two billion dollars annually. This is an enormous wealth transfer from Alaskans to outside entities. During the COVID-19 pandemic global supply chains have been stressed. Furthermore, Alaska is at the end of the supply chain for goods and food coming from the West Coast. At the height of the pandemic, the Port of Seattle was on the brink of closing, which would have drastically impacted the ability for shipping carriers to bring goods and food to Alaska. Most recently, the logistical shock has rippled into grocery stores and family homes across the State, with food and other essentials becoming difficult to obtain due to restrictions on overland trucking between Canada and the United States.

The Task Force will review and provide recommendations to the Governor of the State of Alaska regarding food security goals and policies, and guidelines for state initiatives which, to the maximum extent possible, increase local production, harvest, processing, storage, and use of food products. Once the report is received, there may be further clarification and deliverables identified that would require additional work by the Task Force.

The full version of Administrative Order 331 can be found here: <https://gov.alaska.gov/admin-orders/administrative-order-no-331/>

Administrative Order 334 (Final AO Version):

A day before announcing the Task Force roster, Administrative Order 334⁶ made slight changes to Administrative Order 331:⁶

April 25, 2022

I, Mike Dunleavy, Governor of the State of Alaska, under the authority of Article III, Sections 1 and 24 of the Alaska Constitution, and in accordance with AS 44.19.145(c), hereby revoke Administrative Order 331, establishing the Alaska Food Security and Independence Taskforce ("Task Force"), and issue this Administrative Order 334 reinstating the Task Force with an expanded composition, extended reporting deadline, and reassignment to the Department of Commerce, Community, and Economic Development for administrative support.

BACKGROUND AND PURPOSE

The goals of this Order are to increase food security, strengthen local economies, and lessen Alaska's dependence on external foods and supply chains.

The State of Alaska has a vested interest in promoting the health, safety, and wellbeing of its citizens. Other than water, heat, and shelter, a reliable, affordable, and sufficient food supply is the highest need of a society. As an isolated State with limited infrastructure and tremendous dependency on imports, the State of Alaska has a duty to improve the local production, harvest, and growth of foods and increase access to a sufficient supply of nutritious and safe food.

Currently, approximately 95 percent of the food Alaskans purchase is imported, costing roughly two billion dollars annually. This is an enormous wealth transfer from Alaskans to outside entities. During the COVID-19 pandemic global supply chains have been stressed. Furthermore, Alaska is at the end of the supply chain for

goods and food coming from the West Coast. At the height of the pandemic, the Port of Seattle was on the brink of closing, which would have drastically impacted the ability for shipping carriers to bring goods and food to Alaska. Most recently, the logistical shock has rippled into grocery stores and family homes across the State, with food and other essentials becoming difficult to obtain due to restrictions on overland trucking between Canada and the United States.

The Task Force will review and provide recommendations to the Governor of the State of Alaska regarding food security goals and policies, and guidelines for state initiatives which, to the maximum extent possible, increase local production, harvest, processing, storage, and use of food products. Once the report is received, there may be further clarification and deliverables identified that would require additional work by the Task Force.

MEMBERSHIP

All voting members are appointed by and serve at the pleasure of the Governor. The Governor shall select a Chair and Vice Chair from the members. The Task Force will consist of 20 voting members, and two ex-officio members as detailed below:

Five voting members who are State of Alaska officials:

- The Commissioner of the Department of Natural Resources or the Commissioner's designee.
- The Commissioner of the Department of Fish and Game or the Commissioner's designee.
- The Commissioner of the Department of Environmental Conservation or the Commissioner's designee.
- The Commissioner of the Department of Military and Veteran's Affairs or the Commissioner's designee.
- The Commissioner of the Department of Commerce, Community and Economic Development or the Commissioner's designee.

Fifteen voting members, who are not state officials, who are appointed by, and serve at the pleasure of the Governor identified as follows:

- One member who represents a city, borough, or municipality in managing the community's access to food.
- One member who represents an organization that is a representative of Alaska Natives in the State.
- Five members who are active farmers or stock growers in the State.
- One member who is an active commercial harvester of seafood in the State.
- One member who is an active commercial harvester of mariculture in the State.
- One member of the Alaska Farm Bureau or a similar organization that represents agricultural producers in the State.
- One member of the Alaska Food Policy Council or a similar organization that represents food security advocates in the State.
- One member who has an academic focus on food security, soils, mariculture, or affiliated subject matter.
- One member of the General Public.
- Two members who represent an Alaska-based organization, one for-profit, one non-profit that provide Alaskans with food to either purchase or donate.

Ex-Officio members:

The Governor requests two ex-officio members, one who is a member of the Alaska State Senate appointed by the Senate President, and one who is a member of the Alaska House of Representatives, appointed by the Speaker of the House. Though not required, it is requested that the ex-officio members be part of the Alaska Grown Legislative Caucus.

ADMINISTRATIVE SUPPORT

The Task Force is assigned to the Department of Commerce, Community and Economic Development for administrative purposes.

GENERAL PROVISION

Task Force members receive no compensation or other remuneration from the State. Members of the Task Force who are not state or federal employees are entitled to per diem and travel expenses in the same manner permitted for members of state boards and commissions. Per diem and travel expenses for members of the Task Force who are a representative of a state or federal agency are the responsibility of that agency.

The Task Force may create advisory-only subcommittees.

The Task Force will meet monthly, at a minimum. Additional meetings may be called by the Chair. The Task Force and its subcommittees will use teleconferencing and other electronic means, to the extent practicable, in order to gain maximum public participation at minimum cost.

At times and locations to be determined by the Chair, the Task Force may convene public meetings to present information and receive comments.

Meeting of the Task Force shall be conducted in accordance with AS 44.62.310 – 44.62.319 (Open Meetings Act).

Records of the Task Force are subject to inspection and copying as public records under AS 40.25.110 – 40.25.220.

This Order takes effect immediately. The Task Force will sunset on November 30, 2022.

The full version of Administrative Order 334 can be found here: <https://gov.alaska.gov/admin-orders/administrative-order-no-334/>

Task Force Information

TASK FORCE DUTIES AND RESPONSIBILITIES DIRECTIVES

Governor Dunleavy listed the following “Duties and Responsibilities” of the Alaska Food Security and Independence Task Force, outlined in Administrative Order 334⁷:

The Task Force shall deliver a report to the Governor by October 1, 2022, as defined below:

- Provide recommendations that increase the procurement and use of Alaska-sourced foods within State and local agencies, institutions, and schools, including any administrative and statutory changes that are required.
- Identify barriers that farmers, stock growers, fishermen, mariculture professionals, and others engaged in the growing, harvesting, or raising of food face when starting a business or getting their products into the Alaska market. Provide recommendations on how the State can address those obstacles, including through administrative or statutory changes.
- Assess the levels of wild game and fish harvests in Alaska. Suggest measures that would increase the abundance and harvest of wild game, fish, and food by Alaskans.
- Recommend a program to assist communities and households impacted by fishery shortfalls and disasters.
- Identify factors, including regulatory or statutory burdens that might discourage or prevent locally harvested and produced food from being purchased by federal, state, and local agencies, institutions, and schools.
- Identify research needed to support and encourage increased consumption and production of Alaskan foods sourced within the State.
- Engage with the public to seek additional input on ways to promote the above-listed goals.
- Assess the need for disaster food caches within the State; and how the caches can be developed utilizing Alaskan-sourced foods.
- Provide a report and summary of findings and recommendations, including what administrative and statutory changes would be needed to accomplish the recommendations of the Task Force.
- The Chair of the Task Force shall report regularly to the Office of the Governor on activities conducted and issues that arise under this Order.

TASK FORCE FORMATION

A public call for applicants began in late February 2022. The process was managed by the Boards and Commissions Office, which “actively recruits, interviews, and vets board candidates throughout the year.” While they “often reach out to civic and community organizations, businesses, industry associations, legislators, and others,” the board welcomes “ALL Alaskans to apply for service on a board or commission.”⁸

Initial application prompts were:

- List any professional licenses, certifications, or registrations and dates obtained that may be used as qualifying criteria
- List both formal and informal education and training experience
- List any community service, municipal government, and state positions held, and any awards received
- Employment work history including paid, unpaid or voluntary

Applicants were then invited to interview, though not all selected task force members completed an interview process. Questions included thoughts on improving Alaska’s food system, viewpoints on regulatory burdens, whether or not an applicant had a social media presence, and an applicant’s favorite public figure.

On April 26, 2022, Governor Dunleavy announced the selection of the first thirteen Alaskans to the Alaska Food Security and Independence Task Force:

“One of the lessons we learned from the pandemic is that Alaska is situated at the end of the west coast supply chain, and that puts us at great risk if a disaster or national emergency strikes,” said Governor Dunleavy. “The task force will review Alaska’s food production capabilities and make recommendations on what steps Alaska can take to increase food production and overall food security. I look forward to taking those recommendations and turning them into state initiatives that make Alaska more food secure.”

Task force members John Anderson and Alaska Department of Commerce, Community and Economic Development Commissioner Julie Sande were chosen by Governor Dunleavy to serve as chair and vice-chair respectively. Additional members were named to the Task Force in the following month, rounding out with 20 members, with two non-voting positions assigned to legislators Senator Peter Micciche and Representative Liz Snyder. Meetings were held from June through September, 2022.

TASK FORCE NAMES AND AFFILIATIONS

The Food Security and Independence Task Force is composed of members with experience and expertise spanning Alaska’s food system. Members and their organization affiliations are:

- **John Anderson (Co-Chair)**, 907 Livestock/Producer, Livestock
- **Ronalda Angasan**, NOVARUPTA Fisheries/Commercial Fisherperson
- **Jim Baldwin**, Food Bank of Alaska, CEO
- **Christina Carpenter**, Alaska Division of Environmental Health, Director
- **Casey Cook**, Mat-Su Emergency Services, Manager
- **Todd Elsberry**, Mt. McKinley Meats & Sausage/Producer, Livestock
- **Bryan Fisher**, Alaska Division of Homeland Security and Emergency Management, Director
- **Kelli Foreman**, Heritage Farm & Ranch/Dairyperson, Livestock
- **Jeff Fortune**, US Foods, District Sales Manager Southeast, AK
- **Tikaan Galbreath**, Intertribal Agriculture Council, Technical Assistance Associate Director
- **Mia Kirk**, Alaska Division of Agriculture, Interim Director
- **Anthony Lindoff**, Central Council of the Tlingit & Haida Indian Tribes of Alaska, Food Security Manager/Kaawu Shellfish Co, Owner

- **Kimberly McCourtney**, *Alaska Mill and Feed, Senior Vice President*
- **Tim Meyers**, *Meyers Farm/Producer, Vegetables*
- **Sen. Peter Micciche (Ex-Officio)**, *Alaska State Senator*
- **Mike Mosesian**, *Bell's Nursery/Producer, Vegetables*
- **Comm. Julie Sande (Co-Chair)**, *Alaska Department of Community & Economic Development, Commissioner*
- **Rep. Liz Snyder (Ex-Officio)**, *Alaska State Representative*
- **Fred Villa**, *General Public Member*
- **Comm. Doug Vincent-Lang**, *Alaska Department of Fish and Game, Commissioner*
- **Eric Wyatt**, *Blue Starr Oyster Co./Producer, Mariculture*
- **Dr. Mingchu Zhang**, *University of Alaska Fairbanks, Soil Scientist/Agronomist*

ALASKA FOOD SECURITY AND INDEPENDENCE TASK FORCE

This report is the culmination of work completed by the Alaska Food Security and Independence Task Force and a team of researchers and writers organized by the University of Alaska Fairbanks (UAF). The UAF team provided the Task Force with organizational resources, such as report format and contents suggestions and sub-committee formation recommendations, as well as foundational resources pertaining to both food system sectors and Administrative Order 334's Duties and Responsibilities. The Task Force created sub-committees, with cross-sector representation, to explore how to address the directives.

REPORT AUTHORS AND COLLABORATORS

The Governor's Office provided UAF Institute of Agriculture, Natural Resources and Extension (UAF IANRE) funding to write the Task Force's final report. Given the short timeline and the need to develop a report to further guide food security in Alaska, UAF IANRE contracted the Alaska Food Policy Council (AFPC) to organize, research, and write the final report. UAF IANRE also contracted with the GIS and website development expertise of Dewberry Associates to build a public online resource for the Task Force's final report. The lead authors were selected based on their extensive Alaska food systems expertise and networks.. They contributed writing and resources to support the final report, in addition to collecting feedback and information directly from Task Force members that directly respond to the Governor's directives from AO 334.

PROJECT MANAGER AND TASK FORCE LIAISON:

- **Jodie Anderson**, *University of Alaska Fairbanks—Institute of Agriculture, Natural Resources, and Extension, Matanuska Experiment Farm and Extension Center*

WEBSITE DESIGN & GIS SERVICES:

- **Hillary Palmer**, *Dewberry Alaska, Inc.*

LEAD AUTHORS INCLUDE:

- **Melissa Heuer**, *SPORK Consulting*
- **Glenna Gannon**, *University of Alaska Fairbanks—Institute of Agriculture, Natural Resources, and Extension; AFPC Governing Board Member*
- **Rachael Miller**, *Alaska Pacific University; AFPC Governing Board Member*
- **Robbi Mixon**, *Executive Director Alaska Food Policy Council and Alaska Farmers Market Association*
- **Sundance Visser**, *Sustainable Food Systems and MBA Graduate Student*
- **Kyra Wagner**, *Homer Soil and Water Conservation District*
- **Evie Witten**, *Regeneration North; AFPC Governing Board Member*

ABOUT THE ALASKA FOOD POLICY COUNCIL

The Alaska Food Policy Council (AFPC) is a non-partisan 501c 3 non-profit organization with over a decade of work aimed at improving the food systems for the benefit of all Alaskans. Their goal is to create a healthier, more secure, and more self-reliant Alaska by improving our food system. The AFPC serves as a resource and potential partner to any person or organization interested in improving Alaska's food systems—agencies and individuals representing federal and state agencies, tribal entities, schools, university programs, farmers, fisheries, and food systems businesses.

“ *We have created the Food Security Task Force. We're working to open more lands to agriculture and boost our investments in mariculture. We're working to identify and take down the barriers to increased food production, and today, to further advance this critical objective, I signed an Administrative Order that creates the Office of Food Security within the Governor's Office.”*

—Governor Mike Dunleavy

ADDITIONAL ACKNOWLEDGEMENTS

- **Victoria Caltagirone, Christine Childers and Michaela Fowler, Alaska Department of Commerce, Community, and Economic Development**
- **Melissa Clappitt, University of Alaska Cooperative Extension Services**
- **Glenda Grawe, Alaska Division of Agriculture**

SEPTEMBER 2022 UPDATE: CREATION OF THE OFFICE OF FOOD SECURITY

On September 16, 2022, through Administrative Order No. 338, Governor Dunleavy Announced the creation of the Office of Food Security.¹⁰ The Office of Food Security “will operate within the Office of the Governor and has a number of duties and responsibilities, including coordinating the state's efforts related to food security and serving as the first point of contact with agriculture, mariculture, food processing, and other related industries. Additionally, the Office of Food Security will be responsible for creating marketing materials and presentations that describe the state's food security efforts and opportunities.”¹¹

Additionally, the Office of Food Security will coordinate the state's efforts related to food security and serve as the first point of contact with agriculture, mariculture, food processing, and other related industries. Additionally, the Office of Food Security will be responsible for creating marketing materials and presentations that describe the state's food security efforts and opportunities.

The stated purpose of the Office of Food Security is to:

- Enhance access to, availability, affordability, and quality of food for all Alaskans
- Set policies and identify resources to build a strong, sustainable, and healthy food system in the state to ensure food security for all Alaskans.
- Identify or expand economic opportunities for the state in food production, food processing, and food distribution businesses.

This new office will utilize existing resources and staff, and will operate within the Office of the Governor. Existing agencies and groups that will be involved in the functions of this office will include:

- The Division of Agriculture in the Department of Natural Resources to protect, preserve, and develop the state's farmland and agricultural industry
- The Department of Fish and Game to protect, preserve, and develop the state's subsistence, personal use, commercial fisheries, and grazing land leases.

- The Department of Commerce, Community and Economic Development to improve and expand existing incentive grant and loan programs as relates to the food supply chain, identifying Opportunity Zones that can be utilized to expand the food production supply chain, and facilitate economic diversification of the food production supply chain
- The Department of Health to develop strategies and educational programs to inform state residents of the nutritional value of locally-harvested seafood, proteins, and produce
- The Department of Education and Early Development to develop curriculum covering subjects such as nutrition, gardening, and food preparation, and to include locally produced food in school meals
- The Department of Military and Veterans' Affairs to develop a method to use state food resources as part of the Governor's disaster and emergency preparedness food supply program, including food storage depots
- The Department of Corrections to develop a program to use state food resources as part of the Department of Corrections' institutional food service programs
- The University of Alaska to research and develop a sustainable supply of locally produced food and workforce development programs and public-private research partnerships
- The Department of Environmental Conservation to enhance the health, safety, and welfare of state residents and their overall economic and social well-being by developing programs that encourage the development of the state's food resources
- Nonprofit organizations, including local food banks and associations of food producers, to develop and use the state's food resources
- The United States Department of Agriculture to develop programs that encourage the growth and use of the state's food resources
- Alaska Native regional and village corporations, Tribes and Tribal organizations, to preserve, enhance, and expand the traditional uses of the state's food resources and to encourage the development of locally produced food resources in the corporations' regional communities

¹ <https://gov.alaska.gov/newsroom/2022/02/09/governor-dunleavy-establishes-alaska-food-security-and-independence-task-force/>

² University of Alaska Campuses: <https://www.alaska.edu/alaska/campuses.php>

³ Map of Indigenous Peoples and Languages of Alaska (2011). Alaska Native Language Center https://www.uaf.edu/anlc/images/ipla-map-20130712_sm.jpg

⁴ <https://gov.alaska.gov/admin-orders/administrative-order-no-331/>

⁵ <https://gov.alaska.gov/newsroom/2022/02/09/governor-dunleavy-establishes-alaska-food-security-and-independence-task-force/>

⁶ <https://gov.alaska.gov/admin-orders/administrative-order-no-334/>

⁷ <https://gov.alaska.gov/admin-orders/administrative-order-no-334/>

⁸ <https://gov.alaska.gov/services/boards-and-commissions/apply-for-a-board-appointment/>

⁹ <https://gov.alaska.gov/newsroom/2022/04/26/governor-dunleavy-names-thirteen-alaskans-to-the-alaska-food-security-and-independence-task-force/>

¹⁰ Office of Governor Mike Dunleavy (2022 September 16). Administrative Order No. 338. <https://gov.alaska.gov/admin-orders/administrative-order-no-338/>

¹¹ Office of Governor Mike Dunleavy (2022 September 16). Governor Dunleavy Announces Office of Food Security. <https://gov.alaska.gov/newsroom/2022/09/16/governor-dunleavy-announces-office-of-food-security/>





SECTION TWO

Food System Sectors



Introduction

Alaska's supply chain is vulnerable and in turn, our food supply is unstable, of which 95% (non-wild foods) is imported. This was most recently highlighted by the 2018 earthquake in Southcentral and the ongoing COVID-19 global pandemic with its associated supply chain breakdowns. Furthermore, extreme weather events and seasonality make rural communities, far beyond the end of the road, susceptible to weeks without food delivery and the food that arrives often has a high spoilage rate due to long travel time and poor storage conditions. Understanding how Alaska's food system works and how different sectors interact is paramount to effective policy creation and decision-making to increase food resilience for all.

Our food system at its base consists of numerous parts—plants, animals, wild harvesters, producers, fishers, processors, distributors, transporters, retailers, marketers, consumers—the list goes on. Each part of the system directly or indirectly affects every other part. At every scale—community, town, region, state, etc.—food is a web, interconnected and, to some degree, dependent on each other. Much like a natural ecosystem, changes in one area affect others and unintended consequences may occur with significant impact to consumers, the economy, and the environment.

A systems approach examines both the whole and the individual parts. By studying each part through a holistic lens, a picture emerges showing how each individual, industry, community, and environment is affected. One can identify the strengths and weaknesses of systems and examine how a decision in one area affects a community at another end of the system. A systems approach also looks at all dimensions, from access to education and health, to environmental impacts and who is affected most, and illuminates interdependence and relationships. From here, the system can be evaluated to uncover problems these solutions may cause, taking into account each perspective and their related perceived costs and benefits. A systems approach can help create clear visions for achieving tangible, sustainable, and lasting changes.

A cautionary example of not considering a system as a whole is the biofuel versus food debate, highlighted by the 2007 global famine. In an effort to curb fossil fuel usage, biofuels were developed using corn, grains, and other food crops and touted as a more sustainable solution. Government tax incentives and subsidies further encouraged adoption. However, the diversion of these food products to fuel production compounded with pre-existing hunger and malnutrition in a perfect storm. This scarcity of food and drastic increase in commodity pricing resulted in escalating food costs and civil unrest in many countries.¹

Similarly but with a positive outcome, a bill was passed during the 2021–22 Alaska state legislative session to create online applications for various programs, including the SNAP program. Formerly, this application had to be completed on paper, causing delays for those without transportation to and from a benefits office. Making applications available online will increase efficiencies by allowing potential SNAP participants to complete applications outside of a physical office, often with the help of a community services agency, like the Food Bank of Alaska.



The food system spans the activities, people, and resources involved in getting food from field to plate, from agriculture through nutrition and beyond. Along the way, it intersects with aspects of public health, culture, society, policy, and the environment.”

—The Johns Hopkins Center for a Livable Future,
Food System Primer³

These are just a few examples of why it is critical, and sometimes a literal matter of life and death, to approach food security from a true systems approach to best project the implications of proposed changes.

The movement of food is often portrayed in a linear model:

Production > Distribution > Processing > Storage > Sales > Purchase > Consumption > Waste

Some models take this a step further and connect waste to production, alluding to the concept of waste to energy, which can happen through composting and anaerobic digestion.

While the linear model has evolved, it is still too singular a lens to truly appreciate and understand the opportunities and challenges within a food web of any scale. By considering external and tangential forces and outcomes, suddenly food affects and is affected by everything, intersecting just about every aspect of our lives. Investing in farmland and farmer development is a moot point if the food produced cannot be safely stored and distributed throughout Alaska. Similarly, the supply of food is only as good as the population's willingness to consume it—and ability to afford it. This is where community gardens, subsistence rights, personal use harvest, seed sovereignty, and knowledge sharing come in. A food system is not just how food moves, but about how and why people consume it.

To fully address food issues and challenges, a systems-based approach is necessary—an interdisciplinary, multi-sectored framework for research and policy aimed at sustainable solutions for a healthy food supply. This approach acknowledges the relationships between the different parts of the food system and the social, economic, and environmental outcomes of activities within the food system. Systems thinking sheds light on non-linear processes in the food system, offering integrative perspectives to policy solutions. A systems approach also expands the perspective when seeking to understand and ameliorate the root causes of problems such as poverty, malnutrition, and the impacts of climate change, in which food sits at the crossroads.

Section II of this report provides a summary of various components of Alaska's food system, including:

- **Wild Foods**
- **Production**
- **Distribution and Aggregation**
- **Preparation and Consumption**
- **Processing**
- **Access**
- **Waste and Recovery**

There is significant overlap between some sections...
because food is an interconnected web.

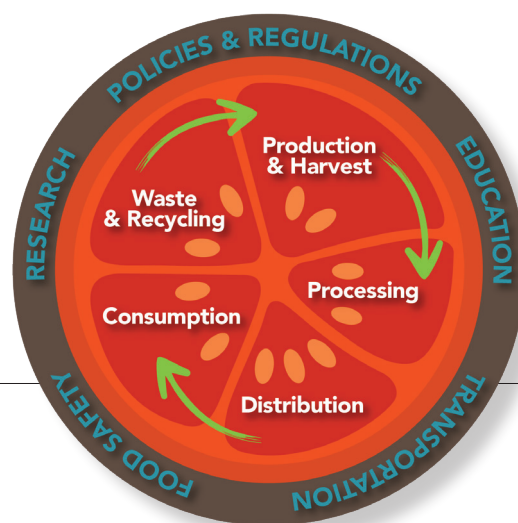


Image: Alaska Food Policy Council,
by Kari Odden/Moontide Design

¹ Tenenbaum, D.J. (2008). Food vs. fuel: diversion of crops could cause more hunger. *Environ Health Perspect.* 116(6). DOI: 10.1289

² Electronic Application for State Benefits [HB168]. Retrieved September 2022 from <https://www.akleg.gov/basis/Bill/Detail/32?Root=hb168>

³ Food System Primer, Johns Hopkins. Retrieved August 2022 from <https://www.foodsystemprimer.org/>

⁴ Ackerman-Leist, P. (2013). *Rebuilding the Foodshed*. Santa Rosa, CA.



The work ahead of us is not easy. It requires us to move from a sense of individual resignation to a spirit of collective resolve.... Building resilient local food systems is a remapping of our expectations. It is a cartography of hope."

—Philip Ackerman-Leist, *Rebuilding the Foodshed*⁴





Wild Foods

Introduction

Subsistence, personal, and sport harvest of wild foods are crucial aspects of food security, culture, and economic stability among all user groups in Alaska. When addressing issues around wild foods, it is critical to understand the complex land, regulations, access language, and user management aspects of wild hunted, fished, and harvested foods, and the various means by which they are utilized. Presently, the primary source of local food in the state of Alaska is from the harvesting of wild foods.^{1,2} In Alaska wild food species are harvested by both rural and urban, and both Indigenous and non-indigenous populations to provide for their food security, through processes legally categorized as subsistence and non-subsistence hunts and fisheries.³ Urban residents harvest wild foods through personal use, sport fisheries and general hunts, and rural Alaskans, including Alaska Natives, through subsistence hunting and fishing. Subsistence and personal use-harvested fish and game cannot be commercially sold or used for trade or barter, but may be gifted.⁴

Alaska's rural residents each harvest an average of 295 pounds of wild foods yearly, or about 18,000 tons, under state and federal subsistence regulations. This "dual-management" approach means state fishing, hunting, and trapping regulations apply on non-federal lands, and, in general, all Alaska residents are eligible to hunt under the state regulations. State regulations apply to federal lands unless they are specifically closed to non-federally qualified users.⁵

Subsistence hunting and fishing has different legal definitions and ramifications according to Alaska State and federal laws. Both State and federal laws recognize subsistence uses as the "customary and traditional uses" of wild resources for food, clothing, fuel, transportation, construction, art, crafts, sharing, and customary trade.^{6,7} Primarily, the term subsistence is used in a legal context, and does not capture the multiple social, cultural, economic, and spiritual dimensions of Indigenous food systems.^{8,9} Subsistence harvest activities are practiced widely by Alaskans throughout the year and for many rural Alaska residents (Indigenous, and non-Indigenous), subsistence hunting and fishing is critical to their food and economic-security due to remoteness of communities, the high costs of transportation and imported goods, and limited agricultural potential throughout the year. The section below outlines the regulatory bodies and legislation pertaining to the legal definitions of "subsistence" harvesting in Alaska.

Regulatory Agencies Responsible for Managing the Harvest of Wild Food in Alaska

With the passage of the 1980 Alaska National Interest Lands Conservation Act (ANILCA) rural Alaska residents qualified for subsistence priority over sport and commercial uses under Title VIII, citing rural harvesting practices as: "essential to Native physical, economic, traditional, and cultural existence and to non-Native physical, economic, traditional, and social existence."¹⁰ In 1989, the Alaska Supreme Court determined the

rural priority on state land violated its constitution, which prohibits granting subsistence priority to rural residents. This ruling qualified all Alaska residents for subsistence permits under Alaska law. As such, federal and State laws currently differ on who qualifies for participation in subsistence fisheries and hunts.

Presently, subsistence activities taking place in federal public lands and federally reserved navigable waters are regulated by federal agencies (e.g. migratory waterfowl, halibut, seals, whales, walrus, etc.). The State-Federal Subsistence Liaison Office was created to oversee the cooperation between State and Federal agencies that manage subsistence resources.¹¹ According to Alaska State law, subsistence resource governing bodies (the Board of Game and Board of Fisheries) are obligated to provide reasonable opportunity for subsistence uses first, before providing for other uses of any harvestable surplus of fish or game populations [AS 16.05.258 (b)]. This is also referred to as the subsistence “preference”, or “priority.”¹² Alaska Native Federally Recognized Tribes, advocacy groups, and scholars alike have been critical of the shortcomings of how subsistence preference has been managed by the State and federal governments alike and have argued for increased prioritization for Indigenous harvesters, and for Indigenous peoples as Sovereign Tribes (Nations) to play a greater role in resource management.^{7,8} State management of federal lands has implications as it relates to the federal trust responsibilities with Federally Recognized Tribes, specifically as it pertains to subsistence rights guaranteed by ANILCA. With the signing of Alaska Housebill 123,¹³ the legal recognition of Tribes by the state, there are potential implications for alignment of state and federal management practices.

State Fish and Game Boards

There are two main public bodies that oversee the management of public wild foods. These boards are important forums for public-to-government relations and determining future regulations for these public resources. The Alaska Board of Fisheries and the Alaska Board of Game consist of seven members appointed by the Governor and confirmed by the legislature, to serve three-year terms. The main role of both boards is to conserve and develop the fishery and game resources for the state. This involves setting seasons, bag limits, methods and means for the state's subsistence, commercial, sport, guided sport, and personal use fisheries, and it also involves setting policy and direction for the management of the state's fishery resources. The boards are charged with making allocative decisions, and the department is responsible for management based on those decisions.

The boards have a three-year meeting cycle, and generally hold meetings from October through March. The Board of Fisheries meets four to six times per year in communities around the state to consider proposed changes to fisheries regulations. The Board of Game considers changes to regulations on a region-based schedule, with meetings varying in duration from 5 to 11 days in communities around the state.

The boards use biological and socioeconomic information provided by the Alaska Department of Fish and Game, public comment received from people inside and outside of the state, and guidance from the Alaska Department of Public Safety and Alaska Department of Law when creating regulations that are sound and enforceable.¹⁴

Overview of Wild Foods Harvested by Alaskans

In Alaska, hundreds of species of wild fish, game, avian, marine mammal and plant species are used for subsistence purposes. Subsistence is a critical sector of the rural Alaskan economy and provides essential nutrition to rural communities.^{15,16} To replace the food-value provided by subsistence harvests alone, would cost anywhere from \$450–\$900 million dollars annually by different estimates,^{17,18} let alone the incalculable cultural values embodied in harvest activities. The most recent harvest records provided by the Alaska Department of Fish and Game (ADF&G) estimate approximately 36.9 million pounds (usable weight) of wild foods are harvested annually by rural residents (excluding wild plant products), and 11.4 million pounds by urban residents in all noncommercial fisheries and hunts.¹⁹

Notably, there is concern from some Alaska Native harvesters and scientists alike that the reported quantities of wild foods harvested and consumed by Alaska harvesters is severely under-estimated. The impact of urban harvests on traditional use areas has a disproportionate economical impact on rural harvesters, which results in food insecurity for individuals, households, and communities. When the harvest is underreported

the advocacy for change around management practices has a more limited impact. This topic of concern relates to both the need for *accurate* amounts of wild foods harvested by traditional users to be adequately recorded for representation in management decisions,²⁰ as well as for health-related considerations and recommendations (e.g. exposure to methylmercury contamination in fish consumed by Alaska Natives).²¹

On a per capita basis, the estimated annual wild food harvest for rural and urban residents is approximately 295 pounds, and 19 pounds per person, respectively.²² According to a meta-analysis of food security in Alaska, an estimated 65% of all Alaska residents practice some form of subsistence activity.²³ In rural areas, as much as 98% of residents participate in some subsistence activity.

Composition of wild food harvest by rural Alaska residents, 2017

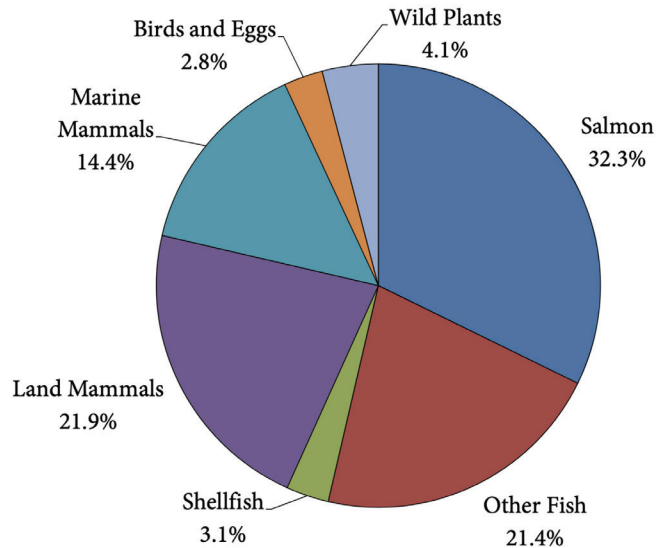


Figure 1: Composition of wild foods harvested by rural Alaskans in 2017, ADF&G

**Wild food harvests in Alaska by area, 2017
(pounds usable weight per person per year)**

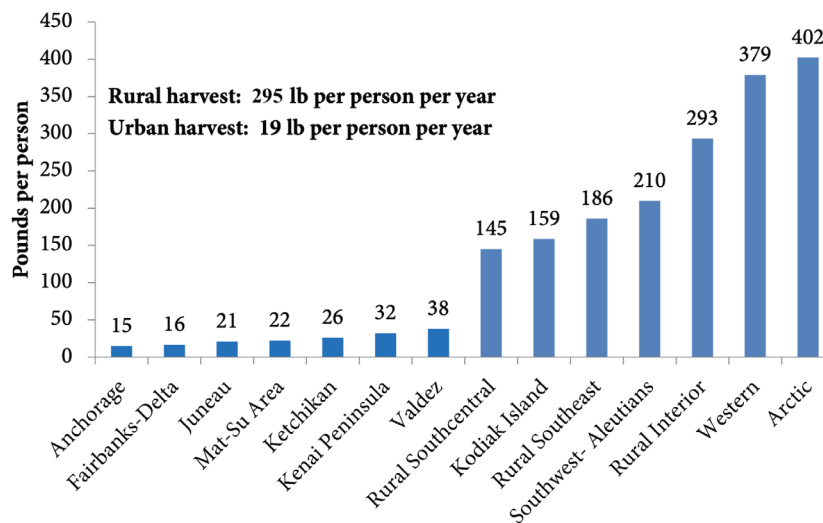


Figure 2: Alaskan wild food harvest per capita by region, ADF&G, 2017)

Percentage of households participating in subsistence activities in rural areas				
Area	Harvesting game	Using game	Harvesting fish	Using fish
Arctic	63%	92%	78%	96%
Interior	69%	88%	75%	92%
Southcentral	55%	79%	80%	94%
Southeast	48%	79%	80%	95%
Southwest	65%	90%	86%	94%
Western	70%	90%	98%	100%
Total rural	60%	86%	83%	95%

Figure 3: Number of rural households participating in subsistence activities, ADF&G, 2017

Hunting

Alaskans have a strong history with and reliance on hunting wild game for subsistence, personal use, and overall food security in addition to a vibrant guiding and big-game hunting culture. The Department of Fish and Game in conjunction with Federal and Tribal partnerships manage these state resources through management of population size, habitat health, take limits, species introduction, and predator control. Wild game animals and fowl play a key role in food security, culture, and lifestyle in Alaska and it is key that healthy populations are maintained and that access to them is available for the long-term.

Subsistence hunting in Alaska is available to Alaska residents only and managed by the ADF&G under the same regulations as general season, drawing, and registration hunts, and a hunting license and harvest tag are required. There are multiple classes of subsistence permits these include: Tier I, Tier II, and “Cultural and Subsistence Harvests”. Tier I & II subsistence permits are available to any Alaskan. ADF&G regulations state that subsistence permits may be issued when there is not enough game for a “general season” when the population of animals is considered a historically important source of food (e.g. moose or caribou).

According to ADF&G, Tier I hunts “are allowed where it is anticipated that a reasonable opportunity can be provided to all residents who desire to engage in that subsistence use”. Tier II permits “are used where it is anticipated that a reasonable opportunity to engage in the subsistence use cannot be provided to all eligible residents, and applications are scored to determine who is eligible for the limited number of permits”. Under “Cultural and Subsistence Harvests” permits, certain subsistence hunts can be performed for cultural education or religious and/or ceremonial purposes.²⁴

Subsistence species hunted vary by region. Highly valued land mammal species include moose, caribou, deer, bear, Dall sheep, mountain goat, and beaver. In coastal regions, seal, sea otter, sea lion, walrus, and whales make up the marine mammal harvest. Subsistence hunting for marine mammals is managed by the National Marine Fisheries Service (seals, sea lions, whales) and the U.S. Fish and Wildlife Service (sea otters, polar bears, walrus).²⁵ Waterfowl are jointly managed by state and federal governments (as described above) and a board representing eligible Alaska Native tribes. A state hunting license and state waterfowl stamp are required to subsistence hunt waterfowl.

Many households in rural Alaska report heavy dependance on subsistence hunting for their annual protein intake. For surveyed communities outside non-subsistence (rural) areas, 48–70% hunt/harvest wildlife species. Because subsistence foods are widely shared, a majority of residents of these communities reported use of subsistence foods during the course of the year (>79–92%).²⁶

Notably, subsistence harvesters depend on reliable storage facilities to store wild food caches safely for human consumption. One growing challenge in Alaska is the thawing of permafrost and consequent loss

of traditional ice cellars.^{27,28} As such, more and more harvesters (of both wild fish and game resources) are reliant on freezers, which add an increased financial burden to rural harvesters (upfront and for utility costs) when considering the many hundreds of pounds of wild foods each household harvests annually.



Alaska subsistence hunted foods. Images (from top left): Community distribution of walrus harvest in Togiak, [ADF&G](#); Point Hope seal hunters ca. 1950–60's, [Anchorage Museum](#); Sgt. Burt Paul, shows a freezer full of his subsistence harvest which includes moose, seal, walrus and fowl at his home in Kipnuk, [U.S. Army](#); Kake residents and elders process moose meat to be distributed to the community, [Organized Village of Kake](#)

What follows is a synopsis of certain important wild game and fish populations in Alaska that significantly contribute to food security. This section is an overview of these species' and **should by no means be considered an exhaustive summary** of all the wild game and fish species populations important for harvesters, in decline, or being actively managed.

UNGULATES (CARIBOU, MOOSE, DEER)

Caribou:

Caribou are a critical food source for both rural and urban Alaskans and consist of 32 distinct herds from the Aleutian peninsula to the North Slope. There are five different harvest categories for caribou harvest in Alaska; these include:

- Draw Hunts which are available to residents and nonresidents. Drawing hunts require an application fee and are awarded by lottery;
- Tier II which are subsistence hunts and are only available for Alaska residents 10 years of age or older;
- Registration hunts which are available for both residents and nonresidents and do not limit the number of permits and seasons and are closed by emergency order if a harvest goal is met;
- General Season which is the basic hunt where an individual buys a license, receives tags or harvest tickets for big game, and follows the general season dates and bags limits, and finally;
- Community Subsistence Harvest (CSH) hunts which are Tier I subsistence hunts and are only available for Alaska residents. It should be noted some Alaska hunters have been critical of current hunting regulations that allow non-residents to kill anywhere from one to five caribou during the hunting season and allow the killing of females that might have calves depending on them.²⁹

Caribou are among the most abundant and harvested wildlife species in Alaska. Alaska Department of Fish and Game manages herd stock carefully, often with calls for predator control.³¹

Throughout Alaska caribou herds fluctuate significantly and some herds are in danger of population decline. Declines are associated with increased predation (including human hunting pressure), changing environmental conditions (e.g. wildfire), and disease (e.g. Brucella which can lead to miscarriage).^{32,33,34} Environmental factors like increasing wildfire changing precipitation patterns and overall higher seasonal temperatures will affect vegetation distribution which directly alter the composition, biomass or quality of available caribou forage.³⁵ Many researchers think the range carrying capacity for caribou will therefore be reduced under climate change, leading to population declines.³⁶

Several caribou populations have changed dramatically over the past decade. The Fortymile Caribou Herd

(FMCH) is an important migratory herd of caribou, and perhaps the most accessible caribou herd for hunters in Alaska. It is also unique as it has increased from about 52,000 in 2010 to upwards of 80,000 in 2017. Combined with the aforementioned environmental changes, this growing caribou herd has prompted concerns by federal and State natural resource management agencies about long-term risk of overgrazing of caribou ranges. If caribou are overgrazing their seasonal ranges, there is a real long-term risk of population collapse. This would also result in reduced harvest (hunting) potential for Alaskans.

Other herds are not growing, but rather declining from a mixture of factors which have

proven difficult to attribute to one single cause.³⁷ For example, the Central Arctic herd, hit a peak of about 70,000 animals in 2010, fell to 50,000 in 2013, and in a 2016 survey by the Alaska Department of Fish and Game estimated the herd population dwindled to about 22,000.³⁸ Factors for this decline remain unclear but point to decreasing fertility rates due to cow mortality and increasingly challenging environmental conditions, like winter freezing-rain events. Likewise, the Western Arctic Caribou Herd population has declined dramatically according to ADF&G. It is down to an estimated 188,000 animals in 2021,³⁹ reflecting a 23% decrease over the past two years, and a 50% decrease from its population peak in 2003.⁴⁰ The WAC is of critical importance to more than 40 small communities within the range of the herd for subsistence purposes.

Harvest management of caribou is very complex as several herds move across two countries, and federal law (ANILCA) requires recreational and subsistence harvest to be separately managed by State and federal agencies. The management of these animals is reflected in a complex harvest management coalition structure that is composed of dozens of natural resource management agencies and autonomous First Nation and Native Alaskan governments. As a result, inter-agency working groups have been formed to inform sustainable, long-term harvest management for both recreational and subsistence harvest (e.g. the Forty-Mile Herd Harvest Management Coalition and the Western Arctic Caribou Herd Working Group).⁴¹

Moose:

Moose are another critical source of wild-harvested protein important for rural and urban residents alike. About 175,000 to 200,000 moose are widely distributed throughout Alaska. The ADF&G has stocked moose populations in certain areas of the state such as the Kalgin Island moose population which resulted from a transplant of calves during 1957–59. According to ADF&G the two most heavily harvested moose areas at present are those closest to Alaska's greatest human populations: the Nelchina and Upper Susitna River (GMU 13) and the GMUs around Fairbanks (GMUs 20A, 20B and 20).

Nelchina and Upper Susitna River (GMU 13): The population and harvest has fluctuated widely in this area over the past 50 years, due to severe winters, predation, and human harvest. Harvest has ranged from about 500/year to as high as 1,250/year. ADF&G IM is taking place in most of the unit, and the agency indicates the decline in moose numbers over the past 20 years has slowed and the population is growing. According

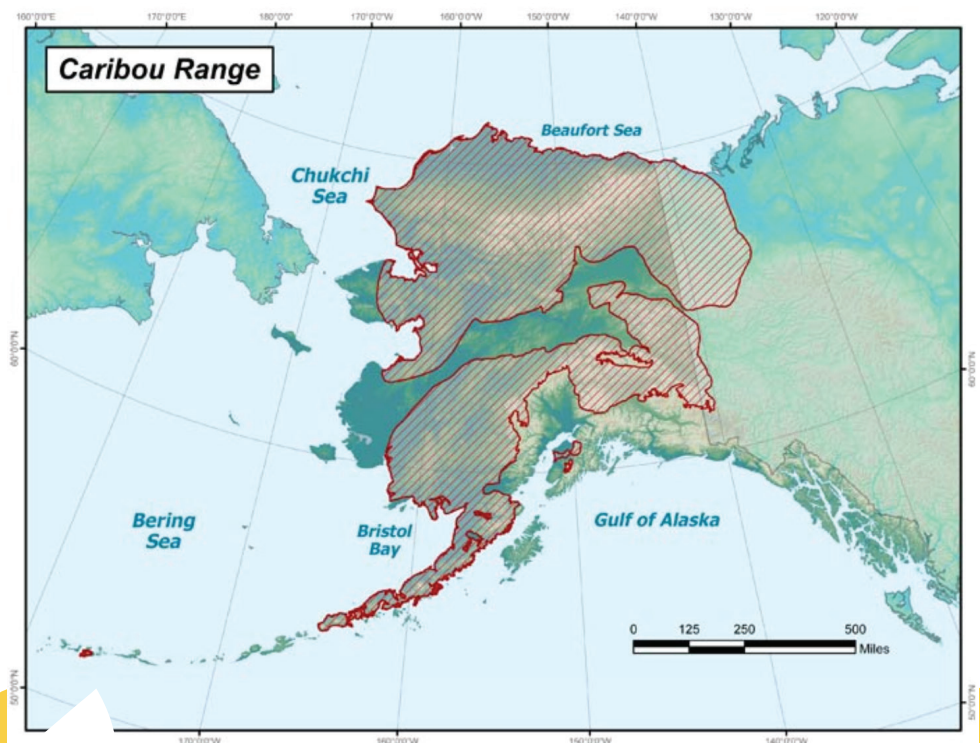


Image: *Caribou range in Alaska*, ADF&G

to ADF&G the objective is to increase the yearly moose harvest to 1,200 to 2,000 animals and provide for a subsistence harvest of 600 moose per year.⁴²

The Fairbanks harvest Unit attributes to about 30 percent of the entire Alaska moose harvest. In the 1970s, the moose population in 20A dropped from about 23,000 to just 2,800 in five years. A series of severe winters, increased predation, and an ill-timed liberal harvest contributed to the steep decline. The population in 20A is now estimated to be about 16,000 animals, and the population objective (before hunting season) is 10,000 to 12,000 animals. The recovery of this population highlights the combination of factors that work together to benefit moose. ADF&G notes concerns about the population exceeding the habitat carrying capacity and being vulnerable to severe weather patterns, as observed just this past winter (2021–2022).^{43,44} Moose in this region are showing signs of nutritional stress, and biologists are working to address the root causes.

There are many other critically important moose harvest areas through the state that support rural subsistence hunters and communities. Moose populations have varied in these regions as well with both examples of population booms and down-turns. For example, Management Unit 17 in Southwest Alaska, trophic changes from tundra to higher prevalence of woody shrubs have lead to increased moose habitat and a growing population (of note—this trophic shift is proving to have an inverse impact on Caribou habitat and populations).^{45,46} Conversely, other management areas, such as Units 22 in Northwest Alaska and 15 on the Kenai Peninsula, where ADF&G has launched studies to better understand population declines due to nutrition and health indicators, respectively.^{47,48} Hunters in both these regions have indicated that with changing animal populations (and seasonal changes brought about by climate change) regulating agencies (e.g. the BOG) need to update harvest seasons and bag limits.⁴⁹

Another source of moose population stress is collision-caused-deaths. According to a 1995 study by the Alaska Department of Transportation, approximately 500–800 moose are killed in vehicular collisions across Alaska annually.⁵⁰ This number is likely higher with increased road traffic and environmental stress pushing animals onto roads and train tracks. Moose killed in these accidents are managed by the Alaska State Troopers Road Kill Program in which Alaska residents are called to salvage the undamaged meat and remove the carcass.⁵¹

Blacktail Deer:

Sitka Blacktail deer are the most frequently pursued species of big game in Southeast Alaska, and an important source of wild harvested protein for residents of Southeast, and Southcentral Alaska, however, hunting is also open to non-residents and bag limits range anywhere from one to six animals per individual.⁵² An ADF&G population estimate from circa 1970 suggests about 200,000 deer inhabited Southeast Alaska.⁵³ The Southeast Alaska region wide annual average harvest in recent decades has been about 12,300 deer annually.

According to ADF&G deer populations tend to fluctuate seasonally, primarily in response to winter weather and wolf and bear predation. Studies of winters with exceptional high snowfall indicate population declines of varying severity throughout deer inhabited regions. The agency indicates that one of the greatest threats to deer populations is in logged areas, since the result is extremely poor deer habitat post logging activities.⁵⁴ Population models predict declines in deer carrying capacity in the Ketchikan area of 50-60% by the end of the logging rotation in 2054.⁵⁴ In some areas illegal hunting is also a factor contributing to population decline.⁵⁴

ADF&G has introduced deer to several areas throughout the Southeast/Southcentral region to increase access to hunters, including to: the Yakutat area in 1934; to Prince William Sound and North Gulf Coast (GMU 6); to Kodiak & adjacent islands (GMU 8) between 1924 and 1934; and the Cordova Chamber of Commerce introduced Sitka black-tailed deer to Hawkins and Hinchinbrook islands between 1916 and 1923.

Harvest numbers on all of the above species are collected/reported annually to ADF&G as part of ongoing management programs but even by the agency's own acknowledgement, these numbers are not always accurate (due to insufficient data collection, data collection methods available, or under-reporting of harvest).

OMNIVORES AND PREDATORS (WOLVES AND BEARS)

Wolves:

Wolves and bears are harvested most often under the category of “furbearers” or for large game “Trophy hunts” in Alaska, however both black and brown bears are harvested for subsistence use, most often by

Alaska Native subsistence harvesters. In this subsection, these animal populations will be described primarily in the context of predator control programs administered by the ADF&G since this is the foremost reason their populations are managed with regard to “abundance of wildlife populations”—as a means of increasing ungulate populations in the state.⁵⁵ The ADF&G estimates 7,700 to 11,200 wolves, 30,000 brown bears and 100,000 black bears populate Alaska, however, many of these estimates have not been systematically updated in over a decade.^{56,57,58}

Wolves are both hunted and trapped by Alaskan and non-Alaskans. According to ADF&G, approximately 1,300 wolves are harvested in the state, with an additional 200+ animals killed annually for intensive management (predator control) programs.⁵⁹

Bears:

- **Black Bears:** In recent years, statewide harvest of Black Bears has increased steadily from about 2,500 in 2003 to 3,250 in 2007.⁶⁰ Black bears are included in predator control programs on the West side of Cook Inlet (GMU 16), In the 20-mile radius of McGrath (in Unit 19D East), predator population manipulations and other management actions are being tested, including capture and removal of black bears, in order to provide more moose for subsistence needs.
- **Brown Bears:** Alaska has an estimated 30,000 brown bears statewide. In 2007, about 1,900 brown bears were harvested in Alaska. Of that figure, about 700 were taken by Alaska residents and roughly 1,200 (or 67 percent) were taken by nonresidents. During the last 10 years, the Alaska Board of Game has made a deliberate effort to reduce numbers of grizzly bears in a few Game Management areas (e.g. GM Unit 13-the Nelchina Basin) by increasing the bag limit and extending hunting seasons largely citing human-bear conflict reduction as the reasoning for this increase—not predator control.^{61,62}

As the primary agency charged with managing the state’s wildlife populations, ADF&G, in conjunction with the Board of Game—a governor-appointed panel of seven voting members that holds regulatory authority for wildlife in the state—is responsible for managing Alaska’s wildlife, for providing information to the public on the background and scientific justification for, and the purposes and progress of all management programs. The Alaska Legislature passed a landmark Intensive Management (IM) law in 1994 and other amendments to the Alaska statutes governing game management in the state. The intensive management law (now found in Alaska Statute 16.05.255 (e)-(g) and (k) with the implementing regulations for predator control programs in Alaska Administrative Code 5 AAC 92.106, 108, 110-113, 115-116, 118, 121-124 and 127) direct the state’s BOG to review ungulate populations (deer, caribou, or moose) for human consumptive use and sets population and harvest objectives in specific Game Management areas throughout the state.⁶³

In 1995 Governor Tony Knowles requested the National Research Center (NRC) conduct a comprehensive analysis of predator control programs in Alaska designed to determine whether appropriate data existed to understand interactions between moose and caribou, their habitats and predators in order to predict quantitative responses of prey populations to predator control efforts, and to identify critical gaps in the scientific understanding of predator and prey populations and how to fill them. The NRC review also included a section on decision making that reiterates several of the suggested standards and guidelines and provides additional standards.⁶⁴

MARINE MAMMALS (WHALES, SEALS, POLAR BEAR, SEA OTTER, WALRUS, ETC.)

Marine mammals are extremely important to subsistence livelihoods and the cultures of virtually all coastal rural Alaska communities. While the ADF&G is not responsible for management of marine mammal species, the agency’s research on marine mammals such as ice seals is beneficial in monitoring population health, identifying sustainable harvest practices, and access for subsistence hunters.⁶⁵ Currently the ADF&G subsistence division is working on several projects in collaboration with the Ice Seal Committee (ISC) Bristol Bay Native Association, Association of Village Council Presidents, and Maniilaq to collect ice seal harvest information in interested communities, and to summarize existing ice seal harvest numbers statewide into an annual “Ice Seal Harvest Monitoring Report.”⁶⁶

Similarly, Pacific sea otters are protected under the Marine Mammal Protection Act which prohibits direct harvest of marine mammals with the exception of subsistence hunting (the US Fish and Wildlife Service is

responsible for managing sea otter populations). Increasingly, Tribes have called for additional sea otter harvests, especially with regard to managing populations citing trophic shifts in shellfish (sea otter's preferred food).

While not directly responsible for the management of marine mammals, it should be taken into consideration that the State is responsible for management and policy decisions that may have direct impact on the health and abundance of marine mammal populations. Considerations of the outcomes for management and policy decisions relating to environment and marine mammal habitat (e.g. management affecting food sources for marine mammals, mariculture projects,⁶⁷ or opening Arctic Maritime transportation routes,⁶⁸ etc.) should be made with great care in order to ensure healthy animal populations and continued harvesting practices for generations to come.

Fishing

Fishing is the single greatest source of wild-harvested food providing for food security for Alaskans. Fish harvests through subsistence, personal use, and sportfish comprises approximately 50–60% of the annual wild food harvested by Alaskans (>32% were salmon species, >21% was other fish species).⁶⁹ Many species of fish have experienced dramatic declines causing fishery disruption, closures, and in some cases, collapse leading to the declaration of fishery disasters.⁷⁰ (Note: please see Directives Section “Fishery Shortfalls & Disaster Response” for additional information on specific stocks of concern and fishery disasters.) The causes of the population disruption and declines vary between regions and fishery and are not fully understood, but it's generally recognized that for many fisheries commercial bycatch^{71,72} and environmental change⁷³ due to warming waters are both contributors, and that some combination of factors is likely at play.⁷⁴ In some areas of the state, like Cook Inlet, urbanization and habitat loss is also generally recognized as a contributing factor.⁷⁵

The harvesting of wild fish species is central to Alaska's subsistence, personal use, and commercial economies. Wild harvesting of fish for household food security in Alaska is divided into subsistence and personal categories (as described above). Personal use fishing requires a valid fishing license, and is similar to subsistence fishing, except that it is available to Alaskans living in urban (non-subsistence) areas and utilizes more efficient gear, like dipnet and setnet, than sport fishing.⁷⁶

Under the Alaska state subsistence statute, the Alaska Board of Fisheries is responsible for identifying fish stocks that support subsistence fisheries and, if populations of these stocks are healthy, adopting regulations that provide reasonable opportunities for subsistence uses to take place. According to Alaska Statute AS 16.05.258, whenever it is necessary to restrict harvests, subsistence fisheries are to receive a preference over other uses of the stock.⁷⁷

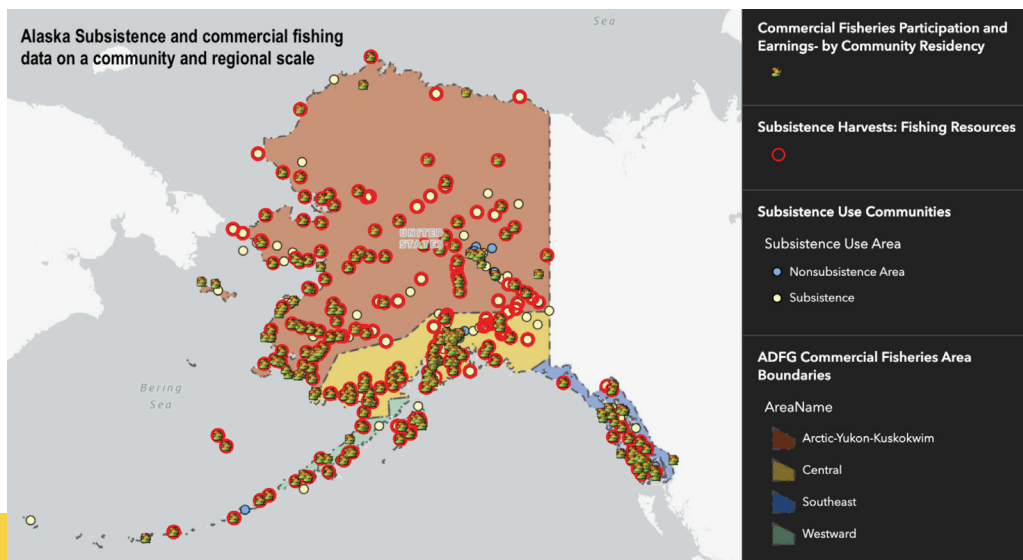


Image: Alaska subsistence fishing data app, [ADF&G Subsistence Division](#)

Most households in rural Alaska depend on subsistence fishing. For rural communities surveyed, 75-98% of sampled households harvested fish, and 92-100% used fish. As such, subsistence fishing in rural communities is such a major part of sustaining local life and providing for cultural and nutritional needs (food security) that disruptions in fisheries put rural communities' health and wellbeing in serious danger.

While many fisheries perform well annually, such as in Bristol Bay, there are several areas of concern at the time of this report. A poignant example of the fallout associated with declining keystone subsistence species in Alaska is the population collapse of Chinook (King) salmon. Since 2007, Chinook runs have been so poor that even with complete fishery closures not enough fish returned to meet ADF&G escapement objectives. This loss of a critical food resource has greatly affected rural, predominantly Indigenous, populations across the state. Alaska Native people have relied on this culturally-significant species for a major part of their annual food security since time immemorial, and at this time, many communities along the Yukon River, in Norton Sound, and elsewhere around the state have not been able to harvest Chinook for over a decade; affecting both local food security and the cultural values and knowledge that are tied to this resource.^{79,80}

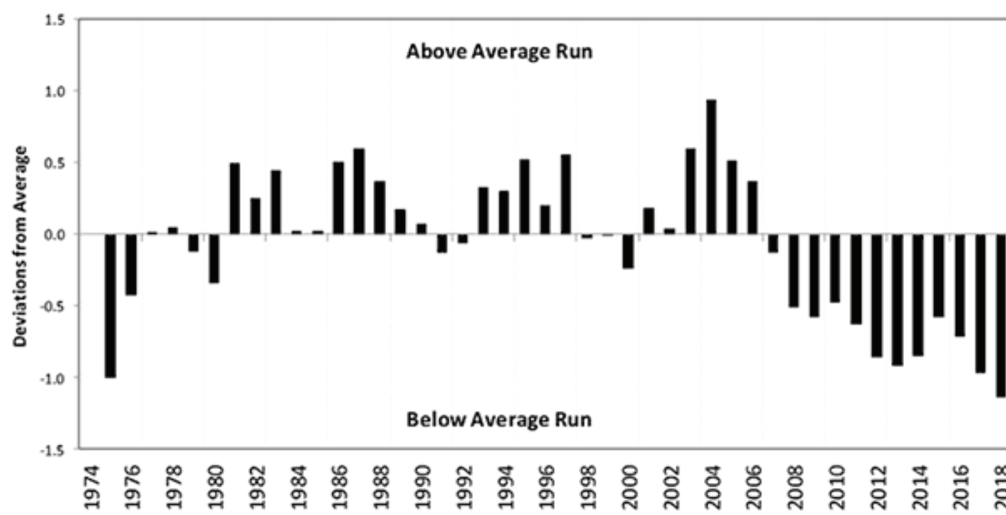


Image: Chinook salmon runs across Alaska from 1974 –2018, ADF&G

Another important factor affecting access and participation in subsistence and personal use harvest is the interrelated nature of those with commercial fisheries. It is well documented that rural subsistence and/or personal use harvesters also participate in commercial fisheries by using the same equipment for commercial fishing as for subsistence activities. This model supports the stability of the mixed-cash-subsistence economy of rural Alaska, whereby harvesters make their cash income through commercial fishing and provide for their household's food security through subsistence fishing. As such, an often overlooked aspect of rural Alaskan food security provided by subsistence/personal use fishing is access to, and participation in commercial fisheries.⁸¹ Policies like individual fishing quota systems (IFQs) and the increasing cost of entry into commercial fisheries force consolidation at local to regional scales. The number of new commercial fishery entrants, and fishing as an occupation are declining statewide which is a pattern linked to both increasing costs of permits and institutional barriers to entry into new fisheries.^{82,83} Fisheries privatization can increase the value of fisheries for permit holders, but often results in an inequitable distribution of fishing rights, especially for rural, predominantly Indigenous communities in Alaska.⁸⁴

The declines that occurred in 2020 and 2021 in the Yukon and Kuskokwim River salmon returns have been the most dramatic in the state, with the Yukon Chum salmon fishery seeing its lowest runs ever in the summer of 2021. These declines are part of a trend in Western Alaska rivers, where some runs have been in decline since the late 1990s, and all have below average and/or hit historic lows for the past three years. The Western Alaska chum salmon run size in 2021 was roughly one-third as large as the previous record poor abundance seen in 2000, by far the lowest abundance ever documented.⁸⁵

Western Alaska Chinook salmon runs have also been chronically diminished for over a decade to the point of near collapse.⁸⁶ Run sizes in 2020 and 2021 were the poorest observed over the past 40 years leading to missed escapement goals and many commercial and subsistence fisheries closures.

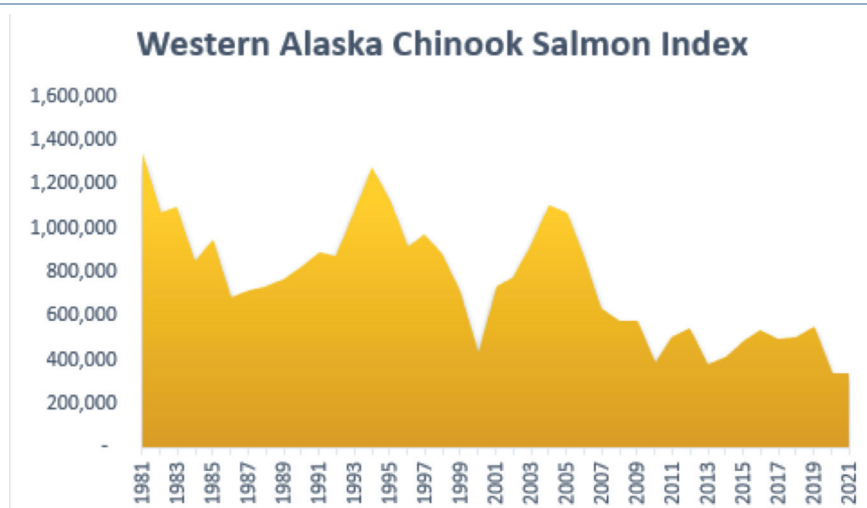


Image: Chinook salmon index abundance estimates for Western Alaska stocks, ADF&G, June 2022

Stock	Total run size?	Escapement goals met? ^a	Subsistence Fishery?	Commercial Fishery?	Sport Fishery?
Nushagak River	Below average	0 of 1	Yes	No directed Chinook Fishery	Limited
Kuskokwim Bay	Below average	2 of 2	Yes	No directed Chinook Fishery	Yes
Kuskokwim River	Below average	3 of 3	Limited	No	No
Yukon River	Below average	0 of 4 ^b	No	No	No
Norton Sound	Below average	0 of 2	Yes	No directed Chinook Fishery	No

^a Includes performance for the subset of goals that were assessed. Some escapement goals were not assessed for various logistical reasons, including funding and weather.

^b Includes 1 U.S./Canada goals.

Table: Summary of Western Alaska Chinook salmon stock status, 2021, ADF&G

Abundant Chum salmon traditionally constitute the majority of subsistence salmon harvest in the Arctic-Yukon-Kuskokwim region, accounting for up to 70% of the subsistence catch along the length of the Yukon, and have supported the most northerly commercial salmon fishery in Kotzebue Sound.⁸⁷ Chinook salmon are a critical component of the subsistence salmon harvest in the Arctic-Yukon-Kuskokwim region, because they tend to migrate earlier than other salmon species, when weather tends to be more conducive to traditional drying preservation methods, and because they tend to migrate farther upriver than many other salmon species. Yukon and Kuskokwim River Chinook salmon also build up tremendous fat reserves before their long migration with oil levels reaching more than 30 percent of their muscle weight making them a critically important food source.⁸⁸ In more interior communities of the larger river systems, Chinook and chum salmon are the only salmon species available.

Several Cook Inlet fisheries were also given disaster declarations by NOAA, including the 2018 Cook Inlet east side setnet fishery and the 2020 Upper Cook Inlet salmon fisheries. The harvest in Upper Cook Inlet was the lowest since 1971, with drift gillnet and east side setnet harvests 86% lower than their respective recent 10-year averages.⁸⁹

The Cook Inlet region supports a mixture of salmon uses: commercial, recreational, personal use, and subsistence. The different uses are primarily separated geographically, with the timing of commercial openings also used to provide opportunities for upriver user groups. In the Anchorage Non-Subsistence Area of Cook Inlet, people rely on recreational and personal use fisheries to access salmon for home consumption.⁹⁰

Stock	Abundance?	Escapement goals met? ^a	Subsistence Fishery?	Commercial Fishery?	Sport Fishery?
Nushagak River	Below average	0 of 1	Yes	Yes	Yes
Kuskokwim Bay	Below average	NS ^b	Yes	No	Yes
Kuskokwim River	Below average	1 of 1	Yes	Limited	Yes
Yukon River summer run	Below average	1 of 1	Limited	Limited	Yes
Yukon River fall run	Below average	1 of 4 ^c	Limited	No	No
Norton Sound	Below average	2 of 4	Yes	Limited	Yes
Kotzebue	Below average	NS ^b	Yes	Limited	Yes

^a Includes performance for the subset of goals that were assessed. Some escapement goals were not assessed for various logistical reasons, including funding and weather.

^b No survey, escapement goal was not assessed.

^c Includes 2 U.S./Canada goals.

Table: Summary of Western Alaska chum salmon stock status, 2020, ADF&G

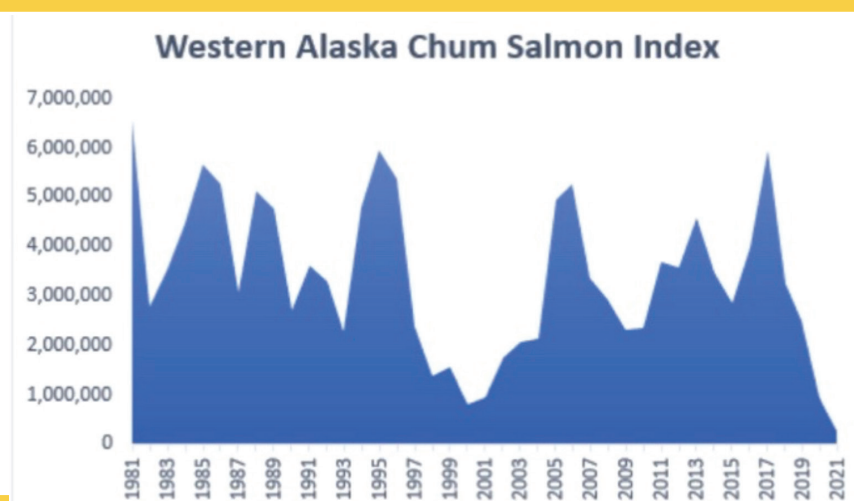


Image: Chum salmon index abundance estimates for Western Alaska stocks, ADF&G.

Commercial fishermen are also permitted to retain fish for home consumption.⁹¹ Over two-thirds of Kenai Peninsula residents reported salmon was an important part of their household's diet, and about three-quarters have someone in their household involved in salmon fishing.⁹²

Gathering (Harvesting Wild Plants)

Non-timber forest products (NTFPs) have been used for millennia as resources vital to the livelihoods and culture of Alaska Natives and, more recently, as subsistence resources for the welfare of all Alaskans. Many of these products are now being harvested and sold as additional income opportunities through harvest and manufacture of forest resources. Existing studies of NTFPs in Alaska are over a decade old and focus on commercial harvesting rather than traditional knowledge or sustainable harvesting practices.^{93,94}

No permit is required to harvest reasonable quantities of NTFP for personal use. Individuals harvesting NTFPs for commercial purposes are required to obtain a Limited Non-Timber Forest Products Commercial Harvest Permit. Commercial use is defined as harvesting NTFPs for the primary purpose of sale, resale, or use in a manufacturing process resulting in a product that will be sold or used for business activities. The official permit to harvest commercially on general or state forest lands is available through the Division of Mining, Land & Water's NTFP web page. This permit does not authorize harvest on private, Tribal, state park, University of Alaska, Mental Health Trust, Department of Transportation, Alaska Railroad, borough, or federal lands.⁹⁵

The lack of guidelines for personal use harvesting and limited-to-no data on the quantities of NTFP gathered makes it difficult to gauge the impact of harvesting on the resources themselves or how they impact food security or the economy. Plants are vulnerable to overharvesting and the surrounding ecosystems can be damaged by overuse as foraging gains popularity (see images below).



Images left to right: Healthy Fiddlehead fern stand regrows when harvested sustainably; what new growth looks like when harvested correctly, and; dead fern rhizome found entirely cut back to the ground, and unlikely to regrow (courtesy of Julie Rowland, Anchorage).

In Alaska, NTFPs are seen as non-rivalrous goods, resources where one party's use does not diminish the availability of the good to others, as indicated by the lack of management regulating NTFP harvest.⁹⁵ The ratio of human population to land area in Alaska is low, and NTFPs are plentiful. However, access is often restricted by limited road and trail access. This concentrates harvesters in certain areas. As foraging becomes increasingly popular, conflicts over resources and deterioration of what infrastructure may exist are inevitable. This issue is particularly relevant with regard to food sovereignty and subsistence rights for Indigenous groups in light of increasing commodification of NTFPs. Without baseline data on NTFP population health and harvest records (like those supplied by subsistence fish and game surveys), it is a challenge to assess the impact of harvest pressures on culturally and economically important wild plants or how these resources will change in light of changing environmental conditions. Proactively addressing these needs and bringing participants together around solutions will set the stage for sustainable NTFP resource use.

A demonstrative case in Alaska is the harvest of chaga—a mushroom fruiting body that grows only on mature birch trees—which, at this time in 2022, is one of the most heavily harvested NTFP for both commercial and personal use in Alaska. There is growing concern about the ability for natural regeneration of this resource as harvest has increased dramatically to meet growing national and international demand. As such different organizations and local food leaders have called for, and started to develop research and programming to aid in the sustainable harvest of chaga.^{97,98}

Relatedly, The Sitka Tribe of Alaska formed the Kayaani Commission in 1997 due to their concerns regarding the development of U.S. Forest Service monitoring guidelines for NTFP resources in the region.⁹⁹ The Tribes' position is that Traditional Ecological Knowledge (TEK) should be understood as intellectual property and as such, the property cannot be used to create commercial items intended for resale by people who do not possess the cultural birthright to such property. The sustainable harvesting practices developed by the Alaskan organization, Kaasei Training and Consulting was published in 2022 and promotes values of respect, reciprocity, care, and safety when harvesting NTFPs.¹⁰⁰

Cultivation

For generations, Alaska Natives have managed wild food populations for abundance.¹⁰¹ By definition, Indigenous populations have 'cultivated' (the act of caring for or raising food) wild food resources including:

fish,¹⁰² shellfish,¹⁰³ game,¹⁰⁴ mushrooms,¹⁰⁵ and plants¹⁰⁶ for millennia. Over the past several decades, several innovative Indigenous-led agricultural projects have emerged across Alaska. To name just a few, these include: a Tribal Producer Training Program for rural residents developed in collaboration between young Tribal Leaders and Calypso Farm and Ecology Center in Fairbanks;¹⁰⁷ A biomass energy system and waste-heat-fed greenhouse in Tok; Alutiiq Grown, a collective of tribally owned farms and producers from all over the Kodiak Archipelago growing produce for distribution to tribal and community members;¹⁰⁸ Tyonek Grown—a program sponsored by the Tyonek Tribal Conservation District to develop an agricultural program aimed at enhancing food security and providing fresh organic vegetables to community members,¹⁰⁹ and; a greenhouse program in Juneau sponsored by the Tlingit and Haida Central Council focused on Tribal producer training, as well as, wellbeing and food sovereignty.¹¹⁰

Leaders of these Tribal-led grassroots food cultivation movements all emphasize that agricultural activities are not a replacement for wild foods, rather they provide a complimentary source of nutrition and is another step towards tribal sovereignty and self-management. Movements like these are reconnecting Youth with both cultivation and wild food harvest practices.



Image: Children of Tyonek show off part of the harvest from the Tyonek Grown Program Courtesy of ADN, 2014

An important resource for tribes looking to produce more food in Alaska is the Intertribal Agriculture Council (IAC). IAC is a national organization that was formed in 1987 to promote the Indian use of Indian resources and contracts with federal agencies to maximize resources for tribal members.¹¹¹ Alaska has an active IAC Technical Assistance program supporting individual Indigenous producers, Tribal enterprises, and projects that seek to increase nutrition and wellbeing through the Indigenous cultivation of food.

Another key agency involved in developing agriculture and conservation of wild species as part of subsistence practices in Alaska is the USDA Natural Resource Conservation Service (NRCS). NRCS supports the development of Tribal Conservation Districts (TCDs) in Alaska. There are currently 14 TCDs in Alaska, with more Tribes actively working to develop local conservation plans to implement in a formalized TCD presently. For purposes of participation in USDA conservation programs, the NRCS considers customary and traditional subsistence harvest of plants and animals as agriculture.¹¹²

Additional research and education/outreach for cultivation of traditional wild plant food/medicine is provided through the UAF Ethnobotany Program¹¹³ and the UAF Institute of Agriculture Natural Resources and Extension/Cooperative Extension Service. The Ethnobotany program is an extremely popular program for students in rural Alaska, but was recently cut from UAF's offerings as a degree option largely due to budget cuts.¹¹⁴ The UAF IANRE has provided research and public outreach/education materials on the harvesting, cultivation, and nutrition of wild plant species which has greatly contributed to the scientific knowledge pertaining to the health benefits and growing techniques of wild Alaska food plants.^{115,116,117}

The combining of traditional ecological stewardship/harvesting and agricultural practices is often referred

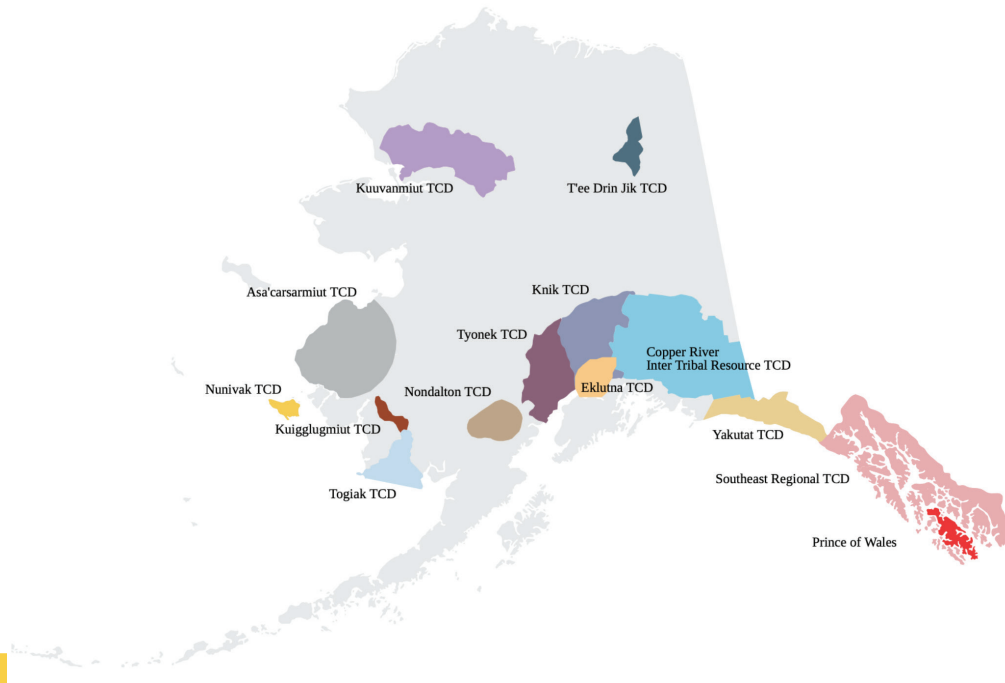


Image: Tribal Conservation Districts in Alaska, USDA NRCS, 2021

to as an Agroecological model. Agroecology is a model of agriculture that centers the relationship between humans and the environment, prioritizes long-term land stewardship over short-term yields, works within the unique landscape, and supports Indigenous sovereignty. To best support a healthy northern food system and people, it has been argued that any future development in northern agriculture should integrate values from agroecology in order to avoid the environmental and social ills that have resulted from industrial agriculture in the contiguous lower 48 states and elsewhere globally.¹¹⁸ Many of the principles and values practiced in agroecology are consistent with those that underpin Indigenous food systems in the North, making it a favorable model for agricultural development in Alaska.

TRIBAL FOOD SOVEREIGNTY

“Food sovereignty is the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems. It puts the aspirations and needs of those who produce, distribute and consume food at the heart of food systems and policies rather than the demands of markets and corporations.”

—Declaration of Nyéléni, the first global forum on food sovereignty, Mali, 2007

According to the United Nations right to adequate food, Indigenous peoples are among the most vulnerable to hunger and malnutrition. Hunger and malnutrition among them are largely the result of a long history of social, political and economic exclusion, including centuries of expropriation and despoliation of Tribal lands.¹¹⁹ Alaska is no exception to this trend. In fact, food insecurity rates in rural Alaska are often twice as high as those in urban areas of the state.

The United Nations Declaration on the Rights of Indigenous Peoples (Article 31) recognizes Indigenous peoples' right to maintain, control, protect and develop the manifestations of their sciences, technologies and cultures, including genetic resources, seeds, and knowledge of the properties of fauna and flora.¹²⁰ Food Sovereignty, which is defined as the right of all Indigenous peoples to define their own hunting, gathering, fishing, land, and water policies; the right to define what is sustainably, socially, economically, and culturally appropriate for the distribution of food and to maintain ecological health; and the right to obtain and maintain practices that

The Inuit Circumpolar Council (ICC) Alaska is a non-profit organization that works on behalf of the Inupiat and Yupik cultures of Alaska and is a national member of ICC International. The ICC is a leader in Indigenous Food Sovereignty and has created a conceptual framework for Intuit food security, that places food sovereignty as a requisite component in which all other aspects of food security are contained.¹²³

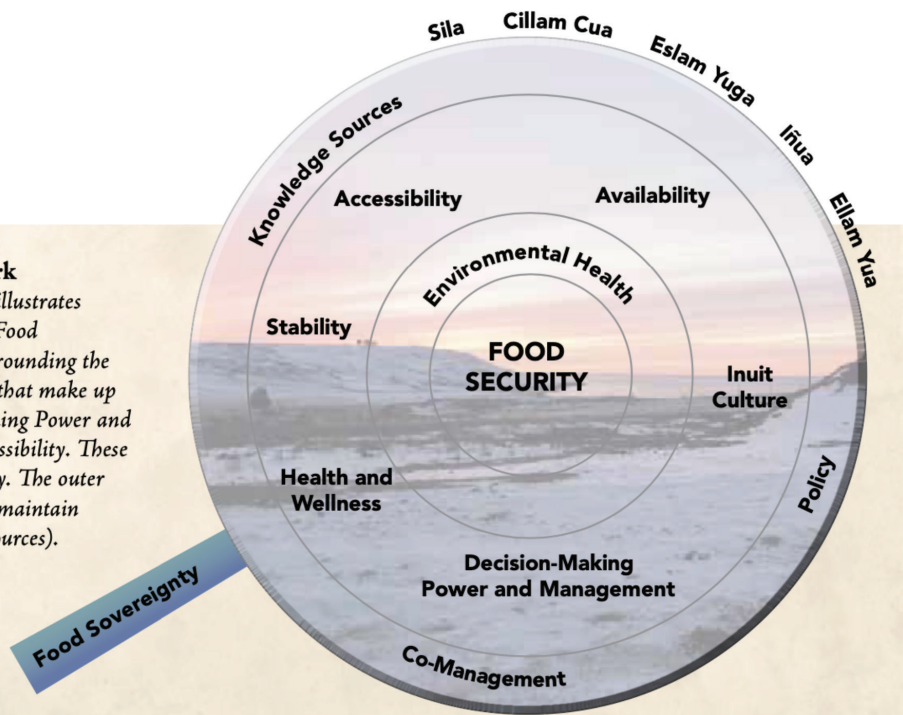
One of the key findings in the 2015 ICC report, *How to Assess Food Security from an Inuit Perspective: Building a Conceptual Framework on How to Assess Food Security in the Alaskan Arctic* (see image on next page), was that without food sovereignty, Alaskan Inuit cannot achieve food security. This takeaway acknowledges that the greatest threat to Indigenous food security is the lack of decision-making power and management authority for Indigenous communities over the food resources they depend upon.

Subsistence and personal use hunting, fishing, and foraging activities and rights are critical to the majority of Alaskans, especially in rural communities. Market trends of rising food and fuel costs increase the necessity for these types of harvest and for some are the only way to sustain throughout a year. Market valuation of wild species is substantial, in the hundred of millions. However, that is not to recommend commodification of these plants and animals, but rather meant to quantify their largely invisible or implicit value. Indeed, commodification could devastate wild supply and reduce or eliminate access for local Indigenous and personal use harvesters.

Subsistence and wild harvest is not simply about available calories for Alaskans, but it is a cornerstone of Alaskan culture and ways of life. Calendars revolve around fish and hunt seasons, with some organizations in Alaska providing paid time off for subsistence and personal harvest. There are key thought and policy leaders in this space, who should be consulted for policy reform or creation, among them the Inuit Circumpolar Council Alaska and the Intertribal Agriculture Agency. In Alaska, and North America more broadly, Indigenous peoples are exploring ways in which Food Sovereignty can be both defined and employed as a concept in creating dialogue and action around the revitalization of Indigenous food practices and ecological knowledge and co-management of food resources.

Figure 1. Food Security Conceptual Framework

The Conceptual Framework is shaped like a drum and illustrates the interconnecting components of Inuit Food Security. Food Security is characterized by a healthy environment. Surrounding the characterization of food security are the six dimensions that make up food security: Availability, Inuit Culture, Decision-Making Power and Management, Health and Wellness, Stability, and Accessibility. These dimensions are constituted by drivers of food (in)security. The outer ring of the drum shows the tools required to obtain and maintain food security (policy, co-management, and knowledge sources). Surrounding the drum is the spirit of all, written in Inupiaq, Yup'ik, Cup'ik, St. Lawrence Island Yupik, and Inuvialuktun⁴. The drum handle is food sovereignty. Food sovereignty is required to hold the drum together and to control actions, movements, and the beat of the drum. If any piece of the framework is missing or lacks strength, resiliency will decrease and food security will decrease – any disruption or interference to one piece has impacts for the whole.⁵



⁴ The Inuit Food Security Conceptual Framework was developed by Inuit in Alaska. For the purpose of this report, the Project Advisory Committee members from the Inuvialuit Settlement Region suggested to add the word 'Sila' to the words describing the Spirit of all surrounding the drum.

⁵ Inuit Circumpolar Council-Alaska. 2015. Alaskan Inuit Food Security Conceptual Framework: How to Assess the Arctic From an Inuit Perspective. Technical Report. Anchorage, AK6 Inuit Circumpolar

Image: Inuit Food Security Conceptual Framework, ICC



Summary: SWOC Analysis, Infrastructure Needs, and Support Organizations

Note: Any one of the sectors covered in the above Wild Foods subsections could benefit from a dedicated SWOC analysis. What is compiled below is a general SWOC analysis pertaining to *the general entity of rural Alaskan wild food/subsistence harvesting, gathering, and cultivation*. As such, this SWOC analysis should by no means be considered exhaustive.



Wild Foods Summary

STRENGTHS:

- High diversity and general abundance of wild foods
- Many Alaskans harvesting wild food resources
- Both rural and urban populations have the opportunity to harvest wild foods and increase personal food security
- Long-term population monitoring data sets collected by regulatory agencies and long-term ecological data from Indigenous communities can help affect sustainable harvest practices
- Harvesting wild food resources is central to many parts of Alaskan culture and identity for both rural and urban populations

OPPORTUNITIES:

- Co-management agreements of wild food resources with Indigenous resource stewards/users
- Mobile meat processing facilities to make healthful processing more accessible to rural communities
- Expanded community education/engagement to support sustainable harvesting/processing techniques—involving both traditional and western knowledge
- Increased protections for wild food populations at risk (e.g. Chinook salmon)
- Increased promotion of agroecology values and methodologies in Alaskan agriculture
- Expanded Intensive Management, including on federal lands, to provide expanded food security.
- Expanded transplant opportunities
- Expanded mariculture opportunities

WEAKNESSES:

- The lack of decision-making power and autonomy for Indigenous communities over the food resources they depend upon
- Increasing regulatory barriers to participating in the harvesting of some resources (i.e. fisheries, whale hunts, etc...)
- Increasing costs associated with participation in subsistence and personal use harvesting (i.e. Increasing cost of things like nets and ammunition due to inflation, cost of infrastructure and utilities required for processing and storage)
- Meat processing infrastructure and knowledge are very limited throughout the state
- Indigenous subsistence priority is not being honored by the State of Alaska
- Natural resources managed by multiple agencies can be subject to intra-agency conflict
- Limited transportation infrastructure puts extreme pressure on wild food resource populations easily accessed by road or trail systems

CHALLENGES:

- Environmental changes affecting access to wild food resources and the ability to process and store wild foods raise many concerns about food security in many of these communities.
- Limited options for preparing and storing food safely in both rural and urban settings
- Traditional/customary knowledge loss as elders pass away on how to harvest and process wild foods
- Lack of decision-making power and autonomy for Indigenous communities over the food resources increases food insecurity
- Contention between resource user groups (i.e. commercial, sport, and subsistence fishers)
- Fisheries bycatch
- Youth disconnected from wild food harvest practices

Wild Foods Summary



INFRASTRUCTURE NEEDS

- Appropriate storage and processing infrastructure for wild/Traditional foods
- Access to storage options for freezer/storage space
- Access to season extension and food production infrastructure

OVERVIEW OF SUPPORT ORGANIZATIONS AND AGENCIES

- Alaska Board of Fish
- Alaska Board of Game
- Alaska Department of Fish and Game
- Alaska Division of Forestry
- Alaska Economic Development Corporations (regional)
- Alaska Federation of Natives
- Alaska Food Policy Council
- Alaska Native Tribal Health Consortium
- Eskimo Walrus Commission
- Alaska Eskimo Whaling Commission
- The Federally Recognized Tribes Extension Program
- All Fisheries Councils/Commissions
- Intertribal Agriculture Council
- National Oceanic and Atmospheric Administration
- Natural Resource Conservation Service: Tribal Conservation Districts
- North Pacific Fishery Management Council
- Regional Alaska Native Corporations (12 in Alaska)
- Regional Tribal Non-profit Healthcare organizations (e.g. Aleutian Pribilof Island Association, Tanana Chiefs Conference Health Services, Maniilaq Association, etc.)
- Salmon State
- US Bureau of Land Management
- US Department of Agriculture
- US Department of Agriculture: Natural Resource Conservation Service—Alaska
- US Department of Forestry
- US Fish and Wildlife Service
- US Subsistence Board—Federal Subsistence Liaison Office

- ¹ Meter, K., & Goldenberg, M. P. (2014). *Building food security in Alaska*. Crossroads Resource Center. <http://www.crcworks.org/akfood.pdf>
- ² Fall, J.A. & Kostick, M.L.. (2018). *Food security and wild resource harvest in Alaska*. Alaska Department of Fish and Game. https://www.adfg.alaska.gov/static/home/subsistence/pdfs/food_security_whitepaper.pdf
- ³ State of Alaska. (n.d.). *Personal use fishing*. Alaska Department of Fish and Game. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=fishingPersonalUse.main>
- ⁴ State of Alaska. (n.d.). *Subsistence regulations overview*. Alaska Department of Fish and Game. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=subsistenceregulations.main>
- ⁵ *More than survival, the subsistence tradition sustains meaning for rural Alaska Natives and non-native residents alike*. (2021, August). United States Department of the Interior, Bureau of Land Management. <https://www.blm.gov/blog/2021-08-17/more-survival-subsistence-tradition-sustains-meaning-rural-alaska-natives-and-non>
- ⁶ Fall, J.A. (2018). *Subsistence in Alaska: A year 2017 update*. Alaska Department of Fish and Game. https://www.adfg.alaska.gov/static/home/subsistence/pdfs/subsistence_update_2017.pdf
- ⁷ US Department of the Interior. (n.d.). *Alaska Federal Subsistence*. Bureau of Land Management. Retrieved August 2022 from <https://www.blm.gov/programs/natural-resources/subsistence>
- ⁸ Wolfe, R.J. (2018). *Subsistence Economies in Rural Alaska*. Cultural Survival Quarterly Magazine. www.culturalsurvival.org/publications/cultural-survival-quarterly/subsistence-economies-rural-alaska
- ⁹ Inuit Circumpolar Council—*Inuit Food Security and Sovereignty*. Retrieved August 2022 from <https://iccalaska.org/our-work/inuit-food-security-project/>
- ¹⁰ US Department of the Interior. (2021, August 17). *More than survival, the subsistence tradition sustains meaning for rural Alaska Natives and non-native residents alike*. Bureau of Land Management. <https://www.blm.gov/blog/2021-08-17/more-survival-subsistence-tradition-sustains-meaning-rural-alaska-natives-and-no>
- ¹¹ US Department of the Interior. (n.d.). *Federal Subsistence Management Program*. Retrieved August 2022 from <https://www.doi.gov/subsistence>
- ¹² State of Alaska. (n.d.). *Subsistence regulations overview*. Alaska Department of Fish and Game. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=subsistenceregulations.main>
- ¹³ State of Alaska. (2022). *Dunleavy signs Tribal Recognition Bill to formally recognize Alaska's Tribes*. Office of the Governor. Retrieved August 2022 from <https://gov.alaska.gov/newsroom/2022/07/28/dunleavy-signs-tribal-recognition-bill-to-formally-recognize-alaskas-tribes/>
- ¹⁴ State of Alaska. (n.d.). *Welcome to the Alaska Board of Fisheries*. Department of Fish and Game. <https://www.adfg.alaska.gov/index.cfm?adfg=fisheriesboard.main>
- ¹⁵ US Department of the Interior. (n.d.). *Subsistence branch*. Bureau of Indian Affairs. <https://www.bia.gov/regional-offices/alaska/subsistence-branch>
- ¹⁶ State of Alaska. (n.d.). *Subsistence in Alaska overview*. Alaska Department of Fish and Game Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?ADFG=subsistence.main>
- ¹⁷ Meter, K., & Goldenberg, M. P. (2014). *Building food security in Alaska*. Crossroads Resource Center. <http://www.crcworks.org/akfood.pdf>
- ¹⁸ Fall, J.A. (2018). *Subsistence in Alaska: A year 2017 update*. Alaska Department of Fish and Game. https://www.adfg.alaska.gov/static/home/subsistence/pdfs/subsistence_update_2017.pdf
- ¹⁹ Fall, J.A. & Kostick, M.L.. (2018). *Food security and wild resource harvest in Alaska*. Alaska Department of Fish and Game. https://www.adfg.alaska.gov/static/home/subsistence/pdfs/food_security_whitepaper.pdf
- ²⁰ Brinkman, T., Charles, B., Stevens, B. et al. (2022). *Changes in Sharing and Participation are Important Predictors of the Health of Traditional Harvest Practices in Indigenous Communities in Alaska*. Hum Ecol. <https://doi.org/10.1007/s10745-022-00342-4>
- ²¹ Bridges, K. N., Furin, C. G., & Gerlach, R. F. (2020). *Subsistence fish consumption in rural Alaska: Using regional monitoring data to evaluate risk and bioavailability of dietary methylmercury*. The Science of the total environment, 736, 139676. <https://doi.org/10.1016/j.scitotenv.2020.139676>
- ²² US Department of the Interior. (2021, August 17). *More than survival, the subsistence tradition sustains meaning for rural Alaska Natives and non-native residents alike*. Bureau of Land Management. <https://www.blm.gov/blog/2021-08-17/more-survival-subsistence-tradition-sustains-meaning-rural-alaska-natives-and-no>
- ²³ Walch, A., Bersamin, A., Loring, P., Johnson, R., & Tholl, M. (2018). *A scoping review of traditional food security in Alaska*. International Journal of Circumpolar Health, 77(1), 1419678. <https://doi.org/10.1080/22423982.2017.1419678>
- ²⁴ State of Alaska. (n.d.). *Subsistence hunting in Alaska*. Alaska Department of Fish and Game. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=subsistence.hunting>
- ²⁵ State of Alaska. (n.d.). *Subsistence hunting in Alaska*. Alaska Department of Fish and Game. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=subsistence.hunting>
- ²⁶ Fall, J.A. (2018). *Subsistence in Alaska: A year 2017 update*. Alaska Department of Fish and Game. https://www.adfg.alaska.gov/static/home/subsistence/pdfs/subsistence_update_2017.pdf
- ²⁷ State of Alaska. (n.d.). *Field-to-freezer meat care*. Alaska Department of Fish and Game. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=hunting.meatcare>
- ²⁸ D'oro, R. (2019, November 25). *Failing ice cellars signal changes for Alaska whaling towns*. Phys. org. <https://phys.org/news/2019-11-alaska-native-ice-cellars-environmental.html>
- ²⁹ State of Alaska. (n.d.). *Subsistence regulations overview*. Alaska Department of Fish and Game. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=subsistenceregulations.main>
- ³⁰ Curl, J. (2021). *Caribou health and disease: A pocket guide*. ADF&G.

- ³¹ Harvest Management Coalition. 2019. *Fortymile caribou herd harvest plan 2019–2023*. ADF&G, Fairbanks, Alaska.
- ³² Nadine, A. (2022, Jan 22). *Shrinking Western Arctic Caribou Herd prompts discussion about future hunting restrictions*. Anchorage Daily News. <https://www.adn.com/alaska-news/rural-alaska/2021/12/19/shrinking-western-arctic-caribou-herd-prompts-discussion-about-future-hunting-restrictions/>
- ³³ Thompson, T. (2022, Feb 1). *Biologists find first cases of infectious bacteria in Southwest Alaska caribou herd*. Alaska Public Media. <https://alaskapublic.org/2021/02/01/biologists-find-first-cases-of-infectious-bacteria-in-southwest-alaska-caribou-herd/>
- ³⁴ Hebblewhite, M. (2022). *Improving Range Health And Recreational Hunting For Alaska's Iconic Fortymile Caribou Herd*. United State Department of Agriculture REEIS. <https://portal.nifa.usda.gov/web/crisprojectpages/1021603-improving-range-health-and-recreational-hunting-for-alaskas-iconic-fortymile-caribou-herd.html>
- ³⁵ Palm, E., et al. (2022). *Increasing fire frequency and severity will increase habitat loss for a boreal forest indicator species*. Ecological Applications. <https://doi.org/10.1002/eap.2549>
- ³⁶ Ehlers, L. et al., (2021). *Critical trade-offs in summer foraging of subarctic ungulates*. Ecol Evol 11:17835-17872.
- ³⁷ State of Alaska. (n.d.). *Caribou species profile*. ADF&G. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=caribou.main>
- ³⁸ Bohrer, B. (2016, Nov. 29). *Thousands of Alaska caribou are dying — and scientists don't know why*. The Seattle Times. <https://www.seattletimes.com/nation-world/alaska-biologists-research-mystery-of-declining-caribou-herd/>
- ³⁹ State of Alaska. (2022). *Caribou Trials: News from the Western Arctic Caribou Herd Working Group*. ADF&G. Retrieved August 2022 from https://www.adfg.alaska.gov/static/home/library/pdfs/wildlife/caribou_trails/caribou_trails_2022.pdf
- ⁴⁰ State of Alaska. (2019). *Western Arctic Caribou Herd Cooperative Management Plan*. ADF&G. Retrieved August 2022 from: https://www.adfg.alaska.gov/static/research/plans/pdfs/wah_management_plan_final_2019.pdf
- ⁴¹ State of Alaska. (2019). *Western Arctic Caribou Herd Cooperative Management Plan*. ADF&G. Retrieved August 2022 from: https://www.adfg.alaska.gov/static/research/plans/pdfs/wah_management_plan_final_2019.pdf
- ⁴² State of Alaska. (n.d.). *Moose species profile*. ADF&G. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=moose.printerfriendly>
- ⁴³ State of Alaska. (2022, Jan. 5). *Challenging snow conditions stress moose and people*. <https://www.adfg.alaska.gov/static/applications/webintra/wcnews/2022/releases/01-05-2022b.pdf>
- ⁴⁴ Rozell, N. (2022, Jan. 15). *How a single winter rainstorm in Interior Alaska could wreak havoc on animals and their habitats*. Anchorage Daily News. <https://www.adn.com/alaska-news/science/2022/01/15/how-a-single-winter-rainstorm-in-interior-alaska-could-wreak-havoc-on-animals-and-their-habitats/>
- ⁴⁵ Lill, A. (2022, Aug. 29). *More shrubs means way more moose in Western Alaska: Climate change is causing ecosystem shifts, and the cascading effects impact animals and hunters*. High Country News <https://www.hcn.org/articles/north-wildlife-more-shrubs-means-way-more-moose-in-western-alaska>
- ⁴⁶ Rosen, Y. (2022, June 7). *Moose population boom, linked to climate change, inspires some hunting changes*. Alaska Public Media. <https://alaskapublic.org/2022/06/07/moose-population-boom-linked-to-climate-change-inspires-some-hunting-changes/>
- ⁴⁷ Hovey, D.. (2019, Oct. 8). *Moose research in Unit 22 could explain declining population*. KNOM Radio Mission. <https://www.knom.org/wp/blog/2019/10/08/moose-research-in-unit-22-could-explain-declining-population>
- ⁴⁸ Robinson, G. (2019, Sept. 30). *ADF&G biologists first to establish daily, seasonal variation of moose body temperature*. Alaska News Source. <https://www.alaskasnewsresource.com/content/news/ADF&G-biologists-first-to--561826431.html>
- ⁴⁹ Hovey, D.. (2019, Sept. 17). *Unit 22 moose population varies from healthy to concerning*. KNOM Radio Mission. <https://www.knom.org/wp/blog/2019/09/27/unit-22-moose-population-varies-from-healthy-to-concerning/>
- ⁵⁰ State of Alaska (1995). *Moose-vehicle accidents on Alaska Highways*. Department of Transportation. <https://dot.alaska.gov/stwddes/dcstraffic/assets/pdf/misc/moosestudy.pdf>
- ⁵¹ State of Alaska (n.d.). *Road kill overview*. Alaska Wildlife Troopers. Retrieved August 2022 from <https://dps.alaska.gov/AWT/Roadkill>
- ⁵² State of Alaska. (n.d.). *Hunting maps by species*. ADF&G. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=huntingmaps.byspecies&species=d>
- ⁵³ State of Alaska. (n.d.). *Sitka blacktail deer profile*. ADF&G. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=deer.printerfriendly>
- ⁵⁴ Harper, P., & McCarthy, L. A. (Eds.). (2015). *Deer Management Report of Survey-inventory Activities, 1 July 2012-30 June 2014*. Alaska Department of Fish and Game, Division of Wildlife Conservation.
- ⁵⁵ State of Alaska. (2007). *Understanding predator management in Alaska*. ADF&G. https://www.adfg.alaska.gov/static/research/programs/intensivemanagement/pdfs/predator_booklet.pdf
- ⁵⁶ State of Alaska. (n.d.). *Wolf species profile*. ADF&G. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=wolf.main>
- ⁵⁷ State of Alaska. (n.d.). *Brown bear species profile*. ADF&G. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=brownbear.main>
- ⁵⁸ State of Alaska. (n.d.). *Black bear species profile*. ADF&G. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm%3Fadfg=blackbear.main>
- ⁵⁹ State of Alaska. (n.d.). *Wolf uses*. ADF&G. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=wolf.uses>
- ⁶⁰ State of Alaska. (n.d.). *Black bear uses*. ADF&G. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=blackbear.uses>
- ⁶¹ State of Alaska. (n.d.). *Intensive Management overview*. ADF&G. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=intensivemanagement.predatorprey>
- ⁶² State of Alaska. (2022). *Brown Bear Management Report and Plan, Game Management Unit 14C*. ADF&G. http://www.adfg.alaska.gov/static/research/wildlife/speciesmanagementreports/pdfs/brownbear_2014_2024_smr_gmu_14c.pdf

- ⁶³ State of Alaska. (n.d.). *Intensive Management overview*. ADF&G. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=intensivemanagement.predatorprey>
- ⁶⁴ National Research Council. (1997). *Wolves, bears and their prey in Alaska*. National Academy Press, Washington, DC.
- ⁶⁵ State of Alaska. (n.d.). *Marine mammal program*. ADF&G. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=marinemammalprogram.icesealmonitoring&tab=products-reports>
- ⁶⁶ State of Alaska. (n.d.). *Ice seal research*. ADF&G. Retrieved September 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=marinemammalprogram.icesealmonitoring>
- ⁶⁷ Diana, J. S. (2009). *Aquaculture production and biodiversity conservation*. Bioscience, 59(1), 27-38.
- ⁶⁸ Yang, H., Ma, M., Thompson, J. R., & Flower, R. J. (2018). *Transport expansion threatens the Arctic*. Science, 359(6376), 646-647.
- ⁶⁹ Fall, J.A. (2018). *Subsistence in Alaska: A year 2017 update*. Alaska Department of Fish and Game. https://www.adfg.alaska.gov/static/home/subsistence/pdfs/subsistence_update_2017.pdf
- ⁷⁰ State of Alaska. (n.d.). *Federal Fisheries Disasters*. ADF&G. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=hottopics.fisherydisasters>
- ⁷¹ Rosen, Y. (2022, June 15). *Fishery managers call for deeper look at salmon bycatch, but decline to tighten rules*. Alaska Beacon. <https://www.adn.com/alaska-news/2022/06/15/fishery-managers-call-for-deeper-look-at-salmon-bycatch-but-decline-to-tighten-rules/>
- ⁷² Kuskokwim River Inter-Tribal Fish Commission. (2022, July 5). *Salmon bycatch information*. <https://www.kuskosalmon.org/news/bycatchintercept070622>
- ⁷³ Schoen, E. R. et al. (2017). *Future of Pacific Salmon in the face of environmental change: Lessons from one of the world's remaining productive salmon regions*. Fisheries 42, 538-553. <https://afspubs.onlinelibrary.wiley.com/doi/10.1080/03632415.2017.1374251>
- ⁷⁴ State of Alaska. (n.d.). *Chinook Salmon Research Initiative*. ADF&G. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=chinookinitiative.main>
- ⁷⁵ Cook Inlet. (n.d.). *State of Alaska Salmon and People*. Retrieved September 2022 from https://alaskasalmonandpeople.org/wp-content/uploads/2019/06/Cook_Inlet.pdf
- ⁷⁶ State of Alaska. (n.d.). *Personal use fishing*. ADF&G. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=fishingPersonalUse.main>
- ⁷⁷ State of Alaska. (n.d.). *Subsistence fishing*. ADF&G. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=fishingSubsistence.main>
- ⁷⁸ Fall, J.A. (2018). *Subsistence in Alaska: A year 2017 update*. Alaska Department of Fish and Game. https://www.adfg.alaska.gov/static/home/subsistence/pdfs/subsistence_update_2017.pdf
- ⁷⁹ State of Alaska. (n.d.). *Chinook Salmon Research Initiative*. ADF&G. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=chinookinitiative.main>
- ⁸⁰ Gannon, G. (2019). *The nexus between environmental stress, resource governance and demographic change in Norton Sound, Alaska*. [Masters thesis]. University of Saskatchewan. <https://harvest.usask.ca/handle/10388/12319>
- ⁸¹ Fall, J.A. & Kostick, M.L.. (2018). *Food security and wild resource harvest in Alaska*. Alaska Department of Fish and Game. https://www.adfg.alaska.gov/static/home/subsistence/pdfs/food_security_whitepaper.pdf
- ⁸² Donkersloot, R., & Carothers, C. (2016). *The graying of the Alaskan fishing fleet*. *Environment: Science and Policy for Sustainable Development*, 58(3), 30-42. <https://doi.org/10.1080/00139157.2016.1162011>
- ⁸³ Knapp, G. (2011). *Local permit ownership in Alaska salmon fisheries*. *Marine Policy*, 35(5), 658-666. <https://doi.org/10.1016/j.marpol.2011.02.006>
- ⁸⁴ Carothers, C. (2010). *Tragedy of commodification: Displacements in Alutiiq fishing communities in the Gulf of Alaska*. *Mast*, 9(2), 95-120. <https://faculty.washington.edu/stevehar/Carothers2010.pdf>
- ⁸⁵ *Stock status summary for major Western Alaska chum salmon and Chinook salmon stocks*. (June 2022). ADF&G. <https://meetings.npfmc.org/CommentReview/DownloadFile?p=7bb8ba14-30b7-440f-8d79-57ebf95c5ca9.pdf&fileName=D1a%20ADFG%20WAK%20Chinook%20and%20chum%20stock%20status%20update.pdf>
- ⁸⁶ *Subsistence and personal use harvest of salmon in Alaska, 1960-2012*. ADF&G. Retrieved September 2022 from <https://knbc.ecoinformatics.org/view/doi%3A10.5063%2FF18P5XTN>
- ⁸⁷ *Subsistence and personal use harvest of salmon in Alaska, 1960-2012*. ADF&G. Retrieved September 2022 from <https://knbc.ecoinformatics.org/view/doi%3A10.5063%2FF18P5XTN>
- ⁸⁸ O'Neill, D. (2013, November 20). *An in-river look at what has become of the Yukon River kings*. *Alaska Journal of Commerce*. <https://www.alaskajournal.com/business-and-finance/2013-11-20/river-look-what-has-become-yukon-kings>
- ⁸⁹ Poux, S. (2020, October 16). *A hard harvest for commercial fishermen*. KDLL. <https://www.kdll.org/local-news/2020-10-16/econ-919-a-hard-harvest-for-commercial-fishermen>
- ⁹⁰ Loring, P.A., Gerlach, S. & Harrison, H.L. (2013, May) *Seafood as local food: Food security and locally caught seafood on Alaska's Kenai Peninsula*. *Journal of Agriculture Food Systems and Community Development* 3(3). <https://www.researchgate.net/publication/journal/Journal-of-Agriculture-Food-Systems-and-Community-Development-2152-0801>
- ⁹¹ Loring, P.A., Gerlach, S. & Harrison, H.L. (2013, May) *Seafood as local food: Food security and locally caught seafood on Alaska's Kenai Peninsula*. *Journal of Agriculture Food Systems and Community Development* 3(3). <https://www.researchgate.net/publication/journal/Journal-of-Agriculture-Food-Systems-and-Community-Development-2152-0801>
- ⁹² Loring, P. A., Harrison, H. L., & Gerlach, S. C. (2014). *Local perceptions of the sustainability of Alaska's highly contested Cook Inlet Salmon Fisheries*. *Society & Natural Resources*, 27(2), 185-199. <https://doi.org/10.1080/08930187.2014.945399>

- ⁹³ Kellogg, J., et. al. (2011). *Prospects for commercialisation of an Alaska Native wild resource as a commodity crop*. *The Journal of Entrepreneurship*, 20(1), 77–101. <https://doi.org/10.1177/097135571002000104>
- ⁹⁴ Pilz, D., Alexander, S. J., Smith, J., Schroeder, R., & Freed, Jim. (2006). *Nontimber forest product opportunities in Alaska* (PNW-GTR-671; p. PNW-GTR-671). U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. <https://doi.org/10.2737/PNW-GTR-671>
- ⁹⁵ State of Alaska. (n.d.). *Non-Timber Forest Product Commercial Harvest Permit*. ADF&G Division of Mining, Land, and Water. Retrieved August 2022 from <http://dnr.alaska.gov/mlw/ntfp/>
- ⁹⁶ Maher, K. A. C. (2013). *Birch, berries, and the Boreal forest: Activities and impacts of harvesting Non-Timber Forest Products in Interior Alaska* [Doctoral Thesis, University of Alaska Fairbanks]. <http://hdl.handle.net/11122/9173>
- ⁹⁷ The Chaga Co-Operative. (n.d.). Retrieved August 2022 from <https://www.chagacoop.com/>
- ⁹⁸ Mork, YV. (November 20, 2020). *Chaga: the King of Mushrooms*. Edible Alaska. <https://ediblealaska.ediblecommunities.com/eat/chaga-king-mushrooms>
- ⁹⁹ Sitka Tribe of Alaska Kayaani Commission. (n.d.). Retrieved August 2022 from <https://www.sitkatribes.org/pages/kayaani>
- ¹⁰⁰ *Respectful Harvesting Guidelines*. (2022). Kaasei Training and Consulting. Retrieved August 2022 from <https://alaskaethnobotany.community.uaf.edu/wp-content/uploads/sites/761/2022/06/2022-REVISED-Printer-Version-Final-Respectful-Harvesting-Guidelines-red-size.pdf>
- ¹⁰¹ *Teaching stewardship through Native legend*, (2014, July 28). Clearing: Journal of Environmental Education in the Cascadian Bioregion. <https://clearingmagazine.org/archives/969>
- ¹⁰² *Incubation projects*. (n.d.). Norton Sound Economic Development Corporation. Retrieved September 2022 from <https://www.nsedc.com/fisheries/fisheries-research-development/incubation-and-egg-planting-projects/>
- ¹⁰³ Braun, A. (2022, July 25). *How Indigenous sea gardens produced massive amounts of food for millennia*. Smithsonian. <https://www.smithsonianmag.com/science-nature/how-indigenous-sea-gardens-produced-massive-amounts-of-food-for-millennia-180980447/>
- ¹⁰⁴ *Caribou stewardship based on Indigenous Knowledge*. (n.d.). National Park Service. Retrieved September 2022 from <https://www.nps.gov/articles/000/ikcariboustewardship.htm>
- ¹⁰⁵ Mork, YV. (November 20, 2020). *Chaga: the King of Mushrooms*. Edible Alaska. <https://ediblealaska.ediblecommunities.com/eat/chaga-king-mushrooms>
- ¹⁰⁶ Kayaani Sisters Council. (2022). *Respectful Harvesting Guidelines*. Kaasei Indigenous Foodways. <https://alaskaethnobotany.community.uaf.edu/wp-content/uploads/sites/761/2022/06/2022-REVISED-Printer-Version-Final-Respectful-Harvesting-Guidelines-red-size.pdf>
- ¹⁰⁷ Graham, M. (2021, July 29). *A Native-led initiative seeks to spur an agricultural revolution in Rural Alaska*. Civil Eats. <https://civileats.com/2021/07/29/a-native-led-initiative-seeks-to-spur-an-agricultural-revolution-in-rural-alaska/>
- ¹⁰⁸ *Alutiiq Grown*. (n.d.). Retrieved September 2022 from <https://www.alutiigrown.com/alutiigrownfarms>
- ¹⁰⁹ <https://ttcd.org/programs/tyonek-grown-program/>
- ¹¹⁰ *Tlingit & Haida completes construction on new greenhouse*. (2021, July 12). Alaska Business. <https://www.akbizmag.com/industry/alaska-native/tlingit-haida-completes-construction-on-new-greenhouse/>
- ¹¹¹ Intertribal Agriculture Council. Retrieved August 2022 from <https://www.indianag.org/>
- ¹¹² USDA. (n.d.). *Alaska Natives subsistence as agriculture*. Natural Resources Conservation Service. Retrieved August 2022 from <https://www.nrcs.usda.gov/wps/portal/nrcs/ak/technical/0a73cf9d-fb35-4c68-8a0c-23f1b0f062f4/>
- ¹¹³ UAF. (n.d.) *Alaska Ethnobotany Program*. Retrieved September 2022 from: <https://alaskaethnobotany.community.uaf.edu/>
- ¹¹⁴ UAF. (2020). *Discontinue Ethnobotany Program*. Retrieved September 2022 from <https://www.alaska.edu/research/review/uafdocs/Discontinue%20-%20UC%20Ethnobotany%20-%20UAF%204.10.20.pdf>
- ¹¹⁵ UAF. (n.d.). *Berries*. Cooperative Extension Service. Retrieved September 2022 from <https://www.uaf.edu/ces/foodhealth/berries/>
- ¹¹⁶ UAF. (n.d.). *One Tree Program*. Agriculture and Forestry Experiment Station. Retrieved September 2022 from <https://uaf.edu/afes/onetree.php>
- ¹¹⁷ UAF. (n.d.). *Variety Trials*. Agriculture and Forestry Experiment Station. Retrieved September 2022 from: <https://uaf.edu/afes/research/variety-trials/index.php>
- ¹¹⁸ Price, M., Latta, A., Spring, A., Temmer, J., Johnston, C., Chicot, L., Jumbo, J., Leishman, M. (2022). *Agroecology in the North: Centering Indigenous food sovereignty and land stewardship in agriculture “frontiers”*. Agriculture and Human Values, 1–16. <https://link.springer.com/article/10.1007/s10460-022-10312-7>
- ¹¹⁹ United Nations. (n.d.). *Right to adequate food* [Fact sheet no. 34]. Retrieved August 2022 from <https://www.ohchr.org/Documents/Publications/FactSheet34en.pdf>
- ¹²⁰ United Nations. (2007). *Declaration on the rights of Indigenous Peoples*. https://www.un.org/development/desa/indigenouspeoples/wp-content/uploads/sites/19/2018/11/UNDRIP_E_web.pdf
- ¹²¹ Mixon, R. (2020, March 19). *Just transition, Alaska Native food sovereignty: Resilience in action*. Cook Inletkeeper. <https://inletkeeper.org/2020/03/19/nativefoodsovereignty/>
- ¹²² Coté, C. (2016). *“Indigenizing” food sovereignty. Revitalizing Indigenous food practices and ecological knowledges in Canada and the United States*. Humanities, 5(3), 57. <https://doi.org/10.3390/h5030057>
- ¹²³ Inuit Circumpolar Council Alaska. *Alaskan Inuit food security conceptual framework: how to assess the arctic from an Inuit perspective*. Anchorage, AK: Inuit Circumpolar Council. 2015. Retrieved August 2022 from <https://iccalaska.org/wp-icc/wp-content/uploads/2016/03/Food-Security-Summary-and-Recommendations-Report.pdf>



Production

Introduction

Innovative and traditional growing techniques are materializing throughout the state. Traditional, soil-based agriculture is thriving along the road system, and smaller operations can be found throughout off-road Alaska. Hydroponic operations (also known as Controlled Growing Environments) and community farms and gardens are growing increasingly possible as education, infrastructure, and resources are made available to rural communities. Mariculture has seen enormous growth and innovation and an increased number of farmers are working not only to expand their crop and soil knowledge but also to understand markets and business models throughout Alaska and even for export.

Alaska is still very much a frontier in terms of what and how items are produced, understanding consumer behavior, and recognizing how to utilize both the land and ocean resources economically and practically, which incorporates balancing the benefits of and access to wild foods with the vast resources that remain available for local and worldwide food production.

2021 STATE AGRICULTURE OVERVIEW

Alaska

† Survey Data from [Quick Stats](#) as of: Aug/07/2022

Farms Operations[†]

Farm Operations - Area Operated, Measured in Acres / Operation	810
Farm Operations - Number of Operations	1,050
Farm Operations - Acres Operated	850,000

Livestock Inventory[†]

Cattle, Cows, Beef - Inventory (First of Jan. 2022)	7,800
Cattle, Cows, Milk - Inventory (First of Jan. 2022)	200
Cattle, Incl Calves - Inventory (First of Jan. 2022)	18,000
Hogs - Inventory (First of Dec. 2021)	1,900

Milk Production[†]



Image: *2021 State Agriculture Overview, USDA NASS, 2021*

Soil and Hydroponic Agriculture

Alaska agriculture can be a tough row to hoe and producers face a variety of challenges. Start-up challenges include buying affordable land, getting the land cleared and prepared for agricultural use, getting equipment and infrastructure shipped affordably to Alaska, and having access to post-production resources such as processing and storage facilities. Once up and running, farmers report the top challenges for sustainability and growth include access to labor and labor costs, cold storage and other infrastructure, and access to capital.¹ Marketing can also be a challenge for some, as well as building long-term relationships with

customers and designing successful business plans. Successful farmers often do it all; from all on-farm manual labor to the administrative tasks such as marketing, accounting, and hiring. Some farmers are able to hire those skills, however this reduces profit in an industry that can have thin unit margins for the small and medium producers. Additionally, limited topsoil, poor soil indexes, limited access to affordable and adequate land, and limited capacity for in-state agricultural research has created a long-term challenging environment for growers.

However many promising efforts exist around the state to alleviate some of these production burdens. One example is the nascent but growing seaweed supply, grown in-state. Seaweed and fish waste, if aggregated and processed appropriately, could serve as a local source of soil amendments. Another is the explosion of farmers markets and food hub activity, increasing direct access to markets for producers. There is a lot of room for growth and farm expansion as well. The state has some 15 million acres,² a land area the size of West Virginia of suitable soils.³

The Nenana-Totchaket Agricultural Project designated 100,000+ for agricultural land acres Governor Dunleavy proposed \$5 million to move the project forward, and the Alaska Legislature funded the first phase in the FY22 budget. The goal is to increase access to raw land that buyers can clear and turn into agricultural production space. However, this project is not without controversy. Local groups have called for additional soil and ecosystem studies as well as consideration for local priority rights to land access and subsistence foods located on those lands.^{4,5}

The number of farms in the state increased 30 percent between 2012 and 2017, while the rest of the nation saw a 3 percent decline.⁶ Successful programs to aid farmers or novice growers are leveraged by Alaskans if they are aware of the resources available. Two programs have had a notable impact on localized food production:

- The USDA EQIP program that subsidizes the cost of unheated greenhouses or high tunnels, which can create a microclimate here similar to that in Kansas.⁷
- The 2018 Farm Bill Microgrants program, administered by the Alaska Division of Agriculture. This program was new for the Division of Agriculture and the launch was significantly delayed due to administrative constraints. However, a staggering 2,300 people applied for funding to cover costs associated with fencing, gardening, and food education. This application rate demonstrated the real interest and need for small-scale funding for growers to learn and produce.

In the Southeast alone, economic impacts of home production were estimated from 11,034 Southeast Alaska households that grew food in 2016, producing roughly 800,000 pounds of fruits and vegetables. While there is no perfect way to estimate the value of this production, a replacement cost approach results in a value between \$1.4 million (replacing with standard quality produce) and \$2.8 million (replacing with a combination of organic and premium quality produce).⁸

Vegetables

Vegetable production and the adjacent cut flower sub-sector are often gateways crops into larger scale food production. In Alaska, 43% of growers produce on less than 10-acres and many begin with backyard or community gardens before scaling to commercial-level operations.

Farms by Size

	Number	Percent of Total ^a
1 to 9 acres	428	43
10 to 49 acres	236	24
50 to 179 acres	159	16
180 to 499 acres	89	9
500 to 999 acres	35	4
1,000 + acres	43	4

Market Value of Agricultural Products Sold

	Sales (\$1,000)	Rank in U.S. ^b	States Producing Item
Total	70,459	49	50
Crops	29,642	50	50
Grains, oilseeds, dry beans, dry peas	815	49	50
Tobacco	-	-	18
Cotton and cottonseed	-	-	17
Vegetables, melons, potatoes, sweet potatoes	5,925	48	50
Fruits, tree nuts, berries	(D)	50	50
Nursery, greenhouse, floriculture, sod	16,874	47	50
Cultivated Christmas trees, short rotation woody crops	(D)	49	50
Other crops and hay	(D)	47	50
Livestock, poultry, and products	40,817	49	50
Poultry and eggs	(D)	49	50
Cattle and calves	2,234	49	50
Milk from cows	(D)	50	50
Hogs and pigs	756	46	50
Sheep, goats, wool, mohair, milk	139	50	50
Horses, ponies, mules, burros, donkeys	112	50	50
Aquaculture	35,157	14	50
Other animals and animal products	(D)	48	50

Images: 2017 Census of Agriculture State Profile, USDA NASS, 2017

Farmers are not required to purchase permits or certifications to sell raw, whole produce. This is commonly known as the “first cut rule” since the only cut to the plant is the harvest cut. Once any more cutting or chopping or preparations of any kind are added, the Cottage Food rules come into effect. These laws govern “non-potentially hazardous” value-add foods or foods that do not require temperature control for safety such as sauerkraut, jams & jellies, or relishes.⁹ Farmers can sell value-added foods such as pickled and baked items direct-to-consumer without a DEC-approved kitchen, if their products fall under certain rules. (Note: please see the [Food Freedom & Cottage Food appendix](#).)

Other Field Crops

Other Alaska field crop production is a nascent but growing subsector and includes barley, hay, wheat, alfalfa, oats, and potatoes. Critical for both human and domesticated animal consumption, additional infrastructure capacity is needed to grow this sector of agriculture, meaningfully. Needs include northern crop varietal development and seed drying and storage facilities.

Field Crop Area Planted and Harvested — Alaska: 2014-2021

Year	Potatoes		Oats		Barley		All hay
	Planted	Harvested	Planted	Harvested ¹	Planted	Harvested ¹	Harvested
	(acres)	(acres)	(acres)	(acres)	(acres)	(acres)	(acres)
2014	650	620	2,200	1,000	5,400	5,100	18,000
2015	560	540	1,800	1,000	4,600	4,300	18,000
2016	550	530	2,000	1,200	5,000	4,700	22,000
2017	560	540	1,700	900	5,500	5,200	21,000
2018	500	500	(NA)	(NA)	5,000	4,000	22,000
2019	(NA)	(NA)	(NA)	(NA)	6,000	5,000	22,000
2020	(NA)	(NA)	(NA)	(NA)	6,000	5,000	22,000
2021	(NA)	(NA)	(NA)	(NA)	6,000	5,000	19,000

(NA) Not available.

¹ Acreage harvested for grain.Image: *Alaska Agricultural Statistics 2022 Annual Bulletin, USDA NASS, 2022*

Alaska is well-positioned to become a circumpolar distributor of seed potatoes. In addition to optimal growing environments and relatively low labor requirements, Alaska is unique in that producers do not prophylactically spray pesticide or fungicide as widespread practice, as is the case in other potato-producing states like Idaho.¹⁰

Urban and Rural Community Gardens & Farms

Community gardens exist across Alaska, in varied states of formality. From guerilla gardening on vacant land parcels to for-profits entities, the common thread for this type of production is community well-being and hyper-local food security. Community food cultivation or what has been called “outpost agriculture” has ebbed and flowed in output and community impact since long before statehood, with documented mentions of gardens dating back to 1765 in historical documentation of Tlingit and Haida peoples.¹¹ Intentional food cultivation likely existed in some form long before that.

Today, resources abound in Alaska for gardener training, though equitable access is not always available. Some training and courses are not financially accessible, and because of the diversity of growing conditions across the state, local knowledge and local trainers are critical to sustained success. The Alaska Cold Climate Permaculture Institute, Master Gardeners Network, and University of Alaska Fairbanks Cooperative Extension Services offer training and skill-building. Increasingly Tribal Conservation Districts and Alaska Village Initiatives are also launching and/or supporting community garden projects through training, soil testing, and partnership facilitation. Related, the Alaska Food Systems Network is a digital, free network for community gardeners to connect and learn from one another.¹² The Alaska Native Media Group also launched the Garden and Gather Initiative in 2020, to increase Alaska Natives’ access to Indigenous food and garden cultivation knowledge.¹³

Examples abound of different community garden models:

Gardens in the Arctic is a for-profit community garden in Anaktuvuk Pass. Their long-term goal is to be able to provide produce for the 335-person community, removing some of the need for external food imports.¹⁴

Stickleback Farm in Anchorage was born out of a collaboration between the Alaska Food Policy Council, the City of Anchorage, Alaska Seeds of Change, and community advocates. The one-acre urban farm is repurposing the former site of the Alaska Native Hospital. Since its conception in 2018, a mobile fruit orchard, raised beds, and fencing have been installed, with the goals to serve Anchorage’s least food secure neighborhoods, provide workforce development opportunities to youth in the community, and demonstrate the possibilities for sustainable agriculture in northern climates.¹⁵

The Native Village of Tyonek and the Tyonek Tribal Conservation District established **Tyonek Grown** in 2010.¹⁶ This program addresses the community’s strategic direction to improve food security through community agriculture. The garden has grown into a 1.5-acre operation with two NRCS-funded high tunnels (48’x22’), solar-powered irrigation and ventilation systems, 15 outdoor raised beds, over 2,000-row feet of potatoes, and mixed vegetable crops, perennial fruits, and plans for expansion in the coming years.

Hydroponics

Hydroponics, growing plants in nutrient-rich water without soil, is an example of Controlled Environment Agriculture (CEA). Others include aeroponics (misting plant roots with nutrients) and aquaponics (growing plants and fish together). Raising fish as food is illegal in Alaska, but some farms have obtained the same nutrient benefits by including ornamental fish such as koi and goldfish in their systems.¹⁷ Hydroponic systems in Alaska produce primarily leafy greens and herbs indoors year-round. Plants are oriented vertically, stacked in shelves or narrow towers to optimize space, and farmers precisely control variables such as lights, temperature, humidity, CO₂, pH, and nutrient levels.

Systems vary in size from smaller cabinet-sized installations to modified shipping containers and large warehouses. Vertical Harvest Hydroponics (VHH), operating since 2014, develops and sells turnkey systems designed for remote Arctic conditions.¹⁸ Small systems have been installed at Airport Heights Elementary in Anchorage, the Anchorage Museum, the University of Alaska Anchorage, and size locations on Kodiak Island. Shipping container systems were set up in Dillingham, Kotzebue, Unalaska, and Kodiak.

Hydroponic farms sell to restaurants, grocery stores, wholesale distributors, and farmers markets, and some use their own online and physical retail spaces. Other farms prefer a subscription model providing farm boxes or bags with a rotating selection of leafy greens and herbs.

Quality and year-round access are benefits of CEA in Alaska. Produce is harvested at its peak and can reach consumers within hours rather than days or weeks. Greens and herbs are particularly fragile and vulnerable to temperature extremes, such as being loaded into small aircraft for delivery to villages, so growing on-site both increases the quality of produce available and reduces food waste. Systems are customizable and scalable to meet community needs using a small amount of space. Hydroponic installations are visually appealing and, particularly when operated in partnership with community organizations, are a source of local pride. Year-round production allows students to participate in the local food system at times when soil farms cannot.

Challenges and barriers to participation in hydroponics include high start-up and operational costs, limited crop variety, and a lack of technical support and training.^{19,20} While crops are grown on-site, reducing transport costs, shipping heavy and bulky growing supplies to remote locations is expensive. Indoor systems require artificial lights and water pumps powered by electricity leading to high energy bills. In locations where renewable energy sources are limited, systems are powered by coal, diesel, or natural gas.²¹ Leafy greens and herbs are flavorful and nutritious, but they cannot meet the caloric needs of a community. Hydroponic systems are operationally complex and require constant monitoring, so training and technical support are crucial.

Examples of farms currently in operation:

- CityFarms, Anchorage²²
- Anchorage Greens, Anchorage²³
- Alaska Sprouts, Anchorage²⁴
- Juneau Greens, Juneau²⁵
- Alaska Seeds of Change, Anchorage²⁶
- Mal'uk Farms, Kodiak²⁷



Image: [CityFarm](#), June 22, 2018

Animal Husbandry

Many Alaskans raise animals, ranging from poultry, pigs, goats, and cows to game animals like elk, bison, and reindeer. Poultry is fairly easy to raise and sell commercially. A person can process up to 20,000 birds without USDA inspection, and in these cases the State DEC does not regulate processing at this scale.²⁸ For animals larger than poultry, there are more regulations to consider. To sell direct-to-consumer, farmers and ranchers can sell a whole or half animal. For any portions smaller or to sell packaged, processed portions, the animal must be slaughtered in a USDA-certified facility. A meat packing facility that is not USDA-certified for slaughter can only commercially sell the meat they package if it was slaughtered in a USDA facility.

For example, a meat packing plant can import a whole or portion of a USDA slaughtered animal from the lower-48, cut and package it and sell it at grocery stores or to restaurants. That same meat packing plant cannot buy local meat slaughtered on the ranch to package and sell. They can only charge the rancher for the service of packaging his personal use meat.²⁹ There are meat packaging facilities throughout Alaska, but there are only three USDA-certified facilities: in Palmer, North Pole, and Delta Junction. There are also USDA-certified mobile processing units in Kodiak (for cattle) and Nome (for reindeer). The lack of USDA-certified slaughter facilities makes it difficult for producers to sell meat except to customers who are willing to buy large quantities at a time.

Raising livestock in Alaska has challenges as well. Imported feed is expensive, so access to hay, hay-producing land, and grazing land is vital. Alaska has state agricultural land, as well as grazing leases designated for farmers and ranchers to either buy or lease with stipulations for how the land is used.³⁰

In 2022 Governor Dunleavy introduced House Bill 415, relating to the Alaska Food Freedom Act. This bill would allow producers to “sell homemade food products and encourage the expansion of homemade food sales at farmers’ markets, agricultural fairs, ranches, farms, and producers’ homes by providing Alaskan citizens with unimpeded access to healthy food from Alaska. ... If enacted, the Alaska Food Freedom Act will stimulate the growth of cottage industries, promote food security for all Alaskans, and allow the development of an authentic “farm to table” marketplace.”³¹ As of April 2022, HB 415 was in discussion and had been sent to the Resources and Finance Committees. (*Note: Please see the [Food Freedom & Cottage Food appendix](#) for more information.*)

Dairy

In 1959, Alaska supported 525 farms and milk accounted for 49 percent of agricultural products.³² As of August 2022, there are only 2 FDA certified dairies, in Alaska—Alaska Range in Delta Junction and Heritage Farm & Ranch on Kodiak, which is solely a goat dairy. Producers earn FDA approval through State DEC certification. Agricultural boom and bust cycles hit dairy particularly hard in Alaska in recent years. Matanuska Maid creamery closed in 2007 due to financial challenges. The historical, 3-generation Havemeister Dairy in Palmer closed down in late 2021 after years of financial hardship. The proposed state budget cuts to DEC’s Grade A regulatory program in 2019 did not create producer confidence, with the single state dairy inspector’s budget line cut in the initial draft. While this was later reinstated, uncertainty in resources available to producers is a deterrent for new producers to launch and existing producers to scale.

The regulations around dairy products require that milk be pasteurized before it is sold commercially. The pasteurization process is expensive and prohibitive for small-scale producers. The DEC purchased and permanently loaned a batch pasteurizer to University of Alaska Fairbanks, which is stored in the test kitchen facility on the UAF Campus.³³ This was done specifically to support small milk producers in producing safe milk and milk products, however use has not been consistent, possibly due to challenges in advertising and distance from milk collection sites.

The only way for producers to distribute unpasteurized and non-certified milk is through direct-to-consumer “cow shares”, when a customer pays for a “share” of an animal for the right to get a portion of the milk from that animal. House Bill 22 passed in 2021 and enabled the herd share managers to create value add products like cheese from herd share milk and distribute it among shareholders. While herd shares are not a viable option for much the state, it does create space for nascent or extremely small-scale dairymen to test their local market. Raw milk is not without criticism, and its consumption comes with real food safety risks.³⁴ (*Note: Please see the [Food Freedom & Cottage Food appendix](#)).*

Mariculture

Currently, there are 78 permitted and operational aquatic farms and six mariculture hatcheries, for a total of 86 operations in Alaska, with others in the permitting or pre-operational stage. Alaska's DEC is the shellfish and shellfish sanitation authority for the state. This involves certifying growing/harvest waters and regulating harvesters and dealers. Of those currently in operation, 37 farms produce only one species of shellfish, 23 produce only seaweed, and 18 produce some combination of shellfish species or shellfish plus seaweed.³⁵

The table below lists the number of farms and percent of production by region in 2018, though it should be noted that this industry is changing year-over-year.

GEOGRAPHIC DISTRIBUTION AND PRODUCTION OF ALASKA AQUATIC FARMS³⁶

Region	Number of Aquatic Farms	Production (% of total)
Southeast	42	36%—Southern SE 4%—Northern SE
Southcentral	32	47%—Kachemak Bay 12%—Prince William Sound
Kodiak	6	1%


The table below lists the primary aquatic farm products cultured and sold in Alaska, along with the production amount and value. In addition to the species listed in the Table, other species approved for aquaculture include littleneck clams, scallops, cockles, sea urchins, sea cucumbers, three-ribbed kelp, giant kelp, *Pyropia* sp., and *Palmaria* sp.³⁷ Alaska king crab and abalone also show potential for mariculture/enhancement.³⁸ Finfish aquaculture is banned in Alaska waters.

ALASKA AQUACULTURE PRODUCTION SUMMARY (2021)³⁹

Species	Production	Value ²²
Pacific Oysters (<i>Magallana gigas</i>)—Sold to Public	1,915,831 oysters sold ²¹	\$1,450,598.25
Pacific Oysters (<i>Magallana gigas</i>)—Sold to Other Farms	1,188,246 oysters sold	\$1,212,850.00
Blue Mussels (<i>Mytillus trosullus</i>)	1,762 lbs sold	\$10,432.00
Pacific Geoduck (<i>Panopea generosa</i>)	(production data confidential)	(production data confidential)
Seaweed Sugar kelp (<i>Saccharina latissima</i>), Bull kelp (<i>Nereocystis luetkeana</i>), and Ribbon kelp (<i>Alaria marginate</i>) (No Natural Set)	425,890 lbs sold	\$209,601.50
Five Ribbed Kelp, Bull Kelp, Red Ribbon-Dulse Kelp, Split Kelp, Sugar Kelp, Three Ribbed Kelp (Natural Set)	105,500 lbs sold	\$887.00

Oysters have dominated Alaska's mariculture production since the first farms were established in the early 1980s, accounting for over 90% of Alaska aquatic farm sales in 2015. The Alaska Mariculture Task Force, formed in 2016 by an executive order from Alaska's Governor, laid out a comprehensive Mariculture Development Plan to accelerate the development of a \$100 million industry by 2040. These efforts have increased awareness and confidence in private sector investment, helping to produce an exponential increase in both the number and size (acres) of new aquatic farm lease applications, especially for seaweed.⁴⁰ In 2021, the Task Force dissolved and led to the creation of the Alaska Mariculture Alliance.

Demand for mariculture training has been high. In 2020 and 2021, Alaska Fisheries Development Foundation, Alaska Sea Grant, and other partners held several mariculture training webinars and workshops; 485 Alaskans applied and demand exceeded capacity, indicating that interest in new lease applications will continue.⁴¹ Much



of the interest is from fishermen who can use existing boats and gear to plant out and harvest seaweed in the spring and fall, thus diversifying their year.

An Alaska Native Mariculture Development Workgroup was established as part of the state's Mariculture Development Plan. To date, Alaska Natives have identified concerns and opportunities regarding food sovereignty, increased input into the lease approval process, increased access to training and opportunities, and the diverse interests and goals of tribal governments and Alaska Native Corporations.⁴²

Additional challenges and barriers to expanded mariculture production in Alaska include permitting administrative burden as well as lack of and distance to processing facilities and markets. Social license for mariculture is often tied to scale, with larger operations facing different challenges and opportunities than smaller farms. Partnerships to build community support and foster access to labor, infrastructure, funding, and other resources have been recommended to bolster Alaska's small but growing aquaculture industry.⁴³ The existing seafood infrastructure, workforce, markets, and Alaska Seafood brand can all be utilized to further develop the mariculture industry.

Conclusion

Alaska's agriculture industry is valued at \$40M, including food and fiber.⁴⁴ However, with continued investment in production infrastructure and targeted awareness campaigns, this number could be much larger. It is estimated that Alaskans send roughly \$2 billion out of state in food purchases yearly. Even 1% recapture of this would ensure \$10 million more dollars would circulate around the state and support local producers.

State and federal programs have aided new and existing growers and it is critical this support continues to harness the momentum of new soil and hydroponic farmers. If the State seriously considers industry investment for the long term, a model already exists—seafood. Alaska is a global leader in fisheries management and ASMI played a critical role in turning Alaska seafood into a globally respected brand. Support for new crop research should also be supported, as demonstrated by the success story of launching the peony industry. Peony cultivation was researched by a team at UAF under a USDA Specialty Crop Block Grant, and it was determined that Alaska's climate is ideal for growing this flower to market at a seasonal time when they do not bloom anywhere else in the world en masse.

Additionally, Alaska has the opportunity to learn from other farm hubs that have been producing for decades or centuries and are now experiencing environmental hardships from overuse—water shortages, pest and weed control resistance, and topsoil and nutrient loss. Alaskans are already doing things differently, such as *not* prophylactically spraying seed potato fields with herbicide—making the state an attractive candidate for seed potato export.⁴⁵

While existing production levels are not yet at a level adequate for export, extended growing seasons, climate-controlled growing, investment in storage and processing infrastructure, and sustained marketing investments (similar to ASMI) may make agricultural export an attractive opportunity in the next decade or so. This is especially true of more niche products amenable to the changing northern climates.

Image: Alaska Department
of Fish and Game



Production Summary

STRENGTHS:

- Strong USDA grant support and participation in the EQIP high tunnel programs
- There is USDA financial and technical support available for agricultural producers, tribes, and tribal conservation districts.
- The State Plant Materials Center is able to develop, test, and grow seeds for varieties that will be successful in Alaska.
- The University of Alaska system has experimental farms that can be used for education and research.
- No permits or certifications are required for farmers to sell raw, whole produce, reducing barriers to market entry.
- Alaskans harvest an average of 295 pounds of wild foods every year.
- Poultry is fairly easy to raise and sell commercially.
- The Alaska Mariculture Task Force, formed in 2016 by an executive order from Alaska's Governor, laid out a comprehensive Mariculture Development Plan to accelerate the development of a \$100 million industry by 2040. These efforts have increased awareness and confidence in private sector investment, helping to produce an exponential increase in both the number and size (acres) of new aquatic farm lease applications, especially for seaweed.
- Resources abound in Alaska for gardener training.
- Vertical Harvest Hydroponics (VHH), operating since 2014, develops and sells turnkey systems designed for remote Arctic conditions.
- Quality and year-round access are benefits of hydroponics in Alaska. Produce is harvested at its peak and can get to consumers within hours rather than days or weeks.
- Alaska's regulatory structure and available coastline and ocean are broadly seen as advantageous for mariculture. This is particularly true when compared to competing regions in North America such as California, British Columbia, or the Northeast, where restrictive regulatory structures and competing coastal uses are barriers to development.⁴⁶
- Since our local food supply chains are short—most farms are small-scale, do not sell in large, bulk quantities, and often sell direct to consumers—local food is the freshest and healthiest by far.

WEAKNESSES:

- To sell direct-to-consumer, farmers and ranchers can only sell a whole or half animal. For any portions smaller or to sell packaged, processed portions, the animal must be slaughtered in a USDA-certified facility.
- There are extremely limited meat packaging facilities throughout Alaska.
 - There are just 3 facilities in the state.
 - The lack of USDA-certified slaughter facilities makes it difficult for producers to sell meat to the general public.
- Imported feed is expensive so access to hay, hay land, and grazing land is vital. Hay is often grown far from the animals that would consume the product—for example, hay is grown in the Mat-Su Valley but needed in the Kenai Peninsula.
- The pasteurization process is expensive, cumbersome, and prohibitive for small-scale dairy producers.
- Equitable access to gardener training is not always available. Some training and courses are not financially accessible, and because of the diversity of growing conditions across the state, local knowledge and local trainers are critical to sustained success.
- Alaska's current seaweed farming costs are roughly \$4,400 per dry metric ton—a price that can be supported only by the "whole" foods market.⁴⁷
- Market demand for most seaweed products is currently limited. Most industry participants are counting on considerable growth in demand for existing products as well as the emergence of additional viable seaweed markets.
- The state infrastructure for support to farmers is lacking. The Division of Agriculture is small and limited. Cooperative Extension through the University also has limited capacity with less than six full time agriculture extension agents for the whole state.



Production Summary

OPPORTUNITIES:

- The pathway to a scaled industry in Alaska will benefit from a mix of public and private investment in the near-term. Growth may hinge on investment from one or more innovative industrial manufacturers who can act as “anchor” customers or partners and help scale demand.
- House Bill 415, relating to the Alaska Food Freedom Act would allow producers to “sell homemade food products and encourage the expansion of homemade food sales at farmers markets, agricultural fairs, ranches, farms, and producers’ homes by providing Alaskan citizens with unimpeded access to healthy food from Alaska.”
 - HB 415 went to Resources and Finance Committees as of April 2022.
- 95% of our purchased food is imported, creating vast opportunities for in-state market expansion.
- There are very limited slaughter options for farmers to resale smaller quantities of meat, with government support more USDA-certified slaughterhouses could come online.
- Our state agriculture leases and grazing leases can serve as a guarantee of food production; a sort of cache of food on the hoof or being grown yearly. With strategic planning and specific growing requirements, such leases could be regional food reserves.
- The University could expand vocational and technical training as well as research regarding best management practices for our climate, soils and the various plant varieties.
- Demand for mariculture training has been high. In 2020 and 2021, Alaska Fisheries Development Foundation, Alaska Sea Grant, and other partners held several mariculture training webinars and workshops; 485 Alaskans applied and demand exceeded capacity, indicating that interest in new lease applications will continue.
- Social license for mariculture is often tied to scale, with larger operations facing different challenges and opportunities than smaller farms. Partnerships to build community support and foster access to labor, infrastructure, funding, and other resources have been recommended to bolster Alaska’s small but growing aquaculture industry.
- Hydroponic greens and herbs are particularly fragile and vulnerable to temperature extremes, such as being loaded into small aircraft for delivery to villages, so growing on-site both increases the quality of products available and reduces food waste.
- The list of genera currently grown or proposed in seaweed farms in Alaska—all brown kelps—is substantially different from the list of genera most frequently grown in the rest of the world. These differences create both challenges and opportunities for Alaska producers.⁴⁸
- With regard to mariculture, Alaska Natives have identified concerns and opportunities regarding food sovereignty, increased input into the lease approval process, increased access to training and opportunities, and the diverse interests and goals of tribal governments and Alaska Native Corporations.
- Additional seaweed opportunities in Alaska include emerging uses that respond to global challenges, such as protein-replacement and bioplastics, as well as “blue carbon.” Alaska is currently under consideration by a number of private firms and NGOs at the forefront of these emerging technologies and markets.
- There is high interest in seaweed’s role in solutions to major global challenges such as carbon sequestration, alternative proteins, and transitioning away from fossil fuels in packaging and energy.



Production Summary

CHALLENGES:

- Start-up challenges are prohibitive for farmers and include buying affordable land, getting the land cleared and prepared for agricultural use, and getting equipment and infrastructure shipped affordably to Alaska.
- Farmers report the top challenges for sustainability and growth are access to labor and labor costs, cold storage and other infrastructure, and access to capital.
- Marketing can also be a challenge for some, building relationships with customers and designing successful business plans. Successful farmers need to have all the skills from planning to growing through marketing and sales or they need to bring on others with those skills.
- Challenges and barriers to expanded mariculture production in Alaska include permitting, lack of and distance to processing facilities and markets, and social acceptance of mariculture.
- Indoor hydroponic systems require artificial lights and water pumps powered by electricity leading to high energy bills. In locations where renewable energy sources are limited, systems are powered by coal, diesel, or natural gas.
- Leafy greens and herbs are flavorful and nutritious, but they cannot meet the caloric needs of a community.
- Hydroponic systems can be operationally complex and require monitoring, so training and technical support is crucial.
- Controlled growing environments often command high start-up and energy costs and offer limited crop variety.
- Infrastructure and logistics will be a significant (and familiar) challenge for the Alaska seaweed industry. Cost structures and distance from markets limit current opportunities but may be offset by technological innovation, coordination among growers, and other opportunities to share costs and pool resources.
- Regulatory structures in Alaska offer some competitive advantages and at least one disadvantage—a prohibition on strain selection.
- One important negative attribute of Alaska's current permitting seaweed mariculture regime is the prohibition on strain selection and breeding of seaweed stocks. Unlike in agriculture, where plant breeding has been essential to meeting global food demands, Alaska growers are required to use wild seed that mimics the biodiversity surrounding each farm site. Numerous interviewees cited this as a significant barrier to investment in Alaska and a barrier not present in most competing regions.

Production Summary

INFRASTRUCTURE NEEDS

- Cold storage and other storage infrastructure
- Distributed micro-processing equipment, such as milk batch pasteurizers and flash freezers
- Expanded access to capital
- Regional seaweed processing facilities and refinement of processing methods
- Assistance with getting equipment and infrastructure shipped affordably to Alaska
- Expansion of the USDA EQIP program that subsidizes the cost of unheated greenhouses and high tunnels
- Expansion of the 2018 Farm Bill Microgrants program, administered by the Alaska Division of Agriculture
- Increased the number and location of USDA slaughterhouses
- Reliable funding for agriculture services, and a dedicated Food Security Department housed independently of DNR
- Guaranteed funding for a state dairy inspector

OVERVIEW OF SUPPORT ORGANIZATIONS AND AGENCIES

- Alaska Cold Climate Permaculture Institute
- Alaska Farm Bureau
- Alaska Farmland Trust
- Alaska Fisheries Development Foundation
- Alaska Food Policy Council
- Alaska Food Systems Network
- Alaska Mariculture Alliance
- Alaska Native Media Group
- Alaska Ocean Acidification Network
- Alaska Sea Grant
- Alaska Seeds of Change
- Alaska Shellfish Growers Association
- Alaska Division of Environmental Health
 - Alaska State Veterinarian
 - Food Safety & Sanitation Program
- Alaska Village Initiatives
- Calypso Farm
- Chugach Regional Resource Commission
- Gardens in the Arctic
- Intertribal Agriculture Council
- Master Gardener Network
- Native Village of Tyonek
- Plant Materials Center
- Soil and Water Conservation Districts
- Stickleback Farm
- Tribal Conservation Districts
- University of Alaska Fairbanks Cooperative Extension Services
- USDA
 - Farm Service Agency
 - National Resource Conservation Services
 - Sustainable Agriculture Education and Research
 - Federally Recognized Tribes Extension Program
- Vertical Harvest Hydroponics

- ¹ Homer Soil and Water Conservation District. (2018). *Growing local food: A survey of commercial producers on the Kenai Peninsula*. <http://www.homerswcd.org/user-files//GrowersSurveyReport-HSWCD-2018.pdf>
- ² Alaska facts on agriculture and natural resources. (n.d.). *Alaska Agriculture in the Classroom*. Retrieved August 2022 from https://www.akleg.gov/basis/get_documents.asp?session=30&docid=13946
- ³ Weiss, M. (2020, May 7). *A Burst of Homegrown Food, Farming in Alaska*. Food and Environment Reporting Network. <https://thefern.org/2020/05/a-burst-of-home-grown-food-farming-in-alaska/>
- ⁴ Alaska Department of Natural Resources. *Nenana-Totchaket Agricultural Project*. Retrieved September 2022 from <http://dnr.alaska.gov/ag/nentot/>
- ⁵ Peterson, V. (2022, June 29) *Alaska land sale kicks off the state's ambitious new agricultural project*. High Country News. <https://www.hcn.org/articles/north-agriculture-alaska-land-sale-kicks-off-the-states-ambitious-new-agriculture-project>
- ⁶ USDA. (2017). *Economic class of farms by market value of agricultural products sold and government payments: 2017 and 2012*. (2017). National Agricultural Statistics Service. https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1_Chapter_1_State_Level/Alaska/st02_1_0003_0003.pdf
- ⁷ USDA. (n.d.). *High tunnel system initiative*. Natural Resources Conservation Service, USDA. Retrieved August 2022 from <https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/programs/?cid=stelprdb1046250>
- ⁸ McDowell Group. (2017, February). *Current and Potential Economic Impacts of Locally-Grown Produce in Southeast Alaska*. <https://www.mcdowellgroup.net/wp-content/uploads/2017/09/local-produce-economic-impacts-final.pdf>
- ⁹ Homer Soil and Water Conservation District. (2018). *Buying local food: A survey of Southern Kenai Peninsula restaurants and institutions*. <http://www.homerswcd.org/user-files//BuyersSurveyReport-HSWCD-2018.pdf>
- ¹⁰ "Growing For Export"—Jodie Anderson, UAF Experiment Farm & Extension Center. Accelerate Alaska. February 2020. <https://www.youtube.com/watch?v=G8gQL5GFyIQ>
- ¹¹ Loring, P. & Gerlach, C. (2010). *Outpost gardening in Interior Alaska: Food system innovation and the Alaska Native gardens of the 1930s through the 1970s*. Ethnohistory, 57(2), 183-199. <https://doi.org/10.1215/00141801-2009-060>
- ¹² Alaska Food Policy Council. (n.d.). *Alaska food system network*. Retrieved August 2022 from <https://www.akfoodpolicycouncil.org/regional-food-system-participate>
- ¹³ Garden & Gather AK. (n.d.). Retrieved September 2022 from <https://www.gardenandgatherak.com/about>
- ¹⁴ Gardens in the Arctic. Retrieved August 2022 from <https://gardensintheartctic.com/>
- ¹⁵ Alaska Food Policy Council. (2021). *Stickelback Farm Staged for Success*. <https://www.akfoodpolicycouncil.org/blog/2021/11/9/stickelback-farm-staged-for-success>
- ¹⁶ Tyonek Grown. (n.d.). Retrieved September 2022 from <https://ttcd.org/programs/tyonek-grown-program/>.
- ¹⁷ Armstrong, M. (2015, January 28). *Aquaponics: A blast of green in midwinter*. Homer News. <https://www.homernews.com/news/aquaponics-a-blast-of-green-in-midwinter/>
- ¹⁸ VH Hydroponics. Retrieved August 2022 from <https://vhhydroponics.com/>
- ¹⁹ Natcher, D., Ingram, S., Solotiki, R., Burgess, C. Kulshreshtha, S., & Vold, L. (2021). *Assessing the constraints to the adoption of containerized agriculture in Northern Canada*. Frontiers in Sustainable Food Systems. <https://doi.org/10.3389/fsufs.2021.643366>.
- ²⁰ D'Oro, R. (2016, November 7). *Arctic farming: Town defies icy conditions with hydroponics*. (2016, November 7). AP News. <https://apnews.com/article/f6f99bbd3daa44c1b585d896f8e7cef6>
- ²¹ Udovichenko, A., Fleck, B.A., Weis, T., Zhong, L. (2021). *Framework for design and optimization of a retrofitted light industrial space with a renewable energy-assisted hydroponics facility in a rural Northern Canadian community*. Journal of Building Engineering, 37. <https://doi.org/10.1016/j.jobe.2021.102160>.
- ²² CityFarms Alaska. (n.d.). Retrieved August, 2022 from <https://www.cityfarmsalaska.com/>
- ²³ Anchorage Greens. (n.d.). Retrieved August, 2022 from <https://www.anchoragegreens.com/>
- ²⁴ Alaska Sprouts. (n.d.). Retrieved August, 2022 from <https://www.alaskasprouts.com/>
- ²⁵ Juneau Greens. (n.d.). Retrieved August, 2022 from <http://www.juneaugreens.com/>
- ²⁶ Alaska Seeds of Change. (n.d.) <https://alaskabehavioralhealth.org/what-we-do/vocational-services/alaska-seeds-of-change/>
- ²⁷ Alutiiq Grown. (n.d.). Retrieved August, 2022 from <https://www.alutiiqgrown.com/>
- ²⁸ USDA Food Safety and Inspection Service. (2010). *Poultry exemptions under the Federal Poultry Products Inspection Act* [FSIS-GD-2010-0006]. <https://dec.alaska.gov/media/9915/resources-food-guide-mobile-slaughter-poultry-exemptions.pdf>
- ²⁹ USDA. (2018, May 24). *FSIS guideline for determining whether a livestock slaughter or processing firm is exempt from inspection requirements of the Federal Meat Inspection Act*. Food Safety and Inspection Service. <https://www.fsis.usda.gov/sites/default/files/import/Compliance-Guideline-Livestock-Exemptions.pdf>
- ³⁰ Alaska Department of Natural Resources. (n.d.). *DNR permits, leases and authorizations*. Retrieved August 2022 from <http://dnr.alaska.gov/commis/pic/permits.htm>
- ³¹ Governor Dunleavy introduces HB 415 relating to the Alaska Food Freedom Act. (2022, April 7). Office of Governor Mike Dunleavy. <https://gov.alaska.gov/newsroom/2022/04/07/governor-dunleavy-introduces-hb-415-relating-to-the-alaska-food-freedom-act>
- ³² Tarnai, N. (2013, March 12). *Northern Lights Dairy is a return to milk producers long gone*. University of Alaska Fairbanks. <https://news.uaf.edu/northern-lights-dairy-is-a-return-to-milk-producers-long-gone/>

- ³³ Cooperative Extension Service. (n.d.). *Fairbanks Test Kitchen*. University of Alaska Fairbanks. Retrieved September 2022 from <https://www.uaf.edu/ces/foodhealth/testkitchen/>
- ³⁴ Center for Disease Control. *Raw Milk Q&A*. Accessed August 2022. <https://www.cdc.gov/foodsafety/rawmilk/raw-milk-questions-and-answers.html>
- ³⁵ Michelle Morris, ADF&G, personal communication, August 2, 2022.
- ³⁶ Pring-Ham, C. (2020, January 23-25). *Alaska Department of Fish and Game aquatic farming permitted operations status report* [Conference presentation]. Alaska Shellfish Growers Association Conference, Ketchikan, AK. https://www.adfg.alaska.gov/static/fishing/PDFs/aquaticfarming/2020_af_permitted_op_status_report.pdf
- ³⁷ State of Alaska. (n.d.). *Aquatic farming FAQ*. Alaska Department of Fish and Game. Accessed September 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=fishingaquaticfarming.mariculturefaq>
- ³⁸ Alaska Mariculture Task Force. (2021, May). *Final report to Governor Dunleavy*. <https://www.afdf.org/wp-content/uploads/Mariculture-Task-Force-Report-to-Gov-Final-compressed.pdf>
- ³⁹ State of Alaska. (n.d.). *Aquatic farming operation details*. Alaska Department of Fish and Game. Accessed September 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=fishingaquaticfarming.aquaticfarminfo>
- ⁴⁰ Alaska Department of Fish and Game. (n.d.). *Aquatic farming FAQ*. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=fishingaquaticfarming.mariculturefaq>
- ⁴¹ McKinley Research Group, LLC. (2022, January). *Assessment of seaweed processing locations in Alaska*. Alaska Fisheries Development Foundation. <https://www.afdf.org/wp-content/uploads/Assessment-of-Alaska-Seaweed-Processing-Locations-FINAL-2022-01-26.pdf>
- ⁴² McKinley Research Group, LLC. (2022, January). *Assessment of seaweed processing locations in Alaska*. Alaska Fisheries Development Foundation. <https://www.afdf.org/wp-content/uploads/Assessment-of-Alaska-Seaweed-Processing-Locations-FINAL-2022-01-26.pdf>
- ⁴³ McKinley Research Group, LLC. (2022, January). *Assessment of seaweed processing locations in Alaska*. Alaska Fisheries Development Foundation. <https://www.afdf.org/wp-content/uploads/Assessment-of-Alaska-Seaweed-Processing-Locations-FINAL-2022-01-26.pdf>
- ⁴⁴ Alaska Agriculture Day Proclamation. May 2022. <https://gov.alaska.gov/newsroom/2022/05/03/agriculture-day-4/>
- ⁴⁵ “Growing For Export”—Jodie Anderson, UAF Experiment Farm & Extension Center. Accelerate Alaska. February 2020. <https://www.youtube.com/watch?v=G8gQL5GFyIQ>
- ⁴⁶ Alaska Mariculture Task Force. (2021, May). *Final report to Governor Dunleavy*. <https://www.afdf.org/wp-content/uploads/Mariculture-Task-Force-Report-to-Gov-Final-compressed.pdf>
- ⁴⁷ McKinley Research Group. (2021, August). *Alaska Seaweed Market Assessment*. <https://www.afdf.org/wp-content/uploads/Alaska-Seaweed-Market-Assessment-2021-08-FINAL.pdf>
- ⁴⁸ Alaska Mariculture Task Force. (2021, May). *Final report to Governor Dunleavy*. <https://www.afdf.org/wp-content/uploads/Mariculture-Task-Force-Report-to-Gov-Final-compressed.pdf>

A stylized illustration featuring dark blue mountain peaks against a lighter blue and yellow sky. In the center, a yellow sun or moon is partially obscured by a yellow leaf. Several smaller yellow circles are scattered around the central sun/moon. The word "Processing" is written in white, bold, sans-serif font at the bottom of the illustration.

Processing

Introduction

Processing and storage needs and techniques vary greatly across Alaska. Personal processing starts at harvest and varies considerably depending on the region of Alaska and types of storage options available. Because of the vast difference in climates and infrastructure options throughout the state, a range of techniques are used. Alaskans with options for more affordable power and fuel sources often have access to reliable freezers and refrigeration options for extended storage.

In other parts of the state, often more rural areas, drying, smoking, canning, and storage in root and ice cellars is more common. Ice cellars, also known by the Iñupiat word *SIGIUAQ*, offer convenience, ample space, and an economical method for refrigeration. As a result, they are in use in the communities of Nuiqsut, Kivalina, Point Hope, Point Lay, Barrow, Wainwright, and Kaktovik. However, across the North Slope, people are documenting problems with preservation and storage of subsistence foods in these cellars.¹ Climate change is accelerating changes in permafrost and ice that insulates these cellars, which raises concerns about increased vulnerability to foodborne illnesses.² Losing this long-standing practice is not only a cultural loss but contributes to a rise in food insecurity in many of these communities.³

Alaska is a unique place where many people process foods that are both grown and harvested. Alaska is the only state where the federal government manages public lands and waters—about 230 million acres, or 60% of the land in the state—or subsistence. Alaska's rural residents each harvest an average of 295 pounds of wild foods every year, or about 18,000 tons, with fish making up about 56% of those harvests, according to the Federal Subsistence Management Program,⁴ which is responsible for balancing harvest with healthy wildlife populations.⁵

Farmed foods play an important role in food security as farming continues to grow in the state. Direct sales in Alaska from the farm direct to the consumer totaled \$2.2 million in 2012, with 241 farms participating in direct sales. This is a 62% increase in the number of farms (149 in 2007) selling direct, and a 32% increase in direct sales over 2007 sales of \$1.7 million. These direct sales amounted to 3.8% of farm product sales, nearly 13 times the national average of 0.3%. This means Alaska's distance from the Lower 48 fosters a sense of independence: if direct food sales made up a single commodity, the value of these sales would just about equal the value of the state's fifth-most important product, potatoes.⁶

Fruit and Vegetable Processing

Fruits and vegetables are grown and harvested for both personal use and retail sale in Alaska. Personal users include people with gardens who are growing for non-resale uses and people who are harvesting wild foods. There are a wide range of resources available for individuals processing foods for their personal consumption. The Cooperative Extension Service (CES) through the University of Alaska Fairbanks is a state-funded program that offers a wide range of resources including publications, videos, and access to experts

through their field offices, website, and outreach events. They cover a range of topics including but not limited to food preservation safety, getting started with processing, home canning, freezing, jams and jellies, and drying.⁷

Farmers selling to individuals, restaurants and retail businesses are required to meet certain state and federal guidelines to meet food safety and handling guidelines. However farmers selling unprocessed produce are not required to hold a permit. An example would be a farm that sells and/or packages vegetables and fruits “raw, whole, and offered in their natural parts, or separating greens from roots”. Farmers can sell directly to restaurants or any other venues if the food is not processed. However buyers may require a certain level of third party verification to ensure best practices are being followed, such as the USDA's Good Agricultural Practices (GAP) audit.⁸

A Food Processing Permit is required from the Alaska Department of Environmental Conservation (DEC) if the vegetables and fruits are “process(ed) and alter(ed), with or without washing or other treatment, prior to being packaged for use by a consumer or restaurant.” Processing and altering includes: peeling, slicing, chopping, shredding, coring, or trimming. Examples: shucked peas, sliced tomatoes, peeled carrots, shredded lettuce and cabbage, and broccoli and cauliflower florets. Additionally, local municipalities and governments throughout Alaska have additional requirements to sell products within their boundaries.

Some successful Alaskan businesses that are selling processed Alaska produce include Bambino's Baby Food, Heather's Choice, Elevated Oats, and Kat's Epic Trail Bites.

Seafood Processing

Seafood plays a pivotal role in the food security of many Alaskans. Anadromous fish like salmon are important to many inland communities as well as coastal communities, and many coastal communities also rely on species such as halibut, crab, shellfish, seaweed, herring and other forage fish, and more. There are different regulations and seasons for when and how species can be harvested. Understanding regulations and land use restrictions can be challenging. The University of Alaska Fairbanks offers resources through the CES to teach people about processing the seafood they catch and how to store it for winter properly. Many people also learn traditional harvest and preservation practices from family members, friends, and community members. While educational resources are available for anyone to learn about seafood processing, risks do exist pertaining to botulism and reduced oxygen packaging. Risks like these make adequate funding for public education and skill training all the more critical.¹⁰

Commercial fisheries are also important access points for many subsistence communities as well. The Alaska Department of Fish & Game Subsistence Division has published research that shows that households with the resources to harvest wild foods share wild foods with low-producing households. Division studies have documented this specialization in subsistence harvests, at least in households that characterize themselves as Alaska Native.

It has been referred to as the “30-70 rule” -30% of the households in a community often produce 70% of the community's harvest in terms of usable pounds of subsistence foods. The high-producing households are usually households with large, mature labor forces fully equipped for hunting and fishing and with higher incomes. The extra subsistence foods they produce are usually shared with the elderly, single mothers with young dependent children, and young single persons or young couples who are just getting started.¹¹

Additionally, “sharing subsistence-caught fish and wildlife is a fundamental characteristic of communities that follow a subsistence way of life, and this system of sharing is protected under Alaska state law.” 83% of rural Alaskan households harvest fish, while 95% of households use subsistence-caught fish.

Applications to the Alaska Department of Natural Resources food security grants have demonstrated a consistent expressed need for freezer space to store fish harvested for subsistence and personal use in order to support food security. Community-run cold storage could provide benefits across sectors of food producers. Community-run smokers and canners could provide the security of shelf-stable products for seafood harvesters. Additionally, flake ice machines accessible to the public to keep catch cold would aid in preserving seafood, reducing bacterial breakdown and histamine development which results in fish waste. Currently, these assets are owned by private processing businesses and are generally inaccessible to the

public, or at a cost that can be exclusive. Many coastal communities have seafood processors that are locally owned and operated, which often offer small-batch custom processing that is important for commercial, subsistence, personal use, and recreational fishers alike.

In 2019, more than 62,200 workers were directly employed in Alaska's seafood industry, earning \$1.75 billion in total labor income. An estimated 37,400 full-time equivalent jobs were supported in the state with wages of \$2.2 billion, including multiplier impacts that result from the industry circulating money in Alaska's economy. Alaska commercial fisheries employed just over 31,000 fishermen with total labor income of just over \$1.0 billion. Seafood processors employed 27,000 workers in 2019. The industry includes 8,900 fishing vessels, 160 shorebased plants, 52 catcher-processor vessels, and about 30 floating processors, among other participants. The seafood industry contributed \$5.7 billion in economic output to Alaska's economy in 2019. This measurement includes all the economic activity supported by harvesting, processing, and support sectors.¹²

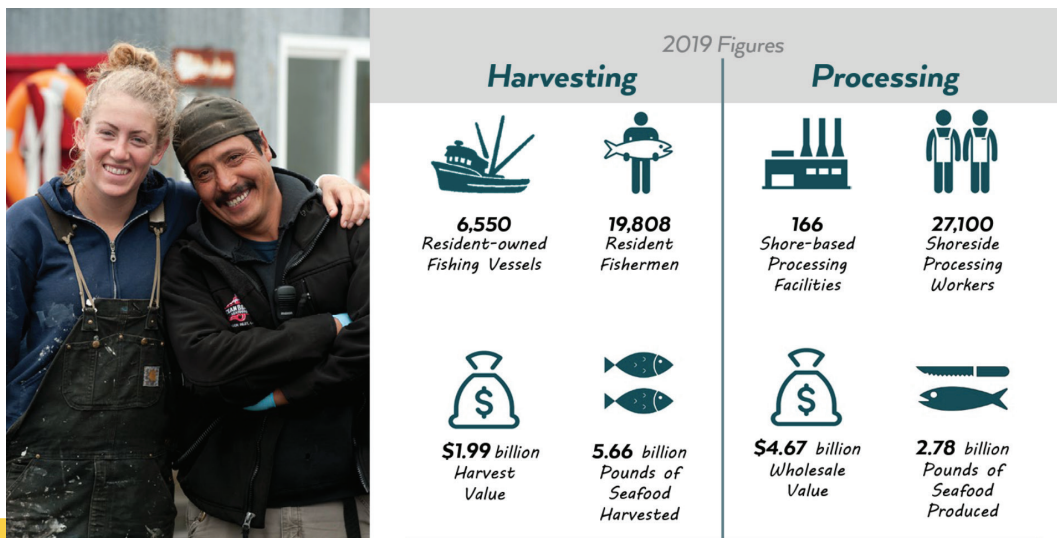


Image: The economic value of Alaska's seafood industry, McKinley Research Group, January 2022

Alaska's largest seafood processing companies are:

- Trident Seafoods—Washington
- UniSea—Washington
- Icicle Seafoods—Washington
- Westward Seafoods—Washington
- Peter Pan Seafoods—Alaska
- Ocean Beauty Seafoods—Washington
- North Pacific Seafoods—Washington

Meat Processing

There are many regulations surrounding the handling and processing of terrestrial meat in Alaska. Farmed or ranched meat may not be sold directly from a farm to restaurants without going through a USDA-inspected slaughter facility. USDA classifies animals into two groups for inspection purposes: mandatory and voluntary. For animals that fall under the mandatory category, USDA must inspect these animals if they go through a USDA inspected facility for no additional cost to the producer. Examples include cattle, sheep, swine, goats, rhea, ostrich, and emu. For animals that fall under the voluntary category, USDA is not mandated to inspect these animals. If an animal that falls under the voluntary category is slaughtered in a USDA inspected facility, the producer must pay an additional fee for the USDA inspection of that animal. Examples include deer, elk, bison, buffalo, antelope, and rabbit.



Image: Blood Sweat Food Farm, Courtesy of the Alaska Food Hub



The mandatory versus voluntary inspection lists were determined by the industry needs at the time. Regardless of category, all red meat animals must go through a USDA-inspected slaughter facility in order to be sold to restaurants. Reindeer meat is an exception to this rule, if the restaurant owner purchases reindeer meat from a retail meat market that is processed according to 18 Alaska Administrative Code (AAC) 31.820.¹³ Meat processing facility demand currently outpaces supply, and these demands are expected to substantially increase in the near future, with calls for increased animal husbandry. The need for processing equipment is expected to rise and could present an opportunity for future investment for communities.¹⁴

Dairy milk sold commercially must be Grade A and pasteurized. There are extremely limited dairy processing facilities remaining in Alaska. The Alaska Range Dairy, based in Fairbanks is the only FDA-certified Grade A dairy in the Interior. The Kodiak Baptist Mission's Heritage Farm and Ranch Dairy is the only Grade A Goat Dairy in the state of Alaska. All other local milk is obtained through small herd shares organized directly with the farmer. (Note: See "[Production](#)" for more on Alaska dairy.)

Meat: Poultry

Poultry processing regulations are less restrictive than red meat. Poultry in general must go through a USDA inspected slaughter facility in order to be sold to restaurants. There are exemptions from the USDA general rule for poultry (9 CFR 381.175). Farm gate producers may slaughter and distribute poultry produced on the farm directly to household consumers if no more than 1,000 are slaughtered per year.

A producer can make direct sales from the farm to households, hotels, and restaurants for the preparation of meals sold directly to customers if a producer slaughters less than 20,000 poultry during a calendar year, does not buy or sell poultry products other than those produced on the farm, properly labels and only sells within Alaska. In Alaska, this exemption only applies to dressed poultry sold directly to a food service, such as a restaurant. The slaughter and processing at the producer/grower or other person's facility must have been conducted in a manner that results in the preparation of poultry products that are wholesome, sound, clean, and fit for human food.¹⁵

In 2022 Governor Dunleavy introduced House Bill 415, relating to the Alaska Food Freedom Act. This bill would allow producers to "sell homemade food products and encourage the expansion of homemade food sales at farmers markets, agricultural fairs, ranches, farms, and producers' homes by providing Alaskan citizens with unimpeded access to healthy food from Alaska. ... If enacted, the Alaska Food Freedom Act will stimulate the growth of cottage industries, promote food security for all Alaskans, and allow the development of an authentic 'farm to table' marketplace."¹⁶ (Note: See the [Food Freedom & Cottage Food appendix](#).)

The DEC requires eggs used in a restaurant to be clean and labeled, per 18 AAC 31.200. Eggs can be sold directly to restaurants but they must be from an approved source. According to regulations, eggs must be clean and sound, may not exceed the restricted egg tolerances for the United States consumer Grade



Images: Blood Sweat Food Farm, Courtesy of the Alaska Food Hub

B as specified in 7 C.F.R. Part 56 and 9 C.F.R. Part 590, adopted by reference in 18 AAC 31.01, and, if in a carton, be in good condition, be in a package that protects integrity of contents to protect from adulteration or potential contaminants, and be labeled in accordance with requirements specified in 18 AAC 31.060 (Alaska Food Code) and Shell Egg Regulations (DNR), including safe handling instructions for eggs that have not been specifically treated to destroy all viable *Salmonellae*.¹⁷ UAF's Cooperative Extension Services provides resources for smaller producers, to encourage safe handling.¹⁸ Funding for public outreach and continued education could spur even more growth in poultry and egg production, in-state.

Meat: Subsistence and Personal Use

Subsistence hunting occurs throughout Alaska all year long and is central to the customs and traditions of many cultural groups in the state. For most rural Alaska residents, subsistence hunting is critical to their nutrition, food security, and economic stability. In many rural areas, subsistence hunting, similarly to subsistence fishing, is considered as a part of normal routine of work. Depending on the community and area, moose, caribou, deer, bears, Dall sheep, mountain goats, and beavers are commonly used land mammals. Seals, sea lions, walruses, and whales make up the marine mammal harvest.¹⁹

NUTRITIONAL VALUE OF ALASKA'S BIG GAME:²⁰

Species	Protein %	Fat %	Cholesterol (mg/100g*)	Calories (Kcal/100g*)
Bear (Black)	20.1	8.3	**	163
Beef (lean ground)	17.7	20.7	75	264
Beef (USDA Choice)	22.0	6.5	72	180
Buffalo	21.7	1.9	62	138
Caribou	22.6	3.4	67	127
Chicken	23.6	0.7	62	135
Deer (Mule)	23.7	1.3	107	145
Deer (Sitka)	21.5	2.7	18	117
Elk	22.8	0.9	67	137
Goose (Canada)	22.8	7.1	84	161
Grouse (Sharptail)	23.8	0.7	105	142
Mallard	23.1	2.0	140	152
Moose	22.1	0.5	71	130
Ptarmigan	24.8	2.3	20	128
Rabbit	21.8	2.3	81	114
Wigeon	22.6	2.1	131	153
* 100 grams = 3½ ounces ** Not available				

Alaska has strict rules about game meat both before and after it has been processed. It is illegal to buy, sell or barter game meat. Unprocessed meat and other game parts may be transferred to others permanently (given as a gift) or may be transferred temporarily for the purpose of transport. However, two requirements apply. First, any meat that is given away must be in the same or better condition as meat you would keep for yourself. Second, after an animal has been killed, it is the hunter's responsibility to salvage all of the edible meat, in accordance with the Alaska regulations. The harvester must salvage all of the edible meat for all big game animals except brown/grizzly bear, wolf and wolverine.

If no attempt is made to salvage meat, fines range from \$2,000 and seven days in jail to one year in jail and \$10,000 in fines. Alaska regulations state that the horn, hide, or antlers may be taken out of the field only after the meat is packed out.²¹ (Note: For more on subsistence hunting, please see the “Subsistence & Wild Foods” section.)

Plant Mariculture

The processing and marketing of aquatic farm products, particularly seaweed, is an industry challenge. To date, most shellfish producers in Alaska have processed and marketed their harvests as individual farms or in small co-ops. Seaweed is a DEC-regulated product when processed beyond trimming and interstate trade requires FDA approval.²² Seaweed producers are currently oriented around small volumes processed into specialty food products, though multiple operations are presently moving toward larger scales. With increased interest and investment in growing the mariculture sector, the state currently lacks sufficient processing capacity, creating an increasing bottleneck to industry growth.²³

Approaches to address the insufficient processing capacity vary across the state and among different producers and producer groups. In Southeast Alaska, Southeast Conference is creating a blueprint for a mariculture processing facility on Prince of Wales Island with the help of a \$500,000 investment from the USDA awarded in 2021.²⁴ The proposed co-op facility will support diverse aquatic farming, and members will be able to handle, store, freeze, pack, process, label and load their harvest safely and cost-effectively.²⁵

On Kodiak, most seaweed production and processing has been under the initiative of one company, Blue Evolution, which has vertically integrated farming, processing and the manufacture of value-added food products. In Prince William Sound, kelp farming is in the start-up phase, and several small-scale producers are testing different processing methods to match emerging markets. In Kachemak Bay, experiments are underway to test solar and other energy efficient methods of drying kelp as part of a proof-of-concept model for coastal Alaska, in part funded by a two-year NOAA Saltonstall-Kennedy grant.

Statewide efforts include work by Alaska Sea Grant which is currently investigating how to better preserve kelp to make commercial ready-to-eat products, using a technology called high-pressure processing which eliminates pathogens, like E. coli, and preserves food for longer.²⁶ Alaska Sea Grant also offered the state's first ever seaweed processing workshop to current seaweed producers in April, 2022.



Image: Alaska Sea Grant



A recent report produced for the Alaska Fisheries Development Foundation assessed potential seaweed processing locations in Alaska and identified variables that will influence establishment, including: seaweed supply, operating costs, energy cost and sustainability, water and sewer cost, labor, local property taxes, and shipping cost and schedule.²⁷ This report includes a regional analysis of Alaska's four main seaweed farming regions, followed by an analysis of six communities located within these regions.

A move to a larger, more efficient scale of processing may be necessary to make seaweed production profitable, and it will likely require the presence of either a major buyer or a major industrial processor in the state. The state's vast geographic scale means that limited transportation infrastructure, processing infrastructure, and human capital can pose challenges to development and render it a high-cost jurisdiction for processing and manufacturing relative to other seaweed-producing regions of the world.²⁸

A number of private and NGO entities are currently interested in investing or partnering in mariculture production and processing in Alaska. Similarly, two existing Alaska seafood companies have approved or pending seaweed farm applications with the State of Alaska. Alaska's seafood processing workforce, approximately 25,000 people annually, has been identified as a potential labor force for seaweed processing businesses.

Value-Added Products

Value-added products allow businesses and individuals the opportunity to expand the markets and offerings of Alaskan Grown products. Value added products are products that have changed the physical state or form of a product, such as milling wheat into flour or making strawberries into jam.²⁹

A wholesale food processor/manufacturer makes food and sells to other businesses for resale. This includes processing or manufacturing raw materials and other food ingredients into food items, reprocessing of food items, or packaging of food. Manufacturers in Alaska produce a wide variety of foods including but not limited to seafood, canned foods, dehydrated meals, snack foods, condiments, bread products, beverages, and candies.³⁰



Image: Pexel.com, Creative Commons

In Alaska, individuals and small businesses have seen expanded opportunities to make value-added products through changes in both state and municipal Cottage Food rules that have loosened restrictions and decreased permitting fees on cottage food producers. Alaska Food Code regulations allow the sale of foods directly to the consumer without a permit if certain conditions are met. Foods that qualify for Cottage Foods include baked goods, bottled or jarred jams, candies, confections, and fermented products. There are many foods considered "high risk" that do not qualify for sale under cottage food rules, including but not limited to meat and fish, dairy products, juices, and other products that require temperature control for safety (rather than quality). (Note: Please see the *Food Freedom & Cottage Food appendix*.)

While changes in cottage food regulations have helped to encourage expanded entrepreneurship within the state. There is an overall need for all types of processing equipment and space. While there is some commercial kitchen space available now, the current and future needs outweigh available and expected supply.³¹ Rentable and shared facilities such as the UAF Test Kitchen in Fairbanks often host equipment and space that is too expensive or otherwise impractical for a single food entrepreneur to invest in, such as a batch milk pasteurizer, convection oven, or large-scale packaging equipment.³²

For larger companies selling value added products, there are a number of preference programs and grants for utilizing Alaskan products and programs such as the Alaska Product Preference Program provide a small competitive advantage over items made outside of Alaska. There is a strong demand for value-added products for items such as flash frozen cut pieces of meat and fish, dehydrated fruits and vegetables, frozen pies, ready-made meals, and infused spirits, but increased access to processing and freezing infrastructure is required to support this demand.³³

Conclusion

Food processing infrastructure is the key for food entrepreneurs to scale. Food is one of the more common ways to start a business with relatively low barriers to entry. Cottage Food laws also provide a low-cost way to test market demand and preferences without investing in a commercial kitchen or expensive certifications. Food and beverage sales are a multi-trillion dollar market in the United States, and it seems there is no shortage of demand for locally made products in Alaska as demonstrated by the increase in farmers markets and previously mentioned increase in direct-to-market sales by farmers. Companies like Barnacle Foods and Heather's Choice are choosing to stay in Alaska for the unique "Alaska factor" for their brands, even though it would likely be more affordable to run consumer packaged goods companies almost anywhere else in the nation, considering Alaska's high cost of living, small labor pool, and distance from an extended market. The State should make every effort to keep these kinds of companies here and facilitate the launch of subsequent brands that leverage the Last Frontier's distinctiveness.

For food entrepreneurs to scale they must be confident in their path forward to accurately assess financial risk and their capacity to meet demand. Ensuring access, both financial and physical, to licensed processing facilities or amending policy to increase processing capabilities for small producers may allow more entrepreneurs to test broader markets and scale. Of course, food safety is of the utmost concern and decreasing regulation could lead to food safety crises and an increase in liability insurance costs as more risk is passed on to the consumer.

Investing in processing is not only a sound way to encourage economic development through entrepreneurship but also a way to increase distributed food security at the community level. Processing tools are an effective resource for communities to extend a harvest. Even something as simple as a root cellar will protect and preserve root crops well into the next growing season as demonstrated by farms like Singing Nettle in Palmer and Meyers Farm in Bethel. Shared meat lockers and seafood freezers, drying rooms, milk pasteurizers, canning equipment, and more can decrease the stress of delayed food shipments in the case of extreme weather events, which can delay food shipments to rural Alaska for weeks.



Processing Summary

STRENGTHS:

- Alaska is a unique place where many people process foods that are both grown and harvested.
- Alaska's rural residents each harvest an average of 295 pounds of wild foods every year, or about 18,000 tons, with fish making up about 56 percent of those harvests.
- Farming interest and growth continue to increase; there was a 62% increase of the number of farms (149 in 2007) selling direct and a 32% increase in direct sales over 2007 sales of \$1.7 million. These direct sales amounted to 3.8% of farm product sales, nearly 13 times the national average of 0.3%.
- There is a wide range of resources available for individuals processing foods for their personal consumption.
- Farmers can sell directly to restaurants or any other venues if the food is not processed.
- USDA micro food security grants are helping to fill gaps for individual food security needs.
- Eggs can be sold directly to restaurants as long as they are from an approved source and in accordance with 18 AAC 31.200.
- In Alaska, individuals and small businesses have seen expanded opportunities to make value-added products through changes in both state and municipal Cottage Food rules that have loosened restrictions and permitting fees on cottage food producers.

WEAKNESSES:

- There is an overwhelming need for freezer space to store subsistence fish. A 25-fish salmon limit takes a full chest freezer in and of itself.
- The separation of commercial and subsistence is not straightforward to segment catch networks between the designations offered by the state. It is expensive to subsistence fish in the way it is done today, and roughly 70% of subsistence fish is caught by 30% of harvesters.
- There are extremely limited dairy processing facilities remaining in Alaska.

OPPORTUNITIES:

- Alaska's distance from the Lower 48 fosters a sense of independence.
- Community-run cold storage is essential across sectors. Community-run smokers and canners would be another great alternative (freezers are vulnerable and expensive) but likely less relevant to other food sectors like agriculture.
- Meat processing facility demand is currently outpacing supply, and these demands are expected to increase shortly.
- The need for processing equipment is expected to rise and could present an opportunity for future investment for the communities.
- Alaska Food Freedom Act would allow producers to "sell homemade food products and encourage the expansion of homemade food sales at farmers' markets, agricultural fairs, ranches, farms, and producers' homes by providing Alaskan citizens with unimpeded access to healthy food from Alaska."
- Flake ice machines to keep catch cold are essential for preserving fish and reducing bacterial breakdown and histamine development which results in fish waste. Having those in communities too would be huge. Currently, they're owned by private processing businesses and generally inaccessible to the public. These could be piloted in a few communities where subsistence harvest is concentrated.

CHALLENGES:

- Climate change is causing concerns around increased vulnerability to foodborne illnesses and raising concerns about food security in many of these communities.
- Alaska Food Freedom Act may cause consumer confusion on whether or not a product is regulated; could cause more food safety issues
- Processing equipment is expensive and capital can be difficult to obtain.
- DEC Food safety program is under-funded.

Processing Summary

INFRASTRUCTURE NEEDS

- Community ice cellars
- Commercial kitchens and processing equipment
- Mobile slaughter units
- Mobile processors
- Brick and mortar processors
- Community storage spaces

OVERVIEW OF SUPPORT ORGANIZATIONS AND AGENCIES

- Alaska Manufacturing Extension Partnership (MEP)
- Cooperative Extension Service through the University of Alaska Fairbanks
- Department of Environmental Conservation (DEC)

- ¹ *Inupiat work to preserve food and tradition in Alaska's North Slope*. (2017, September). US Climate Resilience Toolkit. <https://toolkit.climate.gov/case-studies/i%C3%B1upiat-work-preserve-food-and-traditions-alaskas-north-slope>
- ² Center for Disease Control and Prevention. *Botulism—Alaska Native Foods*. Retrieved September 2022 from <https://www.cdc.gov/botulism/botulism-alaska-foods.html>
- ³ D'oro, R. (2019, November 25). *Failing ice cellars signal changes for Alaska whaling towns*. Phys. org. <https://phys.org/news/2019-11-alaska-native-ice-cellars-environmental.html>.
- ⁴ US Department of the Interior. (n.d.). *Federal Subsistence Management Program*. Retrieved August 2022 from <https://www.doi.gov/subsistence>
- ⁵ US Department of the Interior. (2021, August 17). *More than survival, the subsistence tradition sustains meaning for rural Alaska Natives and non-native residents alike*. Bureau of Land Management. <https://www.blm.gov/blog/2021-08-17/more-survival-subsistence-tradition-sustains-meaning-rural-alaska-natives-and-non>
- ⁶ Meter, K. & Phillips Goldenberg, M. (2014, July 28). *Building Food Security in Alaska*. Crossroads Resource Center. <https://www.crcworks.org/akfood.pdf>
- ⁷ Cooperative Extension Service. (n.d.). *Food Preservation*. University of Alaska Fairbanks. Retrieved August 2022 from <https://www.uaf.edu/ces/foodhealth/foodpreservation/index.php>
- ⁸ USDA. *Good Agricultural Practices (GAP) Audits*. Retrieved August 2022. <https://www.ams.usda.gov/services/auditing/gap-ghp>
- ⁹ State of Alaska. (2014, July). *Fact sheet: Farm to restaurant*. Alaska Department of Natural Resources, Division of Agriculture. <https://sitkalocalfoodsnetwork.files.wordpress.com/2009/10/farmtoresfact2014.pdf>
- ¹⁰ *Vacuum Sealing in Retail Food Establishments*. Alaska Department of Environmental Conservation. Food Safety and Sanitation. Retrieved September 2022 from <https://dec.alaska.gov/eh/fss/food/resources/vacuum-sealing-food/>
- ¹¹ State of Alaska. (n.d.). *Alaska's economies and subsistence*. Alaska Department of Fish and Game Division of Subsistence. Retrieved August 2022 from https://www.adfg.alaska.gov/static/home/library/pdfs/subsistence/ak_economies_subsistence.pdf
- ¹² McKinley Research Group, LLC. (2022, January). *The economic value of Alaska's seafood industry*. Alaska Seafood Marketing Institute. https://www.alaskaseafood.org/wp-content/uploads/MRG_ASMI-Economic-Impacts-Report_final.pdf
- ¹³ State of Alaska. (2014, July). *Fact sheet: Farm to restaurant*. Alaska Department of Natural Resources, Division of Agriculture. <https://sitkalocalfoodsnetwork.files.wordpress.com/2009/10/farmtoresfact2014.pdf>
- ¹⁴ Heuer, M. (2018, January). *Southcentral Alaska agriculture and food hub market analysis*. Spork Consulting. <https://static1.squarespace.com/static/584221c6725e25d0d2a19363/t/5c50e8efc2241b43a3d76210/1548806392272/Southcentral+Market+and+Food+Hub+Alalysis.pdf>
- ¹⁵ State of Alaska. (2014, July). *Fact sheet: Farm to restaurant*. Alaska Department of Natural Resources, Division of Agriculture. <https://sitkalocalfoodsnetwork.files.wordpress.com/2009/10/farmtoresfact2014.pdf>
- ¹⁶ *Governor Dunleavy introduces HB 415 relating to the Alaska Food Freedom Act*. (2022, April 7). Office of Governor Mike Dunleavy. <https://gov.alaska.gov/newsroom/2022/04/07/governor-dunleavy-introduces-hb-415-relating-to-the-alaska-food-freedom-act/>
- ¹⁷ *Small Entity Compliance Guide: Safe handling statements on labeling of shell eggs and the refrigeration of shell eggs held for retail distribution*. (2001, July). United States Food and Drug Administration. <https://www.fda.gov/regulatory-information/search-fda-guidance-documents/small-entity-compliance-guide-safe-handling-statements-labeling-shell-eggs-and-refrigeration-shell>
- ¹⁸ *Safe egg handling for small egg-laying flocks and operations*. (n.d.). UAF Cooperative Extension Services. Retrieved September 2022 from <https://cespubs.uaf.edu/publications/?cat=&s=flock>
- ¹⁹ State of Alaska. (n.d.). *Subsistence hunting in Alaska*. Alaska Department of Fish and Game. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=subsistence.hunting>
- ²⁰ State of Alaska. (n.d.). *Eating game meat*. Alaska Department of Fish and Game. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=hunting.eating>
- ²¹ State of Alaska. (n.d.). *Field-to-freezer meat care*. Alaska Department of Fish and Game. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=hunting.meatcare>
- ²² Good, M., C. Sannito, and L. Meyer, 2021. *Seaweed Handling and Processing Guidelines for Alaska*. Alaska Sea Grant, University of Alaska Fairbanks. Fairbanks, Alaska. <https://doi.org/10.4027/shpga.2021>
- ²³ Alaska Mariculture Task Force. (2021, May). *Final report to Governor Dunleavy*. <https://www.afdf.org/wp-content/uploads/Mariculture-Task-Force-Report-to-Gov-Final-compressed.pdf>
- ²⁴ *About us*. (n.d.). Southeast Conference. Retrieved August 2022 from <https://www.seconference.org/about-us/>
- ²⁵ Cappeto, J. (2022, January 13). *USDA invests \$500,000 to help increase mariculture processing capacity in Southeast Alaska* [Press release]. USDA. <https://www.rd.usda.gov/newsroom/news-release/usda-invests-500000-help-increase-mariculture-processing-capacity-southeast-alaska>
- ²⁶ Poux, S. (2021, November 12). *With new research, Alaska groups aim to turn mariculture into \$100 million industry*. Alaska Public Media. <https://alaskapublic.org/2021/11/12/with-new-research-alaska-groups-aim-to-turn-mariculture-into-100-million-industry/>
- ²⁷ McKinley Research Group, LLC. (2022, January). *Assessment of seaweed processing locations in Alaska*. Alaska Fisheries Development Foundation. <https://www.afdf.org/wp-content/uploads/Assessment-of-Alaska-Seaweed-Processing-Locations-FINAL-2022-01-26.pdf>
- ²⁸ McKinley Research Group. (2021, August). *Alaska Seaweed Market Assessment*. <https://www.afdf.org/wp-content/uploads/Alaska-Seaweed-Market-Assessment-2021-08-FINAL.pdf>
- ²⁹ *Value-added products*. (2020). University of Maryland Extension. <https://extension.umd.edu/programs/agriculture-food-systems/program-areas/farm-and-agribusiness-management/ag-marketing/value-added-products>
- ³⁰ State of Alaska. (n.d.). *Food processors*. Alaska Division of Environmental Health, Food Safety and Sanitation Program. Retrieved August 2022 from <https://dec.alaska.gov/eh/fss/food/processors/>
- ³¹ Heuer, M. (2018, January). *Southcentral Alaska agriculture and food hub market analysis*. Spork Consulting. <https://static1.squarespace.com/static/584221c6725e25d0d2a19363/t/5c50e8efc2241b43a3d76210/1548806392272/Southcentral+Market+and+Food+Hub+Alalysis.pdf>
- ³² Cooperative Extension Service. (n.d.). *Fairbanks Test Kitchen*. University of Alaska Fairbanks. Retrieved September 2022 from <https://www.uaf.edu/ces/foodhealth/testkitchen/>
- ³³ Meter, K. & Phillips Goldenberg, M. (2014, July 28). *Building food security in Alaska*. Crossroads Resource Center. <https://www.crcworks.org/akfood.pdf>



Distribution and Aggregation

Introduction

Distribution and aggregation in Alaska present a range of unique challenges, considerations, and opportunities. Alaskan communities face great geographical challenges, extreme weather, and limited infrastructure while often serving small populations that require multiple modes of transportation to connect food from the source to the endpoint. Distribution choke points and delays affect all areas of Alaska. Solutions are often expensive and will require infrastructure improvements and innovation to hub and regional distribution areas throughout Alaska.

Unknowns around existing infrastructure, such as changing funding to the state ferry system, airline sales and bankruptcy, contract negotiations for bypass mail, and health and climate-related road closures due to fires, landslides and unusual weather add additional uncertainty to existing distribution options. The majority of Alaskan communities have no contingency plans or options for alternative distribution and limited resources on-site for aggregating the needed resources for food security for their communities.

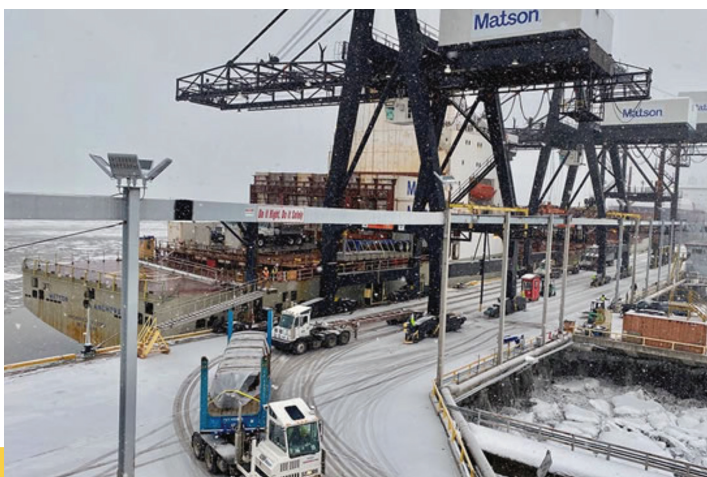


Image: Port of Alaska in Anchorage



Image: Alaska Air Taxi Bush Planes: Tok Air Service

Distribution in relation to food security is the act of getting food from where it is harvested, to where it is processed, to where it is consumed. This is the distribution supply chain we witnessed break down during the first year of the COVID-19 pandemic.¹ The more connections along that chain of distribution, the more fragile and less adaptive it is. The shortest connection is directly from farm to table, but since most of us aren't farmers, we have to consider supply and demand—where the supply of food comes from and how to get it to where the demand for it lies.

When it comes to supply, 95% of non-wild/subsistence foods are imported. Food coming from out of state is more prone to spoilage and contamination and has a longer time in transit, leading to uncertain conditions of goods upon arrival, especially perishables. Our shortest supply chains come from local producers sharing food with family and neighbors or selling direct to consumers at farmers markets, food hubs, CSAs, and informal networks.

When it comes to demand and getting available food to the locations that need it, it is critical to consider the vastness of physical space in Alaska. It is 665,400 square miles and only 18% of communities are accessible on the main road system.² Furthermore, the demand for culturally appropriate foods differs throughout the state as well as how the need for nutritious food is met in hard-to-reach places. Very little is simple when it comes to the distribution of food in Alaska.

Storage

Storage is the key for controlling, maintaining, and even increasing the supply of food in our state. For larger stores like Safeway, there is a central storage facility in Anchorage for shelf-stable goods that can be distributed throughout the state when needed. Temperature controlled trucks depart from the lower-48 states weekly, and deliver via the road system, often using heaters or refrigeration to maintain required food safe temperatures. Large retail stores have cold storage built into the building but also use the refrigerated trucks themselves as cold storage until the products are needed.³ Transportation and climate-controlled storage rely on fossil fuels, which fluctuate in cost and can be prohibitively expensive for some communities to invest in more consistent delivery and storage.

For local food producers however, things are even more challenging. In 2018, commercial vegetable producers on the Kenai Peninsula ranked storage as the primary obstacle to growth.⁴ Rather than only selling what they can harvest on the day of sale, refrigeration makes it possible for producers to increase the supply by storing produce for extended sales and bulk buyers like restaurants, hospitals, or grocery stores. For meat producers, cold storage can make the difference between having to sell a whole animal rather than selling value-added packaged meat with a higher margin, and in a manner that appeals to a wider customer base. Refrigeration also plays a part if the supply of food has grown beyond the demand, as crop gluts drive down unit price and cause consumer burnout. If meats and produce can be stored for sale and processing later, then a producer is more likely to risk planting and growing more, which not only increases supply to meet demand, it also encourages producers to create stores of product in times of food scarcity.

Off the road system, climate-controlled food storage is even more critical, not only for producers but for communities and individuals depending on the food coming in. Food that arrives via bypass mail often sits on tarmacs in extreme weather conditions. These elements accelerate the rate of decay and affect food packaging, and many of the items are destroyed due to weather. One store in Utqiagvik has waited as long as 57 days for a food shipment due to extreme weather.⁵ There is often inadequate or nonexistent storage for pallets of food waiting to be shipped out to smaller communities, except on the runway or in non-climate controlled storage areas. Developing reliable and affordable temperature-controlled heating and cooling units in hubs, distributed across the State will not only increase food security at the last mile but also significantly reduce food waste at its final destination.

Transportation

In Alaska, it can take two weeks before food shipments arrive. Natural disasters, weather interruptions, and mechanical failures all contribute to inconsistent food transportation.⁶ These short-term disruptions quickly empty store shelves, but food supplies generally recover within a week or two. COVID-19 is revealing larger structural weaknesses in the state's food system.

Transportation of goods is another barrier to growth of the agricultural sector in this state. The majority of Alaskan communities aren't connected by roads, making marine and air transportation the lifelines for community well-being. State budget cuts have significantly hindered the efficacy and reliability of the Marine Highway System, which many coastal communities depend on for deliveries of groceries and agricultural products.⁷ Recently RavnAir, one of the state's few rural airlines, grounded planes and declared bankruptcy in response to Covid-19 travel restrictions.^{8,9}



Image: Alaska Marine Highway—[Alaska.org](https://alaska.org)



Of course, size of producer and carriers is of consideration. Large buyers with consistent ordering potential rely on the consistent availability of product, both size and quantity, and consistent delivery.¹⁰ Smaller food chain entities can not compete with the economies of scale and efficiencies achieved by larger national and regional players such as Sysco and Food Service of America (FSA). These companies can afford the communications technology to ease ordering for buyers, build relationships and loyalty as they get to know their clients' preferences, and advise them on supply changes and sales. Local producers with limited capacity, seasonal production, and limited transport infrastructure often struggle to perform every role that exists within larger companies, making it very difficult to scale distribution or consider increasing production. However, this is not insurmountable. An example of partnerships developed to address the expense of transportation can be seen at Meyers Farm in Bethel where a collaboration between the Yukon-Kuskokwim Health Corporation and the Food Bank of Alaska pays for the shipping costs of Meyers' fresh food boxes to anywhere in the Y-K Delta, bringing the cost of the box down from \$55 to \$15.¹¹

Below are some of the top considerations for restaurants when sourcing food; note that delivery is the top factor.

Factors Commercial Buyers Consider When Purchasing Local



Image: *Buying Local Food*, Homer Soil & Water, 2018



Rural communities often receive products through bypass mail, via barge from the lower-48, often out of Tacoma, Washington, or through the Alaska Marine Highway System. All three options present challenges and often long delays. While the Alaska Marine Highway System has been plagued by inconsistent and unreliable state funding, the Bypass Mail system is a federal program that, while inefficient, is the only solution for many communities.

The Bypass Mail system is a program that allows shipments to bypass the post office and go straight to the carriers, who then deliver them to locations off the road system. Businesses pay approximately \$0.40

cents/pound for deliveries, which is almost half the cost of private freight shipment. The orders first go to carriers that fly between Anchorage and hub communities such as Bethel, Dillingham, and Kotzebue. If the mail is going to a smaller village, it is transferred to one of the Bush carriers—for example, Ryan Air or Grant Aviation—that fly smaller planes and are able to land their aircraft in villages.

As an example, Utqiagvik bypass mail is first trucked to Deadhorse, from where one of the mainline carriers, such as Northern Air Cargo, Lynden Air Cargo, Everts Air Cargo, or Alaska Air Cargo, fly it to the town. Each order must be 1,000 pounds minimum. The post office equally distributes the total bypass mail shipments between air carriers that fly to a destination. Long delays in shipments are common and can be caused by various reasons, including maintenance needs, personnel shortages, and supply chain issues. This winter, bad weather was the main factor delaying the shipments which resulted in orders arriving both weeks late and completely frozen or worse, having already gone through freeze/thaw cycles, which both renders the food inedible and is also a food safety risk.¹²

Food Hubs

In Alaska, most of our farms are considered small and medium-sized, and traditional transportation methods may not fit their needs. One option for supporting greater movement of local food products between regions is food hubs. A food hub is defined by the USDA, as “a centrally located facility with a business management structure facilitating the aggregation, storage, processing, distributions, and/or marketing of locally/regionally produced food products.”¹³ In addition to the services listed above, food hubs have the potential to serve a role in creating emergency food caches and distribution.

Food Hub popularity is gaining momentum in the state, with many communities determining the viability of creating their own place-based models and at least six food hubs serving Alaskan communities. (*Note: Alaskan food hubs are explored in greater detail in the “Access” section of this report.*) Some of these food hubs provide transportation—via vans, refrigerated trucks, ferries, and even planes—for small and medium-scale farmers, fishers, and value-added local food producers. Food hubs have the ability to bring local food to a regional scale. “Local food at scale is good for eaters, good for the environment and good for farmers. Win-win-win.”¹⁴ Melding small and large food distribution models is the concept of “Agriculture of the Middle,” defined by the non-profit EcoTrust as “a broad category of small and mid-sized farms and ranches that are larger than those selling via local farmers markets or CSAs, but smaller than those supplying globalized commodity markets, and who want to sell locally.”¹⁵

This scale of production has the potential to make a bigger impact on regional food systems by reaching more consumers than smaller, direct marketing options do, though those types of businesses are vital to a diverse and resilient local food system. One example of local food sourcing and distribution is Arctic Harvest Deliveries, which serves individuals and families, restaurants, institutions, and retail outlets statewide, utilizing online ordering and transportation planning software, and refrigerated box trucks. They source produce, meat, seafood, eggs, dairy, coffee, and other farm products year-round, from over 25 producers around the state, and offer a range of product sizes, from an à la carte farm box to whole animals.¹⁶ This is a model that could be expanded to all areas of the state, connecting food hubs and producers across regions.



Photo: Arctic Harvest Deliveries owner Kyla Byers, prepping Alaska Grown produce for delivery

Conclusion

Transportation, storage and supply chain infrastructure are the linchpins in our food chain, and these workers are often the unsung heroes in Alaska's food security. Alaska is no stranger to extreme weather, thus making unpredictability the only predictable factor in planning for food security. Weather delays are inevitable to rural communities, and increasingly common with climate change.¹⁷ Creating climate controlled infrastructure to maintain larger stores, distributed around the state in a hub-and-spoke model, will aid communities in overcoming food scarcity when the planes, ships, and trucks cannot travel.

¹ Helper, S. & Soltas, E. (2021, June 17). *Why the pandemic has disrupted supply chains*. The White House. <https://www.whitehouse.gov/cea/written-materials/2021/06/17/why-the-pandemic-has-disrupted-supply-chains/>

² State of Alaska. (n.d.). *Welcome to the Division of Statewide Aviation*. Alaska Department of Transportation and Public Facilities. Retrieved August 2022 from <https://dot.alaska.gov/stwdav/>

³ Homer Soil and Water Conservation District and Safeway staff. (January 2022). Personal communication during Lower Kenai Peninsula Community Asset Mapping Workshop—AFPC Regional Food System Partnership project

⁴ Homer Soil and Water Conservation District. (2018). *Growing local food: A survey of commercial producers on the Kenai Peninsula*. <http://www.homerswcd.org/user-files//GrowersSurveyReport-HSWCD-2018.pdf>

⁵ Naiden, A. (2022, February 25). *Utqiagvik store received bypass mail almost two months late after months of bad weather*. The Arctic Sounder. http://www.thearcticsounder.com/article/2208utqiagvik_store_received_bypass_mail_almost

⁶ Weiss, M. (2020, May 7). *A burst of homegrown food, farming in Alaska*. Food and Environment Reporting Network. <https://thefern.org/2020/05/a-burst-of-home-grown-food-farming-in-alaska/>

⁷ Duncan, I. (2020, February 24). *Alaska Marine Highway System budget cuts leave remote communities cut off*. *The Washington Post*. https://www.washingtonpost.com/local/trafficandcommuting/steep-budget-cuts-left-alaska-with-only-one-operating-mainline-ferry-then-it-broke-down/2020/02/23/56f7107e-4f4c-11ea-bf44-f5043eb3918a_story.html

⁸ Williams, T. (2020, April 6). *RavnAir Group files for bankruptcy, stops flights and lays off remaining staff due to COVID-19*. *Anchorage Daily News*. <https://www.adn.com/alaska-news/2020/04/05/ravnair-group-stops-all-flights-and-lays-off-staff-due-to-covid-19/>

⁹ Weiss, M. (2020, May 7). *A burst of homegrown food, farming in Alaska*. Food and Environment Reporting Network. <https://thefern.org/2020/05/a-burst-of-home-grown-food-farming-in-alaska/>

¹⁰ Homer Soil & Water Conservation District. *Buying local food: A survey of Southern Kenai Peninsula restaurants and institutions*. <http://www.homerswcd.org/user-files//BuyersSurveyReport-HSWCD-2018.pdf>

¹¹ *Meyers farm shuts down market, focuses on internet sales*. (2019, October 8). KYUK. <https://www.kyuk.org/economy/2019-10-08/meyers-farm-shuts-down-market-focuses-on-internet-sales>

¹² Naiden, A. (2022, February 25). *Utqiagvik store received bypass mail almost two months late after months of bad weather*. The Arctic Sounder. http://www.thearcticsounder.com/article/2208utqiagvik_store_received_bypass_mail_almost

¹³ Barham, J. (2017, February 21). *Getting to scale with regional food hubs*. USDA. <https://www.usda.gov/media/blog/2010/12/14/getting-scale-regional-food-hubs>

¹⁴ Diamond, A., & Barham, J. (2011, February 15). *Money and mission: Moving food with value and values*. *Journal of Agriculture, Food Systems, and Community Development*, 1(4), 1-17. <https://doi.org/10.5304/jafscd.2011.014.013>

¹⁵ *Ag of the middle*. (n.d.). Ecotrust. Retrieved August 2022 from <https://ecotrust.org/project/ag-of-the-middle/>

¹⁶ Arctic Harvest Deliveries. (n.d.). Retrieved August 2022 from <https://arcticharvest.localfoodmarketplace.com/>

¹⁷ U.S. Climate Resilience Toolkit. (2022) *Arctic weather and extreme events*. <https://toolkit.climate.gov/regions/alaska-and-arctic/arctic-weather-and-extreme-events>



Distribution and Aggregation Summary

STRENGTHS:

- Alaskans are creative thinkers and makers, and many small scale examples exist of successful operations working within our complicated supply chain.
- Transportation difficulties are the greatest off the road system, but unlikely partnerships are common in rural parts of Alaska. One example developed to address the expense of transportation can be seen at Tim Meyers farm in Bethel where a collaboration between the Yukon-Kuskokwim Health Corporation and the Food Bank of Alaska pays for the shipping costs of Meyers food boxes to anywhere in the Y-K Delta, bringing the cost of the box down from \$55 to \$15.
- Since our local food supply chains are short—most farms are small scale, don't sell in large bulk quantities and often sell direct to consumer—local food is the freshest and healthiest by far.

OPPORTUNITIES:

- Off the road system, food storage is an urgent need creating opportunities for business start-ups and government support.
- Shared community refrigeration and freezers would allow more rural communities to take advantage of bulk buying and larger community shipments, as well as store local harvests and subsistence foods in areas, where affordable electricity is not readily available to most residents.
- Weather delays are inevitable to rural communities, but creating infrastructure to hold materials, and prioritizing food deliveries over other mail are two options to consider.
- One option for supporting a greater movement of local food products between regions is food hubs.
- Food hubs can potentially serve a role in creating emergency food caches and distribution.
- As ecosystem changes continue to affect subsistence, a staple of rural food systems, many rural communities are taking on local agricultural projects to shorten the supply chain and maintain control of their food supply.

WEAKNESSES:

- Oftentimes, food that arrives via bypass mail sits on tarmacs in extreme weather conditions. These elements accelerate the rate of decay, affect food packages and many of the items are destroyed due to weather.
- Many communities have limited options to store large quantities of food.
- Transportation of goods is another barrier to growth of the agricultural sector in this state. The majority of Alaska communities aren't connected by roads, and state budget cuts have gutted the ferry system.
- When an Alaskan farmer is trying to sell to a restaurant on the road system, they are competing with the trucking companies that come from the lower 48 such as Sysco and FSA (Food Service of America). These trucks deliver food directly to the door of restaurants and large food buyers several days a week with a tremendous array of food choices.
- Most of our farms are considered small and medium-sized, and traditional transportation methods may not fit their needs.
- Since most of our farms are small, aggregating large enough quantities of produce to satisfy larger markets like schools or hospitals is difficult.

CHALLENGES:

- Affordable and reliable transportation is not an option for most of the state.
- Cold storage is extremely important and very limited both to keep food cold and to prevent freezing.
- Our current system requires that food travel great distances, often encountering extreme weather, and is supported by limited infrastructure while often serving small populations that require multiple modes of transportation to connect food from the source to the endpoint.
- The majority of Alaskan communities have no contingency plans or options for alternative distribution and limited resources on-site for aggregating the needed resources for food security for their communities.
- Only 18% of our communities are accessible on the main road system.

Distribution and Aggregation Summary

INFRASTRUCTURE NEEDS

- Climate-controlled, regional hub storage facilities
- Alaska Marine Highway funding
- Refrigeration and temperature-controlled storage centers for local producers
- Food hubs
- Cold and dry storage
- Refrigerated trucks and vans
- Low-cost cargo services
- Workforce development on local and regional logistics
- Commercial kitchens for food processing for easier storage and distribution
- Rail connectivity
- Port of Alaska improvements

OVERVIEW OF SUPPORT ORGANIZATIONS AND AGENCIES

- Alaska Department of Environmental Conservation
- Alaska Division of Agriculture
- Alaska Marine Highway
- Small Business Development Centers
- Transportation companies/airlines
- USDA funding opportunities
- USDA Rural Development



Access

Introduction

Food access and equity is a challenge throughout Alaska. As climate change disrupts systems, transforms where food grows, and affects where and how people access traditional foods, Alaskans must adapt to a new and evolving landscape. Land use management and resource allocation often work at odds, and Alaska's long and complicated supply chain highlights price differences and accessibility between urban and rural areas. Many equate food access with physical proximity to food, however the term also includes financial access as well as implies the safety and appropriateness of food. To be considered "accessible" food must be available, affordable, and safe to consume.

While selling directly from producer to consumer results in the greatest profit margins for farmers, many unique and innovative partnerships have developed for transporting and marketing agricultural products in the state. Over the years, there have been several successful State and federal programs that have encouraged buy local initiatives, though few of them receive funding for a sustained period which causes undue burden to both producers and buyers. Private partnerships and health initiatives have spawned creative collaborations between health organizations and growers as the connection between fresh foods and health continues to be shown.

At the same time, the number of individuals and families facing food insecurity and hunger continues to rise, and long-term solutions are both urgent and complex. Support and innovation is needed throughout the system to ensure and improve food accessibility and security in the face of limited supply, increased likelihood of systems disruption, and continued challenges that face many Alaskans.

Access to Traditional Foods in Alaska

Food access is increasingly understood as playing a key role in people's health and well-being, especially for Indigenous populations whose relationship to traditional foods is central to social, economic, and spiritual well being.¹ Northern Indigenous communities around the world, including Alaska, work tirelessly to sustain the health of, and access to their land- and sea-based food traditions, while also navigating the inequalities of retail food markets.²

Access to Traditional foods (often referred to as "subsistence foods") in Alaska is dictated by a number of factors including:

- State and federal policies that regulate harvest of wild fish, game, and plant species;^{3,4,5}
- Individual harvester and/or consumer's (referred to as 'individual's') ability to physically obtain traditional foods (e.g. transportation across the landscape and waterways to harvest resources);⁶
- Individual's economic ability to harvest traditional foods (cost of travel or necessary equipment to harvest resources);^{7,8}
- Individuals' and household's ability to meet their daily nutrient requirements;⁹

- Environmental conditions (e.g. in rural Alaska, where household livelihoods and community food systems are tightly connected to climate and landscape features like sea ice or frozen rivers to provide access to certain food species);¹⁰
- Contemporary drivers of environmental and socioeconomic change (e.g. industrial development of lands for oil, gas, and mining);¹¹ and
- Exposure to contaminants that bioaccumulate in wild food species (e.g. heavy metals like methylmercury and persistent organic pollutants left behind from military dump sites and a variety of other sources).^{12,13}

In the context of Indigenous peoples, traditional foods are meaningful in psychological, cultural, and social ways, and access to these foods has greater significance than merely supplying caloric needs.^{14,15,16,17,18} Access to traditional foods in Alaska is one of the central facets of rural, mixed cash-subsistence economies and as such is a critical component of food security for rural residents.¹⁹

Direct to Consumer Access

Selling local farm products directly to consumers, like at farmers markets and farm stores, has tremendous benefits. Selling direct allows for relationship building between farmers and customers, creating more informed and loyal consumers. Farmers are able to retain more economic value by avoiding wholesale pricing offered at most traditional outlets like grocery stores. Direct marketing can also save farmers time, by reducing the number of intermediaries. In addition, it can be easier for small to mid-sized farmers to access direct markets, as large retailers may need larger, more consistent quantities and product qualities.

The USDA's National Agricultural Statistics Service (NASS) reports that in 2020, over 147,000 U.S. farms produced and sold food locally through direct marketing practices, resulting in \$9 billion in sales nationally.²⁰ For the same year, the Alaska Division of Agriculture estimated that direct-to-consumer sales topped \$4.5 million, a tremendous infusion into local economies. According to the 2017 NASS Agricultural Census, Alaska ranked first in the nation in terms of new farms, with the majority of these operations being small (under 10 acres).²¹ In addition, Alaska's direct sales have continued to rise over the last decade—farmers markets, food hubs, farmstands, and CSAs are integral to this growth and crucial to improving food security and building resilient local economies.

FARMERS MARKETS

Farmers markets are good for farmers and good for the communities they serve. Farmers markets provide space for farmers to reconnect with consumers and capture retail dollars for their fresh, high-quality Alaska Grown products. For communities, farmers markets are family-friendly, community-building events that bring neighbors together, attract retail activity to surrounding businesses, create forums for civic education and involvement, and provide direct access to Alaska's agricultural bounty. Nationwide, farmers markets have experienced a renaissance and have taken root across Alaska. While Alaska's short growing season and cold climate offer many challenges to our farmers, farmers markets are emerging across Alaska. In 2005, the Division of Agriculture listed just 13 markets throughout the State.²² Since 2006, the number of farmers markets in Alaska has more than tripled: from 13 to 41 in 2017. In 2021, the Alaska Farmers Market Association (AFMA) counted 56, with a handful in planning stages.²³

CSAS AND FARM STANDS

Adjacent to farmers markets are Community Supported Agriculture (CSAs) and farm stands. The USDA National Agriculture Library outlines that CSAs consist of "a community of individuals who pledge support to a farm operation so that the farmland becomes, either legally or spiritually, the community's farm, with the growers and consumers providing mutual support and sharing the risks and benefits of food production."²⁴ Essentially, an individual or family will purchase a share of the farm's produce before the season begins, and receive a weekly (usually) produce box throughout a defined period of time. Should a crop failure arise, all parties have agreed to share the loss. This situation provides some security for the farmer, as well as offers a cash infusion for farm businesses before any product is grown, a critical time for procuring farm supplies, season planning, and marketing.

2022-23 ALASKA FARMERS MARKET DIRECTORY



Image: Co-created by Alaska Farmers Market Association and Edible Alaska

FOOD HUBS

Alaska's vast geography creates unique conditions for farming operations. For example, in some areas like Bethel, Iliamna, and Tyonek, which are predominately Alaska Native communities, just one local farm may serve the entire area, selling through both CSAs and individual farm stands. Despite being small-scale and limited, these local food operations are invaluable in providing accessible, nutritious food to underserved areas. Most farms in Alaska are under 50-acres, which seems ineffectual at best when compared to the farming activity in the lower-48 United States, however the small, distributed nature of agriculture in Alaska is of critical importance to the communities served and the hyper-local food security it brings.

As the demand for locally produced food has grown tremendously in the last decade, emerging food hubs are assisting in the sales and distribution of Alaska Grown products. A food hub is defined by the USDA, as "a centrally located facility with a business management structure facilitating the aggregation, storage, processing, distributions, and/or marketing of locally/regionally produced food products."²⁵ Food hubs are gaining momentum in the state, with many communities creating their own place-based models. Since autumn 2015, five organizations have received funding from USDA grant programs to create Alaskan food hubs. In Alaska, these food hubs take many different forms and can look very different than those in the lower-48 and from each other, each addressing place-based, community-defined needs. Currently, there are six food hubs in the state, with at least one more in planning stages, with varying infrastructure and services provided, geographic foci, missions, and organizational structures. These entities, located primarily in the southeast and SouthCentral areas of Alaska, are:

- Catch 49 (est. 2011), serving Anchorage and Fairbanks²⁶
- Alaska Food Hub (est. 2016), serving the Kenai Peninsula communities of Homer, Anchor Point, Soldotna, Ninilchik, Seldovia²⁷
- Arctic Harvest Deliveries (est. 2017), serving Anchorage, Eagle River, Wasilla, Girdwood; wholesale statewide²⁸

- Salt & Soil Marketplace (est. 2017), serving Juneau and Haines²⁹
- Kodiak Harvest Food Co-op (est. 2021), serving Kodiak³⁰
- Qik'rtaq Food Hub—Alutiiq Grown (est. 2022), serving Alaska Native villages of Kodiak, Larson Bay, Ouzinkie, Old Harbor, and Port Lions³¹



Food hubs benefit farmers, fishers, and value-added producers by connecting them with additional (and sometimes larger) markets and providing services like collective marketing, accounting, sales, and education. Food hubs can help get local food into underserved areas, as well as assist in gleaning activities to benefit food pantries, increasing access to fresh healthy foods. These operations strengthen local economies by creating jobs and new economic opportunities for farmers. They are convenient for both farmers and consumers, allowing for a one-stop-shop (consumers) or one-stop-drop (producers). Food hubs can strengthen food security by supporting local food systems and providing enhanced sales opportunities for Alaskan producers.

TRADITIONAL RETAIL

Retail channels are a powerful tool for increasing market access for producers as well as fresh food access for consumers. Both brick-and-mortar stores with physical locations and e-commerce platforms involve more partners than the direct-to-consumer options like farmers markets. This means producers earn lower margins per unit and more sales channel partners will charge a markup before consumers make their purchases, with the markups often resulting in a higher cost to consumers. However, the trade-offs are not entirely negative. Retail partners often assume most of the cost and onus of marketing, customer service, last-mile distribution to the final point-of-sale, and physical sales infrastructure overhead costs such as storefront space. Retail sales tasks and costs are at times insurmountable for producers, due to their own location, skillset, and available finite resources such as time.

Producers earn fewer cents per dollar of product sales through retail simply because of the need to compensate more players in the supply chain. To access traditional retail points of sale, producers will sell to a wholesaler who will in turn sell to the retailer, or the retail partner will directly purchase from a producer. Retail outlets rely on Alaska's transportation infrastructure to serve consumers, including marine ports, airstrips, small and medium aircraft, trucking routes, ferry vessels, and climate-controlled warehouse space. The two primary retail channels for food access in Alaska are grocery stores and restaurants.

It is important to note that while food entrepreneurs often begin at the Cottage Food level of production, which has less stringent food safety regulation, Traditional Retailers have both third party and internal regulations to which they adhere. Many retailers, particularly national chain retailers cannot accept food made in a non-commercial or home kitchen. Even if food is produced in a permitted kitchen, retailers often have requirements that are much more stringent than the minimum standards set by DEC.

The USDA Harmonized GAP (Good Agricultural Practices) audit program is an audit that was developed as part of the Produce GAP Harmonization Initiative, an industry-driven effort to develop food safety GAP standards for pre-harvest and post-harvest operations. The Initiative is a collaborative effort on the part of growers, shippers, produce buyers, audit organizations, and government agencies, including USDA. The USDA Harmonized GAP audit, in keeping with the Initiative's goals, is applicable to all fresh produce commodities, all sizes of on-farm operations, and all regions in the United States. Retail, wholesale, and institutional buyers typically require GAP audits to ensure conformance to a specific set of company specifications and/or industry best practices. In many cases, buyers require a third-party GAP audit as a term of their contracts with their suppliers. It is a market access tool used when a buyer requires its supplier(s) to undergo an annual food safety/GAP audit to ensure specific food safety practices are being followed based on buyer specifications and/ or industry best practices. Most large national and international buyers are increasingly requiring a third party food safety audit. The Alaska DNR Division of Agriculture has USDA licensed auditors that currently provide this service to industry.³²



GROCERY

Consumer retail outlets such as farmers markets and food hubs are discussed in separate sections of this report. Traditional grocers such as independent, single stores, local chains, and regional or national chains serve the diverse types of communities in Alaska.

As Alaska imports roughly 95% of its food, by best estimates, food must travel to reach the state, then travel around the state through a system of barges, warehouses, trucks, and aircraft. Every time food moves, the cost increases. Indeed, in rural Alaska communities, groceries can be as much as 150% of retail prices in Anchorage.³³

Urban retail hubs such as Costco, Fred Meyer, and Safeway serve residents both on and off the road system via brick-and-mortar shopping as well as digital sales and delivery. Bulk orders for off-road delivery are called “bush orders”. The Alaska Commercial Company (AC Stores) and Three Bears each operate over 30 stores in the state. These two retailers are considered last-mile distributors and vendors, ensuring goods make it to Alaska’s rural communities on a regular basis, as weather and supply chain infrastructure allow.

In addition to increasing market access for producers, retailers have the power to increase healthy food access to low-income consumers by accepting Supplemental Nutrition Program (SNAP), Special Supplemental Program for Women, Infants, and Children (WIC), and Senior Nutrition benefits. While the decision to accept these benefits remains with each retailer, state-led incentives such as matching SNAP federal dollars can decrease the burden of high food costs and encourage retailers to accept these programs.

Image: Alaska Grown display in Palmer Fred Meyer, [Twitter](#), March 3, 2017

RESTAURANTS

Sales margins on food at restaurants are thin, so ingredient costs for restaurants are of high consideration when shopping for supply vendors. Alaska grown products may not always be perceived as the most cost-effective choice, even though local food stays fresher longer, reducing spoilage costs.

In 2012, the Alaska Division of Agriculture piloted the Alaska Grown Restaurant Rewards Program to incentivize the use of local foods in meals. USDA Specialty Crop funding was leveraged to distribute \$30,000 to restaurants, using a sliding scale and evaluation matrix developed by the Alaska Division of Agriculture. The program received the same grant in the same amount for 2013. 32 restaurants across the state signed up for the program, which offered 10 to 20 percent off the cost of locally grown food.³⁴

In 2018 The Division of Agriculture launched the Restaurant Recognition Program, which offered free advertising and promotional materials to the first 50 qualified applicants, which included radio advertising, print advertising, social media campaigns, marketing materials, Alaska restaurant directory mobile application, and a specially designed Restaurant Recognition logo for use in each restaurant.³⁵

Image: Restaurant Recognition Program logo, Alaska DNR Division of Agriculture, 2018

Both restaurant incentive examples provided here relied on federal funding and the Division of Agriculture's choice to prioritize this initiative. For future planning, inconsistency in incentive offering or drastic year-over-year programmatic changes could ultimately deter restaurants due to a high learning curve or additional steps to participate. Programs like this remain potentially powerful to showcase Alaska Grown produce and afford producers market access. However a clear launch with low barriers for use and dedicated funding are needed to ensure programs like this are sustainable.



Farm to School and Other Institutions

Business-to-business/nonprofit food sales hold enormous potential for increasing producers' market access and guaranteeing larger annual contracts. Programs exist to incentivize this relationship—Under the State's procurement code, the Alaska Product Preference program can provide a local bidder or offeror with a cost preference between three and seven percent.³⁶

One such program is the National Farm to School program. This program not only focuses on increasing local food presence in schools, but also on educating youth about where food comes from and how to prepare it. The National Farm to School Network is an information, advocacy, and networking hub for communities working to bring local food sourcing and food and agriculture education into school systems and early care and education environments. Farm to school enriches the connection communities have with fresh, healthy food and local food producers by changing food purchasing and education practices at schools and early care and education settings. Students gain access to healthy, local foods as well as education opportunities such as school gardens, cooking lessons, and farm field trips.³⁷

For schools and other types of institutions, the Alaska Department of Commerce, Community, and Economic Development provides informational resources to assist organizations with purchasing local foods.³⁸ Procurement guides include:

- Procuring Local Food Guide
- Using DOD Fresh to Purchase Local Produce
- Alaska Seafood Purchasing Guide for School
- Alaskan Grown Meat Processors
- Alaskan Producers and Growers

While schools may be one of the most distributed networks across the state, other types of institutions often hold much of a community's purchasing power. Senior centers, day cares, hospitals and medical care centers, and military bases serve large populations. However, these entities require consistency and reliability in supply, so Alaska's growing but still nascent agriculture community may not yet be in a position to serve this type of customer.

Image: *Farm to Summer Week, Farm to School Alaska, 2018*



Hunger in Alaska

Food security and climate change are two of Alaska's most daunting challenges. The Arctic is warming twice as fast as the global average,³⁹ which affects the ability to access traditional hunting, fishing, and gathering areas.⁴⁰ Additionally, Alaskans import 95% of their store-bought food, with rural Alaskans experiencing the most food insecurity.⁴¹ In 2017, roughly 100,000 Alaskans, or about 14% of the state's population, relied on SNAP to help feed their families.⁴² Further, between 2000 and 2010, over 30% of Alaska Natives were consistently food insecure and were twice as likely to be food insecure when compared to white populations.⁴³

The US Global Food Security Strategy theorizes that "agricultural growth is a mechanism to reduce poverty, especially for the extreme poor in rural areas" through increased access to nutritious foods, improved infrastructure, and increased economic opportunities.⁴⁴ By improving capacities in food production, communities experience greater resilience, stronger localized economies, lower poverty, improved and sustained food security and nutrition, and reduced "reliance upon emergency food assistance... even in the face of recurrent shocks and stresses."⁴⁵ Growing and supporting our local and regional Alaskan food systems are crucial to improving food security and building resilient local economies.

The Food Bank of Alaska, along with Feeding America and the Center on Budget and Policy Priorities, has provided the following snapshot on Hunger and Poverty in Alaska:⁴⁶

- Over 95,000 Alaskans—roughly 1 in 8—struggle with hunger.⁴⁷
- 16% of Alaska kids live in homes that may not have enough food.⁴⁸
- Roughly 1 in 10 Alaska seniors faces the threat of hunger.⁴⁹ While there are more food insecure people living in urban Alaska, the prevalence of food insecurity is higher in rural Alaska. The areas with the highest rates of food insecurity are Kusilvak (formerly Wade Hampton) (28.6%), Bethel (22.9%), Northwest Arctic (22.5%), Yukon-Koyukuk (22.0%) and Nome (19.7%).
- About 85,000 Alaskans participate annually in SNAP.⁵⁰
- In Alaska, more than 67% of SNAP participants are families with children.⁵¹

Alaska Native Communities can qualify for the Federal Food Distribution on Indian Reservations (FDPIR), which is currently administered through the Alaska Native Tribal Health Consortium. Currently, 19 Tribal Agencies are leveraging the FDPIR program in Alaska.

The FDPIR is a federal program funded by a USDA Food Nutrition Service grant. FDPIR food packages may include fresh produce, canned meats, poultry and fish, canned fruits, vegetables and beans, canned soups and sauces, pasta, rice and other grains, cheese, egg mix, dry and evaporated milk, flour, cornmeal, bakery mixes, and more. Eligible households include Alaska Native households in Alaska Native Tribal communities, American Indian and non-Indian households residing on a reservation and households living in an approved area that include at least one member of a federally recognized Tribe. To be considered, households must also meet income standards.

❗ "Overall" refers to all individuals, including children, regardless of race or ethnicity

2019 Overall (All Ages) Food Insecurity In Alaska



FOOD INSECURE POPULATION IN ALASKA

86,970

FOOD INSECURITY RATE IN ALASKA



ESTIMATED PROGRAM ELIGIBILITY AMONG FOOD INSECURE PEOPLE IN ALASKA

36%	Above Other Nutrition Program threshold of 185% poverty
15%	Between 130%-185% poverty
49%	Below SNAP threshold of 130% poverty

AVERAGE MEAL COST IN ALASKA

\$3.63

ANNUAL FOOD BUDGET SHORTFALL

\$53,905,000

Image: *Food Insecurity Among Overall Population in Alaska, Feeding America*

Food Banks and Pantries

Food banks, food pantries, soup kitchens, child feeding programs, and senior centers are all vital to ensuring that every Alaskan has access to food and nutrition. Since 1979, the Food Bank of Alaska has been securing donated food for a network of over 150 partner food programs across the state.⁵² In addition to the Food Bank of Alaska's network, there are independent food bank organizations like the Fairbanks Community Food Bank,⁵³ as well as mutual aid organizations like Alaska Food For Thought,⁵⁴ who provide food assistance in their communities through a community fridge.

The Food Bank of Alaska has provided the following overview about who accesses food assistance throughout their partner network.⁵⁵

“ In any given week 6,300 Alaska households turn to Food Bank of Alaska's network of food pantries, soup kitchens, senior centers, and other programs for food assistance. An estimated 51,900 unique households or almost 155,000 people are served annually.”

The face of hunger is changing: 32% are children under 18, and 13% seniors aged 60 and older. Additionally, 23.3% of households include at least one veteran, and 2.6% are currently serving in the military.

Many hungry people are part of the “working poor:” 60% worked for pay in the last 12 months, and 43% worked for pay in the last four weeks. Those working often face underemployment and are more likely to be part-time. Of those not working, 21% are retired and 69% cannot work due to disability.



What was once emergency status is now chronic: 66% of Alaskans using our partner food distribution network tell us that they expect to keep needing food help for the foreseeable future just so they can make ends meet every month.

Many clients are educated: 87% have a high school diploma or GED; 35% have education beyond high school. Additionally, 7% of households include an adult student.

Image: *Food Bank of Alaska*

Hunger impacts health: 26% of households report at least one member with diabetes, and 47% include someone with high blood pressure.

Rising costs in health care create hardship for hungry Alaskans: 34% have no health insurance of any kind, including Medicaid (survey conducted before ACA implementation), and 56% of households report having unpaid medical bills.

Hunger and poverty often go hand in hand: 53% of clients served have incomes that are at or below the federal poverty level (\$15,510 or less for household of two).

Federal program participation: 45% of households participate in SNAP, but 26% report that their benefits last only one week each month or less. 20% of clients not participating in SNAP cite believing they are not eligible as the reason.

Hungry Alaskans are faced with difficult choices: A majority of client households report having to choose between paying for food and paying for medical care (56%), housing (53%), transportation (64%), and utilities (59%).

Families in need adopt coping strategies, such as eating food past expiration date (71%), purchasing processed, unhealthy, but cheap food (81%) or food in dented or damaged packages (57%), and receiving help from family or friends (54%).

Clients want these food items most: Protein food items like meat (54%), fresh fruits and vegetables (53%), and dairy products such as milk, cheese, or yogurt (29%).

Food access organizations utilize donations from individuals, businesses like grocery stores and fish processors, non-profit organizations, and local farmers. In summer 2022, the Alaska Division of Agriculture was awarded a USDA Local Food Purchase Assistance Cooperative Agreement Program grant. The goal of this inaugural program is to “maintain and improve food and agricultural supply chain resiliency” and awarded “up to \$400 million through non-competitive cooperative agreements with State and Tribal governments to support local, regional, and underserved producers through the purchase of domestic local foods.”⁵⁶ This award will ensure greater access to local food through food access programs.

Kids and families across Alaska can also access food through programs offered by Alaska Child Nutrition Programs (CNP), which “commits to help school districts and other program sponsors provide quality nutrition programs ensuring that our families are well-nourished, healthy, and our children are ready to learn.”⁵⁷ Current and past programs offered by CNP include:

- Alaska Farm to School
- USDA Food Program
- Child and Adult Care Food (CACFP)
- Fresh Fruit and Vegetable
- Summer Food Service (SFSP)
- School Nutrition Programs (NSLP, SBP)
- Special Milk Program (SMP)

Alaska Child Nutrition programs are vital year around, but also play a pivotal role in ensuring children continue to receive nutritious meals during pandemic school closures.

According to Program Manager Jo Dawson, School nutrition professionals across Alaska “transitioned their programs from the cafeteria to meals-to-go, bus route stops, and even home delivery. On an average day, schools in Alaska serve approximately



Image: Pandemic Feeding Program, Sitka School District

48,000 lunches; three-quarters of which are to children who qualify for free or reduced-price meals. Across the state schools knew the impact closure would have on families.”⁵⁸ CNP worked with the USDA to create waivers, allowing them to continue serving meals to students.

Conclusion

Food access for Alaskans is a function of geography, financial resources, nutritional literacy, and for many, the ability to navigate the aid system. Alaskans access foods in a variety of ways, many with local sourcing in mind. Not only are farmers markets and food hub activities sources of local food, but they are also mechanisms for relationship building. In times of crisis, it is most efficient and sustainable for neighbors to help one another and building community through food is a proven way to create or rebuild both urban and rural food resilience.

While it would be ideal for every Alaskan to have access to fresh, healthy, and local foods, that is simply not the reality. Subsistence and personal harvest activities require travel and often equipment to store the processed foods, which necessitates adequate dry and cold storage. For many children, school lunch is their most complete meal of the day. Progress has been made to decrease barriers to applying for SNAP with electronic benefits transfer (EBT) cards and in 2019 the Anchorage Innovation Team, funded by a Bloomberg grant, piloted a still-operating SMS service (see below) to ease some of the stigma and administrative confusion many experience when seeking nutrition benefits.⁵⁹

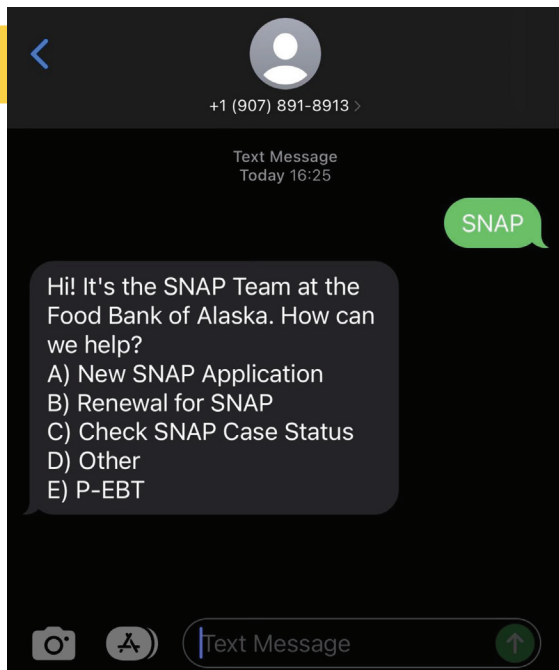


Image: Screenshot created September 2022

What if Alaska led the world in rural food security? What if Alaska's brand included well-fed people in every location, on or off the road system? Even in the best cases, access can be difficult. For many, shopping for local goods requires visiting multiple destinations to complete the grocery list—Fred Meyer, Costco, farmers markets, and the local co-op. Shopping locally can be too cumbersome and draining for busy individuals who do not have the capacity to shop local every day. Off-road-system communities are plagued with weather uncertainty and experience higher rates of spoilage resulting in less available inventory. Alaska can become a leader in circumpolar and global supply chain innovation by investing in distributed, climate-controlled storage around the state and creating policy and supply chain culture that frames last-mile distribution as Alaska's expertise.



Access Summary

STRENGTHS:

- Alaska has many opportunities for farmers to get retail prices for their products through farmers markets, farm stands and CSAs
- Selling local farm products directly to consumers, like at farmers markets and farm stores, has tremendous benefits. Farmers are able to retain more economic value by avoiding wholesale pricing offered at most traditional outlets like grocery stores.
- Farmers markets are emerging across Alaska.
- There is strong support through USDA Grant Funding for food hub creation— Since autumn 2015, five organizations have received funding from USDA grant programs to create Alaskan food hubs.
- Food hubs can help get local food into underserved areas, as well as assist in gleaning activities to benefit food pantries, increasing access to fresh healthy foods. These operations strengthen local economies by creating jobs and new economic opportunities for farmers.
- Alaska Division of Agriculture was awarded a USDA Local Food Purchase Assistance Cooperative Agreement Program grant. This award will ensure greater access to local food through food access programs.
- State and federal food assistance programs serve thousands of Alaskans every year.

WEAKNESSES:

- With small levels of production overall, access to fresh food is not easy for much of the population, especially those with lower incomes.
- Exposure to contaminants that bioaccumulate in wild food species is of high concern for local and traditional foods.
- Retail partners often assume most of the cost and onus of marketing, customer service, last-mile distribution to the final point-of-sale, and physical sales infrastructure overhead costs such as storefront space.
- Alaska imports roughly 95% of its food, by best estimates, food must travel to reach the state, then travel around the state through a system of barges, warehouses, trucks, and aircraft. Every time food moves, the cost increases. Indeed, in rural Alaska communities, groceries can be as much as 150% of retail prices in Anchorage.
- Inconsistency in incentives offerings or drastic year-over-year programmatic changes could ultimately deter restaurants from participating in State and federal programs due to a high learning curve or additional steps to participate. Programs like this remain potentially powerful to showcase Alaska Grown produce and afford producers market access, however, a clear launch with low barriers for use and dedicated funding are needed to ensure programs like this sustain.
- The face of hunger is changing: 32% are children under 18, and 13% seniors aged 60 and older. Additionally, 23.3% of households include at least one veteran, and 2.6% are currently serving in the military.

OPPORTUNITIES:

- Access to traditional foods in Alaska is one of the central facets of rural, mixed cash-subsistence economies and as such is a critical component of food security for rural residents.
- Alaska's direct farm-to-customer sales have continued to rise over the last decade—farmers markets, food hubs, farmstands, and CSAs are integral to this growth and crucial to improving food security and building resilient local economies.
- Food hubs can strengthen food security by supporting local food systems and providing enhanced sales opportunities for Alaskan producers.
- Distributed and small scale of Alaska agriculture means hyper local food security with room to scale.
- The Division of Agriculture Alaska Grown Restaurant Rewards Program was well received and could be revived by the state.
- The Division of Agriculture Restaurant Recognition program was well received and could be revived by the state.
- Business-to-business/nonprofit food sales hold enormous potential for increasing producers' market access and guaranteeing larger annual contracts. Programs exist to incentivize this relationship—under the State's procurement code, the Alaska Product Preference program can provide a local bidder or offeror with a cost preference between three and seven percent.

CHALLENGES:

- Northern Indigenous communities around the world, including Alaska, work tirelessly to sustain the health of, and access to their land- and sea-based food traditions while also navigating the inequalities of retail food markets.
- Individual harvesters' and/or consumers' ability to physically obtain traditional foods (e.g. transportation across the landscape and waterways to harvest resources) is impacted by their economic resources and ability to cover the cost of travel or necessary equipment to harvest resources.
- Contemporary drivers of environmental and socioeconomic change (e.g. industrial development of lands for oil, gas, and mining have significant impacts on traditional food opportunities.
- Producers earn fewer cents per dollar of product sales through retail simply because of the need to compensate more players in the supply chain.
- Food security and climate change are two of Alaska's most daunting challenges. The Arctic is warming twice as fast as the global average, which affects the ability to access traditional hunting, fishing, and gathering areas.
- In any given week, 6,300 Alaska households turn to the Food Bank of Alaska's network of food pantries, soup kitchens, senior centers, and other programs for food assistance. An estimated 51,900 unique households or almost 155,000 people are served annually.

INFRASTRUCTURE NEEDS

- Distributed, climate-controlled food hubs or centers
- Equipment for processing access benefits (i.e. at farmers markets)
- Food bank/pantry equipment (i.e. vans, trucks, shelving)

OVERVIEW OF SUPPORT ORGANIZATIONS AND AGENCIES *(Also see the [Wild Foods section](#) of this report)*

- | | | |
|--|--|---|
| • Alaska Department of Commerce, Community, and Economic Development | • Alaska Food For Thought | • Assistance Program |
| • Alaska Division of Agriculture | • Alaska Native Tribal Health Consortium | • State of Alaska—Alaska Product Preference Program |
| • Alaska Division of Agriculture—Alaska Grown Rewards Program | • CNP—Child Nutrition Programs | • USDA Granting Agency Support |
| • Alaska Division of Agriculture—Restaurant Recognition Program | • FDPIR—Federal Food Distribution on Indian Reservations | • USDA Local Food Purchase Assistance Cooperative Agreement Program |
| • Alaska Farm to School | • Feeding America | • USDA Specialty Crop Funding |
| • Alaska Farmers Market Association | • Food Bank of Alaska | • Women Infants and Children Program |
| | • National Farm to School Network | |
| | • Senior Nutrition Benefits | |
| | • SNAP—Supplemental Nutrition | |

- ¹ FAO. (2013). *Indigenous Peoples' food systems & well-being: Interventions & policies for healthy communities*. <https://www.fao.org/publications/card/en/c/c0e066cd-a432-5b36-9000-73ae237d658b/>
- ² Kenny, T.A., Little, M., Lemieux, T., Griffin, P.J., Wesche, S.D., Ota, Y., Batal, M., Chan, H.M., Lemire, M. (2020, November 27). The retail food sector and Indigenous peoples in high-income countries: A systematic coping review. *Int J Environ Res Public Health*, 17(23), 8818. <https://doi.org/10.3390/ijerph17238818>
- ³ State of Alaska. (n.d.). *Subsistence regulations*. Alaska Department of Fish and Game. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=subsistenceregulations.main>
- ⁴ U.S. Department of the Interior. (n.d.). *Federal Subsistence Management Program*. Retrieved August 2022 from <https://www.doi.gov/subsistence>
- ⁵ Gerlach, S.C., Turner, A.M., Loring, P., & Henry, L. (2007). Coming to terms with rural Alaskan foodways. *Circumpolar Environmental Science: Current Issues in Resources, Health and Policy*. University of Alaska Fairbanks Press.
- ⁶ Loring, P.A., & Gerlach, S.C. (2009). Food, culture, and human health in Alaska: an integrative health approach to food security. *Environmental Science & Policy*, 12(4), 466-478. <http://dx.doi.org/10.1016/j.envsci.2008.10.006>
- ⁷ Loring, P.A., & Gerlach, S.C. (2009). Food, culture, and human health in Alaska: an integrative health approach to food security. *Environmental Science & Policy*, 12(4), 466-478. <http://dx.doi.org/10.1016/j.envsci.2008.10.006>
- ⁸ Moerlein, K.J., & Carothers, C. (2012). Total environment of change: impacts of climate change and social transitions on subsistence fisheries in northwest Alaska. *Ecology and Society*, 17(1). <http://dx.doi.org/10.5751/ES-04543-170110>
- ⁹ Moerlein, K.J., & Carothers, C. (2012). Total environment of change: impacts of climate change and social transitions on subsistence fisheries in northwest Alaska. *Ecology and Society*, 17(1). <http://dx.doi.org/10.5751/ES-04543-170110>
- ¹⁰ Loring, P.A., & Gerlach, S.C. (2009). Food, culture, and human health in Alaska: an integrative health approach to food security. *Environmental Science & Policy*, 12(4), 466-478. <http://dx.doi.org/10.1016/j.envsci.2008.10.006>
- ¹¹ White, D. M., Gerlach, S. C., Loring, P., Tidwell, A. C., & Chambers, M. C. (2007). Food and water security in a changing arctic climate. *Environmental Research Letters*, 2(4), 045018. <http://dx.doi.org/10.1088/1748-9326/2/4/045018>
- ¹² Byrne, S., Seguinot-Medina, S., Miller, P., Waghiyi, V., von Hippel, F. A., Buck, C. L., & Carpenter, D. O. (2017). Exposure to polybrominated diphenyl ethers and perfluoroalkyl substances in a remote population of Alaska Natives. *Environmental Pollution*, 231, 387-395. <https://doi.org/10.1016/j.envpol.2017.08.020>
- ¹³ Heiman, M. (2000). *Contaminants in Alaska: Is America's Arctic at Risk?*. US Department of the Interior. Retrieved August 2022 from https://www.akaction.org/wp-content/uploads/2015/07/Contaminants_in_Alaska.pdf
- ¹⁴ Loring, P.A., & Gerlach, S.C. (2009). Food, culture, and human health in Alaska: an integrative health approach to food security. *Environmental Science & Policy*, 12(4), 466-478. <http://dx.doi.org/10.1016/j.envsci.2008.10.006>
- ¹⁵ Hayes-Conroy A, Hayes-Conroy J, editors. *Doing nutrition differently: critical approaches to diet and dietary intervention*. Staffordshire, UK: Ashgate; 2013.
- ¹⁶ Gurney RM, Caniglia BS, Mix TL, et al. Native American food security and traditional foods: a review of the literature. *Social Compass*. 2015;9(8), 681-693. <http://dx.doi.org/10.1111/soc4.12284>
- ¹⁷ Inuit Circumpolar Council Alaska. Alaskan Inuit food security conceptual framework: how to assess the arctic from an Inuit perspective. Anchorage, AK: Inuit Circumpolar Council. 2015. Available from: <https://iccalaska.org/wp-icc/wp-content/uploads/2016/03/Food-Security-Summary-and-Recommendations-Report.pdf>
- ¹⁸ Kuhnlein HV, Receveur O. (1996). Dietary change and traditional food systems of indigenous peoples. *Annual Review of Nutrition*, 16(1), 417-442.
- ¹⁹ Wolfe, R. J., & Utermohle, C. J. (2000). Wild food consumption rate estimates for rural Alaska populations. *Division of Subsistence, Alaska Department of Fish and Game*. <https://www.adfg.alaska.gov/download/indexing/Technical%20Papers/tp261.pdf>
- ²⁰ USDA NASS. (2022, April 28). *USDA releases local food marketing practices data*. <https://www.nass.usda.gov/Newsroom/2022/04-28-2022.php>
- ²¹ USDA NASS. (2017). *2017 census by state—Alaska*. https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Census_by_State/Alaska/index.php
- ²² State of Alaska. (n.d.). *Farmers market resource fact sheets*. Retrieved August 2022 from http://dnr.alaska.gov/ag/ag_FMM.htm
- ²³ Alaska Farmers Markets. (n.d.). Retrieved August 2022 from <https://alaskafarmersmarkets.org/>
- ²⁴ USDA. (2021, September). *Community Supported Agriculture*. <https://www.nal.usda.gov/legacy/afsic/community-supported-agriculture>
- ²⁵ Barham, J. (2017, February 21). *Getting to scale with regional food hubs*. USDA. <https://www.usda.gov/media/blog/2010/12/14/getting-scale-regional-food-hubs>
- ²⁶ Catch 49. (n.d.) Retrieved August 2022 from <https://catch49.org/>
- ²⁷ Alaska Food Hub. (n.d.). Retrieved August 2022 from www.alaskafoodhub.org
- ²⁸ Arctic Harvest Deliveries. (n.d.). Retrieved August 2022 from <https://www.arcticarvestak.com/>
- ²⁹ Salt & Soil Marketplace. (n.d.). Retrieved August 2022 from <https://www.saltandsoilmarketplace.com/>
- ³⁰ Kodiak Harvest Food Co-op. (n.d.). Retrieved August 2022 from <https://www.kodiakharvest.org/>
- ³¹ Alutiiq Grown. Retrieved August 2022 from <https://www.alutiiqgrown.com/qikrtaqfoodhub>
- ³² *USDA Harmonized GAP Plus+ Audit Service Questions and Answers*. United States Division of Agriculture, Agricultural Marketing Service. Retrieved September 2022 from <https://www.ams.usda.gov/services/usda-harmonized-gap-plus-audit-service-questions-and-answers>
- ³³ Redman, R. (2018, August 8). *In rural Alaska, Greatland Grocery & Supply goes the extra mile*. Supermarket News. <https://www.supermarketnews.com/online-retail/rural-alaska-greatland-grocery-supply-goes-extra-mile>

- ³⁴ Caldwell, S. (2016, September 27). *State program incentivizes 'Alaskan Grown' produce at restaurants*. Alaska Daily News. <https://www.adn.com/food-drink/article/state-program-incentivizes-alaskan-grown-produce-restaurants/2013/01/25/>
- ³⁵ Bingham, C. (2018, April 16). *Alaska Division of Agriculture launches Restaurant Recognition program for restaurants using Alaska Grown produce*. Sitka Local Foods. <https://sitkalocalfoodsnetwork.org/2018/04/16/alaska-division-of-agriculture-launches-restaurant-recognition-program-for-restaurants-using-alaska-grown-produce/>
- ³⁶ State of Alaska. (2022). *Alaska Product Preference program*. Alaska Department of Commerce. <https://www.commerce.alaska.gov/web/dcra/AlaskaProductPreferenceProgram.aspx>
- ³⁷ Alaska Farm to School. (2022). <https://www.farmtoschoolalaska.org/>
- ³⁸ State of Alaska. (2022). *Alaska Product Preference program*. Alaska Department of Commerce. <https://www.commerce.alaska.gov/web/dcra/AlaskaProductPreferenceProgram.aspx>
- ³⁹ USGCRP. (2017). *Climate science special report: fourth national climate assessment, Volume 1*. [Wuebbles, D.J., D.W. Fahey, K.A. Hibbard, D.J. Dokken, B.C. Stewart, and T.K. Maycock (eds.)]. U.S. Global Change Research Program. <https://www.globalchange.gov/browse/reports/climate-science-special-report-fourth-national-climate-assessment-nca4-volume-i>
- ⁴⁰ State of Alaska. (n.d.) *Climate change in Alaska*. Alaska Department of Commerce. Retrieved August 2022 from <https://www.commerce.alaska.gov/web/dcra/ClimateChange>
- ⁴¹ Meter, K. & Phillips Goldenberg, M. (2014, July 28). *Building food security in Alaska*. Crossroads Resource Center. <https://www.crcworks.org/akfood.pdf>
- ⁴² Khelif, S., & Mixon, R. (2018). Future of farmers market quest program in Alaska. Alaska Farmers Market Association.
- ⁴³ Jernigan, V. B., Huyser, K., Valdes, J., & Simonds, V. (2017). Food insecurity among American Indians and Alaska Natives: a national profile using the current population survey– food security supplement. *Journal of Hunger & Environmental Nutrition*, 1, 1-10. <https://doi.org/10.1080/19320248.2016.1227750>
- ⁴⁴ USAID. (2016). *U.S. government global food security strategy 2017-2021*. <https://2017-2020.usaid.gov/what-we-do/agriculture-and-food-security/us-government-global-food-security-strategy>
- ⁴⁵ USAID. (2016). *U.S. government global food security strategy 2017-2021*. <https://2017-2020.usaid.gov/what-we-do/agriculture-and-food-security/us-government-global-food-security-strategy>
- ⁴⁶ Food Bank of Alaska. (2022). *Facts about hunger*. <https://foodbankofalaska.org/hunger-in-alaska/facts-about-hunger/>
- ⁴⁷ Feeding America. (2022). *Food insecurity among overall population in Alaska*. <https://map.feedingamerica.org/county/2019/overall/alaska>
- ⁴⁸ Feeding America. (2022). *Food insecurity among overall population in Alaska*. <https://map.feedingamerica.org/county/2019/overall/alaska>
- ⁴⁹ Ziliak, J. Gunderson, C. (2020, May). *Hunger in America in 2018*. Feeding America. <https://www.feedingamerica.org/sites/default/files/2020-05/2020-The%20State%20of%20Senior%20Hunger%20in%202018.pdf>
- ⁵⁰ CBPP. (2022, April 25). *Alaska Supplemental Nutrition Assistance Program*. https://www.cbpp.org/sites/default/files/atoms/files/snap_factsheet_alaska.pdf
- ⁵¹ CBPP. (2022, April 25). *Alaska Supplemental Nutrition Assistance Program*. https://www.cbpp.org/sites/default/files/atoms/files/snap_factsheet_alaska.pdf
- ⁵² Food Bank of Alaska. (2022). *About Food Bank of Alaska*. <https://foodbankofalaska.org/about-us/>
- ⁵³ Fairbanks Food Bank. (2021). <https://www.fairbanksfoodbank.org/>
- ⁵⁴ Food for Thought Alaska. (n.d.). Retrieved August 2022 from <https://foodforthoughtalaska.com/>
- ⁵⁵ Food Bank of Alaska. (2014). *Facts about hunger* <https://foodbankofalaska.org/hunger-in-alaska/facts-about-hunger/>
- ⁵⁶ USDA. (n.d.). *Local Food Purchase Assistance Cooperative Agreement Program*. Retrieved August 2022 from <https://www.ams.usda.gov/selling-food-to-usda/lfpacap>
- ⁵⁷ State of Alaska. (n.d.). *Child Nutrition Programs*. Alaska Department of Education. Retrieved August 2022 from <https://education.alaska.gov/cnp>
- ⁵⁸ Dawson, J. (2020, April 11). *School nutrition: Program transitions for COVID-19 feeding*. <https://www.akfoodpolicycouncil.org/blog/2020/4/11/school-nutrition-program-transitions-for-covid-19-feeding>
- ⁵⁹ Solina, S. (2019, October 1). *New text service aims to help people connect to SNAP benefits*. Alaska News Source. <https://www.alaskasnewsresource.com/content/news/New-text-service-aims-to-help-people-connect-to-SNAP-benefits-561927811.html>



Preparation and Consumption

Introduction

Food preparation, consumption literacy, and safety are paramount to building a resilient food system. Resources exist in the state to educate and assist actors throughout the value chain. The University of Alaska, the Alaska Department of Health and Human Services, the Alaska Division of Agriculture, Alaska Department of Environmental Conservation, and the Alaska Seafood Marketing Institute all provide safe, accurate, and accessible information to individual Alaskans, tourists, and businesses. State and federal funding and support are key to sustaining the main agencies that educate and research new crops, develop markets, expand Alaskan branding and visibility, and provide nutrition and health safety information about local Alaskan foods.

Working in collaboration through public and private partnerships is key to expanding knowledge about local resources and opportunities to learn about safe and responsible preparation and consumption of Alaskan foods, as well as the many health, economic, and community benefits of buying and consuming local foods.

Home Preparation and Safe Storage

There are a wide range of resources available for individuals processing foods for their personal consumption. The Cooperative Extension Service (CES) through the University of Alaska Fairbanks is a State and federally funded program with USDA and NIFA funds that offers a broad range of resources including publications, videos, and access to experts through their field offices, website, published materials, and outreach events. They cover a range of topics including but not limited to food preservation safety, getting started with processing, home canning, freezing, jams and jellies, and dehydrating.¹ The CES food processing page links to numerous publications regarding food preservation as well as the nutritional value of prepared and raw foods. CES also has Supplemental Nutrition Assistance Program Education (SNAP-Ed) and Expanded Food and Nutrition Education Program (EFNEP) nutrition educators who teach underserved communities how to shop, cook, eat healthy foods on a budget.

For people with internet access, CES has an entire library of YouTube videos focused on growing and preparing agricultural products, and ideas and instructions for preparing low-cost and nutrient rich meals with local ingredients.² Many of these videos have been viewed thousands of times. CES also teaches face-to-face classes on gardening, food preservation, and more.

For a more peer-to-peer approach, the Alaska Food Policy Council launched the Alaska Food Systems Network in March 2022.³ This digital community invites users to create a profile with their food interests and expertise and their preference to connect with others seeking to learn. This collective effort results in a dynamic map, showing who is connected to whom, how various food sectors are connected, which communities are emerging as leaders in food systems work, and where the gaps are so that strategies can be formed to strengthen and enhance network relationships.⁴

Food Safety

A vital piece of any food system is food safety, ensuring a reliably safe food supply for consumers, and protecting them from foodborne diseases or injuries related to food consumption. Most major foodborne illness outbreaks are caused by one of the following: 1) poor personal hygiene of food handlers; 2) incorrect time and temperature control of food; and 3) inadequate cleaning and sanitizing of surfaces and equipment.⁵ Foodborne illnesses are often preventable and underreported public health problems and are a burden on public health. Foodborne illnesses can be life-threatening for some people, and contribute to the cost of health care and economic losses due to business closures. Indeed, the Center for Disease Control and Prevention estimates that over 37 million instances of foodborne illness each year are traced or attributed to domestic transmission routes, such as foodborne, waterborne, person-to-person contact, animal contact, environmental contamination, and others.⁶

Food safety is regulated by several agencies, including the Department of Environmental Conservation (DEC) Division of Food Safety and Sanitation and the Municipality of Anchorage Environmental Health Services.⁷ The DEC's Food Safety & Sanitation Program's mission "is to protect public health at regulated food, seafood, and public facilities. Our vision is to collaboratively work with these facilities to prevent illness, injury, and loss of life caused by unsafe sanitary practices."⁸ Both agencies are in charge of permitting, regulating, and inspecting public facilities in the Municipality of Anchorage. They also oversee testing for a "Food Worker Card," which is required for workers who work with unpackaged foods, potentially hazardous food, or food-contact surfaces. The test ensures workers are aware of safe food handling practices. Additionally, Alaska regulations require food establishments to have at least one Certified Food Protection Manager (CFPM) on staff.⁹ The non-profit Alaska Cabaret, Hotel, Restaurant, and Retailers Association (Alaska CHARR), and the UAF CES offer this course, along with many other food safety training and resources. Additionally, to ease cumbersome reporting, concerning food safety in licensed establishments, the DEC launched the "Yuck Line"—a telephone number to call and report food safety issues and instances of food poisoning.¹⁰

Alaska Food Code¹¹ regulations allow the sale of cottage food, non-potentially hazardous foods, directly to the consumer without a permit, as long as certain conditions are met.¹² Most sales, which currently must be below \$25,000, must be done face-to-face, except for food hubs with variances that allow online sales under certain conditions. Many home-based businesses have emerged around the state, selling at farmers markets, fairs, and through online posting. Some have parlayed their success into brick-and-mortar businesses. Currently, there is interest in expanding what is allowed to be sold by non-permitted home businesses,¹³ citing the passing of "Food Freedom" bills in Wyoming,¹⁴ Utah, Maine, and North Dakota.¹⁵ This comes with both benefits and risks that require further examination. (*Note: Please see the [Food Freedom & Cottage Food appendix.](#)*)

Nutrition and Health

Nutrition and health is a vital benefit of local Alaskan foods, especially considering that heart disease and stroke are among Alaska's leading causes of death, and critical public health priorities.¹⁶ State agencies, Alaska Native organizations, hospitals, and educational organizations are working to incorporate the health and mental benefits of growing and harvesting local foods with the nutritional benefits of eating a well-balanced, culturally and regionally appropriate diet.

Knowing how to grow food, eat smart, and share information with others is an invaluable skill set for many reasons. It can complement Traditional diets, expand access to healthy foods, promote good health through nutrition and activity, provide jobs and entrepreneurial opportunities, and strengthen communities.¹⁷ The Alaska Native Tribal Health Consortium provides several resources for learning about, harvesting, and preparing traditional foods through their Store Outside your Door program and by hosting regional Alaska Plants as Food and Medicine symposiums focused on traditional plant knowledge and ethical harvesting.¹⁸ The National Resource Center for Alaska Native Elders focuses on providing insight and instruction on traditional food preparation. Their website offers podcasts, videos, and printable recipes. While accessible to all Alaskans, they hope to promote positive and healthy aging in our Alaska Native Elders.¹⁹

There has been a lot of work in recent years to update policies and regulations to allow for the acceptance and use of harvested and donated local and traditional foods in institutional settings. One of the most successful

updates was the expansion of the Agricultural Act in 2014 which allows for traditional, whole and quartered animals to be donated and used in hospitals, child nutrition programs, long-term care facilities, and senior care programs.²⁰ This made it possible for the Anchorage-based Alaska Native Medical Center to create a Traditional Foods Program, which allows culinary staff to accept donations, prepare them, and serve to patients. Accepted donations include:²¹

- Most wild game meat and bones (caribou, moose, deer, sheep, goat and beaver): must be whole, quartered, or roasts; meat cannot be ground
- Most fish and seafood: must be gutted and gilled, with or without heads
- Seal meat and fat
- Plants and berries: whole, fresh or frozen

In February 2021, the Alaska DEC approved the use of seal oil in an Elder home operated by Maniilaq Health Association in the Chukchi Sea community of Kotzebue, likely a first for seal oil in the US.²² After more than five years of collaborative work to develop a process for eliminating toxins, while retaining taste and nutritional value, residents can now legally be served seal oil as traditional food. Marcella Wilson, current administrator of the facility explains the importance of this to their Inupiat Elder residents, stating, “They consider it a part of them, their being,” that they “feel warm inside” and sleep all night after eating it, and that “it’s a big deal culturally.”²³

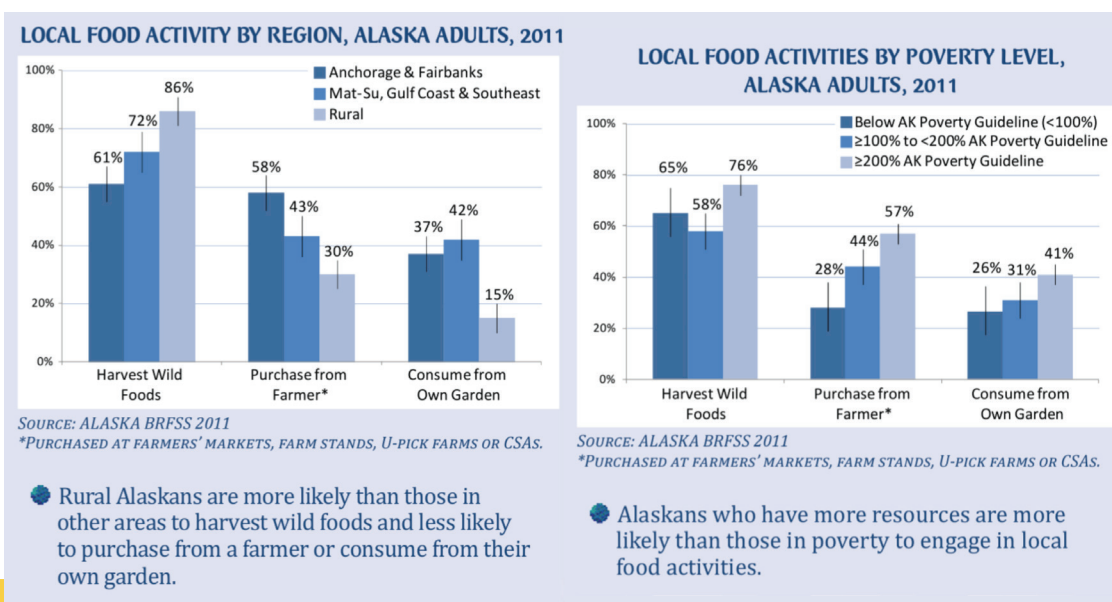


Image: *Alaska Obesity Facts*, State of Alaska Dept. of Health and Social Services, 2013

Marketing

Marketing helps to build and maintain markets through creating recognition of values, building confidence in a brand, and encouraging relationships and loyalty between producers and consumers. Raising awareness of Alaskan produce and seafood has been a focus of the Alaska Grown Program and the Alaska Seafood Marketing Institute, both with the goal of promoting the sale of Alaskan grown and harvested foods.



The over 30-year-old Alaska Grown Program is intermittently supported by the Division of Agriculture. The “agriculture industry in Alaska created the Alaska Grown logo to highlight products grown in Alaska and to help consumers identify which products are local.”²⁴ The unmistakable logo has become a symbol of pride for Alaskans, representing state-grown resilience and independence within the food system. Adjacent activities have included the Restaurant Recognition program, which identifies businesses using Alaska Grown produce, and the Alaska Grown \$5, Five Month Challenge, which declares, “If every Alaskan participates in the challenge, we will put tens of millions of dollars back into our local economy.”²⁵ Previously, the Division of Agriculture has produced an Alaska Grown Source Book, a self-reported guide to local food opportunities and businesses around the state.²⁶



Images: Fairbanks Economic Development Corporation (left), Alaska Division of Agriculture (right)

The Alaska Seafood Marketing Institute (ASMI) is “a public-private partnership between the State of Alaska and the Alaska seafood industry established to foster economic development of a renewable natural resource.”²⁷ Today ASMI is funded by the State budget and a 0.5% voluntary industry tax based on dock prices, along with some grant funding. This critical resource was established by State statute and initially funded by the State. ASMI creates partnerships with retail grocers, foodservice distributors, restaurant chains, foodservice operators, universities, culinary schools, and the media, and conducts consumer campaigns, public relations, and advertising activities, and functions as a brand manager of the Alaska Seafood family of brands.

The BuyAlaska program celebrates, grows, and connects small businesses in Alaska through experienced business coaching and innovative programs.²⁸ They have an extensive directory of local businesses, which span the food system and beyond. The program is hosted by Alaska Small Business Development Center, which provides business guidance, services, and resources to Alaskan entrepreneurs, and operates under the University of Alaska Anchorage (UAA) Business Enterprise Institute (BEI).

Additionally, there are many other organizations that support the promotion of Alaska food, like the Alaska Farmers Market Association (AFMA). AFMA supports and promotes vibrant and sustainable farmers markets throughout Alaska, with the purpose of “gathering critical information for shoppers, markets, CSAs, and vendors to build partnerships, promote opportunities and create resources for our stakeholders.”²⁹ Their most prominent resource is an actively updated market, food hub, and farmstand directory.³⁰ Regional and local food guides, like those created by Kenai Local Food Connection,³¹ Fairbanks Economic Development Corporation,³² and Matanuska Experiment Farm and Extension Center,³³ offer both locals and tourists information to find local food opportunities.

Conclusion

By necessity and now often because of preference, Alaskans have always prepared some of their own foods in lieu of store bought options. The remote and distributed nature of the population often requires this. However, as food safety science evolves, continued public service campaigns and sustained funding for regulatory entities are needed to ensure Alaskans can continue their preferred food preparation practices while maintaining a safe consumer environment.

From a food security perspective, Alaska agricultural production and perishable food stores are not yet at a level that is responsible for considering export. Increasing demand and actual consumption of local foods require cross-sector collaboration and trust-building with consumers. Consumers are ready for more Alaska Grown, as demonstrated by the 2017 Agricultural Census and this momentum should be leveraged with robust marketing efforts from ASMI, the Division of Agriculture's Alaska Grown program, and other branding efforts. Messaging and sourcing must be accessible for all with consideration for a spectrum of languages, reduced jargon, and communication channels.

¹ Cooperative Extension Service. (n.d.). *Food Preservation*. University of Alaska Fairbanks. Retrieved August 2022 from <https://www.uaf.edu/ces/foodhealth/foodpreservation/index.php>

² UAFExtension. (n.d.). *Home* [YouTube Channel]. YouTube. Retrieved August 2022 from <https://www.youtube.com/user/UAFExtension>

³ Alaska Food Policy Council. <https://www.akfoodpolicycouncil.org/regional-food-system-participate>

⁴ Alaska Food Policy Council. (n.d.). *Alaska food system network*. Retrieved August 2022 from <https://www.akfoodpolicycouncil.org/regional-food-system-participate>

⁵ Alaska Department of Environmental Conservation. Christina Carpenter. Personal communications September 14, 2022.

⁶ Center for Disease Control and Prevention. *Estimates of Foodborne Illness*. Retrieved September 2022 from <https://www.cdc.gov/foodborneburden/2011-foodborne-estimates.html>

⁷ Municipality of Anchorage. (n.d.). *Welcome to Environmental Health Services*. Retrieved August 2022 from <https://www.muni.org/departments/health/admin/environment/>

⁸ State of Alaska. (n.d.). *Food Safety & Sanitation Program*. Division of Environmental Health, Alaska Department of Conservation. Retrieved August 2022 from <https://dec.alaska.gov/eh/fss.aspx>

⁹ State of Alaska. (n.d.). *Certified food protection manager*. Division of Environmental Health, Alaska Department of Conservation. Retrieved August 2022 from <https://dec.alaska.gov/eh/fss/food/resources/cfpm-training/>

¹⁰ State of Alaska. (n.d.). *Yuck Line*. Division of Environmental Health, Alaska Department of Conservation. Retrieved August 2022 from <https://dec.alaska.gov/eh/fss/yuck-line>

¹¹ State of Alaska. (2021, June 6). *Alaska Food Code* [18 AAC 31]. Alaska Department of Conservation. <https://dec.alaska.gov/media/1034/18-aac-31.pdf>

¹² State of Alaska. (n.d.). *Cottage food*. Division of Environmental Health, Alaska Department of Conservation. Retrieved August 2022 from <https://dec.alaska.gov/eh/fss/food/retail/cottage-food/>

¹³ Governor Dunleavy introduces HB 415 relating to the Alaska Food Freedom Act. (2022, April 7). <https://gov.alaska.gov/newsroom/2022/04/07/governor-dunleavy-introduces-hb-415-relating-to-the-alaska-food-freedom-act/>

¹⁴ Wyoming Department of Agriculture. (2017, July 1). *Wyoming Food Freedom Act*. <http://wyagric.state.wy.us/images/stories/pdf/chs/foodfreedomact21.pdf>

¹⁵ Farquhar, D. (2020, August 17). *The food freedom movement: Laws in Maine, North Dakota, Utah, and Wyoming*. National Environmental Health Association. <https://www.neha.org/node/61494>

¹⁶ State of Alaska. (2019). *The burden of heart disease and stroke in Alaska*. Section of Chronic Disease Prevention and Health Promotion, Alaska Department of Health and Social Services. https://health.alaska.gov/dph/Chronic/Documents/Cardiovascular/pubs/2019HDSP_BurdenReport.pdf

¹⁷ *What's for dinner? Why we eat what we eat in Alaska and what it means for our health*. (n.d.). University of Alaska Fairbanks. Retrieved August 2022 from https://uaf.edu/asra/whats_for_dinner.php

¹⁸ *Traditional foods and nutrition*. (2022). Alaska Native Tribal Health Consortium. <https://www.anthc.org/what-we-do/traditional-foods-and-nutrition/>

¹⁹ *Alaska traditional kitchen*. (2021) University of Alaska Anchorage. <https://www.uaa.alaska.edu/academics/college-of-health/nrc-alaska-native-elders/research/flora-deacon/index.cshtml>

²⁰ *Alaska native traditional foods movement*. (2021). Center for Medicaid and Medicare Services. <https://www.cms.gov/files/document/20210324ltss-webinar-slides.pdf>

²¹ *Traditional Native Foods Initiative*. (2022). Alaska Native Medical Center. <https://anmc.org/traditional-native-foods-initiative/>

²² Thiessen, M. (2021, February 16). *Cultural 'big deal': Seal oil makes menu at Alaska care home*. AP News. <https://apnews.com/article/seal-oil-makes-menu-alaska-care-home-ed5dd727ac7d268cd4f774f18660beb9>

- ²³ Thiessen, M. (2021, February 16). *Cultural 'big deal': Seal oil makes menu at Alaska care home*. AP News. <https://apnews.com/article/seal-oil-makes-menu-alaska-care-home-ed5dd727ac7d268cd4f774f18660beb9>
- ²⁴ *Home*. (n.d.). Alaska Grown. Retrieved August 2022 from <https://www.buyalaskagrown.com/>
- ²⁵ *Alaska Grown \$5 Challenge*. (n.d.). Alaska Grown. Retrieved August 2022 from <https://www.buyalaskagrown.com/fivedollarchallenge/>
- ²⁶ *Alaska Grown source book*. (2016-2017). Alaska Grown. <http://dnr.alaska.gov/ag/sourcebook/sourcebookindex2016.html>
- ²⁷ Alaska Seafood. (n.d.). Retrieved August 2022 from <https://www.alaskaseafood.org/>
- ²⁸ Buy Alaska. (n.d.). Retrieved August 2022 from <https://buyalaska.com/>
- ²⁹ Alaska Farmers Markets. (2022). *Who we are*. <https://alaskafarmersmarkets.org/about-us/who-we-are/>
- ³⁰ Alaska Farmers Markets. (2022). *2022-2023 AFMA farmers market & food hubs directory*. <https://alaskafarmersmarkets.org/market-directory/>
- ³¹ Kenai Local Food Connection. (2022). *Kenai Peninsula local food directory*. <https://www.kenailocalfood.org/local-food-directory>
- ³² Fairbanks Economic Development Corporation. (2022). *Interior Agriculture Directory*. <https://www.investfairbanks.com/agriculture/>
- ³³ *Locally grown resource guide*. (2022). Cooperative Extension Service, University of Alaska. <https://tinyurl.com/2022MatSuLocalFood>



Preparation and Consumption Summary

STRENGTHS:

- Strong brand (Alaska Grown/Alaska Seafood) recognition
- Wide range of resources through agencies—print, videos, and personnel to help with safe methods
- Local foods provide vital nutrition, health benefits, and less spoilage
- Laws and regulations that allow for the use of local foods in institutions
- Alaska Grown Source Book
- Harvesting and preparing food as a community is built into many parts of Alaskan culture and identity.
- Alaskans value self-sufficiency and self-reliance around food and food security.

OPPORTUNITIES:

- “Food Freedom” could create opportunities, especially in rural, off-road systems.
- Many existing DEC-certified kitchens exist, such as UAF’s Test Kitchen.
- Expanded community resources around community drying, canning, refrigeration, freezer, and root cellar space
- Expanded community engagement to teach safe processing—involving both traditional and western knowledge
- Continued collaboration across sectors to allow for expanded use of local and regional foods in larger institutions, health care settings, and child care facilities
- Enormous potential to contribute to economic multipliers through expanded local purchasing of local food

WEAKNESSES:

- Limited and administration-dependent funding for food safety enforcement and improvement
- Limited public awareness of resources available and how to access them
- The range of topics covered may not be relevant to current food trends and community needs.
- There are financial resource barriers to growing and purchasing farmed foods and harvesting wild foods.
- Meat processing infrastructure and knowledge are very limited throughout the state.
- Freezer space to store harvested fisheries resources is limited and expensive for many families.
- Limited options for commercial kitchens and processing options for small retail businesses—many barriers to entry for new and expanding entrepreneurs
- \$25,000 cap on cottage foods revenue may be too low to incentivize businesses to scale

CHALLENGES:

- “Food Freedom” could create greater food safety hazards.
- Limited and administration-dependent funding for food safety enforcement and improvement
- Limited options for preparing and storing food safely in both rural and urban settings
- Knowing how to grow and share food resources
- Lack of redundancy or multiple sources of community knowledge
- Understanding land use and harvest information can be confusing for newer residents and people who are unfamiliar with Alaskan rules and regulations.

Preparation and Consumption Summary

INFRASTRUCTURE NEEDS

- Appropriate storage and processing infrastructure for wild/traditional foods
- Affordable commercial kitchen space
- Subsidized storage options for freezer and refrigerator space

OVERVIEW OF SUPPORT ORGANIZATIONS AND AGENCIES

- Alaska Cabaret, Hotel, Restaurant and Retailers Association (Alaska CHARR)
- Alaska Department of Environmental Conservation
 - Food Safety & Sanitation Program
 - Office of State Veterinarian
- Alaska Department of Health and Human Services
- Alaska Division of Agriculture (Department of Natural Resources)
- Alaska Farmers Market Association
- Alaska Manufacturing Extension Partnership (MEP)
- Alaska Native Tribal Health Consortium
- Alaska Seafood Marketing Institute
- Alaska Small Business Development Center
- BuyAlaska
- Fairbanks Economic Development Corporation
- Kenai Local Food Connection
- Matanuska Experiment Farm and Extension Center (UAF)
- Municipality of Anchorage Environmental Health Services
- National Resource Center for Alaska Native Elders
- University of Alaska Fairbanks—Cooperative Extension Service



Waste and Recovery

Introduction

Food waste is both a challenge and an opportunity. In a circular system, food waste can become a resource through composting, use as animal feed, or conversion to energy. The U.S. EPA Food Recovery Hierarchy prioritizes preventing and diverting wasted food because these activities create the most social, economic, and environmental benefits for communities. Waste and recovery is a vital part of the food system that should not be overlooked.

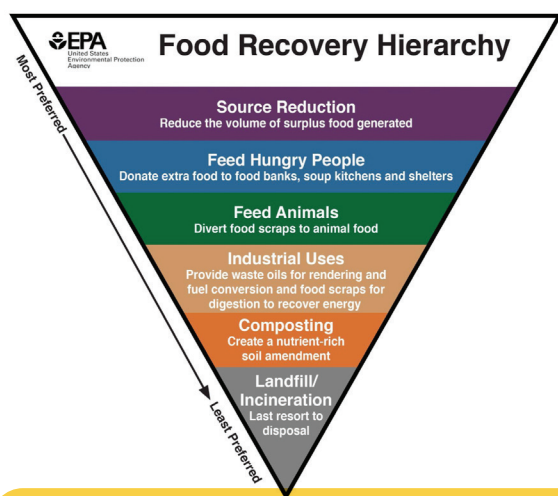


Image: Food Recovery Hierarchy, Environmental Protection Agency



Image: Wasted, Natural Resources Defense Council, 2017

Food loss refers to food that does not make it off the farm and into the community.

Food waste occurs once the product has left the farm. Food waste materializes at numerous points along the supply chain, from production to processing, distribution, in food service, and at home. According to the USDA, over one-third of all available food goes uneaten through loss or waste.² This uneaten food contains enough calories to feed more than 150 million people each year.³

Equivalent metrics for Alaskan communities are available in some local food system assessments and feasibility studies, but food waste measurement and reporting is inconsistent across the state. Communities in Alaska have various challenges with waste management and recycling depending on their remoteness. For example, various communities calculate the percentage of landfilled materials in Alaska that are food scraps. According to Tongass Botanicals in Petersburg, general waste is shipped to a facility in Washington. Petersburg residents are charged by weight, almost half of which is food scraps.⁴ Although the Kenai Peninsula Borough (KPB) does not track food scraps as a percentage of the waste stream, a 2013 organic waste recycling

feasibility study for KPB used data from Kalskag, Unalaska, Kodiak Island Borough to estimate that 14% of landfilled material is food waste.⁵ In Anchorage, a 2017 waste composition study conducted at the Anchorage Regional Landfill determined total organic materials to be 39.2%, with food scraps contributing almost half (18%) of the total.⁶ This amounts to 59,400 tons of food waste per year disposed of at the Anchorage landfill.

Climate Impacts

The US EPA estimates that food waste is the largest category of materials in landfills (24% in 2018).⁷ Food waste in landfills emits methane gas as it decomposes, which contributes to global warming. Food waste creates about 6% of global greenhouse gas emissions, which if placed in the context of national emissions, would be the world's third-largest emitter after China and the United States. Additionally, when food is discarded, the myriad of inputs are lost as well (water, labor, nutrients, energy, emissions from processing and shipping, etc.).



Image: *Our World in Data*, March 2020

For every million metric tons of organic waste that decompose in landfills, an amount of methane equivalent to 469 metric tons of carbon dioxide is released.⁹ Composting reduces those emissions by over 50%, and it is more efficient to divert food waste for composting than to install methane management systems. Applying compost as a soil amendment has additional climate-related benefits such as carbon sequestration in soil and reducing the demand for fossil-fuel-based fertilizers.

Food Banks

Food bank programs work across the state to recover surplus food from grocery stores, wholesalers, producers, farmers, and fishers that would otherwise be landfilled. Additionally, the food bank receives donations from community members and makes bulk purchases. This food is redistributed across the state to people in need. According to the most recent annual report, the Food Bank of Alaska distributed over 11 million pounds of food in 2021, a 23% increase over the previous year.¹⁰

The Food Bank of Alaska uses mobile food banks to distribute highly perishable foods like fruits and vegetables quickly, and this program supports participation from Alaska's food industry, especially grocery stores. Donations that are not fit for human consumption are sometimes given to local pig farmers.¹¹

Food banks benefit from strengthening relationships with farmers. Connecting food banks to farmers markets, and providing a location to drop off and pick up extra produce, adds another layer of community support to markets. The Alaska Farmers Markets Toolkit provides some resources and examples of programs that include food banks in strengthening local food partnerships.¹²

Gleaning is the harvesting of extra crops from farms and gardens to share with those in need.¹³ These crops could have cosmetic issues that make them difficult to sell, what remains in fields after mechanical harvesting, or crops that do not have a buyer making them more expensive to harvest than to leave in the fields. Gleaning can also happen in urban areas, salvaging crops from gardens and fruit trees that would otherwise go uneaten. Volunteers harvest the crops, and food banks clean, sort, and distribute to their networks thus

SNAPSHOT: Feeding Alaska in FY 2021

A look at how your generosity impacted our community.

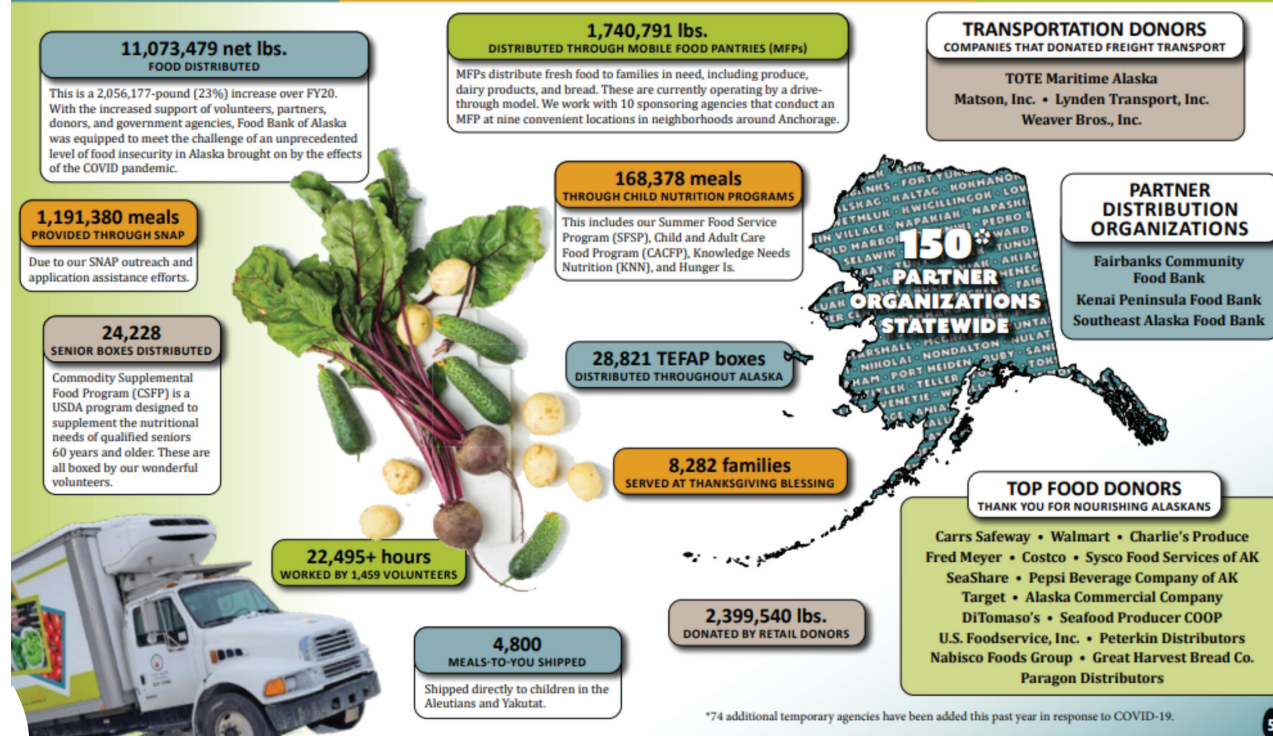


Image: Annual Report, Food Bank of Alaska, 2021

building relationships between community members and local farmers and gardeners. The USDA's "Let's Glean: United We Serve Toolkit" provides resources for farmers markets, farmers, and nonprofit organizations interested in starting gleaning programs.¹⁴

Value Chain Opportunities: Compost

One way to divert food waste and other organic material from landfills is by composting, combining organic materials, water, and oxygen to support the decomposition process. Composting can be done at home even in very small spaces. The UAF Cooperative Extension Service offers free educational materials about home composting.^{15,16} Several communities in Alaska operate medium- and large-scale composting facilities. Finished compost can be sold to provide a revenue stream for the operation. Composting also keeps nutrients from food scraps and other organic materials in the local soil, maintaining and improving its quality. This process uses waste to add value back into the food system.

Large-scale composting systems include turned windrows (long outdoor piles turned regularly using equipment), aerated static piles (fan-forced aeration) which are open or enclosed, and in-vessel. Enclosed systems can be protected from weather and wildlife and are scalable to fit a community's needs.

Juneau Composts provides curbside collection and drop-off service, sells finished compost to local gardeners, and hosts field trips and classes. The organization's website announces that it has diverted 1,000,872 pounds of food scraps from the landfill. Members use 5-gallon buckets lined with paper or other compostable bags to store scraps. Service is \$27 per month or \$20 if members form a hub, or central collection point for at least five members.¹⁸ Tongass Botanicals in Petersburg used a similar curbside pick up by neighborhood hub system, but the program has ceased operations.

The Petersburg Indian Association runs a compost program funded by the Indian Environmental General Assistance Program (IGAP) that combines wood chips that would otherwise be burned at the landfill with commercial fish processing waste.¹⁹ The tribe uses a composting machine rather than aerated static piles because the process is faster and more consistent.



Images (left to right): Petersburg Tribe Uses New Machine to Make Compost in Bulk, Alaska Public Media, September 2017; Compost, Cook Inletkeeper

In Soldotna, the nonprofit organization Cook Inletkeeper operates a compost collection service that kept 24,000 pounds of compostable material out of the landfill in 2020.²⁰ By 2021, the program had 150 business and resident participants and diverted 75,000 pounds of food waste. Participants could drop off their buckets at the Cook Inletkeeper Community Action Studio or directly at a local farm. This program was expanded in 2021 by a USDA Community Compost Grant in partnership with the Kenai Local Food Connection and plans to involve institutions such as the Central Peninsula Hospital and to serve more local farms.²¹ In this case, finished compost is not for sale but food scraps are used by local farmers as chicken feed and composted for use as a soil amendment. By reducing landfilled waste, the program is also extending the life of the community landfill, reducing costs for residents.

The Yakutat Tlingit Tribe received funding from the same USDA program in 2021. The organization plans to provide a food scrap collection service and use equipment which can process up to 1,100 pounds of food waste weekly. Finished compost will be available for gardeners, and the tribe will host workshops to educate the community.²²

In Anchorage, Solid Waste Services (SWS) provides a community compost service that operates from May through October.²³ Participants can bring 5-gallon buckets of accepted organic materials to the Central Transfer Station. Curbside service is also available in limited neighborhoods for \$5.25 to \$10.50 per month, depending on the size of the provided roll cart. Finished compost is no longer available for participants as SWS works to make that part of the program more economical.²⁴



Image: Yakutat Tlingit Tribe and Kenai Peninsula Borough, Natural Resources Conservation Services, October 2021

Successful composting programs are supported by workforce training and public education initiatives. The Anchorage SWS report lists numerous challenges to implementing a composting program that is relevant to other communities across the state. Maintaining an ideal mix of wetter materials like food scraps and fish waste with dry organic material like wood chips and cardboard is critical for operations and especially difficult in freezing temperatures. Some communities, especially in Western Alaska, may not have enough woody debris for certain systems.

Collection methods can vary to fit different community needs. Curbside collection requires more resources to operate but may also increase participation, generating larger volumes of food waste and diverting more material from landfills. The Anchorage program currently trucks waste 50 miles to a site in Palmer but has the long-term goal of a centralized municipal location. The KPB feasibility study acknowledges the high cost of transporting waste around the peninsula and outlines a plan with four different facilities.

Different systems also have different sorting requirements. Areas throughout Alaska may also experience issues with wildlife and pests, ranging from bear attractants to rats and foxes. Each community must identify safe ways to store and collect compost. Effective public education and outreach can reduce contamination from incorrect sorting. The following image is from the Anchorage community compost drop-off instructions. Some large-scale composting systems that operate consistently at high temperatures to kill pathogens and break down difficult materials can accept meat, dairy, and compostable containers. For example, Tongass Botanicals provided participant instructions for sorting that accepted those items but would not accept fruit stickers.

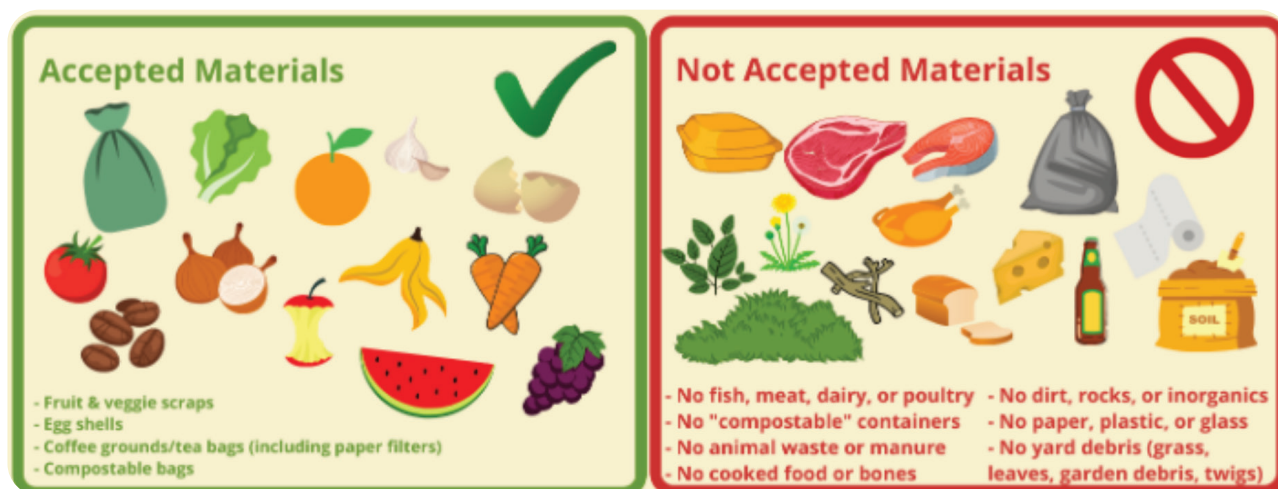


Image: Community Compost, Municipality of Anchorage SWS, 2022

Pre-processing and packaging are barriers to institutional participation in composting programs since removing plastic film and stickers from produce is time consuming. Depackaging technology is described at length in the Anchorage SWS feasibility report.²⁵

The Anchorage School District began a food scrap collection and composting pilot program in partnership with the Anchorage SWS that was discontinued during the COVID-19 pandemic. In 2019, 10 elementary schools participated by sorting food scraps, trash, and liquids resulting in a total of 14.2 tons of food waste diverted from the landfill.²⁶

Value Chain Opportunities: Biogas

Another strategy for managing organic waste is using anaerobic digestion (AD). This process differs from composting in that it does not use oxygen. AD uses a different type of microorganisms that produce biogas, mostly in the form of methane, as a byproduct of decomposition. This biogas can be captured and used for energy. AD was considered in the KPB and Anchorage SWS feasibility studies, and the Cordova biogas project tested small-scale systems. The Cordova project maintained six 1,000-liter AD systems that were inoculated with microbes from cow manure from Delta Junction and sediment from a lake bottom in Fairbanks.²⁷ The systems were fed with food scraps from the school cafeteria and reached production rates as high as 345 liters per day per 1,000-liter tank with the lake bottom bacteria performing better at colder temperatures.²⁸ These rates are well below gas output from systems in equatorial climates where small household scale AD systems are used. In Alaska, additional energy inputs are needed to maintain the warm temperatures needed to support the reaction process. The additional energy may be justified for large facilities or by combining small-scale systems with other sources of waste heat.



Images: *An Investigation of Psychrophiles for Generating Heating Gas, ACEP*

Value Chain Opportunities: Biomass Waste-to-Energy

Biomass, materials from plants or animal products, can be burned at waste-to-energy plants to generate electricity. Burning waste also reduces the volume of material to be landfilled. For example, waste-to-energy plants reduce 2,000 pounds of garbage to ash weighing between 300 to 600 pounds and with an 87% reduction in volume.²⁹ Alaska's primary biomass sources are wood, sawmill waste, fish byproducts, and municipal waste.

Electricity generated by diesel fuel is subject to the price volatility of oil. Waste-to-energy systems use locally-available sources of energy. Some communities use waste resources like logging and mill residue, thinning to mitigate wildfire hazards, beetle kill, and wood chips. Other communities sustainably harvest timber specifically to produce energy.

The Alaska Energy Authority maintains a list of examples of pre-feasibility studies of heating projects for high-efficiency, low-emission, wood-fired systems. These Wood Energy Pre-Feasibility Grants have funded more than 170 studies since 2005 which led to most of the biomass systems in the state.³⁰

Waste-to-Energy systems have the potential to replace large amounts of fossil fuels which results in significant financial savings for communities. A school in Tok has operated a wood chip boiler since 2013 that offsets 59,000 gallons of diesel and saves \$146,000 in heating annually, and waste heat extends the growing season inside a functioning school greenhouse.³¹ Galena's system heats 14 buildings and displaces more than 200,000 gallons of fuel oil per year.³² Communities in the Southeast Island School District on Prince of Wales Island have also combined waste-to-energy systems with greenhouses to amplify the benefits to the communities.³³ Wood heated greenhouses provide spaces for hands-on learning about the food system in Alaska. The school district reduces spending on heating costs, savings that can be used to better serve the students. The wood is purchased from community members, keeping that resource within the community. A wood-fired greenhouse project, funded in part by MIT's Indigenous Communities Fellowship, is being developed for Nenana with the goal of being replicable across the state.³⁴



Image: *Fire-hazard trees could heat greenhouses to feed rural Alaska, UAF*





Image: Tok School, Alaska Gateway School Project



Image: On Alaska's Prince of Wales Island, wood heat pays social, economic dividends, Treesource, January 2018

Studies addressing the challenges of biomass energy systems in Alaska point to the environmental constraints of potential overharvesting, degradation of soils by removal of residues, and impacts of increased infrastructure for transporting biomass. As logging declines, logging and mill waste also decrease. End users must be incentivized to switch from fossil fuels to biomass which may involve changing equipment and increasing storage space. The competitive advantage of local production with lower transportation costs may be offset by generally higher production and operating costs in remote Alaska.³⁵

Value Chain Opportunities: Fish Waste and Seaweed Fertilizers

From biofuel to health supplements, seaweed and fish wastes have been used for a variety of purposes. Many cultures have a tradition of utilizing these marine resources for agricultural fertilizers. Seaweeds contain high amounts of carbon, potassium, calcium, and magnesium, all beneficial for building healthy soils and sustained crop yields.³⁶ Fish wastes are rich in both nitrogen and phosphorus, vital for optimal plant growth. Marine-based fertilizers offer farmers natural, locally available sources of organic material that enhance soils in ecologically, economically and socially sustainable ways.

Worldwide fishing industries, from fish markets to canneries, generate a tremendous amount of fish waste, accounting for up to 30-45% of the product's initial weight. Consumer demand, along with pressure from governments, is pushing for sustainable methods for utilizing this waste. As industries and governments look to ensure "a more responsible and sustainable use of fishery resources", new initiatives, and research projects are investigating the use of marine-based fertilizers.³⁷



Images (left to right): Luis Pedrosa, *Food Navigator*, 2014; Petersburg Marine Mammal Center



Alaska's seafood industry generates around one million tons of fish byproducts annually in post-harvest processing.³⁸ Viable industries to transform these products into fish meals and oils require a high initial investment and continued high energy consumption and marketing efforts to remain viable, all of which are often out of reach for smaller rural fishing communities. A lower cost and lower input alternative to industrial processing is to compost these materials for local crop production and individual gardening. One successful model is the now closed, Ocean Earth Fish Compost, founded in 2004 in Homer, Alaska. Utilizing composted fish byproducts, along with locally available sphagnum (peat) moss, the small company created a product in high demand with local farmers and gardeners. This type of venture could prove usually to "other fishing communities in Alaska to use fish byproducts for local food production, and hence promote sustainable living for these fishing communities."³⁹

Conclusion

Food waste to energy is an especially exciting concept for rural communities off the grid and those with high energy costs on-grid. While Alaska is likely never going to reach fuel independence without a considerable investment in renewable energy infrastructure, waste management for biogas and heat production can alleviate an economic burden on communities as well as the unsavoriness and animal attractant of waste build up.

It is important to remember that imperfect produce may mean the perfect value-added product. Gleaning and processing produce into goods such as fruit leather, dehydrated ingredients, and animal feed and treats leverages the calories used to create that food and turns it back into economic potential.

Finally, while Alaska does have deposits of healthy soil, many farmers use soil amendments to balance the nutrient content and optimize growing conditions. This can be costly to purchase and heavy to ship. Creating more soil amendment compost and fish fertilizer in the state will keep more dollars circulating locally. This is even more likely if producers are incentivized to buy locally through a product preference program with registered compost and fertilizer suppliers. As Alaska commits to supporting its already \$40 million agricultural industry, food waste conversion must be considered as an essential piece of cost reduction puzzle.



Waste and Recovery Summary

STRENGTHS:

- Turning waste into a resource
- Using locally-available materials for energy
- Scalable solutions for communities of different sizes and rural/urban
- Compost keeps nutrients in Alaskan food system
- Solutions can be combined to amplify benefits (wood heat and greenhouses)
- Can extend the lifespan of landfills

OPPORTUNITIES:

- Capturing value from waste products like fish waste, food scraps, and wood chips
- Additional jobs are created as more complex waste recovery systems are implemented
- Climate benefits

WEAKNESSES:

- High capital investment in equipment
- High transportation costs force a trade-off between more infrastructure (more facilities) or longer transport to a central location.

CHALLENGES:

- Cold weather makes composting a potentially seasonal activity and reduces the effectiveness of AD systems
- The mismatch between when waste is available and when it can be used, high cost of storage
- Lack of technical support and training to operate complex equipment and systems
- Need for de-packaging to increase food service industry participation
- Public education and outreach to improve participation and successful sorting. However, sorting is specific to the local system so information that is too general could be contradictory, leading to participant frustration.

Waste and Recovery Summary

INFRASTRUCTURE NEEDS

- Technology such as a web-based system to match locally available foods to local food needs, plus volunteers or other ways to distribute it
- Many of the systems mentioned above have large capital requirements
- Training programs
- Distributed composting equipment and training for both small and industrial scale

OVERVIEW OF SUPPORT ORGANIZATIONS AND AGENCIES

- Alaska Center for Energy and Power (ACEP) at UAF
- Alaska Farmers Markets Toolkit
- Alaska Gateway School District
- Cook Inletkeeper
- Food Bank of Alaska
- Juneau Composts
- Kenai Peninsula Borough
- Municipality of Anchorage Solid Waste Services (SWS)
- Petersburg Indian Association
- Renewable Energy Alaska Project (REAP)
- Southeast Island School District
- Sustainable Energy for Galena, Alaska
- Yakutat Tlingit Tribe

- ¹ US EPA. (n.d.). *Food recovery hierarchy*. Retrieved August 2022 from <https://www.epa.gov/sustainable-management-food/food-recovery-hierarchy>
- ² USDA. (n.d.). *Food Loss and Waste*. Retrieved August 2022 from <https://www.usda.gov/foodlossandwaste>
- ³ Jaglo, K., Kenny, S., & Stephenson, J. (2021, November). *From farm to kitchen: The environmental impacts of U.S. food waste* (Report No. 600-R21 171). US EPA. https://www.epa.gov/system/files/documents/2021-11/from-farm-to-kitchen-the-environmental-impacts-of-u.s.-food-waste_508-tagged.pdf
- ⁴ *Frequently asked questions*. (n.d.). Tongass Botanicals & Soils. Retrieved August 2022 from <https://www.tongassbotanicals.com/faq>
- ⁵ Nelson Engineering. (2013, August). *Organics recycling feasibility study: Final report*. http://kenaichange.org/wp-content/uploads/2019/10/Organics-Recycling-Feasibility-Study-Final-Report_August-2013.pdf
- ⁶ Darby, D. (2021, December 1). *Organics management feasibility report: Organics collection and processing within the Municipality of Anchorage*. Tetra Tech. <https://www.muni.org/Departments/SWS/Documents/SWS%20Organics%20Management%20Feasibility%20Final%20Report.pdf>
- ⁷ US EPA. (n.d.). *Sustainable management of food basics*. Retrieved August 2022 from <https://www.epa.gov/sustainable-management-food/sustainable-management-food-basics>
- ⁸ Ritchie, H. (2020, March 18). *Food waste is responsible for 6% global greenhouse gas emissions*. Our World in Data. <https://ourworldindata.org/food-waste-emissions>
- ⁹ Project Drawdown. (n.d.). *Composting*. Retrieved August 2022 from <https://www.drawdown.org/solutions/composting>
- ¹⁰ Food Bank of Alaska. (2021). *2021 annual report*. <https://foodbankofalaska.org/wp-content/uploads/2022/03/AnnualReportFY21.pdf>
- ¹¹ Hillman, A. (2015, September 16). *Reducing food waste to feed hungry Alaskans*. Alaska Public Media. <https://alaskapublic.org/2015/09/16/reducing-food-waste-to-help-the-community/>
- ¹² *Creating local community partnerships*. (n.d.). Alaska Farmers Markets Toolkit. <https://www.alaskafarmersmarketstoolkit.org/equity-at-the-market/creating-local-community-partnerships/>
- ¹³ Slupski, A. (2021, October 13). *Your guide to glean*. Feeding America. <https://www.feedingamerica.org/hunger-blog/your-guide-gleaning>
- ¹⁴ USDA. (n.d.). *Let's glean: United we serve toolkit*. https://www.usda.gov/sites/default/files/documents/usda_gleaning_toolkit.pdf
- ¹⁵ Rader, H. (2021, October). *The compost heap: Basic composting in Alaska* (HGA-01022). University of Alaska Cooperative Extension Service. https://cespubs.uaf.edu/index.php/download_file/1180/
- ¹⁶ Zhang, M. (2021, July). *Composting in Alaska* (HGA-01027). https://cespubs.uaf.edu/index.php/download_file/1378/
- ¹⁷ Nelson Engineering. (2013, August). *Organics recycling feasibility study: Final report*. http://kenaichange.org/wp-content/uploads/2019/10/Organics-Recycling-Feasibility-Study-Final-Report_August-2013.pdf
- ¹⁸ *Why Compost*. (n.d.). Juneau Composts. Retrieved August 2022 from <https://www.juneaucomposts.com/more-info>
- ¹⁹ Denning, A. (2017, September 28). *Petersburg's tribe uses new machine to make compost in bulk*. Alaska Public Media. <https://alaskapublic.org/2017/09/28/petersburgs-tribe-uses-new-machine-to-make-compost-in-bulk/>
- ²⁰ Cook Inletkeeper. (n.d.). *Community Compost Project*. Retrieved August 2022 from <https://inletkeeper.org/compost/>
- ²¹ Poux, S. (2021, October 20). *Grant will scale up central peninsula's composting capability*. KDLL. <https://www.kdll.org/local-news/2021-10-20/grant-will-scale-up-central-peninsulas-composting-capability>
- ²² Robillard, T. (2021, October 5). *Yakutat Tlingit Tribe and Kenai Peninsula Borough receive USDA funding for community compost and food waste reduction projects*. USDA NRCS. <https://www.nrcs.usda.gov/wps/portal/nrcs/ak/newsroom/releases/5aa040a4-9559-4cc1-8f55-a807a05a5234/>
- ²³ Municipality of Anchorage. (n.d.). *ANC community compost*. Retrieved August 2022 from <https://www.muni.org/Departments/SWS/Recycling/Pages/CommunityCompost.aspx>
- ²⁴ Municipality of Anchorage. (n.d.). *Curbside compost*. Retrieved August 2022 from <https://www.muni.org/Departments/SWS/Recycling/Pages/CurbsideOrganics.aspx>
- ²⁵ Darby, D. (2021, December 1). *Organics management feasibility report: Organics collection and processing within the Municipality of Anchorage*. Tetra Tech. <https://www.muni.org/Departments/SWS/Documents/SWS%20Organics%20Management%20Feasibility%20Final%20Report.pdf>
- ²⁶ Darby, D. (2021, December 1). *Organics management feasibility report: Organics collection and processing within the Municipality of Anchorage*. Tetra Tech. <https://www.muni.org/Departments/SWS/Documents/SWS%20Organics%20Management%20Feasibility%20Final%20Report.pdf>
- ²⁷ *An investigation of psychrophiles for generating heating gas in Arctic environments*. (n.d.). Alaska Center for Energy and Power. Retrieved August 2022 from <https://acep.uaf.edu/projects-collection/cordova-electric-cooperative-psychrophiles-for-generating-heating-gas.aspx>
- ²⁸ *Biogas*. (2011, June). Alaska Center for Energy and Power. https://acep.uaf.edu/media/50756/ACEP_ResourceOverview_Biogas.pdf
- ²⁹ *Biomass explained*. (n.d.). U.S. Energy Information Administration. Retrieved August 2022 from <https://www.eia.gov/energyexplained/biomass/waste-to-energy.php>
- ³⁰ *Pre-feasibility studies*. (n.d.). Alaska Energy Authority. Retrieved August 2022 from <https://www.akenergyauthority.org/What-We-Do/Alternative-Energy-and-Energy-Efficiency-Programs/Biomass/Pre-Feasibility-Studies>
- ³¹ *Project profile: Alaska Gateway Shcool District Tok school*. (2017, July). Northwest CHP Technical assistance Partnership. http://northwestchptap.org/NwChpDocs/Tok%20AK%20Gateway%20School%20District%202007_2017.pdf
- ³² *Biomass*. (n.d.). Renewable Energy Alaska Project. Retrieved August 2022 from <https://alaskarenewableenergy.org/technologies/biomass/>

- ³³ Kauffman, M. (2018, January 8). *On Alaska's Prince of Wales Island, wood heat pays social, economic dividends*. Treesource. <https://treesource.org/news/goods-and-services/wood-energy/>
- ³⁴ McFarland, H. (2020, November 4). *Fire-hazard trees could heat greenhouses to feed rural Alaska*. University of Fairbanks. <https://news.uaf.edu/fire-hazard-trees-could-heat-greenhouses-to-feed-rural-alaska/>
- ³⁵ Sikka, M., Thornton, T.F., & Wori, R. (2013). Sustainable biomass energy and indigenous cultural models of well-being in an Alaska forest ecosystem. *Ecology and Society* 18(3), 38. <http://dx.doi.org/10.5751/ES-05763-180338>
- ³⁶ Illera-Vives, M., Labandeira, S. S., & López-Mosquera, M. E. (2013). Production of compost from marine waste: evaluation of the product for use in ecological agriculture. *Journal of applied phycology*, 25(5), 1395-1403. <https://doi:10.1007/s10811-013-9997-3>
- ³⁷ Illera-Vives, M., Labandeira, S. S., & López-Mosquera, M. E. (2013). Production of compost from marine waste: evaluation of the product for use in ecological agriculture. *Journal of applied phycology*, 25(5), 1395-1403. <https://doi:10.1007/s10811-013-9997-3>
- ³⁸ Zhang, M. (2009). *Composting fish byproducts with sphagnum peat moss: An experience from Ocean Earth in Homer*. Alaska Fisheries Development Foundation. https://www.afdf.org/wp-content/uploads/composting_fish_byproducts.pdf
- ³⁹ Zhang, M. (2009). *Composting fish byproducts with sphagnum peat moss: An experience from Ocean Earth in Homer*. Alaska Fisheries Development Foundation. https://www.afdf.org/wp-content/uploads/composting_fish_byproducts.pdf



Section Two Closing

Food System Sectors

Our great state of Alaska is a vast and diverse landscape, encompassing 665,384 square miles with a plethora of natural resources, ranking number one in the U.S. in both land area and most coastline. Climate varies from temperate rainforest in the southeast to arctic tundra in the north. The diversity of cultures matches our rugged landscape, ranging from small rural villages accessible only by plane to a bustling metropolis on the road system, Anchorage, home to the most diverse census tract in the country.¹

Alaska is abundant in wild foods like fish, shellfish, wild game meats, and plants. Our waters provide over half of the nation's seafood production, wild game fills residents' freezers, and the agriculture and mariculture industries are growing. Personal use fishing, hunting, and harvesting supplement many Alaskan diets. Value-added Alaskan food and beverage businesses have popped up around the state and require support from both consumers and the state. Meat processors are hard to come by in Alaska and seafood processors are often located outside of the state. Home preservation of foods remains a staple food security activity in the state. Distribution in urban areas and those on the road system is most commonly done through traditional grocery stores and supercenters. In rural areas, residents rely on costly air and barge transportation. With only 5% of Alaska's non-wild food produced in-state, the rise in popularity of farmers markets across the state, coupled with the creation of food hubs and CSAs help infuse the food system with local foods and spread awareness about eating locally.

Despite all that is going well, food insecurity plagues the entire state, with Alaska Natives suffering the worst. In 2017, roughly 100,000 Alaskans, or about 14% of the state's population, relied on SNAP (Supplemental Nutrition Assistance Program) to help feed their families.² Between 2000 and 2010, over 30% of Alaska Natives were consistently food insecure and were twice as likely to be food insecure when compared to white populations.³ Related, Alaska Natives experience diet-related illnesses at a higher rate than other races, including diabetes and diseases of the heart.⁴ Over 225 different food pantries and banks redistribute donated food throughout the state, helping to reduce food waste and improve food security all over the state.⁵

Section Two of this report has outlined the state's food system, highlighting interconnections between sectors and food provisioning activities, and rural and urban locations, while illuminating strengths and weaknesses, and opportunities, throughout the state. An exploration of solutions and recommendations follows in **Section Three**, informed directly by the Task Force. This report should be used a guide to continue the vital work of building an Alaskan food system that is more self-reliant, independent, and sustainable, and that honors tradition, culture, and equity for all Alaskans.



*Image: Beans in a high tunnel
courtesy of Kyra Wagner*

¹ Swan, Kirsten. *The Most Diverse Neighborhood in the U.S. May Surprise You*. Smithsonian Magazine. (2016)

² Khilifi, S., & Mixon, R. (2018). *Future of Farmers Market Quest Program in Alaska*. Anchorage: Alaska Farmers Market Association.

³ Jerigan, V. B., Huyser, K., Valdes, J., & Simonds, V. (2017). *Food Insecurity Among American Indians and Alaska Natives: A National Profile Using the Current Population Survey–Food Security Supplement*. Journal of Hunger & Environmental Nutrition, 1, 1-10.

⁴ *Disparities*. Indian Health Service. October 2019.

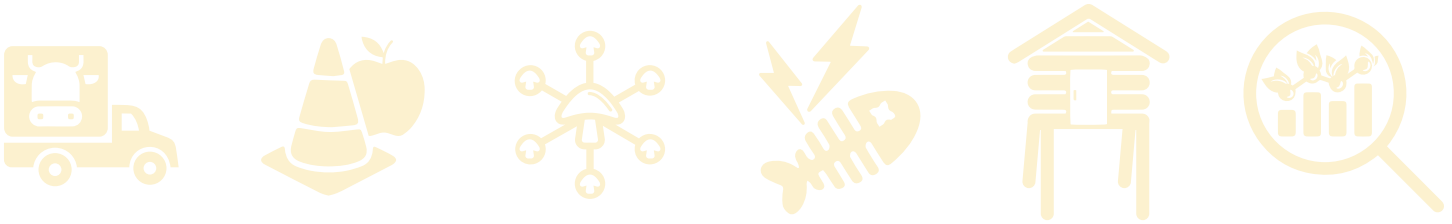
⁵ Food Bank of Alaska. (2018). *Food Bank of Alaska 2017 Annual Report*. Anchorage.



The page features a light blue background with several small, light blue four-pointed stars scattered across the upper half. At the bottom, there is a stylized mountain range graphic in shades of light blue and grey. The text is centered in the upper-middle portion of the page.

SECTION THREE

Task Force Directives



Directives

Introduction

Administrative Order 334, establishing the Alaska Food Security and Independence Task Force, included eight specific Directives for the Task Force to address. Task Force members were responsible for making recommendations under each of the eight directives on how to increase all types of food production and harvesting in Alaska, and to identify any statutory or regulatory barriers preventing our state from achieving greater food security.

Governor Dunleavy listed the following “Duties and Responsibilities” of the Alaska Food Security and Independence Task Force, outlined in Administrative Order 334¹:

The Task Force shall deliver a report to the Governor by October 1, 2022, as defined below:

- Provide recommendations that increase the procurement and use of Alaska-sourced foods within State and local agencies, institutions, and schools, including any administrative and statutory changes that are required.
- Identify barriers that farmers, stock growers, fishermen, mariculture professionals, and others engaged in the growing, harvesting, or raising of food face when starting a business or getting their products into the Alaska market. Provide recommendations on how the State can address those obstacles, including through administrative or statutory changes.
- Assess the levels of wild game and fish harvests in Alaska. Suggest measures that would increase the abundance and harvest of wild game, fish, and food by Alaskans.
- Recommend a program to assist communities and households impacted by fishery shortfalls and disasters.
- Identify factors, including regulatory or statutory burdens that might discourage or prevent locally harvested and produced food from being purchased by federal, state, and local agencies, institutions, and schools.
- Identify research needed to support and encourage increased consumption and production of Alaskan foods sourced within the State.
- Engage with the public to seek additional input on ways to promote the above-listed goals.
- Assess the need for disaster food caches within the State; and how the caches can be developed utilizing Alaskan-sourced foods.
- Provide a report and summary of findings and recommendations, including what administrative and statutory changes would be needed to accomplish the recommendations of the Task Force.
- The Chair of the Task Force shall report regularly to the Office of the Governor on activities conducted and issues that arise under this Order.

Throughout the duration of the Task Force, members split into subcommittees to examine each directive, discuss current issues, review literature, and brainstorm potential policies and programs to address them. They met virtually in subcommittees and as a whole group for a half-day workshop. Outlined in this section are the ideas and possible actions recommended by the Task Force, including summaries of policies and programs currently in place, and the specific policy, research, infrastructure, and model program recommendations made by the Task Force for further action.

The Directive “Engage with the public to seek additional input on ways to promote the above-listed goals.” should be an ongoing initiative to support long term food security efforts across the state. For this report, members of the Task Force provided not only their respective industry expertise, but also their lived experiences as Alaskan consumers. Where appropriate, local organizations and facilitators, such as trained Local Food Leaders,² should be enlisted to continue the dialogue between the State and food security stakeholders.

This section is arranged in the following way, based on directives alignment and intersections:

- **Institutional Procurement of Locally Harvested and Produced Food**
 - Provide recommendations that increase the procurement and use of Alaska-sourced foods within federal, state and local agencies, institutions, and schools, including any administrative and statutory changes that are required.
 - Identify factors, including regulatory or statutory burdens that might discourage or prevent locally harvested and produced food from being purchased by federal, state, and local agencies, institutions, and schools.
- **Producer Barriers to Launch, Scale, and Access Markets**
 - Identify barriers that farmers, stock growers, fishermen, mariculture professionals, and others engaged in the growing, harvesting, or raising of food face when starting a business or getting their products into the Alaska market. Provide recommendations on how the State can address those obstacles, including through administrative or statutory changes.
- **Wild Foods and Increasing Abundance:**
 - Assess the levels of wild game and fish harvests in Alaska. Suggest measures that would increase the abundance and harvest of wild game, fish, and food by Alaskans.
- **Fishery Shortfalls and Disaster Response:**
 - Recommend a program to assist communities and households impacted by fishery shortfalls and disasters.
- **Preparing for Disaster: Food Caches**
 - Assess the need for disaster food caches within the State; and how the caches can be developed utilizing Alaskan-sourced foods.
- **Alaska Food System Research Needs**
 - Identify research needed to support and encourage increased consumption and production of Alaskan foods sourced within the State.

Many of the barriers identified and recommendations made under this Directive apply equally well to one or more of these directives. Note that all of the Task Force recommendations are included, however, not all members agreed on all of the recommendations.

¹ <https://gov.alaska.gov/admin-orders/administrative-order-no-334/>

² *Local food leader certification training offered.* UAF News and Information. Retrieved September 2022.
<https://uaf.edu/news/local-food-leader-certification-training-offered.php>



Institutional Procurement of Locally Harvested and Produced Food

Directives Addressed:

- ✦ Identify factors, including regulatory or statutory burdens that might discourage or prevent locally harvested and produced food from being purchased by federal, State, and local agencies, institutions, and schools.
- ✦ Provide recommendations that increase the procurement and use of Alaska-sourced foods within State and local agencies, institutions, and schools, including any administrative and statutory changes that are required.

Task Force Recommendations

The bullet points below capture policy and infrastructure needs highlighted by the Task Force. Much of what is suggested may be considered “low-hanging fruit”, as they are suggestions largely within the State’s locus of control. They are not in a ranked order.

Policy Considerations

- Further expand and enforce Local Purchase Preference program
- Embrace and fund Farm-to-School and Farm-to-Fish
- Change reimbursement-based programs to grant payment models through State assistance to pay up front expenses on both State and Federal grants
- Support and inform Alaska Food and Farm Caucus
- Incentivize producers to fill out the Census of Agriculture and publicly report data annually, within the state
- Create free access to all K-12 breakfast and lunch programs for students
- Create incentives for private industry to invest in Alaska food infrastructure such as distributed and shared cold storage and processing facilities

Infrastructure Needs

- Statewide, distributed cache system to better ensure consistent supply and meet year-round demand
- Cold-chain transportation and storage intra-state
- Aggregators and/or wholesalers to assist in the sell and movement of Alaska Grown products
- Additional farmers, trained and ready to meet the nutritional needs of Alaskans
- An Alaska USDA position to help facilitate connections and contracts between producers and institutions who can help navigate additional state and federal funding for institutional buyers and growers

Introduction

Institutional buyers may be perceived as a difficult or intimidating customer for many of Alaska's small and medium producers—larger order quantities, greater demand for product consistency and availability, and a wider network to spread negative feedback should a producer fall short of expectations. However, with the right guidance, resources, and planning, they can be a source of nearly guaranteed market for producers. Leveraging co-op models and wholesalers, institutional buyers have some of the largest purchasing power in the State, with much unmet demand.

There is a long-standing tradition in Alaska of “handshake agreements” whereby producers and buyers will agree to a future deal but not enter into a legally binding contract. This speaks to the low risk tolerance of farmers and the variability in Alaska's year-over-year yields. Investing in farming infrastructure and resources to de-risk farming itself may be the most straightforward manner in which to grow in-state production and availability in institutions.

Because Alaska is rebuilding its in-state food supply, decision-makers have the opportunity to learn from hindsight, other circumpolar nations, and other states and territories. Embracing a high risk tolerance to pilot innovative programs as a state and planning for 25-50 years in the future, not simply 2-5, is the long term thinking and messaging needed to foster a community of producers and customers who will be able and incentivized to wade through the additional administrative burdens of serving larger markets.

Institutional buyers, including schools, hospitals, universities, the Food Bank of Alaska and affiliated pantries, corrections facilities, senior centers, and daycares have supply chain power in Alaska but often encounter many challenges when attempting to buy Alaska Grown.



Image: Synergy Gardens, Homer Alaska, courtesy of Kyra Wagner

Challenges Include

- Product consistency, limited quantities, and year-round availability
- Lack of appropriate substitute or required product type (ex. skim versus whole milk)
- Limited consideration for traditional foods and/or the inability to include traditional foods because of Federal and/or State regulations
- Inconsistencies between municipal and state food safety code

✦ Action: Expand production specifically for use by institutional buyers

Farm-to-institution efforts and challenges are not unique to Alaska. With federal programs better supporting and funding regional food production and consumption, policies are changing annually and the landscape looks promising to both offer local market access for producers and navigate the bureaucratic burden of institutional purchasing for buyers and suppliers.^{1,2}

A concerted effort, with accompanying resources, is required to expand production that is linked with institutional purchasing needs. As an example, if the Anchorage School District will need 400 pounds of green beans for a school year, a facilitator or broker would communicate this to growers and assist with planning and contracts.

★ Action: Leverage existing data collection channels to reduce the burden of metric tracking and evaluation

Supporting institutional purchasing of local products directly benefits local producers by creating a guaranteed outlet for their products. This often leads to producers scaling and creating more local food within the system while supporting local economies.

But how to measure this impact?

A program like The Farm to Institution New England (FINE) network is a leading example of local food metric collection and reporting and regional support for institutional food purchasing. FINE regularly collects survey data and publishes a dashboard, using indicators such as meals served at universities and hospitals in the region.³ In Alaska, opportunities are available to leverage existing data collection channels, such as the USDA's Agricultural Census to reduce additional financial burden of metric tracking and evaluation. Data collection could focus on connections between Farm to School, Farm to College, Farm to Hospital, and Farm to Production.



Image: Reporting Dashboard, FINE

Program Success

Federal interest and funding remains strong and vital to local food systems within the state. Federal interest in supporting local food continues to receive investment under the Biden Administration. In September 2022, Agriculture Secretary Tom Vilsack announced a \$400 million investment to create USDA Regional Food Business Centers to promote more local food exchange.⁴

Traditional foods programs are gaining awareness and traction across the country, and the USDA provides resources for more institutional inclusion. Programs created and supported by local entities are best versed in what eaters want and the most sustainable ways to access local foods. For example, Sugpiaq, Inc. sells Alaska salmon, black cod, rockfish, and other seafood products through their Sugpiaq Seafood program.⁵

✦ **Action: Create collection centers across the state to accept and distribute donated traditional foods for community use and to be included in disaster preparedness strategies and school food education programs**

The Alaska Native Medical Center in Anchorage is leading the way in Traditional Foods integration, at the institutional level. An impressive 66% of the hospital's menu uses Alaska Traditional foods.⁶ In 2014, Executive Chef Amy Foote and several additional stakeholders worked towards a variance with Alaska's Department of Environmental Conservation to accept donated items. This program could be replicated across the state and be included in disaster preparedness strategies and school food education programs.

Executive Chef Amy Foot (left, foreground) stands with donated wild game; Image: Alaska Native Medical Center



Many institutional buyers in the state must follow USDA purchasing requirements in order to receive reimbursement from federal programs. Milk in schools is a primary example and a very real challenge for one of Alaska's two FDA-certified dairies. Heritage Farm on Kodiak is a certified goat dairy that produces soft cheese, ice cream, and chocolate, regular, and strawberry milks. They have reported that they have the capacity to supply the local schools with milk, however their production facility only creates whole milk, rather than 1% or skim milk.⁷ This is a challenge due to federal USDA reimbursement policy that requires a low fat and bovine product.

Similarly, as schools try to reduce labor and supply costs, pre-made meals are increasingly used. However, it is difficult to compete with out-of-state, USDA-compliant sources for some of these pre-made items. Pre-made dishes, even partially or fully dehydrated meals, could be easier to serve and less labor intensive to create in many Alaskan institutions.

Furthermore, regulators could see a reduced burden if municipality and state food safety regulations were streamlined or the same, across the state. One solution is for the Municipality of Anchorage to adopt the Alaska Department of Environmental Conservation's food safety code.

Donations accepted include:⁷

- Most wild game meat and bones (caribou, moose, deer, sheep, goat, and beaver): must be whole, quartered, or roasts; meat cannot be ground
- Most fish and seafood: must be gutted and gilled, with or without heads
- Seal meat and fat
- Plants and berries: whole, fresh or frozen

Image: Kodiak Baptist Mission's Heritage House, Facebook, October 17, 2020.



Not only do local farm-to-institution policies and programs increase immediate consumption of local foods, but they build a pipeline of long-term consumers if done well. Institutional end-users are consumers—kids, seniors, and patients. Positive experiences with Alaska Grown foods could yield lifelong retail buyers thereby increasing in-state demand and expanding the market for Alaskan producers.

✦ **Action: Fund and support farm to school purchasing power and infrastructure to process food products to meet institutional purchasing requirements**

School programs that source local foods have been successful, especially on the local level. UAF's Center for Alaska Native Health Research co-created with partners the Fish-to-School program or Neqa Elicarvigmun. The program involved sourcing salmon from the local fish processor to be served in the school cafeteria. Place-based, interactive lessons about the food system and the importance of local traditional foods were developed and taught in the classroom.⁹



Image: Logo for Fish-to-School/ Neqa Elicarvigmun Program

✦ **Action: Support the inclusion and education of local foods in prescription produce programs and the Department of Health and the Department of Family and Community Services in the education and messaging around the benefits of local Alaska foods.**

Finally, prescription produce programs have sprung up around the country in an effort to proactively address diet-related illnesses such as diabetes, high blood pressure, and colon cancer. Prescription produce programs are touted as not only health-related but also a way to integrate food sovereignty into health and wellness initiatives.

A CASE STUDY WAS PUBLISHED IN JUNE 2022 ON THE YUKON-KUSKOKWIM HEALTH CORPORATION PRESCRIPTION PRODUCE PROGRAM (PPR) IN BETHEL, ALASKA.

"Since 2019, the YKHC Diabetes Prevention and Control (DP&C) department has enrolled approximately 150 patients with a diagnosis of pre-diabetes, diabetes, and/or gestational diabetes and with Medicaid insurance. Participants receive three one-month prescription vouchers at a time, each redeemable for up to US \$45 worth of fresh, frozen, or canned FVs¹⁰ that do not have added salt or sugar. Participants can receive up to 24 vouchers over the length of the program, worth US \$1,080 toward the purchase of FVs over two years. Vouchers can be redeemed in nine participating village grocery stores and through direct delivery produce boxes from a farm in Bethel. In addition to the PPR participants receive culturally appropriate recipes utilizing fresh, canned, or frozen FVs, as well as online cooking demonstrations."¹¹

- This was the first first GusNIP PPR to be implemented in a remote tribal community in a subarctic region of the United States. Key learnings included:¹²
 - Use of a voucher system to replace cash
 - Climate and weather patterns disrupted consistent supply for the program and left food vulnerable to freezing or spoilage, once it left the farm
 - Regional production (from Meyers Farm) was crucial in reducing distance from farm to sale
 - Online companion education about foods was not always easy to deliver, given regional connectivity challenges

Suggested Further Research

The bullet points below capture further research suggestions and needs highlighted by the Task Force.

- Determine specific production requirements to meet all school, hospital, and senior center annual needs. This study must include nutritional considerations beyond national baseline requirements as well as traditional foods.
- Understand the opportunity of available sourcing options, and logistics for rural and urban populations for prescription produce programs.
- Project food assistance, financial need and community impact for the state by 2035, taking into account expected increasingly low fisheries escapements and more regular climate events.
- Further analysis of controlled environment growing opportunities, using circumpolar case studies.
- Review aggregated policy scans—such as the New England State Local Food Procurement Policy Scan, for replicable policy actions.

Related Programs for Review

- Alaska Native Medical Center Traditional Foods program
 - Expand variances and exemptions to include uses for disaster preparedness and food aid programs.
- National Farm-to-School
- National Fish-to-School
- Farm to Institution New England (FINE)
- 2022 USDA Regional Food Business Center fund
- Nutritional Alaskan Foods and Schools Program

¹ USDA. (2022, September 7). *USDA announces \$400 million in funding available to create USDA Regional Food Business Centers*. <https://www.usda.gov/media/press-releases/2022/09/07/usda-announces-400-million-funding-available-create-usda-regional>

² USDA. (n.d.). *Regional Food System Partnerships*. Retrieved September 2022 from <https://www.ams.usda.gov/services/grants/rfsp>

³ *Farm to Institution Dashboard*, FINE. Retrieved September 2022. <http://dashboard.farmtoinstitution.org/>

⁴ USDA. (2022, September 7). *USDA announces \$400 million in funding available to create USDA Regional Food Business Centers*. <https://www.usda.gov/media/press-releases/2022/09/07/usda-announces-400-million-funding-available-create-usda-regional>

⁵ USDA. *Procuring Local Foods for Child Nutrition Programs*. USDA Food and Nutrition Service. Revised January 2022. <https://fns-prod.azureedge.us/sites/default/files/resource-files/June22F2SProcurementGuide508.pdf#page=87>

⁶ Fernandez, G. *Over half of Alaska Native Medical Center's menu includes Alaska Native ingredients*. Alaska News Source. February 23, 2022. <https://www.alaskanewssource.com/2022/02/24/over-half-alaska-native-medical-centers-menu-includes-alaska-native-ingredients/>

⁷ Alaska Native Medical Center. *Traditional Native Foods Initiative*. Retrieved September 2022. <https://anmc.org/traditional-native-foods-initiative/>

⁸ Task Force member survey response. August 2022.

⁹ *Fish-to-Schools: A model to enhance health and food security in Alaska Native Communities*. (n.d.). UAF Center for Alaska Native Research. Retrieved September 2022 from <https://canhr.uaf.edu/research/past-canhr-projects/fisheries-school-program-promoting-health-and-food-security-alaska-native-communities/>

¹⁰ FVs = Fruits & Vegetables

¹¹ Budd Nugent, N., Ridberg, R. A., Fricke, H., Byker Shanks, C., Stotz, S. A., Jones Chung, A. G., Shin, S., Yaroch, A. L., Akers, M., Lowe, R., Goerge, C., Thomas, K., & Seligman, H.K. (2022). Food sovereignty, health, and produce prescription programs: A case study in two rural tribal communities. *Journal of Agriculture, Food Systems, and Community Development*, 11(3), 177–196. <https://doi.org/10.5304/jafscd.2022.113.014>

¹² Budd Nugent, N., Ridberg, R. A., Fricke, H., Byker Shanks, C., Stotz, S. A., Jones Chung, A. G., Shin, S., Yaroch, A. L., Akers, M., Lowe, R., Goerge, C., Thomas, K., & Seligman, H.K. (2022). Food sovereignty, health, and produce prescription programs: A case study in two rural tribal communities. *Journal of Agriculture, Food Systems, and Community Development*, 11(3), 177–196. <https://doi.org/10.5304/jafscd.2022.113.014>



Producer Barriers to Launch, Scale, and Access Markets

Directive Addressed:



Identify barriers that farmers, stock growers, fishermen, mariculture professionals, and others engaged in the growing, harvesting, or raising of food face when starting a business or getting their products into the Alaska market. Provide recommendations on how the State can address those obstacles, including through administrative or statutory changes.



Task Force Recommendations

The following policy and infrastructure recommendations highlight opportunities in the short (2-10 years), medium (10-50), and long term (50-100 years) timeframe. Some require collaboration with the Federal government and deep policy research while others are within the Administration's purview to address immediately.

Policy Considerations

- Create a stand alone Alaska Department of Agriculture, instead of housing it as a division in the Department of Natural Resources (DNR).
 - Alternatively, adequately staff the Division of Agriculture to successfully accomplish their mission to promote and encourage agriculture development and growth.
 - Consider funding and development path similar to Alaska Seafood Marketing Institute (ASMI)
- Update and help facilitate participation in the Agriculture Revolving Loan Fund (ARLF) terms and policies to increase access to farmer capital.
- Leverage newly created agriculture-related grant funding streams, created by HB 298.

Image: Port of Alaska construction, courtesy of Port of Anchorage, 2017

- Work with the farming community to understand where leases for State-owned land should be expanded; ensure agriculture activities are happening on these lands
- Ensure feed and agriculture product traceability is employed and enforced.
- Better utilize rural air carriers traveling between communities, for food security and trade
- Establish Alaska Agriculture Product Registration guidelines and labeling laws for improved traceability and revenue, while ensuring this does not create new barriers to entry
- Consider a path to Jones Act exemption, similar to US territories
- Create an exemption for game processors to package commercially available product, such as beef, poultry, and pork
- Ensure local communities and tribal entities are represented in new or revised policy
- Expand the new Cooperative Agreement for the Alaska Local Food Purchase Assistance Program

Infrastructure Needs

- Create large-scale animal husbandry operations to both produce more meat in-state and create inputs for fertilizer.
 - Large scale animal feeding operations create opportunity for decentralized meat chain, cow/calf operations, feedlots, slaughter and ability for producers to leverage economies of scale with higher output.
- Distributed meat processing and storage facilities to make animal transport less onerous for producers and less stressful for animals
- Build small-scale community freezer capacity to create disaster preparedness stores, and create seasonal storage for local producers
- Work with Manufacturing Extension Partnership (MEP) to increase in-state packaging and processing manufacturing capacity
- De-risk the farming environment by securing long term funding and program support in areas such as:
 - Ensure inspection and certification services
 - Farmer access to responsible credit
 - Decrease barriers to entry in retail environment through State collaboration
 - Distribution infrastructure
- Build grain drying and storage facilities near areas where grains are being grown
- Create or support the creation of a farm equipment rental program or library
- Fund post-secondary agriculture research and education programs in the University of Alaska system such as crop development and climate controlled growing
- Increase in-state crop and oyster seed stock
- Increase in-state production of poultry chicks
- Increase in-state animal feed supply

Introduction

This Directive addresses two unique lenses for producers: *start-up barriers and market access challenges*. Bottlenecks or significant vulnerability occur at every point in Alaska's food chain and there has been much discourse about the "how" to increase food security while creating economic opportunity within the agricultural sector. Generating almost \$40 million in cash receipts, Alaska's food, flower, and fiber industries combine to show a promising yet underdeveloped landscape for current and future producers.

Ideas for how to decrease barriers for Alaskan farmers abound. As one Task Force member noted "None

State Quick Facts

<u>Population</u>	731,545
<u>Total State GDP</u>	\$54,970,100,000
<u>State Land Area (Acres)</u>	365,210,240
<u>Land in Forest (Acres)</u>	11,999,786
<u>Land in Forest</u>	3%
<u>Land in Farms (Acres)</u>	850,000
<u>Land in Farms</u>	0.2%
<u>Number of Farms</u>	1,050
<u>Average Farm Size (acres)</u>	810
<u>Farm Real Estate Value (per acre)</u>	N/A
<u>Agricultural Cash Receipts</u>	\$38,598,000
<u>Cash Receipts from Crops</u>	\$30,110,000
<u>Cash Receipts from Animals</u>	\$8,488,000

Alaska

Please Click on Your State Below:

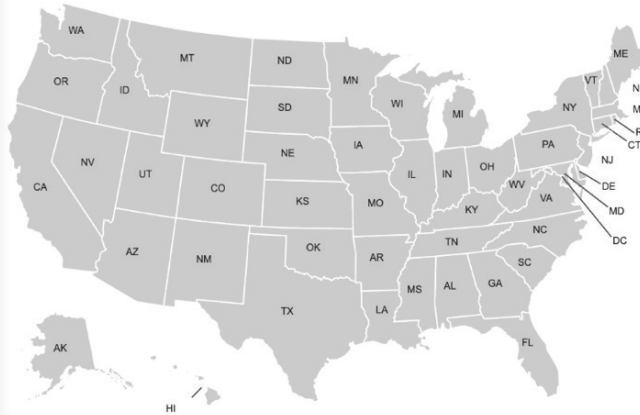


Image: 2020 Alaska Agricultural Profile,
University of Arkansas Extension

Top Ag. Commodities

<u>Miscellaneous Crops</u>	\$15,915,000
<u>Floriculture</u>	\$7,861,000
<u>Hay</u>	\$5,343,000
<u>Cattle and Calves</u>	\$4,379,000
<u>All other animals and products</u>	\$3,554,000

Top Ag. Exports

<u>Other Plant Products</u>	\$13,917,348
<u>Other Livestock Products</u>	\$1,816,397
<u>Feeds and Other Feed Grains</u>	\$949,277
<u>Beef and Veal</u>	\$418,417
<u>Grain Products, Processed</u>	\$378,522

of these (ideas) are new...", speaking to food system improvements frequently referenced in publications and community conversations about food security and long-sought after infrastructure improvements.¹ These include but are not limited to: better utilizing backhaul opportunities, stabilizing meat processing infrastructure, creating more food storage and processing facilities, reestablishing an agriculture program at the University of Alaska to better prepare Alaskans to solve challenges moving forward, learning from outside Alaska, better co-management and agricultural cooperation with Alaska Native Corporations and Tribes.

Opportunities to decrease barriers and de-risk farming include a variety of options with varying time lengths. Federal collaboration is often a long play, and the sooner talks about easing shipping challenges and streamlining federal grant programs can occur, the better. These recommendations and others in this report should be collectively discussed across State Administration and the Legislature, to determine the best way to prioritize and execute upon them.

Further discussion about Alaska posts-secondary agricultural education and research is discussed in the Research Needs directives section of this report.

Current Landscape

Alaska's high costs of labor, land, and fuel are barriers to both entry and expansion for growers in the state. Many communities and farms, both on and off the road system use antiquated technology that is costly and vulnerable to failure. The most active farming cooperative in Delta Junction runs on generators to provide 3-phase electricity, as does the North Pole animal processing facility.² Additionally, with the exception of hydroponic farming and fully climate controlled environments, producing year-round is simply not an option for many, as the fuel costs to keep animals watered, fed, and warm or produce from freezing are insurmountable.

“Alaska is a difficult place, that is expensive and unforgiving.”
—Task Force member and farmer

Despite these challenges, the 2017 Agricultural Census revealed that the state has an up-and-coming group of farmers, younger than average. Forty-six percent of Alaska's producers were new and beginning farmers while 47 percent are female and 14 percent have military service. The average age of a producer in Alaska is 55.2 years, compared with the national average of 57.7 years.³

Farms by Value of Sales

	Number	Percent of Total ^a
Less than \$2,500	312	32
\$2,500 to \$4,999	130	13
\$5,000 to \$9,999	140	14
\$10,000 to \$24,999	191	19
\$25,000 to \$49,999	68	7
\$50,000 to \$99,999	59	6
\$100,000 or more	90	9

Farms by Size

	Number	Percent of Total
1 to 9 acres	428	43
10 to 49 acres	236	24
50 to 179 acres	159	16
180 to 499 acres	89	9
500 to 999 acres	35	4
1,000 + acres	43	4



United States Department of Agriculture
National Agricultural Statistics Service

www.nass.usda.gov/AgCensus

Image: *USDA Census of Agriculture Alaska State Profile, NASS, 2017*

While the statistics are encouraging, the very real challenges experienced on the ground are often prohibitive to newcomers and defeating for current farmers. Not only do new farmers need to have confidence in infrastructure and available markets, but existing farmers need baseline resources such as affordable labor and energy. Every on-farm challenge is compounded by the difficulty of getting farming inputs to and around Alaska, and moving product through the reverse supply chain.

Challenge and opportunity categories for these Directives are outlined below:

- Land Access & Support
- Workforce Needs
- Lack of Awareness of Existing Resources
- Funding Challenges
- Supply Chain Gaps & Challenges
- Commodity Shortfalls
- Fair Market Competition

Land Access and Support

Land access overall is a complicated and contentious issue in Alaska and affects relations between federal, State, and Tribal governments. Land pressure and litigious relationships go beyond just agricultural farmland. Navigable waterways and submerged lands are equally as crucial to Alaska's food security and goods transportation.

*Rivers function as the roads of Alaska, to an extent unknown anywhere else in the country. Over three-quarters of Alaska's 300 communities live in regions unconnected to the State's road system. Residents of those areas include many of Alaska's poorest citizens, who rely on rivers for access to necessities like food and water."*⁴

Agricultural land values can be confounding in Alaska and finding consistent data, relative to the rest of the country can be difficult. Both Hawaii and Alaska are excluded from the USDA Land Values Summary reports.⁵ Value can change drastically, depending on access to utilities and proximity to roads or other transportation routes such as rail, barge, or air strips.

✦ Action: Develop clear and consistent systems for recording and determining agricultural land values.

Agricultural covenants exist to designate Alaska farm lands. While an owner must have a state farm conservation plan in place, there is no production requirement, only a clearing requirement, which does not ensure agricultural activity. Enforcement of these covenants can be costly and onerous for the State. Furthermore, these covenants have been called into question as they may unfairly cap the price on agricultural land for non-agricultural practices and land sales are one of the few ways farmers can raise cash when needed.⁷

Workforce Needs

✦ Action: Incentivize farm laborers and aid in farm labor housing.

Alaska's population is well under one million residents and producers and harvesters are aging. Next generations are not assuming the family operations as has been done in the contiguous United States agricultural and fishing history. Task Force members who are also farmers reported that in addition to worker availability, local affordable housing and staff living costs are also a barrier to hiring seasonal staff. Producers are also competing for labor with other well-developed industries that pay more. Farm labor wages are notoriously low and certainly cannot compete with oil and gas industry salaries.

“ (I'm) Getting too old to do this...”
—Task Force member and agricultural producer

Lack of Awareness of Existing Resources

✦ Action: Educate and connect farmers with existing educational and funding resources.

The USDA has created a variety of resources for new and existing farmers, and while some may not be appropriate for Alaska's landscape, there is a disconnect between available education and funding and those Alaskan producers who need it most. Lack of awareness and resource education is a national gap. This is particularly true for small and medium producers, which comprise the majority of Alaskan farmers.

How to Start a Farm: Beginning Farmers and Ranchers

New to farming? Want to learn how to start a farm? USDA can help and offers additional assistance to beginning farmers and ranchers. USDA considers anyone who has operated a farm or ranch for less than ten years to be a beginning farmer or rancher. USDA can help you get started or grow your operation through a variety of programs and services, from farm loans to crop insurance, and conservation programs to disaster assistance.

On This Page

🌱 [Why Work with USDA](#)

🌱 [How to Work with USDA](#)

🌱 [Specialty Farmer Groups](#)

🌱 [USDA Support for Beginning Farmers](#)

🌱 [Get Involved](#)

🌱 [Resources and News](#)

Image: [How to Start a Farm, USDA](#)

“Success will be if we’re able to create additional market opportunities so that mid- and small-sized operators still have a chance of staying in the business,” Vilsack said. “And then we [have to] attract new people.”

—United States Agricultural Secretary Tom Vilsack

Funding Challenges

Alaska farmers have few sources of funding—those that exist include personal resources, Alaska’s Agricultural Revolving Loan Fund, the USDA Farm Service Agency, and a variety of project-based grants and loans through the USDA.

“... we are on the verge of closing because we do not have the finances to grow to the level we need to cover the increasing costs of shipping and feed. We do not qualify for grants nor have the time to jump through all the hoops needed.”

—Task Force Member and Farmer

✦ Action: Increase funding to the State’s Agricultural Revolving Loan Fund

The State’s Agricultural Revolving Loan Fund (ARLF) was put into place in 1968 and has seen minimal updates to match current market prices and conditions. For example, a product processing loan is capped at \$250,000. This is not adequate for a food-grade facility, especially in rural Alaska. Additionally, the maximum indebtedness through ARLF is \$1,000,000. This is also not adequate to purchase and upgrade facilities such as meat packing or long-term cold storage.

Supply Chain Gaps and Challenges

“There also must be a commitment from transporters like Alaska Airlines to put food first. I often times will get our food items bumped off of planes so off-island hunters can get their clothes and guns home.”

—Task Force Member and Farmer

Farming inputs must first reach Alaska and once food production begins, transportation and storage is required at nearly every stage of the food chain. The distance between live animal production, feed production, animal processing, then redistribution is at times hundreds of miles apart.

✦ Action: Encourage Alaskan production of livestock feed and brood supply

An Alaska animal producer’s journey typically looks like this:

- Producer calls feed suppliers such as Alaska Mill & Feed, or private suppliers (in or out of state).
- Negotiates price and confirms adequate seasonal supply.
- Arranges feed delivery.
- Adjusts herd size based on feed availability.
- Raises livestock to market weight/size.
- Loads live animals in vehicles to transport to the processing center, assuming the facility has capacity. This is often a challenge during peak times of the year.

- Ensures cold chain post-processing and transport to off-site cold storage.
- Transports or works with the distributor to transport to next destination (end consumer, retail, or wholesale client).

This still does not account for additional needed farm tasks such as product marketing, accounting, staff management, and farm administration tasks such as making sure the appropriate licensing and health insurance needs are met. A farmer's day is truly never ending.

Additionally, the example provided here assumes the animal operation is on the road system. The logistics for feed delivery and animal processing become exponentially more complicated and expensive if air or marine travel is required. Cost per pound and insurance rates often become too high for small and medium scale producers. Furthermore, there are policy and regulatory challenges if importing anything through Canada or outside the United States.

Production

✦ **Action: Reexamine the Jones Act, support regional food hubs and co-ops, and build more processing and storage facilities throughout the state.**

The Jones Act, Section 27 of the Merchant Marine Act of 1920, requires that vessels transporting cargo between destinations within the United States be built and owned in the United States, and crewed by U.S. citizens.^{9,10} While the national protectionist intentions may be clear, the Jones Act is a significant barrier to the cost effective import of goods, including animal feed and farm equipment. This included goods traveling through Canada and Mexico, even on very short (less than 100-feet) distances.¹¹

There is a shortage of available processing and climate controlled storage throughout the state. However, despite all the supply chain gaps, some producers see a path forward to meet a growing demand for local food.

Furthermore, smaller cooperative food hubs and processing facilities distributed across the state could potentially help create more market opportunity for small scale producers and offer hyper-local, fresher product.¹²



Joseph Hartman moves a half beef out of a large cooler, in preparation for processing at the Alaska Meat Packers slaughterhouse in Palmer. Image: Loren Holmes/ADN, 2021

“ I have been producing pork for 20 years in North Pole Alaska. Some of the biggest challenges have been production cost compared to the lower-48 and producing enough pork to open year round markets. I (ran) a 100-sow facility for several years and had challenges with having a stable processing plant. Since my wife and I purchased the butcher plant in Palmer, we now know that there will always be a butcher plant available. We still had challenges with production cost and markets. By increasing our herd to a 200-sow operation and producing approximately 3,600 head of fat hogs a year we were able to have enough volume to open new markets in the grocery stores. Our production costs are still high but with the increased production volumes we have reached an economy of scale which will make the farm profitable. What we have found is that we are able to put fresh pork into grocery stores cheaper than it can be shipped up from the lower 48 and the product is three weeks fresher. The next factor that we have found is that the markets are wide open. I have no doubt that if I were running a 600-sow operation and producing 12,000 head of fat hogs a year I would still not be able to meet the demand.”

—Todd Elsberry, Task Force Member and Elsberry Farm owner

Finally, processing and storage needs are even more crucial for animal protein, especially for year-round storage. As of 2022, there are only 3 USDA-certified meat processing plants in the State.

- Midstate Meats, LLC, North Pole¹³
- Delta Meat and Sausage, Delta Junction¹⁴
- Alaska Meat Packers Incorporated (DBA) Alaska Meat, Palmer¹⁵

Animal slaughter facilities are subject to USDA inspection and approval, whereas meat processing facilities, which yield value-add products like spiced and smoked sausages, may be subject to both USDA and FDA inspection and approval. As an example, a game processor may only be subject to FDA inspection and approval if they do not accept meat slaughtered in a USDA approved facility. If they accept meat from USDA-approved slaughter facilities, they are subject to both USDA and FDA oversight.

Mobile processing units have been piloted in Alaska, however many have failed to sustain in the long term due to a variety of reasons including lack of consistent demand, high fuel costs, and ownership disputes. Additional capacity is needed now. If the State supports farm and ranch expansion, this need will only increase. The Niche Meat Processor Assistance Network offers resources for mobile slaughter unit planning, launch, and operation, and may be of value to smaller farmer collectives as ranching expands.¹⁶



Image: Barley Field in Delta Junction, Courtesy of Alaska Flour Company;

Alaska Commodity Shortfall

✦ Action: Support the production of commodity crops

Commodities such as wheat, barley, oats, soy, and alfalfa are in high demand. Alaska Mill & Feed alone would source 800-tons per year, if the in-state production could meet that need.¹⁷ In addition to large plots of farmland, agricultural research, adequate drying, storage, and transportation are needed to ensure the raw food grown can be processed into usable human and animal products.

Increased in-state commodity production will require additional resources, not only for the growing and harvest efforts but for the regulation and traceability. For all increased capacity in the food system where there exists a regulator or State oversight, so too will the costs increase, likely for both the producers and regulatory agencies.

Fair Competition

✦ Action: Develop Product Registration Guidelines and Labeling Laws

Product Registration Guidelines and Labeling Laws for animal feed do not currently exist in Alaska. These types of policies establish criteria for importing agricultural goods into the state (such as outside animal feed, pet food, hay, etc). If passed, implemented, and enacted in Alaska, manufacturers, distributors, and retailers then must register and pay a fee for each product they import. This also builds in invasive species protections and generates revenue, which could be used to create a self-sustaining program and further support Alaska agriculture initiatives.

“Alaska needs a business plan to identify what products are in demand. We also need a marketing plan to get those products to market—beyond ‘Alaska Grown’.”

—Task Force member and commodity purchaser

Task Force Recommendations

The following research recommendations highlight opportunities in the short (2–5 years), medium (5–10 years), and long term (50–100 years) timeframe. Some require collaboration with the federal government and deep policy research while others are within the Administration's purview to address immediately.

Suggested Further Research

- Conduct an analysis to understand the commercial and retail Alaska Grown demand for local products, with particular attention to commodities.
- Research in-state, out-of-state, international market size and purchasing power for Alaska Grown, or complete a targeted analysis of existing reports.
- Explore the marine barge cost reduction options for producers and purchasers.

Related Programs for Review

Review the Jones Act exemptions—The U.S. territories of Guam, American Samoa and the U.S. Virgin Islands have either partial or full exemptions. However, Hawaii is subject to the Jones Act.¹⁸

Research and educate farmers on the USDA Reimbursement Transportation Cost Payment Program (RTCP) to decrease farming supply costs.

Analyze Washington (and other) State's Product Registration Guidelines and Labeling Laws.

¹ Meter, K. & Goldenberg, M.P. (2018, September 18). *Potential Infrastructure Investments for Alaska-Grown Food*. Crossroads Resource Center, Minneapolis, MN. September 18, 2018. <https://www.akfoodpolicycouncil.org/ak-food-system-research>

² Task Force member survey response. August 2022.

³ Benz, S. *Agriculture Grows in the Land of the Midnight Sun*. (2021, July 29) USDA's National Agricultural Statistics Service. <https://www.usda.gov/media/blog/2019/12/27/agriculture-grows-land-midnight-sun>

⁴ Kagan, J. (2019, March 26). *Sturgeon v. Frost*. U.S. Supreme Court.

⁵ USDA. (2021, August). *Land Values 2021 Summary*. National Agricultural Statistics Service. https://www.nass.usda.gov/Publications/Todays_Reports/reports/land0821.pdf

⁶ *Alaska Municipality Land Management Handbook*. (2009, April). <https://www.commerce.alaska.gov/web/Portals/4/AKMuniLandManagementHandbook/AKMuniLandManagementHandbook.pdf>

⁷ Lockyer, E. (2013, July 19). *State Agricultural Covenants Questioned*. Alaska Public Media. <https://alaskapublic.org/2013/07/19/state-agricultural-covenants-questioned/>

⁸ Held, L. (2022, September 7). *The Field Report: The USDA Steps Up Its Investments in Regional Food Systems*. Civil Eats. <https://civileats.com/2022/09/07/the-field-report-usda-investments-regional-food-systems-local-food-jobs-economies/>

⁹ Shipping Under the Jones Act: Legislative and Regulatory Background. Congressional Research Service. November 21, 2019. <https://sgp.fas.org/crs/misc/R45725.pdf>

¹⁰ Jones Act. Legal Information Institute. Cornell Law School. Retrieved September 2022. https://www.law.cornell.edu/wex/jones_act#:~:text=The%20Jones%20Act%2C%20also%20known,see%2046%20USC%20C2%A7%2050101.

¹¹ Alex DeMarban. *Judge allows millions of pounds of backed-up Alaska seafood to move to eastern US in battle over Jones Act loophole*. Anchorage Daily News. October 11, 2021. <https://www.adn.com/alaska-news/2021/10/11/in-jones-act-dispute-judge-allows-millions-of-pounds-of-backed-up-alaska-seafood-to-move-to-eastern-us/>

¹² Meter, K. & Goldenberg, M.P. (2018, September 18). *Potential Infrastructure Investments for Alaska-Grown Food*. Crossroads Resource Center, Minneapolis, MN. <https://www.akfoodpolicycouncil.org/ak-food-system-research>

¹³ Midstate Meats. (n.d.). Retrieved September 2022 from <https://www.fsis.usda.gov/inspection/fsis-inspected-establishments/aks-midstate-meats-llc>

¹⁴ Delta Meat and Sausage. (n.d.). Retrieved September 2022 from <https://deltameat.com/>

¹⁵ Alaska Meat Packers Incorporated. (n.d.). Retrieved September 2022 from <https://www.fsis.usda.gov/inspection/fsis-inspected-establishments/alaska-meat-packers-incorporated>

¹⁶ *Mobile Unit Overview*. Niche Meat Processors Association. Retrieved September 2022 from <https://www.nichemeatprocessing.org/mobile-unit-overview/>

¹⁷ Task Force member survey response. August 2022.

¹⁸ Frittelli, J. *Shipping under the Jones Act: Legislative and regulatory background* [R45725]. (2019, November 21). Congressional Research Service. <https://sgp.fas.org/crs/misc/R45725.pdf>



Wild Foods and Increasing Abundance

Directive Addressed:



Assess the levels of wild game and fish harvests in Alaska. Suggest measures that would increase the abundance and harvest of wild game, fish, and food by Alaskans.



Image: Crowberries courtesy of JLS Photography

Task Force Recommendations

POLICY CONSIDERATIONS

The following policy and infrastructure recommendations were made by members of the Task Force and are intended to build on actions already being taken to assess and increase the abundance of wild foods for harvest. The Task Force cited many specific examples of changes to policy and regulations of wild fish and game that would improve access to wild food species for Alaskans. If made, these changes would result in greater ability to harvest wild foods—and therefore increased food security for Alaskans—and would go beyond strategies that focus narrowly on increasing abundance of wild fish and game populations.

- Expand co-management programs with Tribes (e.g. government-to-government agreements) and build capacity for co-management as a way for ANCSA Tribes to have more voice in food security (Note: See appendix “Co-management in Alaska, University of Alaska Fairbanks Center for Arctic Policy Studies”).
 - From the tribal perspective there is opportunity to improve management through application of Traditional Knowledge in a co-management structure.
 - Help Tribes build capacity and opportunities for management through workforce development, training, monitoring, and collecting baseline and other data.
 - Increased State support for creating co-management agreements or protected land-use designations

- Southeast Tribes are currently establishing a Southeast Subsistence Coalition to address co-management and other issues.
- Example: In coastal regions for Alaska Native co-management of sea otters, which are a Traditional food and part of food security for Tlingit and Haida and other coastal peoples.
- *Note: See also Ahtna Intertribal Resource Commission example below.*
- Address bycatch by changing regulation and management in sensitive ecosystems.
 - *Note: See Directive Section: "Fisheries Shortfalls and Disasters"*
- Recognize Tribal rights to subsistence.
 - The State could adopt best practice policies supporting Indigenous subsistence rights, such as those developed by the Bureau of Land Management (BLM) for compliance with Section 810 of the Federal Alaska National Interest Lands Conservation Act (ANILCA) which requires an evaluation of subsistence uses and needs for any permitted activities on federal lands in Alaska.
 - Preference for harvest will directly support food security across the state.
 - Understand and acknowledge the difference in terminology and legal rights and implications of using the terms wild harvest, subsistence, and personal use.
 - Alaska Native peoples use subsistence to refer to their traditional harvests, and subsistence rights are guaranteed by ANILCA.
 - While acknowledging there are certain rights afforded to Tribes and Tribal Members with the term subsistence, the State of Alaska uses subsistence to apply to all residents.
 - Harvest of wild foods is very common for non-native rural and urban Alaskans.
- Create policy solutions that address maximizing food production on lands that are federally managed.
 - The State cannot manage resources on federal land (ex: fire control on federal land to increase moose production is difficult).
- Enact policies and increase regulatory protections for wild populations that maintain healthy habitats for the fish and wildlife harvested by Alaskans.
 - A major threat to the abundance of wild fish and game populations that should be given serious consideration is the development and potential development of mining and oil development. It is well understood that these industries are an important part of Alaska's economy, however, any future projects should be weighed against the potential to disrupt, diminish or decimate wild species stocks that are also part of Alaska's economy (both cash and subsistence economies).
- Address user group conflicts in a way that prioritizes community and household food security.
 - Examples: Subsistence versus commercial use areas, visitor/sport fishing competing with subsistence in traditional use local sockeye streams, charter operations harvesting shrimp and crab to the detriment of personal use.
- Enact policies and regulations that prioritize harvest and food security for all Alaskans above harvest and export by out-of-state visitors.
- Increase ability to circulate subsistence foods
 - Example: a local Tribe has funds for special hunts/harvests to be donated foods for Elders, Youth, and Traditional Foods programs.
- Ensure policy for mariculture development includes a consultation process with local communities and tribes to evaluate if the proposed site identified for the lease is a traditional use area, and/or an area heavily used by residents to avoid user conflict.
- Maintain predator control programs to maintain ungulate populations for human harvest.
- Foster an increased wild harvest of shellfish

- Improve PST testing and awareness through a State program that routinely tests traditional shellfish harvest areas for PST and high vibrio danger.
- Monitor more locations and target more species
 - Example monitor littleneck and butter clams, which can hold PST for at least two years.³
 - Misinformation and fear may currently be generated unnecessarily because of focus on the wrong species/locations.
- Change practices to better understand what's happening and then change the narrative. Listen to traditional harvesters and incorporate traditional knowledge in testing programs.
- Make PST management an “essential service” and provide deeper support and capacity than currently exists under a single authority (DEC).
 - If funding is cut, there is no backup/no path for recourse or for maintaining programs and public education.
- Establish co-management with Tribes.

Infrastructure Needs

- Increase in-state fish processing infrastructure. This will prevent catch being sent to Seattle and brought back, as happens currently in many Alaska fisheries. This will reduce the cost of locally-caught fish and help make fresh fish available to Alaskans in the summer.
- Use existing commercial fisheries assets to bring food back to communities.
 - For example, commercial licensing for salmon allows fishermen to retain part of their harvest and bring back to communities and neighbors.
- Invest in education programs aimed at increasing harvest effort, especially in younger generations. This will:
 - Raise awareness of the nutritional value of wild foods.
 - Provide more information on what opportunities exist to participate and what resources are available for wild harvest and/or for purchase from producers.
 - Provide and support programs that train people to hunt, fish, prepare, preserve and otherwise participate in other wild harvests.
 - Advertise more broadly that SNAP program funds can be applied toward supplies and gear needed for wild harvest. This is an important access issue—many food insecure households that could benefit from wild harvests do not have the equipment or gear to participate.
- Educate about which wild harvests require licensing and reporting, and which do not.

Introduction

Subsistence, personal, and sport harvest of wild foods are crucial aspects of food security, culture, and economic stability among all user groups in Alaska. Rural, urban, Indigenous and non-Indigenous Alaskans harvest wild food species to provide for their food security through a wide range of hunts and fisheries. These harvests add up to more than 33.6 million pounds annually, and are important for cultural, nutritional, economic and recreational reasons.

The amount of wild fish and game harvested in Alaska depends on many, interacting biological, political and social factors that affect both wild food abundance and harvest access. Different stakeholder (user) groups often disagree on how wild food species and harvest should be managed based on different perspectives, expertise, and/or worldview, thus, making policy recommendations and enactment related to wild food management is inherently difficult.³³

Alaskans have witnessed numerous, unprecedented fish and wildlife population declines and collapses over

the past several decades in both the marine and terrestrial realm. In response, policy makers, resource managers and tribal entities have made efforts to improve the health and abundance of wild species populations. Current initiatives include interagency and intergovernmental working groups to manage and increase wild species population health and abundance, efforts to increase ungulate populations (stocking, wild releases, and Intensive Management), and salmon population management (research, habitat protection, and rehabilitation, hatcheries, and the Alaska Bycatch Review Task Force).

Among this Task Force's policy, research, infrastructure, and model program recommendations, several common themes emerged, including the need for increased public awareness and education regarding wild food harvesting (e.g. safety, best practices, and permitting) and the need for greater collaboration with other government agencies (including Federal and Tribal governments). Some Task Force members recommended policies to expand co-management opportunities as a way to provide wider access to Traditional foods in impacted communities. Additionally, most Task Force members agreed additional investment in research that fills critical knowledge gaps about wild species habitat and stock assessment would be an important step towards maximizing wild resource abundance.

In Alaska, wild food species are harvested by both rural and urban, Indigenous and non-Indigenous populations to provide for their food security through subsistence and non-subsistence hunts and fisheries. As described in the Wild Foods overview in Section II of this report, urban residents harvest through personal use, sport fisheries and general hunts, and rural Alaskans through subsistence hunting and fishing. According to the most recent ADF&G Subsistence Update Report,¹ the wild foods harvested by Alaska residents equates to approximately 33.6 million pounds annually (excluding wild plants).⁴ This total includes all noncommercial harvests by residents of rural areas plus harvests taken under subsistence fishing and hunting regulations by residents of non-subsistence areas. Personal use fishing, and hunting under general regulations by Alaskans, produce an additional 0.2% of all harvests. Sport fishing and hunting (sport fishing by Alaskans and nonresidents and all nonresident hunting) take 0.3%. Commercial fisheries account for the balance—about 98.6% of the statewide harvest.

Who harvests fish and game?
Resource harvests by use in Alaska

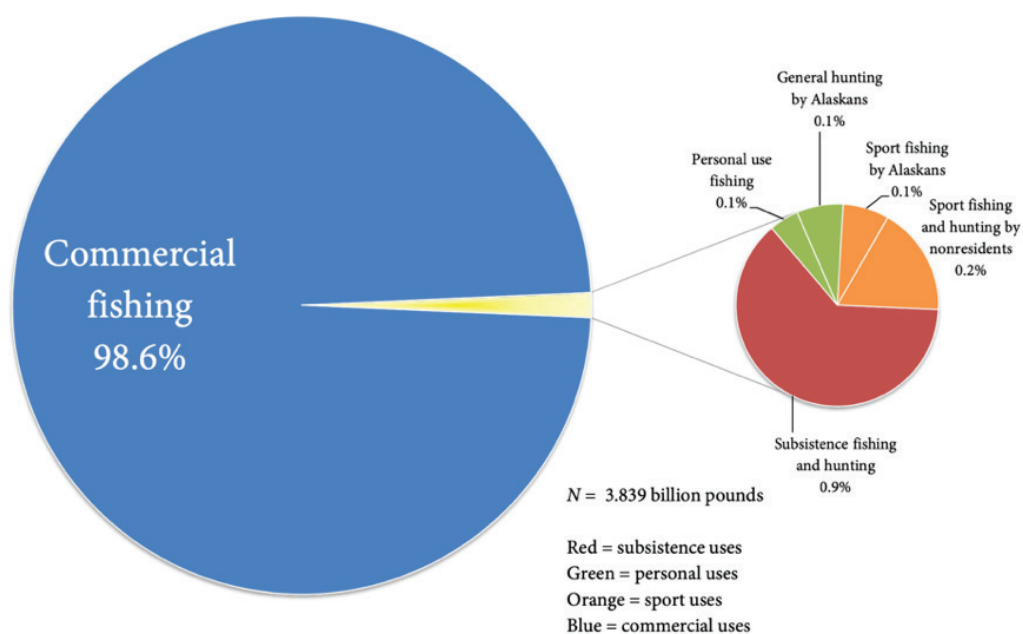


Image: The percentage of commercial fishing, ADFG, 2017

The levels of wild fish and game harvests in Alaska are dependent on many factors, including:

- Current management and harvesting regulations and policies set forth by both state and federal entities (e.g. ADF&G, USFW, BLM, and NOAA)
- Wild species' population health which is predicated on factors like environmental health, disease pressure, and/or fishing and hunting pressure
- Accurate data that informs regulation and population management
- Harvest pressures outside of Alaska (especially in the case of pelagic groundfish and anadromous fish species, like halibut and salmon)
- Abundant and healthy habitat (e.g. increasingly habitat degradation from environmental change like warming water temperatures, or resource development and/or extraction are resulting in deleterious effects on important food species like salmon, caribou and marine mammals)

Each one of these factors interact with one another to either support or detract from healthy fish and game populations on which both rural and urban Alaskan residents depend for food security and livelihoods. Additionally, each of the above determinants affecting wild food abundance is associated with some form of disagreement between different stakeholder (user) groups based on different perspectives, expertise, and/or epistemology (worldview).^{5,6} This point is emphasized to highlight the fact that any policy recommendation will need to seriously assess the possible resulting benefits or disadvantages of its adoption for different Alaskan stakeholder groups.

✦ **Action: Assess the possible resulting benefits or disadvantages of policy adoption for different Alaskan stakeholder groups.**

Over the past several decades there have been numerous population declines and collapses of both marine and terrestrial wild food species across Alaska (e.g. declared salmon fisheries disasters, and ungulate populations crashes). Wild species populations appear to be fluctuating and/or declining at an increasing rate, and policy makers, resource managers and Tribal entities alike have made efforts to improve wild species population health and abundance.

Current Landscape

Below are descriptions of recent and current programs and initiatives designed in part or in full to increase the abundance and harvest of wild game, fish, and food by Alaskans. Many of the measures that are currently or have been actively pursued are covered in Section II—Wild Foods Summary. Each of the topics/actions outlined below includes a brief synopsis of what is working and not working well with regard to the levels of wild game and fish for harvest in Alaska.

Select examples of interagency collaborations designed to collect wild fish and game species/population data and aid management for improved population health and abundance include:

- **Western Arctic Herd Working Group** is a cooperative body, supported by agency staff, that meets regularly to exchange traditional and Western scientific information; to reach consensus on recommendations for research, monitoring, regulation, allocation and enforcement; to support education about the herd; and to foster communication among stakeholders.
- **International Porcupine Caribou Board** is a shared effort of The United States and Canada which jointly manage the Porcupine caribou herd. The two countries signed a treaty in 1978 establishing an advisory board, to coordinate research, management, and conservation of the herd.
- **Ice Seal Committee (ISC)** is an Alaska Native co-management organization working with ADF&G to address the need for reliable seal population estimates. Learning more about seal populations from subsistence harvesters of ice seals provides valuable information about the status of seal populations where previously little information has been available.

- Funding from the **State Wildlife Grant (SWG) program**,⁷ led to the creation of the Alaska Department of Fish and Game's **Threatened, Endangered, and Diversity (TED) Program**, which includes Wildlife Diversity biologists and the Endangered Species Coordination team.

✦ **Action: Improve collaboration and shared decision making with federal management agencies.**

While the above programs (as well as many not listed here) are working to improve wildlife management, abundance and access to harvesters, there remains a need for the state to improve collaboration and shared decision making with federal management agencies, and for co-management agreements between Tribal entities and the State to best increase abundance of wild foods and access to harvesters. This need is in part a response to budget cuts that have limited the ADF&G ability to conduct some of its research and management programs.⁸

Co-management agreements are becoming more popular between Tribes and federal agencies and have led to improved harvest records, and improved species population management.^{9,10} Examples from Alaska include the Ahtna Intertribal Resource Commission, which under a co-management agreement oversees hunts on neighboring federal lands,¹¹ and the Huna Tlingit Gull Egg Harvest program developed in Glacier Bay National Park between the Hoonah Indian Association of Alaska and the National Park Service.¹²

Efforts to Increase Ungulate Populations

The ADF&G designs and implements several different programs to increase big game abundance, including stocking, wild releases, and Intensive Management (IM), which includes selective habitat improvement and predator control.

STOCKING AND WILD RELEASES

Alaska has a long history of both stocking and wild releases of ungulates. Sitka black-tailed deer were successfully introduced to Yakutat, Prince William Sound and Kodiak Island between 1916 and 1934, while an attempt to introduce deer to the Kenai Peninsula in 1923 was not successful. Elk were first introduced in 1928 and now inhabit islands in both Southeast Alaska and the Kodiak Island area. Moose from Southcentral Alaska were released to Berners Bay north of Juneau in 1958 and 1960, and into the Copper River Delta between 1949 and 1958. In a recent example, the state reestablished a wood bison herd in Western Alaska in 2015, and is currently preparing to add more young animals to that population as part of a broader effort to restore the animal's population in the state.¹³ Most of the successful ungulate introductions in Alaska have become important for harvests and can be considered successful in terms of increasing the abundance of and access to wild game.

INTENSIVE MANAGEMENT (IM)

The Alaska Legislature recognized the importance of wild game meat to Alaskans when it passed the Intensive Management Law in 1994. This law requires the Alaska Board of Game (BOG) to identify moose, caribou, and deer populations that are especially important food sources for Alaskans, and to ensure that these populations remain large enough to allow for adequate and sustained harvest. If a population drops below what the BOG determines is needed for continued harvests by people, the board directs ADF&G to enact intensive management. This can include restricting hunting seasons and bag limits, evaluating and improving habitat, liberalizing harvest of predators and predator control.

PREDATOR CONTROL

According to a 2007 ADF&G report on predator control programs, anywhere from 5–11% of Alaska's land mass is under a predator control program at any given time, and data estimates derived from aerial surveys suggest the efficacy of predator control programs in increasing survivability in ungulate populations.¹⁴ Examples of past successes in predator control include the Southern Alaska Peninsula caribou herd, Game

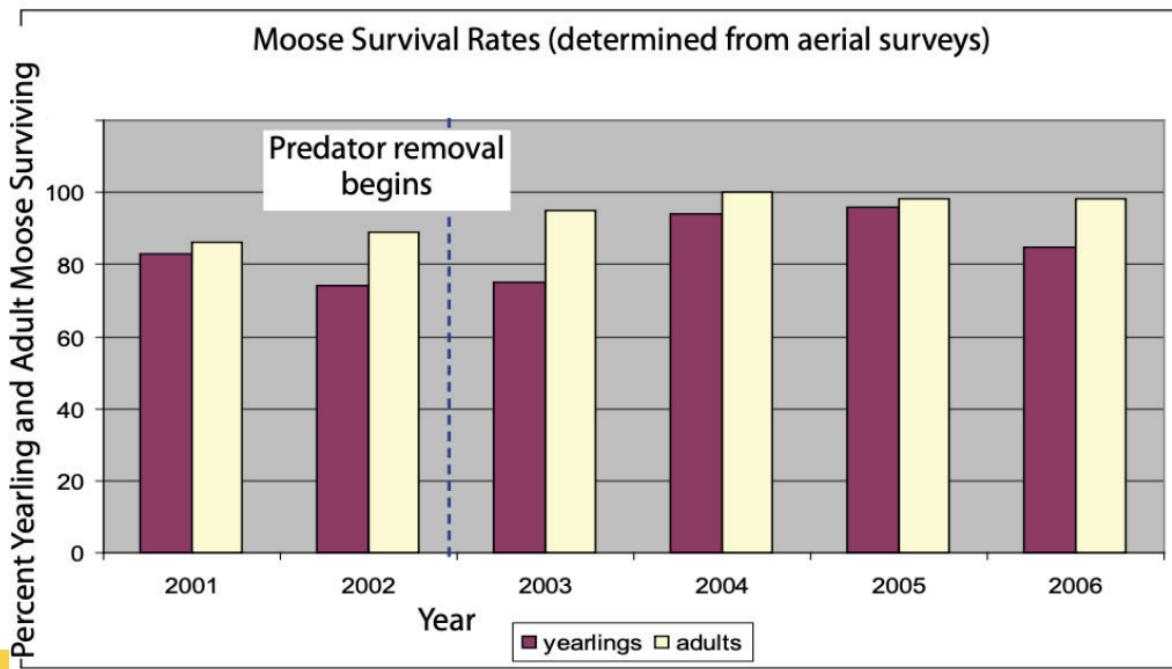


Image: 2007 Moose Survival Rates following implementation of predator control, ADF&G

Management Unit 13 moose, and the Fortymile caribou herd, which are all important resources for wild harvests for Alaskans.¹⁵

There are, however, critiques that predator control programs are not necessarily sufficient or holistic in their approach to manage wildlife populations. For instance a report by the Alaska Wildlife Alliance states that because the ADF&G lacks the authority to regulate/impose habitat improvement activities on lands other than State game refuges, control of large predators has become the only mechanism for implementing IM when there are insufficient numbers of caribou, moose, and Sitka black-tailed deer available to meet hunter demand.¹⁶

✦ **Action: Devote additional funding for research to better understand ungulate and predator populations and how those interact with climate-driven changes in habitat.**

Predator control programs have received much criticism from scientific, activist, and some Tribal communities alike in Alaska. A scoping report on Alaska predator control programs cited three recent Governors of Alaska filling the BOG with members strongly in favor of intensive predator management (IM) rather than advocates for science-based predator management strategies that adhere to the National Research Council's suggested standards and guidelines for predator control in Alaska.^{17,18} Additional concerns include:

- A lack of current data and studies;¹⁹
- the need for additional funding for research to better understand ungulate and predator populations and how those interact with climate-driven changes in habitat;
- that some ungulate population objectives may be unattainable due to habitat limitations or other environmental factors; and
- that the efficacy of IM programs are difficult to assess when they deviate from a structured decision framework in response to public demand for increased efficacy or participation.

INTENSIVE MANAGEMENT—HABITAT IMPROVEMENT

Improving habitat for moose involves stimulating shrub or young tree growth to increase food availability on their winter range, which is most commonly accomplished by mechanical disturbance, prescribed fire, or allowing wildland fires to burn. While enhancing habitat is often successful in bolstering moose population numbers, it is expensive to implement and practical only on a relatively small scale. Recent examples include habitat enhancements on the Kenai Peninsula and in the Matanuska-Susitna Borough. Notably the State only has the authority to apply habitat improvement on State lands, and is another example where collaboration with federal agencies and Tribal organizations could increase the use of habitat management on non-state owned lands.

Salmon Population Management

✦ **Action: Examine if rehabilitating runs through hatchery production is both feasible and acceptable, recognizing it is a highly controversial issue that must be well studied and thoroughly vetted**

ADF&G, in cooperation with many partners, have numerous studies underway to evaluate the underlying reasons for the poor salmon returns in the Yukon River, Norton Sound, Upper Cook Inlet and elsewhere. Current work includes studies of the impacts to Alaska Native culture and food security, marine surveys to understand early parts of the salmon life cycle, and investigations into the roles of disease, bycatch and interceptions. The agency will soon be starting a comprehensive research plan addressing other factors impacting salmon broadly in Alaska. Finally, ADF&G will examine if rehabilitating runs through hatchery production is both feasible and acceptable, recognizing it is a highly controversial issue that must be well studied and thoroughly vetted.

HABITAT PROTECTION AND REHABILITATION

In response to fisheries declines across the state, other programs have been launched by Tribal entities and economic organizations in order to protect salmon and rehabilitate stocks of concern. For example, Tribal Conservation districts through Alaska have included salmon habitat restoration as part of their strategic conservation plans. The Tyonek Tribal Conservation District, for example, has worked cooperatively with the Native Village of Tyonek, the Tyonek Native Corporation, the USDA Natural Resources Conservation Service, the US Fish & Wildlife Service, and ADF&G, in order to implement salmon passage in habitat improvement projects as well as invasive species monitoring.



Images: Research technicians collect salmon eggs, courtesy of Norton Sound Economic Development Corporation

The Norton Sound Economic Development Corporation (NSEDC) exemplifies another example of non-government organizations demonstrating leadership in supporting increased health and abundance of wild salmon in Northwest Alaska since the early 2000s. NSEDC's Fisheries Research and Development (NSFR&D) program promotes scientific research in the region with an emphasis on supporting local fisheries. In a response to declining populations of valuable commercial and subsistence species (e.g. Chinook salmon and King crab) NSFR&D works to explore the potential of under-utilized stocks (e.g. Chum salmon) and, when possible, enable greater use by local residents for both commercial and subsistence purposes. With regard to increasing abundance of wild stocks, the NSFR&D currently operates rehabilitation projects are conducted through egg takes, incubation, and fry releases into Norton Sound Rivers in collaboration with ADF&G.

Numerous other habitat protection and rehabilitation projects and programs are also underway in Southeast Alaska, the Kenai Peninsula, the Matanuska-Susitna region and elsewhere in the state.

HATCHERIES

★ Action: Conduct studies on the interaction between wild and hatchery fish to gain a better understanding of impacts on wild stocks.

Hatchery-bred fish is one of the State's (ADF&G's) primary tools in increasing the abundance of salmon stocks. There are several distinct types of hatcheries in Alaska, these include: private nonprofit (PNP) salmon hatcheries which produce salmon to enhance commercial, sport, subsistence, and personal use fisheries; sport fish hatcheries which produce fish specifically to enhance sport fisheries. These facilities are owned and operated by ADF&G, and; two other federally-operated research facilities and a hatchery operated by the Metlakatla Indian Community.²³

Hatcheries present both positive as well as negative impacts on increased abundance of "wild" foods for Alaska. On one hand, hatcheries provide an increase in fish abundance, although on the other hand, the hatchery fish create competition for food sources with wild species.²⁴ In response to continued low returns of wild fish populations, ADF&G has paused increasing hatchery pink and Chum releases while the agency conducts studies on the interaction between wild and hatchery fish to gain a better understanding of impacts on wild stocks.¹⁸

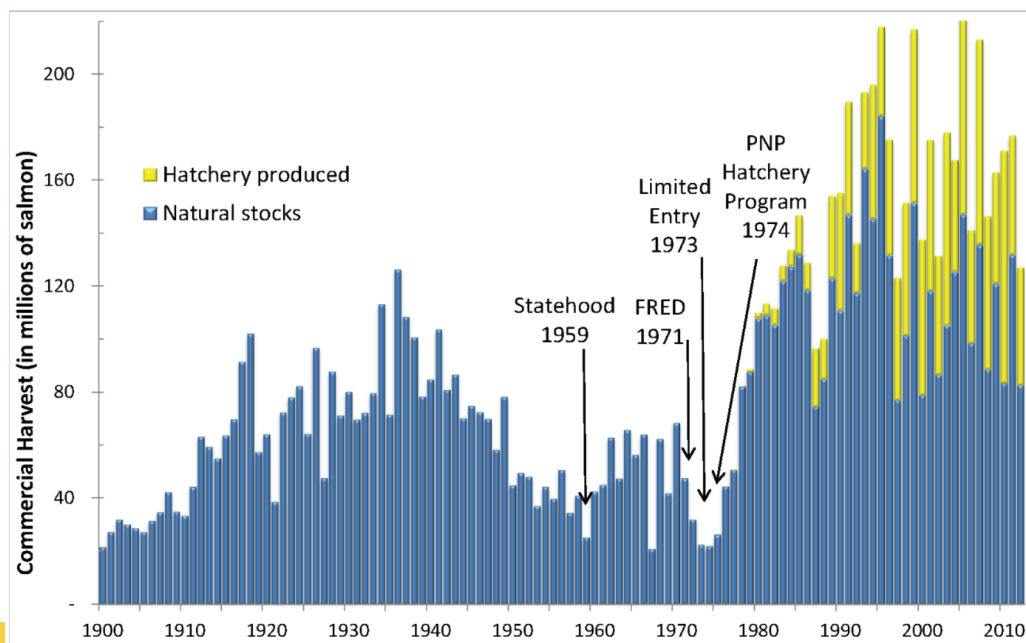


Image: *Alaska commercial salmon harvests 1900–2012, ADF&G, 2013*

★ Action: Develop state bycatch research priorities across departments, implementing strategies for cooperative research to reduce bycatch and associated mortality.

Many subsistence harvesters impacted by fisheries disasters have requested assistance in the form of action on bycatch of salmon in commercial fisheries.^{25,26,27} In response to the growing controversy, Governor Mike Dunleavy issued an Administrative Order forming the Alaska Bycatch Review Task Force in January 2022.²⁸ The group, focused on reducing and managing bycatch in commercial fisheries, is working toward issuing a set of recommendations in November 2022. Several priorities are beginning to emerge from committee reports. The subcommittee focusing on Bering Sea and Gulf of Alaska crab has highlighted three bycatch recommendations so far: developing state bycatch research priorities across departments, implementing strategies for cooperative research to reduce bycatch and associated mortality, and creating methods for collaboration to track ongoing research such as an annual workshop.²⁹ Meanwhile, some have called on the task force to go beyond recommending research to developing actionable policy and management recommendations.^{23,30}

Task Force Recommendations

The following research and model program recommendations were made by members of the Task Force, and are intended to build on actions already being taken to assess and increase the abundance of wild foods for harvest. The Task Force cited many specific examples of changes to policy and regulations of wild fish and game that would improve access to wild food species for Alaskans. If made, these changes would result in greater ability to harvest wild foods—and therefore increased food security for Alaskans—and would go beyond strategies that focus narrowly on increasing abundance of wild fish and game populations.

SUGGESTED FURTHER RESEARCH

- Invest in research that helps maximize resource yields and ensures adequate stock assessments across the state.
- Examine how the carrying capacity of Alaska lands is currently being measured and ensure the methods follow best practices in ecological and management sciences.
- Add to current research on ocean acidification, the effects on shellfish, and future production of shellfish.
- Research the potential impact of establishing Sockeye salmon hatcheries in Southeast Alaska to enhance food security.
- Incorporate Traditional Knowledge of streams and habitat restoration models. Use Sockeye hatchery research in South Central as a potential model.

RELATED PROGRAMS FOR REVIEW

- Ahtna Intertribal Resource Commission—under a co-management agreement with the US Department of Interior, oversees hunts on neighboring federal lands.
 - Recognizing the importance of Traditional Ecological Knowledge and cultural practices, the agreement commits Interior to begin a process under the Federal Subsistence Board to allow the Ahtna Commission to administer caribou and moose hunts for tribal members under the Federal Subsistence Management Program.³¹
 - This program could be used as a model by other tribal entities in the state.
- The Bering Sea Indigenous Sentinels Network.
 - Provides remote, Indigenous communities with tools, training, networking and convening, coordination, and capacity for ecological, environmental, and climate monitoring.³²
 - Is a model for tribal and rural community engagement in monitoring and other management related science.
- Alaska Native Tribal Health Consortium's Local Environmental Observer (LEO) Network.

- A network of local environmental observers and topic experts who apply traditional knowledge, western science and technology to document significant, unusual or unprecedented environmental events in their Northern communities to increase understanding about environmental change so communities can adapt in healthy ways.³³
- Is a model for tribal and rural community engagement in monitoring and other management related science.
- ADF&G's cost recovery for sockeye salmon program in Prince William Sound.
 - Could be replicated elsewhere to enhance salmon runs.
- ADF&G's work to increase big game abundance, including stocking and wild releases,
 - Additional opportunities for transplanting additional herds of elk, deer, and wood bison may exist.
- The 2018 Farm Bill, Title 4 (Nutritional Programs) Section 4203 includes a provision for donation of wild harvested traditional foods to healthcare and residential care programs.³⁴
- Programs that encourage the distribution of free Coho and Sockeye salmon from PNP hatcheries to the public are widely used on Prince Of Wales Island in Southeast, especially by the elderly and poor.

¹ Bureau of Land Management. (2011). *Instructions and policy for compliance with Section 810 of the Alaska National Interest Lands Conservation Act (ANILCA)*. <https://www.blm.gov/policy/im-ak-2011-008>

² National Parks Service. (n.d.). *Alaska Subsistence: The subsistence fishing question*. Retrieved August 2022 from <http://npshistory.com/publications/alaska/subsistence/chap9.htm>

³ *Paralytic Shellfish Poisoning in Alaska facts and discussion*. (n.d.). Alaska SeaGrant. Retrieved September 2022 from <https://seagrant.uaf.edu/topics/environmental-hazards-alaskas-coasts/paralytic-shellfish-poisoning/psp-facts.php>

⁴ Fall, J.A. (2018). Subsistence in Alaska: A year 2017 update. Alaska Department of Fish and Game. https://www.adfg.alaska.gov/static/home/subsistence/pdfs/subsistence_update_2017.pdf

⁵ Weiss, K., Hamann, M., & Marsh, H. (2013). Bridging knowledges: understanding and applying indigenous and western scientific knowledge for marine wildlife management. *Society & Natural Resources*, 26(3), 285-302.

⁶ Harrison, H. L., & Loring, P. A. (2014). Larger than life: the emergent nature of conflict in Alaska's Upper Cook Inlet salmon fisheries. *SAGE Open*, 4(4), 2158244014555112.

⁷ U.S. Fish & Wildlife Service. (n.d.). *State wildlife grants*. Retrieved September 2022 from <https://www.fws.gov/program/state-wildlife-grants>

⁸ Welch, L. (2019, July 1). *Looking at budget cuts' impact on Alaska fisheries*. Anchorage Daily News. <https://www.adn.com/business-economy/2019/07/16/looking-at-budget-cuts-impact-on-alaska-fisheries/>

⁹ Nie, M. (2008). The use of co-management and protected land-use designations to protect tribal cultural resources and reserved treaty rights on federal lands. *Natural Resources Journal*, 585-647.

¹⁰ Freitas, C. T., Lopes, P. F., Campos-Silva, J. V., Noble, M. M., Dyball, R., & Peres, C. A. (2020). Co-management of culturally important species: A tool to promote biodiversity conservation and human well-being. *People and Nature*, 2(1), 61-81.

¹¹ Ahtna. (2016, Nov. 29). *Ahtna Intertribal Resource Commission and U.S. Department of the Interior Sign First Cooperative Management Agreement Under New Secretarial Order*. Retrieved August 2022, from: <https://www.ahtna.com/ahtna-intertribal-resource-commission-and-u-s-department-of-the-interior-sign-first-cooperative-management-agreement-under-new-secretarial-order/>

¹² US Department of the Interior. (2022, March 8). *Tribal co-management on federal lands*. Retrieved August 2022, from: <https://www.doi.gov/ocl/tribal-co-management-federal-lands>

¹³ Bross, D. (2022, April, 19). *Alaska imports more wood bison to bolster reintroduction efforts*. Alaska Public Media. <https://alaskapublic.org/2022/04/19/alaska-imports-more-wood-bison-to-bolster-reintroduction-efforts/>

¹⁴ State of Alaska. (2007). *Understanding Predator Management in Alaska*. ADF&G. www.adfg.alaska.gov/static/research/programs/intensivemanagement/pdfs/predator_booklet.pdf

¹⁵ State of Alaska. (2014, January). *Stories of Success; Alaska's intensive management programs incorporate science and action to benefit Alaskans*. ADF&G. Retrieved August 2022 from https://www.adfg.alaska.gov/static/research/programs/intensivemanagement/pdfs/intensive_management_stories_of_success.pdf

¹⁶ Alaska Wildlife Alliance. (2020, December 31). *Position paper on Intensive Management and other efforts to reduce predator populations in Alaska*. Retrieved August 2022 from <https://www.akwildlife.org/intensive-management-and-predator-control>

¹⁷ US Department of the Interior. (2022, March 8). *Tribal co-management on federal lands*. <https://www.doi.gov/ocl/tribal-co-management-federal-lands>

¹⁸ Defenders of Wildlife. (2011). *Alaska's Predator Control Program: Managing for abundance or abundant mismanagement*. https://defenders.org/sites/default/files/publications/alaskas_predator_control_programs.pdf

- ¹⁹ State of Alaska. (n.d.). *Intensive Management in Alaska*. ADF&G. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=intensivemanagement.research>
- ²⁰ Vincent-Lang, D. (2022, August 8). *Here's what we're doing to save Yukon River salmon*. Anchorage Daily News. <https://www.adn.com/opinions/2022/08/08/opinion-heres-what-were-doing-to-save-yukon-river-salmon/>
- ²¹ Tyonek Tribal Conservation District. (2022). *Habitat monitoring and restoration*. <https://ttcd.org/programs/fish-passage-and-habitat-program/>
- ²² Norton Sound Economic Development Corporation. (2022). *Fisheries research and development*. <https://www.nsedc.com/fisheries/fisheries-research-development/incubation-and-egg-planting-projects/>
- ²³ State of Alaska. (n.d.). *Hatcheries*. ADF&G. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=fishingHatcheries.main>
- ²⁴ Vincent-Lang, D. (2019, September 26). *Are hatchery releases affecting Alaska's wild salmon?* Anchorage Daily News. <https://www.adn.com/opinions/2019/09/26/are-hatchery-releases-impacting-alaskas-wild-salmon/>
- ²⁵ Fitka, S. (2022, January 6). Yukon fisheries news – fall 2021. Yukon River Drainage Fisheries Association. <https://yukonsalmon.org/yukon-fisheries-news-fall-2021/>
- ²⁶ Rosen, Y. (2022, June 15). *Fishery managers call for deeper look at salmon bycatch, but decline to tighten rules*. Alaska Beacon. <https://www.adn.com/alaska-news/2022/06/15/fishery-managers-call-for-deeper-look-at-salmon-bycatch-but-decline-to-tighten-rules/>
- ²⁷ Kuskokwim River Inter-Tribal Fish Commission. (2022, July 5). *Salmon Bycatch Information*. <https://www.kuskosalmon.org/news/bycatchintercept070622>
- ²⁸ Office of the Governor Mike Dunleavy. (2022, January 7). *Governor Dunleavy announces Alaska Bycatch Review Task Force members*. <https://gov.alaska.gov/newsroom/2022/01/07/governor-dunleavy-announces-alaska-bycatch-review-task-force-members/>
- ²⁹ Early, E. (2022, August, 24). *Bycatch task force works toward recommendations*. Alaska Journal of Commerce. <https://alaskajournal.com/2022-08-24/bycatch-task-force-works-toward-recommendations>
- ³⁰ Editorial Board. (2022, July 30). *What we must do to save the Yukon River's salmon*. Anchorage Daily News <https://www.adn.com/opinions/editorials/2022/07/30/editorial-what-we-must-do-to-save-the-yukon-rivers-salmon/>.
- ³¹ US Department of the Interior. (2016). *Interior and Ahtna Intertribal Resource Commission agree to Cooperative Wildlife Management Demonstration Project*. <https://www.doi.gov/subsistence/news/general/interior-and-ahtna-intertribal-resource-commission-agree-cooperative>
- ³² Indigenous Sentinels Network. (n.d.). Retrieved August 2022 from: <https://www.beringwatch.net>
- ³³ Alaska Native Tribal Health Consortium. (n.d.) *LEO Network Overview*. Retrieved August 2022 from: <https://www.anthc.org/what-we-do/community-environment-and-health/leo-network/>
- ³⁴ The Farm Bill. (2014). *Title 4: Nutrition Programs*. <https://www.thefarmbill.com/title-4-nutrition-programs>



Fishery Shortfalls and Disaster Response

Directive Addressed:

- ★ Recommend a program to assist communities and households impacted by fishery shortfalls and disasters.

Task Force Recommendations

The following policy and infrastructure program recommendations were made by members of the Task Force, and are intended to build on actions already being taken to assist communities and households impacted by fishery shortfalls and disasters. Note that all of the Task Force recommendations are included, however not all members agreed on all of the recommendations. The sub bullets below offer additional context provided by one or more Task Force member(s).

Image: Salmon Subsistence Harvest, courtesy of Kyra Wagner



POLICY

- Assist impacted communities and households by preventing fishery shortfalls and disasters.
- Adopt management and harvest policies that support healthy ecosystems and therefore support healthy people.
 - Many Tribal communities do not want food boxes; they want to practice traditional ways of life. Give priority and assistance to subsistence communities over sport and commercial interests.
 - Priority for subsistence communities is currently sandwiched between the State's need to meet the requirements of the North Pacific Salmon Treaty and commercial fleet harvest activity.
 - Recognize that a lack of food in rural areas causes an influx of people into urban centers where food programs are already maxed out. Policies should account for the long term actual costs of food assistance to subsistence communities and individual harvesters versus the cost of management that supports subsistence.
- Better fund and bolster bycatch recovery programs to ensure distribution, avoid underreporting and create consequences for non-compliance.

- Explore ways to legally use bycatch
 - Use tax credits to incentivize bycatch use and distribution.
 - Alaska's film crew and TV production tax credits, and oil and gas tax incentives could be used as models.
- Expand co-management opportunities to leverage federal dollars to create strong and meaningful infrastructure projects throughout the state.
 - Greater collaboration between the State & Tribes could leverage more federal funding.
 - Align Tribes with trusted partners to increase their capacity to apply for grants, where needed.
- Work to increase federal funding for fisheries observer programs.
- Increase the bypass mail system to increase storage at distribution and transfer hubs, expand cargo capacity for more timely deliveries and fewer delays due to shipment prioritization, and improve tracking to prevent items from sitting on the tarmac that should be either refrigerated or frozen to better support food distribution.
 - Currently, pallets of food are not given priority on flights and often are left on the tarmac until space is available on a later flight. This leads to food waste as a result of freezing and/or spoiling due to high temperatures.
- Educate the public and institutions about regulations to allow fish caught in personal use fisheries to be donated to food banks and other donation programs.
 - Precedence exists through the Alaska Native Medical Center (ANMC) in Anchorage, which accepts donations of hunted and gathered foods to their inpatient food service program. Donations they can accept include most wild game meat and bones (caribou, moose, deer, sheep, goat, and beaver), most fish and seafood, seal meat and fat, and plants and berries.
 - DEC allows donation of:
 - Hatchery salmon from ADFG to a food bank (18 AAC 31.200(b)(2))
 - Seafood to a non-profit or institution if the seafood is whole, gutted, or gilled at 18 AAC 31.205
 - Other traditional foods are allowed (plants, most game animals)
 - Not allowed due to the high-risk nature of these products (18 AAC 31.210):
 - Fermented seafood products
 - Smoked, canned, or reduced-oxygen packaged fish unless from a permitted processor.
 - Personally harvested molluscan shellfish
- Impose a tax on the large commercial fisheries operators (e.g., processors) to support community subsistence activities.
 - Commercial fishermen are individual operators and already have a heavy tax burden—ask commercial fleets for donations but don't impose new taxes.

INFRASTRUCTURE NEEDS

- Invest in adequate dry, cold, and frozen storage at distribution hubs specifically for bypass food products and food security improvement in communities.
 - The State's experience from the last two years demonstrated that a lot of cold storage is needed to make the donations work.
 - Determine required storage needs at hubs and how to distribute from hubs to communities.
 - Build in-state expertise to be housed through the Division of Agriculture to run food logistics and maintain onsite emergency storage caches. Partner with experts at retailers and incentivize them to bring more expertise to the state. For example, Walmart's expertise with 'mixing centers', Carrs/Safeway is the largest retailer for warehousing, AC Stores are widely distributed across the state.

- Incentivize more retailers to cache more in-state (*Note: See also Directive on Disaster Food Caches*)
- Invest in infrastructure that supports food logistics and shortens supply chains, including at node locations that reduce the distance between harvest and distribution.
 - This could possibly reduce costs of food generally and also in the case of disaster assistance.
 - This is a cross-cutting need across the Directives, and overlaps with the Directive on Food Caches—which requires distributed processing, storage, and more regional dry and cold food storage to support the distribution network.
 - These investments could be State supported.

Introduction

Alaskans have experienced an unprecedented number of fisheries shortfalls and disasters in the past four years, and have seen declines in many other fisheries across the state over the last two decades (*Note: See Section II, Wild Foods*). Various programs and initiatives have sought to provide assistance to impacted communities and households, including several well-orchestrated salmon donation efforts in 2020, 2021 and 2022. In many areas of the state, regional agencies, local organizations, and Tribal entities are actively working to provide greater access to alternative sources of traditional wild foods as a way to address fisheries shortfalls. Because the rate and severity of fisheries shortfalls and disasters have increased with both regularity and severity in the past decade, this section highlights the need for both solutions and food source alternatives. However, it is important to note that at this time, not all areas of Alaska are facing fisheries disasters. There are a number of robust fisheries providing vital subsistence, personal use, sport and commercial opportunities.

The formal disaster determinations issued by the U.S. Secretary of Commerce in January 2022^{1,2} provide for substantial funding to help address economic impacts for shortfalls that occurred from 2018 to 2021 in 14 different fisheries. While the federal funding is welcome and necessary in the affected communities, subsistence users have been vocal in calling for action to better understand and address the root causes of the declines, especially with regard to bycatch of salmon in commercial fisheries.^{3,4,5} In response to the growing controversy, Governor Mike Dunleavy formed the Alaska Bycatch Review Task Force in January 2022. Subsistence harvesters have also made clear that while they need and appreciate the salmon donation programs, those fish do not fully address their nutritional needs, nor do the donations address the significant cultural loss of practicing their own traditional harvest.

Among the Task Force's policy, research, infrastructure and model program recommendations, a common theme was the current lack of adequate cold and dry storage and transportation infrastructure to support timely food logistics and distributions. Preventing fishery shortfalls and disasters through bycatch reduction, habitat protection, and fisheries management was another common element. Some Task Force members recommended policies to expand co-management opportunities as a way to provide wider access to traditional foods in impacted communities.

Understanding Root Causes

While understanding the root causes of the fisheries shortfalls and disasters does not directly assist impacted communities and individuals, it could help alleviate current incidents and prevent others in the future. Several regional organizations have called for studies and for bringing Western and Indigenous Knowledge together to find solutions.^{6,7} ADF&G, in cooperation with many partners, has numerous studies underway to try to uncover the underlying reasons for the poor salmon returns in the Yukon River and elsewhere. Current work includes studies of the impacts to Alaska Native culture and food security, marine surveys to understand early parts of the salmon life cycle, and investigations into the roles of disease, bycatch and interceptions. The department will soon be starting a comprehensive research plan addressing other factors impacting salmon broadly in Alaska. Finally, ADF&G will examine if rehabilitating runs through hatchery production is both feasible and acceptable, recognizing it is a highly controversial issue that must be well studied and thoroughly vetted.⁸



Image: Alaska Bering Sea crab crew pulls a pot on deck, courtesy of Chris Miller, ASMI

Recent Disasters

Alaska has recently experienced an unprecedented number of fisheries shortfalls and disasters, including 14 that occurred from 2018 to 2021 that were issued formal disaster determinations by the U.S. Secretary of Commerce in January 2022.^{9,10} These disasters are detrimental to our communities and expensive to mitigate. Those fisheries include:

- 2018 Upper Cook Inlet east side set net salmon
- 2018 Copper River Chinook and Sockeye salmon
- 2019 Eastern Bering Sea Tanner crab
- 2020 Prince William Sound salmon fisheries
- 2020 Copper River Chinook, Sockeye, and Chum salmon fisheries
- 2020 Eastern Bering Sea Tanner crab
- 2020 Pacific cod in the Gulf of Alaska
- 2020 Alaska Norton Sound salmon
- 2020 Yukon River salmon
- 2020 Chignik salmon
- 2020 Kuskokwim River salmon
- 2020 Southeast Alaska salmon fisheries
- 2020 Upper Cook Inlet salmon fisheries
- 2021 Yukon River salmon fishery

Previously, two fishery disasters were declared in Alaska in 2018 for Sockeye and Pacific cod, one in 2016 for pink salmon,¹¹ and two in 2012 for king salmon in the Cook Inlet and the Yukon regions.¹² Additional fishery shortfalls and declines have occurred in the past several decades that were not elevated through the state and federal disaster process.

Salmon runs have been especially hard-hit, with 11 of the 14 recent disaster declarations pertaining to one or more salmon runs in different river systems. Across most of Alaska, not only is the number of salmon diminishing, but also the fish coming back are smaller, younger and stocked with less fat.¹³

Current Landscape

Below are descriptions of recent and current programs and initiatives designed in part or in full to provide assistance to communities and households impacted by fishery shortfalls and disasters in Alaska.

DISASTER DESIGNATIONS

The disaster designations from the US Department of Commerce are a significant step toward fishermen and communities receiving relief funds, and part of a lengthy process that started with formal requests from local communities to the State of Alaska, which reviews and submits requests to the federal government. The State recently announced allocations totaling \$131.8 million in fishery disaster assistance to address losses to be distributed among the different fisheries:¹⁴

- 2018 and 2020 Copper River and Prince William Sound salmon: \$34,326,265
- 2018 Upper Cook Inlet East Side Set Net and 2020 Upper Cook Inlet salmon: \$9,404,672



Image: Salmon drying at St. Marys, ADF&G Division of Subsistence



- 2019 Norton Sound Red King Crab: \$1,433,137
- 2019/2020 Eastern Bering Sea Tanner crab: \$12,935,199
- 2020 Gulf of Alaska Pacific cod: \$17,772,540
- 2020 Norton Sound, Yukon River, Kuskokwim River, Chignik, and Southeast Alaska salmon; and
- 2021 Yukon River salmon: \$55,928,849

✦ **Action: Continue to obtain federal funding for fisheries disasters while focusing on restoring natal runs.**

Alaska Department of Fish and Game (ADF&G) works with affected stakeholders and NOAA Fisheries to identify funding priorities and develop spending plans for each fishery disaster. Funds are intended to assist fishery participants harmed by the fishery disaster, to improve fishery information used to assess and forecast future fishery performance, and to develop management approaches that mitigate the impacts of future fishery disasters that cannot be prevented. Previous Alaska fishery disaster spending plans have provided funds for two general categories: research and direct payments to affected fishery participants such as harvesters, processors, communities, and households.¹⁵ A group of Yukon River tribal and fishing organizations that worked together to campaign for the Yukon disaster declarations¹⁶ and for federal funding under the declaration are calling for assurance that all fishermen—both commercial and subsistence—get the assistance they need.¹⁷

STATE OVERSIGHT

The Alaska Board of Fish engages with the public and enacts policy changes that aim to increase fish stocks throughout the state. This board is an important forum for public-to-government relations and determining future regulations for these public resources. The Alaska Board of Fisheries consists of seven members appointed by the Governor and confirmed by the legislature, to serve three-year terms. The main role of the board is to conserve and develop the fishery resources of the state. This involves setting seasons, bag limits, methods and means for the state's subsistence, commercial, sport, guided sport, and personal use fisheries, and it also involves setting policy and direction for the management of the state's fishery resources. The board is charged with making allocative decisions, and the department is responsible for management based on those decisions.

The board has a three-year meeting cycle, and generally holds meetings from October through March. The Board of Fisheries meets four to six times per year in communities around the state to consider proposed changes to fisheries regulations. The board uses biological and socioeconomic information provided by the Alaska Department of Fish and Game, public comment received from people inside and outside of the state, and guidance from the Alaska Department of Public Safety and Alaska Department of Law when creating regulations that are sound and enforceable.

ALASKA BYCATCH REVIEW TASK FORCE

In addition to the Board of Fish, the Governor created the Alaska Bycatch Review Task Force (ABRT). Many subsistence harvesters impacted by fisheries disasters have requested assistance in the form of action on bycatch of salmon in commercial fisheries.^{18,19,20} In response to the growing controversy, Governor Dunleavy issued an administrative order forming the Alaska Bycatch Review Task Force in January 2022. The recommendations developed by the ABRT will be provided to the Governor through a final report. ABRT meetings are open to the public and opportunity for public comment will be provided at ABRT and ABRT subcommittee meetings.

Among the work requested by the Governor, the Task Force is tasked with:

- Study what impacts bycatch has on fisheries.
- Evaluate and recommend policies informed by a better understanding of the issue of bycatch of high-value Alaska fishery resources.
- Ensure state agencies are leveraging available resources to better understand the issue of bycatch.
- Utilize the best available science to inform policy makers and the public about these issues.

SALMON DONATIONS

In both 2021 and 2022 communities adversely impacted by poor salmon returns to the Yukon and Kuskokwim Rivers have received donations of salmon from other regions of the state. In 2021 Bristol Bay fishermen and processors donated nearly 10,000 pounds of Chum and King salmon, with logistical assistance by SeaShare and Kwik'pak Fisheries in Emmonak.²¹ While the state directed an additional \$75,000 to purchase more salmon from Alaska processors for donations, and Tanana Chiefs Conference and the Association of Village Council Presidents helped with distribution.²²

In 2022, a partnership between the State of Alaska, Kwik'Pak Fisheries, Alaska Interior Fish Processors, and Tanana Chiefs Conference, Copper River Seafoods, and Lynden Air Cargo, Air Land Transport, brought 12,928 pounds of Chum salmon to the region.²³

In 2020, The Alaska Longline Fishermen's Association, as part of an otherwise COVID-related food distribution program, made deliveries to two regions of the state due to fisheries shortfalls and disasters. The first was to Alaska Peninsula communities in response to the failure of Sockeye salmon runs that closed commercial fisheries and caused tribal entities to halt subsistence harvests to protect the run. These communities wanted—and received—whole sockeye, so families could process the fish following cultural traditions. The second group of deliveries was to Southeast Alaska in response to weak Sockeye returns. Those distributions, along with others made in response to COVID-related food shortages, were made in partnership Alaska Sustainable Fisheries Trust (ASFT), Catch Together, the Alaska Community Foundation, Salmon State, Seafood Producers Cooperative, Sealaska, Northline Seafoods and private donors to purchase “stranded” product.²⁴ While the Yukon-Kuskokwim area communities have expressed tremendous gratitude for the donations of fish from other regions, people have been very clear that the lack of fish in their rivers is disruptive to their traditional ways of life and represents a severe cultural loss, as well as a financial and nutritional loss.²⁵

SUBSTITUTE FOODS

People in areas impacted by fisheries shortfalls and disasters have also turned to other alternative food sources to feed their families. People emphasize there are few good options, and both the dietary and cultural importance of salmon cannot be replaced. In Yukon and Kuskokwim River communities some people have relied on extra moose hunts and long trips to the coast to harvest halibut, crab, and lower river salmon. Many worry that with freezers unfilled, people will rely on unhealthy and expensive store-bought processed foods.

✦ Action: Research existing programs, approaches, and new ways to support the harvest of more culturally acceptable alternative foods.

The Bethel-based Association of Village Council Presidents and the Tanana Chiefs Conference (TCC) are working with partners to help as the region struggles with food insecurity. One proposal is to expand moose, caribou and other hunts in order to give families the chance to put away more meat this fall. Moose are relatively new to the Lower Yukon. But over the last few decades, they have become more plentiful and more of a dietary staple. TCC is also exploring a wide range of other options including purchasing bison from the Interior or reindeer from herders in the Norton Sound region and ways to further diversify subsistence harvests, including workshops to teach traditional methods for netting sheefish.²⁷

✦ **Action: Support programs that have been launched by Tribal entities and economic organizations to protect salmon and rehabilitate stocks of concern.**

In response to fisheries declines across the state, programs have been launched by tribal entities and economic organizations to protect salmon and rehabilitate stocks of concern. These programs include habitat restoration and exploring wider harvest of under-utilized species, and all could be models for new initiatives in other regions.



Forklift operator Leonel Tualla moves a container of King salmon at Alaska General Seafoods in Naknek, for delivery and distribution to communities along the Yukon River; Image: Courtesy of Bryan Miller/ADN, July 21, 2021

Task Force Recommendations

The following research and model program recommendations were made by members of the Task Force, and are intended to build on actions already being taken to assist communities and households impacted by fishery shortfalls and disasters. Note that all of the Task Force recommendations are included, however not all members agreed on all of the recommendations. The sub-bullets below offer additional context provided by one or more Task Force member(s).

Suggested Further Research

- Inventory both existing programs and the need for new programs assisting communities impacted by fisheries disasters and sharing resources across the state.
- Conduct an audit of existing infrastructure and infrastructure needs. Identify opportunities to leverage transportation, processing, storage and other existing infrastructure. Identify ways to reduce costs, localize, and shorten the distance between harvest and distribution.
- Identify who is already doing last-mile distribution to help address some of the transportation barriers.
- Research opportunities to incentivize sharing of fish caught in both commercial and personal use fisheries via food banks and/or other donation programs.
- Conduct more research to identify the full monetary value of subsistence fisheries, and promote understanding of the cultural value of subsistence fisheries/harvests.
 - A recent study of cost to replace subsistence-caught Bristol Bay salmon is an example.²⁸
- Research if hatcheries could help address shortfalls.
 - State runs two hatcheries for sport fisheries.
 - All others are private, nonprofit producing salmon to enhance commercial, sport, subsistence, and personal use fisheries.

- Research existing programs/approaches and new ways to support the harvest of more culturally acceptable alternative foods.
- Examine bycatch programs for opportunities for improvement in prevention and distribution of non-target species.
 - NOAA observers (observer program and electronic data collection systems) are sample based and not on every vessel, and not on board for the full season.
 - The observer program is under funded and fisheries specific, which could lead to underreporting.
 - Most of the bycatch is not distributed to rural communities that are losing subsistence runs. Examine and improve where the bycatch is distributed.
 - Bycatch is often multi-species and multi-age (meaning throwback age or appropriate harvest age), making aggregation and distribution complicated.
- Calculate the costs of population shifts caused by food insecurity in the state. Recognize that a lack of food in rural areas causes an influx of people into urban centers where food programs are already maxed out. Policies should account for the long term actual costs of food assistance to subsistence communities and individual harvesters versus the cost of management that supports subsistence.
- Determine required storage needs at transportation and community hubs and how to distribute products from hubs to communities to eliminate waste.

Related Programs for Review

- Alaska Longline Fishermen's Association 2020 COVID-related program:
 - As part of a mostly Covid-related food distribution program in 2020, Alaska Longline Fishermen's Association and their Alaska Sustainable Fisheries Trust (ASFT) partner worked with Catch Together, the Alaska Community Foundation, Salmon State, Seafood Producers Cooperative, Sealaska, Northline Seafoods and private donors to purchase "stranded" product. They purchased a variety of fish species and distributed over 600,000 seafood meals to people in need in Sitka, Anchorage, the Alaska Peninsula, Southeast and the Pacific Northwest.
 - They delivered by barge, freezer troller, or airplane to military bases, Tribal centers or, in Sitka, direct to people's doors. This program supported both people in need of high quality nutrition and commercial fishermen when their markets were disrupted due to the pandemic.
 - The deliveries to Alaska Peninsula communities were in response to the failure of Sockeye salmon runs that closed commercial fisheries and caused tribal entities to halt subsistence harvests to protect the run. These communities wanted—and received—whole sockeye, so families could process the fish following cultural traditions.
 - The deliveries to Southeast Alaska were also in response to weak Sockeye returns.
 - This program is noted as a potential model for future USDA food distributions²⁹ and could also serve as a model for others in Alaska to respond to future fisheries shortfalls and disasters.
- The Local Food Purchase Assistance Cooperative Agreement Program (LFPA):³⁰
 - Through LFPA, the Alaska Department of Natural Resources Division of Agriculture will purchase and distribute locally grown, produced, and processed food from underserved producers.
 - Funds will support growth of regional farming through pilot programs with Qik'rtaq Food Hub, which includes six geographically isolated villages and Steven's Village tribal buffalo ranch, to provide distribution to small villages and tribes in their areas. ALFPP partners local farmers, village and tribal farms and ranches with local distribution to those in their communities that do not geographically or financially have access to local fresh foods.
 - The LFPA program is authorized by the American Rescue Plan to maintain and improve food and agricultural supply chain resiliency, and was put in place in July, 2022.³¹ It could serve as a model for providing local food to communities in response to fisheries shortfalls and disasters.

- The Food Distribution Program on Indian Reservations (FDPIR) 638 Self-Determination Demonstration Project:
 - Established under the 2018 Farm Bill, this project gives tribal communities that operate the Food Distribution Program on Indian Reservations (FDPIR) greater control over food choices and allows direct purchase of more Traditional, Tribally grown, local and regionally produced foods to replace USDA commodities in food boxes. One recent example was replacing catfish with Alaska halibut.
 - The FDPIR program is an alternative to the Supplemental Nutrition Assistance Program (SNAP) operated by the State of Alaska, otherwise known as the food stamp program.
- USDA's Food and Nutrition Service (FNS) awarded \$3.5 million to eight tribal nations for the pilot project, including the Alaska Native Tribal Health Consortium (ANTHC).
- Project implementation began in October 2021 with some contracts expected to last up to three years. Tribes proposed to purchase a variety of products including meats, fish, grains and fresh produce.³²
- Prohibited Species Donation Program:
 - The Prohibited Species Donation Program is the result of a collaboration between NOAA Fisheries and the North Pacific Fishery Management Council. The program, established in 1996, allows for salmon and halibut caught as bycatch by the groundfish trawl fishery off Alaska to distribute salmon and halibut to economically disadvantaged individuals. The nonprofit organization SeaShare³³ distributes the fish through Feeding America, the nation's largest network of food banks. SeaShare relies on voluntary partnerships and financial support from the seafood industry participants, and coordinates the processing, transportation, certification, and distribution of the donated fish. Cold storage providers, freight companies, packaging companies, and financial supporters all volunteer in this shared effort. The U.S. Coast Guard contributes by flying pallets of fish to remote Alaska locations like Kotzebue and Nome. The program fills a critical nutritional need for protein. The program distributed more than 6 million pounds of salmon and halibut bycatch between its inception in 1996 and 2000.³⁴
 - The program is not targeted specifically at assisting communities and households impacted by fishery shortfalls and disasters, but bycatch recovery programs have been identified by the Task Force as a resource.



Image: U.S. Coast Guard delivers donated seafood to Nome, courtesy of Jim Harmon/ SeaShare, 2018

¹ National Oceanic and Atmospheric Administration. (2021, Jan 21). *Secretary of Commerce issues multiple fishery disaster determinations for Alaska*. <https://www.noaa.gov/news-release/secretary-of-commerce-issues-multiple-fishery-disaster-determinations-for-alaska>

² State of Alaska. (n.d.). *Federal Fishery Disasters*. ADF&G. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=hottopics.fisherydisasters>

³ Fitka, S. (2022, January 6). *Yukon fisheries news – fall 2021*. Yukon River Drainage Fisheries Association. <https://yukonsalmon.org/yukon-fisheries-news-fall-2021/>

- ⁴ Rosen, Y. (2022, June 15) *Fishery managers call for deeper look at salmon bycatch, but decline to tighten rules*. Alaska Beacon. <https://www.adn.com/alaska-news/2022/06/15/fishery-managers-call-for-deeper-look-at-salmon-bycatch-but-decline-to-tighten-rules/>
- ⁵ Kuskokwim River Inter-Tribal Fish Commission. (2022, July 5). *Salmon bycatch information*. <https://www.kuskosalmon.org/news/bycatchintercept070622>
- ⁶ Korthuis, V. (2022, 15 June). Association of Village Council Presidents Chief Executive Officer provides comments on Fishery Disaster Funding. <https://www.avcp.org/2022/06/15/avcp-chief-executive-officer-provides-comments-on-fishery-disaster-funding/>
- ⁷ Kuskokwim River Inter-Tribal Fish Commission (2022, July 5). *Salmon bycatch information*. <https://www.kuskosalmon.org/news/bycatchintercept070622>.
- ⁸ Vincent-Lang, D. (2022, August 8). *OPINION: Here's what we're doing to save Yukon River salmon*. Anchorage Daily News. <https://www.adn.com/opinions/2022/08/08/opinion-heres-what-were-doing-to-save-yukon-river-salmon/>
- ⁹ NOAA. (2022, January 21). *The Secretary of Commerce issues multiple fishery disaster determinations for Alaska* [Press Release]. <https://www.noaa.gov/news-release/secretary-of-commerce-issues-multiple-fishery-disaster-determinations-for-alaska>
- ¹⁰ State of Alaska. (n.d.). *Federal fisheries disasters*. ADF&G. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=hottopics.fisherydisasters>
- ¹¹ NOAA. (n.d.). *Fishery disaster determinations*. Retrieved August 2022 from <https://www.fisheries.noaa.gov/national/funding-and-financial-services/fishery-disaster-determinations#>
- ¹² State of Alaska. (n.d.). *Federal fisheries disasters*. ADF&G. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=hottopics.fisherydisasters>
- ¹³ Hughes, Z. (2021, Sept 7) *Amid an unprecedented collapse in Alaska Yukon River salmon, no one can say for certain why there are so few fish*. Anchorage Daily News. <https://www.adn.com/alaska-news/rural-alaska/2021/09/06/amid-an-unprecedented-collapse-in-alaska-yukon-river-salmon-no-one-can-say-for-certain-why-there-are-so-few-fish/>
- ¹⁴ State of Alaska. (n.d.). *Federal fisheries disasters*. ADF&G. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=hottopics.fisherydisasters>
- ¹⁵ State of Alaska. (n.d.). *Federal fisheries disasters*. ADF&G. Retrieved August 2022 from <https://www.adfg.alaska.gov/index.cfm?adfg=hottopics.fisherydisasters>
- ¹⁶ Bross, D. (2020, Sept 28) *Yukon River communities ask governor to declare fishery disaster*. KUAC Fairbanks. <https://www.ktoo.org/2020/09/28/yukon-river-communities-ask-governor-to-declare-fishery-disaster/>
- ¹⁷ MacArthur, A.C. (2022, January 21). *Fishery disasters declared for Kuskokwim and Yukon salmon fisheries*. KYUK. <https://www.kyuk.org/hunting-fishing/2022-01-21/fishery-disaster-declarations-for-kuskokwim-and-yukon-salmon-fisheries>
- ¹⁸ Fitka, S. (2022, January 6). *Yukon fisheries news – Fall 2021*. Yukon River Drainage Fisheries Association. <https://yukonsalmon.org/yukon-fisheries-news-fall-2021/>
- ¹⁹ Rosen, Y. (2022, June 15). *Fishery managers call for deeper look at salmon bycatch, but decline to tighten rules*. Alaska Daily News. <https://www.adn.com/alaska-news/2022/06/15/fishery-managers-call-for-deeper-look-at-salmon-bycatch-but-decline-to-tighten-rules/>
- ²⁰ Kuskokwim River Inter-Tribal Fish Commission. (2022, July 5). *Salmon bycatch information*. <https://www.kuskosalmon.org/news/bycatchintercept070622>
- ²¹ Ebertz, O. (2021, July 22). *Bristol Bay fishermen donate salmon to Yukon River villages*. KYUK <https://www.kyuk.org/hunting-fishing/2021-07-22/bristol-bay-fishermen-donate-salmon-to-yukon-river-villages>
- ²² MacArthur, A.R. (2021, July 28). *ADF&G coordinating salmon deliveries to Yukon River Communities*. KYUK. <https://www.kyuk.org/hunting-fishing/2021-07-28/adf-g-coordinating-salmon-deliveries-to-yukon-river-communities>
- ²³ State of Alaska. (2022, June 14). *Governor Dunleavy announces first 2022 salmon donation to Yukon Kuskokwim Region* [Press Release]. <https://gov.alaska.gov/newsroom/2022/06/14/governor-dunleavy-announces-first-2022-salmon-donation-to-yukon-kuskokwim-region/>
- ²⁴ Alaska Longline Fishermen's Association. (2020). *2020 annual report*. <https://acrobat.adobe.com/link/review?uri=urn:aaid:scds:US:d7ed5f90-d139-4736-9762-de8184ffc172>
- ²⁵ Hughes, Z. (2021, July 31). *Unprecedented salmon declines force fish donations to Alaska's Yukon River villages*. Anchorage Daily News. <https://www.adn.com/alaska-news/rural-alaska/2021/07/30/unprecedented-salmon-declines-force-fish-donations-to-alaskas-yukon-river-villages/>
- ²⁶ Hughes, Z. (2021, Sept 9). *'We've never seen this before': Salmon collapse sends Alaskans on Lower Yukon scrambling for scarce alternatives*. Anchorage Daily News. <https://www.adn.com/alaska-news/rural-alaska/2021/09/04/weve-never-seen-this-before-salmon-collapse-sends-alaskans-on-lower-yukon-scrambling-for-scarce-alternatives/>
- ²⁷ Hughes, Z. (2021, July 31). *Unprecedented salmon declines force fish donations to Alaska's Yukon River villages*. Anchorage Daily News. <https://www.adn.com/alaska-news/rural-alaska/2021/07/30/unprecedented-salmon-declines-force-fish-donations-to-alaskas-yukon-river-villages/>
- ²⁸ Thompson, T. (2021, April 27). *New report: Value of Bristol Bay subsistence salmon would cost Alaska families \$5 to \$10 million to replace*. KDLG: <https://alaskapublic.org/2021/04/27/new-report-attempts-to-quantify-bristol-bays-subsistence-salmon-with-a-look-at-protein-replacement/>
- ²⁹ Alaska Longline Fishermen's Association 2020 Annual report (n.d.) Accessed August 2022 from: <https://acrobat.adobe.com/link/review?uri=urn:aaid:scds:US:d7ed5f90-d139-4736-9762-de8184ffc172>
- ³⁰ USDA (Retrieved August 2022). Local Food Purchase Assistance Cooperative Agreement Program <https://www.ams.usda.gov/selling-food-to-usda/lfpacap>
- ³¹ USDA. (2022, July 11) *USDA announces Alaska signs Local Food Purchase Assistance Cooperative Agreement*. Agricultural Marketing Service. <https://www.ams.usda.gov/press-release/usda-announces-alaska-signs-local-food-purchase-assistance-cooperative-agreement>
- ³² USDA. (2021, Nov 1). *USDA Invests \$3.5 Million to Provide Food Purchasing Options to Tribal Communities*. Food and Nutrition Service. <https://www.fns.usda.gov/news-item/fns-0010.21>
- ³³ <https://www.seashare.org/>
- ³⁴ NOAA. (2020, October 30). *Seafood bycatch donation relieves hunger and reduces waste*. <https://www.fisheries.noaa.gov/feature-story/seafood-bycatch-donation-relieves-hunger-and-reduces-waste>



Preparing for Disaster: Food Caches

Directive Addressed:



Assess the need for disaster food caches within the State; and how the caches can be developed utilizing Alaskan-sourced foods.

Task Force Recommendations

The following policy and infrastructure recommendations were made by members of the Task Force, and built off work already being done in Alaska to address disaster response concerns. Note that all of the Task Force recommendations are included, however, not all members agreed on all of the recommendations. The sub-bullets below offer additional context provided by one or more Task Force member(s).

Policy Considerations

- Support small Alaskan growers by promoting local production through advertising and incentives that tie local production to an increase of food security and a decrease in the need for food caches. Most of Alaska's producers are considered small-scale by USDA standards (under 10 acres of production)
- Through the utilization of state land, create no cost, 10-acre plots and root cellars for rural community use that include animal and pet feed in planning efforts
- Prioritize local processing when possible in all state and federal contracts - create local food purchasing agreements with farmers, food hubs, and food distributors
- Fund Farm to School and Farm to Institution programs
- Position the State of Alaska to be the biggest buyer of Alaska Grown and harvested products, helping to bolster surplus and storage of local foods to assist in disaster relief efforts
- Continue to engage FEMA in planning efforts
 - Examine the delta between immediate response and FEMA intervention. There is roughly a two to three day supply right now, with what's in the state.
- Create public education campaigns on the need for household preparedness to ensure families have seven days of food supply on hand
 - Encourage household security from three to five days to 14 days
 - Provide additional tools to address the cost barriers to preparation
 - Create an engaging disaster goods store cookbook

- Encourage and incentivize food stocks in the private industry
 - Currently, Safeway/Carrs is one of the only retailers that maintain a large stock in the state, while others rely on barge deliveries. Engage with distributors like Charlie's Produce and regional grocery stores such as Alaska Commercial Company and Three Bears stores to diversify food stocks within the state
- Fully define and operationalize what is meant by “disaster” and “crisis”
 - For example, most villages were in crisis mode before the pandemic and are worse now. It's what we are solving right now, not necessarily something we are planning for.
- Recognize there must be a multi-tiered approach to food security
 - “Eustress” is long-term, and may always be present (ex. Longer-term, day-to-day food security and why we need food banks)
 - “Distress” is a shorter-term, standalone event that causes a major change of need (ex. an earthquake shuts down an airport)
- Establish an autonomous State Department or Division to streamline food security efforts
- Prioritize co-management with Tribes and local governments which could lead to a reduction of costs to the state by contracting with local communities or Tribes
- Follow the recommendations of the Director of the Alaska Department of Military and Veterans Affairs Division of Homeland Security and Emergency Management Director for implementing the appropriate response for food caches and food security preparedness



Image: Old Alaskan Cache, JLS Photography—Alaska

Infrastructure Needs

- Build and appropriate enough funding for a long-term distributed network of climate-controlled storage
 - Low-energy, low-cost storage should be a priority
 - Employ and mainstream Traditional Ecological Knowledge (TEK) to address food storage technologies appropriate to various Alaskan regions
 - For example, there are food preservation techniques to help foods store better, like saltless forms of processing and storage and dried product that may need rehydration
 - Storage facilities could help prevent spoilage while creating an export pathway for communities
- Champion transportation investments to restore air, port, and ferry transportation infrastructure that are as important as having a financially sustainable amount of shelf-stable disaster supplies located in Alaska
- Create a distributed network of community-accessible root cellars
- Invest in Alaska-based processing for:
 - Alaska Grown produce, livestock, and poultry
 - Alaska seafood, shellfish, and kelp
 - Imported produce/commodities



Image: Meyers Farm Root Cellar in Bethel, Alaska, *Modern Farmer*

Introduction

Alaska is vulnerable to a myriad of natural disasters, including wildfires, floods, severe winter storms, earthquakes, landslides, tsunamis, hazardous material spills, power outages, volcano eruptions, and crop and wild food failures. Coupled with these vulnerabilities, Alaska is a vast state, with more than 80% of its communities located off the road system. This geographic distribution can make emergency disaster response difficult. Through the work of the Alaska Division of Homeland Security and Emergency Management's (DHS&EM) Disaster Assistance Section, Federal Emergency Management Agency (FEMA), and numerous other partners and agencies, there have been various initiatives to plan for emergency response, with food and water provisioning being a primary focus. FEMA's Public Assistance Program provides "supplemental grants to state, tribal, territorial, and local governments, and certain types of private non-profits so communities can quickly respond to and recover from major disasters or emergencies."¹

The Task Force has made several recommendations on how to further assess the need for disaster food caches

throughout the State that could utilize Alaskan-sourced foods. Core to these recommendations is a need to support local food producers and priority for local food products. This preference could lead to greater food production, with surpluses being used for stocking food caches. Additionally, the Task Force made several infrastructure development recommendations, ranging from improving transportation to community-accessible storage and processing facilities. Without improvements in the State's infrastructure, processing, transporting, and storing local food will be very difficult.

Recommendations include a public outreach campaign to educate Alaskans about disaster preparedness, utilizing state-owned land for no-cost community growing plots, and closer collaboration with both the private and non-profit sectors to address disaster response planning. There were a number of research needs identified as well. A full-state assessment of need and risk should continue to be prioritized, as well as a regional food chain assessment to identify necessary improvements and investments. The Task Force highlighted the differences in needs and capacities between rural and urban areas, and the duty to involve communities in planning activities.

Alaskans are resilient, independent, and self-sufficient in many ways. This can only go so far with a disaster that strikes unexpectedly. Alaskans need seven days of food for every household member, pet, and livestock. State resources to promote education and capital for building these distributed, household-level reserves would be critical to achieving adequate response and preparation for emergency feeding.

Current Landscape

Over the last decade, there has been much work around Alaska's emergency response planning. In 2011, having made disaster readiness a priority of his administration, Governor Sean Parnell proposed \$4.9 million for emergency food supplies to be stashed across the state.² The proposal had an initial goal of feeding 40,000 Alaskans for up to a week, via two storage sites—near Fairbanks and Anchorage, where military bases are located—and a food supply with a five-year shelf life in place by the end of 2012. However, in January 2013, the

Alaska Department of Military and Veterans Affairs canceled its solicitation for proposals after receiving an inadequate response. In late-2013/early-2014, through a request for proposal titled, *Purchase of Emergency Food Products for the State of Alaska*, the State of Alaska, Department of Military and Veterans Affairs, Division of Homeland Security and Emergency Management sought “competitive proposals to contract with a qualified supplier for the purchase of emergency food products for the State of Alaska.”³

In 2013, Gov. Sean Parnell issued Administrative Order 265, which “establish[ed] the Alaska Food Resource Working Group (AFRWG) to recommend policies and measures to increase the purchase and consumption of local wild seafood and farm products.”⁴ The objectives of the order were to “improve the health of state residents, increase food security, strengthen local economies, and encourage community development.” State agencies that administered programs affecting food production, wild harvest, and foods collaborated with the Alaska Food Policy Council (AFPC), an independent organization that was founded to provide recommendations for improving access to healthy, affordable, and culturally appropriate foods for all residents of the state.

The Emergency Preparedness Work Group developed out of this collaboration, with the goal of developing tools to help communities across the state of Alaska to prepare for emergency and disaster events. With the help of the Cooperative Extension Service, Alaska Community Emergency Food Cache System (ACEFCS) proposal was created, with the purpose “to increase the ability Alaskan communities to feed themselves in the case that typical food supply routes and schedules are disrupted for a period of time ranging from days to weeks.”⁵ The plan called for extensive public and private sector collaboration, with a focus on wild foods and locally grown foods. (Note: See appendix “Alaska Community Emergency Food Cache System” for the full 2013 plan.)

✦ Action: Build Infrastructure that Supports Local Food Production

In the Alaska Department of Health and Human Services / Alaska Food Policy Council 2014 report, “*Building Food Security in Alaska*,” researchers Ken Meter and Megan Phillips Goldenberg made several recommendations to improve the state’s food security. Included in these recommendations is to “Build Infrastructure that Supports Local Food Production,” and is outlined here:⁶

- Food caches should be created across the state, providing safe and secure spaces to store healthy food during winter months and for emergency preparedness year-round. These should emphasize traditional storage techniques that use little fossil fuel energy, and storage of Alaska-grown root crops should be a priority.
- Food production “nodes:” Local level washing, packing, storage, and distribution facilities, should be funded through a competitive grant program open to any community-based food production initiative.

Measures of success:

- Number of food caches developed, diversity, and quantity of food stored.
- Funds allocated by the State of Alaska to invest in local-foods infrastructure at the community level.

DIVISION OF HOMELAND SECURITY

In Alaska, the Division of Homeland Security and Emergency Management “provides critical services to the State of Alaska to protect lives and property from terrorism and all other hazards, as well as to provide rapid recovery from all disasters,” and are responsible for disaster planning and response, including interagency coordination.⁷ The mission of the State of Alaska Division of Homeland Security and Emergency Management’s (DHS&EM) Disaster Assistance Section “is to coordinate state and federal actions with local jurisdictions to assist affected communities in responding to, recovering from, and



mitigating against major disasters or emergencies declared by the Governor of Alaska or the President of the United States.” Through the division’s Public Assistance (public infrastructure) and Individual Assistance (private property/shelter) programs and activities, the Disaster Assistance Section works to provide supplemental assistance to affected areas and help them recover from a disaster as quickly as possible. A.S. 26.23.040(e)⁸ outlines “Homeland security duties of the Alaska Division of Homeland Security and Emergency Management.” Duties included in this statute are:

The Alaska division of homeland security and emergency management shall:

1. determine the requirements of the state and its political subdivisions for food, clothing, and other necessities in the event of a disaster emergency;
2. procure and pre-position supplies, medicines, materials, and equipment;
3. adopt standards and requirements for local and interjurisdictional disaster plans;
4. periodically review local and interjurisdictional disaster plans;
5. establish and operate, or assist political subdivisions, their disaster agencies, and representatives of interjurisdictional disaster planning and service areas to establish and operate, training programs;
6. plan and make arrangements for the availability and use of any private facilities, services, and property and, if necessary and if in fact used, provide for payment for use under terms and conditions agreed upon by the parties;
7. establish a register of persons with types of training and skills important in disaster prevention, preparedness, response, and recovery;
8. prepare, for issuance by the governor, orders, proclamations, and regulations as necessary or appropriate in coping with disasters;
9. cooperate with the federal government and any public or private agency or entity in achieving any purpose of this chapter and in implementing programs for disaster prevention, preparedness, response, and recovery;
10. develop and carry out procedures and policies to effectively employ disaster relief funds made available by the governor’s authority or by special legislative action; these procedures shall include application and documentation by disaster victims or applicants, review, verification and funding approval, and processing of appeals;

Recommendations from the Director of the Alaska Department of Military and Veterans Affairs Division of Homeland Security and Emergency Management Director, and Task Force member:

In addition to the recommendations below, Bryan Fisher, Director of the Alaska Department of Military and Veterans Affairs DHS&EM Director, and Task Force member, has provided the following assessment of potential disaster feeding needs and potential proposals for food caches statewide:⁹

“Our worst-case scenario plan, and therefore our greatest conceived disaster feeding need, is known as the Alaska Response Plan, part of FEMA’s planning efforts. Within that plan, the models estimate that we will have a need to provide feeding and hydration support to 137,000 people sheltering in their homes (in addition to 72,000 people in congregate shelters). In the worst event we have planned for (a 1964-like earthquake occurring over today’s built infrastructure and population), we are looking at approximately 209,000 survivors needing food.

In general, based on my experience over the last 30 years, and with today's just-in-time supply chain delivery model, we can expect most communities would have food stores on hand, including perishables, for a minimum of seven days (more for non-perishable commodities). Our catastrophic plans include a robust, whole-of-government response, so for purposes of this task force, I would suggest potentially stockpiling food supplies for those requiring delivery of food to their homes (137,000 people) for three days, extending our food availability for around 10 days, is a good starting point.

✦ **Action: Stockpile food supplies for those requiring delivery of food to their homes (137,000 people) for three days, extending our food availability for around 10 days.**

Within 10 days, we will have critical supplies being transported by air into the state, and continual food shipments occurring via the ALCAN and any surviving port infrastructure. In essence, that would be 1,233,000 meals worth of food. We have also looked at caches large enough to feed the entire population, for three days and sevendays. This feels impractical, as I cannot envision a scenario that would require the government to feed the entire population from a disaster event.

In terms of costs, our Department looked at 3 scenarios, listed below. These are rough order of magnitude costs, and are currently unbudgeted.

Proposal 1: Total amount: \$10.6M

- Follows the Alaska Response Plan
- Number of people: 137,000
- 3-day supply (3 per day per person)
- Includes purchasing the MREs, shipping to storage location, and storage
- Storage would be in Anchorage, Fairbanks, and Juneau.

Proposal 2: Total amount: \$54.4M

- Number of people: 739,361 (population of AK)
- 3-day supply (3 per day per person)
- Includes purchasing the MREs, shipping to storage location and storage
- Storage would be in all the hubs: Utqiavik, Kotzebue, Nome, Galena, Fairbanks, Anchorage, Bethel, Dutch Harbor, Kodiak, Juneau, Valdez, Kenai, Klawock, Ketchikan, and Sitka.
- Storage costs everywhere but Anchorage, Fairbanks, and Juneau are rough estimates at this point. I'm unsure of our ability to have large temperature-controlled storage of the size we need in some locations.

Proposal 3: Total amount: \$126.9M

- Number of people: 739,361 (population of AK)
- 7-day supply (3 per day per person)
- Includes purchasing the MREs, shipping to storage location and storage
- Storage would be in all the hubs: Utqiavik, Kotzebue, Nome, Galena, Fairbanks, Anchorage, Bethel, Dutch Harbor, Kodiak, Juneau, Valdez, Kenai, Klawock, Ketchikan, and Sitka.
- Storage costs everywhere but Anchorage, Fairbanks, and Juneau are rough estimates at this point. I'm also not sure about our ability to have large temperature-controlled storage in some locations."

Image: State of Alaska Mass Care Group (MCG) Operations Guide

✦ **Action: Coordinate state-level mass care services with, and supporting, local community disaster operations using recommendations from the Mass Care Group.**

In 2018, the State of Alaska Mass Care Group: Feeding Support Operations Guide (FSOG) was released.¹⁰ It was created by the Mass Care Group, operating under the Mass Care Operations Guide (MCOG), which coordinates disaster Mass Care in the State of Alaska. The MCG is led by the Mass Care Group Supervisor (MCGS) and operates within the Operations Section in the State Emergency Operations Center (SEOC) or a State/Federal Joint Field Office (JFO) if one established.

“State-level disaster feeding operations are overseen by the MCG using the MCOG, supplemented by this Feeding Support Operations Guide (FSOG). This FSOG captures disaster feeding best practices, policies, and procedures for all-hazards, State-level, multi-agency disaster feeding support in Alaska. When a disaster Feeding Task Force (FTF) is established under the MCG, this guide supports that Task Force’s operations. This FSOG, as one of the functional operations guides under the MCOG, supports execution of the State of Alaska Emergency Operations Plan (EOP).”



“The overall goal of this FSOG is to coordinate support for disaster feeding across the state among all levels of government and all involved agencies and organizations. Disaster feeding operations supported under this guide include survivor mass feeding and hydration. This guide assumes that disaster-feeding operations at the local, state, and federal level combine the efforts of government agencies and non-governmental organizations and require a multi-agency approach. This guide assumes all agencies and organizations involved in feeding support in Alaska will operate in accordance with their internal policies, regulations and requirements in a cooperative effort to provide effective disaster feeding services to Alaska's disaster survivors.

As specified in Alaska's EOP, disaster operations, including feeding, are conducted by local communities. When local capability is exceeded, state-level disaster operations work to support the local community's efforts. When State capabilities are exceeded, the State may request support from the Federal government. This FSOG is designed to be implemented during either a state or federally declared disaster.”

Disasters involving evacuations, displaced persons and pets, and destruction of property and infrastructure may require mass care services for survivors. The disaster may be the result of a natural or manmade hazard, but disaster mass care starts at the local level. Local communities, incident commands, Emergency Operations Centers (EOCs), and organizations conduct and coordinate mass care activities, employing available local resources and mutual aid agreements. When the need for disaster mass care services exceeds local community capabilities, the State executes state-level mass care operations. This guide assumes state-level mass care services will be coordinated with, and supporting, local community disaster operations.

This MCOG is intended to apply during all State of Alaska disaster response and recovery operations including field operations, and those in conjunction with a Federal disaster declaration and Joint Field Office (JFO) with the Federal Emergency Management Agency (FEMA).

—2018 State of Alaska Mass Care Group (MCG) Operations Guide.



Image: FEMA Region 10 logo

Since January 2011, FEMA Region 10 has partnered with the State of Alaska for a variety of disaster planning activities, including Risk Mapping, Assessment, and Planning, (Risk MAP) projects, “with the goal of accurately and comprehensively depicting natural hazard risks throughout Alaska.”¹¹ Risk MAP “is a process, a continuing, collaborative partnership to help federal, state, tribal, and local community officials, business owners, private citizens and stakeholders make sound floodplain management decisions and take action to reduce risk from floods and other hazards. Communities can use the information and resources obtained through the Risk MAP process to update plans, reduce risk, and increase local resilience to disasters.”¹²

✦ **Action: Communities can use the information and resources obtained through the Risk MAP process to update plans, reduce risk, and increase local resilience to disasters.**

Through an ongoing collaborative process, including local, state, and federal entities, a document released in March 2021, FEMA Region 10 Alaska Response Plan Base Plan¹³ outlines estimates potential impacts of disasters and provides operational planning responses at various levels, including food and shelter provisions. Below are select excerpts:

Food, Water, Shelter (Facts)

- Immediate warming and feeding operations will be required to save lives in the extreme cold weather (ECW) environment.

Food, Water, Shelter (Planning Assumptions)

- Immediate warming and feeding operations will be required to save lives in the ECW environment.
- Mass care needs will increase each day, as people leave their homes due to lack of heat, food, and/or water.
- Some local facilities will suffer less damage and will be available for use as shelters, warming centers, and feeding locations.
- Family reunification will be an immediate and significant concern; many families will be separated at the time of the event due to commuter travel and school being in session.
- Some individuals with access and functional needs may be able to maintain their independence when support services are available to them, such as interpretive services, durable medical equipment (DME), and medications.
- The initial shelter population will increase over time as utility service outages drive survivors to shelter sites, regardless of whether their homes were damaged; lack of heat will be life-threatening.

Task Force Recommendations

The following research and model program recommendations were made by members of the Task Force, and built off work already being done in Alaska to address disaster feeding concerns. Note that all of the Task Force recommendations are included, however, not all members agreed on all of the recommendations.

Suggested Further Research

- Complete a regional food chain assessment of needs throughout Alaska
 - As a state, we don't know fully what is needed
 - Considerations to explore:
 - Modes of transportation, preservation, types of storage (mobile/brick-and-mortar)
 - Identify what is required to assess the need
 - Example: examine the 2017 USDA Agricultural Census; take the amount of food produced and divide on per person's needs to establish a baseline
- Assess the differences/overlaps in needs between rural and urban communities, considering their existing infrastructure and capacities
 - Examine opportunities for greater rural food security and transportation options—for example, empty planes between rural communities present an opportunity
- Review state and city regulations that disallow certain food security activities
 - Example: A city yard could support goats that could feed infants/toddlers if there's no milk in a community or donations of personal harvest fish and game could be donated to community organizations

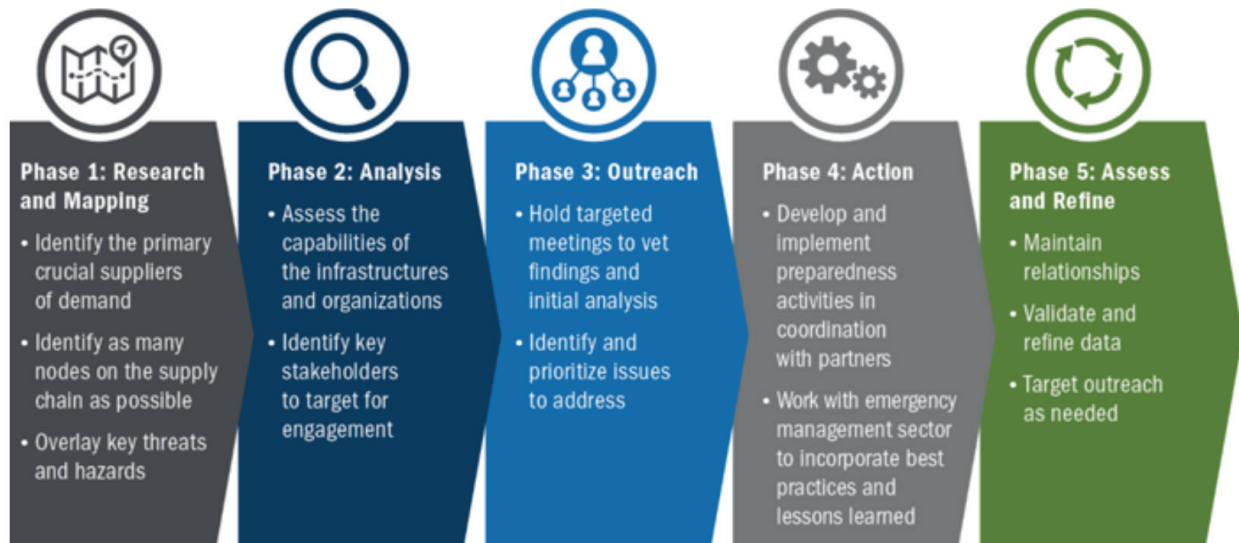


Image: *Supply Chain Resilience Phases*, US Dept. of Homeland Security, 2019

Related Programs for Review

- Local Food Purchasing Programs
 - Consider state funding to replicate the USDA's Local Food Purchase Assistance Cooperative Agreement Program, to "maintain and improve food and agricultural supply chain resiliency"¹⁴
- A public education campaign to promote individual/household preparedness
- Create a Northern Farming Guide—the Meyer's farm root cellar in Bethel has never frozen in over 10 years of use; this model could work for other rural communities as well as numerous examples from other northern nations
- Create partnerships with food hub/food distributors
 - A core value proposition for local and regional food hubs is relationships with community-based organizations and relationships across the supply chain and the community. These organizations are able to activate last mile partners quickly.¹⁵

- Reconnecting Tribal members to the land
 - Work with tribal groups to develop curriculum and programs on processing
- Relaunch the Cooperative Extension Service's Alaska Community Emergency Food Cache System (ACEFCS) project
- Determine if programs that are successful in other remote areas could be replicated in Alaska
 - Example: Hawaii has partnered with the Hawaii Foodservice Alliance to launch the first-ever disaster “precovery pod” to hold a stockpile of food in case of emergencies¹⁶
 - This model was drafted in 2013 and works by using local food producers and distributors to rotate out food on a schedule to ensure that it is always available, essentially increasing the current food stock on a rotation
 - By doing this, more food will be on hand during an emergency, and professionals trained for distribution can give out what of the stock is needed



Image: *WK Kellogg Foundation, 2019*

Agencies and entities that are/should be involved in Alaska food disaster preparedness:

- | | |
|--|---|
| • All agencies | • Dept. of Environmental Conservation |
| • Airlines | • Dept. of Family and Community Services |
| • Alaska Community Emergency Food Cache System | • Dept. of Health |
| • Alaska Department of Fish and Game | • Dept. of Military and Veteran's Affairs |
| • Alaska Federation of Natives | • Dept. of Natural Resources |
| • Alaska Food Policy Council | • Dept. of Public Safety |
| • Alaska Municipal League | • Dept. of Transportation and Public Facilities |
| • Alaska Native Healthcare Nonprofits | • Federal Emergency Management Agency |
| • Alaska Sea Grant | • Foodbanks/pantries |
| • American Red Cross | • Governor's Office & Legislature |
| • Congressional Delegation | • Homeland Security and Emergency Response |
| • Cooperative Extensive Service | • Military Branches |
| • Dept of Public Safety | • Producers—wholesalers/processors |
| • Dept. of Commerce, Community, and Economic Development | • Regional Alaska Native Corporations |
| | • Salvation Army |
| | • Shipping companies |



Image: 7.0 Magnitude Earthquake, Marc Lester/ADN, December 2018



¹ FEMA. (n.d.). Assistance for governments and private non-profits after a disaster. Retrieved September 2022 from <https://www.fema.gov/assistance/public>

² Associated Press. (2011). Parnell proposes \$4.9 million for emergency food caches. Alaska Public Media. <https://alaskapublic.org/2011/12/09/parnell-proposes-4-9-million-for-emergency-food-caches/>

³ State of Alaska. (2013). Emergency Food Purchase for the State of Alaska [RFP 2014-0900-2302]. <https://aws.state.ak.us/OnlinePublicNotices/Notices/View.aspx?id=170369>

⁴ Parnell, Sean (2013). Administrative Order No. 265. <https://gov.alaska.gov/admin-orders/administrative-order-no-265/>

⁵ Alaska Community Emergency Food Cache System (ACEFCS). (2013). <https://www.uaf.edu/ces/districts/juneau/food-security/acefcs/>

⁶ Meter, K., & Goldenberg, M. P. (2014). Building food security in Alaska. Minneapolis, MN: Crossroads Resource Center.

⁷ Alaska Department of Military and Veterans Affairs. (n.d.). Division of Homeland Security and Emergency Management. Retrieved September 2022 from <https://ready.alaska.gov/>

⁸ Alaska Statutes. (2021) Homeland security duties of the Alaska Division of Homeland Security and Emergency Management [Sec. 26.23.040]. 32nd Legislature (2021-2022). <https://www.akleg.gov/basis/statutes.asp#26.23.040>

⁹ E-mail communication, Bryan Fisher, Director, Director at Alaska Division of Homeland Security and Emergency Management, August 8, 2022.

¹⁰ State of Alaska. (2018). State of Alaska Mass Care Group (MCG) Feeding Support Operations. DHS&EM. <https://ready.alaska.gov/Documents/Operations/2018%20Mass%20Care%20Group%20Ops%20Guide.pdf>

¹¹ State of Alaska. (2019). State of Alaska Plan for Disaster Recovery [#4431]. Department of Commerce, Community, and Economic Development. https://www.commerce.alaska.gov/web/Portals/4/pub/CBDG-DR/Substantial_Amendment_1.pdf

¹² State of Alaska. (n.d.). Alaska Risk Map Program: Risk Mapping, Assessment, and Planning (Risk MAP) increasing resilience together. Department of Commerce, Community, and Economic Development. Retrieved September 2022 from <https://www.commerce.alaska.gov/web/dcra/PlanningLandManagement/RiskMAP.aspx>

¹³ FEMA. (n.d.). Region 10. Retrieved August 2022 from <https://www.fema.gov/locations/alaska>

¹⁴ USDA. (n.d.). Local Food Purchase Assistance Cooperative Agreement Program. Agriculture Marketing Service. Retrieved September 2022 from <https://www.ams.usda.gov/selling-food-to-usda/lfpacap>

¹⁵ USDA. (2021). Farmers to Families Food Box research findings. https://foodsystemsleadershipnetwork.org/wp-content/uploads/2021/01/USDA-Farmers-to-Families-Food-Box-Program_Wallace-Center-Research-Findings-and-Final-Report-2.pdf

¹⁶ Kamanā, L. (2022, January 29). Hawaii Foodservice Alliance, LLC launches first-ever precovery-pod. KITV. https://www.kitv.com/news/local/hawaii-foodservice-alliance-llc-launches-first-ever-precovery-pod/article_49d2c326-814e-11ec-ab83-9bdfc40a9346.html



Alaska Food System Research Needs

Directive Addressed:

- ★ Identify research needed to support and encourage increased consumption and production of Alaskan foods sourced within the State.



Image: University of Alaska Fairbanks - Fairbanks Experiment Farm, courtesy of Todd Paris

Task Force Recommendations

This section aggregates recommendations from all other sections as well as extended research suggestions. It is recommended that a holistic and inclusive approach to research is employed, with meaningful commitment to Tribal engagement protocol and stakeholder communications. It is further recommended that communities and other stakeholders be engaged in every step of the process: planning, execution, data management, and post-research evaluation.

- Research accuracy of “95% of food is imported”
 - Create a publicly accessible food security dashboard to track local food production, imports, and consumption levels. Measuring impact is essential to show efforts are improving food security in the State.
- Explore Prescription Produce programs, in partnership with healthcare providers
- Economic impact of food insecurity, both long-term and immediate crisis-driven

- Determine land-grant status of UA system versus UAF
 - This determination has major implications for available funding for agricultural education in Alaska and which UA campus has access to land-grant funds.
- Determine the amount of federal match dollars to be earned with State-led food security initiatives as well as the economic loss of not pursuing those dollars
- Systematic review and analysis of producer needs
- Comparative analysis of other state budgets, concerning the reallocation of agricultural programs to more specific budget lines to better insulate agricultural program investments from administration changes
 - Example: Plant Materials Center current budget approval flow
 - State of Alaska > Dept. of Natural Resources > Division of Mining, Land, and Water > Division of Agriculture > PMC
- Develop a University of Alaska integrated workforce team to leverage grant funding and increase research training within the state
 - Example: The UA system is comprised of faculty at all of our institutions doing work and teaching across the food systems spectrum (production, biology, marketing, consumption patterns, policy development, engineering, etc.), yet opportunities for collaboration and integration have not been maximized
- Increase public awareness of upcoming and existing funding opportunities to assist with startup food production, scaling agricultural projects, acquiring land, and completing business and feasibility plans
 - Connect Alaskans with Inflation Reduction Act funding to assist in paying for energy and sustainability improvements to their food-related businesses

Introduction

The hundreds of pages in this report contain many references and calls for broader and deeper research. Alaska is no stranger to research and innovation, and the budding entrepreneurial, changing Arctic, and space exploration efforts overlap well with food system improvement needs. The infrastructure and intellectual capital needed to make strides in food security, especially in the face of accelerating climate change, will benefit all industries, including new ones being developed in an effort to diversify the economy alongside the powerhouse revenue drivers of fisheries, tourism, and oil and gas.

Alaska is poised to become a leader in circumpolar innovation, co-management, climate change mitigation and adaptation, especially at the intersection of food, energy, and water. As space exploration, Arctic development, and climate resilient food research becomes more mainstream, the State has the opportunity to become a leader in the circumpolar north in year-round food production, with a goal of zero hunger or product surplus.

The Task Force created Directive-specific research recommendations as well as more general research suggestions. Task Force input often centered around inclusion, multiple perspectives, and co-creation and management—in short, take a multi-stakeholder approach and spend the time funding and planning to ensure a quality and usable end product that can be widely referenced and built upon by Alaskans.

Just as available land does not ensure adequate food production, available data does not ensure insightful analysis. These recommendations hold little value if attention and adequate funding cannot be directed towards bolstering existing resources, such as the Division of Agriculture, Cooperative Extension, and agricultural education programs, as well as funding new initiatives such as leading hydroponic and cold crop research. Allocating sufficient funding to pursue these recommendations is critical to building a lasting legacy of policies and investments for a more food secure Alaska.

Despite the exciting potential to grow our knowledge capital, Alaska has been in a state of austerity for some time, leading to budget cuts and decreased capacity for research and innovation within the University of Alaska system and the Division of Agriculture, including the Cooperative Extension Services and Plant Materials Center. With strong and sustained State investment, Alaska could rank higher as a globally relevant

and nationally essential research and innovation leader.

North American food research and innovation leaders include:

- Land-grant university research faculty and teams
- International collaborative efforts
- Cooperative Extension Services
- Incubators and accelerators, for-profit and nonprofit
- Private foundations and think tanks

In early 2022, the World Economic Forum cited "... a \$15.2 billion funding gap for (global) food system innovation that could support ending hunger, keeping emissions within 2°C and reducing water use by 10%."¹ Add that to the fact that Alaskans spend \$2 billion on out of state food purchases each year signals an urgent message for funding research, with the potential for positive economic outcomes in the State—all while creating a more food secure community.²

Current Landscape

The Morrill Act of 1862 signed into law land designated for each State to create colleges, known as land-grant universities, to "benefit the agricultural and mechanical arts."³ The land-grant university system gained further traction in subsequent acts, which led to the establishment of three categories of land-grant institutions, named for the year in which legislation established them:

- 1862—Established land-grant university system
- 1890—Included Historically Black Colleges and Universities (HBCUs)
- 1994—Included Tribal Colleges and Universities (TCUs)

As of 2022, there are 111 land-grant universities in the United States, with at least one in each State and the District of Columbia. Land-grant designation affords these institutions annual appropriations from the federal government.⁴

Colloquially referred to as "the people's university," Cooperative Extension was a significant part of the evolved concept of land-grant institutions. The passage of the Smith-Lever Act in 1914 developed an expansive Cooperative Extension System operated through the land-grant university system in partnership with federal, State, and local governments. The purpose of Cooperative Extension is to educate formally and informally on agriculturally-related topics, in both rural and urban contexts. Extension agents are based at field offices and land-grant institutions work with local agricultural producers and community members to demonstrate or put into practice knowledge gained through agricultural research, which adds "non-formal" education to the land-grant mission. Cooperative Extension's efficacy varies widely by State, contingent upon available skillset, funding, and political prioritization.

Alaska hosts 2 or 3 land-grant institutions, depending on the data source.⁵

- Iñiaġvik College, Utquigvik (1994 TCU)
- University of Alaska Fairbanks (1862)
- University of Alaska system (unclear)

The entire University of Alaska system, including Universities of Alaska Anchorage and Southeast, in addition to Fairbanks, is sometimes cited as a land-grant institution.⁶

It is critical to note that regardless of designation—there does not exist a post-secondary agricultural program in the entire State. A chronic environment of austerity has plagued the State University system for years and has resulted in losing jobs and federal funding and resulted in an Alaska agricultural "brain drain." This results in consequences for Alaska's food security as land-grant institutions are hubs of research and community education, in addition to matriculated courses.



Impacts of this gap include: ⁷

- Decrease in Cooperative Extension capacity
- Inability for universities to leverage federal funding for agricultural research, due to low or no in-state capacity or designated funding
- Inability to fund and staff in-state experts in agency positions
 - Example: ADF&G reports a great need for additional research on wild foods
 - Similarly, UAF's Reindeer Research program will close at the end of a grant and the lead researcher will retire without a successor. This is particularly concerning as there is currently no other "domesticated ungulates as food" research occurring in the State.
 - Currently, there is no university-backed agricultural engineer, hydrologist, economist, livestock specialist, or animal nutritionist. This is alarming considering the calls for increased livestock and feed production from the Task Force and Alaska food stakeholders.
- Lack of foundational agricultural research capacity, including much-needed topics:
 - Fertilization rates for different crops
 - Mineralization rates for different soils
 - Soil health baseline
 - How best to convert a non-cropland area into productive cropland with regard to long term, sustainable practices
 - Fruit tree research,
 - Hydroponic and other Controlled Environment Agriculture (CEA) research
 - No agricultural engineers or hydrologists, no livestock specialists (both ruminant and non-ruminant), no animal nutrition research, no longer reindeer research, no regenerative agriculture, no cover cropping, no intercropping
 - UAF has not hosted a plant geneticist since 1999, until a hire in summer 2022

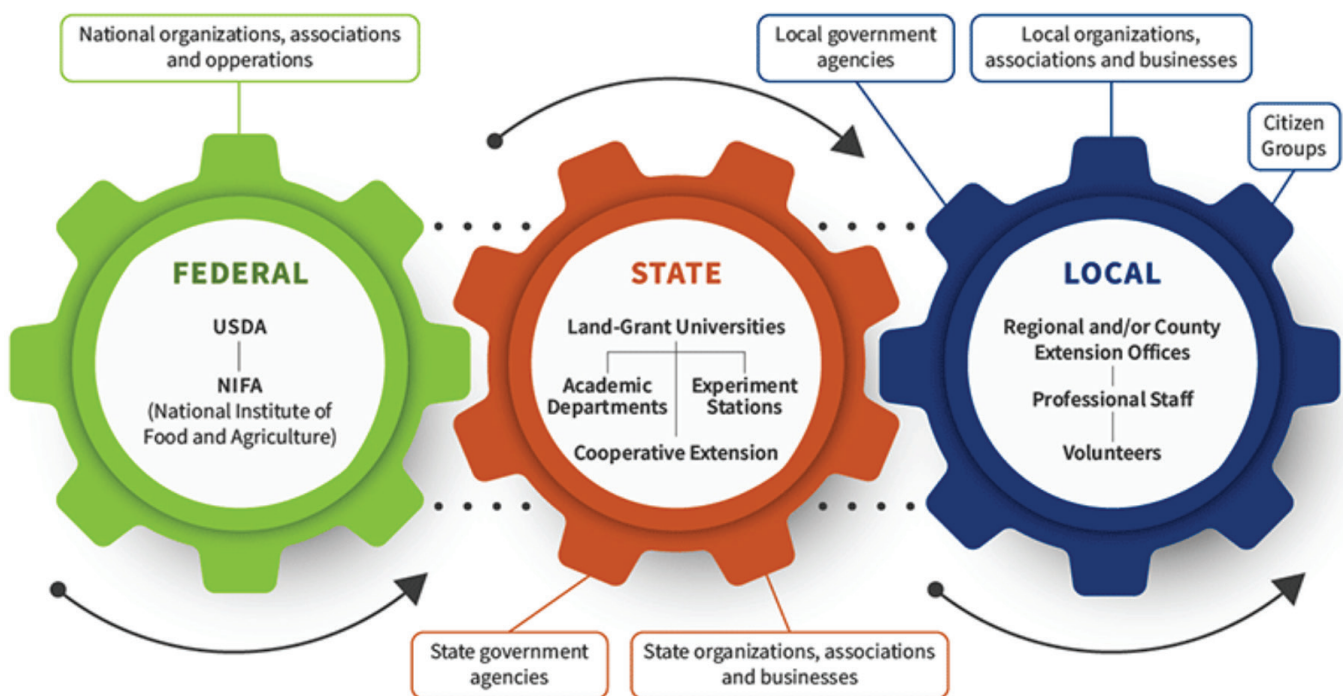


Image: Land-grant institution organizational chart, USDA

ALASKA INNOVATION

Research networks as well as innovation and startup groups have begun to identify food security as a separate vertical and often tightly intertwined with energy and water. Groups addressing food system opportunities, who may be appropriate research and funding partners for State food security endeavors include:

- Southeast Conference
- Launch Alaska—Anchorage-based startup accelerator
- Alaska V3—Community and economic development nonprofit
- University of Alaska Anchorage
 - Center for Economic Development
 - Business Enterprise Institute
 - Small Business Development Center

Directive-Specific Research Needs

Directive: Identify factors, including regulatory or statutory burdens that might discourage or prevent locally harvested and produced food from being purchased by federal, State, and local agencies, institutions, and schools.

Directive: Provide recommendations that increase the procurement and use of Alaska-sourced foods within State and local agencies, institutions, and schools, including any administrative and statutory changes that are required.

- Determine specific production requirements to meet all school, hospital, and senior center annual needs. This study must include nutritional considerations beyond national baseline requirements as well as traditional foods.
- Understand the opportunity of available sourcing options, and logistics for rural and urban populations for prescription produce programs.
- Project food assistance, financial need and community impact for the state by 2035, taking into account expected increasingly low fisheries escapements and more regular climate events.
- Further analysis of controlled environment growing opportunities, using circumpolar case studies.
- Review aggregated policy scans - such as the New England State Local Food Procurement Policy Scan, for replicable policy actions.

Directive: Identify barriers that farmers, stock growers, fishermen, mariculture professionals, and others engaged in the growing, harvesting, or raising of food face when starting a business or getting their products into the Alaska market. Provide recommendations on how the State can address those obstacles, including through administrative or statutory changes.

- Conduct an analysis to understand the commercial and retail Alaska Grown demand for local products, with particular attention to commodities.
- Research in-state, out-of-state, international market size and purchasing power for Alaska Grown, or complete a targeted analysis of existing reports.
- Explore the marine barge cost reduction options for producers and purchasers.

Directive: Assess the levels of wild game and fish harvests in Alaska. Suggest measures that would increase the abundance and harvest of wild game, fish, and food by Alaskans.

- Invest in research that helps maximize resource yields and ensures adequate stock assessments across the state.
- Examine how the carrying capacity of Alaska lands is currently being measured and ensure the methods follow best practices in ecological and management sciences.

- Add to current research on ocean acidification, the effects on shellfish, and future production of shellfish.
- Research the potential impact of establishing Sockeye salmon hatcheries in Southeast Alaska to enhance food security.
- incorporate Traditional Knowledge of streams and habitat restoration models. Use Sockeye hatchery research in South Central as a potential model.

Directive: Recommend a program to assist communities and households impacted by fishery shortfalls and disasters.

- Inventory both existing programs and the need for new programs assisting communities impacted by fisheries disasters and sharing resources across the state.
- Conduct an audit of existing infrastructure and infrastructure needs. Identify opportunities to leverage transportation, processing, storage and other existing infrastructure. Identify ways to reduce costs, localize, and shorten the distance between harvest and distribution.
- Identify who is already doing last-mile distribution to help address some of the transportation barriers.
- Research opportunities to incentivize sharing of fish caught in both commercial and personal use fisheries via food banks and/or other donation programs.
- Conduct more research to identify the full monetary value of subsistence fisheries, and promote understanding of the cultural value of subsistence fisheries/harvests.
 - A recent study of cost to replace subsistence-caught Bristol Bay salmon is an example.⁸
- Research if hatcheries could help address shortfalls.
 - State runs two hatcheries for sport fisheries.
 - All others are private, nonprofit producing salmon to enhance commercial, sport, subsistence, and personal use fisheries.
- Research existing programs/approaches and new ways to support the harvest of more culturally acceptable alternative foods.
- Examine bycatch programs for opportunities for improvement in prevention and distribution of non-target species.
 - NOAA observers (observer program and electronic data collection systems) are sample based and not on every vessel, and not on board for the full season.
 - The observer program is under funded and fisheries specific, which could lead to underreporting.
 - Most of the bycatch is not distributed to rural communities that are losing subsistence runs. Examine and improve where the bycatch is distributed.
 - Bycatch is often multi-species and multi-age (meaning throwback age or appropriate harvest age), making aggregation and distribution complicated.
- Calculate the costs of population shifts caused by food insecurity in the state. Recognize that a lack of food in rural areas causes an influx of people into urban centers where food programs are already maxed out. Policies should account for the long term actual costs of food assistance to subsistence communities and individual harvesters versus the cost of management that supports subsistence.
- Determine required storage needs at transportation and community hubs and how to distribute products from hubs to communities to eliminate waste.

Directive: Assess the need for disaster food caches within the State; and how the caches can be developed utilizing Alaskan-sourced foods.

- Complete a regional food chain assessment of needs throughout Alaska
 - As a state, we don't know fully what is needed

- Considerations to explore:
 - Modes of transportation, preservation, types of storage (mobile/brick-and-mortar)
 - Identify what is required to assess the need
 - Example: examine the 2017 USDA Agricultural Census; take the amount of food produced and divide on per person's needs to establish a baseline
- Access the differences/overlaps in needs between rural and urban communities, considering their existing infrastructure and capacities
- Examine opportunities for greater rural food security and transportation options—for example, empty planes between rural communities present an opportunity
- Review state and city regulations that disallow certain food security activities
- Example: A city yard could support goats that could feed infants/toddlers if there's no milk in a community or donations of personal harvest fish and game could be donated to community organizations

¹ Whiting, K. (2022, March 15). *How inclusive innovation could transform food systems - and help to end world hunger*. World Economic Forum. <https://www.weforum.org/agenda/2022/03/food-systems-innovation-transformation/>

² Meter, K., & Goldenberg, M. P. (2014). Building food security in Alaska. Minneapolis, MN: Crossroads Resource Center. https://static1.squarespace.com/static/584221c6725e25d0d2a19363/t/58b0e030ebbd1abb37f85817/1487986738928/14-09-17_building-food-security-in-ak_exec-summary-recommendations.pdf

³ Act of July 2, 1862 (Morrill Act) [Public Law 37-108]. National Archives. <https://www.archives.gov/milestone-documents/morrill-act>

⁴ The U.S. Land-Grant University System: Overview and Role in Agricultural Research. Congressional Research Service. Updated August 9, 2022. <https://sgp.fas.org/crs/misc/R45897.pdf>

⁵ USDA. (n.d.). land-grantColleges and Universities. National Institute of Food and Agriculture. Retrieved September 2022 from <https://www.nifa.usda.gov/about-nifa/how-we-work/partnerships/land-grant-colleges-universities>

⁶ University Land Deficit. (n.d.). University of Alaska. Office of Government Relations. Retrieved September 2022 from <https://www.alaska.edu/govrelations/State/land.php>

⁷ Email correspondence September 2022. Jodie Anderson, Interim Associate Director Institute of Agriculture, Natural Resources, and Extension University of Alaska Fairbanks Matanuska Experiment Farm and Extension Center.

⁸ Thompson, T. (2021, April 27). *New report: Value of Bristol Bay subsistence salmon would cost Alaska families \$5 to \$10 million to replace*. KDLG: <https://alaskapublic.org/2021/04/27/new-report-attempts-to-quantify-bristol-bays-subsistence-salmon-with-a-look-at-protein-replacement/>





SECTION FOUR

Appendices



Alaska Community Emergency Food Cache System (ACEFCS)—2013 Plan

Updated: December 9, 2013

Prepared by 2013 AFPC Emergency Preparedness Working Group

Co-Chairs: Darren Snyder and David Fazzino

Purpose: To increase the ability Alaskan communities to feed themselves in the case that typical food supply routes and schedules are disrupted for a period of time ranging from days to weeks.

Synopsis: The ACEFCS accomplishes our purpose by teaming with current private and public food consumption and commercial distribution outlets by training and contracting with them to keep a cache of food that is reserved for emergency use only and is otherwise rotated as part of their regular stock management.

The ACEFCS will provide a true, real-time inventory of available foods. In the event of a qualified emergency, it this food will be distributed by trained and practiced employees and prepared (as necessary) by traditional emergency responders (i.e. Red Cross).

Please note these important caveats:

- The ACEFCS will be integrated into a comprehensive emergency food security system which should include:
 - Statewide resources capable of rapid deployment (i.e. regional caches of MRE's for airlift)
 - Emergency Harvest Protocols for wild foods (fish, meat, plants) and cultivated foods (gardens, farms) which would be highly sought after and easily depleted if not actively managed in an emergency.
 - Emphasis on strengthening everyday local (Alaskan) food economies by providing priority and preference for Alaskan-produced foods, which are identified as contributing to the food security of our communities by being a successful produced and consumed locally on a continuous basis (i.e. farming systems with crops and livestock, fishermen providing local fish, etc).
- The security of food stocks during an emergency is carried out by traditional security personnel (VPSO's, police, troopers) who have been fully integrated in their local Emergency Food Response system through joint exercises, etc. but will need to be augmented by other authorized and trained persons with the expectation that current security persons will be otherwise occupied during large scale emergencies.
- The ACEFCS will pre-qualify the LFV's so they can receive compensation in an expedient manner for food which is used in qualified emergency situations.*

**This is a triggered by the municipal Incident Commander (or surrogate)*

The ACEFCS Framework

Local Food Vendors (LFVs), including institutional food services, distributors, non-profits, agencies, schools and (potentially) stores and restaurants, etc. are welcome and encouraged to apply to participate in the ACEFCS. These are food outlets which are already going through food stock in a community on a regular basis. The LFV's store Emergency Food Caches (EFC) which will be kept at all times in their secure storage facilities (warehouse, store room, etc.). An EFC is an agreed-upon quantity (calculated to # of meals), quality (specific items which constitute healthy and balanced nutritional value), and types (i.e. specific preparation requirement parameters, consider the difference between canned beans vs. dry beans) of foods. The EFC are

to consist of foods that already being part of the LFVs standard stock and so will be rotated on a regular basis as part of their daily operations (well before expiration dates) and in accordance with methods developed by the ACEFCS administrators. Exact Cache locations will be authorized by ACEFCS.

With provided training, guidance and support, LFV's will maintain a Employee Readiness Protocol (ERP) by which their employees (Emergency Food Responders-EFR) will respond to an emergency need with the appropriate performance.

ERP WILL INCLUDE:

- When activated/directed*, employees report to (or stay with) the cache (business) and implement rehearsed Food Security and Distribution Protocols (FSDP) to:
 - Secure the food reserve
 - Distribute it in a pre-planned manner (or as directed by Emergency Response Command Center/System)
- There will be established Employee Self and Family Plans (ESFP) which will enable employees to successfully and reliably carry out the FSDP without concern for their own family's safety. As a primary part of the EFSP, the employer provides (or subsidizes?) and verifies home-based (and/or(?) business-based) personal emergency supplies which will meet self and family needs for a designated time period. (This is akin to Juneau electrical company, AEL&P, system).

**There will be an inspection protocol to verify contact is upheld.*

Benefits to Participants

LFVS BENEFIT BY:

- Increased employee satisfaction due to their own improved food security (the "I'm cared for" effect)
- Being buffered from some "normal" out of stock situations (as long as they keep the contracted minimum stock levels) and will definitely benefit from fewer shortages caused by supply disruptions
- Public recognition and promotion for being a Good Samaritan Business
- Better likelihood of care for property in case of a food emergency (looting, vandalism)
- Managers and employees receive EFR training
- Contract with state to compensate for costs due to required increased conditioned storage space

LOCAL COMMUNITIES AND THE STATE OF ALASKA BENEFIT BY:

- No ongoing food costs (initial investment, loss, spoilage, expiration, etc),
- More prepared citizens and families trained to be "part of the solution" in an emergency,
- Increased community/individual awareness of the need for emergency preparedness,
- Strengthened local economies because of Alaska grown/produced preference which can include the Alaskan producers as LFV or stores/distributors who carry their products as the LFV, or both.

EXPECTED COSTS TO PARTICIPANTS:

LFV:

- Employee time for training
- ERP development and ongoing maintenance

ACSFCS Administrator (State of AK):

- EFR training

- contracted compensation for LFVs required increased conditioned storage space (can be standardized by area and number of meals)
- Initial stock increase

LFVs provide the following, but are already factored as part of above costs or are compensated for in plan:

- Conditioned space (specific location, conditions, etc.)
- Food (specific quantity, quality and type)
- Trained EFRs

JUST A FEW IMMEDIATE OUTSTANDING QUESTIONS:

- Who pays for the initial increased stock levels? (therefore, Who “owns” the food?) Is there a cost sharing or incentivized way for businesses to help pay or is it all public funds? Private or public grants?
- Are certain businesses too risky to have this responsibility? (i.e. financially unstable, unable to maintain competent employees and adequate facilities)
- What happens if a LFV goes out of business?
- Will ongoing compensation for LFV’s for conditioned storage space provided?
- How to deal with changing food prices?



Appendix B

2021-22 Alaska Food System Infrastructure Recommendations and Update



2021 Alaska Food Security Investment Recommendations

Created June 2021 by the AFPC Advocacy & Policy Committee. We acknowledge that this does not represent the voices of all food and agriculture-related organizations and individuals.

Alaska has endless opportunities to improve food security and diversify the economy with some assistance and resources put towards strengthening our food system, from production to distribution to consumption.

The facts around food security in Alaska are concerning:

- Alaska imports roughly 95% of food purchased (\$1.9 billion leaving the state)
- We have a 3- to 5-day supply of most foods in grocery stores
- 1 in 7 Alaskans are food insecure, including 1 in 5 kids (pre-pandemic)

Alaska needs more in-state food production. Through increasing infrastructure and developing markets, agriculture could be a key player in building a stronger, more sustainable future for Alaska. A robust food system would increase access to fresh, local, healthy foods, create new economic opportunities, and ensure that we are equipped to handle whatever the future holds.

The American Rescue Plan Act provides a unique opportunity to strengthen Alaska's food system, which will have tremendous positive impact in both the short and long term. The organizations listed at the top of this page have collaborated to create some broad recommendations and highlight some timely opportunities. Cost estimates/suggested funding levels have been included, as well as examples of organizations with existing experience in facilitating programs in those areas. *Note, this is not a complete list and there are many food- focused organizations doing great work around the state.*

Local Foods Purchasing Programs

Guaranteed markets will give farmers security in expanding operations, and will help address the heightened levels of hunger Alaska has seen in the past year.

- Local Food to Food Banks: funding program for Food Banks to purchase local foods (agriculture products, fish, value-added, etc.) and distribute to families in need. Example partner: Food Bank of Alaska
- Institutional Purchasing: get the Product Preference Program working for local food purchases.
- Incentive programs for low-income Alaskans to shop at Farmers Markets, Farmstands, Food Hubs: "double bucks" program for SNAP, WIC or voucher system similar to senior farmers market coupons. Example partner: Alaska Farmers Market Association.

Suggested funding level: \$3-5 million.

Invest in Infrastructure

Without infrastructure, there is only a certain amount of growth in food production Alaska will realize.

Suggested funding levels vary.

- **Storage:** Cold, dry, frozen storage facilities would assist in increased production and extending availability to products. Consider attaching storage facilities to food banks/pantries allowing for their needs and room for farmers to rent space either with money or food donations. This could include a packhouse/kitchen portion for smaller scale value-added processing. Rural communities are in need of temperature- controlled storage facilities to improve access to fresh foods.

Suggested funding level: \$3 million.

Example partner: Kenai Peninsula Food Bank.

- **Processing/Manufacturing Facilities:** The trend in food purchases is leaning to prepackaged meals (meat/veggies cut, seasoning included and instructions – fresh or frozen) and a facility that processes meat and veggies to a prepackaged, ready-to-go meal will be more enticing to many consumers and provide more Alaska Grown food year-round. Also, this could provide ready-to-go meals for institutions and local, healthy foods with a longer storage life and easier shipping to rural communities.

Suggested funding level: \$10-15 million for three hubs across the state in the Interior, the Kenai Peninsula, and the Mat-Su Valley.

- **Shared Kitchen Infrastructure:** Shared-use kitchen incubators are a proven model with over 200 sites existing in the rest of the country. There is active demand for accessible processing facilities in Anchorage. We recommend investment into a 10,000 s.f. building with rentable kitchen space including manufacturing equipment, cold and dry storage and public facing retail. The facility will serve food-based businesses, with a specific focus on supporting early-stage business as they work to scale within the industry. Users will include market vendors, established bricks and mortar businesses in need of commissary spaces, caterers, wholesale manufacturers, and in-house food retailers.

Suggested funding level \$5 million.

Example Partner: Anchorage Community Land Trust Commissary Kitchen & Small Business Incubator.

- **Poultry:** Egg and meat chicken production would be a quick turnaround for in-state protein production. Poultry farmers rely heavily on USPS to get chicks into Alaska – need incentives for increasing Alaska hatcheries and to include the faster growing meat breeds (i.e. Freedom Rangers). Processing is another need for 2 to 4 Mobile Poultry Processing units (MPUs) around the state would increase ability to process larger numbers. Also work with insurance companies on approving farms' processing in MPUs (access to insurance). There is the possibility of a state inspector at processing unit and approve schools/state institution's ability to purchase meat processed in these units.

Suggested funding level: \$100,000-\$150,000 per processing unit.

- **Importing Livestock:** The USDA Vet fee is a disincentive to bring in larger loads of livestock for many. One federal vet in Alaska, stationed in Anchorage, requires a fee of \$138/hr which includes travel time to and from base. A set up fund would cover travel costs of federal vets for import inspection for 2021/2022. Encourage USDA to either contract with private vets around the state for these inspections or allow virtual inspections.

Suggested funding level: \$10,000-20,000.

Example Partner: Alaska Farm Bureau.

- **Increased Access to Broadband/Power:** Many rural areas in the state (even on the road system) do not have 3-phase power, or reliable access to internet/cell coverage. Alternatives to these are more expensive (generators, satellite phones, etc.). Expanding these infrastructure needs will lower expenses for farmers.

Suggested funding level: \$3 million.

Example Partners: ACS and GCI for broadband/satellite communications, Alaska Energy Authority for renewable power sources.

Food System Workforce Development

Many farmers and fishers depend on seasonal workers from outside the state, who often leave with new skill sets. Processors and value-added manufacturing require specialized skills, which tend to be acquired by on-the-job-training. Equipping more Alaskans with food chain skills, which are often transferable among industries, will aid in becoming more proactive in disaster preparedness and pursuit of localized economic resilience. Increasing distributed production, processing, and storage job creation around the state also reduces food waste due to longer product shelf life and is essential for communities to become more self-sufficient. By partnering with educational institutions to build programs that meet the needs of our Alaskan food system, we can create career pathways and long-term workforce.

Suggested funding level: \$5 million.

Example Partner: Alaska Seeds of Change.

Transportation

Alaska is a large state and it is inefficient for every sector of our food system to have to transport everything (supplies, products, etc.). There are also big problems with transportation to the off-road communities.

- On road system: Coordination with existing companies with temperature-controlled trucks – i.e., fish processing facilities. Explore what’s available and how to better utilize it. Develop a rail system.
- Off-road system: Need to continue to be able to transport food around the state while also expanding local production/harvesting in communities. Continue funding for ferries, bypass mail, etc., and other systems crucial for distributing food to rural communities. Consider supplemental transportation funding to food banks to help equitably distribute nutritious food throughout the state.

Suggested funding level: \$10 million.

Example Partner: Alaska Commercial Company.

FOOD SYSTEM INFRASTRUCTURE RECOMMENDATIONS



INVEST IN INFRASTRUCTURE

Without infrastructure, there is only a certain amount of growth in food production Alaska will realize.



STORAGE

Cold, dry, frozen storage facilities would assist in increased production and extending availability to products. Rural communities need temperature-controlled storage facilities to improve access to fresh foods.



PROCESSING/MANUFACTURING FACILITIES

A facility that processes meat and veggies to a prepackaged, ready-to-go meal will be more enticing to many consumers and provide more Alaska Grown food year-round. Also, this could provide ready-to-go meals for institutions and local, healthy foods with a longer storage life and easier shipping to rural communities.



SHARED KITCHEN INFRASTRUCTURE

Investment into community buildings with rentable kitchen space that includes manufacturing equipment, cold and dry storage, and public-facing retail to create entrepreneurial opportunities.



POULTRY

Egg and meat chicken production would provide quick turnaround proteins developed in-state. Poultry farmers rely heavily on USPS to get chicks. Incentives for building infrastructure around in-state hatcheries and poultry processing units would increase the production of healthy foods.



IMPORTING LIVESTOCK

High fees for federal veterinary inspections of imported livestock is a barrier to significant increases in livestock in Alaska. Establish a fund to help with vet fees for 2021/2022 imports and encourage USDA to find lower-cost methods for inspections.



INCREASED ACCESS TO BROADBAND/POWER

Many rural areas in the state (even on the road system) do not have 3-phase power, or reliable access to internet/cell coverage. Alternatives to these are more expensive (generators, satellite phones, etc.). Expanding sustainable power infrastructure will lower expenses for farmers.

FOOD SYSTEM WORKFORCE DEVELOPMENT



Many farmers and fishers depend on seasonal workers from outside the state, who often leave with new skill sets. Processors and value-added manufacturing require specialized skills, which tend to be acquired by on-the-job training. Partnering with educational institutions to build programs that meet the needs of our Alaskan food system, we can create career pathways and a long-term workforce.



TRANSPORTATION

Alaska is a large state, and it is inefficient for every sector of our food system to have to transport everything (supplies, products, etc.). There are also big problems with transportation to the off-road communities.



ON-ROAD SYSTEM

Coordination with existing companies with temperature-controlled trucks—i.e., fish processing facilities. Explore what's available and how to better utilize it. Develop a rail system.



OFF-ROAD SYSTEM

Need to continue to be able to transport food around the state while also expanding local production/harvesting in communities. Continue funding for ferries, bypass mail, etc., and other systems crucial for distributing food to rural communities. Consider supplemental transportation funding to food banks to help equitably distribute nutritious food throughout the state.

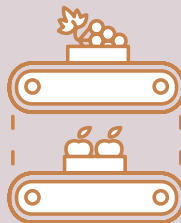
LOCAL FOODS PURCHASING PROGRAMS

Guaranteed markets will give farmers security in expanding operations and will help address the heightened levels of hunger Alaska has seen in the past year.



LOCAL FOOD TO FOOD BANKS

Funding program for Food Banks to purchase local foods and distribute to families in need.



INSTITUTIONAL PURCHASING

Get the Product Preference Program working for local food purchases



INCENTIVE PROGRAMS FOR LOW-INCOME ALASKANS TO SHOP AT FARMERS MARKETS, FARMSTANDS, FOOD HUBS:
“Double bucks” program for SNAP, WIC or voucher system similar to senior farmers market coupons



June 2022 Update

32nd Alaska State Legislature (2021–2022) Provides Big Wins for Alaskan Food Security. A number of bills and budget allocations were approved, which aim to support a more resilient food system around the state. Here's a recap of those successes:

HB 298 will form an Alaska Food Strategy Task Force, a continuation and expansion of Governor Dunleavy's Food Security and Independence Task Force.

- The task force will be comprised of 36 individuals representing various aspects of the food system, including legislators and relevant state commissioners. Notably, the Alaska Food Policy Council has two designated seats on the executive board.
- The task force will provide recommendations for strategy and policy on such topics as sustainability in the agriculture industry and local markets, ensuring a good regulatory climate for processors and distributors, addressing food waste, streamlining state-run programs concerning food access and availability, and ensuring food security in all communities in the state.

Additionally, HB 298 establishes a forgivable loan program, where farms can apply for money from a general fund.

- In actuality, this money acts more as a grant with stipulations, as farmers who are recipients of the loan can have the debt of the loan forgiven as long as they implement an approved business plan. This business plan should aim to use the money received from the loan as capital for investments that will build resiliency in the state's food supply, benefiting everybody.
- This loan can total up to \$150,000, and a specific process is outlined to ensure that the farms create improvements with the money before it can be forgiven. Any money not spent, even if approved in the business plan, must be repaid.
- This loan program also extends to meat packing plants, which must show some kind of improvements like increased efficiency or quality of meat produced and must be from animals raised in the state to be forgiven.
- This fund promotes improvements for Alaska food producers and processors, seeking to ease dependence on outside food.

HB 168 establishes a directive for numerous state services and benefits to offer client applications online, for greater efficiency.

- This includes SNAP (Supplemental Nutrition Assistance Program, formally known as food stamps), disabled support, and many other assistance programs.
- This will provide greater access for those signing up for these programs as they can now simply sign up within their home, removing barriers, like access to transportation, that can inhibit people from receiving the services they are entitled to.

HB 347 ensures that animal records held by the Department of Environmental Conservation are to be made confidential, so that private citizens and those government agencies who do not have the authority to do so, are unable to view these records.

- This change seeks to protect trade secrets for businesses, creating an incentive for businesses to innovate while still allowing for regulatory agencies to still do their due diligence.
- The Department of Environmental Conservation will still have access to these records and can distribute them to other departments or agencies if there is a reason to do so.

HB 281 outlines the budget for the next fiscal year starting on June 30, 2022. The highlights pertaining to food policy and security are as follows:

- \$1,250,000 was designated from the Fish and Game Funds to be used for wildlife management surveys and assessments that will seek to provide information that will help enhance food security by **understanding the natural fish and game resources**.

- \$3,000,000 was given to the Food Security Agriculture Incentive program which provides funds for the Alaska Division of Agriculture to continue its program of **giving grants, loans, and financial incentives for agricultural investment, supporting and growing the food industry** in the state.
- \$600,000 was dedicated to starting **new school breakfast programs and expanding existing ones** to ensure that children who may not have access to breakfast at home get the food they need in the morning, providing a level of food security for children.
- \$10,000,000 was given to Food Bank of Alaska for **infrastructure capacity for Alaska's statewide food assistance network**.
- \$500,000 was designated for the Alaska Farmers Market Association, which helps ensure that **farmers markets are able to operate effectively** as they provide a space for people to exchange local food products, benefiting local farmers and helping to establish a local food system that can resist outward changes. This funding will be used to provide double SNAP, WIC, and SFMNP benefits at markets statewide.

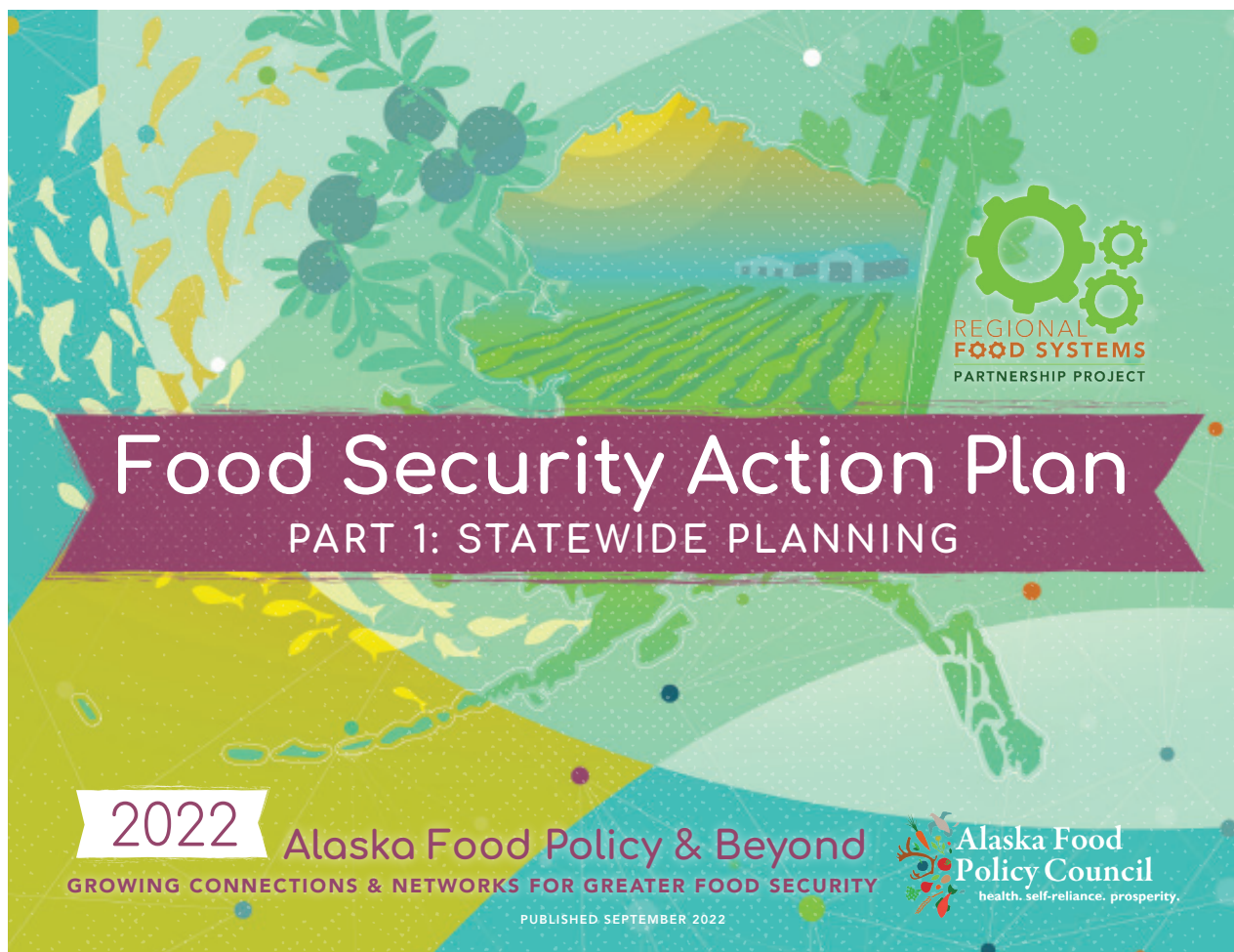


Appendix C

AFPC USDA Regional Food System Partnership Grant Report—Alaska Food Security Action Plan Overview

Please note that this is only a portion of the full report; please visit <https://www.akfoodpolicycouncil.org/ak-food-system-research> for the full document.

- This report, published in September 2022, includes statewide feedback from over 325 participants in thirteen different regional nodes. In October 2020 the Alaska Food Policy Council was awarded a two-year planning grant, under the USDA Agricultural Marketing Service's Regional Food System Partnership Program—2020 was the first year the USDA offered this grant program.
- The Regional Food System Partnerships (RFSP) Program “supports partnerships that connect public and private resources to plan and develop local or regional food systems. The program focuses on strengthening the viability and resilience of regional food economies through collaboration and coordination.
- Our project aimed to connect localized food system organizations to create a statewide network of “regional nodes.” Through direct facilitation, each node was guided through a series of network planning discussions, including a node-specific asset mapping workshop to identify unique capacities for local food systems, while revealing barriers and system deficiencies. Through regular statewide connection, communication, and collaboration regional nodes collectively identified linkages and partnerships which were leveraged to create a statewide food security action plan.



Alaska Food Security Action Plan

THE GOAL OF THE MULTI-STAKEHOLDER ACTION PLAN is to democratically address food

system challenges through inclusive, participatory action, building the capacity for resiliency and sustainability in the Alaskan food system.

RECOMMENDATIONS BASED ON ASSET WORKSHOP AGGREGATE DATA

The data generated from all of the regional asset-mapping workshops is archived by AFPC and is openly accessible to all interested parties for continued work. While each region articulated cultural and place-specific assets that could be used to leverage positive food systems change, aggregate data indicates significant shared interest areas.

A review of these key themes is provided as a basis for developing a statewide food security plan that is inclusive of the interests and assets of each region. After this section, the Action Plan digs deeper into actionable steps. The goals are more general, while the objectives provide detail, with potential strategies for achieving the listed goals. Please note, there is no hierarchy in how these goals are listed.



IMPROVING FOOD SYSTEM LITERACY AND SKILLS TO BUILD GREATER CAPACITY, AWARENESS, AND INTEREST IN FOOD SECURITY

- Youth food education
- Youth and Elder mentorship programs
- Preserving and (re)discovering traditional foods and foodways
- Harvest, production, processing, compost, and healthy consumption skills

BUILD/IMPROVE FOOD SYSTEM PHYSICAL INFRASTRUCTURE

- Community commercial kitchens
- Food storage space
- Food processing/slaughtering facilities
- Community composting
- Food hubs
- Growing season extension options

PROMOTE FOOD JUSTICE, FOOD SOVEREIGNTY, GREATER ACCESS, AND CULTURAL AWARENESS OF FOODWAYS AND TRADITIONS

- Preserving and expanding traditional knowledge and foodways
- Food justice and tribal outreach for Alaska Natives
- Food chain relationships
- Create stronger regional food systems networks
- Local food availability awareness
- Food waste recapture (seafood, gardening, animal processing, etc.)

PROVIDE TECHNICAL EXPERTISE AND GRANT OPPORTUNITIES TO INCREASE FOOD SYSTEM CAPACITY

- Exploring Mariculture (sea lettuce, sea asparagus, kelp)
- Exploring kelp harvesting as livestock feed
- Regional website/ resource library development
- Grant-writing workshops and funding resources

ENHANCE, IMPROVE, AND CREATE NEW MARKETS FOR FOOD PRODUCTION

- Increase Viability of Local Agriculture
- Build relationships between food producers, institutions, distributors, and local restaurants and breweries
- Address Food Waste

USDA REGIONAL FOOD SYSTEMS PARTNERSHIP

ALASKA FOOD SECURITY ACTION PLAN

SUCCESS STORIES



Project: Traditional Foods and Wellness Programs at Aleutian Pribilof Islands Association

RFSF Node: Aleutian Region

Project Location: Aleutian Pribilof Islands, Anchorage

Mission & Activities: The goal of the Traditional Foods Program is to promote the use of traditional foods as part of a healthy diet and for overall well-being. Traditional foods must be celebrated. The harvesting, preservation, and preparation of traditional foods have been a vital part of Unangax life from time immemorial. Many traditional values are expressed through the harvesting and preparation of local foods: the importance of sharing, respect for Elders, helping and taking care of others, not being greedy, and taking care of the land, air and water, to name a few. The Traditional Foods and Wellness Programs work in tandem to carry out food-related initiatives and are dedicated to supporting the health and wellness of the Unangax people. Current projects are focused on working with Elders and community leaders to preserve traditional food knowledge and address food access and food security throughout the region.

Key Partnerships: The Aleutian Islands extend westward over 1,100 miles from the southwestern corner of the Alaska mainland, and include the Pribilof Islands which lie to the north. The Aleut people have traditionally been stewards of the land, coastal waters, and the resources in the Aleutian/Pribilof Region. The 13 communities represented by APIA are Akutan, Atka, Belkofski, False Pass, King Cove, Nelson Lagoon, Nikolski, Pauloff Harbor, Sand Point, St. George, St. Paul, Unalaska, and Unga. Other communities that are a part of the Aleutian Chain, but not a part of APIA are: Adak, Amchitka, and Attu.

Image: Sally Swetcof in Atka

Text Adapted from: <https://www.apiaa.org/community-services/traditional-foods-program/>



Action Plan

THIS PROJECT'S ORIGINAL INTENT was to create a true action plan, with detailed, tangible steps towards meeting objectives. Recognizing that every community is in different phases of food system development, with different assets, barriers, and needs, we created this collaborative statewide action plan, that is not overly prescriptive and allows place-based decision making and planning and community self-determination. It is critical to note that per funding for this project from the USDA, this is a "planning" grant, with the opportunity to apply for "implementation" funding upon the close of this project.

NOTES:

- Please see Appendix C for a list of organizational acronyms and websites.
- The "potential partners" list is not comprehensive; those listed serve to provide examples.



ACTION PLAN GOAL ONE

Improve Food System Literacy and Skills to Build Greater Capacity, Awareness, and Interest in Food Security

Objective 1: INCREASE YOUTH FOOD LITERACY (FISH, FORAGE, HUNT, FARM, COOK, AND EAT)

Strategies:

Encourage food system literacy by adding relevant materials to school curriculum to prepare the next generation of farmers, fishers, harvesters, foragers, and informed eaters

Potential Partners:

FFA, local school districts, Agriculture in the Classroom, 4H, Alaska Native culture camps

Create a central clearing house that provides information regarding education/ cooperative extension workshop opportunities

CES, AFB, Resiliency Commissions, Garden Clubs, Community Centers, Master gardeners, peer mentorship

Fund high school agriculture programs, scale this model state-wide

High schools (ex. King Tech—Anchorage), Boards of education, FFA, 4H, Dept. of Labor, Community colleges, corporate partners for "food chain internships"

Inform parent groups of existing resources for food systems education, cooking classes, nutrition, foraging, gardening, small-scale hydroponics. Increase awareness of funding for small-scale projects like these.

PTAs, sports and social club parents, Tribal culture camps, TCD, SWCD

Encourage USDA Farm to School grant applications

Kodiak Area Native Association, Alaska Farm to School

Objective 2: PROMOTE THE PRESERVATION AND (RE)DISCOVERING OF TRADITIONAL FOODS AND FOODWAYS

Strategies:

Support Elder-youth mentoring programs (hunting, fishing, foraging, farming)

Potential Partners:

Schools, Tribal entities, APIA

Support school-based programs (school gardens, cooking classes, FFA, etc.)

CES, museums, community centers, food banks and pantries, farmers markets

Create seed saving classes, community seed libraries, and Alaska-based Seed Bank

DNR Plant Materials Center, Tribal Conservation Districts, AVI, Cooperative Extension

SUCCESS STORIES

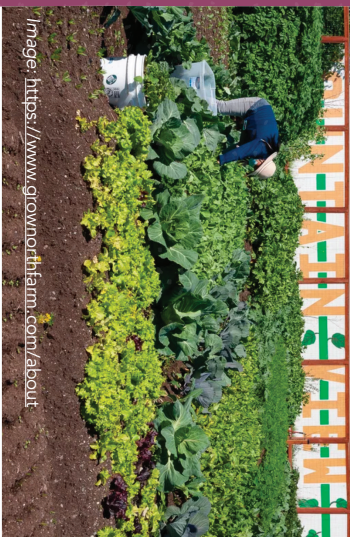


Image: <https://www.grownorthfarm.com/about>

Project: Grow North Farm

RFSP Node: Anchorage/Girdwood

Project Location: Mountain View, Anchorage

Mission & Activities: Grow North Farm is the result of years of collaboration between the Anchorage Community Land Trust and Catholic Social Services. The site is a place for food production, community gathering, and entrepreneur development. During the 2022 season, over 20 neighborhood farmers, including nine independent businesses, farmed on-site, all of whom were of refugee or immigrant backgrounds. All of the farmers receive food business and agriculture training hosted by ACLT's Set Up Shop and partner agency, the Refugee Assistance and Immigration Services program at Catholic Social Services.

Anchorage's largest urban farm at 28,000 sqft., the site is a seasonal host to immigrant and refugee farmers seeking rentable land to grow food for their families and for sale. Produce is sold at a regular, seasonal farmers market, hosted on-site and made more affordable by accepting WIC and SNAP. In 2022 they added a licensed food truck to the mix, and farmers who are also food entrepreneurs can reserve space to test their recipes and tap into a broader market.

Key Partnerships:

- Anchorage Community Land Trust
- Catholic Social Services



GOAL ONE CONTINUED

Objective 3: SUPPORT ADULT EDUCATION AND WORKFORCE DEVELOPMENT

Strategies:

Partner with University system for local research and education opportunities

Expand agricultural research center to satellite programs

Create or reintroduce degree programs (undergraduate and graduate) and non-degree community courses in food systems

Create buildable, scalable training programs (a "journeyman's" type educational track), utilizing community specific specialties

Develop workforce for meat processing through community training and internship program for meat processing

Create training program for Veterans focused on next careers in agriculture and food

Implement local hiring preference policies or incentives

Potential Partners:

UA system, with satellite campuses, APU, other adult education providers

UA system, with satellite campuses, APU, SWCD, TCD, local producers and fishermen

Local meat producers and processors, UA system, AFB

Alaska Veterans Foundation, UA system, with satellite campuses

State legislature, private industry, public entities

Objective 4: CREATE AWARENESS OF WHAT FOODS ARE AVAILABLE LOCALLY

Strategies:

Create buy-local campaigns

Fund "Chef at the Market" programs to demonstrate low cost recipes utilizing local ingredients

Potential Partners:

DNR, CES, AFB, AFMA, Buy Alaska, DHSS

DNR, CES, AFMA, Buy Alaska, farmers markets, food hubs, local food groups

SUCCESS STORIES



Project: Moby the Mobile Greenhouse

RFSF Node: Juneau and neighboring communities

Project Location: Southeast Alaska

Mission & Activities: "Moby the Mobile Greenhouse travels to a different rural Southeast Alaska community, each growing season to kickstart interest in growing local produce, especially among young people. We hope that the greenhouse inspires a new wave of vegetable gardeners, builders, local food system advocates in Sitka and beyond. Moby will mobilize a longer-term vision as a local food system learning center for educators around the region." —Jennifer Nu

Since its launch in 2016, Moby has travelled to Kake, Hoonah, Yakutat, and Sitka

Key Partnerships: Southeast Alaska Watershed Coalition, Sustainable Southeast Partnership (SSP), Grow Southeast, rural Southeast Alaskan communities and schools

Image: Mark Browning

Text Adapted from:

<http://sustainablesealaska.net/moby-the-mobile-greenhouse-cultivating-community-around-opportunities-to-grow-food-knowledge-and-skills/>
<https://sitkalocalfoodnetwork.org/2019/02/19/moby-the-mobile-greenhouse-to-spend-rest-of-year-at-pacific-high-school-in-sitka/>

SUCCESS STORIES



Image: Hank Moore teaching a cooking class.
Photo credit: Charles Bingham

Project: Sitka Kitch

RFSF Node: Sitka and neighboring communities

Project Location: Sitka

Mission & Activities: The Sitka Kitch is a DEC certified community kitchen that fosters a sustainable and healthy community and food system through education, business incubation and community building. The Kitch is located at the Sitka Lutheran Church.

Potential renters must apply and complete a kitchen orientation. A variety of community courses in food skills such as “campfire cooking” are offered, and the kitchen’s partners’ members sometimes enjoy discounts on events and classes. While the space is primarily educational, food entrepreneurs who need a certified kitchen space may inquire about rentals.

Key Partnerships: The Sitka Kitch is a collaborative effort that would not be possible without the support of partnerships.

- Sitka Local Foods Network
- Sitka Lutheran Church
- First Presbyterian Church
- Sitka Local Foods Network
- Sitka Food Co-op
- UAF Cooperative Extension
- Sitka Health Summit
- all Kitch instructors

Image: <https://sitkalocalfoodsnetwork.org/2018/01/18/scenes-from-the-seasonal-cooking-cooking-with-hank-moore-class-at-the-sitka-kitch/>

ACTION PLAN GOAL TWO



Objective 1: INCREASE THE NUMBER OF COMMUNITY COMMERCIAL KITCHENS AND THEIR USE

Strategies:

Create a centralized database of available kitchens, with contact information and potentially on demand booking

Potential Partners:

FFA, local school districts, DEC, Municipality of Anchorage

Expand school district central kitchens to enable easier vegetable processing, to enable more sourcing of whole products from local farmers

School districts, city councils, state legislature, food hubs

Increase local processing to make ability to serve local seafood in nutrition programs more accessible

ADFG, DEC, schools, senior care facilities, hospitals

Objective 2: BUILD AND FUND FOOD STORAGE SPACES

Strategies:

Enhance food hub operations by supporting collaboration across regional food hubs, including shared infrastructure, knowledge sharing, and distribution system; consider creating a statewide working group

Potential Partners:

CES, SBDC, MEP, AFMA, Wallace Center

Identify locations and needs per community for constructing community storage facility for root crops

UAF, CES, local and regional food networks, food banks, food hubs, city councils, farmer co-ops

Form collaborative small farmers co-operative to maximize use

AFB, food hubs

Research ideas for cold storage accessible to entire community—a community food locker, incorporating traditional cold storage technology (sigluags) in villages as model

UAF Agricultural and Forestry Experiment Station (AFES)

Encourage space use to be maximized through off season partnerships

Personal use and subsistence communities, farmers, including peony growers

Position disaster preparedness with food production, storage, and processing

ACEFCS, food hubs

SUCCESS STORIES



Image: Singing Nettle Farms, credit Rachael Miller

Project: 2020 Alaska TLTH—Funding our Farmers, Feeding our Families

RFSF Node: Palmer, Wasilla, and neighboring communities

Project Location: Palmer, AK

Mission & Activities: Alaska TLTH began with a twofold goal of training more Alaska farmers and alleviating hunger with local foods. The project began with a partnership between two universities and has operated differently every year, depending on available resources. TLTH runs rather informally, with leadership shifting between partners every year, based on availability of time, space, and production. In most years, it looked like this:

1. Mat-Su farmers grow food and one of the TLTH partners purchases or collects donated food. Farmers could also drop off produce at the farm.
2. All produce was collected at the UAF Experiment Farm and stored in their cold storage, where a SNAP-ed nutrition educator weighed, sorted, and distributed vegetables and knowledge to Wasilla & Palmer anti-hunger organizations.

2020 was a big year for TLTH and partners were able to test out a new idea—uniform farmer compensation. This was extra important in times of COVID for those producers who could not attend regular markets. The Mat-Su Health Foundation funded Alaska Pacific University to hire a TLTH Coordinator to recruit farmers, collect produce weekly, then transport produce to the UAF Farm. Farmers were provided an alternative market in uncertain times and in total that year 1,900 recipe bags (with ingredients and instructions) were distributed and the TLTH produce was used in 100,000 Kids Kupoard meals, a local anti-hunger organization.

Key Partnerships: Partnerships are especially critical when no one entity “owns” the project.

- Alaska Pacific University
- Mat-Su Health Foundation
- University of Alaska Fairbanks
- UAF Cooperative Extension Services

GOAL TWO CONTINUED

Objective 3: CREATE ADDITIONAL FOOD PROCESSING AND SLAUGHTER FACILITIES

Strategies:

Create plans and partnerships to house a USDA or state approved mobile animal slaughter in every borough

Potential Partners:

Local meat processors/ producers, AFB, SWCD, TCD

Explore farmer cooperative models as a place where produce grown can be aggregated for wholesale or distribution at the community level

AFB, food hubs, retail grocery stores

Promote self organization among producers to negotiate contracts pre-season, ensuring a market for local products

Grower co-ops

Provide facilitation for connecting local suppliers to local growers and fishers

UAF

Objective 4: ADDRESS FOOD WASTE

Strategies:

Design/replicate community composting programs

Potential Partners:

Local and regional food networks, gardening clubs

Coordinated and incentivized composting at the municipal- or borough-level composting programs

Cities/towns (ex. Municipal of Anchorage has a muni composting program) and borough assemblies

Objective 5: DIVERSIFY PRODUCTION METHODS AND CROPS

Strategies:

Invest and develop in vertically integrated farms, that do not rely on imported nutrients

Potential Partners:

Alaska Seeds of Change

Diversify production approaches through hydroponics

Fairbanks SWCD, AVI, Alaska Seeds of Change

Continue support for mariculture industry capacity with further research for animal feed, including pets, and processing/storage, soil amendments for farming

AMA, DNR, ADFG, private industry

Objective 6: CREATE BETTER CONNECTED COMMUNITIES

Strategies:

Increase broadband access

Potential Partners:

AFN, Tribal Broadband, other telecom providers, Federal Trade Commission, UA system



ACTION PLAN GOAL THREE

Promote Food Justice, Food Sovereignty, Greater Access, and Cultural Awareness of Foodways and Traditions

Objective 1: PRESERVE, HONOR, AND EXPAND TRADITIONAL KNOWLEDGE AND FOODWAYS

Strategies:

- Incorporate Traditional Ecological Knowledge into all parts of the food system, from planning to implementation
- Tribal consultation on all projects that may affect Traditional hunting/gathering/fishing areas
- Co-management/Tribal management of lands and waters
- Employ culturally relevant methods and strategies for research, outreach, and collaboration

Potential Partners:

IAC, APIA, ICC, AVI, AFN, ANTHC, APIA, AFPC, Recognized Tribes Extension Program (UAF), TCD, AFN, Ketchikan Indian Community, Sustainable Southeast Partnership

Objective 2: SUPPORT FOOD JUSTICE FOR ALASKA NATIVES AND IMPROVE TRIBAL COLLABORATION AND ENGAGEMENT

Strategies:

- Protect subsistence rights
- Support tribal food system development
- Support development of additional Tribal Conservation Districts

Potential Partners:

IAC, ICC, AVI, AFN, ANTHC, APIA, AFPC, TCD, SWCD, Ketchikan Indian Community

Objective 3: SUPPORT IMMIGRANT FARMERS AND FOOD PROCESSORS

Strategies:

- Create programs and outreach efforts to meet specific needs of these communities
- Provide translation services and create materials in multiple languages

Potential Partners:

ACLT (Grow North Farm), CSS Catholic Social Services, Alaska Institute for Justice—Language Interpreter Center, Alaska Native Language Center (UAN)

USDA REGIONAL FOOD SYSTEMS PARTNERSHIP

SUCCESS STORIES



Project: Kenaitze Indian Tribe Food Cache Program

RFSF Node: Central Kenai Peninsula—Kenai, Soldotna, and neighboring communities

Project Location: Homer, Ninilchik, Anchor Point, Seldovia, and Soldotna

Mission & Activities: The Kenaitze Indian Tribe was federally recognized as a sovereign, independent nation in 1971 under the Indian Reorganization Act as amended for Alaska. Today, they have more than 1,800 Tribal Members who live across the Kenai Peninsula and beyond. The Tribe's mission is "to assure Kahtunt'ana Dena'ina thrive forever."

Offering care to those in need is one of the Tribe's top priorities. The Tribe delivers a variety of programs and services that promote the wellness of their people and the community. The tribe's food cache is open to all members of the community. Donations from the community as well as fish that come to us in the Tribal net help stock the food cache. To ensure they have enough provisions for everyone, the food cache is available on a once-per-month basis.

Key Partnerships: The Tribe also offers a wild game harvest program, which is operated in partnership with state and community agencies. Through this program, they are able to harvest meat from roadkill moose and other wildlife and make it available to those in need.



Images and Adapted Text:
<https://www.kenaitze.org/services/food-bank/>

ALASKA FOOD SECURITY ACTION PLAN



GOAL THREE CONTINUED

SUCCESS STORIES



Project: S'ndoyutgm Gat'sap Metlakatla community garden & compost

RFSF Node: Annette Island, Prince of Wales Island, Ketchikan, and neighboring communities

Project Location: Metlakatla

Mission & Activities: Located 20 miles south of Ketchikan, The Metlakatla Indian Community (MIC) is located on Annette Islands and is the only Indian Reserve in the State of Alaska. Here, a community garden has taken root and garnered state-wide interest. The site hosts a 80'x40' high tunnel for the garden & community use and a 40'x20' greenhouse for commercial use for the garden to produce food for the community.

In 2021, two nonprofits collaborated to launch a food catalyst fellowship program in support of Alaska Native and Native American leaders around Southeast Alaska—Gatgyeda Haayk, Metlakatla's community garden champion, was one of the recipients. Soil amendments can be expensive to purchase and ship around Alaska. She has expanded the garden project and incorporated composting into this site—demonstrating that local leadership is critical to sustaining and scaling local food production.

Key Partnerships:

- Metlakatla Indian Community
- Residents of Metlakatla
- Gatgyeda Haayk—local food champion
- Rural Cap

Image: Gatgyeda Haayk

Text Adapted from: <https://www.apiaa.org/community-services/traditional-foods-program/>

Objective 4: SUPPORT STATEWIDE CONNECTION AND RELATIONSHIPS

Strategies:

Create programs and outreach efforts to meet specific needs of these communities

Potential Partners:

Anchorage Community Land Trust, Catholic Social Services

Create forums/ opportunities for statewide growers/ foragers, fisheries to meet with each other

DNR, TCD, SWCD

Support Farm to School + Farm to Institution through local food procurement purchasing preference

DNR, school districts, hospitals

Create stronger regional food systems networks by expanding the Regional Food System Partnership project into the Alaska Food Network, developing goals and objectives collaboratively

AFPC, local and regional food network groups

Better leverage existing community resources through creation of regional website/resource library development, with dedicated funding to keep up to date

AFPC, CES, AVI

Objective 5: INCREASE ACCESS TO LOCAL FOOD FOR ALL ALASKANS

Strategies:

Create SNAP, WIC, SFMNP double up programs at farmers markets, farmstands, food hubs, and CSAs

Potential Partners:

DHSS, FBA, AFMA, AFB

Revise policy/permitting to allow for greater direct to consumer sales

DEC, AFPC, AFB, AFMA

Create policies and resources that would aide commercial fishers to sell straight to consumers rather than shipping seafood to outside

ADFG, DEC, AFPC, regional economic development corps

SUCCESS STORIES



Project: Interior Alaska Food Network's Golden Heart Grown—Local branding for local farmers

RFSF Node: Fairbanks Area

Project Location: Interior Region

Mission & Activities: Interior Alaska Food Network (IAFN) is made up of a wide variety of people that are gathered to share resources and to bring awareness of Interior Alaska food policies, failures, successes, changes, and opportunities. The network hopes to facilitate projects in the community that addresses areas of food security. In 2016, IAFN in collaboration with its community partners established the Golden Heart Grown program to help distinguish locally produced items in the marketplace for those Interior residents who want to keep their dollars in their community. The Fairbanks Economic Development Corporation is the arbiter of the Golden Heart Grown program by reviewing applications and accepting businesses interested in using the brand or logo, as well as some promotional activities.

- The mission of the promotional program is to support and nurture a healthy secure food system that benefits all Interior Alaskans
- If every Alaskan spent just \$5 a week on Alaskan Grown products it would bring over \$188 million dollars into the local Interior economy.
- In 2022, there were 30 Golden Heart Grown members that included both local farms and businesses.

IAFN sponsors a Taste of Golden Heart Grown event at the Tanana Valley State Fair in collaboration with Tanana Valley Farmers Market and other local farmers.

These projects have helped highlight and promote Interior Farmers and businesses who sell Interior grown products. The logo is visible in the community and displayed in many food businesses and on local menus. Local partnerships are what made this happen.

Key Partnerships: Fairbanks Economic Development Corporation, Fairbanks North Star Borough, Tanana Valley Farmers Market, Fairbanks Farm Bureau, Fairbanks Soil and Water Conservation District, Tanana Chiefs Conference, Breadline Stone Soup, University of Alaska, Fairbanks Cooperative Extension, Alaska Department of Environmental Conservation, Fairbanks Community Food Bank.

ACTION PLAN GOAL FOUR

Provide Technical Expertise and Grant Opportunities to Increase Food System Capacity



Objective 1: PROVIDE FARMERS WITH ACCESSIBLE RESOURCES AND CONNECTIONS

Strategies:

Create and maintain resource list for new farmers who are just starting to know where to begin and all the steps needed to start a farm

Potential Partners:

UAF AFES, AFI, SWCD, TCD, AVI, AFB, local and regional food Networks

Create networking opportunities for new and beginning farmers to interact with established farmers

UAF AFES, AFI, SWCD, TCD, AVI, AFB, local and regional food Networks

Increase awareness of local food production and methods at the community level through micro-grant support and network coordination

DNR, USDA, state and local governments

Objective 2: SUPPORT EMERGING MARICULTURE INDUSTRY

Strategies:

Promote research on help harvesting as livestock feed

Potential Partners:

UA system, DNR, MEP AMA, AMCC, Economic Development Corporations

Research value-added help product development

Objective 3: ORGANIZE GRANT-WRITING WORKSHOPS & FUNDING RESOURCES

Strategies:

Create a clearing house/database that provides information regarding grants

Potential Partners:

AFPC, AFB, SWCD, TCD

Advocate for grant cycles that do not overlap with busy farming/ fishing seasons

AFPC, AFB, Alaska Food Coalition

Create statewide accessible grant language for organizations writing federal grants

AFPC, AFMA, AFB, FBA, Alaska Food Coalition

Objective 4: SUPPORT FOOD ENTREPRENEURS

Strategies:

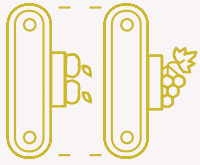
Establish grant programs for investing in start-up costs

Potential Partners:

MEP Sprucecroft

Provide beginning businesses with technical resources and business plan assistance

MEP DEC



ACTION PLAN GOAL FIVE

Enhance, Improve, and Create New Markets and Food Production

Objective 1: INCREASE VIABILITY OF LOCAL AGRICULTURE

Strategies:

Develop affordable agriculture land in sustainable and informed ways, with local input honored

Create a mechanism for connecting people that want to farm with affordable or leased land that is set aside for agriculture

Diversify and support agencies promoting local food

Engage community members in small-scale/microproduction like community gardens

Develop additional activities around agriculture, like agritourism

Promote programs like Salmon Safe Agriculture

Create and track metrics for consumption needs and production output—create qualifiers/methods for tracking imports (ex. how do we get that 95% imported stat and how do we measure change)

Support the improvement of the transportation system to reduce the cost of shipping food in this state

Potential Partners:

Tribal entities, TCD, DNR

AFT, DNR

State of Alaska, non-profits, regional and local food groups

Yarducopia, Anchor Gardens

AFT, AFMA, regional and local food groups

NOAA, CIK, DNR

UA system, state agencies (ex. commerce, natural resources, fish and game)

AK Department of Transportation

Objective 2: BUILD RELATIONSHIPS BETWEEN FOOD PRODUCERS, INSTITUTIONS, DISTRIBUTORS, RESTAURANTS, BREWERIES, GROCERIES, AND SCHOOLS

Strategies:

Create forums/ opportunities for producers to network with restaurants and institutional buyers

Support Farm to School + Farm to Institution through local food procurement purchasing preference

Potential Partners:

SWCD, TCD, food hubs, Alaska MEP, BuyAlaska

State agencies DHSS-Child Nutrition, Commerce, DNR

Objective 3: CONNECT SEAFOOD PROCESSORS WITH OPPORTUNITIES TO ADD VALUE TO INDUSTRY WASTE

Strategies:

Create working group to explore industry waste in fisheries' working group priorities

Potential Partners:

SeaGrant, AMCC, Alaska MEP, DEC, NW Pacific Fisheries Commission

USDA REGIONAL FOOD SYSTEMS PARTNERSHIP

ALASKA FOOD SECURITY ACTION PLAN

SUCCESS STORIES



Project: Skagway Community Composting

RFP Node: Haines and neighboring communities

Project Location: Skagway

Mission & Activities: In 2013 The Municipality of Skagway published an audit of its waste management which detailed that about a third of the trash collected was compostable. Since then the city and residents have worked to reduce avoidable food waste and in 2021 a community compost facility was born. The state-of-the-art composting system was designed to handle the massive influx of food waste during a busy cruise ship season in Skagway, but is scalable to downsize during off season or when tourism is down, such as during the COVID-19 pandemic.

The Municipality of Skagway offers commercial compost pick-up and drop-off sites for residential compost. Read their 2013 Food Waste and Compostables Feasibility Study here.¹

Key Partnerships:

- Engaged residents of Skagway
- Municipality of Skagway
- Private waste management companies
- Consultant to perform zero waste feasibility analysis

¹ https://www.skagway.org/sites/default/files/fileattachments/community/page/28411/final_report_02-28-13.pdf

Image: <https://www.skagway.org/publicworks>



Appendix D

AFPC Food System Indicators

Context and Recommendations for the State of Alaska

September 2022

Prepared by Rachael Miller, on behalf of the Alaska Food Policy Council

AFPC Board Member | Food Systems Consultant | Associate Professor at Alaska Pacific University

This resource was produced for the Alaska Food Policy Council (AFPC) and is intended to build upon and complement the many existing and future food security reports pertaining to the State and Circumpolar North. This resource should serve as a living document, and be updated and edited as necessary.

Alaska is in interesting times. Food security is now front of mind for many and recent events reinforced the need to produce a larger portion of the more than \$2 billions dollars spent on out-of-state consumables every year.¹ The 2018 earthquake that rocked southcentral Alaska, followed by the supply chain and isolation complications of the ongoing COVID-19 pandemic exposed many of our infrastructure weaknesses but also magnified Alaskans' desire to increase local supply and security.

At the time of this report, several food security initiatives are taking place around the state. From 2020–2022:

- AFPC launched the Alaska Food Systems Network, a digital community to share food knowledge.
- The Alaska Food and Farm Caucus was formed—a bipartisan, joint caucus in the state legislature.
- House Bill 22 passed, which empowered herd share managers to create value-add products to shareholders.
- Administrative Orders 331 and 334 were signed, establishing the short-term Alaska Food Security and Independence Task Force.
- House Bill 298 was passed, which established the Alaska Food Security Task Force, slated to pick up the previous Task Force's work.
- Farmers markets continue to increase around the state, from 41 in 2017 to 56 in 2021.
- Communities are leading their own initiatives to decide how they can become more food secure and knowledgeable.²

While it is now indisputable that food security is a top discussion topic for decision-makers, the “how” of execution in improving this security has and may stall the systematic and holistic approach needed to truly prepare for the next crisis, next missed supply barge, or, more aspirationally—the next generation of resilient and hunger-free Alaskans. This will take everyone—Public and private institutions, rural and urban communities, Alaska Native Corporations and Tribes, universities, houses of worship, the wealthy and those in need—everyone eats and in a state with such potential abundance it is unacceptable that 1 in 8 Alaskans is food insecure.³

Deciding to affect change in the food system begs the question “Where to start?”. It is time for a new narrative in the state, informed by up-to-date sources so the State and its residents may act accordingly. The oft-cited statistic that Alaska imports 95% of its food is a good place to start—unfortunately it has not

“If you can't measure it, you can't improve it.”

—Peter Drucker, Global Management Expert

been substantiated nor updated since a journal mention in 1987 and when invoked, wild foods are not often mentioned.⁴ Quantifying the percentage of consumed foods that are imported should be Alaska's first step towards establishing an accurate baseline.

Food system change can be overwhelming because food is a resource connected to everything—from supply chain to language to weather patterns. Knowing where to start and who is responsible for managing food security tracking and action planning takes collaboration, clean and robust data, long-term, multi-administration vision, and sustained funding.

An increasing trend to establish a baseline landscape and track changes over time is the use of publicly available data dashboards. These dashboards gained popularity, including in Alaska, during the COVID-19 pandemic, as residents sought up-to-date information about case counts, hospitalizations, and deaths.⁵ So too are these dashboards increasingly used to filter and communicate food systems information for a variety of uses, such as determining areas in need or at risk, shopping local, disaster planning, community projects and grant writing, student and faculty publications, and more.

Food research, policy making, and related program development is often guided by “indicators”—or points of reference to determine the adequacy or performance of a food system sector. For this report and its suggestions, indicators “indicate” or point to a section of the food system for review. They are a way to categorize and label data that are then ready for analysis. The data is then compared over time and/or to local,

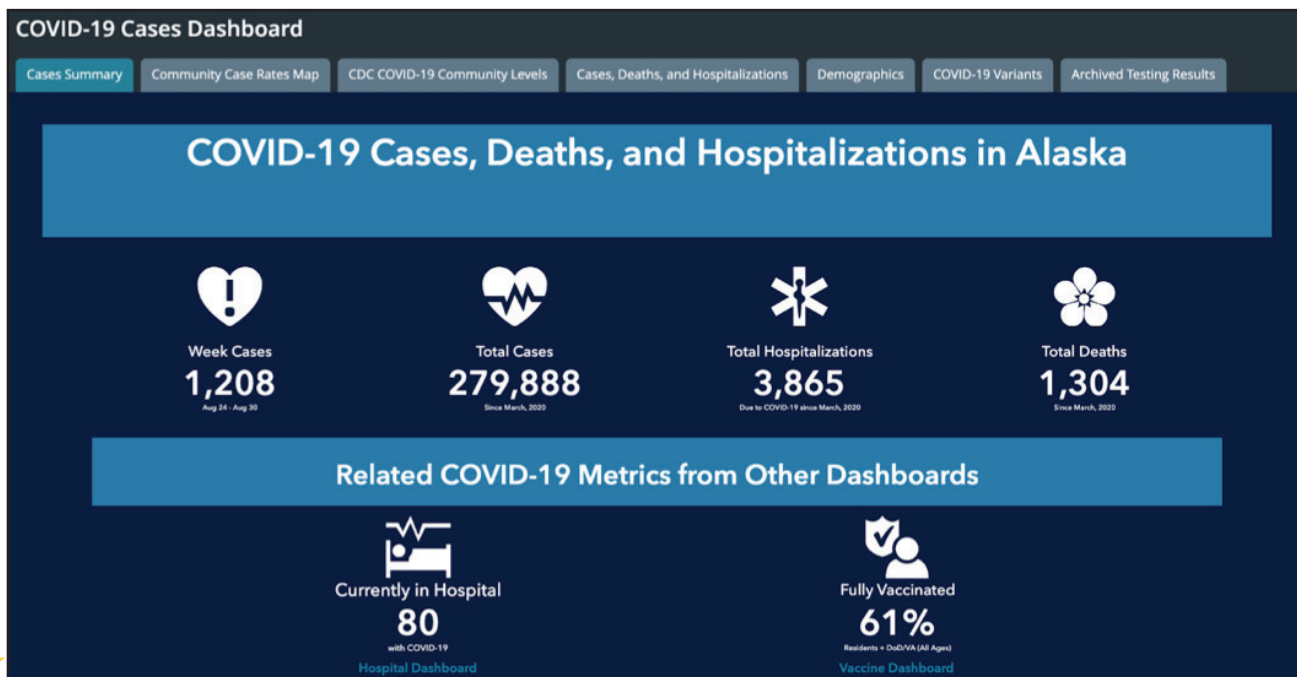


Image: Alaska COVID-19 Cases Dashboard. Sourced September 3, 2022

state, federal, or global standards to evaluate status-quo and highlight areas for improvement.⁶ Indicators are widely used and categories and sub-categories vary greatly. They may be quantitative, qualitative, or both, depending on the research or project focus.

Dashboards often aggregate these indicators, from a variety of federal, state, and county agencies as well as other trusted sources. This information is then analyzed and presented in a manner that is easy to understand and use.

Food system dashboards can help users to do the following for a food system:⁷

- Describe
- Assess
- Prioritize
- Make Informed Decisions

As an example, a 2021 article in the journal *Frontiers in Sustainable Food Systems* detailed seven food sovereignty indicators, with sub-measurements.

Example Food Sovereignty Indicators

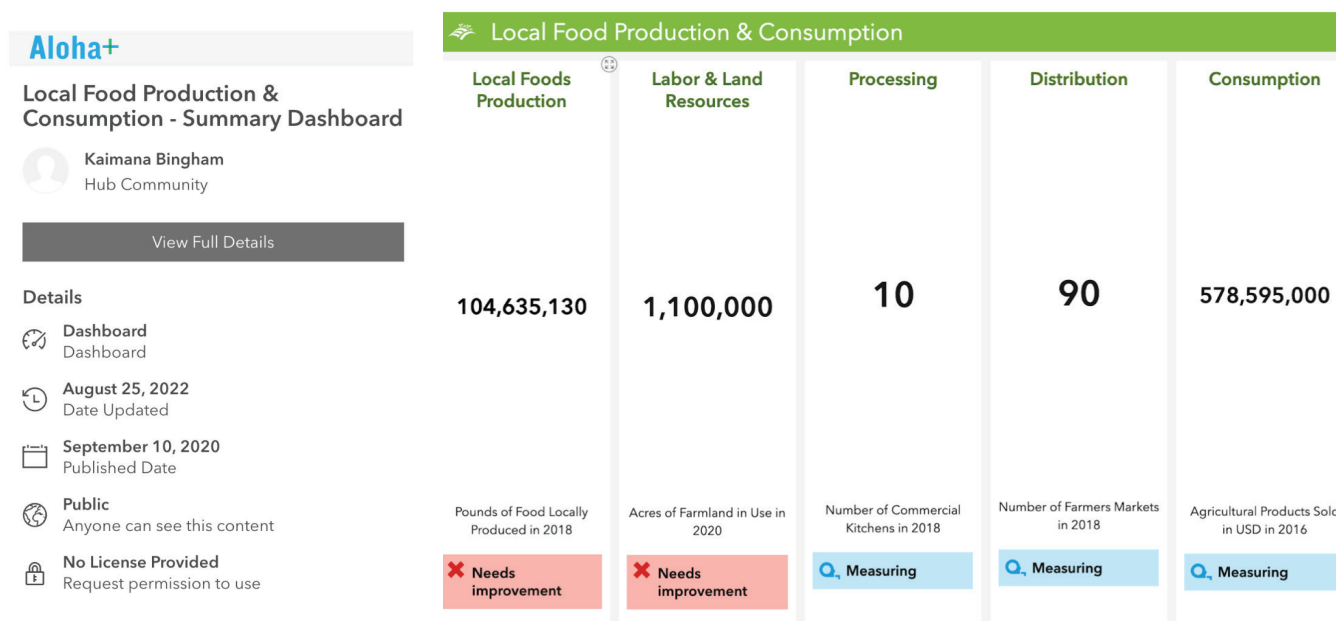
Indicator 1: Access to Resources

Sub-indicator question/statements used for discussion and to operationalize the indicator:

- The costs allow for small farms to develop and sustain food production in our community.
- Culturally significant wildlife is present in our community and protected from overuse.
- In our community water sources are kept pollution free and used for long-term agricultural production.
- In our community there is access to seeds for culturally significant crops that are easily accessible by local farmers.
- Individuals in our community have the knowledge and skills to grow crops and tend to wildlife.

Indicator 1 of 7 from Table 1, *Food Sovereignty Indicators for Indigenous Community Capacity Building and Health*.⁸

Another indicator dashboard example is from the Aloha + Challenge. Launched in 2014, the Aloha + Challenge is a statewide public-private commitment to achieve Hawai'i's social, economic, and environmental goals by 2030. This example shows progress on local food purchasing and consumption, with updates. Readers can easily see that local food production is under the goal amount and quickly see other updates on the additional indicators such as number of commercial kitchens present.



Images: Aloha+ Challenge Local Food Production & Consumption Snapshot.^{9,10} Sourced August 31, 2022.

Who should manage indicators and where should they live?

Determining how to improve the food system requires a multi-sector approach, inclusive of voices from all corners of Alaska. However, while many hands make light work, the more entities engaged, the more coordination required. In Alaska agriculture alone at least 8 different state agencies oversee production. This makes it difficult to maintain consistency in information disseminated, messaging, and equitable access to available resources. Tracking food security should not be an “other duty as assigned” task for a state employee—rather an intentional and funded position, group, or division within a department to better insulate

it from administrative transitions and potentially evolving interpretations of its necessity. Similarly, this is not a role for a nonprofit or for profit group—much like its responsibility for infrastructure and public health (both affect food security), the State should assume this responsibility as well.

To combat the silo-ing of efforts that is counter to a systematic approach and full prioritization of statewide food security, some states and counties have established their own versions of “offices of food security”. New Jersey’s Senate introduced Senate Bill 3945 in 2021 and eventually passed into law the Office of the Food Insecurity Advocate.¹¹

“The (New Jersey) Office of the Food Security Advocate will coordinate the administration of the State’s food insecurity programs, advocate for the food insecure, and develop new policy initiatives to combat hunger and facilitate greater access to food relief programs.”¹²

State commitments such as this not only aid in reassuring residents that food security is an issue to be taken seriously, but also a signal of safety to potential transplant residents. This is especially critical to states diversifying their economies, like Alaska.

Regardless of the lead agency tasked with tracking food security, the information should be collected through a variety of channels. Ideally, and especially in the first few years if intentional measurement, much of the necessary data and collection methods already exist and do not require new infrastructure. This will not only reduce cost but allow for a clearer vision on what data collection exists, is consistently updated, and what needs to be developed.

The following entities are a suggested starting point for data collection and food security management collaboration.

1. Alaska Agencies

- a. Department of Fish and Game
- b. Department of Natural Resources
 - i. Division of Agriculture
- c. Department of Health
- d. Department of Family and Community Services
- e. Department of Labor and Workforce Development
- f. Department of Commerce, Community and Economic Development
- g. Department of Environmental Conservation
 - i. Food Safety and Sanitation Program
- h. Alaska Department of Military and Veteran Affairs
 - i. Division of Homeland Security and Emergency Management

2. Healthcare Organizations

- a. Alaska Native Tribal Health Consortium
- b. SouthCentral Foundation
- c. Providence Health Network
- d. Distributed health centers and hospitals

3. Nonprofits

- a. Alaska Food Policy Council
- b. Alaska Farmers Market Association
- c. Alaska Farmland Trust
- d. Alaska Farm Bureau
- e. Food Bank of Alaska

- f. Alaska Village Initiatives
- g. Inuit Circumpolar Council Alaska
- 4. Community monitoring and citizen science groups
 - a. Alaska Local Environmental Observer (LEO) Network¹³
 - b. Alaska Arctic Observatory and Knowledge Hub¹⁴
 - c. Indigenous Sentinels Network¹⁵

What's Been Done?

Of the numerous food security briefs, reports, dashboards, and toolkits that have been published, the following examples stand out as potential models and guidance for Alaska for their relevance, origin stories, or comprehensiveness.

In 2012 University of Alaska Anchorage's Institute of Social and Economic Research (ISER)¹⁶ published a food system assessment. This report summarized the food value chain, from production to waste, and highlighted the many opportunities for monitoring and evaluation of a variety of food system indicators. Included categories for indicators:

- Production
- Distribution
- Food preparation and preservation or processing
- Food use and consumption
- Recycling and disposal of food wastes

Indicator criteria:

- The indicator data must be available for the state of Alaska as a whole, preferably for the past 10 years.
- The indicator data should be quantitative.
- The data must be from a reliable and credible source.
- The methodology for collection of the indicator data must be available and adhere to scientific standards.
- The data must be collected in a consistent manner over time.

In 2014 the Alaska Food Policy Council commissioned a comprehensive report on the State's food security status.¹⁷ This report includes a locally developed and thorough definition of food security, as well as suggestions for monitoring and evaluation indicators or "metrics of success". The following list is shared from the report to show the potential for different ways to present, categorize, and analyze food systems data, relative to the lists of indicators at the end of this report.

“ *In the context that we use it here, food security describes more than merely whether sufficient food is being produced, or a one-size- fits-all food-nutrition relationship, and incorporates all of the various ways in which a food system supports health in its various biophysical, social, and ecological dimensions (Loring & Gerlach, 2009). These include matters such as the importance of certain foods, food choice, local perceptions of hunger, uncertainty and worry about food safety or shortages, and any other psychosocial, sociocultural, or environmental stresses that result from the process of putting food on the table (S. Maxwell, 2001). In rural, predominately Alaska Native communities, for example, wild fish and game are important for food security, not just because they are readily available, but also because they are important to the preservation and transmission of traditions and cultural practices, for the maintenance of social networks and interpersonal relationships, and for supporting individuals' sense of self-worth and identity (Fienup-Riordan, 2000; Loring & Gerlach, 2009; Loring, Gerlach, & Harrison, 2013)”*

- Foster Subsistence Harvesting and Related Skills
 - Number of wildlife co-management processes that expand the roles of Native leaders.
 - Satisfaction of tribal and village officials with co-management processes.
 - Number of participants in programs, events, and workshops that teach subsistence skills.
- Build Personal Capacities in Agriculture
 - Percent of high school graduates who hold documented skills in gardening, foraging, composting, safe handling, food preparation, and storage.
 - Number, locations, and participant counts for local food-oriented celebrations.
 - Number of new farmers who graduate from food production training programs with business plan and start-up capital in hand.
 - Number of new farmer programs created or communities served by such programs.
- Expand Agricultural Production and Gardening
 - Percent of organic waste in Alaska cities that is recycled into compost or similar source of fertility.
 - Percent of rural villages that have season-extension capacity suitable to produce food for local residents.
- Build Infrastructure that Supports Local Food Production
 - Number of food caches developed, diversity and quantity of food stored.
 - Funds allocated by the State of Alaska to invest in local-foods infrastructure at the community level.
- Adopt State Policy that Supports Local Food Production
 - Number of new campaigns established to promote food, health, and locally grown foods.
 - Dollars of private and public money raised to carry out these campaigns.
 - Impacts of these campaigns.
- Expand food processing and manufacturing for in-state markets
 - In an annual survey of food-business startups, the percentage of respondents who believe that food-safety requirements are cost-effective, appropriate to the scale of their business, and transparent.
 - Number of commercial kitchens open to resident use in urban Alaska; percentage of operating expenses that are covered through operational revenue.
 - Value of foods that are processed in existing and new food businesses that are sold to Alaska household consumers.
 - Percent of State food production/infrastructure loans that are repaid.
- Strengthen internal food distribution networks
 - Value of farm products that are delivered to in-state public institutions from Alaska farms (for each farm) by each market channel (direct, through wholesaler, or other intermediaries, processors, etc.).

In addition to these seminal reports, the Alaska Food Policy's list of community food assessments hosts no less than 18 community food reports, each with their own version and mention of indicators as well as metrics of evaluation.¹⁸ This is surely not an exhaustive list and it is likely that similar resources exist throughout the state, demonstrating communities' desires to both better understand their respective food systems and track change over time.

Examples abound for food-specific digital platforms that aggregate data sets, and present that data in a digestible and easy to consume format. The following 2 key examples are trusted resources that could guide the creation of Alaska's own food security dashboard.

Food Environment Atlas

UNITED STATE DIVISION OF AGRICULTURE, ECONOMIC RESEARCH SERVICE.¹⁹

Supported and hosted by the USDA, Atlas users can create maps showing distribution or variation of a single indicator in multiple locations, such as prevalence of retail food outlets or participation in food assistance programs like SNAP. Data may be analyzed at the county or borough level. Maps are also exportable. Perhaps most relevant to Alaska, The Food Environment Atlas contains more than 280 variables, all downloadable.

The Atlas assembles statistics on three broad categories of food environment factors²⁰:

- **Food Choices**—Indicators of the community's access to and acquisition of healthy, affordable food, such as: access and proximity to a grocery store; number of food stores and restaurants; expenditures on fast foods; food and nutrition assistance program participation; food prices; food taxes; and availability of local foods.
- **Health and Well-Being**—Indicators of the community's success in maintaining healthy diets, such as: food insecurity; diabetes and obesity rates; and physical activity levels.
- **Community Characteristics**—Indicators of community characteristics that might influence the food environment, such as: demographic composition; income and poverty; population loss; metro-nonmetro status; natural amenities; and recreation and fitness centers.

The Food Systems Dashboard

JOHNS HOPKINS UNIVERSITY AND GLOBAL ALLIANCE FOR IMPROVED NUTRITION.²¹

This dashboard was created to serve as a global tool, with over 150 indicators. In addition to indicator analysis, this site provides general food system education, such as a framework, different types of food systems, and many references for continued learning. Important for understanding how to change a food system, this dashboard also includes a primer on the components, external drivers and measurable outcomes of food systems.

After selecting a country, the user receives a scorecard, with red, yellow, green stoplight icons, indicating performance or challenging areas. Also included are a variety of charts detailing change over time, like supply of various commodities and agricultural employment.

The Dashboard guide recommends its use for the following groups:

- Policymakers at the country, regional, and global levels
- National statistical agency workers
- Policy analysts in government ministries
- United Nations and non-governmental organization development practitioners
- Civil society workers
- Business leaders and entrepreneurs
- Researchers, academics, and students

Feeding America's Hunger in America Dashboard²²

This dashboard uses a tool called "Map the Meal Gap" and generates two types of community-level data:

1. Local food insecurity estimates among all individuals and children by income category.
2. Local food expenditure estimates among people who are food insecure and food secure.

Feeding America is transparent about data sourcing, provides a separate annual technical report about the tool, and offers readers the opportunity to request data sets.

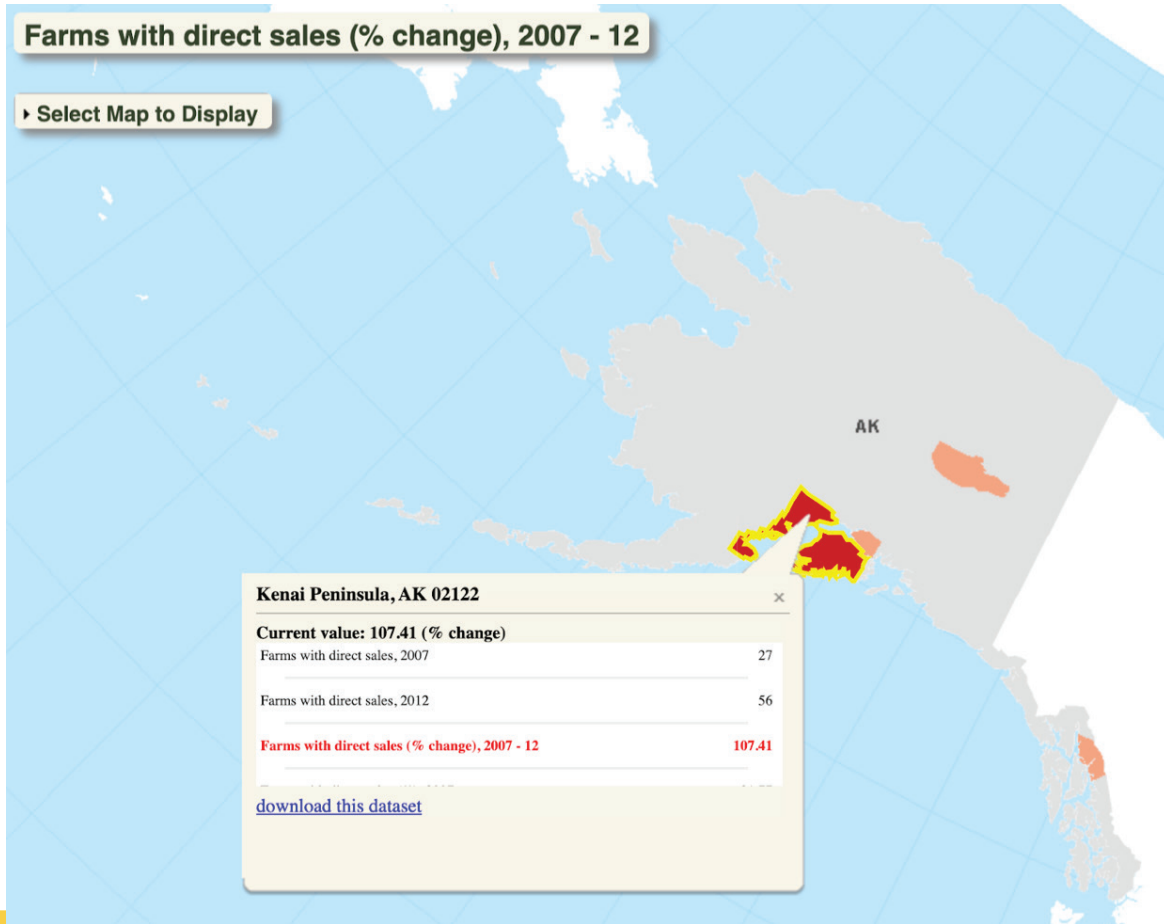
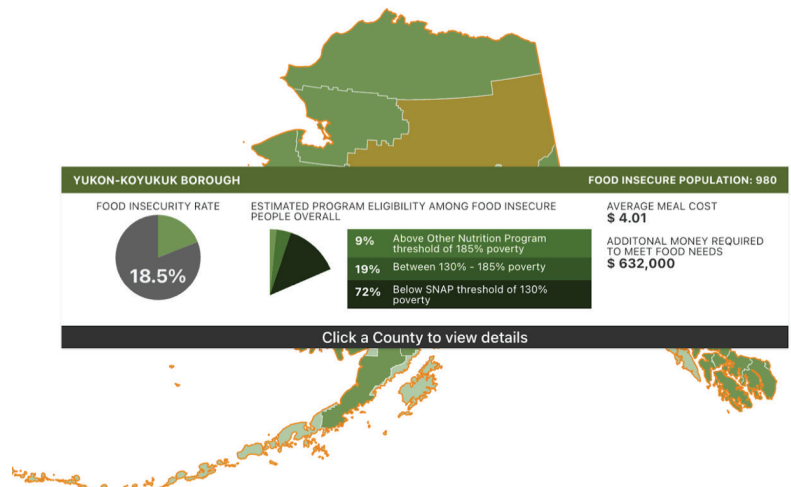
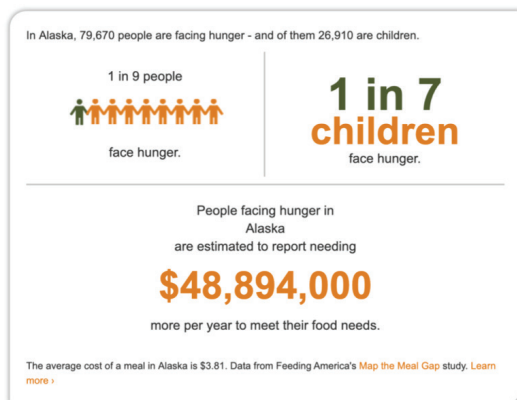


Image: Food Environment Atlas, filtered to show change in farm direct sales, 2007–2012.

Their methodology is explained on the tool site as well, and includes the following categories:

1. Food insecurity rates and numbers
2. Food budget shortfall (household)
3. Cost-of-food index
4. National average meal cost

What Hunger Looks Like in Alaska



Images (Left to right): Feeding America: Alaska hunger snapshot. Sourced September 3, 2022; Regional food insecurity snapshot from Feeding America Dashboard. Sourced September 3, 2022

Suggested Alaska Food System Indicators

Please note that this list is strictly quantitative. Regular collection and analysis of qualitative data should also be prioritized and paired with the list below, to further uncover consumer behavior trends and community needs. Quantitative data is only a single lens on the state of a food system, i.e. quantity of calories does not equal the quality of calories. Furthermore, the list of indicators be regularly reviewed and communities should be solicited for feedback. More qualitative indicators such as reported “quality of life from access to culturally appropriate foods”, should be included and those indicators and manner of questioning or data collection should be co-created and co-managed with communities to further build trust, ensure accurate language is used, and promote long-term engagement.

DIAGNOSE AND DECIDE SCORECARD



Drivers

- Average threats soil biodiversity



Food Environments

- Affordability of a healthy diet: ratio of cost to food expenditures [CoHD_fexp]
- Cost of a healthy diet [CoHD]
- Cost of an energy sufficient diet [CoCA]
- Cost of legumes, nuts and seeds relative to the starchy staples in a least-cost healthy diet [CoHD_ins_ss]
- Dietary energy in food supply
- Share of dietary energy from cereals, roots, and tubers (3-year average)
- Supply of fruit
- Supply of pulses
- Supply of vegetables
- Retail value of ultra-processed food sales per capita



Food Supply Chains

- Cereal losses (% of domestic supply)
- Fruit losses (% of domestic supply)
- Pulse losses (% of domestic supply)
- Vegetable losses (% of domestic supply)



Search for Indicator



Drivers

25



Food Supply Chains

45



Food Environments

61



Individual Factors

7



Consumer Behavior

4



Outcomes

71



Unlikely Challenge Area



Potential Challenge Area



Likely Challenge Area



Missing Data

Images: Scorecard and landing page for Food systems Dashboard. Sourced September 3, 2022.

The following Indicator categories and sub-categories were compiled using 3 key reports and may be measured at any level, from community to entire state. It is not exhaustive and should be updated as necessary. Given that funding is usually finite, should the State develop and manage a holistic food security metric and evaluation process, it will be critical to determine what is preferred, possible, useful, and reasonable for both data collection and dashboard presentation.

1. Food System Assessment, Institute of Social and Economic Research, University of Alaska Anchorage. September 1, 2012.
2. Building Food Security in Alaska. Ken Meter and Megan Phillips Goldenberg. Crossroads Resource Center, Minneapolis, MN. July 28, 2014.
3. Alaskan Inuit Food Security Conceptual Framework: How to Assess the Arctic from an Inuit Perspective. Inuit Circumpolar Council Alaska. May 2016.
4. Sitka Community Food Assessment Indicators Report. Sitka Local Foods Network. 2014.

CULTURE AND COMMUNITY

- Number of culture and fish camps
- Number of Traditional Foods learning opportunities
- Publications released about food and culture, including academic
- Number of community-based food projects launched, in process, completed

PRODUCTION

- Total acreage under cultivation relative to available acreage
- Types and quantities of crops/ livestock being produced
- Livestock feed production and demand
- Number of new, return, and retired farmers
- Number of registered organic operations
- Live animal protein, processed, and in storage (lbs)
- Presence of garden, farm, and seasonal extension equipment, by community
- Acres designated as agricultural land
- Number of crop development studies, specific to northern climates

WILD HARVEST

- Number of State-Tribe and/or Federal-State-Tribe co-management agreements
- Presence of community monitoring entities
- Quantity and general locations of resource harvested (whale, caribou, berries, etc)

PROCESSING

- Number of commercially licensed kitchen space
- Number of meat processing facilities
- Average distance between farm and processing facility/storage
- Value of foods that are processed in facilities
- Number of value-add producers
- Number of value-added products

DISTRIBUTION

- Number of emergency food caches
- Number of farmers markets, farmstands, and food hubs
- Number of grocery stores, and scale of stores
- Number of Community Supported Agriculture and Fishery (CSA, CSF) programs
- Square footage of cold storage space, occupied and vacant
- Number of stockouts at retailers and wholesalers due to interrupted supply

CONSUMPTION

- State dollars spent on local purchase preference programs
- State dollars spent on Alaska Grown marketing
- Dollars spent at retail grocery
- Dollars spent on prepared meals consumed in or out of home
- Fair market nutrition replacement value of subsistence harvests
- Instances of foodborne illness and vectors
- Number of homes with 7-days food supply ready, for each human and animal

FOOD WASTE

- Number of communities with compost or waste to energy programs
 - Energy output, if applicable
- Pounds of food waste recapture or opportunity for recapture

FOOD ACCESS

- Distribution analysis of average weekly cost of household food
- Number of food insecure Alaskans
- Number of Alaskans who qualify for SNAP/WIC/FDPIR/TEFAP/Other
- Number of Alaskans who receive SNAP/WIC/FDPIR/TEFAP/Other
- Food assistance benefits used at farmers markets (dollars)
- Number of free and reduced school meal participants, including summer
- Adult care meal program participants, including adult day care, senior centers, Meals on Wheels, etc.
- Pounds of food distributed through Food Bank of Alaska
- Number of clients served by the Food Bank of Alaska, community kitchens, and pantries

WORKFORCE DEVELOPMENT AND EDUCATION

- Number of food-related training programs
 - Track demographic information,
 - Track 1,3, 5-year post-graduation placement
- Food jobs, hiring rates, and vacancy rates
- Number of youth in Future Farmers of America and 4H
- Number of teachers using Agriculture in the Classroom curriculum
- K-12 food literacy programs

- Post-secondary food literacy programs
 - Include field work such as internships

POLICY

- Proposed and passed policies related to food
- Number of Legislative and Administrative meetings related to food

¹ Building Food Security in Alaska. Ken Meter and Megan Phillips Goldenberg. Crossroads Resource Center, Minneapolis, MN. July 28, 2014.

² Examples abound in the 2022 AFPC Report: *Food Security Action Plan: Part 1: Statewide Planning*

³ Food Bank of Alaska. Facts About Hunger. Accessed August 2022.

⁴ Lewis, C. E., Pearson, R. W., & Thomas, W. C. (1987). Agricultural development in Alaska. *Polar Record*, 23(147), 673-682.

⁵ Alaska Department of Health, Alaska COVID19 Cases Dashboard. Accessed August 2022.

⁶ Global Food Security Cluster. FSC Handbook. Accessed August 2022.

⁷ Fanzo, J., Haddad, L., McLaren, R. et al. The Food Systems Dashboard is a new tool to inform better food policy. *Nat Food* 1, 243–246 (2020). <https://doi.org/10.1038/s43016-020-0077-y>

⁸ Blue Bird Jernigan V, Maudrie TL, Nikolaus CJ, Benally T, Johnson S, Teague T, Mayes M, Jacob T and Taniguchi T (2021) Food Sovereignty Indicators for Indigenous Community Capacity Building and Health. *Front. Sustain. Food Syst.* 5:704750. doi: 10.3389/fsufs.2021.704750

⁹ Aloha+ Challenge Dashboard.

¹⁰ Aloha+ Challenge Local Food Production & Consumption Summary

¹¹ New Jersey Legislature. Bill S3945 ScaAa (2R). Session 2020-21. Accessed September 2022.

¹² New Jersey Office of the Governor. Governor Murphy Announces Mark Dinglasan as Director of the Office of the Food Security Advocate. August 4, 2022.

¹³ <https://www.leonetwork.org/>

¹⁴ <https://arctic-aok.org/>

¹⁵ <https://www.beringwatch.net/>

¹⁶ 2012 Food System Assessment. Khristy Parker, Irina Ikatova, Rosyland Frazier, Virgene Hanna. ISER Publication. 2012-09-01

¹⁷ Building Food Security in Alaska. Ken Meter and Megan Phillips Goldenberg. Crossroads Resource Center, Minneapolis, MN. July 28, 2014.

¹⁸ Alaska Food Policy Council. Food Systems Research. Accessed June 2022.

¹⁹ USDA, ERS. Food Environment Atlas. Accessed August 2022. <https://www.ers.usda.gov/data-products/food-environment-atlas/>

²⁰ USDA, About the Food Atlas. Accessed September 2022.

²¹ The Food Systems Dashboard. Global Alliance for Improved Nutrition (GAIN) and Johns Hopkins University. 2020. Geneva, Switzerland. <https://www.foodsystemsdashboard.org>. DOI: <https://doi.org/10.36072/db>.

²² Feeding America. Hunger in America, Map the Meal Gap. Accessed August 31, 2022.

Co-Management in Alaska, University of Alaska Fairbanks Center for Arctic Policy Studies

Policy Brief 1



Co-Management in Alaska

Highlights

1. All formal co-management agreements in Alaska are between Federal and Tribal governments.
2. Dual management plans are the result of the Federal government maintaining jurisdiction over Alaska.
3. Cooperative management plans serve as forums to reduce conflict between Federal, State, and Tribal governments. The stakeholders are not granted regulation-making or enforcement status.

Federal, State, and Tribal governments value natural resources. In 1961, Inupiat hunters protested management of migratory birds, demonstrating the mismatch between federal government and Alaska Native wildlife management. In 1984, the first formal co-management agreement regarding bowhead whale was signed between the Alaska Eskimo Whaling Commission and the National Oceanic and Atmospheric Administration. Today, co-management agreements, and dual management and cooperative management plans, incorporate Indigenous knowledge, improving communication, information collection, and results.

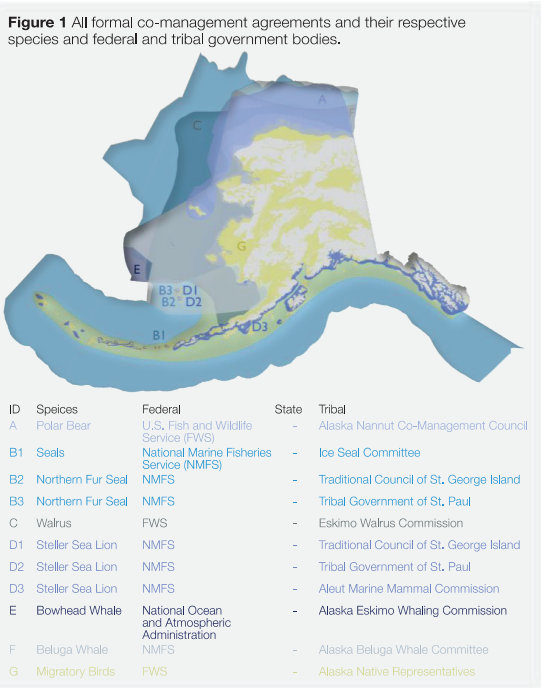
Why does co-management exist?

The Alaska National Interest Land Conservation Act (ANILCA) (1980) is a congressionally negotiated agreement among Alaska Native, State, extractive industry, sporting, and environmental interest groups. Following the 1971 Alaska Native Claims Settlement Act (ANCSA), ANILCA redefined subsistence management and use.

ANILCA Title VIII allows rural communities to continue to hunt and fish for subsistence in traditional use areas regardless of conservation status. Sections 805, 812, and 809 establish local participation, research, and cooperation that have later become the basis for cooperative management.

Federal-Tribal co-management exists due to trust responsibilities through Federal legislation such as ANILCA, the Marine Mammal Protection Act (MMPA), and the Endangered Species Act. For example, the MMPA (16 U.S.C. 1388 Sec. 119)

allows the Secretaries of the Interior or their agents to “enter into cooperative agreements with Alaska Native organizations to conserve marine mammals and provide co-management of subsistence use by Alaska Natives.” Around 90 years after the ratification of the Migratory Bird Treaty Act, 50 CFR § 92.10 established the Alaska Migratory Bird Co-Management Council.



Source: <http://www.adfg.alaska.gov/index.cfm?adfg=maps.refugeboundaries>

Where does co-management exist in the State of Alaska?

The largest expansion of co-management began with the 1994 Amendments to the Marine Mammal Protection Act (see Figure 1).

What is dual management?

Dual management, intended to be a temporary bridge, allows for both State and Federal interpretations of wildlife management.

In 1980, ANILCA required the State of Alaska to adopt a rural preference for subsistence activities. Throughout the 1980s the State of Alaska attempted to adopt regulations to comply with the rural preference until *McDowell v. State of Alaska* (1989). The Alaska Supreme Court determined that rural preference violated the State constitution's Article VIII, which grants equal access to wildlife resource to all Alaskans. Due to this decision, a temporary system of dual management allowed rural preference to wildlife resources on federal lands and no preference on state lands.

Thirty years on, efforts continue to try and bridge the state and federal systems, yet dual management remains.

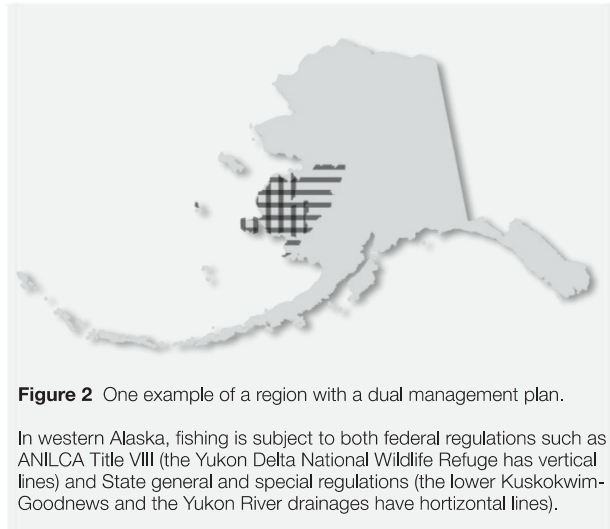


Figure 2 One example of a region with a dual management plan.

In western Alaska, fishing is subject to both federal regulations such as ANILCA Title VIII (the Yukon Delta National Wildlife Refuge has vertical lines) and State general and special regulations (the lower Kuskokwim-Goodnews and the Yukon River drainages have horizontal lines).

What is cooperative management?

Cooperative management plans consider the concerns of Federal, State, Tribal, and other stakeholders. However, while the planning is cooperative, cooperative management plan stakeholders are not granted regulation-making or enforcement status.



Figure 3 Four examples of cooperative management plans and their respective species and governing bodies.

(1) Caribou: Bureau of Land Management, National Park Service, FWS, Alaska Department of Fish and Game (ADF&G), (2) Moose and caribou: U.S. Department of the Interior, Ahtna Inter-Tribal Resource Commission, (3) Moose: ADF&G, Koyukuk River Moose Hunters Working Group; (4) Brown bear: U.S. Forest Service, ADF&G.

In 2014, U.S. Representative Don Young introduced the Alaska Native Subsistence Co-Management Demonstration Act as legislation for State-Federal-Tribal co-management of wildlife in the traditional Ahtna hunting territory in southern Alaska. The State of Alaska declined to testify under the condition that the Alaska Constitution bars co-management with other entities. As of June 2019, the number of State-Tribal or Federal-State-Tribal co-management agreements remains zero.

The Center for Arctic Policy Studies (CAPS) at the University of Alaska makes knowledge concerning rapid environmental and social changes in the Arctic accessible to decision-makers, the public, and scholars.

Primary Author: Kelsey Aho
uaf-caps@alaska.edu



Learn more at
caps.uaf.edu

An Overview of Food Freedom Acts and Cottage Food Laws

Introduction

Over the past decade, there has been increasing interest in, and concern with, food produced in homes and other locations without permitting. People are making food at home to sell in their communities as part of a small but growing industry—the homemade or “cottage food” industry. Since the beginning of 2021, around a dozen states have eased or eliminated safety restrictions on the sale of cottage foods, or lower-risk (due to factors like water activity, preparation and ingredients) food products made in home kitchens. These rules vary by state, in terms of what is allowed, how caps on how much can be sold, and how far they go in prioritizing individual rights over public health. These laws represent a major expansion of who can sell what and where—from their homes or farms, at the local farmers market, or in some cases, even over the Internet.

Some states have taken this a step further with the adoption of “food freedom” acts. These acts “recognize the right of individuals to produce, procure, and consume homemade foods of their choice free of unnecessary and anticompetitive regulations. Certain basic information such as contact information of the producer, ingredients in the product, and a notification that the food was made at a private residence and not subject to state licensing or inspection must be disclosed to the consumer.”¹ According to the [Harvard Food Law and Policy Clinic](#), in 2105 Wyoming became the first state to pass a Food Freedom Act.² That particular food freedom law waived all licensing, permitting and packaging regulations for most foods sold to an “informed end consumer,” meaning that the seller must disclose there was no inspection or certification. Since then, Wyoming lawmakers have further eased the few restrictions.



Image: Baking, CANVA Stock Image



In Alaska, lawmakers have been examining these rules as well. In 2012, Alaska expanded opportunities for cottage food producers by adopting rules allowing direct, in-person sales of many types of homemade foods.³ Since then, various versions of food freedom-adjacent bills have been introduced by legislators and lawmakers, aimed at increasing “access to Alaska Grown products by expanding opportunities for direct consumer to producer sales.”⁴ On April 7, 2022, Governor Dunleavy introduced [House Bill 415 relating to the Alaska Food Freedom Act](#).⁵ “The act seeks to allow a producer to sell homemade food products and encourage the expansion of homemade food sales at farmers’ markets, agricultural fairs, ranches, farms, and producers’ homes by providing Alaskan citizens with unimpeded access to healthy food from Alaska.”



“COVID-19 spotlighted many issues within Alaska—the big one was food security,” said Governor Dunleavy. “Over 90 percent of the food staples Alaskans use on an everyday basis is imported from out of state. Our food supply is fragile and dependent on ports and other states and countries. Alaska needs to develop its resources, including Alaska-grown products. This act will put food on the tables of Alaskans when they need it most.”

—Governor Mike Dunleavy

Food Safety Regulation

The primary authority to create food safety laws in the United States lies with the states, and these laws are based upon the U.S. Food and Drug Administration’s model Food Code.⁷

The FDA Food Code designates locations where food is produced for sale or sold as “food establishments,” which must comply with licensing and regulatory requirements. Home kitchens are not usually licensed food establishments.

Currently, all 50 states provide exemptions to their food codes that allow for the limited sale of some low-risk homemade foods, called cottage foods.⁸ Additionally, five states—Wyoming, Montana, Oklahoma, Utah and North Dakota—have passed food freedom laws that have greatly reduced regulation around homemade food production. Cottage food and food freedom laws reduce requirements for permitting, labeling, packaging and inspection of certain foods, and allow them to be made in a home kitchen instead of a permitted, regulated commercial kitchen.

National Landscape

Nationally, cottage food laws are expanding to encompass more food categories with higher sales limits, expanding access for more consumers. Cottage foods are prepared in home kitchens, sold directly to informed consumers, and are generally low-risk products. These criteria explained in more detail below, vary widely between states. Alaska’s cottage food regulations were adopted in 2012, relatively early in the movement. However, since 2015, 34 states and Washington, D.C., have created or expanded homemade food laws.⁹

The Institute for Justice maintains a timeline of reforms for homemade food businesses across the country.¹⁰ Nationally, reforms are trending toward raising or eliminating the annual sales caps, and reducing license, permitting, and registration requirements. Additionally, regulations are trending toward expanding the types of homemade foods that can be sold and how they can be sold and delivered. The reforms do not always follow a predictable linear progression, however. For example, Florida has a very high sales cap (\$250,000) but only allows shelf stable, non-temperature-controlled products, and excludes pickles or ferments,¹¹ whereas Oklahoma allows all homemade foods except for those containing meat products, but maintains a sales cap of \$75,000.¹²

Alaska Cottage Food Regulations

Food safety in Alaska is overseen by the Alaska Department of Environmental Conservation’s Food Safety and Sanitation Program. Their stated mission “is to protect public health at regulated food, seafood, and public facilities. Our vision is to collaboratively work with these facilities to prevent illness, injury, and loss of life caused by unsafe sanitary practices.”¹³

The Municipality of Anchorage (MOA) is the only jurisdiction with its own Food Safety and Sanitation Program, and this program regulates its own cottage foods within the MOA. The Anchorage Environmental Health Service Food Safety and Sanitation Program “permits, regulates, and inspects over 2,000 public facilities in the Municipality of Anchorage... and oversees the delivery of training and testing of the Anchorage Food Worker Card.”¹⁴ The regulations created by these two entities align with each other, though there are some differences, like the addition of a permitting process that includes training and purchase of an MOA Cottage Food License (\$25 per year) and Food Workers Card (\$10 for three years).¹⁵

Alaska’s current cottage food regulation, as outlined in Alaska Admin Code 18 AAC 31.012. Exempt activities and facilities and MOA Food Code 16.60.105, permit the sale of non-potentially hazardous foods directly to consumers without a permit, although producers do need a business license in Anchorage. These are foods that do not require temperature control for safety (non-TCS). This exemption applies only if the following conditions, cited from the Cottage Food Guidelines, Alaska DEC Food Safety and Sanitation Program, are met:

- Keep and provide detailed knowledge about the ingredients of the food product and how it was processed, prepared, and packaged.
- Have the food product recipe or formulation available in case there is ever a concern about the safety of the product. For pickled or dried product the producer needs to have information available about the pH or water activity.
- Process, prepare, package and sell the product only in Alaska.
- Sell directly to the consumer by an individual who knows what ingredients were used to make the product and how the food was prepared and packaged. This individual must be able to answer consumers’ questions about the product, including whether allergens are present in the food product.
- Do not distribute or sell the product to stores, restaurants, by mail order or on consignment.
- Keep total gross receipts of sales of food items to show gross sales do not exceed \$25,000 within a calendar year.
- If the food is not prepared in a permitted, approved or inspected kitchen, inform the consumer by a card, placard, sign or label placed in a conspicuous area that states the following: “THESE PRODUCTS ARE NOT SUBJECT TO STATE INSPECTION.”
- Label packaged food with either an Alaska Business License number OR the name, physical address and telephone number of the individual who prepared the food. This allows DEC to trace the product back to the producer if there is a problem or complaint.

Image: Cottage Food Guidelines, Alaska DEC Food Safety and Sanitation Program

The screenshot shows the Alaska DEC Food Safety & Sanitation Program website. The main heading is "COTTAGE FOOD". Below it, a paragraph states: "Alaska Food Code regulations allow the sale of non-potentially hazardous (does not require temperature control for safety) foods directly to the consumer without a permit if certain conditions are met." A section titled "What Does a Producer Need to do to Fall Under this Exemption?" lists several requirements, including: keeping detailed knowledge of ingredients and processing; having the recipe available; processing, preparing, packaging, and selling only in Alaska; selling directly to the consumer with full ingredient and preparation information; not distributing to stores or restaurants; and keeping gross sales below \$25,000 per year. Another section, "What is Non-Potentially Hazardous Food?", explains that these are foods that do not support dangerous bacteria growth and provides a method for determining if a product is non-potentially hazardous based on whether it requires refrigeration. The right sidebar contains links to "ON THIS PAGE", "FOOD CODE REFERENCE" (18 AAC 31.012 Exemptions), "DEFINITIONS" (Non-Potentially Hazardous Foods, pH, Water Activity, Prohibited Foods), and "CONTACT" information for Cooperative Extension ES and the Alaska State Environmental Health Laboratory.

Allowed foods are shelf stable due to heat treatment (ex. breads and cakes), acidity (ex. pickles, and salsas), high sugar, low water activity (ex. fudge, dried soup mix), or a combination of the above. Meat, fish, cheeses, baked goods that require refrigeration, and cooked vegetables that are not acidified, are some of the items that are not allowed.²⁰ Other unallowable products include:

- Meat and meat products including fresh and dried meats (jerky)
- Fish and fish products (e.g. smoke salmon, canned salmon, etc.)
- Raw seed sprouts
- Garlic in oil mixtures
- Baked products that require refrigeration (e.g. cheesecake, custards, lemon meringue)
- Cheeses
- Dairy products (including ice cream)
- Non-acidic canned foods (i.e. canned vegetables that are not pickled or fermented)
- Pesto
- Fresh vegetable juices
- Food products made with cooked vegetable products that are not acidified
- Bottled Water
- Cold brew coffee

A notable variance to the State of Alaska and Municipality of Anchorage cottage food direct-to-consumer sales regulation exists for the operation of food hubs. The food hubs act as a sort of local food facilitator: part virtual farmers market, part technical support service. Producers list their available cottage food products Online, and customers pay through the website and pick up their purchases at a predetermined location that is not directly from the producers. The Alaska Food Hub, for example, follows allowed DEC and MOA product guidelines and sales limits for cottage foods, manages product labeling requirements to inform consumers effectively, and requires producers to get a food handlers card.²¹

Nationally, Alaska's cottage food regulations fall somewhere in the middle of the spectrum. Alaska allows some nonperishable foods, while about half of states limit cottage foods to shelf-stable products. However, half of the states do not have annual sales limits, but of those that do, Alaska's \$25,000 limit falls into the middle range of allowable sales.

Poultry and Dairy

The USDA allows for an exemption of home processing of up to 1,000 birds. If a poultry grower slaughters no more than 1,000 healthy birds per year for distribution under sanitary conditions with proper labeling, they are exempt from mandatory inspection.²² In addition, to qualify for this exemption, the producers must not resale poultry produced by others—they can only sell their own poultry. Many states include this regulation in code, but it is allowed at the national level regardless.

The State of Alaska allows some direct-to-consumer sales of poultry and rabbit,²³ raw milk shares²⁴ and other meat as farm shares within the state without mandatory USDA inspections under certain conditions. This is not included in Alaska's cottage food regulations, though other states have incorporated it into food freedom and cottage food laws.

Some states have raw milk laws on the books²⁵ and the food freedom act in Wyoming explicitly included unpasteurized dairy products from small producers (up to 5 lactating cows and 10 goats).²⁶ In Alaska, with the passage of HB22 in 2021,²⁷ sometimes referred to as the "Free the Cheese" bill, it is now legal to consume both raw milk and raw milk cheese, from animals owned by the consumer, commonly practiced through herd share agreements. Similarly, some states allow the sale of meat through herd shares. Wyoming allows "the sale of portions of live animals before slaughter for future delivery," and these animals are exempt from state and federal inspections.²⁸

National Food Freedom Laws

Food freedom laws expand beyond what is allowable under cottage foods exemptions to become a tool for the deregulation of the food code. The food freedom movement aims to support food entrepreneurs, with a focus on small farmers and businesses, to produce and sell products to informed consumers to expand access and choice. These foods are often culturally important and can strengthen communities by increasing food availability. However, this “buyer beware” technique has public health agencies raising concerns about food safety and animal cruelty.

According to the Institute for Justice, five states have enacted food freedom laws that allow producers to sell almost any homemade food, with the exception of some meats and foods containing meat products.²⁹ Additionally, the state of Maine has passed a type of food freedom law referred to as the Food Sovereignty Act that allows cities and towns to remove regulatory requirements for homemade foods, except for meat.³⁰

The National Environmental Health Association (NEHA) compiles bills introduced in state legislatures related to cottage foods as well as food freedom. The number of bills increases annually.^{31,32} However, **there is a general lack of clarity and standardization of what is considered food freedom from one state to another.**

For example, Arkansas passed SB 248,³³ which replaced its cottage food law with the Arkansas Food Freedom Act in April of 2021. This allows the sale of “non-time/temperature control for safety food” made in unlicensed home kitchens directly or through third-party vendors such as grocery stores.³⁴ **This act is much more in line with other states’ cottage food regulations than other food freedom acts.**

In some cases, a food freedom act replaces a previous cottage food law. This is the case in Oklahoma, where the Homemade Food Freedom Act³⁵ replaced the previous Home Bakery Act, but not in Utah, where both the food freedom and cottage food regulations exist with a good amount of overlap and some differentiation. Additionally, some states have further relaxed cottage food laws in 2022. Iowa^{36,37} updated regulations from “home bakery” to “food processing establishment” and included some meat and poultry from approved sources. Rhode Island³⁸ will permit non-farmers to sell cottage foods in November 2022, and these adjustments to the published chart have been made.

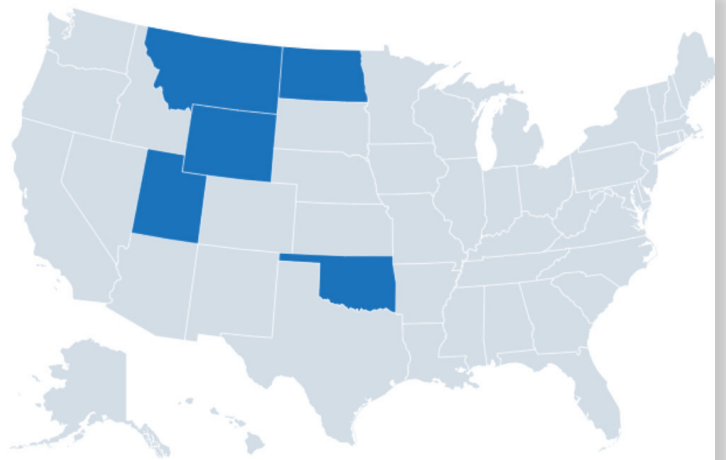


Image: States that have enacted Food Freedom laws, courtesy of Institute for Justice

The table at the end of this appendix is adapted from the Harvard Food Law and Policy Clinic's survey of cottage foods and home cooking laws published in December of 2021, built upon previous 2018 and 2013 reports, to illustrate the state of food freedom and cottage food regulations across the country.³⁹ The states with food freedom acts—Wyoming, North Dakota, Maine, Utah and Montana—are highlighted and explored in further detail.

Case Studies: Wyoming, North Dakota, Maine, Utah and Montana

The following case studies present the many different ways in which states craft Food Freedom laws. Differences center around what types of food are allowed, where they are able to be sold, and the monetary amount allowed to be sold in a year. Please see the chart at the end of this appendix, with a comparison of these five states' laws.

Wyoming Food Freedom Act (WFFA)—First in the Nation

In 2015, Wyoming was the first state to pass a food freedom act, and it has had three subsequent amendments that continued to loosen regulations. The state provides a useful Q&A for food producers on the [Wyoming Department of Agriculture website](#)⁴⁰ and additional support at the University of Wyoming Extension.⁴¹ However, both are out of date, and amendments after 2017 are found on the Wyoming legislative website.

The 2015 Wyoming Food Freedom Act (WFFA) created two tracks for food producers: one for inspected processors who could sell to restaurants, wholesalers and retailers, and across state lines, and a second for food freedom processors. The food freedom track allowed producers to bypass requirements for inspection when selling directly to informed consumers. According to the language in the bill, the purpose of WFFA is to:



“Allow for a producer’s production and sale of homemade food or drink products for an informed end consumer and to encourage the expansion of agricultural sales at farmers markets, ranches, farmers and producers’ homes by facilitating the purchase and consumption of fresh and local agricultural products, enhancing the agricultural economy, and providing Wyoming citizens with unimpeded access to healthy food from known sources.”

WFFA HIGHLIGHTS:

- Sales up to a limit of \$250,000 annually.
- The sale of “non-potentially hazardous food” (non-TCS food) directly to consumers, and since 2020, to retail locations. Grocery stores were allowed as of 2021.
- Since 2020, the sale of potentially hazardous food (TCS food) directly to consumers but not to retail locations.”
- The sale of uninspected poultry products as long as the poultry producers operate in compliance with the USDA’s Poultry Products Inspection Act and slaughter less than 1,000 poultry per year
- The sale of raw milk and raw milk products
- Meat shares in compliance with the Wyoming Livestock Board’s statutes for shares or portions of live animals sold in advance of slaughter and delivered to buyer
- The sale of farm-raised fish other than catfish
- The sale of rabbit meat

- Sales to an informed end consumer with no requirements for how to inform
- Preemption: Since 2021, the sale of homemade food products to the greatest extent of federal law which does not permit state or other agencies from imposing additional requirements, as seen in North Dakota in 2020, described below.

WFFA DOES NOT ALLOW:

- Sale of wild game
- Sale of meat such as beef, pork, lamb or goat that are not part of Wyoming Livestock Board’s statutes for shares or portions of live animals sold in advance of slaughter and delivered to buyer
- Interstate shipping
- Out-of-state producers to sell under WFFA
- Producers to prepare food onsite at a farmers market, which is considered a temporary food stand
- The sale of WFFA products to commercial food establishments

North Dakota Cottage Food Act

Wyoming was followed by North Dakota in 2017 with the passage of the HB 1433, North Dakota Food Freedom Act.⁴⁴ The act, which was far more permissive than other states' cottage food regulations, allows for direct producer-to-consumer sales of almost all food products for home consumption and removes all licensing, permitting, and inspection requirements.⁴⁵

In 2020, the North Dakota Department of Health passed regulations that banned all homemade meals, most perishable foods, cut produce, and many types of canned foods in opposition to the Cottage Food Act. A group of food vendors sued the department and won the case in December of 2020 restoring and protecting the 2017 Cottage Food Act.⁴⁶



HIGHLIGHTS INCLUDE:

- The sale of homemade food with no sales cap
- The buyer to assume the risks inherent in the purchase, use, or ingestion of food
- Allows the sale of cottage foods that require refrigeration as long as they are labeled with safe handling instructions and a product disclosure statement indicating the product was transported and maintained frozen

THE NORTH DAKOTA COTTAGE FOOD ACT DOES NOT ALLOW:

- Sales to commercial food establishments or retail or wholesale establishments
- Interstate commerce
- Sale of products made from meat, other than poultry, that has not been inspected
- The sale of raw milk, but that is allowed under other state regulations
- Sales by phone, internet, mail or consignment

Oklahoma Homemade Food Freedom Act (HFFA)

LABELING: HOW-TO

in accordance with the
OKLAHOMA HOMEMADE FOOD FREEDOM ACT

All foods must have a label attached to the package meeting these guidelines, if sold from a bulk container, label must be on the container or prominently displayed on a placard at the point of sale with a card that is given to the consumer.

SEE OUR EXAMPLE BELOW:



In a minimum 10-point size font,
YOUR LABEL MUST CONTAIN:


 Name & phone number of the producer.


 Physical address where the product was produced.


 Description of the homemade food product.


 List of ingredients in descending order of proportion.


 Statement indicating the presence of any of the 9 most common allergens.

AND LEGIBLE PRINT STATING:

"This product was produced in a private residence that is exempt from government licensing and inspection."

READ THE OSU FACTSHEET: FAPC-242 TO LEARN MORE!

Image: Oklahoma Department of Agriculture, Food and Forestry, Food Safety Division



Oklahoma followed in May 2021 with the approval of the Homemade Food Freedom Act. Homemade food producers can sell any shelf-stable food and most perishable foods excluding meat, poultry, and seafood and be exempt from any licensing. This act replaced the Oklahoma Home Bakery Act of 2013 which allowed for the legal production and sale of baked goods in an uninspected home kitchen. The Homemade Food Freedom Act was expected to aid with economic recovery from the COVID-19 pandemic. The State of Oklahoma provides resources on its Division of Food Safety website including a form to file complaints on a business or product made under the act, a list of mandatory food safety trainings, upcoming HFFA workshops, and comprehensive labeling guidelines. Similar to Wyoming, Oklahoma divides homemade food into non-time-or-temperature-controlled-for-safety (non-TCS) and TCS homemade food products with different regulations.

THE ACT ALLOWS:^{64,65}

- The sale of non-TCS homemade food products directly to informed consumers, online, by telephone, at farmers markets, at retail stores, buying clubs and craft or flea markets
- Delivery within the state of Oklahoma by the producer, the producer's agent, a third-party vendor, or a third-party carrier such as a parcel delivery service
- The sale of TCS products directly to consumers, online or by phone
- Up to \$75,000 annual gross sales
- Producers can be of any age and citizenship, as long as they have a home in Oklahoma in which they live and produce qualified food
- Honey that is flavored or blended and honey collected from out-of-state hives; Raw Oklahoma honey from hives producing under 500 gallons would be sold under the Honey Sales Act.

HFFA DOES NOT ALLOW:

- The sale of meat and meat byproducts including wild game
- The sale of poultry, raw eggs, seafood
- The sale of casseroles, empanadas, fried pies, tamales, etc. that contain meat, poultry or seafood
- The sale of unpasteurized milk
- The sale of unprocessed fruits, vegetables, and nuts which would instead be regulated as farm products
- The sale of pet foods and treats
- The sale of products containing alcohol and cannabis
- Out-of-state sales

Maine's Act to Recognize Local Control Regarding Food Systems

Maine has had a “home manufacturing” law in place since 1980 that allows the production and sale of shelf-stable items with no sales limit after the producer obtains a license and has their kitchen inspected.⁴⁸ Maine adopted a food freedom bill, called the **Act to Recognize Local Control Regarding Food Systems** and also referred to as the **Food Sovereignty Act**, in June of 2017. This law is the first that allows municipalities to enforce their own food regulations. If a city passes an ordinance, homemade food producers can sell their products directly to consumers.



Image: Courtesy of Food for Maine's Future

After Wyoming passed its food freedom act, a nonprofit farmers' advocacy organization called Food For Maine's Farmers, with the goal of protecting traditional foodways in the state, began supporting towns and cities to create and pass their own ordinances.⁴⁹ These were largely unenforceable because they contradicted state laws until the passage of Maine's Food Sovereignty Act. The act was amended later in the year in response to pressure from the USDA around meat processing.

Maine is permitted by the USDA to operate five smaller meat processing facilities, and, if the state did not amend the Food Sovereignty Act to require local ordinances to comply with state and federal laws around meat and poultry production and sales, **the USDA threatened to withdraw that permission.** This consequence would lead to a reduction in the food sovereignty that the act was trying to support, so the amendment passed. In addition, the sales at farmers markets were excluded, meaning that foods prepared in an unlicensed kitchen were not allowed to be sold at farmers markets.



The act defines a local food system as “a community food system within a municipality that integrates food production, processing, consumption, direct producer-to-consumer exchanges and other traditional foodways to enhance the environmental, economic, social and nutritional health and well-being of the municipality and its residents.”⁵⁰

THROUGH THE ACT, THE STATE DEMONSTRATES ITS SUPPORT FOR POLICIES THAT BENEFIT THE LOCAL FOOD SYSTEM BY INCREASING:⁵¹

- Local control: Through local control, preserve the ability of communities to produce, process, sell, purchase and consume locally produced foods
- Small-scale farming and food production: Ensure the preservation of family farms and traditional foodways through small-scale farming and food production

- Improved health and well-being: Improve the health and well-being of citizens of this State by reducing hunger and increasing food security through improved access to wholesome, nutritious foods by supporting family farms and encouraging sustainable farming and fishing
- Self-reliance and personal responsibility: Promote self-reliance and personal responsibility by ensuring the ability of individuals, families and other entities to prepare, process, advertise and sell foods directly to customers intended solely for consumption by the customers or their families
- Rural economic development: Enhance rural economic development and the environmental and social wealth of rural communities

MAINE'S FOOD SOVEREIGNTY ACT, WHEN TOWNS HAVE DECLARED FOOD SOVEREIGNTY OR HOME RULE AUTHORITY, ALLOWS:⁵²

- Producers and processors of local foods to be exempt from licensure and regulation, except for meat and poultry
- Sales that take place directly between the producer and consumer at the producer's farm or residence.
- The sale of food produced and sold within sovereign towns

THE ACT DOES NOT ALLOW:

- The sale of homemade foods at farmers markets
- Ordinances to include the direct-to-consumer sale of uninspected livestock and poultry

Maine Question 3, the **Right to Produce, Harvest, and Consume Food Amendment**, was on the ballot in Maine as a [legislatively referred constitutional amendment](#) on November 2, 2021. It was **approved**.

A "yes" vote **supported** this constitutional amendment to create a state right to growing, raising, harvesting, and producing food, as long as an individual does not commit trespassing, theft, poaching, or abuses to private land, public land, or natural resources.

A "no" vote **opposed** this constitutional amendment to create a state right to growing, raising, harvesting, and producing food.

Election results

Maine Question 3		
Result	Votes	Percentage
✓ Yes	249,273	60.84%
No	160,440	39.16%

Image: Maine "Right to Food" Amendment, [Ballotpedia](#)

In 2021, Maine passed an amendment to add a "right to food" to its constitution, the first such amendment in the nation.⁵³ It was approved by a two-thirds vote in the legislature and then approved by voters in a referendum.

*The amendment states: "All individuals have a natural, inherent and unalienable right to food, including the right to save and exchange seeds and the right to grow, raise, harvest, produce and consume the food of their own choosing for their own nourishment, sustenance, bodily health and well-being as long as an individual does not commit trespassing, theft, poaching or other abuses of private property rights, public lands or natural resources in the harvesting, production or acquisition of food."*⁵⁴

The Maine Farm Bureau **opposed the amendment citing concerns over animal rights and food safety while supporters felt that local communities should have more control of their food system.**⁵⁵ It is still unclear what the short- or long-term results of this amendment will be.

Utah Home Consumption and Homemade Food Act

Maine has had a “home manufacturing” law in place since 1980 that allows the production and sale of shelf-stable items with no sales limit after the producer obtains a license and has their kitchen inspected.⁴⁸ Maine adopted a food freedom bill, called the **Act to Recognize Local Control Regarding Food Systems** and also referred to as the **Food Sovereignty Act**, in June of 2017. This law is the first that allows municipalities to enforce their own food regulations. If a city passes an ordinance, homemade food producers can sell their products directly to consumers.

Utah acted next, with the 2018 passage of the Home Consumption and Homemade Food Act. Food Safety News referred to this bill as “**food freedom-lite**” because it does not apply to raw milk, raw dairy, meat, and some poultry.⁵⁶ The act explicitly pledges to preserve the USDA's role in meat inspection. The state's older cottage food law, passed in 2007,⁵⁷ requires a lengthy application process, including a home inspection and adequate business plans. It limits the products to shelf-stable items, but allows for retail sales. Though cottage food production is still a possibility after the passage of the Homemade Food Act, there is limited information about compliance available.⁵⁸



Image: Utah Department of Agriculture and Food logo

SELLERS ARE:

- Exempt from state, county or city licensing, permitting, certification, inspection, packaging and labeling requirements, except as described in this section, related to the preparation, serving, use, consumption or storage of food and food products⁵⁹

THIS LAW ECHOES THOSE THAT WENT BEFORE IT AND ALLOWS:

- The sale of homemade food and food products directly to informed consumers at farmers markets or other “direct-to-sale” locations
- The sale of most foods prepared in a private home kitchen with no sales cap
- The sale of domesticated rabbit meat pending approval from the USDA

THE UTAH HOME CONSUMPTION AND HOMEMADE FOOD ACT DOES NOT ALLOW:

- The sale of raw dairy or dairy products
- Meat products other than poultry from a producer in compliance with the USDA 1,000 bird exemption (like Wyoming and North Dakota)
- Sales to commercial establishments or retailers
- Out-of-state sales

In 2021, Utah also became the second state, after California, to pass a bill permitting microenterprise home kitchen operations (MEHKOs). Utah's **Microenterprise Home Kitchen Act** allows the sale of meals prepared in a home kitchen with a MEHKO permit and subject to inspections.⁶⁰ California required municipalities to opt into the law, and only 7 had done by the time Utah adopted this amendment.⁶¹ Utah's law caps the number of permits to a percentage of the restaurants in a given community for the first year.

MEHKOs are a new development in trend toward food freedom, and limited information is available to research. MEHKOs allow for a broader range of ready-to-eat foods that include meat obtained from inspected producers. Many of the MEHKOs are culturally important foods that may not be widely available in a community, and they were important economically during the COVID-19 pandemic.⁶²

Montana's Local Food Choice Act



On April 30, 2021, Montana's governor signed into law another food freedom act. This happened during the COVID-19 pandemic as food service faced the uncertainty of closures, many people lost their jobs temporarily or permanently, and supply chain issues made direct-to-consumer sales more attractive. The act removes licensing, permitting, and regulation associated with the production of homemade foods other than meat, not interfering with the USDA meat inspection program. The purpose of the Local Food Choice Act is to:



"Allow for the sale and consumption of homemade food and food products and to encourage the expansion of agricultural sales by ranches, farms and home-based producers and the accessibility of homemade food and food products to informed end consumers by facilitating the purchase and consumption of fresh and local agricultural products, enhancing the local agricultural economy, and providing Montana citizens with unimpeded access to healthy food from known sources." ⁶³

THE LOCAL FOOD CHOICE ACT ALLOWS:

- The sale of homemade food directly between the producer and informed end consumer for home consumption or consumption "at a traditional community social event" (including weddings, funerals, religious services, school events, farmers markets, potlucks, neighborhood gatherings and more).
- Donations of homemade food to "a traditional community social event"
- No sales limit
- The sale of uninspected poultry products as long as the poultry producers operate in compliance with the USDA's Poultry Products Inspection Act and slaughter less than 1,000 poultry per year

THE ACT DOES NOT ALLOW:

- Interstate sales
- Retail sales or sales to commercial establishments, except for raw, unprocessed fruits and vegetables
- Meat or meat products other than poultry mentioned above

An Overview of 2022 House Bill 415 Alaska Food Freedom Act (AFFA)

In contrast to the food freedom laws enacted in the United States and described above, the Alaska Food Freedom Act was introduced but not enacted. HB 415⁶⁶ was introduced by Governor Dunleavy on April 7, 2022, promoted as a way to improve statewide food security, especially after the impact of the COVID-10 pandemic on Alaska's supply chains.⁶⁷ The bill would allow the production and sale of homemade foods in home kitchens exempt from licensing and inspections. AFFA is similar to Wyoming's in that it makes the distinction between non-hazardous food items, which may be sold to retailers, and potentially hazardous food items, which would be sold directly to the end consumer. The sale of raw milk is not included in the bill but that could be addressed in other state regulations.⁶⁸



TAKE ACTION FOR FOOD FREEDOM

Image: 2018 Form Letter to Support Alaska Food Freedom, courtesy of Cook Inletkeeper

AFFA WOULD ALLOW:⁶⁹

- Sales of allowed homemade foods products within the state between the seller and informed end consumers at farmers' markets, agricultural fairs, farms, ranches, the producer's home or office, or other locations determined by producers and end consumers.
 - If the location is also the site of a licensed food establishment, the area selling the food produced under the AFFA must be kept in a separate location with separate storage areas.
- The seller of potentially hazardous foods, excluding eggs, must be the producer of the product
- Retail sale by a third-party seller of non-potentially hazardous foods with a sign that the homemade food products have not been inspected. Homemade foods may not be displayed on the same shelf or display as food produced in a licensed establishment.
- Eggs, a potentially hazardous food, may be sold by retailers and grocery stores
- The acquisition of meat purchased as animal shares, in accordance with state law

AFFA WOULD NOT ALLOW:

- Interstate commerce
- The purchase or sale of meat or meat products, except for animal shares already allowed in the state
- The purchase or sale of seafood, controlled substances, oil rendered from animal fat, or game meat
- Sale or use in a commercial food establishment

Additional Research and Considerations

Food freedom acts are so new that very little research of their impacts is available. Since the loosening of cottage foods regulations sometimes becomes what states refer to as food freedom, several studies of cottage food producers and the impact of cottage foods on communities are presented below.^{70,71,72}

Home kitchens can be challenging to analyze. When states do not require registration or permitting, and if there is no cottage food registry, it is difficult to determine how many cottage food producers are operating. In addition, regulations are constantly evolving.

In 2022, 45 bills related to food freedom were introduced in state legislatures, and nine were enacted.⁷³ These bills expanded the allowable products covered, increased the annual sales limits, and increased the potential sales channels. For example:^{74,75}

- South Carolina allows non-potentially hazardous foods to be sold in retail stores, online, and by mail
- Maryland increased the sales cap from \$25,000 to \$50,000
- Missouri removed the \$50,000 sales limit and allows in-state shipping
- Iowa changed “home bakeries” to “home food processing establishments” and allows items containing red meat if it's from an approved source
- Tennessee allows sales at retail stores and removes restrictions on having employees
- Rhode Island previously only allowed farmers to sell homemade foods. Effective November 1st, 2022, all residents can sell up to \$50,000 of shelf-stable baked goods⁷⁶

Drawing comparisons across states of current regulations is possible when considering multiple categories, as shown in the table below. Given the breadth of information about producers and how recently many of the laws were passed, **more research will be needed to judge the economic and food security impacts and public health risks of expanding cottage food and home kitchen exemptions and food freedom acts.** Responsibility to public health should always be considered.



Cottage food and food freedom laws **remove some or all of the economic burden of regulation** from home food producers. Commercial kitchen space can be cost-prohibitive and hard to locate. Allowing producers to prepare food from their home kitchen removes this barrier to starting a business and gives flexibility to community members like stay-at-home parents who may have limited work options. Home producers are restricted by annual sales caps in some states and the general spatial limit of using a home kitchen. Their businesses either stay small or scale up into commercial kitchens. It should be noted that some kitchen businesses still need considerable support to navigate the system, a potential burden for underfunded food safety programs. In Alaska, additional support may come from the University of Alaska Cooperative Extension Service, farmers market managers, and food hubs.

In 2017, the first comprehensive study of cottage food producers in the country obtained public records from the 25 states that kept registries of cottage food producers. Out of a total of 25,418 producers, 775 were surveyed to both gather information and determine whether state cottage food laws impact the success of cottage food businesses.⁷⁷ The results show that cottage food producers are primarily women (83%) who live in rural areas and have below-average incomes and that increases annual sales are correlated with higher household income. One-third of respondents planned to expand their businesses in the near future. Some producers felt restricted by state limitations with 44% wanting to sell foods prohibited by their state, especially refrigerated items.

Wyoming does not keep records of its cottage food producers, so it was not included in this study. The impact of Wyoming's Food Freedom Act of 2015 may be reflected in the increase in farmers markets, a jump of nearly 40% according to self-reported data collected by the USDA.⁷⁸



Summary

More research is needed to assess the impacts of food freedom and cottage food laws on food security. An Oregon survey of cottage food producers five years after the passage of the 2011 Farm Direct Marketing Law and its associated cottage food provision counted increased food security as an unanticipated benefit with 11% of farmers and 8% of farmers market managers bringing up the topic in interviews.⁷⁹

Value-added products made by farms and processed foods made by cottage food producers are not necessarily affordable, nutritious options. However, research suggests that direct-to-consumer businesses (CSA's, markets, food hubs) can increase healthy food access in rural communities.⁸⁰ One Oregon market manager from a low-income neighborhood commented on the survey that affluent neighborhoods are looking for fresh, local, "foodie" options, while in their neighborhood, it is just about having any more options.⁸¹

As states are creating exemptions to the FDA Food Code for cottage foods, they are weighing the risks of potential foodborne illness with the burden of regulation. Cottage food laws start with non-potentially hazardous foods sold directly to informed consumers, which limits the risk and lessens its reach. Customers have a face-to-face interaction with a knowledgeable producer who can answer any questions about preparation or allergens and is accessible and accountable if there is a problem. Limiting the transaction to the producer and the customer also reduces the potential for contamination in transit and storage. Most states only require inspections if there is a reported issue. In the states with food freedom acts, Wyoming (2015), North Dakota (2017), and Utah (2018), there have been **no reports of foodborne illnesses linked to home kitchen food production**.⁸² In 2020, the Centers for Disease Control reported that foodborne illnesses declined by 26% as restaurants closed and more people cooked at home.⁸³

Foodborne illness is a serious public health concern, and the potential for serious negative health impacts exists. The trends toward food freedom are recent, but the outcomes so far have been positive. In light of these trends, NEHA released a Policy Statement on Food Freedom Operations (FFOs).⁸⁴ NEHA highlights the potential health risks from the lack of standardized regulatory oversight. They provide a list of policy recommendations and suggest requiring registration of FFOs, more extensive labeling, and food handler training, among others.

As illustrated by Section Two of this report, the Food Systems Sectors, Alaska's food system is complex, multi-faceted, and rife with unintended consequences. Teasing out how and where to develop cottage food and food freedom laws in ways that support economic development, increases food security, and maintain public health while mitigating risks is a challenge.

Additional Resources

This table is adapted from the **Harvard Food Law and Policy Clinic's** survey of cottage foods and home cooking laws published in December of 2021, built upon previous 2018 and 2013 reports, to illustrate the state of food freedom and cottage food regulations across the country.⁸⁵


NOTE: This chart is simply a snapshot because regulations are changing with each legislative session. To facilitate comparison, regulations are categorized as cottage foods, food freedom, home kitchens, and home bakeries based on their content, not necessarily the title of the legislation. Hence, the Arkansas Food Freedom Act and Hawaii's Homemade Food Act are categorized as cottage foods. Some states have more than one relevant regulation. In the table, non-TCS foods are shelf stable and HACCP (Hazard Analysis Critical Control Point⁸⁶) foods are defined by the FDA as requiring specific management to mitigate hazards.

STATE	FOODS ALLOWED	PERMIT, LICENSE, ETC. REQ'D	INITIAL INSPECTION	FOOD SAFETY COURSE REQ'D	SALES CAP (\$)	SALES AND DELIVERY RESTRICTIONS	LABEL REQ'D	GENERAL REGULATORY TYPE (WITH STATE DESIGNATION IN PARENTHESES)
Alabama	Non-TCS, some acidified, fermented or pickled	None	No	Yes	No	Direct, online, third party delivery, mail	Yes	Cottage Food
Alaska	Non-TCS, some acidified, fermented or pickled	None	No	No	25,000	Direct	Yes	Cottage Food
Arizona	Non-TCS	Yes	No	No	None	Direct	Yes	Cottage Food
Arkansas	Non-TCS, some acidified, fermented or pickled	None	No	No	None	Direct, online farmers markets, third party agents and vendors	Yes	Cottage Food (called "Food Freedom")
California	Non-TCS, some high acid but no ferments or pickles	Yes	No (A) Yes (B)	Yes	75,000 150,000	Direct, online, third party delivery, indirect (B only)	Yes	Cottage Food, Class A Cottage Food, Class B
California (Kitchens)	All except HACCP	Yes	Yes	Yes	50,000	Direct, online, some third party delivery	Yes	Home Kitchen
Colorado	Non-TCS, pickles	None	No	Yes	10,000 per product	Direct, online	Yes	Cottage Food
Connecticut	Non-TCS	Yes	No	Yes	25,000	Direct, online	Yes	Cottage Foods
Delaware	Non-TCS	Yes	Yes	Yes	25,000	Direct only	Yes	Cottage Foods
District of Columbia	Non-TCS	Yes	Yes	Yes	25,000	Direct at markets and public events only	Yes	Cottage Foods
Florida	Non-TCS	None	No	No	250,000	Direct, online	Yes	Cottage Foods
Georgia	Non-TCS	Yes	Yes	Yes	None	Direct, online	Yes	Cottage Foods
Hawaii	Non-TCS	None	No	Yes	None	Direct	Yes	Cottage Foods ("Homemade Food")
Idaho	Non-TCS	None	No	No	None	Direct, online	Yes	Cottage Foods
Illinois	Non-TCS, some acidified, fermented, pickled	Yes	No	Yes	No	Direct, online	Yes	Cottage Foods ("Food Freedom")
Indiana	Non-TCS, some acidified and ferments; some poultry, egg and rabbit products	None	No	Yes	None	Farmers markets, roadside stands only	Yes	Cottage Foods ("Home Based Vendor")
Iowa	Non-TCS, acidified foods, some meat and poultry	Unk	Unk	Unk	50,000	Direct, online	Yes	Cottage Foods ("Home Food Processing Establishment")
Kansas	Non-TCS	None	No	No	None	Direct, online	Yes	Cottage Foods
Kentucky	Non-TCS, some acidified, fermented and pickled for "micro processors"	Yes	Yes	Yes	60,000	Direct, online	Yes	Cottage Foods ("Home-Based Micro processing" pilot project and "Home-Based Processing")
Louisiana	Non-TCS, acidified and pickled foods	Yes	No	No	20,000	Direct and indirect except for baked goods (direct only), online	Yes	Cottage Foods
Maine	Non-TCS, some acidified, pickled and fermented	Yes	Yes	No	None	Direct and indirect, online sales, third-party delivery	Yes	Cottage Foods ("Home Food Manufacturing")
Maryland	Non-TCS	None	No	Yes if retail sales	25,000	Direct and indirect	Yes	Cottage Foods
Massachusetts	Non-TCS	Yes	Yes	No	No	Direct, online	Yes	Cottage Foods
Michigan	Non-TCS	None	No	No	25,000	Direct, online orders but not sales	Yes	Cottage Foods

Alaska Food Security and Independence Task Force 2022 Report

STATE	FOODS ALLOWED	PERMIT, LICENSE, ETC. REQ'D	INITIAL INSPECTION	FOOD SAFETY COURSE REQ'D	SALES CAP (\$)	SALES AND DELIVERY RESTRICTIONS	LABEL REQ'D	GENERAL REGULATORY TYPE (WITH STATE DESIGNATION IN PARENTHESES)
Minnesota	Non-TCS, high acid	Yes	No	Yes	78,000	Direct, online	Yes	Cottage Foods
Mississippi	Non-TCS, some high acid	None	No	No	35,000	Direct only	Yes	Cottage Foods
Missouri	Non-TCS, some high acid	None	No	No	50,000	Direct	Yes	Cottage Foods
Montana	All except those containing meat	None	No	No	None	Direct, online	Yes	Food Freedom
Nebraska	Non-TCS, some high acid	Yes	No	Yes	None	Direct, online	Yes	Cottage Foods
Nevada	Non-TCS	Yes	No	No	35,000	Direct	Yes	Cottage Foods
New Hampshire	Non-TCS	Yes	No	No	None	Direct, indirect including retail and restaurants	Yes	Cottage Foods called "Non-Exempt Homestead Foods" ("Exempt Homestead Foods" is more restrictive but doesn't require a license)
New Jersey	Non-TCS	Yes	No	Yes	50,000	Direct, online	Yes	Cottage Foods
New Mexico	Non-TCS	None	No	Yes	None	Direct, online, mail	Yes	Cottage Foods called "Homemade Foods"
New York	Non-TCS	Yes	No	No	None	Direct, indirect, online, third-party delivery	Yes	Cottage Foods ("Home Processing")
North Carolina	Non-TCS. Some acidified, fermented, and pickled products	Yes	Yes	No	None	Direct, indirect, mail	Yes	Cottage Foods ("Home-Based Food Businesses")
North Dakota	All except those containing meat	None	No	No	None	Direct	Yes	Food Freedom
Ohio	Non-TCS	None	No	No	None	Direct, indirect	Yes	Cottage Foods (some additional regs for licensed home bakeries like out-of-state sales)
Ohio (Kitchen)	All foods	None	No	No	115 meals	Direct, consumption within home	Yes	Home Kitchens
Oklahoma	All except those containing meat products	None	No	No	75,000	Direct, (also indirect, online, third-party delivery for non-TCS)	Yes	Food Freedom
Oregon	Non-TCS	Some	No	Yes	20,000	Direct	Yes	Cottage Foods ("Home Baking" and "Domestic Kitchen")
Pennsylvania	Non-TCS, some fermented	Yes	Yes	No	None	Direct, indirect, online	No	Cottage Food ("Limited Food Establishment")
Rhode Island (effective Nov. '22)	Non-TCS	Yes	Unk	Yes	50,000	Direct	Yes	Cottage Food
South Carolina	Non-TCS candy and baked goods	None	No	No	None	Direct	Yes	Home Bakeries ("Home-Based Food Production")
South Dakota	Non-TCS baked goods, high acid canned	None	No	No	None	Direct, online	Yes	Home Bakeries ("Baked and Canned Food Exception")
Tennessee	Non-TCS	None	No	No	No	Direct	Yes	General Exemption
Texas	Non-TCS, some high acid, fermented, pickled	None	No	Yes	50,000	Direct, online	Yes	Cottage Foods
Utah	All except raw dairy and most meat	None	Yes	No	No	Direct, online	Yes	Food Freedom
Utah (Kitchens)	All ready-to-eat foods except alcohol, raw dairy, HACCP, mollusks	Yes	Yes	No	No	Direct, online	No	Microenterprise Home Kitchen
Vermont	Non-TCS	None	No	No	10,000	Direct	Yes	Cottage Foods ("Home Food Processor Exception")
Vermont (Kitchens)	Non-TCS and TCS not containing meat	Yes	Yes	No	None	Direct	No	Microenterprise Home Kitchen ("Home Caterer")
Virginia	Non-TCS, some high acid pickled	None	No	No	3,000 for pickles, other no	Direct	Yes	Private Home Exemption
Washington	Non-TCS, some acidified, fermented, pickled	Yes	Yes	No	25,000	Direct, online marketing not sales	Yes	Cottage Foods
West Virginia	Non-TCS, some acidified, pickled, fermented	Some foods	No	Some foods	No	Direct (includes retail), online	Yes	Cottage Foods ("Homemade Food Item Exemption")
Wisconsin	Non-TCS baked goods	None	No	No	No	Direct	Maybe	Home Bakeries ("Non-TCS Baked Goods Exemption")
Wyoming	All except most meat	None	No	No	250,000	Direct, indirect for non-TCS, online, third party delivery for non-TCS	Recomm- ended	Food Freedom

Comparison of Existing Food Freedom Acts

	WYOMING	NORTH DAKOTA	UTAH	MONTANA	OKLAHOMA
 NAME	Wyoming Food Freedom Act (WFFA)	North Dakota Cottage Food Act	Utah Home Consumption and Homemade Food Act	Local Food Choice Act	Homemade Food Freedom Act (HFFA)
BILLS AND AMENDMENTS, DATES	HB0056–2015 HB0129–2017 SF0118–2017 HB0084–2020 HB0118–2021	HB1433–2017 North Dakota Century Code Ch. 23-98.5	HB181–2018	SB199–2021 Montana Code Annotated 2021 Ch. 49, Part 2	HB1032–2021
ANNUAL SALES LIMIT	\$250,000	No	No	No	\$75,000
LABELS	Consumer must be informed, no requirements for how	"This product is made in a home kitchen that is not inspected by the state or local health department"	Producer's name and address, disclosure statement that product is not for resale and has been prepared without state or local inspection and whether it was prepared in a location that handles common allergens	Consumer must be informed, no requirements for how	Producer's name, phone number, address, description, ingredients, statement regarding allergens, and "This product was produced in a private residence that is exempt from government licensing and inspection."
DEFINITION OF "INFORMED CONSUMER"	"A person who is the last person to purchase any product, who does not resell the product and who has been informed that the product is not licensed, regulated or inspected"	"An individual who is the last individual to purchase a product and has been informed the product is not licensed, regulated, or inspected"	"An individual who purchases the product directly from the producer, does not resell the product, and has been informed that the product is not certified, licensed, regulated, or inspected"	"A person who is the last person to purchase a product, does not resell the product, and has been informed that the product is not licensed, permitted, certified, packaged, labeled, or inspected per any official regulations."	Not defined
NONPERISHABLE FOODS	Yes	Yes	Yes	Yes	Yes
PERISHABLE FOODS	Yes (direct only, no retail)	Yes	Yes	Yes	Yes
RAW MILK	Yes	No	No	Small dairies with 5–10 animals and test every 6 months	No
POULTRY	Yes, fewer than 1,000 personally-raised poultry	Yes, fewer than 1,000 personally-raised poultry	Yes, fewer than 1,000 personally-raised poultry	Yes, fewer than 1,000 personally-raised poultry	No
MEAT	Rabbit, meat shares, products made from inspected meat	No	Rabbit	No	No
FISH	Farm-raised, other than catfish	No	No	No	No
WILD GAME	No	No	No	No	No
FARMERS MARKETS	Yes	Yes	Only in designated "direct-to-sale" markets or markets with a section separate from inspected products with signage	Yes—markets can have more stringent rules	Yes
RETAIL SALES	Yes—nonperishable foods and eggs	No	Whole, raw, unprocessed fruits and veg	Whole, raw, unprocessed fruits and veg	Yes—nonperishable only
RESTAURANTS, INSTITUTIONS	Yes	No	No	No	No
INTERSTATE SALES	No	No	No	No	No
ONLINE SALES	Yes	No	Yes	Yes	Yes
THIRD PARTY (MAIL) DELIVERY, WITHIN STATE	Yes	No	Yes	Yes	Yes—nonperishable only

- ¹ American Legislative Exchange Council (retrieved September 2022). *Food Freedom Act*. <https://alec.org/model-policy/food-freedom-act/>
- ² Harvard Food Law and Policy Clinic (August 2018). *Cottage Food Laws in the United States*. https://chlp.org/wp-content/uploads/2013/12/FLPC_Cottage-Foods-Report_August-2018.pdf
- ³ Alaska Department of Environmental Conservation, Division of Environmental Health Food Safety and Sanitation Program (2012). *New Cottage Food Regulations*. <https://dec.alaska.gov/media/9887/resources-food-guide-cottage-food-brochure.pdf>
- ⁴ Alaska House Coalition (2018, December 10). *NEWS: Food Freedom Bill Put Forward To Increase Food Security In Alaska*. <https://akhouse.org/2018/12/10/news-food-freedom-bill-put-forward-to-increase-food-security-in-alaska/>
- ⁵ <https://www.akleg.gov/basis/Bill/Detail/32?Root=HB%20415>
- ⁶ State of Alaska. (2022, April 7). *Governor Dunleavy introduces HB 415 relating to the Alaska Food Freedom Act*. Office of Governor Mike Dunleavy. <https://gov.alaska.gov/newsroom/2022/04/07/governor-dunleavy-introduces-hb-415-relating-to-the-alaska-food-freedom-act/>
- ⁷ U.S. Food & Drug Administration (2017). *FDA Food Code*. <https://www.fda.gov/food/retail-food-protection/fda-food-code>
- ⁸ Paparo, R., Montgomery, P. (2021, December). *Cottage Foods and Home Cooking*. Harvard Law School Food Law and Policy Clinic. <https://chlp.org/wp-content/uploads/2022/04/Cottage-Foods-Final-4.4.pdf>
- ⁹ Institute for Justice. (n.d.). *Recent state reforms for homemade food businesses*. Retrieved September 2022 from <https://ij.org/legislative-advocacy/state-reforms-for-cottage-food-and-food-freedom-laws/>
- ¹⁰ <https://ij.org/legislative-advocacy/state-reforms-for-cottage-food-and-food-freedom-laws/>
- ¹¹ <https://www.fdacs.gov/content/download/70108/file/CottageFoodOperations.pdf>
- ¹² <https://cottagefoodlaws.com/oklahoma-cottage-food-laws/>
- ¹³ <https://dec.alaska.gov/eh/fss.aspx>
- ¹⁴ <https://www.muni.org/Departments/health/Admin/environment/Pages/default.aspx>
- ¹⁵ *Cottage Foods*. (n.d.). Municipality of Anchorage. Retrieved September 2022 from <https://www.muni.org/Departments/health/Admin/environment/FSS/Pages/CottageFoods.aspx>
- ¹⁶ <https://www.akleg.gov/basis/aac.asp#18.31.012>
- ¹⁷ https://library.municode.com/ak/anchorage/codes/code_of_ordinances?nodeId=TIT16HE_CH16.60ANFOCO_16.60.010TIPUSC
- ¹⁸ <https://www.muni.org/departments/health/admin/environment/fss/pages/cottagefoods.aspx>
- ¹⁹ State of Alaska. (n.d.). *Cottage food*. Division of Environmental Health Food Safety & Sanitation Program. Retrieved September 2022 from <https://dec.alaska.gov/eh/fss/food/retail/cottage-food/>
- ²⁰ State of Alaska. (n.d.). *Cottage food*. Division of Environmental Health Food Safety & Sanitation Program. Retrieved September 2022 from <https://dec.alaska.gov/eh/fss/food/retail/cottage-food/>
- ²¹ *Alaska Food Hub Policy Manual*. (2022, February 7). Alaska Food Hub. <https://www.alaskafoodhub.org/vend>
- ²² USDA. (2010, January). *Poultry exemptions under the federal poultry products inspection act* [FSIS-GD-2010-0006]. <https://www.fsis.usda.gov/guidelines/2010-0006>
- ²³ State of Alaska. (n.d.). *Retail meat and seafood markets*. Division of Environmental Health, Food Safety & Sanitation Program. Retrieved September 2022 from <https://dec.alaska.gov/eh/fss/food/retail/meat-seafood-markets>
- ²⁴ State of Alaska. (n.d.). *Alaska dairy program*. Division of Environmental Health, State Veterinarian. Retrieved September 2022 from <https://rural.dec.alaska.gov/eh/vet/dairy/>
- ²⁵ *State-by-state raw milk laws*. (2022, September 5). ProCon.org. <https://milk.procon.org/raw-milk-laws-state-by-state/>
- ²⁶ Edwards, M. (2015, April 17). *After Food Freedom Act passes, raw milk controversy lingers*. Wyoming Public Radio. <https://www.wyomingpublicmedia.org/open-spaces/2015-04-17/after-food-freedom-act-passes-raw-milk-controversy-lingers>
- ²⁷ <https://akhouse.org/2021/05/07/bill-creating-new-opportunities-for-alaskas-dairy-farmers-passes-house-38-1/>
- ²⁸ *Wyoming expands Food Freedom Act*. (2017). Farm-to-Consumer Legal Defense Fund. <https://www.farmtoconsumer.org/blog/2017/03/28/wyoming-expands-food-freedom-act/>
- ²⁹ Institute for Justice. (n.d.). *Recent state reforms for homemade food businesses*. Retrieved September 2022 from <https://ij.org/legislative-advocacy/state-reforms-for-cottage-food-and-food-freedom-laws/>
- ³⁰ <https://legislature.maine.gov/legis/bills/getPDF.asp?paper=SP0242&item=6&snum=128>
- ³¹ Farquhar, D. (2022). *2022 State Food Safety Enacted Legislation*. Food Safety News. <https://www.foodsafetynews.com/2022/07/2022-state-food-safety-enacted-legislation/>
- ³² Farquhar, D. (2021, June 23). *2021 state enacted legislation*. National Environmental Health Association. <https://www.neha.org/node/62045>
- ³³ <https://www.arkleg.state.ar.us/Bills/Detail?id=SB248&ddBienniumSession=2021%2F2021R>
- ³⁴ *The Arkansas Food Freedom Act: Making and selling homemade food and drinks in Arkansas* [FSPPC318]. (2021, August). University of Arkansas Division of Agriculture Research and Extension Public Policy Center. <https://www.uaex.uada.edu/publications/pdf/FSPPC318.pdf>
- ³⁵ <https://extension.okstate.edu/fact-sheets/homemade-food-freedom-act-fapc-242.html>

- ³⁶ Baldau, G., Khanh, P. (2022, July 6). *Policy bullseye for the Hawkeye State: Iowa passes food freedom and home-based business law*. American Legislative Exchange Council. <https://alec.org/article/policy-bullseye-for-the-hawkeye-state-iowa-passes-food-freedom-and-home-based-business-law/>
- ³⁷ <https://www.legis.iowa.gov/legislation/BillBook?ga=89&ba=HF2431>
- ³⁸ Beck, C. (2022, June 28). *Rhode Island becomes final state to allow all residents to sell cottage foods*. Institute for Justice. <https://ij.org/press-release/rhode-island-becomes-final-state-to-allow-all-residents-to-sell-cottage-foods/>
- ³⁹ Paparo, R., Montgomery, P. (2021, December). *Cottage Foods and Home Cooking*. Harvard Law School Food Law and Policy Clinic. <https://chlp.org/wp-content/uploads/2022/04/Cottage-Foods-Final-4.4.pdf>
- ⁴⁰ Wyoming Department of Agriculture, (2017). *Wyoming Food Freedom Act*. <http://wyagric.state.wy.us/images/stories/pdf/chs/wffa2017.pdf>
- ⁴¹ Ehmke, C. (Ed.). (2018). *Food Ventures in Wyoming: A resource and regulatory guide*. [B-1324]. University of Wyoming Extension.
- ⁴² *Chapter 49—Marketing Homemade*. (n.d.) State of Wyoming Division of Agriculture. Retrieved September 2022 from <http://wyagric.state.wy.us/images/stories/pdf/chs/foodfreedomact21.pdf>
- ⁴³ <https://www.wyoleg.gov/Legislation/2020/HB0084>
- ⁴⁴ <https://www.ndlegis.gov/assembly/65-2017/documents/17-0559-02000.pdf>
- ⁴⁵ <https://www.ndlegis.gov/assembly/65-2017/documents/17-0559-02000.pdf>
- ⁴⁶ Mickelson et al. v. North Dakota Department of Health et al. (2020, Mar 27). Bismark, N.D. <https://ij.org/case/north-dakota-food-freedom/>
- ⁴⁷ *Cottage Food*. (2017). North Dakota Department of Health. https://www.health.nd.gov/sites/www/files/documents/Files/HR/FL/Cottage%20Foods/23-09.5_Cottage_Food_Production_and_Sales.pdf
- ⁴⁸ *Selling homemade food in Maine*. (n.d.). Institute for Justice. Retrieved September 2022 from <https://ij.org/issues/economic-liberty/homemade-food-seller/maine/>
- ⁴⁹ Nargi, L. (2017, July 18). *'Food Freedom' advocates claim victory in Maine*. Civil Eats. <https://civileats.com/2017/07/18/food-freedom-advocates-claim-victory-in-maine/>
- ⁵⁰ <https://legislature.maine.gov/legis/bills/getPDF.asp?paper=SP0242&item=6&snum=128>
- ⁵¹ <https://legislature.maine.gov/legis/bills/getPDF.asp?paper=SP0242&item=6&snum=128>
- ⁵² *History of the 2017 Food Sovereignty Act*. (2017, October 23). Maine Federation of Farmers Markets. <https://mainefarmersmarkets.org/history-2017-food-sovereignty-act/>
- ⁵³ <https://legislature.maine.gov/legis/bills/getPDF.asp?paper=HP0061&item=1&snum=130>
- ⁵⁴ <https://www.maine.gov/sos/cec/elec/upcoming/pdf/11-21citizensguide.pdf>
- ⁵⁵ Whittle, P. (2021, November 2). *Maine passes nation's 1st 'right to food' amendment*. AP News. <https://apnews.com/article/election-2021-maine-right-to-food-605019e60df5b3e32bc70c86dcf957b3>
- ⁵⁶ Flynn, D. (2018, March 9). *Utah adopts a Food Freedom-lite bill; Maine takes a bite*. Food Safety News. <https://www.foodsafetynews.com/2018/03/utah-adopts-a-food-freedom-lite-bill-maine-town-takes-a-bite/>
- ⁵⁷ *Utah cottage food*. (n.d.). Forrager. Retrieved September 2022 from <https://forrager.com/law/utah-cottage-food/>
- ⁵⁸ *Cottage food production*. (2022). Utah Department of Agriculture and Food. <https://ag.utah.gov/businesses/regulatory-services/cottage-food-production/>
- ⁵⁹ <https://le.utah.gov/~2018/bills/static/HB0181.html>
- ⁶⁰ <https://le.utah.gov/~2021/bills/static/HB0094.html>
- ⁶¹ Linnekin, B. (2021, May 29). *Utah second state to adopt microenterprise home kitchen operations law*. Reason. <https://reason.com/2021/05/29/utah-second-state-to-adopt-microenterprise-home-kitchen-operations-law/>
- ⁶² Petersen, H. (2021, Feb 21). *Selling homemade food to make ends meet in pandemic? Utah eyes permits, inspections*. Deseret News. <https://www.deseret.com/utah/2021/2/21/22220641/legislature-selling-homemade-food-from-kitchen-may-require-permits-health-inspections>
- ⁶³ https://leg.mt.gov/bills/mca/title_0500/chapter_0490/part_0020/section_0010/0500-0490-0020-0010.html
- ⁶⁴ Baker, S., Albers-Nelson, R., McConaghy, J. (2022, April). *Homemade Food Freedom Act [FAPC-242]*. Oklahoma State University Extension. <https://extension.okstate.edu/fact-sheets/homemade-food-freedom-act-fapc-242.html>
- ⁶⁵ *Homemade Food Freedom Act*. (n.d.). Oklahoma Department of Agriculture, Food, and Forestry, Division of Food Safety. Retrieved September 2022 from https://leg.mt.gov/bills/mca/title_0500/chapter_0490/part_0020/section_0010/0500-0490-0020-0010.html
- ⁶⁶ <https://www.akleg.gov/basis/Bill/Detail/32?Root=HB%20415>
- ⁶⁷ State of Alaska. (2022, April 7). *Governor Dunleavy introduces HB 415 relating to the Alaska Food Freedom Act*. Office of Governor Mike Dunleavy. <https://gov.alaska.gov/newsroom/2022/04/07/governor-dunleavy-introduces-hb-415-relating-to-the-alaska-food-freedom-act/>
- ⁶⁸ State of Alaska. (2022, February 22). *Raw milk and raw milk products production and sales*. Division of Environmental Health, State Veterinarian. <https://dec.alaska.gov/eh/vet/regulations/raw-milk-and-products/faq/>
- ⁶⁹ <https://www.akleg.gov/PDF/32/Bills/HB0415A.PDF>
- ⁷⁰ Sitaker, M., Kolodinsky, J., Jilcott Pitts, S., Seguin, R.A. (2014). *Do entrepreneurial food systems innovations impact rural economies and health? Evidence and gaps*. American Journal of Entrepreneurship, 7(2), 3-16. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4657568/>

- ⁷¹ Gwin, L., Brekken, C.A., Trant, L. (2018). *Farm Direct at five years: An early assessment of Oregon's farm-focused cottage food law*. *Journal of Agriculture, Food Systems, and Community Development*, 8(3), 85-104. <https://doi.org/10.5304/jafscd.2018.083.005>
- ⁷² McDonald, J. (2019). *The relationship between cottage food laws and business outcomes: A quantitative study of cottage food producers in the United States*. *Food Policy* (84), 21-34. <https://doi.org/10.1016/j.foodpol.2019.01.012>
- ⁷³ Farquhar, D. (2022). *2022 State Food Safety Enacted Legislation*. Food Safety News. <https://www.foodsafetynews.com/2022/07/2022-state-food-safety-enacted-legislation/>
- ⁷⁴ Farquhar, D. (2022). *2022 State Food Safety Enacted Legislation*. Food Safety News. <https://www.foodsafetynews.com/2022/07/2022-state-food-safety-enacted-legislation/>
- ⁷⁵ *2022 cottage food bills*. (n.d.). Forrager.com. Retrieved September 2022 from https://forrager.com/bills/2022/?years=%2Fbills%2F2022®ions=&law_types=&bill_status=enacted
- ⁷⁶ Beck, C. (2022). *Rhode Island becomes final state to allow all residents to sell cottage foods*. Institute for Justice. <https://ij.org/press-release/rhode-island-becomes-final-state-to-allow-all-residents-to-sell-cottage-foods/>
- ⁷⁷ McDonald, J. (2019). *The relationship between cottage food laws and business outcomes: A quantitative study of cottage food producers in the United States*. *Food Policy* (84), 21-34. <https://doi.org/10.1016/j.foodpol.2019.01.012>
- ⁷⁸ Sibila, N. (2019). *Hundreds of homemade food businesses flourish under state food freedom laws*. Forbes. <https://www.forbes.com/sites/nicksibila/2019/01/22/hundreds-of-homemade-food-businesses-flourish-under-state-food-freedom-laws/?sh=2cd69df72226>
- ⁷⁹ Gwin, L., Brekken, C.A., Trant, L. (2018). *Farm Direct at five years: An early assessment of Oregon's farm-focused cottage food law*. *Journal of Agriculture, Food Systems, and Community Development*, 8(3), 85-104. <https://doi.org/10.5304/jafscd.2018.083.005>
- ⁸⁰ Sitaker, M., Kolodinsky, J., Jilcott Pitts, S., Seguin, R.A. (2014). *Do entrepreneurial food systems innovations impact rural economies and health? Evidence and gaps*. *American Journal of Entrepreneurship*, 7(2), 3-16. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4657568/>
- ⁸¹ Gwin, L., Brekken, C.A., Trant, L. (2018). *Farm Direct at five years: An early assessment of Oregon's farm-focused cottage food law*. *Journal of Agriculture, Food Systems, and Community Development*, 8(3), 85-104. <https://doi.org/10.5304/jafscd.2018.083.005>
- ⁸² Sibila, N. (2019). *Hundreds of homemade food businesses flourish under state food freedom laws*. Forbes. <https://www.forbes.com/sites/nicksibila/2019/01/22/hundreds-of-homemade-food-businesses-flourish-under-state-food-freedom-laws/?sh=2cd69df72226>
- ⁸³ *Cottage foods and home kitchens: 2021 state policy trends*. Center for Health Law and Policy Innovation, Harvard Law School. Retrieved September 2022 from <https://chlp.org/wp-content/uploads/2022/01/Home-kitchen-issue-brief-2021-final-1.pdf>
- ⁸⁴ LeRay, S., Potts, A., Wildey, L. (2022, January). *Policy Statement on Food Freedom Operations*. National Health Association. <https://www.neha.org/sites/default/files/NEHA-Policy-Statement-Food-Freedom-Operations-Final-Jan-2022.pdf>
- ⁸⁵ Paparo, R., Montgomery, P. (2021, December). *Cottage Foods and Home Cooking*. Harvard Law School Food Law and Policy Clinic. <https://chlp.org/wp-content/uploads/2022/04/Cottage-Foods-Final-4.4.pdf>
- ⁸⁶ *Hazard Analysis Critical Control Point*. (n.d.). US Food and Drug Administration. Retrieved September 2022 from <https://www.fda.gov/food/guidance-regulation-food-and-dietary-supplements/hazard-analysis-critical-control-point-haccp>



Appendix G

Food System Agencies and Organizations

ACRONYM	AGENCY/ORGANIZATION	WEBSITE
ABRT	Alaska 4H—Statewide	http://www.alaska4h.org/
ACEFCS	Alaska Bycatch Review Task Force	https://www.adfg.alaska.gov/index.cfm?adfg=bycatchtaskforce.main
ACEP	Alaska Community Emergency Food Cache System	https://www.uaf.edu/ces/districts/juneau/food-security/acefcs/
ACF	Alaska Center for Energy and Power (UAF)	https://acep.uaf.edu/
ACLT	Alaska Community Foundation	https://alaskacf.org/
ADFG	Anchorage Community Land Trust	https://anchorage.landtrust.org/
AFB	Alaska Department of Fish and Game	https://www.adfg.alaska.gov/
AFC	Alaska Farm Bureau	https://alaskafb.org/
AFMA	Alaska Food Coalition	https://foodbankofalaska.org/alaska-food-coalition-2/
AFN	Alaska Farmers Market Association	https://alaskafarmersmarkets.org/
AFPC	Alaska Federation of Natives	https://www.nativefederation.org/
AFT	Alaska Food Policy Council	https://www.akfoodpolicycouncil.org/
AKIJP	Alaska Farmland Trust	https://akfarmland.com/
AKV3	Alaska Institute for Justice—Language Interpreter Center	http://www.akijp.org/language-interpreter-center/
Alaska CHARR	Alaska Version 3	https://www.facebook.com/AlaskaV3
ALFA	Alaska Cabaret, Hotel, Restaurant and Retailers Association	https://www.alaskacharr.com/
AMA	Alaska Longline Fisherman's Association	https://www.alfafish.org/
AMCC	Alaska Mariculture Alliance	https://www.afdf.org/category/alaska-mariculture-initiative/
AMHS	Alaska Marine Conservation Council	https://www.akmarine.org/
AMS	Alaska Marine Highway System	https://dot.alaska.gov/amhs/index.shtml
ANLC	Agricultural Marketing Service	https://www.ams.usda.gov/
ANMC	Alaska Native Language Center (UAF)	https://www.uaf.edu/anlc/
ANTHC	Alaska Native Medical Center	https://anmc.org/
AOAN	Alaska Native Tribal Health Consortium	https://www.anthc.org/
APIA	Alaska Ocean Acidification Network	https://aoan.aooos.org/
APU	Aleutian Pribilof Islands Association	https://www.apiai.org/
ARLF	Alaska Pacific University	https://www.alaskapacific.edu/
ASFT	Agriculture Revolving Loan Fund	http://dnr.alaska.gov/ag/ag_arlf.htm
ASGA	Alaska Sustainable Fisheries Trust	https://thealaskatrust.org/
AKSOC	Alaska Shellfish Growers Association	https://www.alaskashellfish.org/
AVCP	Alaska Seeds of Change	https://alaskabehavioralhealth.org/what-we-do/vocational-services/alaska-seeds-of-change/
AVI	Association of Village Council Presidents	https://www.avcp.org/
BLM	Alaska Village Initiatives	https://akvillage.org/
BOG	Bureau of Land Management	https://www.blm.gov/
CANHR	Board of Game (Alaska)	https://www.adfg.alaska.gov/index.cfm?adfg=gameboard.main
CES	Center for Alaska Native Health Research (UAF)	https://canhr.uaf.edu/
CIK	UAF Cooperative Extension Service	https://www.uaf.edu/ces/
CSS	Cook Inletkeeper	https://inletkeeper.org/
DEC	Catholic Social Services—Anchorage	https://www.cssalaska.org/
DEFC	Alaska Department of Environmental Conservation	https://dec.alaska.gov/
DHS&EM	Alaska Department of Family and Community Services	https://dfcs.alaska.gov/

Alaska Food Security and Independence Task Force 2022 Report

ACRONYM	AGENCY/ORGANIZATION	WEBSITE
DHSS	Alaska Division of Homeland Security and Emergency Management	https://www.ready.alaska.gov/
DNR	Alaska Department of Health and Social Services	https://dhss.alaska.gov/Pages/default.aspx
FBA	Alaska Department of Natural Resources	https://dnr.alaska.gov/
FEDC	Food Bank of Alaska	https://foodbankofalaska.org/
FEMA	Fairbanks Economic Development Corporation	https://www.investfairbanks.com/
FFA	Federal Emergency Management Agency	https://www.fema.gov/
FINE	Alaska Future Farmers of America	https://www.alaskaffaassociation.com/
FNS	The Farm Institution of New England	http://dashboard.farmtoinstitution.org/
FRESH	Food and Nutrition Service (USDA)	https://www.fns.usda.gov/
FSA	Food, Research, Enterprise, and Sustainability Hub	https://www.freshnorth.org/team
FSWCD	Farm Service Agency (USDA)	https://www.fsa.usda.gov/
FFA	Fairbanks Soil and Water Conservation District	https://www.fairbankssoilwater.org/
HEDC	Future Farmers of America	https://www.alaskaffaassociation.com/
HSWCD	Haines Economic Development Corporation	https://www.hainesedc.org/
IAC	Homer Soil and Water Conservation District	https://www.homerswcd.org/
IAFN	Intertribal Agriculture Council	https://www.indianag.org/
ICC	Interior Alaska Food Network	https://interiorakfoodnet.wixsite.com/iafn
ISC	Inuit Circumpolar Council-Alaska	https://iccalaska.org/
KLFC	Ice Seal Committee	https://www.iceseals.org/
KRITFC	Kenai Local Food Connection	https://www.kenailocalfood.org/
LEO	Kuskokwim River Inter-Tribal Fish Commision	https://www.kuskosalmon.org/
MEFEC	Local Environmental Observer Network (ANTHC)	https://www.anthc.org/what-we-do/community-environment-and-health/leo-network/
MEP	Matanuska Experiment Farm and Extension Center	https://uaf.edu/afes/places/palmer/index.php
NASS	Alaska Manufacturing Extension Partnership	https://alaska-mep.com/
NOAA	National Agricultural Statistics Service (USDA)	https://www.nass.usda.gov/
NPFC	National Oceanic and Atmospheric Administration	https://www.fisheries.noaa.gov/region/alaska
NPS	North Pacific Management Council	https://www.npfmc.org/
NRCS	National Park Service	https://www.nps.gov/index.htm
NSEDC	Natural Resources Conservation Service	https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/
NSFR&D	Norton Sound Economic Development Corporation	https://www.nsedc.com/
PIA	Norton Sound Fisheries Research & Development	https://www.nsedc.com/fisheries/fisheries-research-development/
PMC	Petersburg Indian Association	https://piatribal.org/
REAP	Plant Materials Center (Alaska DNR)	https://plants.alaska.gov/PMCstaff.html
SAWC	Renewable Energy Alaska Project	https://alaskarenewableenergy.org/
SLFN	Southeast Alaska Watershed Coalition	https://www.alaskawatershedcoalition.org/
SWCD	Sitka Local Foods Network	https://sitkalocalfoodsnetwork.org/
TCO	Soil and Water Conservation Districts—Alaska	https://alaskaconservationdistricts.org/
UA	Tribal Conservation Districts	https://www.nrcs.usda.gov/wps/portal/nrcs/ak/people/nrcs142p2_035998/
UAA	University of Alaska (system)	https://www.alaska.edu/
UAA BEI	University of Alaska Anchorage	https://www.uaa.alaska.edu/
UAA CED	Business Enterprise Institute (UAA)	https://www.uaa.alaska.edu/academics/business-enterprise-institute/index.cshmtl
UAA SBDC	Center for Economic Development (UAA)	https://www.uaa.alaska.edu/academics/business-enterprise-institute/center-for-economic-development/index.cshmtl
UAF	Alaska Small Business Development Center (UAA)	https://www.uaa.alaska.edu/academics/business-enterprise-institute/alaska-small-business-development-center.cshmtl
UAF IANRE	University of Alaska Fairbanks	https://uaf.edu/uaf/
UAS	Institute of Agriculture, Natural Resources and Extension (UAF)	https://uaf.edu/ianre/
USDA	University of Alaska Southeast	https://uas.alaska.edu/
USFW	United States Department of Agriculture	https://www.usda.gov/

Appendix G: Food System Agencies and Organizations

ACRONYM	AGENCY/ORGANIZATION	WEBSITE
YKHC	U.S. Fish and Wildlife	https://fws.gov/
YKHC DP&C	Yukon-Kuskokwim Health Corporation	https://www.ykhc.org/
--	YKHC Diabetes Prevention and Control	https://yk-health.org/wiki/Diabetes
--	Ahtna Intertribal Resource Commission	https://www.ahtnatribal.org/
--	Alaska Board of Fisheries	https://www.adfg.alaska.gov/index.cfm?adfg=fisheriesboard.main
--	Alaska Cold Climate Permaculture Institute	https://alaskapermaculture.com/
--	Alaska Eskimo Whaling Commission	http://www.aewc-alaska.org/
--	Alaska Ethnobotany (UAF)	https://alaskaethnobotany.community.uaf.edu/
--	Alaska Farmland Trust	https://akfarmland.com/
--	Alaska Fisheries Development Foundations	https://www.afdf.org/
--	Alaska Food For Thought	https://foodforthoughtalaska.com/
--	Alaska Food Hub	https://www.alaskafoodhub.org/
--	Alaska Food Systems Network	https://www.akfoodpolicycouncil.org/regional-food-system-participate
--	Alaska Mariculture Alliance (formerly Alaska Mariculture Initiative)	https://www.afdf.org/projects/current-projects/alaska-mariculture-initiative/
--	Alaska Mariculture Cluster	https://www.akmariculture.org/
--	Alaska Master Gardeners (CES)	https://www.uaf.edu/ces/garden/mastergardeners/
--	Alaska Master Gardeners Anchorage	https://www.alaskamastergardeners.org/
--	Alaska Native Media Group	https://alaskanativemedia.org/
--	Alaska SeaGrant	https://alaskaseagrant.org/
--	Alaska Wildlife Alliance	https://www.akwildlife.org/
--	Bering Sea Indigenous Sentinels Network	https://www.beringwatch.net/
--	Buy Alaska	https://buyalaska.com/
--	Catch 49 (AMCC)	https://catch49.org/
--	Catch Together	https://catchinvest.com/
--	Chaga Cooperative	https://www.chagacoop.com/
--	Chugach Regional Commission	http://www.iqsak.org/about-us
--	Division of Agriculture (Alaska DNR)	http://dnr.alaska.gov/ag/
--	Environmental Health Services (Municipality of Anchorage)	https://www.muni.org/Departments/health/Admin/environment/Pages/Default.aspx
--	Eskimo Walrus Commission	https://eskimowalruscommission.org/
--	Fairbanks Community Food Bank	https://www.fairbanksfoodbank.org/
--	Fairbanks Experiment Farm	https://www.uaf.edu/afes/places/fairbanks/index.php
--	Federally Recognized Tribes Extension Program (NIFA)	https://www.nifa.usda.gov/grants/programs/nifa-tribal-programs/federally-recognized-tribes-extension-program
--	Food Safety & Sanitation Program (DEC)	https://dec.alaska.gov/eh/fss.aspx
--	Hoonah Indian Association	https://www.hiatribe.org/
--	Iłisaġvik College	https://www.ilisagvik.edu/
--	International Porcupine Caribou Board	https://boardappointments.exec.gov.nt.ca/en/boards/international-porcupine-caribou-board/
--	Kawerak, Inc.	https://kawerak.org/
--	Kenai Local Food Connection	https://www.kenailocalfood.org/
--	Kodiak Harvest Co-op	https://www.kodiakharvest.org/
--	Launch Alaska	http://www.launchalaska.com/
--	Maniilaq Health Association	https://www.maniilaq.org/
--	Matanuska Experiment Farm and Extension Center	https://uaf.edu/afes/places/palmer/index.php
--	Metlakatla Indian Community	http://www.metlakatla.com/
--	Municipality of Anchorage	https://www.muni.org/pages/default.aspx
--	National Farm to School Network	https://www.farmtoschool.org/
--	National Resource Center for Alaska Native Elders (UAA)	https://www.uaa.alaska.edu/academics/college-of-health/nrc-alaska-native-elders/
--	Office of State Veterinarian	https://dec.alaska.gov/eh/vet/

Alaska Food Security and Independence Task Force 2022 Report

ACRONYM	AGENCY/ORGANIZATION	WEBSITE
--	Port of Alaska	https://www.portofalaska.com/
--	Qik'rtaq Food Hub	https://www.alutiigrown.com/qikrtaqfoodhub
--	Salmon State	https://www.salmonstate.org/
--	Salt & Soil Marketplace	https://www.saltandsoilmarketplace.com/
--	Sea Share	https://www.seashare.org/
--	Seafood Producers Cooperative	https://www.spcsales.com/co-op
--	Sealaska	https://www.sealaska.com/
--	Southeast Conference	https://www.seconference.org/
--	Spruceroor	https://www.spruceroor.org/
--	Tanana Chiefs Conference	https://www.tananachiefs.org/
--	Tlingit and Haida Central Council	http://www.ccthita.org/
--	Tribal Conservation Districts	https://agalaska.org/tribal-conservation-districts/
--	Tyonek Native Coproration	https://www.tyonek.com/
--	Tyonek Tribal Conservation District	https://ttcd.org/
--	USDA Rural Development	https://www.rd.usda.gov/
--	Western Arctic Herd Working Group	https://westernarcticcaribou.net/
--	Yakutat Tlingit Tribe	https://yakutattingittribe.org/
--	Yarducopia	https://yarducopia.org/
--	Yukon River Drainage Fisheries Association	https://yukonsalmon.org/



