



Food Security and Wild Resource Harvests in Alaska

James A. Fall and Marylynn L. Kostick

Alaska Department of Fish and Game Division of Subsistence
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WHAT IS FOOD SECURITY?

As defined by the U.S. Department of Agriculture (USDA), food security is “access by all people at all times to enough food for an active, healthy life.”¹ Components of food security include agricultural and other food production, processing capacity, distribution systems, price, food quality, and emergency preparedness (Hanna et al. 2012). Compared to other states, Alaska faces unique food security challenges because of its remoteness, high costs of transportation, limited agricultural production, and high reliance on imported food (Meter and Goldenberg 2014).

Also unique to Alaska is the major role that harvesting wild foods through fishing, hunting, and gathering plays in support of food security (Fall 2016a; Walch et al. 2018; ICC 2015). Indeed, as noted in the report “Building Food Security in Alaska” (Meter and Goldenberg 2014:9), “The main source of local food in the state of Alaska today is subsistence and personal use gathering.”

A “food security conceptual framework” prepared by the Inuit Circumpolar Council (ICC 2015:14, 34–35) proposed 6 “dimensions” or components as essential to understanding food security in Alaska:

- **Availability [of traditional foods]:** biodiversity within the ecosystem across the seasons.
- **Culture:** values, skills, and spirituality that inform harvesting of traditional foods.
- **Decision-making power and management:** the ability and opportunity to use indigenous and scientific knowledge within the management system.
- **Health and wellness:** physical health of all life within an ecosystem, and mental health related to social relations and cultural identity.
- **Stability:** sustainable natural resource management, protection against pollutants, and legal protections for access.

- **Accessibility:** the ability to access food resources, to share resources, and to obtain the cash, skills, and technology needed to harvest and process traditional foods.

HOW MUCH FOOD IS PRODUCED IN ALASKA THROUGH FISHING, HUNTING, AND GATHERING?

Alaskans harvested approximately 46 million pounds of wild resources for food (usable or edible weight) in noncommercial fisheries and hunts in 2014 (the most recent year for which a comprehensive estimate is available) (Fall 2016b). These harvests take place in subsistence, personal use, and sport fisheries, and subsistence and general hunts.

Most of the Alaska wild food harvest, about 34.3 million pounds in 2014, is produced by the 17% of the Alaska population living in rural areas (about 125,000 people).² This is an average harvest of 275 pounds of wild foods per person annually. Wild foods provide 175% of daily protein requirements and 25% of caloric requirements in rural Alaska (Fall 2016b)



Meal of salmon, salmonberries, and rice, Sleetmute, Alaska.

1. United States Department of Agriculture, Economic Research Service, 2017, “Food Security in the U.S.” <https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/>

2. “Rural” refers to communities outside the nonsubsistence areas defined by the Joint Board of Fisheries and Game (5 AAC 99.015). Nonsubsistence areas are areas or communities where subsistence harvests of fish and wildlife are not a principal characteristic of the economy, culture, and way of life (Alaska Statute 16.05.258(c)). Here, nonsubsistence areas are called “urban” areas.

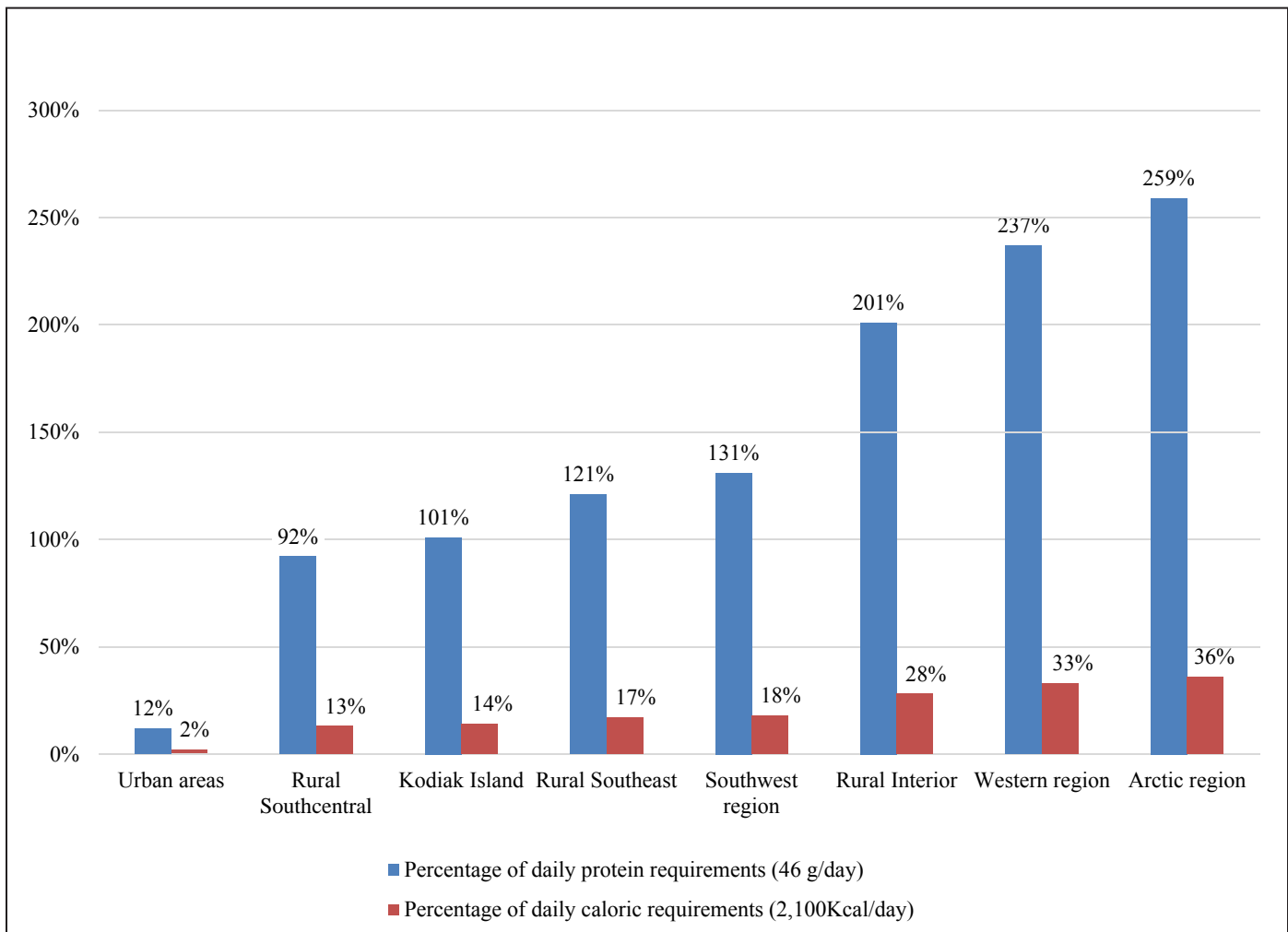


Figure 1.—Nutritional contribution of wild food harvests.

(Figure 1). Also, wild foods are excellent sources of other nutrients, low in unhealthy fat and cholesterol, and free of chemical additives (Alaska Native Tribal Health Consortium [ANTHC] 2008; Unger 2014; Alaska Department of Fish and Game [ADF&G] n.d.).

The composition of the wild food harvest in rural Alaska is 31.8% salmon, 21.4% other fish, 22.3% land mammals, 14.2% marine mammals, 2.9% birds, 3.2% shellfish, and 4.2% wild plants. However, there are important regional differences in wild food harvests across the state (Figure 2). For example, marine mammals rank first in the Arctic region, while land mammals rank high in the Interior as do nonsalmon fish in Southeast Alaska. Harvest diversity supports resilience and flexibility in response to seasonal and annual variations in the availability of wild foods. This diversity also supports involvement in food production by a range of individuals of varying ages, skills, and physical abilities.

In addition to fish and wildlife, wild plants are an important part of Alaska’s wild food production.

Much of this harvest consists of berries, but it also includes many other plants (such as kelp, artemisia, fiddlehead, and wild celery) used for food and their medicinal qualities (ANTHC 2008; Jones 2010).

Residents of the urban areas of Alaska (about 612,000 people; 83% of state total) in 2014 harvested about 11.6 million pounds of wild foods, 19 pounds per person (Fall 2016b). Most wild food harvests by urban Alaskans occur in personal use and sport fisheries and general hunts. Although sport fisheries are primarily designed as recreation, they also produce food. Personal use fisheries provide opportunities for efficient harvests for food, mostly in areas close to population centers.

THE ECONOMIC, SOCIAL, AND CULTURAL CONTEXT OF NONCOMMERCIAL RESOURCE HARVESTING

In rural Alaska, wild food harvests take place in a mixed economy, with subsistence and cash sectors (Wolfe and Walker 1987; Goldsmith 2007). While historically the subsistence sector has been the more reliable, cash is necessary to purchase and maintain

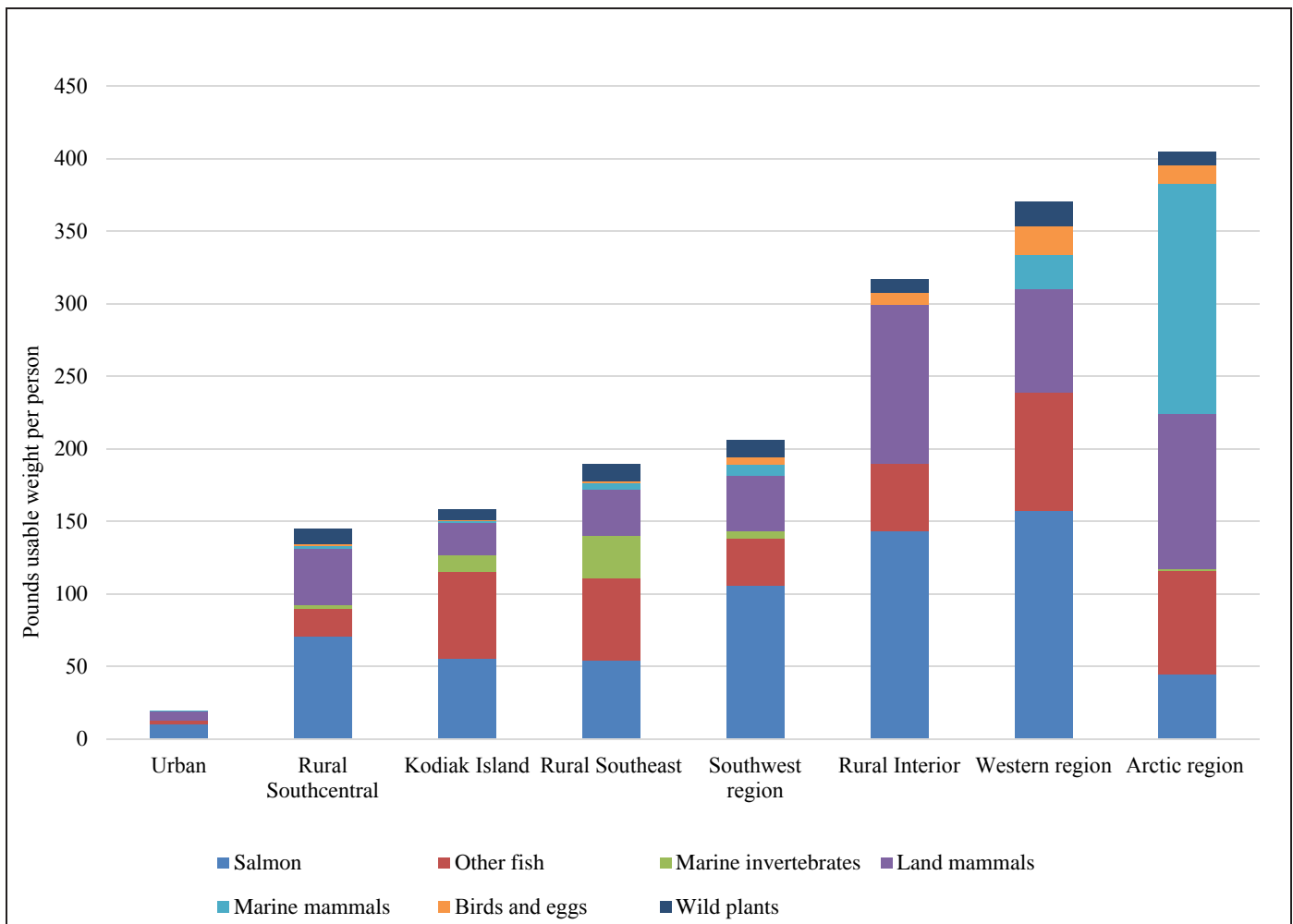


Figure 2.—Harvests of wild resources by category and area, pounds per capita, 2014.

the equipment and supplies needed for hunting, fishing, and processing. Community sustainability relies on the health of both economic sectors.

What is generally referred to as “subsistence” in Alaska is, in fact, a wide range of distinct, localized traditions established by identifiable communities that reflect local ecological, economic, and cultural factors (Wolfe 2004:52–55).³ Wild food harvesting and processing support, and in turn depend upon, indigenous and local knowledge, families working together, and noncommercial sharing and trade.

Attaching a dollar value to wild food harvests is difficult, because most resources used for subsistence products do not circulate in markets, and there are few store-bought foods that match the cultural and nutritional values of wild fish and game. However, if families did not have wild foods, substitutes would

need to be purchased. Assuming a cost of \$4.00 to \$8.00 per pound, the simple “replacement value” of the rural Alaska wild food harvest would be about \$137–\$275 million, and about \$184–\$368 million for the harvests by all Alaska communities (Fall 2016b).

ASSESSING FOOD SECURITY IN ALASKA

The USDA administers an annual, nationwide survey to assess food security. For the most recent three-year average available (2014–2016), 87.0% of the United States’ population was found to be food secure, 7.8% was food insecure, and 5.2% was very food insecure. For the same period, the USDA food security findings for Alaska were 87.3% food secure, 9.1% food insecure, and 3.6% very insecure (Coleman-Jensen et al. 2017).

Since 2003, the Division of Subsistence of ADF&G has administered a modified version of the USDA questionnaire as a food security module within comprehensive household surveys in over 100 Alaska communities. Working closely with the USDA, the module was modified to account for differences in access to wild and store-bought foods and to record

3. In this overview, all harvests of fish, wildlife, and wild plants for local, noncommercial uses by rural Alaska communities are considered subsistence harvests. Statewide totals and harvests by communities within nonsubsistence areas are referred to as “wild food harvests” to reflect the range of regulatory categories under which these harvests occur.

the months in which any reported food-insecure conditions occurred. Figure 3 provides an example of how the food security findings are reported for specific communities in division technical papers. Some broad findings include:

- Food security scores in 99 Alaska communities in which the module was administered between 2009 and 2017 ranged widely, from 100% of households food secure to about 54% of households food secure (Figure 4).
- In 42 of these communities (42%), 87% or more of households were food secure, equal to or higher than the USDA average score for Alaska for 2014–2016; in 31 communities (31%), between 75% and 87% of households were food secure, while in 26 communities (26%), less than 75% of households were food secure.
- An analysis of food security scores for 1,113 households in 25 Yukon and Kuskokwim River communities for study years 2009, 2010, and 2011 found that 77% of households were food secure, 11 percentage points below the USDA findings for Alaska overall in those years (Magdanz et al. 2013).
- In that same analysis, household maturity, access to subsistence foods, and cash income were found to be related to food security. Some low-income households were forced to choose between using limited cash to heat their homes or to obtain food, illustrating a seasonal pattern to food security (Magdanz et al. 2013).

WHAT ARE SOME THREATS TO FOOD SECURITY IN ALASKA? WHAT INHIBITS HARVESTS AND USES?

During household surveys, the Division of Subsistence asks respondents to compare their wild resource harvests and uses in the study year to other recent years and offer explanations for any changes.

- Top reasons for lower uses of wild foods reported by respondents in 22 communities in 2014 included: lack of harvest effort, resources less available to harvest, lack of time to harvest due to work conflicts, other personal reasons (such as illness or changes in household composition), and less sharing among households (Figure 5).
- Of all households in these 22 communities who used wild resources in 2014, most reported getting enough of each category, but many said they did not obtain enough wild foods, and for some, the impact was severe (Figure 6).

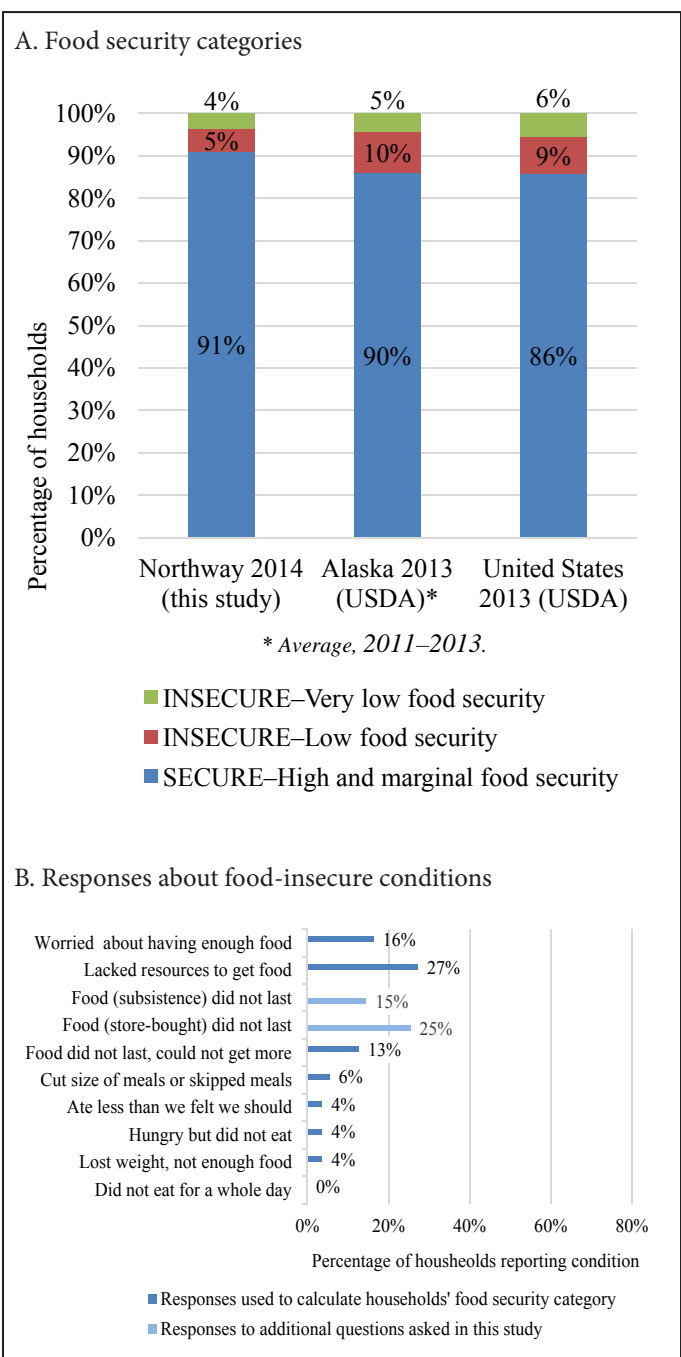


Figure 3.—A. Comparison of food security categories, Northway, 2014. B. Responses to questions about food-insecure conditions, Northway, 2014.

Key respondents cited climate change and related changes in environmental conditions as a major threat to subsistence harvests and food security. According to respondents, these changes are affecting uses of wild resources in numerous ways, including reduced populations, more invasive species including parasites, shifting migration patterns (locations and timing), increasingly difficult and unpredictable travel conditions, problems using traditional gear and harvest methods associated with ice (such as traps and nets deployed under ice, and ice fishing with



A moose harvest at Chalkyitsik, Interior Alaska. Land mammals provide a significant portion of the food supply in many rural Alaska communities.

hook and line), and food processing and storage challenges. (See also ADF&G 2010; Yoder 2018.)

Another threat to food security for rural Alaska communities is increasing reliance on store-bought foods, as evidenced by a drop in subsistence harvests. Rural subsistence harvests statewide declined from about 400 pounds per person in the mid-1980s, to 350 pounds per person in 2000, and 275 pounds per person in 2014 (Fall 2016a; Fall 2016b). Although subsistence harvests remain substantial, this decline could be evidence of food acculturation, which often results in substitution of poorer quality and less nutritious store-bought foods for locally produced subsistence foods. Especially, if young people are less involved in subsistence activities, an erosion of skills, knowledge, and values can result.

Increasing costs of fuel and equipment, coupled with the increasing scarcity of jobs (including seasonal jobs such as commercial fishing), are other threats to the sustainability of wild food harvests and food security, according to key respondents. Fewer families may be able to afford to harvest adequate supplies of fish and game, and may increasingly rely on others to provide them with subsistence foods, or do without.

The safety of wild foods with regard to environmental contaminants is another threat to food security. Investigations of potential health concerns need to be coupled with appropriate risk communication so as not to inhibit use of nutritious and safe local foods.

Other threats to rural food security frequently brought up during household surveys, key respondent interviews, and community meetings include competition with well-equipped non-local hunters, inappropriate regulations (e.g., seasons, limits), and inflexible procedures for changing regulations in response to climate change. Also of concern are development projects that can cause declines in fish and wildlife populations, restrict access to harvest areas, or increase competition for these resources (Wolfe and Walker 1987). For further discussion of the “drivers of food (in)security” in Alaska, see ICC 2015: 45–78.

WHAT CAN BE DONE TO ENHANCE ALASKA FOOD SECURITY AS IT RELATES TO FISH AND WILDLIFE?

Food security in Alaska communities, and especially in rural communities, is vulnerable to disruptions in the supply of, and access to, fish, wildlife, and wild plant resources. Several overviews describe strategies to address challenges to the key role of wild

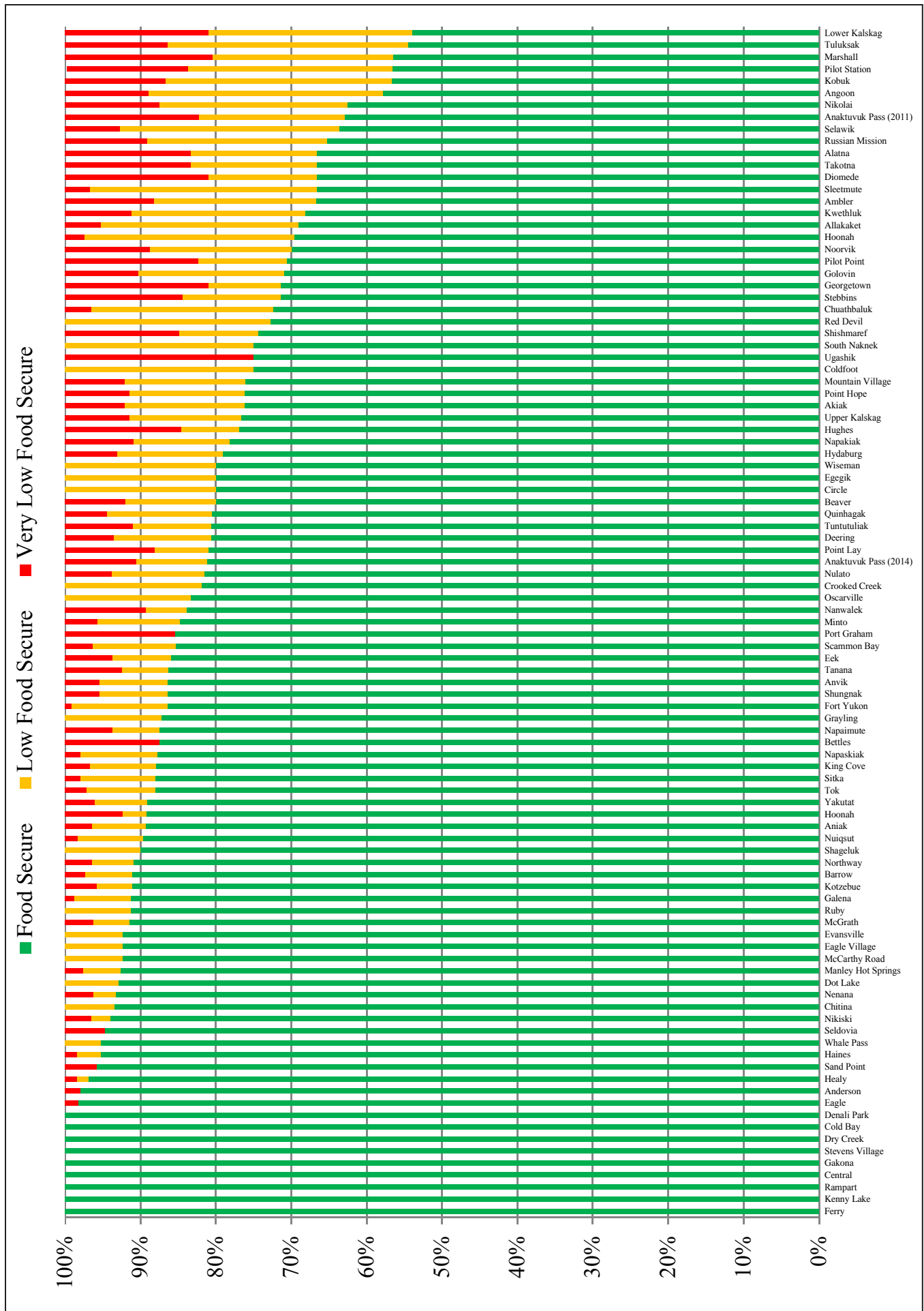
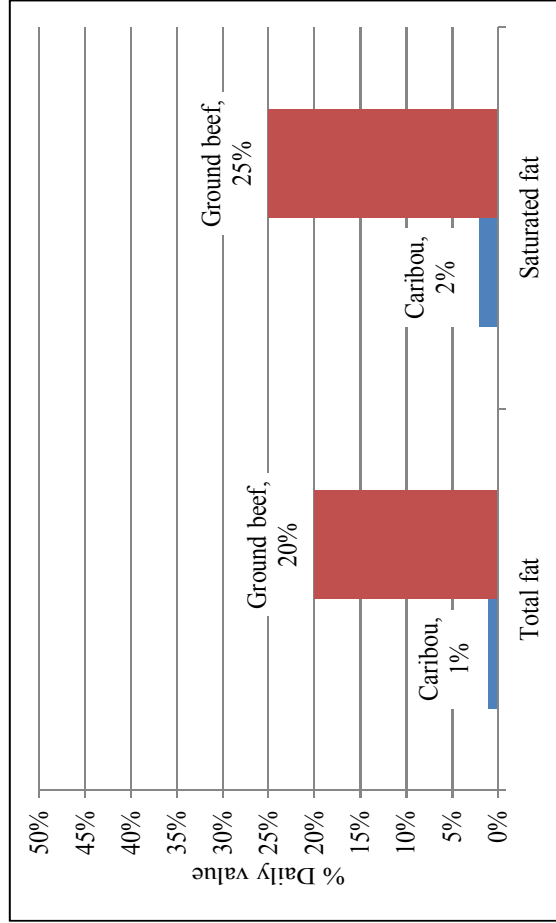
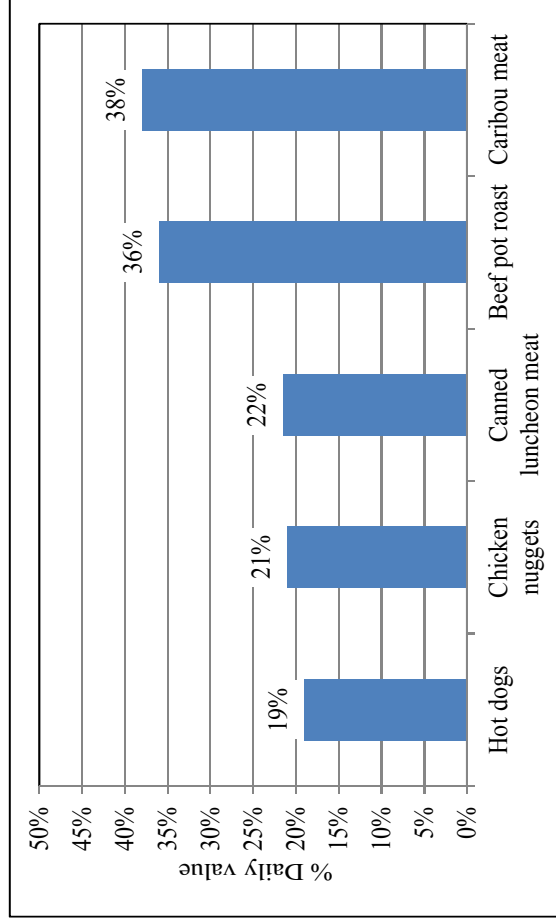


Figure 4.—Percentage of households by food security category, selected Alaska communities, 2009–2017.

Some nutritional comparisons of wild and store-bought foods



Compared to ground beef, the recommended 3 ounce serving size of caribou has only 5% of the total fat and 8% of the saturated fat; in terms of the recommended percent of daily value for fat and total fat, caribou has only 1–2% per serving, respectively, while ground beef provides 20–25%.



A serving of caribou meat provides nearly twice as much of the recommended daily intake of protein as common store-bought foods such as hot dogs, chicken nuggets, and canned luncheon meat and is comparable in terms of protein to that of a beef pot roast.

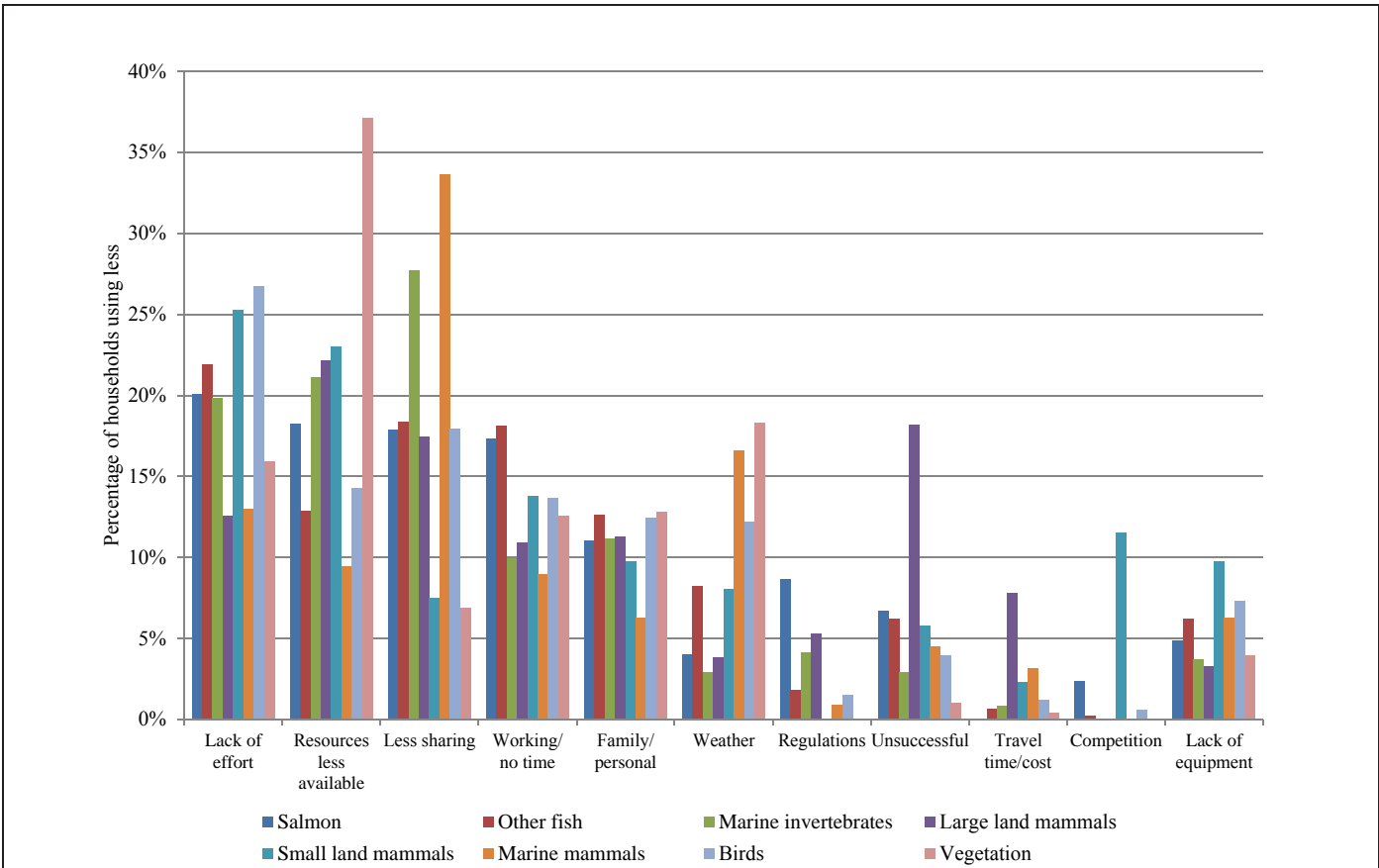


Figure 5.—Reasons for using less by resource category, 22 Alaska communities, 2014.

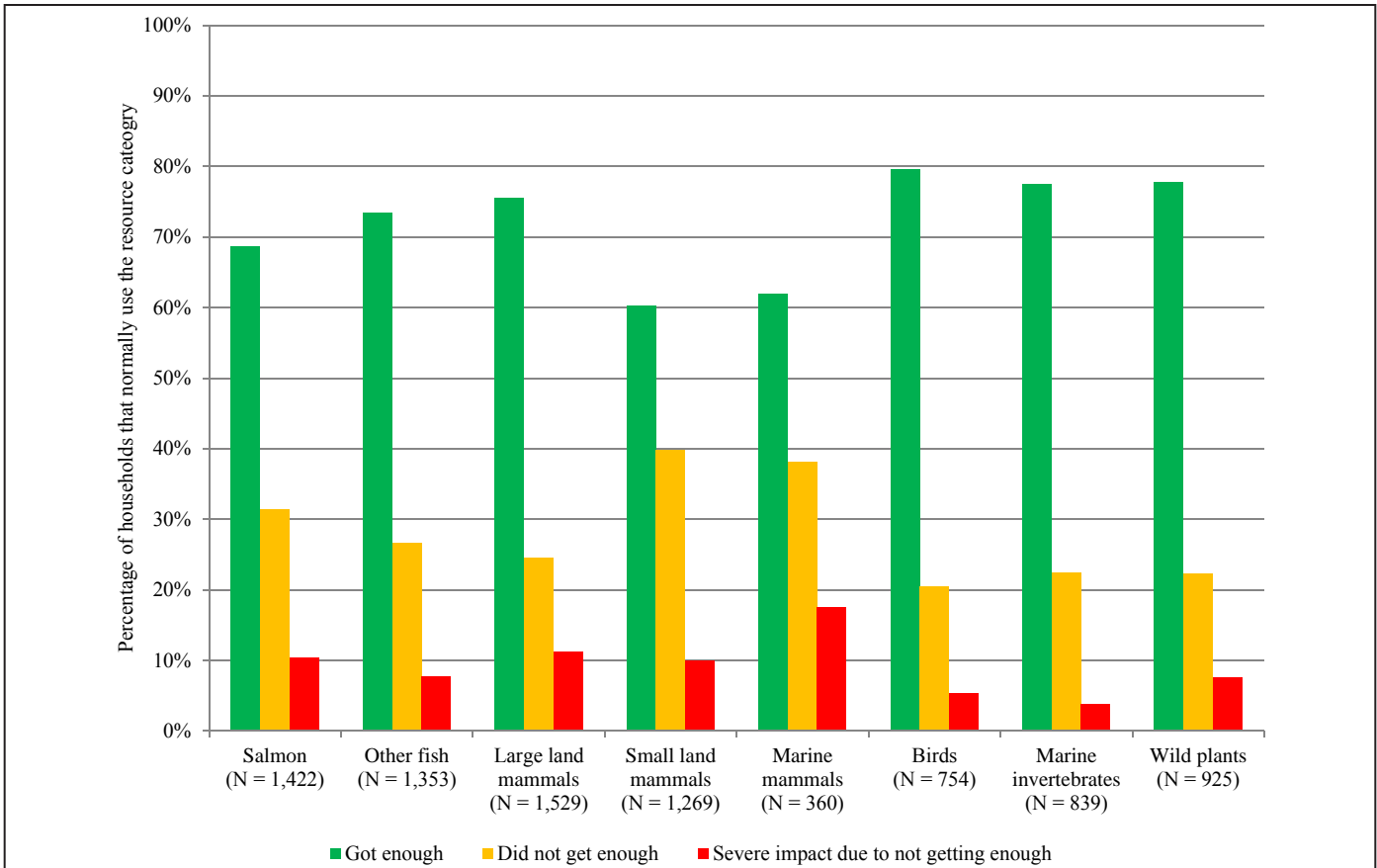


Figure 6.—Households' assessments of whether they obtained "enough" of each resource category, 22 Alaska communities, 2014.



Salmon drying at St. Marys. Statewide, salmon make up the largest portion of subsistence, personal use, and sport harvests for food.

resource harvests in Alaska food security (Meter and Goldenberg 2014:143-147; ICC 2015:48–79; Alaska Food Policy Council 2012; Burke 2013; Yoder 2018:44.) Among the key recommendations are:

- Support and enhance sustainable fish and wildlife management.
- Support and enhance involvement of resource users in the fish and wildlife management system, including the documentation and application of local and traditional knowledge and observations.
- Promote regulatory flexibility in response to changes in the timing, distribution, and abundance of fish and wildlife populations.
- Improve the availability of commercially harvested salmon and other fishery resources to Alaskans. Overall, 98% of the fish and wildlife harvested in Alaska is taken in commercial fisheries (Fall 2016b), but Alaskans often have difficulties obtaining seafoods from local commercial fisheries at affordable prices (Loring et al. 2013).
- Promote the use of subsistence foods in institutions such as hospitals and school lunch programs.
- Recognize and track subsistence production in state economic indices.
- Encourage flexible work and school schedules to enable involvement in subsistence activities.
- Learn more about the wild food harvest and use patterns of urban subpopulations, including the noncommercial distribution of rural harvests into urban areas.
- Make information about the nutritional benefits of wild foods more readily available.
- Respond to concerns about contamination of wild foods, invasive parasites, and wildlife diseases, with balanced risk communication.
- Encourage involvement in subsistence activities by all age groups through family activities, culture camps, and school curricula.

SOME CURRENT INITIATIVES TO ENHANCE FOOD SECURITY THROUGH THE USE OF LOCAL WILD FOODS

Following is a brief list of selected actions that are enhancing access, availability, and/or sustainability of uses of wild foods to promote local food security and the local food system in Alaska.

Wild Foods and Policy

- The Alaska Department of Environmental Conservation (ADEC) Alaska Food Code includes language regarding traditional foods and the donation of traditional foods to institutions



Diverse harvests support resilience in Alaska's food system.

and nonprofit organizations such as child care facilities, school lunch programs, and senior meal programs.

- A Seal Oil Task Force convened in 2015, in coordination with ADEC and continues to work toward an ADEC-approved hazard analysis/critical control point plan for processing seal oil for use in settings such as the Kotzebue-based Maniilaq Association's long-term elder care program (Utuqqanaat Inaat).

Wild Foods in Facilities and Models for Preservation

- The Maniilaq Health Center has a Traditional Foods Program within their elder care program, implements a Hunter Support Program to aid in providing food for the elder care program, and has built and utilizes Sigluaq, an in-ground-cold-storage and processing facility based on traditional practices.



Processing the subsistence king salmon harvest, Tyonek: food security in Alaska depends upon passing on knowledge, skills, and values from one generation to the next.

- The Alaska Native Medical Center (in Anchorage) receives wild food donations and incorporates those foods into the patient menu.
- Fish to School programs across the state, such as that supported by the Sitka Conservation Society, have established a model for obtaining, processing, and preparing local fish as well as guidelines for navigating legal and policy matters and integrating a fisheries curriculum into Alaska classrooms.
- Iliisaġvik College’s apprentice program, based in Utqiagvik, offers flexible scheduling of classes and employment shaped in part by seasonal subsistence activities such as whaling.

Direct Access to Local Wild Foods

- Community Supported Fisheries (CSFs) across the state facilitate a direct market for Alaska seafood between commercial fishing operators and consumers, increasing transparency within the local food system and access to locally caught seafood.
- Catcher/Seller permits, issued by ADF&G, allow fishermen to sell their own unprocessed catch directly to the public, grocery stores and restaurants, and ADEC Waivered Buyers, often from their boats at the dock and at prices that are favorable for both consumer and fishermen.

Work Calendars that Accommodate Subsistence Activities

- In 2017, the Lake and Peninsula School District adopted a calendar that accommodates subsistence activities of local communities, allowing for more hunting, fishing, and gathering opportunities for children with their families.



Distribution of walrus, Togiak, Bristol Bay, Alaska. Sharing of subsistence harvests, a key cultural value, supports food security in Alaska communities.

Assessing progress in maintaining and enhancing the role of local wild resources in Alaska food security can be achieved through continuing administration of ADF&G’s revised food security module as well as periodic estimates of wild food harvests through household surveys and outreach, and monitoring of community-initiated and maintained programs that promote food security through traditional activities.

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