

The Importance of Local Foods in Mitigating Poverty-Related Food Insecurity



Findings from Rural Southcentral and Southeastern Alaska

Dr. Tracey Burke, University of Alaska Anchorage School of Social Work
Ms. Cara Durr, Alaska Food Coalition and Food Bank of Alaska
December 2013

Acknowledgements

This research was funded through a Research Innovation and Development Grant in Economics (RIDGE) Center for Targeted Studies award from the U.S. Department of Agriculture's Economic Research Service, administered through the Southern Rural Development Center at Mississippi State University. A previously published version of this report can be found at:

http://srdc.msstate.edu/ridge/projects/previous/00_final_dec13_tkburke.pdf.

We acknowledge Mary Sullivan, Food Bank of Alaska (FBA), who contributed to evolving sampling plans, conducted some interviews, and participated in some discussions of analysis. We also acknowledge Cory Gordon, FBA volunteer and University of Alaska (UAA) Social Work student, who conducted one interview and was available for others.

CONTACT INFORMATION:

Dr. Tracey Burke

University of Alaska Anchorage School of Social Work

3211 Providence Drive, Anchorage, AK 99508

Phone: 907-786-6905

Email: tkburke@uaa.alaska.edu



Table of Contents

EXECUTIVE SUMMARY 3
 Background and Methodology:3
 Findings:.....4

INTRODUCTION..... 5

FOOD SECURITY 6
 Discourses6
 Local Cultivation.....6
 Subsistence6
 Poverty and Economic Insecurity7
 Poverty-Related Conditions in Alaska7

METHODS RESEARCH OVERVIEW AND PROJECT SAMPLE 9
 “Rural” as an Alaska Term.....9
 Sample..... 10

FINDINGS: THE IMPORTANCE OF LOCAL FOODS IN A LOW-INCOME DIET 14
 Preference for Local Foods..... 15
 Healthy Eating..... 15
 Self-Sufficiency 16
 Access to Local Foods 17
 Social Relationships 17
 Access to Equipment 18

POLICY RECOMMENDATION 19
 Caveats to Increasing the Use of the Food Stamps Subsistence Provision 20

CONCLUSION 20

APPENDIX A: RESEARCH METHODS 21
 Data Collection 21
 Data Analysis 21

REFERENCES 23

EXECUTIVE SUMMARY

Background and Methodology:

In Alaska and the arctic, there are three distinct discourses of food security and insecurity. There is the locally-grown/sustainability discourse, which highlights the dangers posed by reliance on foods imported from southern regions and the role of Alaskan agriculture as a part of disaster preparedness. Local agriculture comprises a small but emerging segment of the food market. There is the discourse of subsistence, which focuses on the cultural as well as nutritional importance of wild foods for Alaska Native peoples, and the threats posed by climate change. The superiority of many wild foods compared to what is available in local stores is emphasized. Many non-Natives also participate in hunting, fishing, and gathering, but there is a widespread perception that hunting and fishing are hobbies for non-Natives, and therefore matter less. And there is the discourse of poverty and economic insecurity, in which food is one among many expenses that families are juggling as they attempt to make ends meet.

Existing literature suggests that there has been limited cross-over among these discourses. Insofar as they do overlap, studies find that Alaskans with higher incomes are more likely to harvest wild foods, purchase food from farmers, and consume foods from their own gardens; conversely, Alaskans with incomes below the poverty level are least likely to purchase from farmers or eat from their own gardens. That Alaskans below the poverty line fall into the middle range of likelihood to harvest wild foods probably reflects the high percentage of Alaska Native people who are economically poor. This project underscores that the three discourses must be brought together by addressing the consequential role that local foods – both wild and cultivated – play in enhancing food security in two rural regions of the state.

The research team comes from a social services background and is primarily interested in food insecurity as it intersects with poverty. Little is known about poverty-related food insecurity in rural Alaska. Existing studies describing low-income, food-insecure Alaskans have emphasized urban Alaska. What little information there is about rural Alaskans does not differentiate among regions or communities.

The goal of this study is to learn more about the experiences of food insecurity in regions of rural Alaska that are accessible by land transportation, understanding that the experiences of residents of fly-in-only communities are probably quite different.

Thirty-four users of food pantries in nine communities in rural southcentral and southeastern Alaska were asked for stories about what they eat, what they would like to eat, and their experiences procuring food from various sources including the pantry where they were recruited. The semi-structured ethnographic interviews were analyzed using methods drawn from grounded theory.

All the communities are accessible by road, ferry, or both, and all have active pantries partnering with Food Bank of Alaska, the only statewide food bank. The people in the convenience sample picking up food for their families are predominantly White, which is not surprising in these regions, and mostly female. About half of households have at least one working adult, though few of them work year-round and full-time. Half of households include at least one minor child. Most families receive some sort of means-tested assistance; about half receive food stamps (SNAP).

Findings:

The study reveals a greater reliance on and desire for local foods, both wild and cultivated, than was expected in this mostly non-Native sample. A preliminary negative association was found between degree of involvement with local foods, whether through growing, harvesting and processing oneself or through gifting and trading, and participation in the food stamps program; people who are relatively more involved with local foods are less likely to use food stamps. Everyone in the sample relies on pantry food to some extent – analysis reveals that the pantry plays a central role in the family’s eating for about half the sample – so clearly local foods are no panacea for food insecurity.

As a group, people in the study prefer local foods. They are aware of the nutritional benefits of fresh produce and wild proteins, and they report that the food available in their stores is not only expensive but often of lesser quality, perishables especially. In addition, people want to be self-sufficient. They emphasize both the compromises they feel they are making in accepting assistance, and the pride they take in harvesting and processing their own foods. These activities require specialized equipment and knowledge, however, and not everyone has these. Importantly, not everyone deemed more highly-involved with local foods has their own equipment and knowledge either, but they have social ties with people who do. Indeed, level of involvement with local foods and level connectedness in the community also are associated.



Photo Credit: Sitka Conservation Society

Findings suggest that the preference for local foods and the availability of wild proteins, in particular, can be leveraged to enhance both food security and self-sufficiency for low-income Alaskans in rural communities accessible by surface transportation.

INTRODUCTION

This project has its origins in a desire to understand the day-to-day lives of rural Alaskans experiencing hunger and the hunger-response system. State and local reports of the Hunger in America study, commissioned every four years by Feeding America and managed locally by Food Bank of Alaska (FBA), provide the best available statistical information about the clients of FBA's network of partner pantries and emergency kitchens. However, historically the information about hunger outside of Anchorage has been very limited. The 2014 update of Hunger in America is expected to provide a much better description of hunger in rural Alaska, but statistics still cannot tell us *why* some people struggle more than others, or how they cope with limited funds and food resources in locally specific ways. This study begins to fill that gap.

In doing so, we bring together three distinct discourses of food security: that of locally grown foods, that of subsistence, and that of poverty. We find that low-income users of food pantries who avail themselves of locally harvested foods – both cultivated and wild – tend to eat better than those who do not, but that there are barriers to participation beyond individual interest or motivation. Even with local foods, many families still rely on public and charitable programs as well as the support of members of their social networks. We identify possible opportunities for policymakers to make local foods more easily available for these families.

The university-based first author and Food Bank of Alaska (FBA), the only statewide food bank, have a long-standing collaboration. The partnership began with a university service-learning course which continues to be offered, and has included several small research projects over the years. The second author of this report was the primary FBA representative for this project. She was the primary contact for pantry representatives, conducted a majority of the interviews and contributed to the data analysis, taking the lead on some portions.

This report is organized into three sections. First, we review the literature about food security and the three discourses in Alaska. Second, we describe our study. We provide a brief overview of the research methodology (see Appendices A and B for more detail) and describe our geographic focus and sample of participants. Finally, we go into detail about our findings regarding the role of local foods for low-income families, and we suggest changes to the local administration of the Food Stamps (SNAP) program as one means of enhancing food security for the study population.

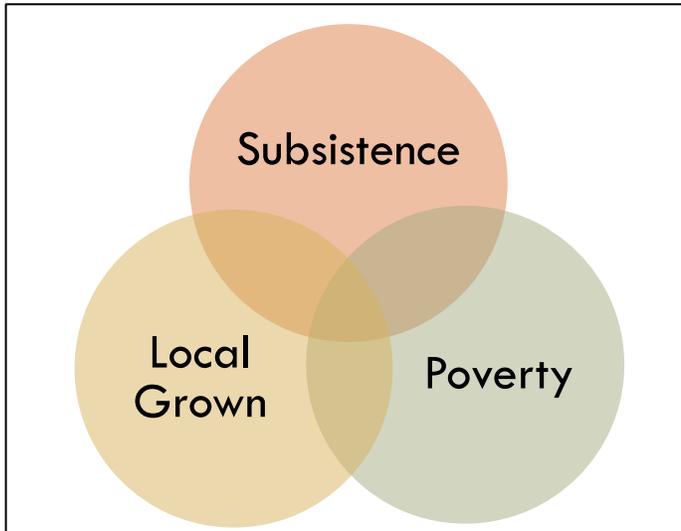


Photo Credit (left to right): Calypso Farm & Ecology Center, Cara Durr, Cara Durr

FOOD SECURITY

The US Department of Agriculture (USDA) defines food security as “consistent, dependable access by all members [of a family] at all times to enough food for an active, healthy life” where “nutritionally adequate and safe foods” are obtained through “socially acceptable” means (USDA, n.d.). Families’ food security can be characterized as high, marginal, low, or very low. At the low and very low levels, people are eating food of reduced quantity and quality.

FIGURE 1



Discourses

In Alaska and the arctic, food security is addressed from three different directions: local cultivation, subsistence, and poverty and economic insecurity.

Local Cultivation

Activists within the sustainability/locally grown movement remind us that because the state depends so much on imported food, in the event of a disaster, “Alaskans would have only 3-5 days’ worth of groceries in the store before everything was gone” (Alaska Center for the Environment, 2008). Increasing the amount of Alaskan agriculture is seen as increasing the food security of everyone in the event of an emergency.

Local agriculture comprises a small but emerging segment of the food market. Although gardening played a role in local foodways through the last century, for Alaska Natives as well as non-Natives, it did not become a primary means of food procurement and so attempts to institute agriculture were seen as failures (Loring & Gerlach, 2010). Now there is growing, though uneven, interest in community gardens, home gardens, and commercial farms in communities around the state. Efforts appear to be mostly oriented towards produce, but there is some focus on livestock as well (e.g. Blake, 2013).

Subsistence

Meanwhile, growing evidence suggests that climate change is affecting the quality and availability of the wild subsistence foods that are so important to Alaska Native people’s cultural as well as nutritional well-being (Thornton, 1998). For example, deformed animals and changing migration patterns affect the availability of animals for hunting (Guyot, Dickson, Paci, Furgal, & Chan, 2006; Kraemer, Berner, & Furgal, 2005). In combination with very expensive fuel and market foods (those foods available at stores), these changes have been tentatively linked to increasing numbers of people moving from very-rural (“bush”) Alaska to more urban areas (Fazzino & Loring, 2009).

Many non-Natives also participate in hunting, fishing, and gathering, but there is a widespread perception that hunting and fishing are hobbies for non-Natives, and therefore matter less. This may well be the case for sport-hunters and -fishers, but the picture is more complicated – and less examined – for those with “personal-use” permits. Indeed, local seafood was found to be a significant contributor to food security for a

mostly non-Native sample of residents of the Kenai Peninsula region of the state (Loring, Gerlach, & Harrison, 2012).

Poverty and Economic Insecurity

Nationally and internationally, scholars and advocates in nutrition, social work, and related fields have documented the effects of and circumstances contributing to food insecurity as related to poverty, what advocates still often refer to as hunger. We know the high-stakes consequences of food insecurity on children's development in multiple domains (Belsky, Moffitt, Arseneault, Melchior, & Caspi, 2010; Murphy, Ettinger de Cuba, Cook, Cooper, & Weill, 2008; Zaslow et al., 2009). Much of the research focuses on nutrition, but recently scholars have recognized that these effects often are evident even when children are not physiologically hungry (Connell, Lofton, Yadrick, & Rehner, 2005; Fram et al., 2011), suggesting that the phenomenon is more complicated.

We know the factors that contribute to food insecurity. Poverty and household income are key, but other factors include: employment status and hours worked, competing financial obligations such as housing costs and immigrants' support of other households, health & mental health status and related coping, transportation, cooking skills, social networks, and availability of food outlets (Fletcher, Andreyeva, & Busch, 2009; Gorton, Bullen, & Mhurchu, 2009; Heflin, Corcoran, & Siefert, 2007; Quandt et al., 2006). Family configuration and gender play a role in the risk of hunger (Martin & Lippert, 2012).

We know that hunger and satiety have psychological as well as physiological elements that affect food choices, that what people experience as a proper meal or better food choice has elements beyond nutritional value (Kristensen & Holm, 2006; Murray & Vickers, 2009; Wiig & Smith, 2008). Also, we know that the social elements of eating – ritual and celebration, as well as simply spending time with friends and family – are impacted by food insecurity (Hamelin, Beaudry, & Habicht, 2002).



Photo Credit: Bean's Café

What we lack is a nuanced sense of how food-insecure people themselves make sense of these and other aspects of their lives. General knowledge also is limited in its local specificity. Which of the factors contributing to hunger in general are especially important in Alaska?

These questions are timely. Although Alaska has suffered less in the recent recession than many states, the state has not escaped altogether. At the same time, there has been increased interest in Alaska and around the circumpolar North in food security from the angles of sustainability and subsistence, and the role of economic security in increasing overall food security must be foregrounded.

Poverty-Related Conditions in Alaska

As part of a national study commissioned by Feeding America and managed locally by Food Bank of Alaska (FBA), the Alaska report of *Hunger in America 2010* (HIA-AK) (Mabli, Cohen, Potter, & Zhao, 2010a) provides the best available information about Alaskans who use the charitable food system. By sampling the users of

FBA's network of programs, HIA-AK tells us that FBA and its partners provide food to over 77,000 different people in Alaska annually – more than 10% of the population (731,449 in 2012, per the Census Bureau). It tells us that about 40% of these people are children, 71% have incomes below the federal poverty level, and 82% are food insecure (low and very low food security) according to official U.S. scales.

The state report does not, however, distinguish between rural and urban Alaskans, and the Anchorage-specific report (Mabli, Cohen, Potter, & Zhao, 2010b) tells us that FBA partners in Anchorage alone provide food to over 41,000 different people, more than half of those in the statewide figure. Moreover, HIA-AK does not provide information about different rural regions of the state, let alone different communities within regions.

To help fill that gap, the Alaska Food Coalition issued a report on the state's "hungriest communities," using variables defined as components of meeting the hunger need: number of pounds distributed through the FBA network, percent of income spent on food, percentage of schools that serve free or reduced-price school meals, and the Food Stamp participation rate (Alaska Food Coalition, 2009). The report provides some guidance as to which communities suffer more, but the available data was limited and so findings must be viewed cautiously. All regions of the state rank in the report's middle category, "room for improvement," with some communities in the top "addressing the hunger need" category or in the bottom "not adequately addressing the hunger need" category.

Economic insecurity has been recognized in some Alaskan food security studies. We know that Alaskans with higher incomes are more likely to harvest wild foods, purchase food from farmers, and consume foods from their own gardens; conversely, Alaskans with incomes below the poverty level are least likely to purchase from farmers or eat from their own gardens (State of Alaska, DHSS, Obesity Prevention and Control Program, 2013). (That Alaskans below the poverty line fall into the middle category of likelihood to harvest wild foods probably reflects the high percentage of Alaska Native people who are economically poor.) We also know that local seafood makes the most difference regarding food security for those with the lowest incomes, at least in one borough (Loring, Gerlach, & Harrison, 2012).

Concurrent with this project, work is being done to update *Hunger in America*, with the report expected in spring, 2014. A new contractor has taken a new approach to sampling, and rural Alaska is expected to be much better represented. We look forward to the new report as an improved backdrop for our findings.



Photo Credit (left to right): Alaska Youth Advocates, Cara Durr, Carolyn Kinneen

METHODS RESEARCH OVERVIEW AND PROJECT SAMPLE

The goal for this project is not to make overarching statements about the population of food-insecure Alaskans, but to identify patterns in how different aspects of food insecurity affect different people, and to identify new insights and possibilities for action among the details. For this, a qualitative approach is most fruitful.

Details of the research methods are described in Appendix A. Briefly, we conducted 1:1 interviews with clients of food pantries, recruited from FBA partner programs, so that we could probe one person's (through him/her, one household's) experience in depth. By asking for stories grounded in people's daily lives, we covered topics known to be generally important to learn how they are important here in Alaska. (See Appendix B for the interview guide.) Once we identified the central themes evident in the transcribed interviews, we conducted more focused literature reviews to enhance our sensitivity to the nuances of what our participants were saying, so that analysis became a conversation between our data and the broader discourse. A presentation to the Alaska Food Coalition (a statewide group of service providers and advocates, including some of the pantry managers who facilitated data collection) was met with interest and indications of approval.

“Rural” as an Alaska Term

The concept of “rural” is a complex one. According to the USDA (2013), the Census Bureau defines rural status according to population size and density. In contrast, the Office of Management and Budget uses a metropolitan/non-metropolitan labor force distinction. Neither approach works well for Alaskan communities. The USDA's “frontier and remote” (FAR) codes are a better fit conceptually. FARs provide a ranking system of four categories based on the distance to cities and towns of selected sizes, and therefore, to variety and order of services, including food outlets (Cromartie, Nulph, & Hart, 2012). However, the FAR codes are based on driving distances from such cities and towns and thereby exclude Alaska and Hawaii, which have limited road systems and whose largest and best-served cities still rely on the air- and sea-based import of goods.

There is no sanctioned typology of Alaskan communities, and so we developed our own. It parallels the FAR codes in principle but is based on our collective personal and professional experiences of many communities around the state. It is based on a combination of population size; types of services available; and remoteness as defined by whether it can be reached by road or ferry, or only by air.

Research Questions:

- To what extent do rural users of the Alaskan charitable food system participate in subsistence or local agriculture?
- At what point do they turn to formal assistance such as the pantry, and what are the social meanings associated with doing so?
- How do they combine both local and market foods, and how are these complimentary?

We put Anchorage, by far Alaska’s largest city and the statewide hub for all services, into its own category. We then made a category of Fairbanks and Juneau, as the next two largest cities, important hubs for their regions, and both accessible by road or ferry. And we created a category for Wasilla and Palmer, the largest communities in the fastest-growing region of the state. We considered none of these communities to be “rural” by Alaskan standards, though some might qualify under some formal definitions. The communities remaining fall into a 2x2 grid (Figure 1). In principle, any of these might have been included in the study.

		ISOLATION	
		On road/ferry system	Off road/ferry system
SIZE	Very small/small (under ~3,000, limited services)		
	Medium/large (~3,000+, more and more complex services)		

FIGURE 1: MATRIX FOR CLASSIFYING “RURAL” ALASKA

Sample

In fact, practical constraints prompted us to limit our community sampling to towns and villages accessible by road or ferry. Originally we hoped to include communities from all four cells. We planned to link our sampling – and our travel – to the HIA-AK update described earlier. However, planning the improved sampling of rural Alaska caused a significant delay in the HIA-AK data collection, and due to external constraints, we could not wait. Once the studies were separated, we considered focusing on very remote (accessible by air only) communities, which in the minds of many is what “rural Alaska” means. However, there is a strong association between a community’s remoteness and racial composition of its populace: the most remote communities tend to be predominantly Alaska Native and to have a strong tribal presence. Ethical research in these communities requires several additional layers and months of tribal review, and we hadn’t time.

Because so many people associate “rural Alaska” with remoteness, the relatively more accessible communities often are ignored by researchers. Yet, these communities are home to a large proportion of the state population. We still hope to conduct an iteration of the study in remote communities, but we are pleased that we could direct attention to this type of rural Alaska as well.

Once focused on road- and ferry-accessible communities, we determined which had food pantries that collaborated with Food Bank of Alaska, such that our team had organizational ties on which to base a request for assistance. The majority of these communities were in the south-central and southeast regions (see Figure 2). At this point, we purposively sampled communities for variety in combination with which had pantry managers able and willing to assist with participant recruitment.

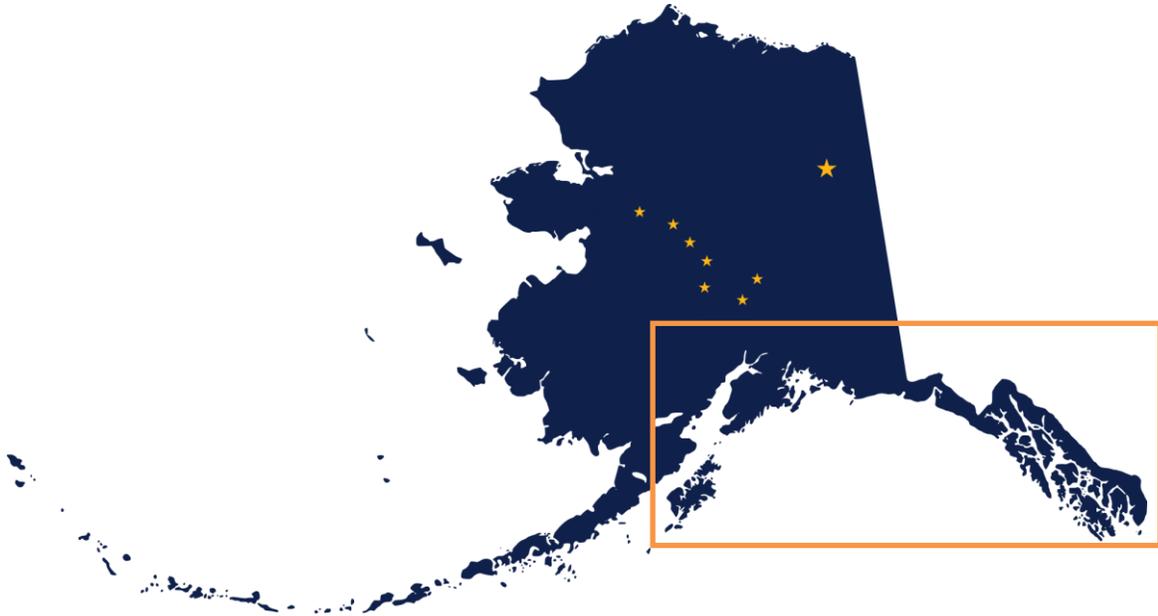


FIGURE 2: SAMPLED REGION

Our community sample finally included nine communities. Three are on the road system, five are accessible by ferry, and one is accessible by both. Four are in southeast Alaska; five are in south-central. They vary in population from about 800 to about 9,000 (State of Alaska, Department of Labor and Workforce Development, 2013), with an average population size of about 3,800. Within our typology, five are considered very small/small; four are medium/large.

As rated by the Hungriest Communities report (Alaska Food Coalition, 2009), five of our sample communities are “addressing the hunger need” and four have “room for improvement.” Recall that the rating is not about whether there is hunger, but how well hunger is being addressed. Given our sampling, we expected our communities to rate fairly well. One factor used in the rating was “number of pounds distributed through the FBA network,” and there was by definition at least one active pantry in each community. Another factor was “percent of income spent on food.” That our communities have ground or sea transportation reduces the cost of food compared to the fly-in-only locations.

We interviewed 34 people; between one and seven individuals in each community, with an average of 3.7 in each. Demographic information on individual participants and/or their households is provided in Table 1:

TABLE 1: PARTICIPANT/HOUSEHOLD DEMOGRAPHICS

Participant/Household Demographics		# (of 34)	% (of total)
Race:*			
	White only	29	85
	Native	4	12
	Black	1	3
	Bi-racial/multi-racial	3	9
Sex:			
	Female	23	68
	Male	11	22
Region:			
	Southeast	17	50
	South-central	17	50
Household Composition:			
	Living alone	7	21
	At least one senior	6	19
	At least one minor child	17	50
Employment in Household:			
	At least one working adult	19	56
	Full-time, year-round	6	18
	Part-time or seasonal	13	38
Use of Means-Tested Assistance:			
	Any (e.g. Medicaid, SSI)	29	85
	TANF	1	3
	Food Stamps (SNAP)	19	56
	Free school meals	12	70**
	WIC	11	61**

*Individual participants; several white participants mentioned during their interviews that their spouses/partners were people of color, such that household are more diverse than indicated here. Some native and black participants also identified as bi-racial/multi-racial.

**Percentage of households with children and/or pregnant women.

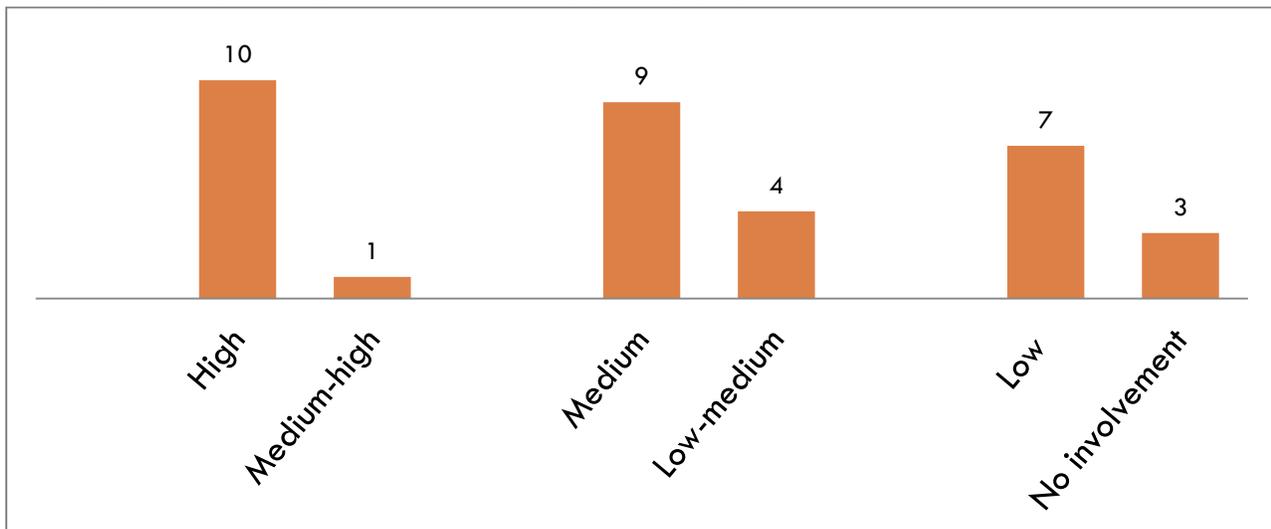
TABLE 2: LEVEL OF NEED

We created a typology of need and assigned each participant-household to one of five ordinal categories. (See Appendix A for detail on the process.) Given that our sample were by definition clients of pantries, we framed the typology around the question, How crucial is the pantry to this family’s well-being? (See Table 2.) It is noteworthy that we determined that more than a third of the families fall into the high-need category, and that we rated the centrality of pantries for more than half the families as medium-high or high. This typology no doubt underestimates real food insecurity insofar as Food Stamps and other formal and informal sources of nutrition assistance mitigate the need for the pantries. We did not formally measure food insecurity.

Level of need	Working definition	Number of families (of 34)
High need	The pantry is really important; they would skip (more) meals without it	12
Medium-high	<<< >>>	6
Medium	The pantry reduces anxiety and improves the quality of their diet	8
Low-medium	<<< >>>	2
Low need	They could probably get by without the pantry but it provides an important cushion	6

Once it was evident that local foods – be they hunted, fished, gathered, or grown – played an important role in people’s eating, we created a similar typology of engagement with local foods. Again we created five ranked categories indicating degree of involvement, with a sixth category for no involvement. (See Appendix A for detail on the process.) Only three participants indicate that their household was eating no local food at all. The sample fell approximately into thirds. See Table 3.

TABLE 3: LEVEL OF INVOLVEMENT WITH LOCAL FOODS



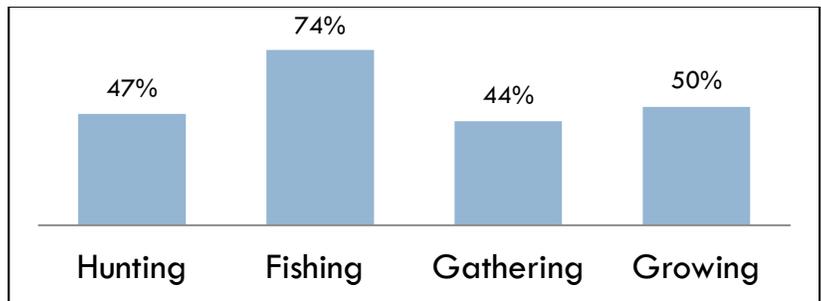
FINDINGS: THE IMPORTANCE OF LOCAL FOODS IN A LOW-INCOME DIET

How do our sampled clients combine both local and market foods?

- Subsistence hunting and fishing can provide individuals and families with cheap and nutritious protein options – something that many food pantries cannot offer
- Personal gardens offers access to fresh produce, which is tough to come by in many rural Alaskan communities. Gathering berries, fiddlehead ferns, beach asparagus and other wild foods help fill this need, also.
- Pantries provide an important source of carbohydrates, such as pasta and rice, and other shelf stable foods that make the base of many meals; grains are not available locally, and so the pantry fills a potentially important gap in even the most subsistence-heavy diets
- Food pantry foods can fill the seasonal gaps that are inevitable with subsistence-driven living, while freezers full of fish or wild game provide an important source of food to fall back on during lean times

Almost everyone in our sample – 31 of 34 households (91%) – accesses local foods at least occasionally, and only one of those families relies solely on gifting or trading rather than household participation in harvesting activities (hunting, fishing, gathering, and/or growing).

TABLE 4: PERCENT OF SAMPLE ENGAGED IN LOCAL FOODS*



*Includes both self-participation and gift/trade arrangements

Given that the entire sample relies on pantries to some extent, local foods clearly are no panacea for the kind of food insecurity that drives people to use this kind of assistance. Also, it is noteworthy that across the sample, there is no apparent relationship between household reliance on pantries and household level of involvement with local foods.

However, there may be some relationship between use of Food Stamps and involvement with local foods: 70% (7/10) of those who fall within the least-involved third of the sample (uninvolved or low involvement) receive Food Stamps, while only 45% (5/11) of the highest-involved third (medium-high or high involvement) receive them. Recall that the levels of involvement are our ordinal characterizations and are not mathematically meaningful; we did not run tests of significance and must interpret this comparison cautiously. Nonetheless, we have no reason to believe that the two groups are different in terms of income or other factors that would impact their eligibility for Food Stamps, suggesting that greater involvement with local foods may play a role in whether eligible people choose to participate.

Two broad themes stand out from the analysis. First, there is a marked preference for local foods, which is related to both the quality of the foods and a desire for self-sufficiency. Second, access to local foods is a function of two intersecting elements, connection to others in the community and knowledge & equipment. We explore these themes in more detail.

Preference for Local Foods

The preference for local foods comes across in two ways. First, there is awareness that most local foods are healthy foods, both intrinsically and in contrast with what is available at the store or pantry. Second, raising or harvesting local foods is a marker for independence and self-sufficiency.

Healthy Eating

As a group, participants have gotten the public health message that fresh fruits and vegetables, whole grains, lean meats, and fish are the most nutritious foods. With the exception of grains, these are exactly the foods that available locally in rural Alaska. (See, for example, Bersamin, Zidenberg-Cherr, Stern, & Luick, 2007 and Johnson, Nobmann, Asay, & Lanier, 2009, regarding the nutritional benefits of wild Alaskan foods.) While participants uniformly express gratitude to the pantries for providing any food, they recognize that what is typically available at the pantries and what they could find, or afford, at the store are not the recommended healthy foods.

The awareness of nutritional compromise is evident in some of the regrets people express regarding what they can receive at the pantry, or the strategies they describe in using it, such as timing their visits to get the most choice. Some participants mention health conditions and related diet issues. Often the desire for better food is expressed through the contrast between what people “had for dinner last night” (what they are eating) and what “a good meal” would look like (what they would like to eat, given more resources). Good meals often include salads, for example, though few people are actually eating salads now.

The absence of produce in people’s current eating is somewhat attributable to the season. We interviewed people in the spring, when even the people who have gardens – or know people with gardens – have used up whatever they had back in September. One woman illustrates the efforts a few people make to raise their own vegetables and to store them when they can: “Rhubarb comes up every year, and I grow potatoes every year and garlic, and onions don’t do real good [sic], but I’ve got onions going again, trying to. I’ve given up on the tomatoes. They don’t do good. I’m hoping we have a better year this year, but oh, Swiss chard and kale, spinach...And if they do good enough, I’ll can them. Otherwise, we just eat, through the summer, what does produce and stuff.”

Other participants who want produce, however, eat little of it even in the summer. The woman just quoted is one of about ten participants who gardens at all, but her garden is much larger than most described. Almost no participants talk about going to farmer’s markets. Many who live in the region where there is some commercial agriculture say that transportation issues force them to



Photo Credit: Sitka Conservation Society//Matthew Dolkas

shop at smaller stores, which are less likely to carry produce. A few participants gather wild greens and berries with an eye to storing them, but most people in our sample who gather are once- or twice-a year berry-pickers and cannot count on the berries as a regular part of their diets.

Notably, there are virtually no outlets in these communities for purchasing local seafood or meat (cf. Loring, Gerlach, & Harrison, 2012). One man in the southeastern region, where seafood is abundant, does not fish himself and so eats very little fish: “You know, [there’s] the occasional fish I get from my sister. Otherwise, you don’t see anything around and that’s what always has amazed me, you know....[I expected] more of a -- well, like a fishmonger set up.”

Many people, in the southeastern part of the state in particular, comment on the lackluster quality and high prices of produce in the stores. Meat is often criticized as well: “The beef in the store really isn’t that fresh, and it’s really expensive,” says one woman who eats local deer when possible.

Self-Sufficiency

Almost everyone in our sample expresses a strong desire to be self-sufficient, and it is important to many people that harvesting and processing local foods helps people feel more independent and less reliant on strangers or the government.

“I have a lot of fun going out hunting and processing [the meat], and you know, kind of take pride in how we process our meat.”

Use of the social safety net has been framed as a “life-course event” because it is so common (Rank & Hirschl, 2002). Nonetheless, most pantry users in our sample perceive assistance as compromising their dignity. Many describe the emotional effort required to come to the pantry the first time, but the friendly reception from staff/volunteers often helps, and some participants are simply resigned to the necessity of coming. But whereas the pantry may be seen as back-up for emergencies – even when the family uses the pantry every month or week, as often as allowed – there is a pattern in people suggesting that applying for federal programs entails admitting defeat at a deeper level. “I didn’t plan to be a disabled person on welfare,”

one woman says simply. Others emphasize how important it is to them to work and have their own income, though it varies whether they are in fact employed. Several suggest that the expectation of working, or working more, very soon, affects their application for federal programs, because they think they will no longer need assistance or qualify for it (cf. Newman, Todd, & Ver Ploeg, 2011).

Sometimes it is the ability to harvest local foods – to hunt and fish, primarily – that makes it possible to decline public assistance. One man speaks for several participants: “We’ve been through it [Food Stamps and WIC] before and it’s just not worth it, you know. You get that hungry, I’ve got a subsistence license and a rifle. I can go find something if I have to, you know. And that makes it a lot easier to be able to come here [to the pantry].”

Apart from reducing the perceived need for Food Stamps and other programs, hunting and fishing can also provide intrinsic satisfaction. “I have a lot of fun going out hunting and processing [the meat], and you know, kind of take pride in how we process our meat, and I really enjoy eating venison from me or my friends,” says one woman, echoing several others. Someone else says clearly that he prefers to eat “something I raised myself or hunted, I’d rather. Much rather.”

Our participants want to eat local foods. Given a political environment that favors low-income people taking care of themselves instead of relying long-term on assistance, the preference for local foods provides an opportunity.

Access to Local Foods

Although the preference for local foods is shared by most of the people in our sample, access to those foods is more variable. Here we identify patterns regarding two overlapping factors that support relatively more engagement with local foods, or conversely, the absence of which are barriers – community relationships, and access to necessary equipment and the knowledge to use it.

Social Relationships

The link between social connection and access to local foods is striking in many interviews, even when the food support is mentioned only in passing. Many of our participants refer to people outside the household who play a consequential role in local food provision, by providing actual food or by facilitating people's ability to harvest or process. These are people whom the participants know personally and who are not identified as part of formal social service systems. Typically narratives include one or two specific people: a sibling, parent, or other relative; a friend or a neighbor; or occasionally a landlord or an acquaintance from the pantry. At the same time, the people who seem most socially isolated are least likely to be much engaged with local foods.

Sharing foods is a recognized cultural norm for Alaska Native peoples (Fienup-Riordan, 2005; Magdanz & Utermohle, 1998), and we see that in our project. All of the Native families fall into the more-engaged ranks (Table 2). Native participants are casual in their mention of food exchanges across households, and they refer to particular traditions, such as Elders being given people's "firsts" of the season (e.g. first catch of fish, a choice section of the first land mammal).

"I get a lot of stuff given to me because I know a lot of fishermen."

But in our mostly non-Native sample, it seems that many other people also take sharing for granted; arguably, sharing local foods is part of a more generalized Alaskan culture. Length of time in the community and participation in harvesting activities are generally associated with increased receiving (and giving) of food. Sometimes different local food items are traded so everyone has greater variety. But even when participants are unable to reciprocate, there is an expectation that they will when they can, or they would if they could. One man, now disabled, describes still being connected to former colleagues: "I get a lot of stuff just given to me because I know a lot of fishermen, and I used to be a fisherman and a hunter. So I mean, yesterday, I got some deer meat and bear meat given to me." Another participant says "I had one friend, in particular, this winter that had a lot of deer left over from the winter before, ...I really depended on him, three different times." Over time, within these relationships, the indication is that our participants provide as well as take.

There is some indication that small food items are given as welcome to newcomers. "We have been given, probably, at least, five times, I got a moose roast and ground moose and some venison and crab, I was given, and some halibut cheeks that came from a friend.... The only non-fish that we've been given was in our first winter here" says a woman who moved to her community just a few years ago. The newcomer gifts are

drying up, but she has integrated into her coastal community enough that she still receives fish, and this is consequential for her household as her family is not directly involved in fishing.

Access to Equipment

Relationships also play a role in facilitating people's ability to participate directly with local foods. In contrast to participants who have their own equipment (and know how to use to it), some rely on others in order to harvest and/or process and store food.

For example, one family who grow vegetables own a greenhouse with three other families. The growing season in their region is too short to raise large quantities of produce without a greenhouse, yet they cannot afford one by themselves. Another woman explains how her son's boat doesn't work, but he goes out regularly with friends in their boats.

"If I could grow more stuff, I'd be, you know, happier, but finding dirt here...it's terrible, unless you go buy it, and I can't do that. I spent \$70 one year on dirt for one boat [planter box]."

Other participants identify equipment they need but do not have access to because of the necessary investment, and friends and family are not available or are unable to help. A woman who wants to grow more of her own food uses old dinghies for raised beds but lives in an area with little soil, and she cannot afford to purchase it. She comments, "If I could grow more stuff, I'd be, you know, happier, but finding dirt here is like -- when you live on a rock--. It's terrible, unless you go buy it, and I can't do that. I spent \$70 one year on dirt for one boat [planter box]." Several people comment on the ongoing transportation costs involved in hunting and fishing; for example, one participant responds "Yeah, exactly," to this interview summing-up: "So it sounds like, even if, you know, you do have just easy access to all this food, you know, the fish and the deer, I mean, you do still need to be able to put gas in your boat to go out there?" This person has the boat but not necessarily the funds to buy fuel to get to the animals.

Processing and storage equipment and knowledge matter as well. One family borrows freezer space from friends for hunted meat; they can only afford to live in a camper (RV), which has very limited storage. Another participant with an extensive garden has a pressure cooker for canning; she not only cans her own vegetables but sometimes purchases extra food and cans it. "When I get food stamps, every once in a while, probably like every six months, we will buy, like, about 50 pounds worth of chicken or hamburger if it's on sale, when it is on sale, and we can it. So we can our meat so it lasts longer. And we have -- you know, it's like a pound per jar. And so it lasts longer and stays fresh." In contrast, another woman describes trying to can with her sister. Our participant not only has to use her sister's equipment but is still figuring out the process: "My sister, she's the -- I'm the novice, and she's the expert at canning. It's such a process. Like one time, I was putting the lid on, and she goes, wait, you've got to wipe the edge because the seal won't..."

Although everyone in our sample is effectively food-insecure insofar as they use food pantries, there is consensus regarding a desire for local foods. Access to those foods varies, however, depending on the degree to which they are involved in the community and, relatedly, their access to equipment and knowledge.

POLICY RECOMMENDATION

Our research suggests that many low-income Alaskans in the southcentral and southeastern regions want to be self-sufficient, and that local foods play a role for those who have access. Nutrition assistance policymakers should look for ways to increase access to local foods of all sorts. In particular, we propose expanding the Subsistence provisions of Food Stamps.

In the state of Alaska, the Department of Public Assistance can authorize some Food Stamp recipients to use their Food Stamp allotment for hunting and fishing equipment. To be eligible for the Subsistence Hunting and Fishing Provisions, applicants must both “a. Live in communities in which access to retail stores is difficult; and b. Rely substantially on hunting and fishing for subsistence” (State of Alaska, DHSS, n.d., section 605-4 B. 1, 2). Food Stamps can be used to purchase “nets, lines, hooks, fishing rods, harpoons, knives, ice augers and other equipment necessary for subsistence hunting and/or fishing. Equipment for the purpose of transportation, clothing, shelter, firearms, ammunition, and explosives are not eligible” (section 600-2).

We suggest eliminating the requirement that access to stores be difficult, and expanding the range of types of equipment for which Food Stamps can be used. Such a move would help some recipients and might make the program more appealing to eligible non-participants. For those who decline Food Stamps as a cash hand-out, reframing them as a lever for greater self-sufficiency could be important.

The requirement that applicants live in communities with limited opportunity to purchase food says that Food Stamps should be used for market foods; to use Food Stamps for subsistence equipment is acceptable only if using them for store-supplied food is impractical. The requirement positions market foods as preferred foods. We ask: *why?*

We have cited research supporting the nutritional value of Alaskan local foods, and our participants as a group know that local foods are better for them. Also, the regulations set the threshold for when “access to retail stores is [too] difficult” at a high level, specifically, a community cannot have regular ground transportation – scheduled ferry or paved road. This means that all of the communities in our study are disqualified, yet participants in our study indicate that the stores they can access have limited selection and often the perishable food is already perishing. Both intrinsically and in contrast to what is locally available at stores, market foods for our sample are not necessarily superior to what people might access through hunting and fishing – if they have access to equipment. Eliminating the geographic constraints (ground transportation as proxy for reasonable access to grocery stores) should increase the number of low-income Alaskans who can harvest wild protein.

It would further enhance low-income people’s ability to utilize local foods of all sorts if the category of approved types of equipment were expanded. Currently, approved items are things used for harvesting meat and fish – but not for storing them, or storing produce. However, the people in our study who are able to can and freeze things store not only local foods they have grown or harvested, but things they are gifted or traded – or in one case, even things they purchase cheaply in bulk. Presumably if more people have the equipment to store food, they can make local foods last longer. If Food Stamps could be used to purchase, for example, canning-strength pressure cookers and associated jars, and vacuum packers and associated plastic wrap, more low-income people might store good foods further into the winter.

The current regulations specifically exclude clothing and transportation items from the subsistence provision, even in eligible communities. Hunting and fishing almost always involve traveling to get to the right territory, and some activities require certain clothing items to be safe. Opening up the use of Food Stamps to allow the

purchase of, for example, gasoline and chest waders, arguably would invite cheating, and policing such measures might be impossible. We note, however, that several participants in the study indicate that lack of gas and other such multi-use items also is a factor in their ability to procure local foods.

Caveats to Increasing the Use of the Food Stamps Subsistence Provision

Expanding the Food Stamps subsistence provisions is no panacea for food insecurity among low-income Alaskans. Even if everyone eligible for Food Stamps were permitted to use them for harvesting and storage equipment, for some there still could be a knowledge gap.¹ There are emerging efforts around the state related to education for harvesting and storage, as well as meal preparation, however, and these efforts and use Food Stamps to facilitate access to equipment could be mutually reinforcing.

Also, local food sources can be unpredictable. One participant comments that much of what brings him to the pantry where we meet is that “this last year we didn’t get a moose...and 800 pounds of meat goes a long way.” Someone else usually grows and stores carrots, but “last year was a poor year. It was too cold and wet.” Some years are simply bad years for harvesting. And there are human factors. One family had to leave their home for almost a month for medical care – even in these less remote communities, there are few specialists – and someone raided their freezer of fish while they were away. Clearly, expanding the subsistence provisions of Food Stamps cannot address these issues.

CONCLUSION

We have clarified the importance of locally grown and wild “subsistence” foods for low-income residents of rural but relatively accessible communities in two region of Alaska. Local foods plays a consequential role in how well people eat and for some, how they feel about themselves; harvesting and processing are not merely hobbies, even for our mostly non-Native sample. Policymakers should consider how to increase access to local foods of all sorts.



Photo Credit (left to right): Sitka Conservation Society, Cara Durr, Carolyn Kinneen

¹ The requirement that Food Stamp applicants already rely “substantially” on hunting and fishing in order to qualify for the subsistence provisions would privilege people who have the necessary knowledge. There may still be a knowledge gap insofar as families may have depended on one member for harvesting, perhaps someone who is aging or infirm. And families accustomed to freezing meat or vegetables for storage may not know how to use a pressure cooker, etc.

APPENDIX A: RESEARCH METHODS

Data Collection

Four of us conducted interviews: the university-based Principal Investigator (PI), two Food Bank of Alaska (FBA) staff members, and an FBA volunteer/graduate student. The interview guide was created to address general domains through personal stories so answers would be grounded in the daily lives of participants and their households. The PI oriented the FBA team members to the logic of the questions and ways of asking the questions to elicit detail. She provided ongoing feedback to the team member who conducted over half the interviews (the co-author of this report); the other interviewers conducted interviews in only one community each, so there was no opportunity for feedback.

We used an IRB-approved process for recruiting and interviewing our convenience sample of individual participants. The FBA staff members contacted pantry managers in selected communities and requested assistance. Managers who agreed to help posted or distributed flyers announcing the planned dates of the team's visit to the pantry and invited pantry users to provide their names and phone numbers so that researchers could call to explain the study. In some cases, we were able to visit the pantry in advance in person to announce and explain the study. With pantry users who were interested in participating, we set up interview times. Most interviews were conducted on pantry premises in spaces provided by pantry staff/volunteers. Interviews lasted approximately an hour.

Once each interview was over, we destroyed the record of the person's name and contact information and assigned the person a pseudonym. No one but the interviewer knew the participant's real name as the face sheet (with demographic information) had only the pseudonym and even the consent form had only initials.

The interviews were audio-recorded and professionally transcribed. Once transcripts were checked for accuracy, the audio files were erased. The electronic transcripts were loaded into NVivo. This program facilitates management of the data as well as analytic memos.

Data Analysis

Although much of the power of qualitative research lies in the analyst's freedom to be open to the unexpected, the interview domain/questions provide a trellis on which to grow the story told by the data. In this project, initial sensitizing concepts included knowledge of the common struggles associated with poverty and food insecurity, knowledge of other discourses of food security in Alaska, and our own experiential knowledge of how Alaskans of all backgrounds draw on local foods.

The two authors of the report conducted the analysis. We drew on grounded theory procedures (Charmaz, 2005; Charmaz, 2006; Corbin & Strauss, 2008). "A grounded theory approach encourages researchers to remain close to their studied worlds and to develop an integrated set of theoretical concepts from their empirical materials that not only synthesize and interpret them but also show processual relationships" (Charmaz, 2005, p. 508).

Analysis began concurrent with data collection insofar as we discussed what stood out alongside conducting even the earliest interviews. More formal inductive coding began as the first interviews were transcribed and imported into the NVivo software. We close-coded ten transcripts to identify the themes of greatest surprise and interest. It was at this stage that the importance of local foods became clear, and it was at this stage that we speculated about access to local foods as protective for food insecurity. Although we had

intentionally asked about involvement with local food systems, we had not expected it to play so prominent a role for this low-income, mostly non-Native sample. Our questions, comments, and notes from conversations were documented in memos maintained within the analysis software as well as along the margins of hard copies of transcripts.

Once data collection was finished, we systematically characterized participant-households' need, as defined by the centrality of the pantries to the families' well-being. Assignment into one of five categories (low-high) was based on our reading of the totality of the interviews with particular attention to sections such as descriptions of times participants worried about having enough food. We rated interviews independently and agreed on category assignment, with no discussion required for a third of the cases. The categories should be seen as subjective ordinal ranks, not precise measures.

We went through a parallel process to characterize participant-households' engagement with local foods. We asked on the face sheets about hunting, fishing, gathering, and growing foods; whether one or more people in the household participated directly; and whether they traded for food or were gifted food. But the characterizations are based on the interviews, not just the face sheet data, because direct participation still ranged from berry-picking once a year with the kids, to extensive time invested in harvesting activities. Some households whose access to local foods was mostly indirect (through gifts and trades) still qualified as more highly-involved if they ate a lot of it and/or they were very involved in processing it. Again we discussed our rankings and interpretations until we reached agreement.

Then we reviewed additional literature to further sensitize us to details and nuances of participants' experiences. Analysis became a conversation between our data and the broader discourse. It was at this stage that we examined preliminary associations between need, engagement, and use of assistance programs. We were not trying to quantify the correlations but nonetheless wanted some sense of what were patterns and what were idiosyncrasies. We selected the transcripts of the eleven participants/households who were most engaged with local foods and the ten who were least engaged, and compared them. We continued to discuss our individual ideas and insights.

We presented preliminary findings to a small working group of fellow grantees, also working in the realm of poverty-related food insecurity, for feedback on some ideas and directions. We later presented to the Alaska Food Coalition, a group of service providers with experiential expertise in the lives of pantry users, as a form of member checking. Several Coalition members shared their own examples of the findings, and the group endorsed the overall themes.

REFERENCES

- Alaska Center for the Environment (ACE). (2008). Alaska food, farms, and jobs act. Retrieved April 27, 2012, from <http://akcenter.org/sustainable-communities/local-food/policy/alaska-food-farms-and-jobs-act>
- Alaska Food Coalition. (2009). *Hungriest communities: A report on hunger in Alaska*. Anchorage, AK: Author.
- Belsky, D. W., Moffitt, T. E., Arseneault, L., Melchior, M., & Caspi, A. (2010). Context and sequelae of food insecurity in children's development. *American Journal of Epidemiology*, 172(7), 809-818.
- Bersamin, A., Zidenberg-Cherr, S., Stern, J. S., & Luick, B. R. (2007). Nutrient intakes are associated with adherence to a traditional diet among Yup'ik Eskimos living in remote Alaska Native communities: The CANHR study. *International Journal of Circumpolar Health*, 66(1), 62-70.
- Blake, J. (2013). *Animal health issues for Alaska agriculture*. Girdwood, AK: 8th Circumpolar Agricultural Conference & University of the Arctic Inaugural Food Summit.
- Charmaz, K. (2005). Grounded theory in the 21st century: Applications for advancing social justice. In N. K. Denzin, & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (3rd ed., pp. 507-535). Thousand Oaks, CA: Sage Publications.
- Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. Thousand Oaks, CA: Sage Publications.
- Connell, C. L., Lofton, K. L., Yadrick, K., & Rehner, T. A. (2005). Children's experiences of food insecurity can assist in understanding its effects on their well-being. *Journal of Nutrition*, 135, 1683-1690.
- Corbin, J., & Strauss, A. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Los Angeles, CA: Sage Publications.
- Cromartie, J., Nulph, D. & Hart, G. (2012, December 3). Mapping frontier and remote areas in the U.S. Retrieved August 1, 2013, from <http://www.ers.usda.gov/amber-waves/2012-december/data-feature-mapping-frontier-and-remote-areas-in-the-us.aspx#.UfrDj43CZ8H>
- Fazzino, D. V., & Loring, P. A. (2009). From crisis to cumulative effects: Food security challenges in Alaska. *NAPA Bulletin*, 32, 152-177. doi:10.1111/j.1556-4797.2009.01033.x
- Fienup-Riordan, A. (2005). Those who are rich in relatives: Extended family relations. *Wise words of the Yup'ik people: We talk to you because we love you* (pp. 185-208). Lincoln, NB: University of Nebraska Press.
- Fletcher, J. M., Andreyeva, T., & Busch, S. H. (2009). Assessing the effects of changes in housing costs on food insecurity. *Journal of Children and Poverty*, 15(2), 79-93. doi:10.1080/10796120903310541
- Fram, M. S., Frongillo, E. A., Jones, S. J., Williams, R. C., Burke, M. P., DeLoach, K. P., & Blake, C. E. (2011). Children are aware of food insecurity and take responsibility for managing food resources. *Journal of Nutrition*, 141(6), 1114-1119.
- Gorton, D., Bullen, C. R., & Mhurchu, C. N. (2009). Environmental influences on food security in high-income countries. *Nutrition Reviews*, 68(1), 1-29. doi:10.1111/j.1753-4887.2009.00258.x

- Guyot, M., Dickson, C., Paci, C., Furgal, C., & Chan, H. M. (2006). Local observations of climate change and impacts on traditional food security in two northern Aboriginal communities. *International Journal of Circumpolar Health*, 65(5), 403-415.
- Hamelin, A., Beaudry, M., & Habicht, J. (2002). Characterization of household food insecurity in Quebec: Food and feelings. *Social Science & Medicine*, 54, 119-132.
- Heflin, C. M., Corcoran, M. E., & Siefert, K. A. (2007). Work trajectories, income changes, and food insufficiency in a Michigan welfare population. *Social Service Review*, 81(1), 3-25.
- Johnson, J., S., Nobmann, E. D., Asay, E., & Lanier, A. P. (2009). Dietary intake of Alaska Native people in two regions and implications for health: The Alaska Native dietary and subsistence food assessment project. *International Journal of Circumpolar Health*, 68(2), 109-122.
- Kraemer, L. D., Berner, J. E., & Furgal, C. M. (2005). The potential impact of climate on human exposure to conaminants in the arctic. *International Journal of Circumpolar Health*, 64(5), 498-508.
- Kristensen, S. T., & Holm, L. (2006). Modern meal patterns: Tensions between bodily needs and the organization of time and space. *Food and Foodways*, 14, 151-173. doi:10.1080/07409710600962316
- Loring, P. A., Gerlach, S. C., & Harrison, H. L. (2012). *Food security on the Kenai Peninsula: A report on Icoo seafood use, consumer preferences, and community needs*. (WERC-HD no. 01). Fairbanks, AK: Human Dimensions Lab at the Water and Environmental Research Center.
- Loring, P. A., & Gerlach, S. 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. doi:10.1215/00141801-2009-060
- Mabli, J., Cohen, R., Potter, F., & Zhao, Z. (2010a). *Hunger in America 2010: Local report prepared for the Food Bank of Alaska - Alaska*. (Reference No. 06521-600). Princeton, NJ: Mathematica Policy Research.
- Mabli, J., Cohen, R., Potter, F., & Zhao, Z. (2010b). *Hunger in America 2010: Report prepared for Food Bank of Alaska - Anchorage*. (Reference No: 06521-600). Princeton, NJ: Mathematica Policy Research.
- Magdanz, J., & Utermohle, C. J. (1998). Family groups and subsistence. *Cultural Survival Quarterly*, 22(3), 51-52.
- Martin, M. A., & Lippert, A. M. (2012). Feeding her children, but risking her health: The intersection of gender, household food insecurity and obesity. *Social Science & Medicine*, 74, 1754-1764. doi:10.1016/j.socscimed.2011.11.013
- Murphy, C., Ettinger de Cuba, S., Cook, J., Cooper, R., & Weill, J. D. (2008). *Reading, writing and hungry: The consequences of food insecurity on children, and on our nation's economic success*. (No. Issue Paper #6). Washington, DC: Partnership for America's Economic Success.
- Murray, M., & Vickers, Z. (2009). Consumer views of hunger and fullness: A qualitative approach. *Appetite*, 53, 174-182. doi:10.1016/j.appet.2009.06.003
- Newman, C., Todd, J. E., & Ver Ploeg, M. (2011). Children's participation in multiple food assistance programs: Changes from 1990-2009. *Social Service Review*, 85(4), 535-564.

Quandt, S. A., Shoaf, J. I., Tapia, J., Hernandez-Pelletier, M., Clark, H. M., & Arcury, T. A. (2006). Experiences of Latino immigrant families in North Carolina help explain elevated levels of food insecurity and hunger. *Journal of Nutrition, 136*, 2638-2644.

Rank, M. R., & Hirschl, T. A. (2002). Welfare use as a life course event: Toward a new understanding of the U.S. safety net. *Social Work, 47*(3), 237-248.

State of Alaska, Department of Health and Social Services. (n.d.). *Alaska food stamp manual*. Retrieved December 16, 2013.

State of Alaska, Department of Health and Social Services, Obesity Prevention and Control Program. (2013, September). *Alaska obesity facts: Local foods* Retrieved from dhss.alaska.gov/dph/Chronic/Pages/Obesity/default.aspx

State of Alaska, Department of Labor and Workforce Development. (2013, July 19). Cities and census designated places (CDPs), 2010-2012 (excel). Retrieved August 1, 2013, from <http://www.labor.state.ak.us/research/pop/popest.htm>

Thornton, T. F. (1998). Alaska Native subsistence: A matter of cultural survival. *Cultural Survival Quarterly, 22*(3)

US Department of Agriculture. (n.d.). Food security in the U.S. Retrieved August 2, 2012, from <http://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/measurement.aspx>

US Department of Agriculture. (2013, May 10). What is rural? Retrieved August 1, 2013, from <http://www.ers.usda.gov/topics/rural-economy-population/rural-classifications/what-is-rural.aspx#.UfrJal3CZ8E>

Wiig, K., & Smith, C. (2008). The art of grocery shopping on a food stamp budget: Factors influencing the food choices of low-income women as they try to make ends meet. *Public Health Nutrition, 12*(10), 1726-1734. doi:10.1017/S1368980008004102

Zaslow, M., Bronte-Tinkew, J., Capps, R., Horowitz, A., Moore, K. A., & Weinstein, D. (2009). Food security during infancy: Implications for attachment and mental proficiency in toddlerhood. *Maternal Child Health Journal, 13*, 66-80. doi:10.1007/s10995-008-0329-1