

FOOD SYSTEM ASSESSMENT

Prepared for:
Alaska Department of Health and Social Services,
Obesity Prevention and Control Program

Prepared by:
Virgene Hanna
Rosylnd Frazier
Khristy Parker
Irina Ikatova



Institute of Social and Economic Research
University of Alaska Anchorage
3211 Providence Drive
Anchorage, Alaska 99508
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Background

Members of the Alaska Department of Health and Social Services, Section of Chronic Disease and Health Promotion contacted ISER to develop an agreement to conduct a food assessment for Alaska—a report on what was known, and what was not known, about the food system in Alaska. The state provided several examples of food assessments done in other states or regions. We agreed upon a model that combined major components from other assessments. ISER’s task was to locate, compile, and describe indicators for each component and to note potential concerns with any indicators.

Food assessments are conducted for different reasons such as creating a more sustainable commercial food production system or to target particular policies. The main focus of this effort was to locate indicators that could be updated regularly so current information would be readily available and so that changes or trends could be monitored. Without knowing the current state of food-related indicators it’s difficult to make informed decisions about which issues and goals are priorities. The ability to maintain an ongoing and up-to-date set of indicators was a decision point in the selection of indicators. The selection criteria for the indicators were:

- 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.

The results of our search for data that fulfilled these requirements are incorporated in this document. We start with an overview of the food system model we used. Chapter 2 is a demographic overview of Alaska’s residents. The next five chapters present the indicators for each of the components of the food system. Chapter 8 contains the data we think would be need to develop a better picture of Alaska’s food system. The final section of this report is an index_of the indicators: the name of the indicator, where the indicator appears in this report, the years of data included, the source (the agency or organization that produced the data), the source title for the data, and the location of the data, usually a Web address.

Chapter 1: The Food System Model

There are varying definitions of a food system, the definition used here consists of five core components: 1) production; 2) distribution; 3) food preparation and preservation or processing; 4) food use and consumption; and 5) the recycling and disposal of food wastes. ¹ The use of these components came from examining different assessments and determining this breakdown seemed the best fit for our purposes. In this section we give an overview of each component and its indicators.

Production

These activities involve producing plants and animals for food and other related products. Also included in food production is how food products are developed through aquaculture techniques as well as how food is processed into value added and non-perishable products. Production also includes non-commercial community or school gardens, greenhouses, backyard gardening, and similar activities. ¹

The major components in production include

Agricultural and Aquatic Resource Indicators

- Organic Agriculture
 - Number of certified operations, crops (acres), etc.
 - Sales of Organically Produced Commodities on Certified and Exempt Organic Farms
- Farm Characteristics
 - Total farmland, cropland, woodland, pastureland, conservation practices, average farm size (acres), farms by size and sales, tenure of farmers, farm organization, characteristics of principal farm operators, etc.
 - Farm financial Indicators
 - Number of farms, agricultural sector output, net farm income, etc.
- Agricultural Commodities and Exports;
- Seafood Industry
 - Harvests by fishery, etc.
 - Exports
- Subsistence
- Sport Fish
- Economic Productivity Indicators
 - Agricultural products by gross sales, gross agricultural production, etc.

Urban Production Indicators

- Community gardening
- Community Supported Agriculture (CSA)

Distribution

Distribution is the food system component that includes the networks and processes involved in transporting food from farms, factories, or warehouses to places where it can be purchased, used, or consumed. It involved the networks of people, companies, and institutions that transport, process, and store food from food productions sites before delivering it to stores or other entities that sell it to consumers. In most cases, distribution happens through the use of wholesalers. Other means of distribution are farmers' markets, farm-to-restaurant or farm-to-institution programs.

Food Distribution Network Indicators

- Number of farm-product, raw-material wholesalers; number of food manufactures; number of food retailers; number food servers; number farmer's markets; number Community Supported Agriculture.
- Economic Indicators: food manufacturers net value added to products, farm product wholesalers' gross receipts, food wholesalers' gross receipts, food retailers' gross receipts, food servers' food receipts, etc.
- Food transportation
- Food storage

Processing

Processing includes all activities that add value to food or transform food into food products. For example, slaughtering, butchering, harvesting, and packaging are all aspects of food processing. Food processing is a segment of food production.¹

Processing Indicators

- Meat processing
- Seafood processing
- Employment and wages

Consumption

Consumption in the food system refers to all activities and processes by which an individual acquires and utilizes food after it has been produced and distributed. Retail food stores are the primary way that most residents acquire food. Farmers' markets provide another venue for food retail, where food is sold directly from the farmer or producer.¹

Food Consumption Indicators

- Total food expenditures
- Per Capita food expenditures
- UAF Cooperative Extension Service Food Cost survey
- The Anchorage Consumer Price Index
- Dollars spent on food, home vs. away
- Ratio of food consumed home vs. away.

The consumption component can be further examined in its relationship to food security. Food security refers to the ability of all people to have access at all times to enough food for an active, healthy life. According to the U.S. Department of Agriculture, there are several elements of food security: 1) availability of nutritionally adequate and safe foods; and 2) ability to get acceptable foods in socially acceptable ways, namely “without resorting to emergency food supplies, scavenging, stealing, or other coping strategies.” Government subsidized food programs and charitable feeding programs exist to support individuals and families who cannot meet their basic food and nutrition needs with household income alone.¹

Food Security Indicators

- Poverty:
 - Percent of Alaska’s population below poverty line;
 - Percent of Alaska’s population receiving public assistance;
 - Percent of Alaska’s population receiving Earned Income Tax Credit;
 - Average monthly participation for TANF;
- Food Insecurity Among Households;
- Food Bank
- Federal Nutrition Programs Participation:
 - School Breakfast program, National School Lunch Program, SNAP/Food Stamp Program, WIC, Child and Adult Care Food Program (CACFP), the Emergency Food Assistance Program (TEFAP), Commodity Supplemental Food Program (CSFP), Food Distribution Program on Indian Reservations (FDPIR).
- Food security and access are also closely linked to health status.

Health Status Indicators

- Obesity/overweight rates;
- Percent of low-birth weight babies;
- Food borne outbreaks.

Waste management/Recycling

Food is lost in every stage of the system; the amount and where it’s lost are key indicators of the efficiency of the system. Recycling in the food system refers to the activities and processes in which discarded food waste is collected, sorted, and converted into other useful material.¹

¹ San Francisco Food Alliance, 2005 San Francisco Collaborative Food System Assessment; <http://www.sfgov3.org/Modules/ShowDocument.aspx?documentid=780>

² U.S. Census Bureau, 2010 Census, *State & County QuickFacts*; <http://quickfacts.census.gov/qfd/states/02000.html>

Chapter 2: Demographic Indicators

Overview

Food is the source of energy for all humans and the reason why we have a food system. A key to understanding this system is to know the participants, the roles they play, who they are, and the ways in which they contribute. A description of the people and households provides context and can yield insight into the consequences of how changes in the food system can affect the Alaska population and vice versa.

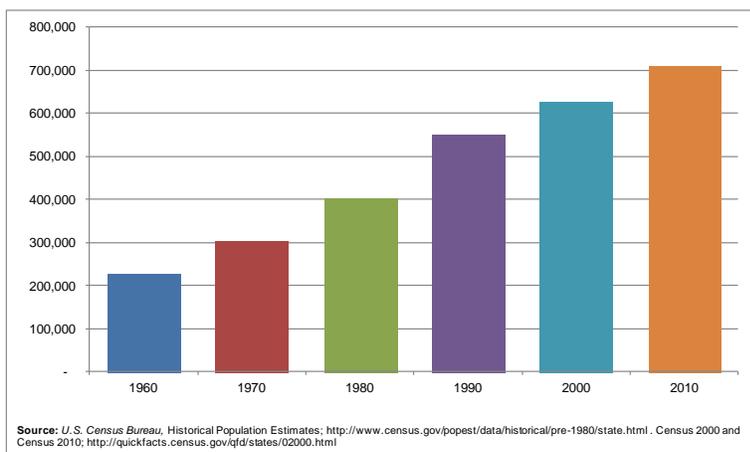
The demographic picture of Alaska has changed significantly in the past several decades, particularly in its total population, increased ethnic and racial diversity, the degree of urbanization, and the aging of the population. This chapter discusses these and related issues in more detail.

Alaska experienced a 214 percent increase in population between 1960 and 2010. One result of this growth is that Alaska has become a more diverse society. The majority of Alaska residents are White, Alaska Natives constitute the next largest racial group. Asian, Native Hawaiian, and multi-racial individuals are among the fastest-growing groups in the state. The changing demographics of Alaska present challenges as well as opportunities for the food system. The increase in population and its diversity offers a favorable market for locally-produced products. Yet, the desired foods are not always suitable for local production, accessible, or affordable.

Recently, Alaska's economy has fared much better than the rest of the country, enjoying higher median and per capita income and lower unemployment and poverty rates. The final section of this chapter examines income, employment, and poverty in Alaska.

Population

Figure 2.1: Alaska Population, 1960-2010



Alaska is the largest state in the United States—more than twice the size of Texas—spanning some 571,951 square miles, or about 16.2 percent of U.S. land. It is home to about 710,231 people, or about 0.23 percent of the U.S. population.² As Figure 2.1 shows, between 1960 and 2010 the population in Alaska grew significantly - by 214 percent - adding 484,064 people.

Table 2.1. Population Growth: Alaska and U.S., 1960-2010

Year	Alaska	U.S.
1960	-	-
1970	32.8 %	13.3 %
1980	33.8	11.5
1990	36.9	9.8
2000	14.0	13.2
2010	13.3	9.7

Source: U.S. Census Bureau ; <http://www.census.gov/popest>

The rate of population growth slowed in the 1990s and 2000s, (see Table 2.1). Much of this growth is attributed to natural increase (births minus deaths).³ It is also a reflection of Alaska’s changing demographics with an aging population and more retirees remaining in the state.

Table 2.2: Population Growth Projections for Alaska, 2009-2034

Year	Projections	% Change
2009	698,183	-
2014	723,619	3.6 %
2019	758,613	4.8
2024	794,975	4.8
2029	828,867	4.3
2034	862,750	4.1

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section, Alaska Population Projections: 2010-2034, Table 1.4; <http://labor.alaska.gov/research/pop/popproj.htm>

The population in Alaska is projected to continue to increase through the year 2034. According to the *Alaska Population Digest 2009*, the rate of growth will continue to increase until 2024, declining (but still positive growth overall) until 2034 (See Table 2.2).

Despite its population growth, the population density (number of persons per square mile) in Alaska remains one of the lowest in the country – 1.2 persons per square mile (See Table 2.3).

However, population density varies significantly between boroughs and census areas. For example, there are 171.24 persons per square mile in the Municipality of Anchorage, while the Yukon-Koyukuk Census Area averages less than 0.04 persons per square mile. Such variations pose different regional challenges for food systems in Alaska.

Table 2.3: Alaska Population and Population Density, 1960-2010

Year	1960	1970	1980	1990	2000	2010
Population	226,167	300,382	401,851	550,043	626,932	710,231
People per square mile	0.4	0.5	0.7	1.0	1.1	1.2

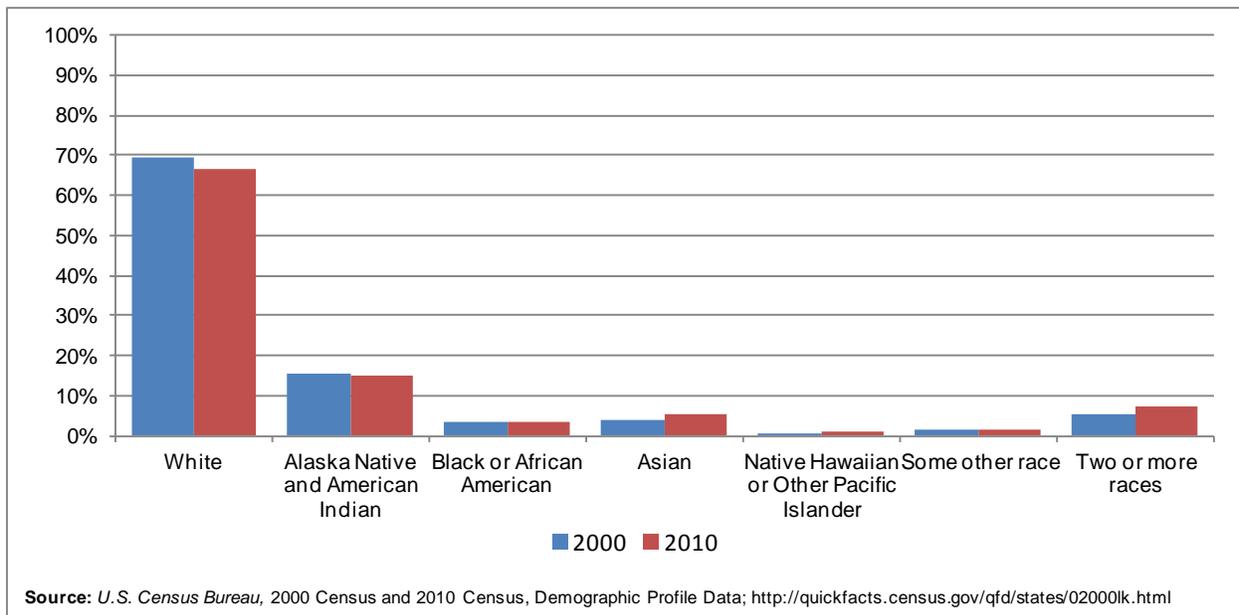
Source: U.S. Census Bureau; <http://2010.census.gov/2010census/data/apportionment-dens-text.php>

Race and Ethnicity

In 2000, 69 percent of Alaska’s population was White; in 2010, 67 percent of the population was White. Alaska Natives are the second-largest racial group in Alaska, constituting nearly 16 percent of the Alaska population in 2000 and 15 percent in 2010 (See Figure 2.2). Native Hawaiian and Pacific Islander, Asian, and multi-racial individuals represent the fastest growing segments of the state population. The percentage of Native Hawaiian and Pacific Islander almost doubled since 2000, from 0.5 percent to one percent in 2010. The Asian population in Alaska grew from 4 percent in 2000 to 5.4 percent in 2010, while the percentage of multi-racial individuals increased from 5.4 percent in 2000 to 7.3 percent in 2010.

Racial and ethnic diversity can bring more opportunities to strengthen local food systems by introducing a greater variety of desired foods, cultural food niches, specialty markets, and increases in local production.

Figure 2.2: Racial Distribution in Alaska, 2000, 2010



Urban and Rural Population

Based on the Census Bureau classification, urban areas are those with at least 2,500 people; rural includes all population, housing, and territory not a part of an urban area.⁴ As of 2010, more than 67 percent of Alaskans live in urban areas, while 33 percent live in rural areas. As Table 2.4 indicates, Alaska’s urban population has increased by nearly two percent over the past 10 years, meaning that the rural population has decreased by nearly two percent in the same period.

There are different opportunities and challenges for food systems in urban and rural areas. Residents in urban areas tend to be consumers of food rather than producers. In addition, urban residents usually choose from a greater variety of foods than their rural counterparts do.

Table 2.4: Urban and Rural Population in Alaska, 2000 and 2010

	2000		2010	
	Number	Percent	Number	Percent
Total population	626,932	100.0 %	710,231	100.0 %
Urban population	411,257	65.6	478,402	67.4
Rural population	215,675	34.4	231,829	32.6

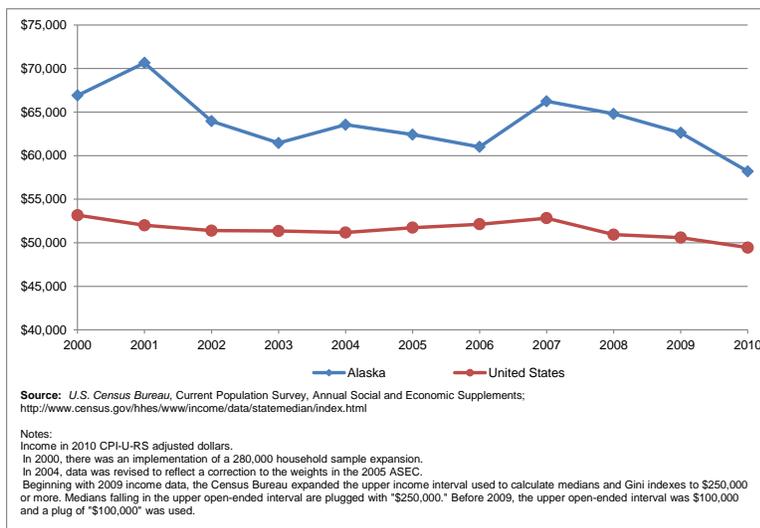
Source: U.S. Census Bureau ; Census 2000, Table GCT-P1 and Census 2010, Table PCT2; <http://factfinder2.census.gov/>

Alaska’s rural areas are generally more remote than rural areas in the lower 48. Many rural areas in Alaska are accessible only by air or boat, depending on the season. Food delivery may be delayed for weeks, even months, as a result of inclement weather. Because of the cost, time

required, and complicated distribution system, preservation, and storage limitations; there is less variety in the foods available in bush communities.

Income and Employment

Figure 2.3: Median Household Income: Alaska and U.S., 2000-2010



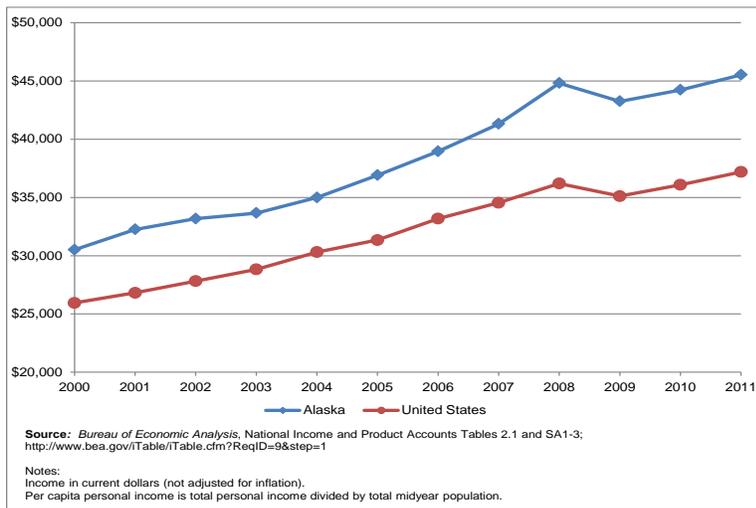
The estimated median household income in Alaska has consistently been higher than the national average (See Figure 2.3). The fluctuations in the Alaska data are most likely the result of the small sample size. These data also don't consider the higher cost of living in Alaska. Over the ten-year period from 2000-2010, the median household income for both Alaska and the U.S. decreased. In Alaska, the 2000 median income was \$66,910 and the median income in 2010 was \$58,198, a reduction of 13 percent. In comparison, the U.S.

median income in 2000 was \$53,164 and the median income in 2010 was \$49,445, a reduction of only 7 percent.⁵

An important income measure for the food system is per capita income. In order to accurately estimate future food demand, it is important to understand the distribution of per capita income and its effect on the types of foods purchased by individuals. When attempting to determine demand, one assumes that there is a minimum amount of food needed for survival as well as a maximum amount as determined by our own physiology. According to Engel's law, the proportion of income spent on food decreases as

income increases. However, income is not the only factor one must consider when attempting to determine the food demands in a community. Household size and, in particular, the number of children are important factors that affect the income–food demand relationship. Since different foods require different resources for production, we must consider Bennett’s Law in conjunction with Engel’s Law. Bennett’s Law explains the shift from “starchy staples to more fatty foods” as income levels increase in a society.⁶

Figure 2.4: Per Capita Income: Alaska and U.S., 2000-2011



Between 2000 and 2011, Alaska per capita income increased from \$30,508 to \$45,529, an increase of nearly 50 percent. The national per capita income increased from \$25,946 to \$37,191, or more than 43 percent. As of 2011, the per capita income in Alaska was more than 22 percent higher than the national per capita income. Higher income has important implications for local food systems, allowing for more disposable income that may be spent on more expensive food. (See Figure 2.4)

Although per capita income has consistently increased in Alaska since 2000, some sectors are seeing significant decreases in income. As seen in Table 2.5, nonfarm personal income increased by 64 percent between 2000 and 2010. Alternatively, farm income decreased significantly, from \$20,731 to 5,054, or 76 percent.

According to the Bureau of Economic Analysis (BEA), between 2000 and 2009, average annual employment in Alaska increased by 14 percent (53,296). As shown in Table 2.5, employment has consistently increased in Alaska since 2000. Of note, however, is the leveling off of employment between 2008 and 2009, where in 2009 total employment increased by only 46 jobs.

Table 2.5: Alaska Income and Employment Summary, 2000-2010

Year	Nonfarm Personal Income¹	Farm Income²	Per Capita Personal Income³	Total Employment
2000	\$19,137,200	\$20,731	\$30,508	392,367
2001	\$20,418,809	\$19,157	\$32,251	401,252
2002	\$21,290,056	\$18,758	\$33,174	405,155
2003	\$21,812,564	\$11,093	\$33,657	408,502
2004	\$23,056,307	\$14,059	\$34,993	417,158
2005	\$24,603,957	\$13,374	\$36,911	425,003
2006	\$26,294,540	\$9,081	\$38,951	434,404
2007	\$28,100,303	\$7,274	\$41,316	442,225
2008	\$30,804,799	\$4,313	\$44,816	445,669
2009	\$30,226,319	\$6,882	\$43,259	444,750
2010	\$31,580,186	\$8,916	\$44,233	447,852
2011	\$32,895,579	\$9,404	\$45,529	N/A

Source: Bureau of Economic Analysis, National Income and Product Accounts, Table SA04; http://www.bea.gov/iTable/index_regional.cfm

¹ Nonfarm personal income is total personal income less farm income.

² Farm income is farm earnings less farm employer contributions for government social insurance

³ Per capita personal income is total personal income divided by total midyear population. Midyear population estimates of the Census Bureau. The Census Bureau has not yet released intercensal population estimates that incorporate the results of the 2010 Decennial Census. The estimate of population for 2010 is the April 1, 2010 count.

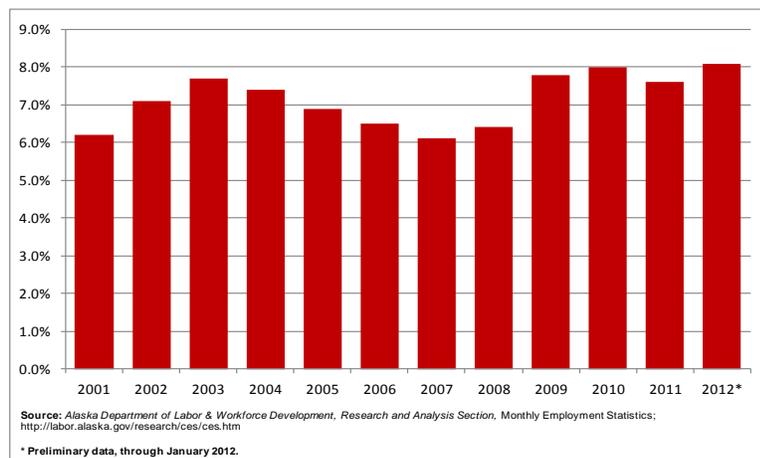
N/A - Data not available for this year.

Figure 2.5: Alaska Annual Average Monthly Employment, 2001-2011

Employment and income data are important for the analysis of food systems because these indicators affect people’s ability to have access to and acquire adequate and nutritious foods. Alaskans who are unemployed or have lower incomes may not be able to afford food or tools necessary to obtain adequate and nutritious food.

Overall, Alaska annual monthly employment increased by nearly 14 percent from 2001 to 2011 (See Figure 2.5).

Figure 2.6: Trends in Alaska Unemployment Rate, 2001-2012



As important as employment rates, and some may say even more so, are unemployment rates. According to Labor, between 2000 and 2011, the unemployment rate in Alaska was at its lowest in 2007 at 6.1 percent and the highest in 2010 at 8 percent (See Figure 2.6).

The current unemployment rate in Alaska (preliminary February 2012) is the highest it has been during this time period at 8.1 percent, showing

an increase of nearly 31 percent since 2000. Usually, the Alaska unemployment rate tends to be higher than the national unemployment rate; however, with the recent recession the opposite has been true.

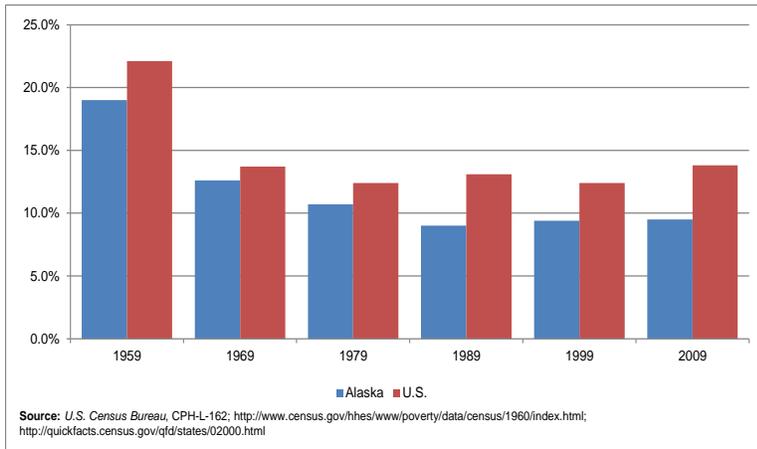
Note: There is a discrepancy in reported employment rates between the BEA and the State of Alaska Department of Labor & Workforce Development (Labor). This is the result of different methodologies used to compute employment rates. BEA reports all employment, while the data presented by Labor excludes self-employed workers, fishers, domestics, and unpaid family workers. The main difference in the reported data is that Labor shows Alaska having a drop in employment from 2008 to 2009, but increases resuming in 2010 and 2011 (See Figure 2.5). In addition, the denominators are different; BEA uses estimates from federal sources while Alaska’s Labor uses numbers adjusted by Permanent Fund Dividend recipients. The raw numbers are different, but the overall picture is very similar.

Poverty

Knowing how many Alaskans live below the poverty line and how many receive assistance is crucial for our understanding of food security. In addition, local producers and growers can collaborate with various government programs to help increase the quality of the diet for local residents who otherwise cannot afford these foods and can also expand local markets. It is important to note that official poverty thresholds are not adjusted for the higher cost of living in Alaska. A few assistance programs, like free and reduced-price meals for school children, are adjusted for Alaska’s higher cost of living.

It is important to note that usually poverty rates are lower and unemployment rates are usually higher than for the nation as a whole, these averages mask some significant geographic variations in trends within the state of Alaska. Large urban areas, such as the Municipality of Anchorage or the Matanuska-Susitna Borough, offer many more employment opportunities and have higher incomes than remote rural areas.

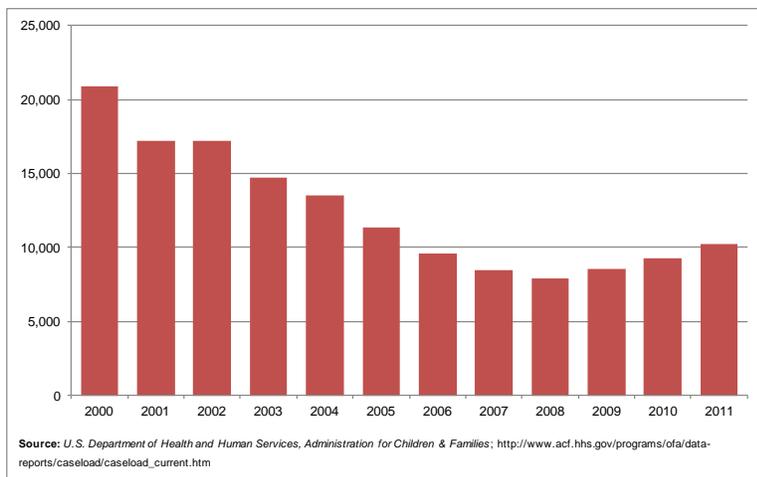
Figure 2.7: Poverty Trends: Percent of Alaska and U.S. Population Below Poverty Line



In 2009, 9.5 percent of Alaskans lived below the poverty level, lower than that in the nation as a whole (13.8%). This number for Alaska has been somewhat constant at around 9 percent since 1989. According to the U.S. Census Bureau, the poverty level in Alaska has consistently been lower than the national average since 1959.

In 1996, Temporary Assistance for Needy Families (TANF) replaced the Aid to Families with Dependent Children (AFDC) program, which had provided cash welfare to poor families with children since 1935.

Figure 2.8: Annual Average Number of TANF Recipients in Alaska, 2000-2011



Under the TANF structure, the federal government provides a block grant to the states, which use these funds to operate their own programs. States can use TANF dollars in ways designed to meet any of the four purposes set out in federal law, which are to: “(1) provide assistance to needy families so that children may be cared for in their own homes or in the homes of relatives; (2) end the dependence of needy parents on government benefits by promoting job preparation, work, and marriage;

(3) prevent and reduce the incidence of out-of-wedlock pregnancies and establish annual numerical goals for preventing and reducing the incidence of these pregnancies; and (4) encourage the formation and maintenance of two-parent families.” TANF also had time limits on receiving benefits; these were extended for some beneficiaries.⁷

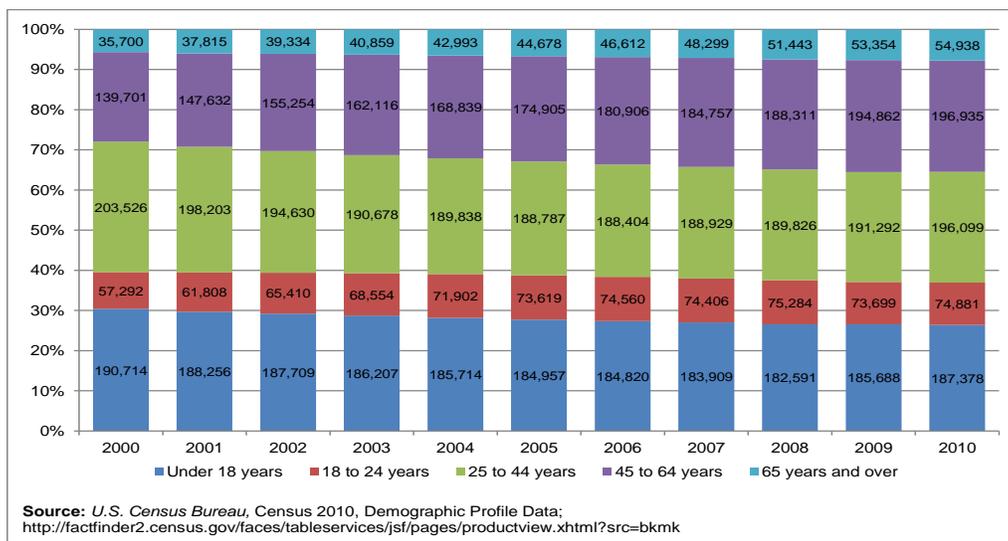
The average number of Alaska TANF recipients declined over 62 percent from 2000 to 2008 (See Figure 2.8). In 2009, the number of TANF recipients began increasing and has increased nearly 30% between 2008 and 2011. Changes in eligibility guidelines, time limits, and renewal procedures have had an impact

on recipients. Despite the recent increases, the number of TANF recipients in Alaska has declined overall by 51 percent between 2000 and 2011.

Age

The changing age structure of the population affects food demand both directly and indirectly. One direct effect in an aging population is lower food demand; demand declines as activity levels and caloric needs decline. A second direct effect is change in dietary composition and the frequency of eating out. Consumption of livestock products may decline, while consumption of fruits and vegetables increase.⁸ Aging populations require a lighter, healthier food basket. This will slowly lead to lower per capita food consumption and a shift in the composition of food demand. These changes will directly affect producers, processors, retailers, and foodservice establishments. Aging populations may have adverse effects on economic growth, a leading driver of food demand. An older and retired population, along with a shrinking workforce, will probably have negative effects on income growth.⁸

Figure 2.9: Population by Age: Alaska, 2000-2010



According to the U.S. Census Bureau, Alaska's overall population is on the rise. For the period from 2000 to 2010, Alaska's population increased by more than 13 percent (See Figure 2.9). The population was segmented into five age groups for comparison. The largest population increase was seen in individuals aged 45 to 64 years (9%), followed by those ages 65 years and over (3%), and 18 to 24 year-olds (3%). Populations under 18 years of age, and 25 to 44 years old saw declines over the time period.

² U.S. Census Bureau, 2010 Census, *State & County QuickFacts*; <http://quickfacts.census.gov/qfd/states/02000.html>

³ Alaska Department of Labor and Workforce Development, *Alaska Population Digest, 2009 Estimates*, 2010.

⁴ U.S. Census Bureau, *Urban & Rural Classification*; <http://www.census.gov/geo/www/ua/urbanruralclass.html>

⁵ U.S. Census Bureau, *Current Population Survey, Annual Social and Economic Supplements*;
<http://www.census.gov/hhes/www/income/data/statemedian/index.html>

⁶ Godfray, H.C.J.; Crute, I.R.; Haddad, L.; Lawrence, D.; Muir, J.F.; Nisbett, N.; Pretty, J.; Robinson, S.; Toulmin, C.; & Whiteley, R. (2010). The future of the global food system. *Philosophical Transactions of the Royal Society*, 365, 2769-2777.

⁷ Schott, L. (2011). *An introduction to TANF*. Center on Budget and Policy Priorities: Washington, D.C.

⁸ Coyle, W., Gilmour, B., & Armbruster, W.J. (2004). Where will demographics take the Asia-Pacific food system? *Amber Waves* (June 2004)

Chapter 3: Production and Harvest

Food production refers to activities that result in the availability of food for consumption, including cultivation of plants and livestock. In this section, we examine the cultivated resources (such as farm products) and the natural resources (such as fish) in Alaska which help provide local, consumable goods to the state – and beyond.

Agricultural Resources

Farm Characteristics

For a young state Alaska has been in the business of agriculture for a long time. The 1959 Census of Agriculture included information for 1900, when it documented 159 acres of land in farms. But that acreage increased rapidly in the next four decades and in the Census of 1939 was 1,775,752.⁹ In Table 3.1, we present data from the Census of Agriculture for 1997, 2002, and 2007. In 2007, Alaska had 881,585 acres, or two-tenths of a percent of the state's total land area, as farmland. Fifty-nine percent of Alaska farms have less than 100 acres of farmland, with 23 percent of Alaska farms between 100 and 499 acres. This means that 82 percent of all Alaska farms are on less than 500 acres.

Over the time period from 1997 to 2007, the amount of farmlands in Alaska has increased by one-tenth of one percent. The size of farms has decreased overall, with farms less than 100 acres increasing by more than 30 percent. With the exception of farms 500 to 999 acres (-8%), other categories of farm size decreased by more than 25 percent. The trend is showing a shift toward smaller farms, with most farms less than 100 acres in size in 2007.

Most farms in Alaska are run by full- or part- owners. In 2007, 12 percent of Alaska farms were run by tenant farmers, a decrease of more than 16 percent since 1997. Sixteen percent of farmers were part owners in their farms, a decrease of nearly 36 percent from 1997, while nearly 73 percent of farmers in Alaska were full owners of their farms – an increase of more than 18 percent since 1997. More than 80 percent of Alaska farms are family-owned, sole proprietorships, four percent less than in 1997. Of special note is the rate at which “other” farm organizations are growing. In 2007, “cooperatives, estate or trust, institutional, etc.,” had increased 205 percent since 1997 while family-held corporations had increased nearly 66 percent in the same period.

Of Alaska's principal farm operators in 2007, the average age is 56.2. Fifty-three percent of farm operators farm as their primary occupation, meaning 47 percent of farm operators have another primary occupation other than farming. Women are taking up farming at a greater pace than men. The number of female farmers has grown by nearly 77 percent since 1997, while the number of male farm operators has increased by more than 14 percent.

Eighty-two percent of Alaska's farms have sales less than \$50,000 per year on average. However, farms with sales over \$50,000 have increased since 1997. The greatest jump as a percentage of total product sales by farms is in the category of sales more than \$500,000 (155%), but still remains the smallest

proportion of all sales at less than three percent. The remaining 15 percent of sales is between \$50,000 and \$499,999.

Table 3.1: Census of Agriculture: Alaska, 1997, 2002, 2007

	1997	2002	2007
Approximate total land area (acres)	365,039,087	366,048,788	366,013,154
Total farmland (acres)	881,045	900,715	881,585
Percent of total land area	0.2 %	0.2 %	0.2 %
Cropland (acres)	94,810	98,131	86,238
Percent of total farmland	10.8 %	10.9 %	9.8 %
Percent in pasture	8.2 %	9.1 %	8.2 %
Percent irrigated	2.8 %	0 %	-- %
Harvested Cropland (acres)	34,227	31,824	30,772
Woodland (acres)	110,916	42,244	41,698
Percent of total farmland	12.6 %	4.7 %	4.7 %
Percent in pasture	68.6 %	13.8 %	10.2 %
Pastureland (acres)	655,852	730,478	737,746
Percent of total farmland	74.4 %	81.1 %	83.7 %
Land in house lots, ponds, roads, wasteland, etc. (acres)	19,467	29,862	15,903
Percent of total farmland	2.2 %	3.3 %	1.8 %
Conservation practices			
Farmland in conservation or wetlands reserve programs (acres)	25,400	29,175	28,298
Average farm size (acres)	1,608	1,479	1,285
Farms by size (percent)			
1 to 99 acres	45.4 %	51.7 %	59.2 %
100 to 499 acres	38.1 %	32.2 %	27.7 %
500 to 999 acres	6 %	6.7 %	5.5 %
1000 to 1,999 acres	4.7 %	4.8 %	3.5 %
2,000 or more acres	5.7 %	4.6 %	4.1 %
Farms by sales (percent)			
Less than \$9,999	59.9 %	59.4 %	58.7 %
\$10,000 to \$49,999	26.1 %	23.3 %	23.2 %
\$50,000 to \$99,999	5.5 %	5.6 %	6.9 %
\$100,000 to \$499,999	7.5 %	9.2 %	8.5 %
More than \$500,000	1.1 %	2.5 %	2.8 %
Tenure of farmers			
Full owner (farms)	332	431	492
Percent of total	60.6 %	70.8 %	71.7 %
Part owner (farms)	136	92	110
Percent of total	24.8 %	15.1 %	16 %
Tenant owner (farms)	80	86	84
Percent of total	14.6 %	14.1 %	12.2 %
Farm organization			
Individuals/family, sole proprietorship (farms)	458	497	550
Percent of total	83.6 %	81.6 %	80.2 %
Family-held corporations (farms)	21	27	43
Percent of total	3.8 %	4.4 %	6.3 %
Partnerships (farms)	43	30	42
Percent of total	7.8 %	4.9 %	6.1 %
Non-family corporations (farms)	15	9	9
Percent of total	2.7 %	1.5 %	1.3 %
Others - cooperative, estate or trust, institutional, etc. (farms)	11	46	42
Percent of total	2 %	7.6 %	6.1 %
Characteristics of principal farm operators			
Average operator age (years)	53.3	55.2	56.2
Percent with farming as their primary occupation	55.8 %	60.8 %	53.2 %
Men	453	492	518
Women	95	117	168

Source: U.S. Department of Agriculture, Economic Research Service ; <http://www.ers.usda.gov/StateFacts/AK.htm>

Organic Agriculture

In 2000, the National Organic Standards Board of the USDA established a national standard for the term “organic.” Organic food must be produced without the use of conventional pesticides, petroleum-based fertilizers, sewage sludge-based fertilizers, herbicides, pesticides, genetic engineering (biotechnology), antibiotics, growth hormones, or irradiation. Animals raised on an organic operation must be fed organic feed and given access to the outdoors. Land must have no prohibited substances applied to it for at least 3 years before the harvest of an organic crop. The National Organic Standard became law on October 21, 2002. The law states that all farms and handling operations that display the “USDA Organic” seal must be certified by a State or private agency that ensures the National Organics Standards are followed. Certifying agents are accredited by the USDA. Farms that follow the National Organic Standards and have less than \$5,000 in annual sales can be exempt from certification. These exempt farms can use the term “organic” but cannot use the “USDA Organic” seal. The USDA’s Economic Research Service calculates the certified organic farmland acreage and livestock in the U.S. annually (Table 3.2).

Table 3.2: Certified Organic Operations in Alaska, 2004-2008

	2004	2005	2006	2007	2008
Number of certified operations	4	7	8	8	8
Crops (acres)	186	205	442	442	442
Pasture & rangeland (acres)	960,000	1,460,000	--	--	--
Total acres	960,186	1,460,205	442	442	442

Source: U.S. Department of Agriculture, Economic Research Service; <http://www.ers.usda.gov/Data/Organic/>

According to the National Agricultural Statistics Service (NASS) at the USDA, there were a total of eight certified organic operations, and eight exempt organic farms, in Alaska as of 2008, with

442 total acres of croplands. Alaska’s certified and exempt organic farms had sales totaling \$472,000 and, according to the 2008 data, 53 percent of these farmers planned to increase organic production over the next five years (2013). This was the first, and so far only, wide-scale survey of organic producers.

Farm financial indicators

The farm financial indicators of crop-production employment earnings and net income both increased slightly. Farm employment and wages increased by the end of the five-year period from 2006 to 2010, but in the intervening years there were fluctuations.(See Table 3.3).

Table 3.3: Crop Production Employment, 2006-2010

	Average Monthly Employment	Average Monthly Earnings	Total Earnings
2006	163	\$1,697	\$3,313,839
2007	151	\$1,822	\$3,307,724
2008	150	\$1,908	\$3,428,661
2009	168	\$1,834	\$3,687,210
2010	180	\$1,800	\$3,880,848

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section, Quarterly Census of Employment and Wages(QCEW); <http://labor.alaska.gov/research/qcew/qcew.htm>

Crop production employment and earnings fluctuated between 2006 and 2010, but despite these fluctuations, each indicator showed an increase by the end of this period. Average monthly employment increased by ten percent from 2006

to 2010. Total earnings in crop production employment were nearly four million dollars in 2010, an increase of 17 percent since 2006. Average monthly earnings also increased to \$1,800 in 2010, an increase of six percent since 2006.

Alaska’s agricultural output declined by five percent between 2009 and 2010 (See Table 3.4). Farmers increased the gross value added by more than 11 percent and saw an increase of nearly 16 percent to the net value added. Net farm income increased by nearly 19 percent in 2010, while the number of farms remained the same.

Table 3.4: Farm income and value added data, 2009, 2010

	2009	2010
	(thousands)	
Final crop output	\$25,076	\$23,820
+ Final animal output	\$7,395	\$6,331
+ Services and forestry	\$7,541	\$7,985
= Final agricultural sector output	\$40,012	\$38,136
- Intermediate consumption outlays	\$21,294	\$20,638
+ Net government transactions	\$3,853	\$7,596
= Gross value added	\$22,571	\$25,094
- Capital consumption	\$7,364	\$7,508
= Net value added	\$15,207	\$17,586
- Factor payments	\$6,921	\$7,739
Employee compensation (total hired labor)	\$5,369	\$5,764
Net rent received by nonoperator landlords	(\$398)	\$115
Real estate and nonreal estate interest	\$1,950	\$1,860
= Net farm income	\$8,287	\$9,847
Number of farms	680	680

Source: U.S. Department of Agriculture, Economic Research Service ; <http://www.ers.usda.gov/StateFacts/AK.htm>

Agricultural Commodities and Exports

In 2010, the top five agricultural commodities were (1) greenhouses/nurseries; (2) hay; (3) cattle and calves; (4) potatoes; and (5) dairy products (See Table 3.5). These five commodities generated over 23 million dollars in receipts in 2010, a very slight decrease (1%) from 2009.¹⁰

Table 3.5: Top five agriculture commodities, 2010

	Value of receipts (thousands)	Percent of state total farm receipts	Percent of U.S. value
Greenhouse/nursery	\$13,000	42.3 %	0.1
Hay	\$4,057	13.2	0.1
Cattle and calves	\$2,420	7.9	0.0
Potatoes	\$2,381	7.7	0.1
Dairy products	\$1,610	5.2	0.0
All commodities	30,752	--	0.0

Source: U.S. Department of Agriculture, Economic Research Service ; <http://www.ers.usda.gov/StateFacts/AK.htm>

Table 3.6: Top five agriculture exports, estimates, 2010

	Rank among states	Value (million \$)
Other	47	4.0
Seeds	47	0.6
Feed grains and products	43	0.3
Live animals and meat	47	0.2
Hides and skins	44	0.0
Total export value	50	5.1

Source: U.S. Department of Agriculture, Economic Research Service ; <http://www.ers.usda.gov/StateFacts/AK.htm>

As shown in Table 3.6, the top five agriculture exports for Alaska in 2010 were (1) “Other”; (2) Seeds; (3) Feed grains and products; (4) Live animals and meat; and (5) Hides and skins. Combined, these five exports had a total export value of just over five million dollars in 2010.

From the same source we know that the estimated value of Alaska’s agricultural exports was four million dollars in 2006 and 2007 and increased to five million dollars in 2008 and remained there through 2010.

Table 3.7: Alaska Cash Receipts from Farm Marketings, 2003-2010

	Total All Commodities	Total Livestock Products	Total All Crops
2003	\$31,571,000	\$7,289,000	\$24,282,000
2004	\$32,357,000	\$7,563,000	\$24,794,000
2005	\$36,448,000	\$7,986,000	\$28,462,000
2006	\$32,399,000	\$7,868,000	\$24,531,000
2007	\$33,064,000	\$6,973,000	\$26,091,000
2008	\$31,209,000	\$6,476,000	\$24,733,000
2009	\$31,329,000	\$6,315,000	\$25,014,000
2010	\$30,752,000	\$7,117,000	\$23,635,000

Source: USDA ERS, USDA NASS, Alaska Cash Receipts from Farm Marketing 2003-2010; http://www.nass.usda.gov/Statistics_by_State/Alaska/Publications/Annual_Statistical_Bulletin/2011/akcash11.pdf

According to data from the USDA, total cash receipts in Alaska for farm marketings increased and then decreased for the time period from 2003 to 2010, with the peak in 2005. Overall, cash receipts were down almost three percent for Alaska crops and over two percent for livestock. Total cash receipts for 2010 were about three percent less than in 2003 (See Table 3.7).

Aquaculture

Aquaculture is defined as the farming of aquatic plants or animals for human use or consumption. Farming implies some form of intervention in the rearing process, such as seeding, stocking, feeding, protection from predators, etc. Farming also implies individual or corporate ownership of the stock being cultivated, and harvesting is conducted in controlled environments, including ocean-raised fish (in pens, cages, etc.), and shellfish harvested from leased, owned, controlled, or managed beds.

Mariculture, according to the Alaska Department of Fish and Game, is a branch of aquaculture or aquatic farming where marine plants and animals are cultured in captivity in the near-shore environment. In Alaska, Pacific oysters, littleneck clams, and mussels are the main commercial food products. Methods to culture Pacific oysters and mussels are suspended systems such as floating rafts or longlines that support cages, trays or nets. Clams are grown in intertidal and subtidal areas, depending on the organism.¹¹

According to the 2005 Census of Aquaculture (Table 1), Alaska had 26 aquaculture farms with total sales valued at \$826,000 in 2005, down from 39 farms with \$1,798,700 of product value in 1998. The method used for aquaculture production (Table 6) in 2005, listed 23 farms for mollusks off bottom and 3 farms for mollusks on the bottom. And by 2006 there were 52 active farm permits, primarily for pacific oysters.¹² The percent of sales by first point of sale for mollusks in 2005 (Table 19) showed: processors at 7 percent; wholesale distributors, live haulers, and brokers were 42 percent; retail 25 percent; direct to consumers 7 percent; and sales to other producers was 19 percent. Table 22 contains the annual payroll expense of \$170,000 for 11 farms.

The 2007 Census of Agriculture ranked the market value of agriculture products sold and included aquaculture as one of the product categories. With this addition aquaculture constituted 50.1% of total sales or \$28,540,000.¹³

Fish, shellfish, and other aquaculture products caught or harvested from non-controlled waters or beds, are considered wild caught and were not included in the census. Also excluded were sales of aquatic plants and farms with less than \$1,000 of aquaculture sales.¹⁴

Finfish farming is prohibited in Alaska. Salmon hatcheries, known as ocean ranching, where young fish are released into public waters is allowed and when they return to Alaska as adults, they are available for harvest. Alaska has the world's largest salmon hatchery; it is a combination of 34 private nonprofit, state, and federal salmon hatcheries.¹⁵

Seafood Resources

Traditionally, Alaska Native peoples relied upon fish as a staple in their diet. That reliance continues today among many Alaska residents who obtain fish through commercial, subsistence and sport fisheries, the grocery store, and friends and neighbors. While accurate numbers are difficult to obtain, the commercial harvest is the most closely tracked. Limitations on available data restricted the information that could be presented in this report. Attempts were made to obtain trend data from 2000 to the most recent date. Available data within this time frame is presented in this section. Ultimately though, there is a lack of information on the quantity of fish that remain in Alaska. Especially important for Alaska is seafood, it leaves Alaska in many forms and through multiple modes which makes it very difficult to know how much remains. The many different ways of obtaining fish, not just seafood, again makes it difficult to know how much is consumed by residents.

Commercial Fishing

“Alaska’s seafood industry is world-scale. The value of fish harvests was about \$1.7 billion in 2008. The seafood industry is particularly important for rural Alaska. Fishing is the most important source of income, taxes, infrastructure and utilities for coastal communities--and an important part of Alaska culture.”¹⁶

Here we examine commercial fishing using three measures, the harvest - both the number and pounds of fish, and the exvessel value, which is the price paid to the fishermen.

Salmon

In Table 3.8, we present information on the salmon harvest in Alaska from 2000-2011 for all species. The table shows how the number and pounds harvested vary substantially by year. While the number of fish harvested increased more than 28 percent, the overall numbers are somewhat misleading because they don't incorporate the large annual fluctuations. The pounds of fish harvested increased nearly 12 percent. As of 2011, the estimated value of the salmon harvest has increased relatively steadily, except for a period in the early 2000's and has more than doubled overall since 2000.

Table 3.8: Alaska Commercial Fishing: Salmon (all species) Harvest, 2000-2011

Year	Number of Fish (thousands)	Pounds of Fish (thousands)	Estimated Value US\$ (thousands)
2000	137,163	710,980	\$275,110
2001	174,860	768,840	\$229,180
2002	131,374	624,069	\$162,552
2003	177,998	799,428	\$211,897
2004	167,583	803,702	\$272,255
2005	221,905	961,343	\$334,049
2006	141,062	731,355	\$346,449
2007	213,012	948,121	\$416,769
2008	146,351	707,805	\$452,029
2009	162,945	731,024	\$416,829
2010	171,161	818,603	\$605,216
2011	176,127	794,838	\$603,089

Source: ADF&G , <http://www.adfg.alaska.gov/index.cfm?adfg=CommercialByFisherySalmon.exvesselquery>

Notes:

Figures may not total exactly or match figures from other summary tables due to rounding, the database used, or differing methods of calculation.

For 2003-2010 the number and pounds of fish is based on Salmon Fish Tickets for the respective year.

2000: The price per pound is based on very preliminary reports (and estimates) from area management biologists and may not include postseason adjustments. The Yukon River had no directed chum catch this year, chum catch indicated was incidental to Chinook fishery.

2001-2007: The price per pound is based on exvessel prices from the respective year's Commercial Operators Annual Report (COAR). Regional or statewide COAR prices were used when the specific area-fishery prices on COAR were confidential.

2008-2009: The price per pound is based on exvessel prices from the respective year's COAR and Area Staff Reports.

2010: The price per pound is a weighted average based on exvessel prices from the 2010 Commercial Operator's Annual Report and/or 2010 salmon fish tickets.

2011: Estimates are based on fish tickets, inseason estimates, and reports from Area Managers.

Groundfish

Table 3.9, shows the groundfish harvest in Alaska from 2007-2008. The total pounds harvested (landed) increased nearly 18 percent and, the estimated exvessel value of the groundfish harvest had increased 50 percent in this short period. Specifically, Pacific cod accounted for nearly 59 percent of the Alaska groundfish harvest in 2008, while nearly 34 percent of the harvest was Sablefish. Together, these two species comprise nearly 93 percent of the groundfish harvest in Alaska.

Table 3.9: Alaska Commercial Fishing: Groundfish Harvest, 2007-2008

Fish	Total Pounds (Round)		Total Pounds (Landed)		Exvessel Value	
	2007	2008	2007	2008	2007	2008
Lingcod	404,038	1,865,937	316,463	1,554,813	\$357,198	\$1,470,734
Pacific Cod	37,383,751	45,555,116	36,220,804	43,679,690	\$16,033,070	\$21,547,410
Walleye Pollock	2,600,662	1,395,938	2,600,632	1,395,938	\$298,386	\$279,188
Black Rockfish	272,800	243,748	271,518	242,478	\$100,224	\$63,125
Rockfish	830,381	936,876	821,311	929,395	\$661,164	\$885,857
Sablefish	2,721,576	2,737,690	2,593,215	2,642,798	\$6,935,941	\$12,336,552
Other Groundfish	--	45,604	--	45,585	--	\$7,552
All Groundfish	44,213,208	52,780,910	42,823,943	50,490,697	\$24,385,984	\$36,590,418

Source: Alaska Department of Fish & Game, Commercial Groundfish Harvests & Exvessel Values (State-Managed Fisheries), 2007; <http://www.adfg.alaska.gov/index.cfm?adfg=CommercialByFisheryGroundfish.exvesselquery>

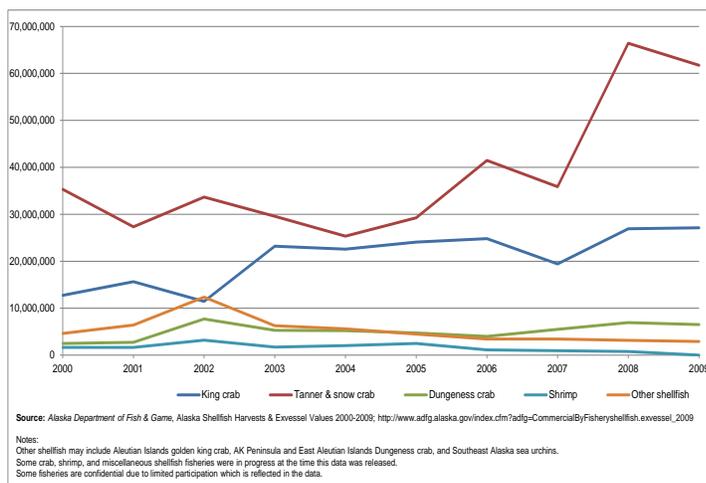
Note: State-managed harvests include directed fishery catch and bycatch recorded on fish tickets. The state manages some groundfish species both in state waters within 3 miles from shore and in the exclusive economic zone out to 200 miles. These species include black rockfish off of SEAK, PWS, Kodiak, Chignik, and the Alaska Peninsula; demersal shelf rockfish in the Eastern Gulf of Alaska Area; and lingcod in all areas. Harvests may include catch from test fisheries or confiscated catch that may not be considered part of the fishery quota or guideline harvest for purposes of managing the fishery. Harvests in state waters during parallel seasons (when adjacent waters of the EEZ are open for groundfish fishing for the same species, under similar management regulations) are not included. Halibut and bycatch of halibut are not included.

Note: Data on groundfish harvests based on numbers from the USDA. We could locate data for 2007 and 2008. This is not enough information to discuss trends.

Shellfish

Alaska shellfish harvest data for 2000-2009 is reported in pounds harvested and exvessel values.

Figure 3.1: Alaska Commercial Fishing: Shellfish Harvest (Pounds), 2000-2009



Overall, the total pounds of harvested shellfish increased nearly 73 percent for the time period, but this was driven by Tanner & snow crab harvests increasing 75 percent, King crab harvests increasing 113 percent, and Dungeness crab harvests rising over 160 percent. As a share of the harvest, King crab accounted for nearly 28 percent, while almost 63 percent was Tanner & snow crab. Together, these two species comprise over 90 percent of the shellfish pounds harvested in Alaska (See Figure 3.1 and Figure 3.2).

Figure 3.2: Alaska Commercial Fishing: Shellfish Harvest by Type, 2000-2009

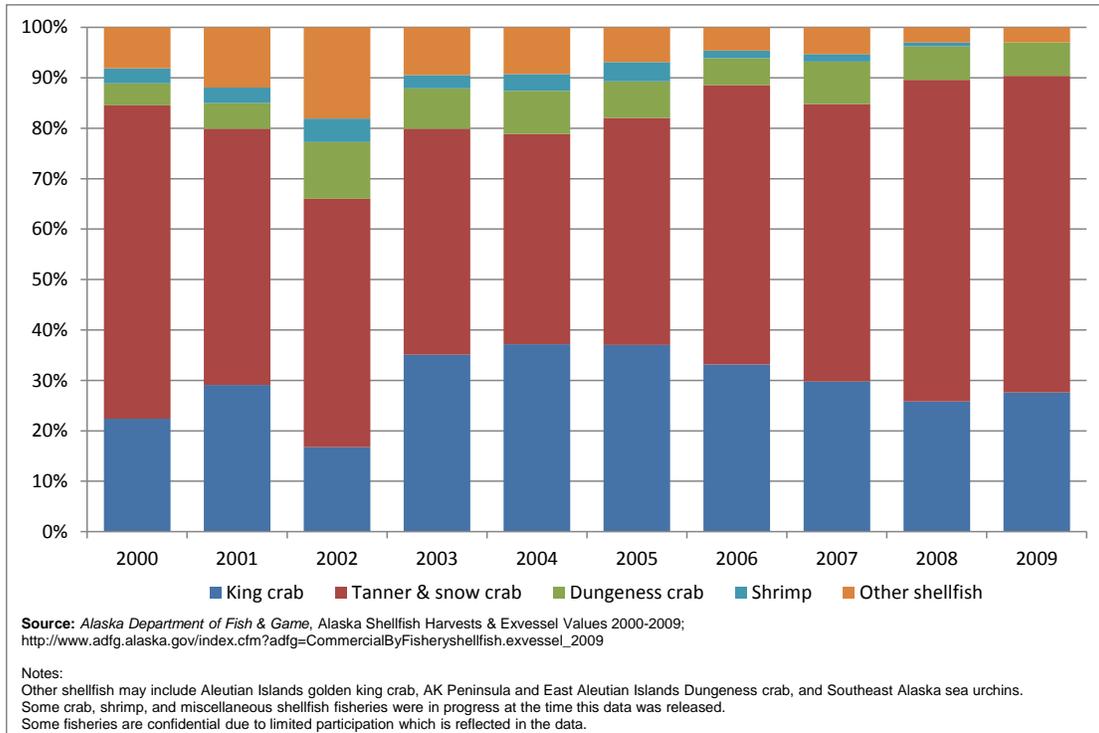
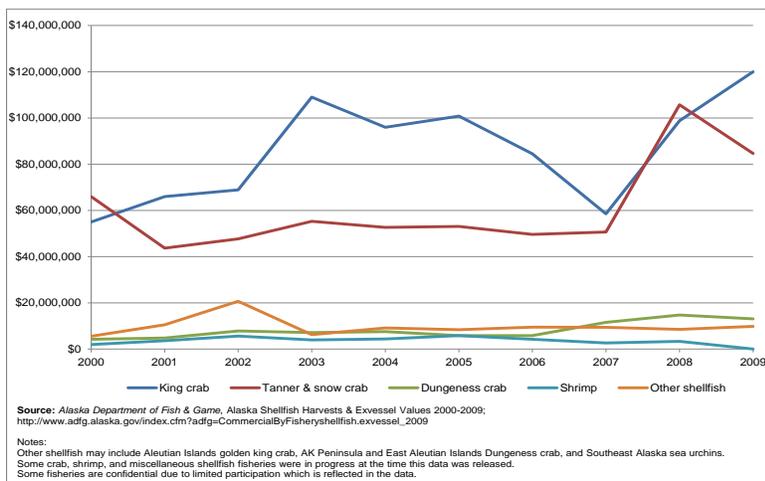


Figure 3.3: Alaska Commercial Fishing: Shellfish Harvest (Exvessel Value), 2000-2009

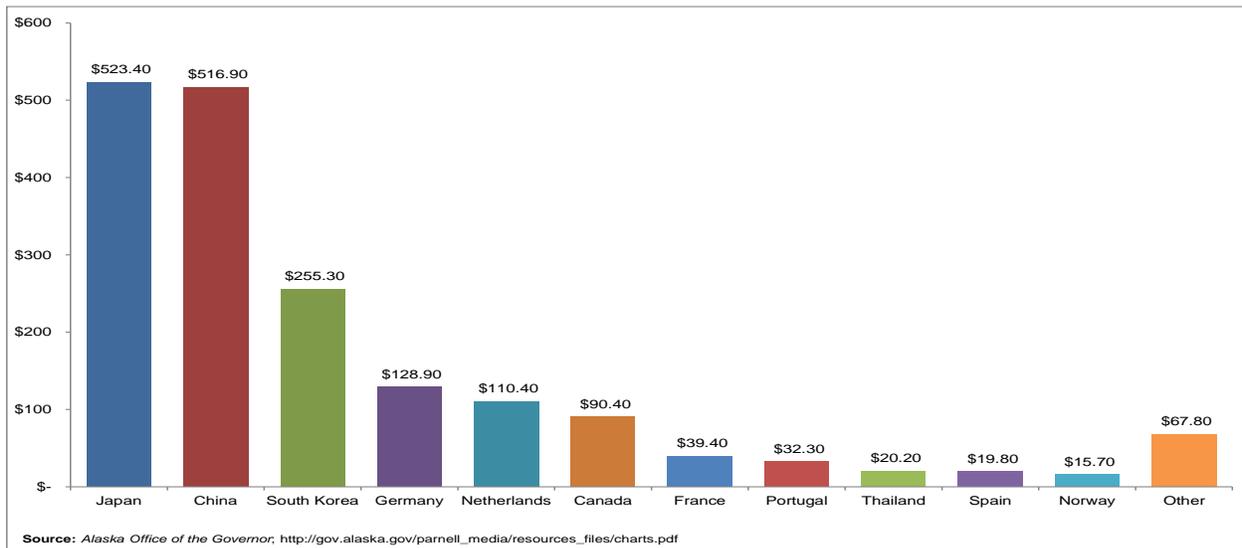


As of 2009, the estimated exvessel values of the shellfish harvest had increased more than 71 percent since 2000 – to nearly 228 million dollars. Exvessel values increased most for Dungeness crab (207.7%), King crab (118.0%), and Tanner & snow crab (28.2%). Combined, King crab (57.7%) and Tanner & snow crab (37.2%) comprised nearly 90 percent of the total exvessel values of Alaska shellfish in 2009 (See Figure 3.3).

Seafood Exports

In 2010, the majority of seafood Alaska exported went to Asian countries (\$1,315.8 million dollars) like Japan, China, and South Korea. European countries imported \$346.5 million of Alaskan seafood in 2010. Canada imported \$90.4 million and all other countries combined imported \$67.8 million. In total, Alaska exported \$1.82 billion in 2010 (See Figure 3.4).

Figure 3.4: Alaska Seafood Exports (in millions), 2010



Sport Fishing

Data on species, catch, and harvest come from the Alaska Department of Fish & Game's annual sport fish survey (See Table 3.10). Total harvests for all salmon and all other sport fish were the lowest in 2010 out of the ten-year period. As with most species, there were large fluctuations over the time covered. With the sole exception of Sockeye salmon, all salmon species saw a decline in the number harvested over the decade. The survey is conducted annually and is mailed to a sample of purchasers of sport fishing licenses (primarily), both Alaska residents and non-residents. The response rates to this survey are generally around 45 percent.¹⁷

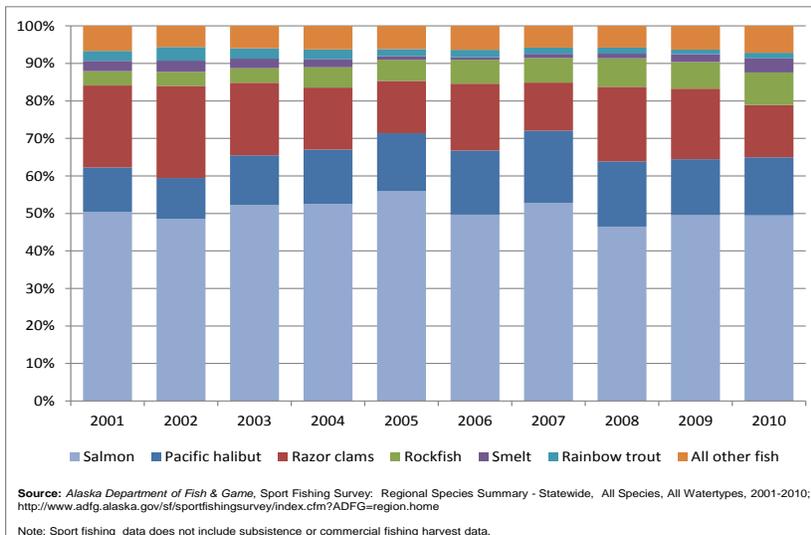
In Alaska in 2010, salmon fisheries make up about 49 percent of all sport fishing harvests. The remaining 51 percent of the sport fishing harvest is made up of all other species of fish. Of the total sport fishing harvest, the top five are Sea-run Coho salmon (22.1%), Sockeye salmon (17.2%), Pacific halibut (15.5%), Razor clams (13.9%), and Rockfish (8.7%).

Table 3.10: Alaska Sport Fishing: Total Statewide Harvest, 2001-2010

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Salmon Total	1,550,484	1,561,835	1,596,685	1,751,976	1,809,177	1,346,197	1,600,303	1,384,498	1,461,915	1,269,844
Sea-run Coho salmon	811,799	776,033	783,328	861,490	937,965	652,953	716,815	676,376	665,000	565,943
Sockeye salmon	354,061	393,343	447,492	444,703	437,120	352,265	487,126	410,087	464,658	440,275
Pink salmon	136,486	173,644	136,495	193,841	185,548	107,437	168,920	134,546	158,971	118,049
Sea-run Chinook salmon	177,473	153,941	177,092	193,041	204,468	200,743	192,816	132,257	133,328	117,644
Chum salmon	37,196	26,377	34,110	33,568	26,814	22,803	25,048	20,791	31,695	19,084
Landlocked Coho/Chinook salmon	33,432	38,468	18,168	25,267	17,214	9,964	9,578	10,433	8,153	8,849
Kokanee salmon	37	29	-	66	48	32	-	8	110	-
Other Species Total	1,527,616	1,654,597	1,455,451	1,580,972	1,425,999	1,363,209	1,432,190	1,592,112	1,489,348	1,296,751
Pacific halibut	365,539	350,809	402,862	482,550	500,048	462,855	584,764	516,480	440,255	397,998
Razor clams	673,601	788,665	590,018	550,540	450,961	483,223	389,164	592,910	556,022	356,685
Rockfish	116,818	120,398	118,316	180,143	183,733	173,159	197,545	226,385	209,094	224,041
Smelt	84,807	96,304	77,999	74,292	30,591	18,211	34,647	35,769	61,432	95,776
Rainbow trout	81,279	117,063	84,531	85,136	60,826	53,086	50,231	49,159	35,976	38,941
Pacific cod	3,389	2,562	3,821	3,535	27,950	15,864	20,234	24,777	36,290	36,552
Dolly Varden/Arctic Char	65,103	60,994	67,330	68,593	42,791	46,320	48,260	50,754	45,500	36,308
Lingcod	26,757	20,255	21,521	30,920	37,521	35,124	41,521	36,607	32,176	32,218
Arctic grayling	25,656	37,910	30,742	26,259	23,634	17,552	19,528	22,586	25,763	20,544
Northern pike	23,623	22,567	17,388	28,799	24,819	18,184	17,174	12,959	18,763	16,353
Other fish	35,122	8,700	16,098	20,472	17,420	22,545	11,623	7,668	8,316	13,772
Sablefish/Black Cod	-	-	-	-	-	-	-	-	-	8,785
Burbot	3,744	9,119	6,099	5,704	6,035	4,377	5,410	4,618	5,853	6,265
Lake trout	4,995	7,109	7,084	7,934	7,312	3,103	3,711	4,145	5,190	4,963
Whitefish	7,268	5,488	2,334	6,877	3,553	3,037	3,354	2,403	2,931	3,355
Cutthroat trout	6,856	4,092	5,132	4,975	3,634	3,405	1,903	2,909	3,644	2,708
Sheefish	1,930	1,211	2,851	3,345	2,949	1,576	1,715	797	1,340	1,064
Shark	585	438	958	502	1,583	867	1,122	917	396	332
Steelhead trout	421	526	367	396	639	393	249	269	382	91
Brook trout	123	387	-	-	-	328	35	-	25	-
Grand Total	3,078,100	3,216,432	3,052,136	3,332,948	3,235,176	2,709,406	3,032,493	2,976,610	2,951,263	2,566,595

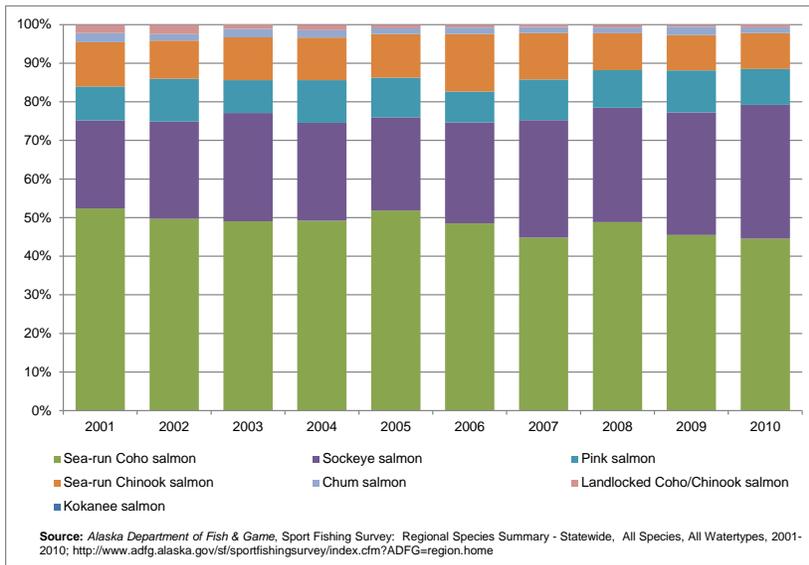
Source: Alaska Department of Fish & Game, Sport Fishing Survey, Regional Species Summary, Statewide, All species, All watertypes, 2001-2010;
<http://www.adfg.alaska.gov/sf/sportfishingsurvey/index.cfm?ADFG=region.home>

Figure 3.5: Alaska Sport Fishing: Total Harvest, 2001-2010



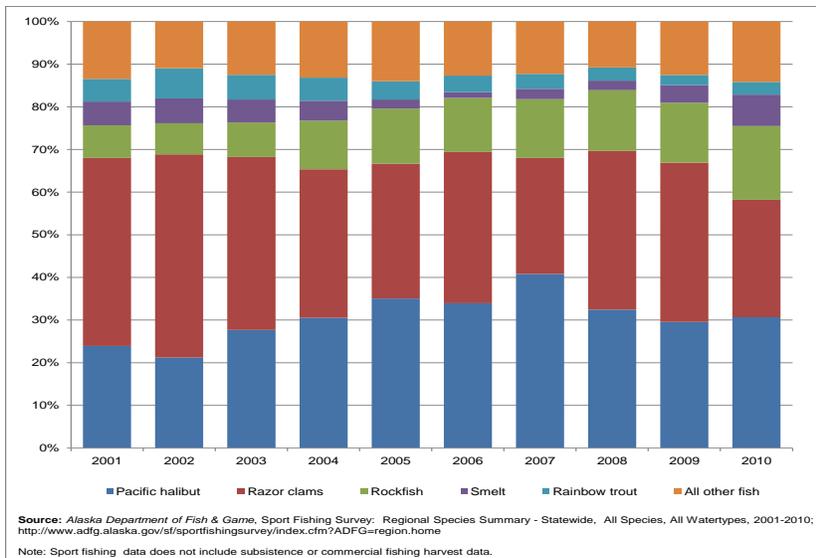
The sport fishing harvest in Alaska has decreased nearly 17 percent from 2001 to 2010 (See Figure 3.5). Salmon accounts for half of the total sport fishing harvest. Out of the remaining 50 percent, the top five sport fishing harvests were Pacific halibut (15.5%), Razor clams (13.9%), Rockfish (8.7%), Smelt (3.7%), and Rainbow trout (1.5%).

Figure 3.6: Alaska Sport Fishing: Salmon Harvest, 2001-2010



Overall, salmon harvests have declined more than 18 percent from 2000 to 2010 (See Figure 3.6). While the Sockeye salmon harvest increased more than 24 percent, all other salmon species saw a decline in the number of fish harvested, ranging from about 14 percent (Pink salmon) to nearly 74 percent (landlocked Coho/Chinook salmon).

Figure 3.7: Alaska Sport Fishing: Non-Salmon Harvest, 2001-2010



Non-salmon fishing harvests have declined over 15 percent from 2001 to 2010. The largest declines were seen in Rainbow trout (-52.1%), Razor clams (-47.0%), and all other fish (-10.8%). In the same period, Rockfish harvest increased nearly 92 percent, Smelt nearly 13 percent, and Pacific halibut nearly nine percent (See Figure 3.7).

In-state seafood consumption

Alaskans obtain fish through many routes, none of which are directly captured in a consistent and reliable manner. We assume fish is consumed in larger quantities than that of people residing in the lower 48 states, but have no data to support that assumption. Alaskans not only catch their own fish but receive fish

caught by others with and without commercial transactions. This is one of the most important areas where we were unable to locate data.

Subsistence Foods

Many Alaskans—particularly those in the most remote communities—rely on wild fish and game for a significant part of the food they eat. The best information about how important wild fish and game is in the state food supply is from the Alaska Department of Fish and Game, which estimates that: Alaskans harvest 52 million pounds of fish and game a year—under subsistence, personal use, general hunting, and sport fishing; rural residents harvest about 38 million pounds annually, or 316 pounds per person, and urban residents close to 14 million pounds, or 23 pounds per person.¹⁸ Replacing these wild harvests with store-bought food could cost from \$180 million to \$365 million a year, assuming replacement meat or fish might cost anywhere from \$3.50 to \$7 a pound.

The Alaska Department of Fish and Game’s Subsistence Division has been conducting harvest surveys in rural communities across Alaska for more than 30 years. These are community-specific surveys and in some communities have been repeated. In 2000, Wolfe and Utermohle estimated that among remote rural households, 60 percent harvest game and 80 percent fish, and the annual harvests are several hundred pounds per person.¹⁹ For more specific information on subsistence harvests go to the Alaska Department of Fish and Game, Community Subsistence Information System.²⁰

Subsistence activities like hunting, fishing, and berry picking are an integral part of Alaska Native Culture, as is the sharing of these foods. Today, subsistence foods play an important role in the diets of many Alaskans. Subsistence production is difficult to measure; these harvests don’t enter the cash economy so it can’t be quantified using that metric.

Between 2004 and 2006 the Alaska Native Tribal Health Consortium (ANTHC) coordinated the Education and Research Towards Health (EARTH) Study funded by a grant from the National Cancer Institute. Three tribal health organizations participated in the effort to establish a cohort of Alaska Natives to identify chronic disease risk and protective factors. The AIAN population was the only racial group that hadn’t been in a health-related cohort study. No one who wanted to participate was excluded so the 3,828 participants were not selected in a systematic manner so the findings aren’t representative of a tribal organization or the state.

Alaska EARTH participants were asked how often they ate specific foods. Traditional foods were considered to be all foods locally hunted, harvested, fished, and gathered. Almost all participants (93%) reported eating at least one traditional food in the past year. More than half (54%) reported eating seven or more different foods. One-third of respondents (33%) reported eating ten or more traditional foods in the prior year (data not shown in figures).²¹

Of all foods consumed by EARTH participants, 20 percent of men and 25 percent of women reported all or almost all foods they consumed were traditional foods. Overall, fish was the most frequently reported

single traditional food (80%), followed by moose (42%), agutaaq (42%), gathered berries (39%), and herring eggs (39%) for men and women combined.

The Alaska Traditional Diet Project, also from ANTHC's Epidemiology Center, was designed to serve as a baseline on the consumption of subsistence foods among residents in rural villages. This 2002 study documents the continuing importance of fish, seafood, moose, caribou, crowberries, low-bush salmonberries, and blueberries. Many of these subsistence foods have not been tested for contaminants and residents expressed concerns about safely consuming their traditional foods.

One of the values of this study was that many findings were consistent with other studies showing the continued importance of subsistence foods; high consumption of sugar-sweetened drinks; and store-bought foods high in carbohydrates such as rice, spaghetti, and bread. Again, participants were not selected using a systematic procedure; but were part of a convenience sample of 665 teens and adults from 13 villages within five regional health corporations.²²

Community Supported Agriculture

Community supported agriculture (CSA) is a partnership between a local farm and a community of shareholder consumers. In this model, a consumer purchases a share of what the farm produces during the growing season and is guaranteed a share of the crop when harvested. This arrangement provides financial resources to the farmer in the non-growing months of the year. In return, shareholders receive a wide variety of local seasonal food harvested at their peak. Ultimately, CSAs create what is being termed "agriculture-supported communities" where small local farms can stay afloat and help to create healthier and more sustainable food sources for the community.²³

Community Gardens

A community garden is any land gardened by a group of people. Although community gardens are often associated with urban settings, they can be established in a wide variety of locations and potentially benefit any community. As long as there is a plot of land where plants can be grown and a group of people interested in engaging in the project, a community garden can be established. In general, community gardens are places where community members get together to grow food and where people can reconnect with nature and even get physical exercise. Community gardens also provide a number of educational opportunities for participants of all ages and help to build a stronger sense of community among neighbors.

There are currently numerous community gardens in Alaska. Fairbanks, Bethel, Juneau and Anchorage have fairly large community gardens. Many other communities share less extensive gardens.²⁴

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- ⁹ U.S. Census of Agriculture: 1959. Final Report—Vol. I--Part 49—Districts, Alaska. U.S. Government Printing Office, Washington, D.C. 1961. <http://usda.mannlib.cornell.edu/usda/AgCensusImages/1959/01/49/865/Table-01.pdf>
- ¹⁰ Alaska Agricultural Statistics, 2011
http://www.nass.usda.gov/Statistics_by_State/Alaska/Publications/Annual_Statistical_Bulletin/2011/akintro11.pdf
- ¹¹ <http://www.adfg.alaska.gov/index.cfm?adfg=fishingaquaticfarming.programinfo>
- ¹² <http://seagrant.uaf.edu/factsheets/kingcrab/kingcrab0704aquaculture-web.pdf>
- ¹³ http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/Rankings_of_Market_Value/Alaska/
- ¹⁴ U.S. Department of Agriculture, 2002 *Census of Agriculture: Census of Aquaculture (2005)*. AC-02-SP-2
<http://www.agcensus.usda.gov/Publications/2002/Aquaculture/>
- ¹⁵ <http://seagrant.uaf.edu/factsheets/kingcrab/kingcrab0704aquaculture-web.pdf>
- ¹⁶ Knapp, G. (2012). *An Introduction to the Economy of Alaska*. ISER: Anchorage, AK.
http://www.iser.uaa.alaska.edu/Publications/presentations/2012_02-Introduction_to_Economy_of_Alaska.pdf
- ¹⁷ <http://www.adfg.alaska.gov/fedaidpdfs/fds10-22.pdf>
- ¹⁸ Alaska Department of Fish and Game, Division of Subsistence, *Subsistence in Alaska: A Year 2010 Update*, January 2012.
- ¹⁹ Wolfe, R. & Utermohle, C. (2000). *Wild food consumption rate estimates for rural populations*; Alaska Department of Fish and Game, Division of Subsistence, Technical Paper No. 261;
<http://www.adfg.alaska.gov/techpap/tp261.pdf>
- ²⁰ Alaska Department of Fish and Game, *Community Subsistence Information System, Resource by Region*;
<http://www.adfg.alaska.gov/sb/CSIS/index.cfm?ADFG=harvInfo.resourceRegionSelReg>
- ²¹ Alaska Native Tribal Health Consortium, *The Alaska EARTH Study*;
http://www.anthc.org/chs/epicenter/upload/AK_databook_10-12-2010.pdf
- ²² Alaska Traditional Diet Project; http://www.anthc.org/chs/epicenter/upload/traditional_diet.pdf
- ²³ Alaska Community Agriculture Association; <http://acaa.drupalgardens.com/>
- ²⁴ UAF Cooperative Extension Service, *Community Gardens in Alaska*, HGA-00029; <http://www.uaf.edu/files/ces/publications-db/catalog/anr/HGA-00029>.

Chapter 4: Processing

Processing includes all activities that add value to food or transform food into food products. Investing in local processing and related infrastructure is critical to building a local, sustainable food economy. Local processing makes it possible for farmers to offer a variety of products to the community. With local processing practices, farm products are delivered in a fresher condition (with longer shelf-life) than products delivered to Alaska from outside the state. As a result, there is less waste and new jobs. Additional important benefits include improving food security by reducing transportation costs, fossil fuel use, and reliance on infrastructure outside the region.²⁵

Table 4.1: Alaska Food Manufacturing Employment, 2006-2010

Year	Average Monthly Employment	Average Monthly Earnings	Total Earnings
2006	9,872	\$2,562	\$303,462,119
2007	9,645	\$2,741	\$317,249,802
2008	9,476	\$2,690	\$305,878,113
2009	9,599	\$2,634	\$303,455,391
2010	9,635	\$2,842	\$328,573,024

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section, Quarterly Census of Employment and Wages(QCEW); <http://labor.alaska.gov/research/qcew/qcew.htm>

Employment and earnings stayed fairly consistent over the five-year-period of 2006-2010; the average monthly employment didn't change by more than 400 positions. The average monthly earnings in food manufacturing fluctuate as well, but are generally increasing along with total earnings (See Table 4.1).

In the time period from 2006 to 2010, four food manufacturing categories reported employment data. The most productive industry continues to be the seafood product preparation and packaging industry. The seafood industry has shown a two percent decline in average monthly employment, but overall, reports an 11 percent increase in average monthly earnings, and a nine percent increase in total earnings. Animal slaughtering and processing has seen the largest increase in average monthly employment (20%) in this time period while also generating a 12 percent increase in average monthly earnings and 36 percent increase in total earnings. The DCCED Business License Database listed nine licenses for animal slaughtering, two licenses for meat processed from carcasses, and one license for meat rendering and byproducts¹. Tortilla bakeries have shown sustained growth in average monthly employment (1%), average monthly earnings (2%), and total earnings (3%). With an increase of 14 percent, "other" food manufacturing shows the largest increase in average monthly earnings (27%) and total earnings (44%). In

¹ Note that in a few places we have used information from the Business License File. We have used this file a number of times on past projects and it is a very large file and requires cleaning. We use it here with caution because (1) a license doesn't necessarily mean that a business is operating; (2) it is easy to make a mistake in the numbers in the NAICS codes; and (3) when comparing it to surveys of businesses we found that rural businesses had a higher rate of licensure than urban.

general, this table doesn't include numbers of private individuals obtaining food through their subsistence activities or sport hunting (See Table 4.2).

Table 4.2: Alaska Food Manufacturing Employment Detail, 2006-2010

	2006	2007	2008	2009	2010
Animal Slaughtering, Processing					
Average monthly employment	61	72	71	77	73
Average monthly earnings	\$2,245.00	\$2,094.00	\$2,292.00	\$2,248.00	\$2,524.00
Total earnings	\$1,634,415.00	\$1,798,918.00	\$1,950,399.00	\$2,084,220.00	\$2,221,331.00
Seafood Product Preparation, Packaging					
Average monthly employment	9,374	9,143	9,027	9,147	9,162
Average monthly earnings	\$2,585.00	\$2,774.00	\$2,717.00	\$2,658.00	\$2,877.00
Total earnings	\$290,786,223.00	\$394,348,539.00	\$294,300,981.00	\$291,785,779.00	\$316,273,292.00
Bakeries, Tortilla					
Average monthly employment	240	232	220	225	243
Average monthly earnings	\$2,366.00	\$2,499.00	\$2,546.00	\$2,559.00	\$2,407.00
Total earnings	\$6,800,812.00	\$6,947,287.00	\$6,721,171.00	\$6,900,218.00	\$7,019,564.00
Other Food					
Average monthly employment	43	49	38	41	49
Average monthly earnings	\$1,356.00	\$1,182.00	\$1,502.00	\$1,652.00	\$1,726.00
Total earnings	\$706,249.00	\$689,201.00	\$683,486.00	\$804,623.00	\$1,016,566.00
Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section, Quarterly Census of Employment and Wages(QCEW); http://labor.alaska.gov/research/qcew/qcew.htm					

²⁵ Center for Environmental Farming Systems. *Processing & Food Systems Infrastructure*; <http://ncsustainablefood.wordpress.com/working-issue-groups/processing-food-systems-infrastructure/>

Chapter 5: Distribution

Distribution is the food system component that includes the networks and processes involved in transporting food from farms, factories, or warehouses to places where it can be purchased, used, or consumed. In most cases, distribution happens by using wholesalers. Other means of distribution are farmers' markets, farm-to-restaurant or farm-to-institution programs.

Almost all the food Alaskans buy comes from outside the state. No one actually knows just how much food is imported and how much is produced in-state. Some sources report that around 5% of the food Alaskans buy is produced locally, but it's very difficult to find out where that estimate comes from and how it was developed.²⁶ We do know something about the relative scale of food Alaskans buy and food they produce. In 2007 (the most recent year for which we have figures), Alaskans spent about \$1.5 billion for food at grocery stores and another \$1 billion at restaurants and fast-food places.²⁷ By comparison, all the cash receipts from crops and livestock in Alaska in 2010 totaled less than \$30 million.²⁸

Food has to come a long way. Much of the food and other goods for Southcentral Alaska arrive by water, mostly shipped from the Port of Tacoma to Anchorage—a trip of roughly 1,400 nautical miles. In 2010, for example, about 400 million pounds of groceries arrived in containers at the Port of Anchorage.²⁹ Additional food is trucked 2,400 miles by road from Seattle. Smaller quantities come by air; Anchorage is 1,500 miles by air from Seattle. And some of the food that comes into Anchorage is then shipped even further, to communities throughout most of the state

According to the State of Alaska, there were 288 food wholesalers and 530 food retailers in Alaska in 2012.³⁰ The majority of food wholesalers in Alaska are general line grocery merchants (57%), and fish and seafood merchants (16%), while the majority of food retailers were supermarkets and other grocery (except convenience) stores (50%) and convenience stores (19%). In 2012 there are 44 farmers markets in the state of Alaska, up from 33 the previous year, and 13 in 2005.³¹

In 2007, the value of agricultural products sold directly to individuals for human consumption was \$1,682,000, more than double the value in 2002 of \$829,000 – up from \$500,000 in 1997.³²

Farmers Markets

Farmers markets are good for farmers and good for the communities they serve. Farmers can more easily sell their product with minimal transportation costs. In addition, consumers who purchase from local farmers markets receive recently harvested produce that will store longer at home, thereby reducing food waste. By frequenting farmers markets, consumers insure that local farmers are able to continue local production of food for the region.

According to the USDA, there are 44 farmers markets in the state of Alaska. There are farmers markets in Anchorage, Bethel, Copper Valley, Delta Junction, Dillingham, Eagle River, Ester, Fairbanks, Gustavus, Haines, Homer, Houston, Juneau, Kenai Peninsula, Kodiak, North Pole, Palmer, Petersburg, Sitka, Soldotna, Valdez, Wasilla, and Willow.

According to data recorded by the USDA, of the 32 farmers' markets in Alaska: 12 accept WIC (38%), six accept WICcash (19%), eight accept WIC-SFMNP (25%), and six accept SNAP/food stamps (19%).³³ According to the CDC, in 2009 no farmers markets in Alaska accepted EBT.³⁴

Community Supported Agriculture

Community supported agriculture (CSA) is a partnership between a local farm and a community of shareholder consumers. In this model, a consumer purchases a share of what the farm produces during the growing season and is guaranteed a share of the crop when harvested. This arrangement provides financial resources to the farmer in the non-growing months of the year. In return, shareholders receive a wide variety of locally season foods harvested at their peaks. Ultimately, CSAs create what is being termed "agriculture-supported communities" where small local farms can stay afloat and help to create healthier and more sustainable food sources for the community.³⁵ Through programs like this, distribution of fresh produce is supported directly by the community.

Currently, there are not many CSAs in Alaska, but they are becoming more popular as people become familiar with the concept. Although there are some farms that use the CSA model, only 20 farms reported marketing products through CSAs in the 2007 Census of Agriculture. A search will return various results: Rosie Creek Farm, Wild Rose Farm, Arctic Organics, Calypso Farm, Spring Creek Farm and Fireweed Farm. The Alaska Community Agriculture website provides a few more options as well as contact information.

Subscription Agriculture

Another type of partnership is by subscription, but this mechanism doesn't include as much of a role for community building as CSAs provide because the farmer(s) may not be local. The farmer again receives financial resources at the beginning of the season, but there is little or no connection between the farmer and the consumer. Boxes of food are left at agreed-upon locations so the process is convenient and the consumer receives fresh, possibly organic produce year-round. However, the process may come at a cost to local farmers as well as an increased use of fossil fuels in flying boxes into and around Alaska

Food Storage in Alaska

It's uncertain how long food stocks would last if imports were cut off, but it likely wouldn't be long. A number of sources say that food in grocery stores might last from 3 to 10 days—but again, it's very hard to find out where these estimates originate.³⁶ A 2011 study of the Port of Anchorage reported that because container ships arrive at the port several times a week, many businesses no longer warehouse significant stocks of consumer goods.³⁷

Governor Sean Parnell has included in his Fiscal Year 2013 budget \$4.9 million dollars to set up two locations for emergency food storage according to Alaska Business Monthly.³⁸ This would allow for emergency food supplies to be distributed across the state in case of emergency. Current levels of food storage in the case of an interruption to the supply chain are uncertain, and estimates have placed it from three to ten days of goods on store shelves.³⁹

On August 9, 2012 the State of Alaska issued a Request for Proposals (RFP) soliciting emergency food ideas and solutions from approved state contractors. The request seeks supply, management and storage options, which will enable the state to feed 40,000 people for seven days. The plan must also account for how to store the items in readily accessible locations in Fairbanks and Anchorage, rotate expired items, and the capability to provide more in the event of a catastrophic emergency.⁴⁰

Farm to School

Farm to School is a national program run by the United State Department of Agriculture (USDA) whose primary goal is to increase the amount of local food served in schools. Alaska's Farm to School Program (AFTSP) was created by legislation in May 2010, with a sunset date of June 30, 2013. Per the legislation the top priority of the program was local procurement in schools and has been divided into four stages; assessing interest, planning, action, and sustainable practices. To date the program has already begun to move into stage three, action, seeing local product move into schools.

AFTSP has a broader set of goals than the USDA has for the national Farm to School program. The USDA has three main goals:

- To meet the diverse needs of school nutrition programs in an efficient manner.
- To support regional and local farmers and thereby strengthen local food systems.
- To provide support for health and nutrition education.

AFTSP includes any activity that connects students, teachers, and the school food service with food grown and produced in Alaska. This includes, but is not limited to, "increasing Alaska Grown food sales to the school meal programs, providing information for school garden development, promoting Alaska Agriculture in the Classroom curriculum/education, participation in programs that educate youth about the food system, promoting farm visits, facilitating discussion between school food service and food producers, state-wide contests promoting farm to school activities, harvest of the month promotions, resource/marketing development, and regional meat/fish to school efforts."⁴¹

Through all of its efforts in the past year the AFTSP has worked both directly and indirectly with a total of 29 of 53 (55%) of the school districts; including approximately 20 percent of all schools (~100), and getting exposure with approximately 20 percent of the K-12 student enrollment (over 27,000 students).

Part of the AFTSP is the Farm to School Grant Program (FTSGP). In 2011, the FTSGP received 24 applications and awarded funding to 17 projects, throughout Alaska. As a result of the funded projects, the program was able to determine that approximately 20 percent of 512 surveyed schools already have school gardens. The program also resulted in the creation of safety guidelines for school gardens. Other funded projects have resulted in the development of healthier recipes for foods served in school lunches, as well as raising awareness about the AFTSP among students, parents, teachers, and others in the community.

Fish to Schools

Alaska's geography and natural resources require Alaskans to be creative when attempting to bring local foods to schools. The Sitka Conservation Society (SCS) is a founding partner and coordinator of the Sitka "Fish to Schools" program. SCS chose to engage in this project because local food was absent from school lunches, even though Sitka is the ninth largest seafood port in the United States. Students should have access to this nutritious, local food that drives the local economy and represents the interconnectedness of the community. These local meals also require less dependency on feedlot meats and begin the foundation of a more resilient, regionally-adapted school lunch program.⁴²

The Sitka Fish to Schools program was awarded the Best Farm to School Project in Alaska for the 2011-2012 school year. In just one year local fish lunch consumption rates have increased about 39 percent at Blatchley Middle School (BMS). At Keet Gooshi Heen Elementary (KGH), approximately 30 percent of students opted to eat fish when it was offered.⁴³

Schoolyard Garden Initiative

The Schoolyard Garden Initiative was created in response to the need for hands-on educational opportunities in the schools, a garden connection for kids, and locally grown food for the community. The goal of the Schoolyard Garden Initiative is to "create a network of school gardens functioning as experiential learning environments for teachers and students during the school year and as food production gardens - maintained by the teenagers involved in Calypso's Engaging Alaskan Teens in Gardening (EATinG) program - during the summer months."⁴⁴

A Garden Committee - comprised of parents, teachers, students, administrators, and community members - at each school oversees fundraising, planning, and building for the school garden.

Calypso created the Engaging Alaskan Teens in Gardening (EATinG) program in 2003 as a way to educate and empower students to grow food for themselves and the community. This program provides students with an innovative way to connect education, employment, food, and community. The EATinG Program facilitates the development of a network of youth-run gardens in the Fairbanks' schools, where students are taught how to grow food and operate a small CSA and farm stand. Operating these gardens as student-run CSAs/farm stands ensures that the gardens are maintained during the summer and contributes significantly to the financial sustainability of the EATinG program. The EATinG program establishes a mutually beneficial relationship where schools have gardens, youth have meaningful employment and hands-on education opportunities, and the community has access to locally grown food.

In 2006, twelve students were a part of the EATinG Program. In 2009, over 100 students were student gardeners.⁴⁵

Farm to Institution

The Alaska Product Preference (APP), AS 36.30.332 is one of the State of Alaska preferences applied to in-state bids on State contracts, or proposals in response to a request for proposal. Under the State's procurement code, the Alaska Product Preference can provide a local bidder or offeror with a cost

preference between three and seven percent. To be certified as Alaska Product Preference, a product must be made with materials and supplies that are: 25-59 percent produced/manufactured in the state (Class I, 3% bid preference); 50-74 percent produced/manufactured in the state (Class II, 5% bid preference); or 75 percent or more produced/manufactured in the state (Class III, 7% bid preference). Currently, there are 35 Class III food products in Alaska, ranging from cereal to fresh produce – there are not currently any Class I or Class II food products in Alaska.⁴⁶

²⁶ See, for example, *Alaska Food Policy Council Strategic Plan* (January 2012), which quotes the estimate without attribution.

²⁷ *Economic Census 2007*, U.S. Census Bureau. The economic census is conducted only once every five years

²⁸ *Alaska Agricultural Statistics 2011*, Alaska Field Office, National Agricultural Statistics Service, USDA, October 2011

²⁹ *Waterborne Commerce of the United States 2010*, Container Traffic by Port, U.S. Army Corps of Engineers

³⁰ State of Alaska, Business License Data; <http://www.commerce.state.ak.us/CBP/Main/SearchInfo.aspx>

³¹ Mary Lochner, “The state of Alaska Grown,” *Anchorage Press*, July 19, 2012. Alaska Farmers Market, *Market Directory: Alaska Farmers Markets 2011*; <http://www.alaskafarmersmarkets.org/index.php/directory/farmersmarkets.xls>

³² USDA, Census of Agriculture 2002. Market Value of Agricultural Products Sold Including Landlord’s Share, Direct, and Organic: 2002 and 1997; http://www.agcensus.usda.gov/Publications/2002/Volume_1,_Chapter_1_State_Level/Alaska/st02_1_002_002.pdf and USDA, Census of Agriculture 2007. Market Value of Agricultural Products Sold Including Landlord’s Share, Direct, and Organic: 2002 and 2007;

http://www.agcensus.usda.gov/Publications/2007/Full_Report/Volume_1,_Chapter_2_US_State_Level/st99_2_002_002.pdf

³³ Agricultural Marketing Service, USDA, *Farmers Markets Search*; <http://search.ams.usda.gov/farmersmarkets/>

³⁴ Centers for Disease Control and Prevention. (2010). State Indicator Report on Fruits and Vegetables, 2009; http://www.fruitsandveggiesmatter.gov/health_professionals/statereport.html

³⁵ Alaska Community Agriculture Association; <http://acaadrupalgardens.com/>

³⁶ . For example, the Alaska Renewable Energy website attributes an estimate of 3 to 5 days to the Alaska Farm Bureau’s website—but we were not able to find the estimate on that website.

³⁷ *Alaska’s Lifeline: Port of Anchorage*, UAA, College of Business and Public Policy, Logistics Department; and Port of Anchorage, February 2011

³⁸ Alaska Business Monthly. (2011). Governor Parnell’s budget prioritizes emergency preparedness. *Alaska Business Monthly*; <http://www.akbizmag.com/Alaska-Business-Monthly/December-2011/Governor-Parnells-Budget-Prioritizes-Emergency-Preparedness/>

³⁹ Byers, K.; Carper, M.; Giles, D.; Pfaffe, A.; et al. (2011). *Anchorage and the local food system*. Center for Community Engagement and Learning, University of Alaska Anchorage : Anchorage, AK; http://www.uaa.alaska.edu/engage/engage_social_issues/Food_Security_Affordable_Housing/upload/Carper-FINAL-Report-Anchorage-and-the-Local-Food-System.pdf

⁴⁰ State of Alaska, Department of Military and Veterans’ Affairs. *Emergency Food Supply and Storage for the State of Alaska: State seeks creative solutions for an emergency food cache*; <http://www.ak-prepared.com/documents/Press%20Release%20-%20Emergency%20Food%20Supply%20and%20Storage%20for%20the%20State%20of%20Alaska%2082912.pdf>

⁴¹ Information Insights (Prepared for Alaska Department of Natural Resources, Division of Agriculture). (2012). *Farm to School Program: Preparing the ground: February 2012*; <http://dnr.alaska.gov/ag/FarmToSchool/FinalAFTSP2012Eval.pdf>

⁴² The Sitka Conservation Society, *Fish to Schools*; <http://sitkawild.org/issues/community/environmental-education/fish-to-schools/>

⁴³ The Sitka Conservation Society, Celebrating a Year of Fish to Schools; <http://sitkawild.org/2012/05/celebrating-a-year-of-fish-to-schools/>

⁴⁴ Calypso Farm & Ecology Center, The Schoolyard Garden Initiative; http://www.calypsofarm.org/schoolyard_garden_initiative.htm

⁴⁵ Calypso Farm & Ecology Center, What is the EATing Program?; <http://www.calypsofarm.org/eating.htm>

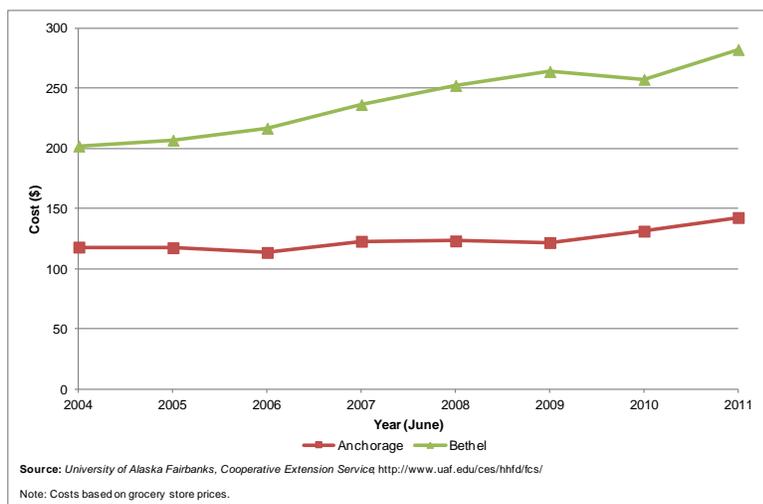
⁴⁶ <http://www.commerce.state.ak.us/ded/dev/prodpref/prodpref.htm>

Chapter 6: Consumption

Expenditures

Expenditures occur when individuals exchange money for products. In this section we examine expenditures for food, starting with examples from around the state.

Figure 6.1: Weekly Food Costs for a Family of Four: Bethel and Anchorage, 2004-2011



As seen in Figure 6.1, weekly food costs vary greatly between regions in Alaska. In 2011, a family of four (two parents and two young children) in Bethel spent nearly double (98%) the amount of a similar Anchorage family for a week's worth of groceries. Between 2004 and 2011, costs increased nearly 21 percent in Anchorage and nearly 40 percent in Bethel (almost double). This information shows that rural Alaska is not only paying more for their groceries, but they are also seeing steeper increases when prices

rise.

Table 6.1 shows that the average cost per week for groceries for a family of four ranges from a low of \$142.68 in Anchorage to a high of \$323.80 in Anaktuvuk Pass in 2010. In 2011, the average cost for groceries for a family of four in Alaska is \$202.07, an increase of nearly 23 percent since 2004. The largest price increases in the time period were in Sitka (45.4%), Bethel (39.7%), Nome (39.4%), and Delta Junction (39.2%).

Table 6.1: Food Cost per week for Family of Four in Selected Alaska Cities; 2004-2011

Community	Couple aged 20-50 years and two children aged 6-11 years.							
	June 2004	June 2005	June 2006	June 2007	June 2008	June 2009	June 2010	June 2011
Anaktuvuk Pass	–	–	–	–	–	–	–	323.8
Anchorage	118.12	117.57	113.68	122.95	123.24	121.89	131.37	142.68
Bethel	202.08	206.95	216.89	236.56	252.46	264	257.53	282.3
Cordova	173.64	159.3	181.8	188.68	220.02	200.49	202.07	220.82
Delta_Junction	134.58	137.38	148.02	159.3	163.67	164.85	174.5	187.37
Dutch_Harbor	172.6	171.34	174.13	185.13	–	–	–	–
Fairbanks	119.32	115.11	113.3	120.64	126.04	125.91	126.9	137.44
Haines	157.28	–	–	157.08	–	183.9	177.37	188.76
Homer	146.48	150.33	154.29	160.42	177.06	183.39	162.76	166.79
Juneau	–	–	–	–	144.49	140.68	142.68	142.86
Kenai_Soldotna	126.5	127.99	126.65	135.84	146.81	150.33	147.78	152.39
Ketchikan	121.17	127.27	131.84	132.81	144.57	146.99	153.24	162.65
Kodiak	137.41	144.1	152.83	162.73	–	–	–	–
Kotzebue	–	–	232.19	255.08	275.1	278.52	277.84	303.86
Naknek	217.34	221.76	246.57	273.36	–	–	–	–
Nome	184.21	190.89	–	207.93	212.58	220.5	242.79	256.83
Palmer_Wasilla	123.35	120.77	115.62	121.07	118.43	119.09	145.87	143.23
Seward	149.2	144.13	138.46	165.5	–	–	–	–
Sitka	132.83	139	142.07	153.79	168.72	176.46	172.9	193.18
Unalaska	–	–	–	–	–	–	212.2	238.91
Valdez	–	–	–	–	–	156.8	–	191.24

Based on grocery store prices

Source: University of Alaska Fairbanks, Cooperative Extension Service ; <http://www.uaf.edu/ces/hhfd/fcs/>

Retail

According to the U.S. Economic Census there were 248 grocery stores in 2002 and 347 in 2007.⁴⁷ The Economic Census is conducted every five years. *The Food Atlas* uses a different source and for 2007 it lists 215 grocery stores, 42 specialized food stores, and 18 supercenter and club stores. There were increases in 2008 for each of these: 224 grocery, 50 specialized, and 19 supercenter stores. Some of these numbers seem questionable in different ways: an increase of 99 grocery stores in five years seems high and the difference between the two data sources for the number of stores in 2007 appears large. These are probably due to differences in definitions that we haven't been able to discern or possibly estimation errors. In comparison, the State of Alaska's business license database reports 264 supermarkets and grocery stores, and a total of 530 food retail stores in 2012.

Food Consumption

Food consumption refers to food that individuals purchase for eating. Purchases are made at many different places and may be for consumption at home or away from home. We define at-home and away-from-home foods based on where the foods are obtained, not where they are eaten. Home food is purchased at a retail store, such as a grocery store, a convenience store, or a supermarket. Food away from

home is purchased mainly from foodservice establishments. Both food at home and food away from home can be eaten at home or away from home.⁴⁸ (More detailed definitions appear later in this chapter.)

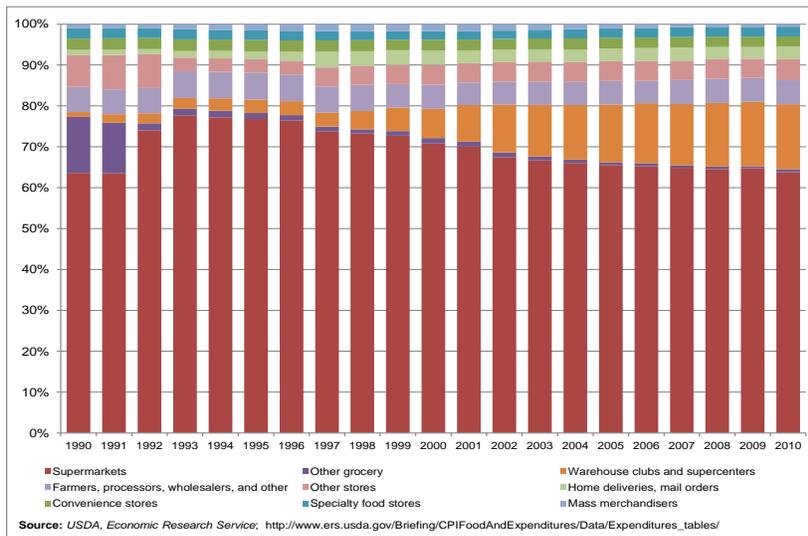
Table 6.2: Alaska Food Expenditures at Retail Grocers, 2002, 2007

	Total expenditures	Per capita
2002	\$1,113,525,000	\$1,732.58
2007	\$1,421,834,000	\$2,080.29

Source: American Fact Finder, NAICS 4451, Alaska, 2002 Economic Census and 2007 Economic Census; Population Estimates, http://www.census.gov/popest/data/historical/2000s/vintage_2007/state.html

In Table 6.2, we see how much Alaskans are spending on food. In 2002, Alaskans spent over 1.1 million dollars on food, or more than \$1,700 per capita. By 2007, expenditures had increased by 28 percent and per capita spending was approaching \$2,100 (an increase of about 20%).

Figure 6.2: Food expenditures at home, by outlet type (U.S.), 1990-2010



These data show that the point of purchase for food expenditures (for use at home) has changed significantly between 1990 and 2010. This shift in the outlets used for food purchases is clearly shown in Figure 6.2. Supermarkets were the most used outlet in the mid-1990s, but have since lost ground to warehouse club stores like Costco and Sam’s Club and supercenters like Wal-Mart and Fred Meyer. Looking at the early 1990s, it’s easy to see the rapid

decline in small grocery stores that once were the preeminent source of food for Americans.

In Figure 6.3, we compared food expenditures (at-home) in 1958 to those in 2010 to determine where people spend their food dollars. In 1958, the most common food outlet was “other grocery” (37%). By 2010, “other grocery” received less than one percent of food expenditures, a decrease of nearly 98 percent since 1958. In 2010, most food expenditures were taking place in supermarkets (63.8%), an increase of nearly 75 percent since 1958 (36.5%). Decreases were seen in specialty food stores (-78.6%), and home deliveries and mail orders (-57.5%). In 1958, warehouse clubs and supercenters, and mass merchandisers did not exist, but by 2010 they received 17 percent of the food expenditure market.

Figure 6.3: Food expenditures at home, by outlet type (U.S.): Comparison between 1958 and 2010

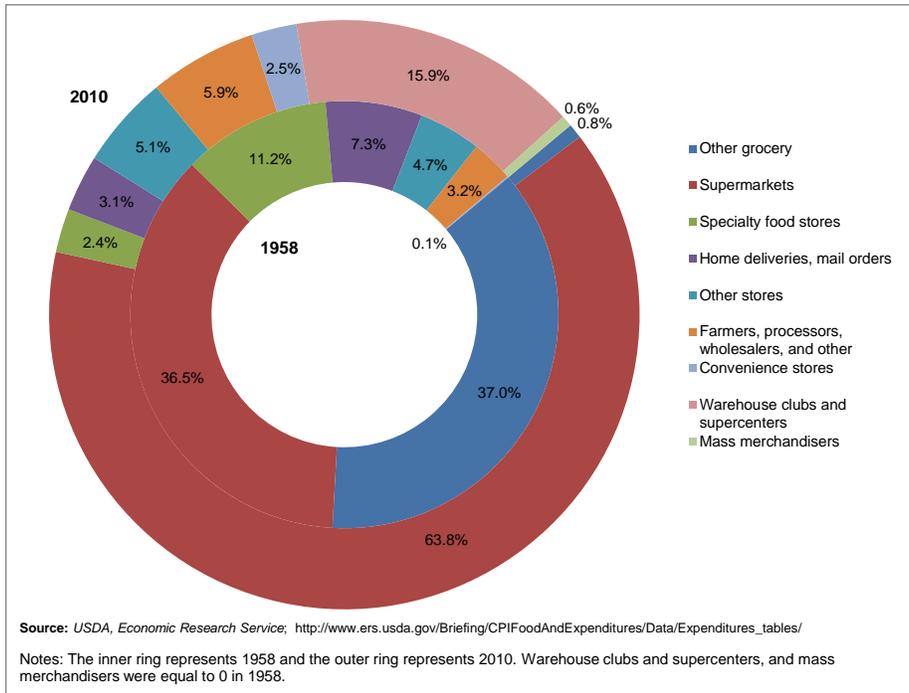
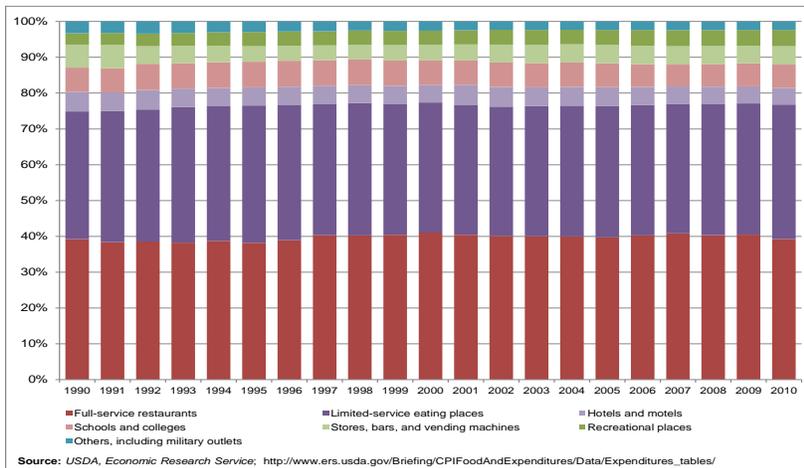


Figure 6.4: Food expenditures away from home, by outlet type (U.S.) 1990-2010

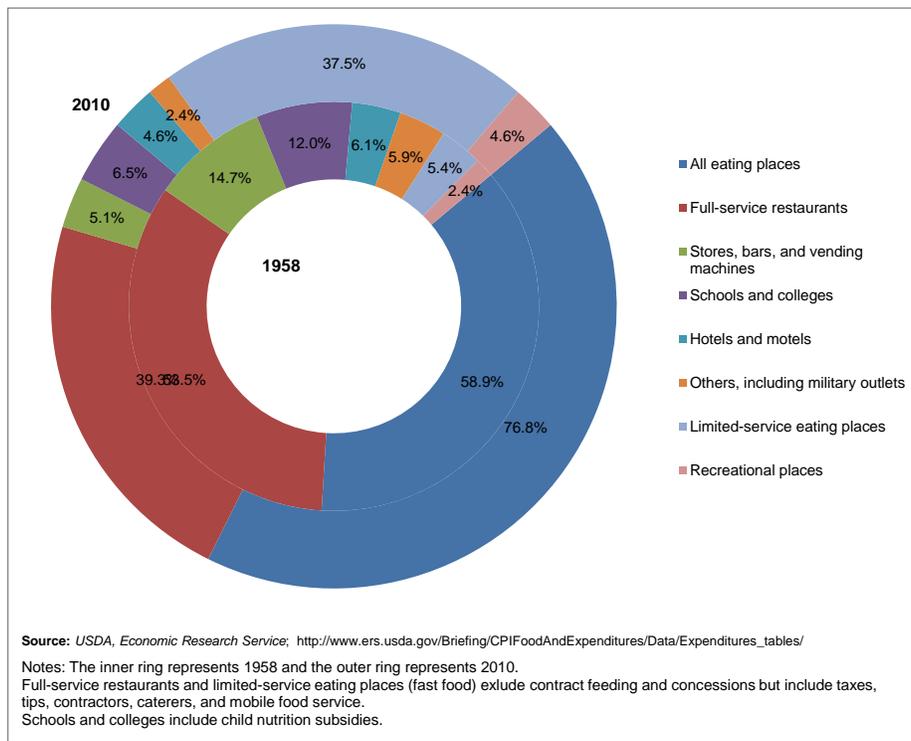


In Figure 6.4, we looked at food expenditures away from home from 1990 until 2010. While the chart doesn't show it, overall, food expenditures away from home decreased by two percent. Nonetheless, increases were seen in full-service restaurants (0.2%), limited-service restaurants (5.2%), and recreational places (43.7%). Alternatively, food expenditures decreased at schools and colleges (-2.7%), hotels and motels (-16%), stores, bars, and vending machines (-20.5%), and "others" including military outlets (-28.3%).

bars, and vending machines (-20.5%), and "others" including military outlets (-28.3%).

In Figure 6.5, we compare the type of outlet for food expenditures away from home between 1958 and 2010. The data show that food expenditures away from home have increased nearly 62 percent in this time period. The most notable increase in outlet type is the limited-service eating place (predominantly fast-food restaurants), which went from just over five percent of the food expenditure market in 1958 to nearly 38 percent of all food expenditures by 2010 – an increase of more than 594 percent. Recreational places were the only other type of outlet to see an overall increase in the time period (91.7%). The remaining outlet types decreased in their proportion of food expenditures ranging from nearly 25 percent loss for hotels and motels to more than 65 percent decrease for stores, bars, and vending.

Figure 6.5: Food expenditures away from home, by outlet type (U.S.): Comparison between 1958 and 2010



In Table 6.3, we present data from the Economic Census of Alaska for 2002 and 2007. The total number of eating and drinking establishments increased overall by nearly 20 percent. During the same time period, the value of all sales increased by 32 percent. Employment data shows that annual payroll increased by 26 percent and the number of paid employees increased by 11 percent by 2007.

As of 2007, full-service restaurants appear to be thriving overall with an increase of nearly 25 percent in the total number of establishments from 2002. The value of all sales showed a significant increase of 32

percent by 2007. Employment measures also showed significant increases for annual payroll (29.4%) and number of paid employees (4.3%).

Table 6.3: Food expenditures at eating and drinking places in Alaska, 2002, 2007

Year	2002				2007			
	Total # of Establishments	Value of all sales	Annual payroll (\$1,000)	Number of paid employees	Total # of Establishments	Value of all sales	Annual payroll (\$1,000)	Number of paid employees
Full-service restaurants	500	\$332,567	\$103,473	7,082	526	\$431,382	\$133,899	7,384
Limited-service restaurants (fast food)	427	\$255,044	\$63,533	5,979	416	\$301,555	\$72,971	5,495
Other food service	444	\$327,696	\$115,020	4,845	526	\$447,532	\$149,206	6,235

Source: American Fact Finder, NAICS 72-All, Alaska, 2002 Economic Census and 2007 Economic Census; http://www.census.gov/econ/census02/data/ak/AK000_72.HTM; http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2007_US_72A1&prodType=table

Limited-service restaurants experienced declines in both the total number of establishments (-2.6%) and number of paid employees (-8.1%). However, these food outlets saw significant increases in the value of all sales (18.2%) and their annual payroll (14.9%). These numbers suggest that prices have increased, as well as employee wages or that employees work more hours.

Other food services saw the most significant overall increases in the time period between 2002 and 2007. The total number of establishments increased by 19 percent, while the value of all sales increased by 37 percent. Employment measures show that annual payroll increased by nearly 30 percent and the number of paid employees increased by more than 28 percent in the time period.

Because they are based on different surveys, *The Food Atlas* has somewhat different numbers for 2007 with 514 fast food restaurants and 415 full-service restaurants. For 2008 it lists 522 fast-food and 424 full-service restaurants. *The Food Atlas* data are from the annual County Business Patterns which are derived from the Census Bureau's Business Register, the file of all known business establishments. While the Economic Census is a much more extensive study conducted in years ending in 2 and 7.⁴⁹

The number of food servers in 2008 was 5,953.⁵⁰ Data for prior years could not be found.

Social and Cultural Indicators of Food Consumption

In Alaska this usually refers to traditional Alaska Native foods that are acquired as a part of a subsistence way of living. Traditional foods and obtaining them are much more than a means of filling the stomach, but have cultural and spiritual importance. Foods acquired using subsistence methods and permits, by anyone, don't enter the marketplace, so they don't appear in food expenditure data, nor do foods obtained through sport and other types of licensures. Thus, we don't have market data as a method for estimating consumption.

In Production and Harvest we discuss two studies of health and diet, one is known at the EARTH Study and the other is the Alaska Traditional Foods Study. There is also information on surveys conducted by the Division of Subsistence and their estimates of consumption by community. We've not been able to locate consumption data for sport fish, but bear in mind that the data in the Production chapter are for harvested fish and would not, theoretically, include fish that weren't kept (See Table 2.1). An exception to these non-market consumptive uses would, potentially, be in the seafood industry. However, commercially caught seafood leaves Alaska in many forms and through multiple modes which makes it very difficult to know how much remains in Alaska for consumption.⁵¹ The many different ways of obtaining fish, make consumption a complicated puzzle to which we don't have an answer.

Alaska's diversity has increased in recent years and there are now larger populations of foreign-born immigrants bringing with them the desire for their traditional foods. Along with this are specialized food stores, 42 in 2007 and 50 in 2008 according to the *Food Atlas*, that carry traditional foods from many cultures as well as an increasing variety of produce in farmers markets.

Food Assistance and Charitable Feeding

In this section, we examine the issues of food security. Food security refers to the availability of food and one's access to it. A household is considered food-secure when its occupants do not live in hunger or fear of starvation. A direct relationship exists between food consumption levels and poverty. Families with the financial resources to escape extreme poverty rarely suffer from chronic hunger, while poor families not only suffer the most from chronic hunger, but are also the segment of the population most at risk during food shortages and famines.⁵²

Following are two definitions of food security from the United Nation's Food and Agriculture Organization and the United States Department of Agriculture.

*Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.*⁵³

*Food security for a household means access by all members at all times to enough food for an active, healthy life. Food security includes at a minimum (1) the ready availability of nutritionally adequate and safe foods, and (2) an assured ability to acquire acceptable foods in socially acceptable ways (that is, without resorting to emergency food supplies, scavenging, stealing, or other coping strategies).*⁵⁴

Poverty

The U.S. Census Bureau computes poverty status by comparing income including earnings, unemployment compensation, workers' compensation, Social Security, Supplemental Security Income, public assistance, veterans' payments, survivor benefits, pension or retirement income, interest, dividends, rents, royalties, income from estates, trusts, educational assistance, alimony, child support,

assistance from outside the household, and other miscellaneous sources before taxes. Capital gains or losses are excluded, as are noncash benefits like food stamps and housing subsidies. In families, the income of all family members is computed to determine the household income. The household is then assigned one of 48 possible poverty thresholds which vary according to family size and the ages of the family members. Poverty thresholds do not vary geographically; this means they don't include a differential for the higher cost of living in Alaska. The thresholds are updated annually for inflation using the Consumer Price Index for All Urban Consumers (CPI-U). If the total family income is less than the threshold appropriate for that family, then the family is determined to be living in poverty and all family members have the same poverty status.⁵⁵

Table 6.4: Alaska Population Living in Poverty, 2005-2010

2005	2006	2007	2008	2009	2010
7.2 %	6.2 %	5.7 %	6.5 %	8.2 %	8.3 %

Source: *American FactFinder*;
<http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>

From 2005 to 2010, the population living in poverty in Alaska increased by more than 15 percent (See Table 6.4). Although this is a significant increase, Alaska's poverty rates remain lower than those of the rest of the country.

EITC

The Earned Income Tax Credit (EITC) is a refundable federal income tax credit for low-to-moderate income working individuals and families. Congress originally approved the tax credit legislation in 1975 in part to offset the burden of social security taxes and to provide an incentive to work. Claimants must earn money during the tax year, but if their incomes are low enough, they can apply for a credit to offset part of their tax bill. When EITC exceeds the amount of taxes owed, it results in a tax refund to those who claim and qualify for the credit.⁵⁶ The EITC is one of the largest anti-poverty tools in the United States.

Table 6.5: Alaska Earned Income Tax Credit Returns, 2004-2008

	EITC Returns	Percent Of Alaskan Population	EITC Return Sum
2004	38,660	5.85 %	\$290,786,223
2005	39,578	5.92 %	\$304,348,539
2006	40,037	5.92 %	\$294,300,981
2007	41,025	6.02 %	\$291,785,779
2008	37,385	5.45 %	\$316,273,292

Source: *Brookings*, EITC Interactive Tax Return Data;
<http://www.brookings.edu/projects/EITC.aspx>

In the time period from 2004-2008, the number of EITC returns increased until 2008 when it decreased by more than three percent below the 2004 number. As shown in The Earned Income Tax Credit (EITC) is a refundable federal income tax credit for low-to-

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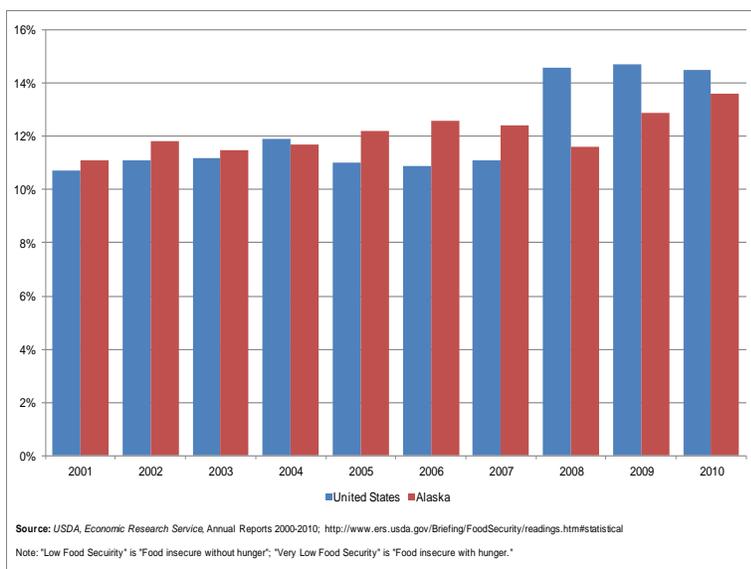
The percent of the Alaska population who filed tax returns and received EITC returns decreased by nearly seven percent from 2004 to 2008 (See Table 6.5). At the same time, the total EITC return sum increased by nearly nine percent.

Food Security

The federal government defines food security as always being able to afford enough food so you and your family don't have to skimp on meals or go hungry. It determines how many Americans are "food insecure" based on household surveys that ask people whether they could consistently afford enough food during the previous year.⁵⁷

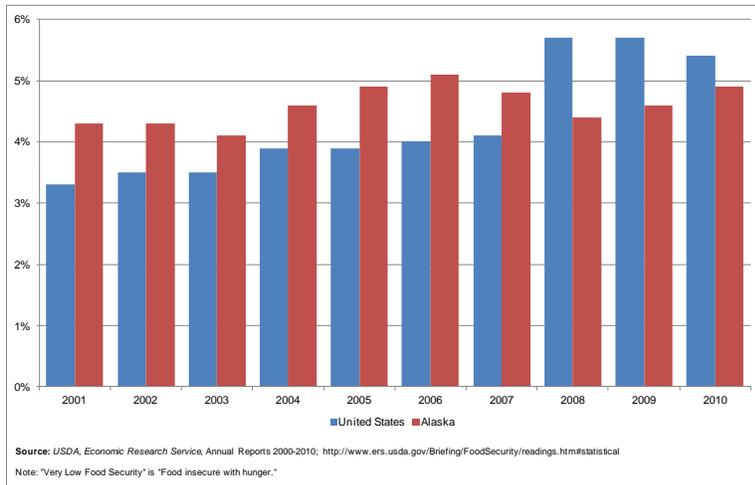
More households in Alaska and nationwide had trouble affording food in recent years, but the Alaska percentage remains slightly below the U.S. average. The share of Alaska households considered food insecure was 13.9% from 2009 to 2011, compared with the U.S. average of 14.7%. Both rates were up from what they had been from 2006 to 2008—11.6% in Alaska and 12.2% nationwide. Food security is often measured as low (food insecure without hunger) and very low (food insecure with hunger) security.⁵⁸

Figure 6.6: Prevalence of Household-level "Food Insecurity" (Low and Very Low Food Security): Alaska and U.S., 2001-2010



In Figure 6.6, the two measures are combined into one measure of food insecurity for the time period of 2001 to 2010. From 2001 until 2007, Alaska had a lower percentage of food insecure households than the U.S. as a whole. However, in 2008, Alaska saw a significant increase in the number of food insecure households – a trend that continued through 2010. Overall, the number of households in Alaska that are food insecure increased by nearly 23 percent in the time period, less than the national increase of nearly 36 percent.

Figure 6.7: Prevalence of Household-level “Very Low Food Security”: Alaska and U.S., 2001-2010



Food security is often measured as low (food insecure without hunger) and very low (food insecure with hunger) food security. In Figure 6.7, very low food security is examined alone for the time period of 2001 to 2010. From 2001 until 2007, Alaska had a lower percentage of very low food security households than the U.S. as a whole. However, in 2008, Alaska saw a significant increase in the number of very low food security households – a trend that continued through 2010. Overall, the number

of households in Alaska that have very low food security increased by 14 percent in the time period, less than the national increase of nearly 64 percent.

Food insecurity means that a number of families in Alaska are lacking, or unable to acquire, enough food to meet their nutritional needs. The food insecurity can lead to being undernourished and to health problems, such as obesity, associated with a poor or insufficient diet.

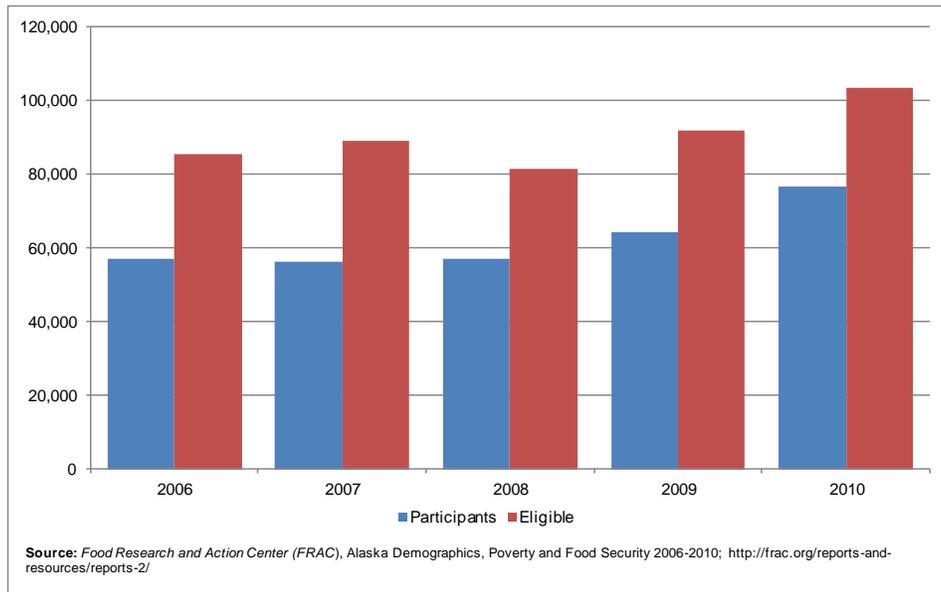
Federal Nutrition Programs

The data on government food programs participation are important indicators of food security in Alaska. In this chapter, several government food programs are discussed, including Food Stamps, the WIC program, and the School Lunch Program.

Food Stamps/SNAP

The number of people receiving food stamps (now known as the Supplemental Nutrition Assistance Program or SNAP) in Alaska has increased by nearly 34 percent overall from 2006 to 2010 (See Figure 6.8). Additionally, the number of Alaskans who qualify to receive food stamps has increased by more than 10 percent in the same time period. At the same time, the number of Alaskans whose income suggests that they are eligible for food stamps, if they would apply, has increased by more than 21 percent. In 2010, only 74 percent of Alaskans who had qualified to receive food stamp benefits took advantage of the federal program. This underutilization of the program suggests that some Alaskans are not aware of the program, think they don't qualify, or for some other reason do not participate.

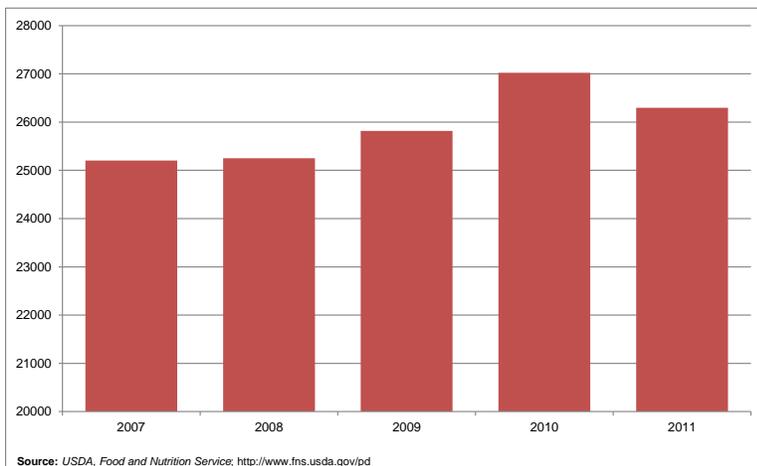
Figure 6.8: Annual Food Stamp Eligibility and Participation in Alaska, 2006-2010



WIC

The WIC Program (Women, Infants, and Children Nutrition Program) is a nutrition program that helps pregnant women, new mothers, and young children eat well, learn about good nutrition, and stay healthy. Alaska WIC provides vouchers that can be used to purchase healthy foods, information about nutrition and health to help families eat well and be healthy, support and information about breastfeeding, help in finding health care and other community services, and breast pumps to help support breastfeeding mothers. Parents, grandparents, foster parents, or other legal guardians of children less than 5 years of age may apply for WIC benefits on behalf of the child.⁵⁹

Figure 6.9: Annual WIC Participation in Alaska, 2007-2011



Between 2007 and 2011, the total number of WIC participants increased from 25,205 to 26,295 – an increase of more than four percent (See Figure 6.9). The decline in participants in 2011 was surprising, because enrollment in other income-based programs were increasing at that time.

National School Meal Programs

The Free and Reduced-Price School Meals Program is a federal program that provides low-cost or free lunches to schoolchildren from low-income families. Whether there is a charge or the lunch is free is determined by federal guidelines that are adjusted for Alaska's higher cost of living. Between 2006 and 2008, the number of participating students fell from 53,363 to 51,911 (See Table 6.6). However, between, 2008 and 2010, the number of participating students grew by 5.4 percent reaching 54,723 students in 2010. Preliminary reports for 2011 show that participation declined again by six-tenths of one percent.

Table 6.6: National School Meal Programs: Participation in Alaska, 2006-2011

	Lunch Program			Breakfast Program		
	Total Participation ¹	Total Lunches Served	Cash Payments ²	Total Participation ¹	Total Breakfasts Served	Cash Payments ²
FY 2006	53,363	8,807,707.00	\$22,790,882	14,254	2,454,896	\$4,862,847
FY 2007	53,233	8,627,070.00	\$23,446,316	14,250	2,416,360	\$5,063,950
FY 2008	51,911	8,535,491.00	\$24,067,965	15,020	2,551,757	\$5,350,937
FY 2009	53,554	8,709,623.00	\$25,873,292	16,943	2,849,194	\$6,108,476
FY 2010	54,723	8,893,909.00	\$28,197,128	18,668	3,104,320	\$6,897,391
FY 2011 ³	54,409	8,906,259.00	\$29,405,672	19,972	3,354,539	\$7,633,290

Source: USDA, Food and Nutrition Service; <http://www.fns.usda.gov/pd>

Notes:

¹ Participation data are nine-month averages; summer months (June-August) are excluded. Participation is based on average daily meals divided by an attendance factor of 0.927. Data are subject to revision.

² Payments to State agencies are based on per meal rates which are adjusted annually to offset changes in food prices. Administrative costs are not included. Cash payments include the costs of snacks served under the National School Lunch Program as well as lunches. Data are subject to revision.

³Preliminary numbers.

The School Breakfast Program is also a federal program operating in public and nonprofit private schools and residential child care institutions. It operates in the same manner as the National School Lunch Program.⁶⁰ A similar trend can be seen in the National School Breakfast Program participation in Alaska. The numbers were on a slight decline from 2006 to 2008 and then increased (See Table 6.6). Many fewer children are able to participate in the breakfast program than the lunch program because fewer schools offer the breakfast program.

During the school year, many children receive free and reduced-price breakfast and lunch through the School Breakfast and National School Lunch Programs. What happens when school lets out? Hunger is one of the most severe roadblocks to the learning process. Lack of nutrition during the summer months may set up a cycle for poor performance once school begins again. Hunger also may make children more

prone to illness and other health issues. The Summer Food Service Program is designed to fill that nutrition gap and make sure children can get the nutritious meals they need.⁶¹

In Alaska, Summer Food Service Program (SFSP) sites are located in areas where 50 percent or more of children qualify for free or reduced price school meals or if census data identifies the area as low-income. Meal service for the SFSP includes two meals per child, per day (breakfast and lunch), although camps, migrant, and Alaska Native sites may claim up to three meals per day. The SFSP is run by specially trained sponsoring organizations such as schools, community and faith-based organizations, private non-profit organizations, local governments, college or university participating the National Youth Sports Program or Upward Bound Program, and Alaska Native Villages or Tribal Councils in schools, parks, pools, community and recreation centers, churches, playgrounds, housing projects, camps, migrant or tribal centers, and libraries.⁶²

Table 6.7: National Summer Food Service Program: Participation in Alaska, 2006-2011

	Average Daily Attendance¹	Total Meals Served	Cash Payments²
FY 2006	1,408	105,890	\$340,521
FY 2007	1,192	112,659	\$367,008
FY 2008	1,780	159,842	\$562,040
FY 2009	2,345	216,149	\$833,967
FY 2010	4,498	241,035	\$974,084
FY 2011 ³	6,564	258,656	\$1,093,126

Source: USDA, Food and Nutrition Service; <http://www.fns.usda.gov/pd>

Notes:

¹ Average daily attendance is reported for July only, the peak month of national program activity. Unlike participation data in the National School Lunch and School Breakfast Programs, average daily attendance is not adjusted for absenteeism. Data are subject to revision.

² Payments to State agencies are based on per meal rates which are adjusted annually to offset changes in food prices. Administrative costs are not included. Cash payments include the costs of snacks served under the National School Lunch Program as well as lunches. Data are subject to revision.

³Preliminary numbers.

There has been a significant increase in the number of students participating in Summer Food Service program in Alaska (See Table 6.7). From 2006 to 2011, the average daily attendance rose by more than 366 percent, from 1,408 to 6,564 students. Total meals served also increased in this time period – by more than 144 percent. Cash payments received for the summer food program increased 221 percent from 2006 to 2011.

The National Child and Adult Care Food Program (CACFP) plays a vital role in improving the quality of day care and making it more affordable for many low-income families. Each day, children receive nutritious meals and snacks through CACFP. The program also provides meals and snacks to adults who receive care in nonresidential adult day care centers. CACFP reaches even further to provide meals to children residing in emergency shelters, and snacks and suppers to youths participating in eligible afterschool care programs.⁶³

In Alaska, CACFP is available in a variety of care situations: child care centers, at-risk afterschool meals programs, homeless shelters, adult day care centers, and family day care homes.⁶⁴

Table 6.8: Child and Adult Care Food Program: Participation in Alaska, 2006-2011

	Average Daily Attendance¹	Total Meals Served	Cash Payments²
FY 2006	10,438	4,552,889	\$6,404,638
FY 2007	9,589	4,691,073	\$6,629,467
FY 2008	9,220	4,709,476	\$6,888,620
FY 2009	9,874	4,626,683	\$7,148,747
FY 2010	10,248	4,721,313	\$7,215,719
FY 2011 ³	9,556	4,651,104	\$7,240,065

Source: USDA, Food and Nutrition Service; <http://www.fns.usda.gov/pd>

Notes:

¹ Average daily attendance data are reported on a quarterly basis only (March, June, September, and December). Annual averages are divided by four. Unlike participation data in the National School Lunch and School Breakfast Programs, average daily attendance is not adjusted for absenteeism. Data are subject to revision.

² Payments to State agencies are based on per meal rates which are adjusted annually to offset changes in food prices. Administrative costs are not included. Data are subject to revision.

³ Preliminary numbers.

Average daily attendance for the Child and Adult Care Food Program in Alaska has decreased by eight percent between 2006 and 2010. Average daily attendance over this time period was 9,821. Despite fluctuations in participation, the number of meals served has increased by more than two percent and cash payments have increased by 13 percent.

Table 6.9: Special Milk Program: Total Half-Pints Served in Alaska, 2006-2011

FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011²
56,817	56,477	52,956	58,206	46,143	34,688

Source: USDA, Food and Nutrition Service; <http://www.fns.usda.gov/pd>

Notes:

¹ Data are subject to revision.

² Preliminary numbers.

The Special Milk Program provides milk to children in schools, child care institutions, and eligible camps that do not participate in other federal child nutrition meal service programs. The program reimburses schools and institutions for the milk they serve.⁶⁵ The number of half-

pints of milk served in Special Milk Program in Alaska decreased significantly between 2006 and 2011, from 56,817 to 34,688 – a decrease of nearly 39 percent.

The Food Distribution Program on Indian Reservations (FDPIR) program is administered at the federal level by the Food and Nutrition Service (FNS), an agency of the U.S. Department of Agriculture (USDA). FDPIR is administered locally by either Indian Tribal Organizations (ITOs) or an agency of a State

government. State agencies order food from a list of available foods, which the USDA purchases and ships to the ITO or state agency. These administering agencies store and distribute the food, determine applicant eligibility, and provide nutrition education to recipients.⁶⁶

Table 6.10: Food Distribution Program on Indian Reservations: Participation in Alaska, 2006-2011

FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011 ²
0	11	65	107	128	125
Source: USDA, Food and Nutrition Service; http://www.fns.usda.gov/pd					
Notes:					
¹ FDPIR is an alternative to the Supplemental Nutrition Assistance Program for Indian tribal organizations which prefer food distribution. Participation numbers are 12-month averages. Data are subject to revision.					
² Preliminary numbers.					

In Alaska, the FDPIR is administered by the Alaska Native Tribal Health Consortium (ANTHC). The federal tribal agencies that currently have this program in their community are: Akiak, Alakanuk, Aleknagik, Anaktuvuk Pass, Atmautlauk, Buckland, Chitina, Deering,

Hydaburg, Kiana, King Cove, Kobuck, Kotzebue, Metlakatla, Old Harbor, Seldovia, Stebbins, and St. Michael.⁶⁷ FDPIR increased its annual participation from 0 in 2006 to 125 people in 2011.

The Commodity Supplemental Food Programs (CSFP) is a federally funded program, which works to improve the health of low-income pregnant and breastfeeding women, other new mothers up to one year postpartum, infants, children up to age six, and elderly people at least 60 years of age by supplementing their diets with USDA commodity foods. Similar to the FDPIR program, the USDA purchases food and makes it available to state agencies or ITOs.⁶⁸

Table 6.11: Commodity Supplemental Food Program: Participation in Alaska, 2006-2011

FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011 ²
2,433	2,077	2,133	2,079	2,046	2,162
Source: USDA, Food and Nutrition Service; http://www.fns.usda.gov/pd					
Notes:					
¹ If a State operated for less than a full year, its annual average does not include non-operating months (e.g., if it operated for two months, the annual participation sum is divided by two rather than twelve).					
CSFP was originally a food distribution alternative to the WIC Program which provided supplemental food packages to women, infants and children. It began serving elderly persons on a pilot basis in FY 1982. By FY 1999, most participants were elderly. All data are subject to revision.					
² Preliminary numbers.					

In Alaska, the CFSP is administered by the Alaska Department of Health & Social Services. The Food Bank of Alaska and the Fairbanks Food Bank are local grantees that provide CSFP in Alaska.⁶⁹ The annual participation in the CSFP in Alaska between 2006 and 2010 decreased by more than 11 percent from 2,433 to 2,162 (See Table 6.11).

Under The Emergency Food Assistance Program (TEFAP), commodity foods are made available by the U.S. Department of Agriculture to states. States provide the food to local agencies that they have selected, usually food banks, which in turn, distribute the food to soup kitchens and food pantries that directly serve the public.⁷⁰ TEFAP food is free to participating agencies and to clients who need food assistance.

Table 6.12: The Emergency Food Assistance Program (TEFAP): Total Food Cost in Alaska 2006-2011

FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011 ²
676,035	300,923	479,152	1,848,994	1,918,830	1,267,333

Source: USDA, Food and Nutrition Service; <http://www.fns.usda.gov/pd>

Notes:

¹ Food costs are the value of entitlement and bonus commodities delivered to State warehouses during the fiscal year. Data are subject to revision.

² Preliminary numbers.

In Alaska, the TEFAP subcontracts with the Food Bank of Alaska for management of household distribution of TEFAP commodities.⁷¹ The total food cost of TEFAP increased nearly 88 percent between 2006 and 2011, suggesting that the need for emergency food in Alaska remains strong.

Poverty and food insecurity for many Alaskans have not disappeared and, thus, food assistance programs and the emergency food system are still much needed to help feed thousands of Alaskans. The data show that food assistance programs are underutilized by the many Alaskans who are eligible but for a variety of reasons cannot or do not participate.

Charitable Food Programs

According to the Food Bank of Alaska (FBA), there are over 400 organizations in the state providing anti-hunger programs including food pantries, soup kitchens, shelters, afterschool and summer youth programs, and senior centers, among others. Despite its vast and diverse network of anti-hunger organizations, more than 100 communities have no food assistance programs and dozens of communities only have food assistance seasonally or for specific clients (such as summer programs for kids). Most food pantries operate on very small budgets, 56 percent of all food pantries are run solely by volunteers and another 26 percent have only one staff member.⁷²

The Food Bank of Alaska provides food for an estimated 77,000 people annually. Forty-two percent of pantry clients have a child under the age of 18 in their home; of these 30 percent are single-parent households. In fiscal year 2011, the FBA distributed nearly 6.7 million pounds of food, or nearly five million meals. Food for distribution gets to FBA via local donations and food drives (54%), the Emergency Food Assistance Program (20%), the Commodity Supplemental Food Program (9%), Feeding America national donations (1%), and the Food Distribution Program for Indian Reservations (<1%). In addition, 15 percent of food is purchased. FBA distributes the food they collect to a network of more than 300 food pantries, soup kitchens, senior centers, shelters, youth programs, and other organizations across the state.⁷³

Nutrition and Health Indicators

Overweight and Obese

Being overweight or obese may affect one's health and may lead to serious problems. Overweight and obesity are determined by the calculation of a person's Body Mass Index (BMI). Although BMI does not measure body fat directly, research has shown that BMI is correlated with directly measured body fat. The BMI is used as a screening tool to identify possible weight problems for adults, but it is important to remember that BMI is only one factor related to risk for disease. Body mass index surveillance data are a reliable tool used to describe trends in weight status over time among populations and subpopulations. The BMI is the most widely used measure because it is relatively easy, inexpensive, noninvasive, and quick to obtain. Adults with a BMI between 25.0 and 29.9 are identified as overweight, while a BMI of 30 or higher is considered obese.⁷⁴

Individual body weight is determined by a variety of inter-related genetic, physiological, behavioral, cultural, environmental, and socioeconomic factors. An imbalance between energy (caloric) intake and energy expenditure is the underlying cause of overweight and obesity in most individuals. Poor diet, physical inactivity, and a higher BMI indicate a higher risk for certain diseases such as heart disease, high blood pressure, type 2 diabetes, gallstones, breathing problems, and certain cancers.⁷⁵

Adults

The Alaska Behavioral Risk Factor Surveillance Survey asked adults 18 and over the following two questions, the responses of which were used to calculate individual BMIs:

About how much do you weigh without shoes?

About how tall are you without shoes?

Figure 6.10. Percent of Overweight (25.0-29.9 BMI) Adults: Alaska, 1995-2010

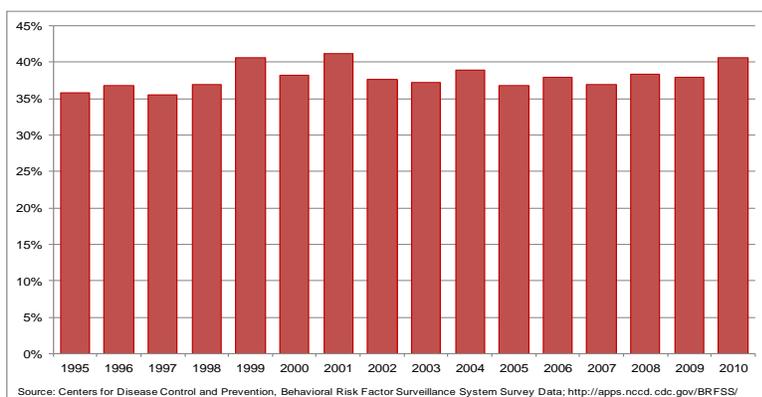


Figure 6.10 contains data from 1995 through 2010 on the percent of overweight adults in Alaska. In 1995, over 35 percent of Alaskan adults were overweight (this is true of national data, too); the percentage hasn't been below 35 since that time. From 1995 to 2010, the number of overweight adults in Alaska has increased by 13 percent while nationally, the increase was two percent. As of 2010, more Alaskans

adults (40%) are overweight than the U.S. average (36%).

Figure 6.11. Percent of Obese (30+ BMI) Adults: Alaska, 1995-2010

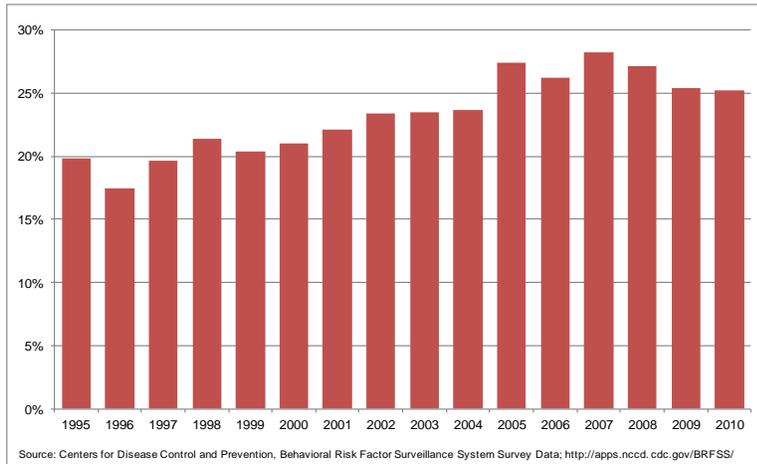


Figure 6.11 shows the percentage of obese Alaska adults each year from 1995 to 2010. At least 15 percent of Alaska adults were obese in 1995 (this is true of national data, too). The number of obese adults in Alaska has increased by 27 percent in 2010. Nationally, the increase was 73 percent. As of 2010, more than 25 percent of Alaska adults are overweight compared to nearly 28 percent of all U.S. adults.

In Alaska in 2010, more than 65 percent of all adults were either overweight or obese.

Overweight and Obese High School Students

The calculation of the Body Mass Index for overweight and obese high school students is the same as it is for adults. High school students who are overweight have a calculated BMI greater than or equal to the 85th percentile but less than the 95th percentile for BMI, by age and sex. High school students with a BMI greater than or equal to 95th percentile for BMI, by age and sex are identified as obese.

The Alaska Youth Risk Factor Surveillance Survey⁷⁶ asks students the following two questions to calculate their BMI percentile:

How tall are you without your shoes on?
How much do you weigh without your shoes on?

Table 6.13. Alaska Overweight and Obese High School Students 2003- 2011

	Overweight	Obese
2003	14.4 %	11.0 %
2007	16.2	11.1
2009	14.4	11.8
2011	14.4	11.5

Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division for Adolescent and School Health; <http://apps.nccd.cdc.gov/youthonline/App/Results.aspx?LID=AK#>

In 2003 14 percent of Alaska high school students were overweight (See Table 6.13). In 2007, the number increased to just over 16 percent, but declined to 14 percent in 2009, where it remained in 2011. This increase in 2007 could be an artifact of the sample size. The percent of students who were obese has ranged between 11.0 and 11.8, and remained below 12 percent as of 2011. Overall, youth obesity has increased nearly 5 percent, while overweight youth, other than the possible increase 2007, has

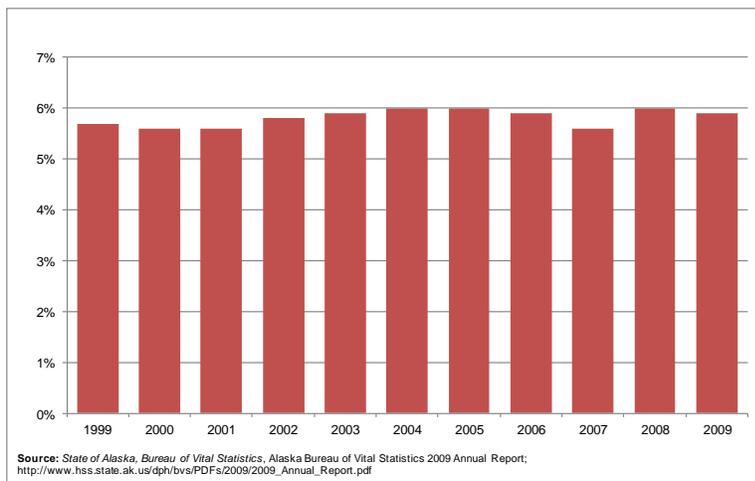
remained at 14.4 percent from 2003 to 2011. In 2011, 26 percent of our youths identified themselves as overweight or obese.

Low Birth Weight

Compared to infants of normal weight, low birth weight (LBW; less than 2,500 grams or 5.5 lbs.) infants are at increased risk of death and delayed motor and social development. Studies have shown that LBW infants were more likely to have learning disabilities and to do less well at school than children who were born at normal birth weight.⁷⁷

Poor nutrition, associated with the quality of food and inadequate access to food before and during pregnancy, has been shown as a risk factor for low birth weight babies.

Figure 6.12. Alaska Low Birth Weight Births, 1999-2009



From 1999 to 2009 the percentage of low weight infants in Alaska has stayed relatively stable, ranging from 5.6 percent to 6 percent. Overall, the percent of low birth weights in Alaska has increased by two-tenths of one percent from 1999 to 2009. Alaska consistently has one of the lowest rates, if not the lowest rate, of low-birthweight babies in the nation.

Consumption Per Capita

We include per capita consumption of specific foods. The data are for the U.S. because we were not able to locate a consistent source for Alaska. While referred to as consumption data, the USDA describes them as a proxy for consumption constructed with data on production, imports, exports, food stocks, and non-food uses. They are a measure of per capita food availability.

In Table 6.14, we examine the per capita consumption of selected foods, as reported by the U.S.D.A. for years 2000-2009. Overall for the time period, we note a decline in per capita consumption of red

meat (-7.0%); eggs (-2.0%); milk (-8.4%); frozen dairy products (-18.7%); ice cream (-19.7%); margarine (-55.5%); flour and cereal products (-2.3%); caloric sweeteners (-12.2%); fresh fruits (-0.8%); processed fruits (-17.8%); fresh vegetables (-7.9%); processed vegetables (-8.0%); and potatoes (-22.7%). Conversely, we note increases in consumption per capita for: poultry (2.2%); fish and shellfish (3.8%); dairy products (2.7%); cheese (10.2%); butter (10.6%); and salad and cooking oils (54.0%).

Table 6.14: Per Capita Consumption of Selected Food Commodities (U.S.), 2000-2009

Commodity	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Red meat, total (boneless, trimmed weight) ^{1,2}	Pounds	113.7	111.4	114.1	111.7	112.2	110.2	109.9	110.5	106.6	105.7
Poultry (boneless, trimmed weight) ²	Pounds	67.9	67.8	70.8	71.3	72.8	73.7	74.2	73.7	72.6	69.4
Fish and shellfish (boneless, trimmed weight)	Pounds	15.2	14.7	15.6	16.3	16.5	16.2	16.5	16.3	16.0	15.8
Eggs	Number	251.0	252.5	254.7	254.7	256.8	255.8	258.2	250.1	246.6	246.1
Dairy products, total ³	Pounds	591.1	585.2	585.7	594.0	591.2	597.5	606.1	603.1	603.7	607.1
Beverage milks	Gallons	22.5	22.0	21.9	21.6	21.3	21.0	20.9	20.6	20.7	20.6
Cheese ⁴	Pounds	29.8	30.1	30.5	30.6	31.3	31.7	32.6	33.1	32.7	32.8
Frozen dairy products	Pounds	30.0	28.5	28.1	28.6	25.5	25.7	26.0	25.5	25.2	24.4
Ice cream	Pounds	16.7	16.3	16.7	16.4	13.8	14.6	14.7	14.2	13.8	13.4
Butter (product weight)	Pounds	4.5	4.4	4.4	4.4	4.5	4.6	4.7	4.7	5.0	4.9
Margarine (product weight)	Pounds	8.2	7.0	6.5	5.3	5.2	4.0	4.6	4.5	4.2	3.7
Salad and cooking oils	Pounds	33.7	35.6	39.7	40.2	40.0	42.7	44.6	50.2	54.2	51.9
Flour and cereal products ⁵	Pounds	199.2	194.9	192.5	193.1	191.5	191.3	193.5	196.3	196.6	194.5
Caloric sweeteners, total ⁶	Pounds	148.9	147.1	146.2	141.5	141.7	142.2	139.0	135.5	136.1	130.7
Fresh fruits	Pounds	128.5	125.8	126.8	128.1	127.6	125.3	127.8	123.5	126.6	127.5
Processed fruits	Pounds	157.5	154.2	148.0	151.4	150.5	144.6	140.8	137.9	130.0	129.5
Fresh vegetables	Pounds	200.7	198.1	197.4	200.8	204.5	196.5	194.0	194.0	188.9	184.8
Processed vegetables	Pounds	223.9	216.8	216.9	221.3	219.8	218.1	209.7	212.6	203.7	206.1
Potatoes	Pounds	47.1	46.6	44.3	46.8	45.8	41.3	38.6	38.7	37.8	36.4

Source: U.S. Census Bureau, Health & Nutrition: Food Consumption and Nutrition, Tables 217 and 218; http://www.census.gov/compendia/statab/cats/health_nutrition/food_consumption_and_nutrition.html

¹ Excludes edible offals.

² Excludes shipments to Puerto Rico and the other U.S. possessions.

³ Milk-equivalent, milk-fat basis. Includes butter.

⁴ Excludes full-skim American, cottage, pot, and baker's cheese.

⁵ Includes rye flour and barley products not shown separately. Excludes quantities used in alcoholic beverages.

⁶ Dry weight. Includes edible syrups (maple, molasses, etc.) and honey not shown separately.

Notes:

Consumption represents the residual after exports, nonfood use and ending stocks are subtracted from the sum of beginning stocks, domestic production, and imports. Based on Census Bureau estimated resident population plus Armed Forces overseas for most commodities. For commodities not shipped overseas in substantial amounts, such as fluid milk and cream, the resident population is used.

Red meat includes beef, veal, lamb & mutton, and pork.

Poultry includes chicken and turkey.

Eggs includes in-shell and processed.

Dairy products includes fluid milk products, yogurt (excluding frozen), fluid cream products, cheese, ice cream, sherbet, and frozen yogurt.

Beverage milks includes plain whole milk, plain reduced fat milk (2%), reduced fat milk (1%), skim milk, flavored whole milk, flavored milks other than whole, and buttermilk.

Cheese includes Cheddar, Mozzarella, Swiss, Cream and Neufchatel, and cottage cheese.

Flour and cereal products includes wheat flour, rye flour, milled rice, corn products, oat products, and barley products.

Caloric sweeteners includes refined cane sugar, refined beet sugar, and high fructose corn syrup.

Processed fruits includes frozen, dried, and canned fruits, and fruit juices.

Adolescent Nutrition

Consumption of Fruits and Vegetables

Lack of availability is the most common reason given by high school students for eating few fruits and vegetables. Although some changes have occurred in recent years, fast food restaurants offer limited amounts of fruits and vegetables. While this is changing in some districts, vending machines located in schools are generally filled with soda, chips, and candy rather than nutritious and healthy snack options.

The Alaska Youth Risk Factor Surveillance Survey (YRBS)⁷⁸ asked students the following questions to determine youth consumption of fruits and vegetables.⁷⁹

During the past 7 days, how many times did you eat fruit?

During the past 7 days, how many times did you eat green salad?

During the past 7 days, how many times did you eat potatoes? (Do not count french fries, fried potatoes, or potato chips.)

During the past 7 days, how many times did you eat carrots?

During the past 7 days, how many times did you eat other vegetables? (Do not count green salad, potatoes, or carrots.)

Data from the above questions are presented in Table 6.15. Considering the trends from 2003, 2007, 2009 and 2011, we see that, on average, nearly 82 percent of youth eat fruits and vegetables less than five times per day and nearly 88 percent eat vegetables less than three times per day. More than 11 percent of youth do not eat fruit, more than 35 percent do not eat potatoes, more than 42 percent do not eat carrots, and 15 percent do not eat other vegetables.

Table 6.15. Fruit and Vegetable Consumption by Alaska High School Students, 2003-2011

	2003	2007	2009	2011
Ate fruits and vegetables less than five times per day	83.9 %	84.3 %	82.8 %	78.6 %
Ate vegetables less than three times per day	88.8	90.0	86.8	84.9
Did not eat fruit	11.4	12.8	10.1	10.1
Did not eat green salad	32.5	35.7	37.1	35.1
Did not eat potatoes	28.4	34.6	31.9	32.0
Did not eat carrots	43.4	42.5	42.5	40.0
Did not eat other vegetables	15.0	13.8	16.1	15.2

Sources: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division for Adolescent and School Health 2003-2009; <http://apps.nccd.cdc.gov/youthonline/App/Results.aspx?LID=AK#> and Alaska Chronic Disease Prevention and Health Promotion, 2011 Alaska Youth Risk Behavior Survey Results; http://www.hss.state.ak.us/dph/chronic/school/pubs/2011AKT radHS_Graphs.pdf

From 2003 to 2011, overall student consumption of fruits and vegetables decreased by just over one percent (See Table 6.15). The percent of students who ate fruits and vegetables less than five times per day decreased more than six percent from 84 percent to 79 percent. The percentage of students who ate vegetables less than three times a day improved. Youth ate less fruit (-11.4%) and carrots (-7.8%) and more green salad (8.0%),

potatoes (12.7%), and other vegetables (1.3%) from 2003 to 2011.

Consumption of Milk, Soda, and Fruit Juice

Milk and 100 percent fruit juice are a source of water and provide key nutrients such as calcium and vitamin C. Other beverages, such as sugar-sweetened beverages (SSB) are also a source of water, but have little nutritional value. SSBs are the largest source of added sugars in the diet of U.S. youth, and the increased caloric intake resulting from these beverages is one factor contributing to the prevalence of obesity among adolescents in the United States.

Water, milk, and 100% fruit juices were the beverages most commonly consumed daily by high school students. These are healthful beverages, and milk and 100% fruit juice are sources of key nutrients. According to this analysis, however, daily consumption of regular soda or pop, sports drinks, and other SSBs also is common in this population. Consumption of these beverages might be related to poor health outcomes. A recent meta-analysis found soft drink intake to be associated with increased energy intake and body weight, and with lower intakes of milk, calcium, and other nutrients. Among adolescents specifically, SSB consumption can contribute to weight gain, type 2 diabetes, and metabolic syndrome.⁸⁰

Daily consumption of soda or sports beverages increase the caloric intake of high school students. These beverages can contribute to the increasing presence of obesity in this population and the occurrence of diabetes.

The Alaska Youth Risk Factor Surveillance Survey⁸¹ asked students the following questions to determine their consumption of milk, soda, and fruit juice.

During the past 7 days, how many times did you drink 100% fruit juices such as orange juice, apple juice, or grape juice? (Do not count punch, Kool-Aid, sports drinks, or other fruit-flavored drinks.)

During the past 7 days, how many times did you drink a can, bottle, or glass of soda or pop, such as Coke, Pepsi, or Sprite? (Do not count diet soda or diet pop.)

During the past 7 days, how many times did you drink a can, bottle, or glass of a sugar sweetened drink, such as sports drinks, sweetened energy drinks, Snapple, fruit punch, Kool-Aid, Tang, or Capri-Sun? (Do not include soda or pop, diet drinks, or 100% fruit juice.)

During the past 7 days, how many glasses of milk did you drink? (Include the milk you drank in a glass or cup, from a carton, or with cereal. Count the half pint of milk served at school as equal to one glass.)

Table 6.16. Milk Consumption by Alaska High School Students, 2003-2011

	2003	2007	2009	2011
Drank less than three glasses per day of milk	88.1 %	88.7 %	88.3 %	N/A

Sources: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division for Adolescent and School Health 2003-2009; <http://apps.nccd.cdc.gov/youthonline/App/Results.aspx?LID=AK#> and Alaska Chronic Disease Prevention and Health Promotion, 2011 Alaska Youth Risk Behavior Survey Results; http://www.hss.state.ak.us/dph/chronic/school/pubs/2011AKT radHS_Graphs.pdf

This measure was not used in the 2011 YRBS questionnaire.

The data show that, on average, more than 88 percent of Alaska students drink less than three glasses of milk per day (See Table 6.16). From 2003 to 2009, the number of students who drink less than three

glasses of milk per day increase by two-tenths of one percent. This measure was not included on the 2011 YRBS questionnaire.

Table 6.17. Soda or Pop Consumption by Alaska High School Students, 2003-2011

	2003	2007	2009	2011
Drank a can, bottle, or glass of soda or pop at least one time per day	--	21.8 %	20.1 %	17.6 %

Sources: *Centers for Disease Control and Prevention*, National Center for Chronic Disease Prevention and Health Promotion, Division for Adolescent and School Health 2003-2009; <http://apps.nccd.cdc.gov/youthonline/App/Results.aspx?LID=AK#> and *Alaska Chronic Disease Prevention and Health Promotion*, 2011 Alaska Youth Risk Behavior Survey Results; http://www.hss.state.ak.us/dph/chronic/school/pubs/2011AKTradHS_Graphs.pdf
 "--" Data not available.

The YRBS data shows that, on average, nearly 20 percent of students drink one soda or pop each day (See

Table 6.17). From 2007 to 2011, the number of students that drank at least one soda or pop per day

decreased by more than 19 percent. As of 2011, nearly 18 percent of youth drink at least one soda or pop per day in Alaska.

Table 6.18: 100% Fruit Juice Consumption by Alaska High School Students, 2003-2011

	2003	2007	2009	2011
Did not drink 100% fruit juices	18.5 %	21.2 %	22.5 %	10.1 %
Ate fruit or drank 100% fruit juices less than two times per day	73.5	73.1	72.5	68.0

Sources: *Centers for Disease Control and Prevention*, National Center for Chronic Disease Prevention and Health Promotion, Division for Adolescent and School Health 2003-2009; <http://apps.nccd.cdc.gov/youthonline/App/Results.aspx?LID=AK#> and *Alaska Chronic Disease Prevention and Health Promotion*, 2011 Alaska Youth Risk Behavior Survey Results; http://www.hss.state.ak.us/dph/chronic/school/pubs/2011AKTradHS_Graphs.pdf

On average, 18 percent of Alaska students do not drink 100% fruit juices (See Table 6.18). From 2003 to 2011, the number of students who do not drink fruit juices has decreased by more than 45 percent - meaning that the number of students

who do drink fruit juices has increased by 45 percent. As of 2011, nearly 90 percent of students indicated that they do drink 100% fruit juices.

Over the time period of 2003 to 2011, on average, 72 percent of students ate fruit or drank 100% fruit juices less than twice per day (See Table 6.18). From 2003 to 2011, the number of students who ate fruit or drank fruit juices less than twice per day decreased by nearly eight percent. By 2011, 32 percent of students ate fruit or drank 100% fruit juice more than two times per day.

Child Nutrition

Consumption of Milk, Water, Soda, Fruit Juice, and Sweetened Drinks

As was discussed earlier milk and fruit juice contain essential nutrients and vitamins that are vital to physical and mental development in children of all ages, but especially so for those aged three years and younger. In particular, milk is important for the development of bones and teeth in young children. Little or no nutritional value is evident in sodas or sweetened fruit drinks. In fact, daily consumption of soda

and sweetened fruit drinks increase the caloric intake of younger children and can contribute to obesity in this age group.

The Alaska Childhood Understanding Behaviors (CUBS) Survey⁸² asked a sample of mothers of 3 year old children born in Alaska the following questions to assess the child's consumption of milk, soda, fruit juice, and sweetened juice or drink.

- What type of milk does your child usually drink now?*
- Yesterday, about how many cups of WATER did your child drink?*
- Yesterday, about how many cups of MILK did your child drink?*
- Yesterday, about how many cups of MILK did your child drink?*
- Yesterday, about how many cups of SODA (such as Coke or Sprite) did your child drink?*
- Yesterday, about how many cups of Sweetened or Fruit Drinks (such as Kool-Aid, Tang, or Capri Sun) did your child drink?*

The data show that, on average from 2008 to 2010, more than 32 percent of 3 year-olds drink whole or regular milk, nearly 41 percent drink reduced fat (2%) milk, nearly 14 percent drink low fat (1%) or fat free (skim) milk, more than four percent drink soy or rice milk, nearly three percent drink powdered or canned milk, and more than five percent drink “other” (See Table 6.19). Additionally, nearly two percent of children do not drink any type of milk at all.

Table 6.19. Milk Consumption by Alaska Children Three Years Old and Younger, 2008-2010

What type of milk does your child usually drink now?	2008	2009	2010
Whole or regular milk	35.1 %	33.9 %	27.9 %
Reduced fat (2%) milk	36.1	38.2	47.5
Low fat (1%) or fat free (skim) milk	13.3	16.1	11.4
Soy or rice milk (includes almond & oat milk write-in responses)	4.9	4.8	3.7
Powdered or canned milk	2.9	2.1	3.1
Other ¹	7.7	3.6	4.6
Child does not drink any type of milk	2.4	1.3	1.8
Checked more than one type ²	3.6	N/A	N/A

Source: Alaska Department of Health & Social Services, Women's, Children's, and Family Health Section, Alaska CUBS Results - Nutrition 2008, 2009, and 2010; <http://www.epi.hss.state.ak.us/mchepi/cubs/data/>

¹ “Other” category includes respondents who checked this option on the survey as well as respondents who selected multiple options not included in ².

² Beginning in 2009, if a respondent selected multiple types of milk and the first was whole, 2%, 1% or skim and the second was soy or rice, or powdered or canned, she was counted in the first type selected.

From 2008-2010, milk consumption has decreased by more than 12 percent (See Table 6.19). Specifically, consumption decreased for whole milk (-20.5%), low fat milk (-14.3%), soy or rice milk (-24.5%), and “other” milk (-40.3%). The number of children who don't drink milk decreased by 25 percent. Increases in milk consumption were seen for reduced fat milk (31.6%) and powdered or canned milk (6.9%)

Table 6.20. Cups of Water Consumed: Alaska Children Three Years Old and Younger, 2008-2010

	2008	2009	2010
None	3.9 %	3.7 %	3.0 %
Less than one	8.4	8.0	8.1
One	23.1	16.0	21.9
Two	27.3	28.0	26.6
Three	18.2	23.3	21.4
More than three	19.1	21.0	19.0

Source: Alaska Department of Health & Social Services, Women's, Children's, and Family Health Section, Alaska CUBS Results - Nutrition 2008, 2009, and 2010; <http://www.epi.hss.state.ak.us/mcheper/cubs/data/>

The data show that water consumption is down almost three percent overall from 2008 to 2010 (See Table 6.20). On average, 3.5 percent drank no water; 8.2 percent drank less than one cup; 20.3 drank one cup; 27.3 percent drank two cups; 21 percent drank three cups; and 19.7 percent drank more than three cups of water on the day prior.

The number of children that did not drink water decreased more than 23 percent from 2008 to 2010. Decreases were also seen in children who drank less than one cup of water (-3.6%), one cup (-5.2%), two cups (-2.6%), and more than three cups (-0.5%). An increase of nearly 18 percent was seen for children who drank three cups of water.

Table 6.21. Cups of Milk Consumed: Alaska Children Three Years Old and Younger, 2008-2010

	2008	2009	2010
None	3.8 %	4.5 %	6.9 %
Less than one	8.3	8.6	6.9
One	20.0	22.3	29.4
Two	38.0	38.6	32.6
Three	19.5	16.3	14.7
More than three	10.4	9.6	9.4

Source: Alaska Department of Health & Social Services, Women's, Children's, and Family Health Section, Alaska CUBS Results - Nutrition 2008, 2009, and 2010; <http://www.epi.hss.state.ak.us/mcheper/cubs/data/>

The data show that milk consumption is up almost 11 percent overall from 2008 to 2010 (See Table 6.21). On average, children under 3 years of age drink: no milk (5.1%), less than one cup (7.9%), one cup (23.9%), two cups (36.4%), three cups (16.8%), and more than three (9.8%).

The number of children that did not drink milk increased nearly 82 percent from 2008 to 2010. Decreases were seen in children who drank less than one cup of milk (-16.9%), two cups (-14.2%), three cups (-24.6%), and more than three cups (-9.6%). An increase of 47 percent was seen for children who drank one cup of milk.

Table 6.22. Cups of Fruit Juice Consumed: Alaska Children Three Years Old and Younger, 2008-2010

	2008	2009	2010
None	17.8 %	20.4 %	24.2 %
Less than one	15.5	18.9	16.7
One	27.9	28.8	24.9
Two	21.9	20.9	20.5
Three	12.7	7.7	7.7
More than three	4.2	3.3	6.0

Source: Alaska Department of Health & Social Services, Women's, Children's, and Family Health Section, Alaska CUBS Results - Nutrition 2008, 2009, and 2010; <http://www.epi.hss.state.ak.us/mcheppi/cubs/data/>

The data show that 100% fruit juice consumption is up five percent overall from 2008 to 2010 (See Table 6.22). On average, children under 3 years of age drink: no fruit juice (20.8%), less than one cup (17.0%), one cup (27.2%), two cups (21.1%), three cups (9.4%), and more than three (4.5%).

The number of children that drank no fruit juice increased 36 percent from 2008 to 2010. Decreases were seen in children who drank one cup of fruit juice (-10.8%), two cups (-6.4%), and three cups (-39.4%). Increases of nearly eight percent were seen for children who drank less than one cup of fruit juice and nearly 43 percent for children who drank more than three cups.

Table 6.23. Cups of Soda or Pop Consumed: Alaska Children Three Years Old and Younger, 2008-2010

	2008	2009	2010
None	74.9 %	78.1 %	79.9 %
Less than one	14.4	14.1	14.7
One	7.4	4.9	3.3
Two	2.4	1.9	1.6
Three	0.6	0.5	0.3
More than three	0.4	0.4	0.2

Source: Alaska Department of Health & Social Services, Women's, Children's, and Family Health Section, Alaska CUBS Results - Nutrition 2008, 2009, and 2010; <http://www.epi.hss.state.ak.us/mcheppi/cubs/data/>

The data show that soda consumption is down 30 percent overall from 2008 to 2010 (See Table 6.23). On average, children under 3 years of age drink: no soda (77.6%), less than one cup (14.4%), one cup (5.2%), two cups (2.0%), three cups (0.5%), and more than three (0.3%).

The number of children that did not drink soda increased nearly seven percent from 2008 to 2010. Decreases were seen in children who drank one cup of soda (-55.4%), two cups (-33.3%), three cups (-50.0%), and more than three cups (-50.0%). An increase of more than two percent was seen for children who drank less than one cup of soda.

The data show that sweetened fruit drink consumption is down almost four percent overall from 2008 to 2010 (See Table 6.24). On average, children under 3 years of age drink: no sweetened fruit drinks (65.2%), less than one cup (9.5%), one cup (12.1%), two cups (7.4%), three cups (3.3%), and more than three (2.5%).

Table 6.24. Cups of Sweetened or Fruit Drinks Consumed: Alaska Children Three Years Old and Younger, 2008-2010

	2008	2009	2010
None	65.2 %	65.4 %	65.0 %
Less than one	9.1	12.3	7.2
One	11.9	11.3	13.0
Two	7.2	5.5	9.5
Three	3.8	3.0	3.0
More than three	2.8	2.5	2.2

Source: Alaska Department of Health & Social Services, Women's, Children's, and Family Health Section, Alaska CUBS Results - Nutrition 2008, 2009, and 2010; <http://www.epi.hss.state.ak.us/mcheppi/cubs/data/>

The number of children that did not drink sweetened fruit drinks decreased three-tenths of one percent from 2008 to 2010. Decreases were seen in children who drank less than one cup of sweetened fruit drinks (-20.9%), three cups (-21.1%), and more than three cups (-21.4%). Increases of more than nine percent were seen for children who drank

less than one cup of sweetened fruit drinks and nearly 32 percent for children who drank two cups.

Consumption of Fruits, Vegetables, and Candy Cookies and Sweets

Food consumption by younger children plays a role in how they:

- establish eating habits - when, what and how much to eat;
- provide nutrition - consumption of vitamins and minerals; and
- begin the classification of liked and disliked foods.

The Alaska Childhood Understanding Behaviors (CUBS) Survey asks a sample of mothers of 3 year old children born in Alaska the following questions to assess the child's consumption of Fresh, Canned, Frozen or Dried Fruit; French Fries, Tator Tots, or Potatoes Chips; Other Vegetables or Salad; and Candy, Cookies, or Other Sweets.

Yesterday, about how many times (including meals and snacks) did your child eat FRESH, CANNED, FROZEN OR DRIED FRUIT?

Yesterday, about how many times (including meals and snacks) did your child eat FRENCH FRIES, TATOR TOTS OR POTATO CHIPS?

Yesterday, about how many times (including meals and snacks) did your child eat FRENCH FRIES, TATOR TOTS OR POTATO CHIPS?

Yesterday, about how many times (including meals and snacks) did your child eat CANDY, COOKIES, OR OTHER SWEETS?

With the growing concern of childhood obesity, helping young children establish healthy eating habits is essential. When children are three and younger, snacks are a large part of their diet. Healthy snacks provide good nutrition and support healthy eating habits. Often fresh, canned, frozen or dried fruit are served as snacks to young children.

Table 6.25. Consumption of Fresh, Canned, Frozen, or Dried Fruit: Alaska Children Three Years Old and Younger, 2008-2010

	2008	2009	2010
None	12.9 %	7.0 %	7.4 %
One	26.8	30.6	26.3
Two	36.7	38.0	37.8
Three	16.7	16.4	17.7
More than three	6.9	8.0	10.8

Source: Alaska Department of Health & Social Services, Women's, Children's, and Family Health Section, Alaska CUBS Results - Nutrition 2008, 2009, and 2010; <http://www.epi.hss.state.ak.us/mcheper/cubs/data/>

The data show that fruit consumption is up more than four percent overall from 2008 to 2010 (See Table 6.25). On average, children under 3 years of age eat: no fresh, canned, frozen, or dried fruit (9.1%), one serving (27.9%), two servings (37.5%), three servings (16.9%), and more than three

servings (8.6%) on a daily basis.

The number of children that did not eat fruit decreased almost 43 percent from 2008 to 2010. A decrease of nearly two percent was also seen in children who ate one serving of fruit daily. Increases were seen in children who ate two servings (3.0%), three servings (6.0%), and more than three servings (56.5%) of fruit daily.

Table 6.26. Consumption of French Fries, Tator Tots, or Potato Chips: Alaska Children Three Years Old and Younger, 2008-2010

	2008	2009	2010
None	57.3 %	59.2 %	57.2 %
One	36.6	32.8	35.3
Two	4.1	5.4	6.4
Three	1.5	2.1	0.3
More than three	0.4	0.5	0.7

Source: Alaska Department of Health & Social Services, Women's, Children's, and Family Health Section, Alaska CUBS Results - Nutrition 2008, 2009, and 2010; <http://www.epi.hss.state.ak.us/mcheper/cubs/data/>

The data show that fried potato consumption is up nearly 10 percent overall from 2008 to 2010 (See Table 6.26). On average over this three-year period, children under three eat: no french fries, tator tots, or potato chips (57.9%), one serving (34.9%), two servings (5.3%), three servings (1.3%), and more than three servings (0.5%) of fried potatoes on

a daily basis.

The number of children that did not eat fried potatoes decreased two-tenths of a percent from 2008 to 2010. Decreases were seen in one serving (-3.6%) and three servings (-80.0%). Increases were seen for children who ate two servings (56.1%) and more than three servings (75.0%) daily.

Table 6.27. Consumption of Other Vegetables or a Salad: Alaska Children Three Years Old and Younger, 2008-2010

	2008	2009	2010
None	13.6 %	14.7 %	16.0 %
One	36.8	35.0	35.5
Two	36.9	34.8	35.1
Three	10.5	11.8	10.5
More than three	2.2	3.6	3.0

Source: Alaska Department of Health & Social Services, Women's, Children's, and Family Health Section, Alaska CUBS Results - Nutrition 2008, 2009, and 2010; <http://www.epi.hss.state.ak.us/mcheppi/cubs/data/>

The data show that vegetable consumption is up more than nine percent overall from 2008 to 2010 (See Table 6.27). On average over this three-year period, children under 3 years of age ate: no other vegetables or a salad (14.8%), one serving (35.8%), two servings (35.6%), three servings (10.9%), and more than three servings (2.9%) of

vegetables or a salad on a daily basis.

The number of children who didn't eat vegetables or salads, increased by 18 percent over the three-year period. Decreases were seen in one serving (-3.5%) and two servings (-4.9%). Increases were seen for children who ate more than three servings (36.4%), while three servings remained unchanged.

Table 6.28. Consumption of Candy, Cookies, or Other Sweets: Alaska Children Three Years Old and Younger, 2008-2010

	2008	2009	2010
None	25.1 %	26.3 %	22.7 %
One	55.5	50.4	58.2
Two	16.6	18.9	16.0
Three	1.7	3.4	2.6
More than three	1.0	1.0	0.6

Source: Alaska Department of Health & Social Services, Women's, Children's, and Family Health Section, Alaska CUBS Results - Nutrition 2008, 2009, and 2010; <http://www.epi.hss.state.ak.us/mcheppi/cubs/data/>

The data show that sweets consumption is up nine-tenths of one percent overall from 2008 to 2010 (See Table 6.28). On average over the three-year period, children under 3 years of age ate: no candy, cookies, or other sweets (24.7%), one serving (54.7%), two servings (17.2%), three servings (2.6%), and more than three servings (0.9%) of candy, cookies or

other sweets on a daily basis.

The number of children who did not eat sweets decreased by nearly 10 percent between 2008 and 2010. Decreases were seen in two servings (-3.6%) and more than three servings (-40.0%). Increases were seen for children who ate one serving (4.9%), and three servings (52.9%).

Foodborne Outbreaks

Food safety has been improved with the use of pasteurization, safe canning practices, and disinfection of water supplies. Foodborne outbreaks are the measurement of foodborne illness or disease caused by the consumption of contaminated food or beverages. Foodborne outbreaks are identified and reported to the Centers for Disease Control and Prevention which maintains the Foodborne Disease Outbreak Surveillance system. Outbreak reporting is voluntary. The Food Safety and Sanitation Program within the Municipality of Anchorage, permits, regulates, and inspects public facilities. It provides information on the prevention of illness and disease related to food and investigates complaints of illness potentially related to food. The Alaska Division of Environmental Health provides these services for retail and manufactured food, including seafood and shellfish, for areas outside the Anchorage Municipality. The Alaska Division of Epidemiology collects data and reports foodborne illness and outbreaks in their Epidemiology Bulletins.

The Alaska Division of Epidemiology reported 79 outbreaks between 2000 and 2008, resulting in 844 people suffering from foodborne ailments.⁸³ More than half of the foodborne outbreaks originated from foods served in private homes. Botulism accounted for nearly half of all food contaminants.

⁴⁷ American Fact Finder, NAICS 4451 Grocery Stores, Alaska. 2002 *Economic Census and 2007 Economic Census*. U.S. Census Bureau; <http://www.census.gov/econ/census02/data/industry02/E4451.HTM>

⁴⁸ Lin, B.-H; Frazão, E.; & Guthrie, J. (1999). *Away from home food increasingly important to quality of American diet*. Economic Research Service, U.S. Department of Agriculture: Washington, D.C.
<http://www.ers.usda.gov/publications/aib749/aib749.pdf>

⁴⁹ <http://ers.usda.gov/FoodAtlas/>

⁵⁰ State of Alaska Department of Labor and Workforce Development, Research and Analysis, *Occupational Forecast 2008-2018*; <http://live.laborstats.alaska.gov/occfest/index.cfm>

⁵¹ Gunnar Knapp, personal communication, April 5, 2012

⁵² Wikipedia; *Food Security*; http://en.wikipedia.org/wiki/Food_security

⁵³ EC-FAO Food Security Programme; <http://www.fao.org/docrep/013/al936e/al936e00.pdf>

⁵⁴ Economic Research Service, U.S. Department of Agriculture. 2009. *Food Security in the United States: Measuring Household Food Security*; <http://www.ers.usda.gov/Briefing/FoodSecurity/measurement.htm>

⁵⁵ U.S. Census Bureau. *How Poverty is Calculated in the ACS*; <http://www.census.gov/hhes/www/poverty/poverty-cal-in-acs.pdf>

⁵⁶ IRS, *EITC Home Page--It's easier than ever to find out if you qualify for EITC*;
<http://www.irs.gov/individuals/article/0,,id=96406,00.html>

⁵⁷ Annual household surveys that supplement the U.S. Census Bureau's monthly *Current Population Survey*

⁵⁸ *Household Food Security in the United States*, 2008 and 2011. Economic Research Reports No. 83 and No. 141, USDA Economic Research Service.

⁵⁹ Alaska WIC Program. *WIC Program Overview*;

<http://hss.state.ak.us/dpa/programs/nutri/wic/Participants/WICProgramOverview.htm>

⁶⁰ Food & Nutrition Service, U.S. Department of Agriculture, *The School Breakfast Program*;
<http://www.fns.usda.gov/cnd/breakfast/AboutBFast/SBPFactSheet.pdf>

⁶¹ Food & Nutrition Service, U.S. Department of Agriculture, *Summer Food Service Program*;
<http://www.fns.usda.gov/cnd/summer/>

⁶² Barril, H. *Summer food service program: Food that's in when school is out*. State of Alaska, Department of Education and Early Development; <http://www.eed.state.ak.us/tls/cnp/pdf/FoodThatsInWhenSchoolIsOut.pdf>

⁶³ Food & Nutrition Service, U.S. Department of Agriculture. *Child & Adult Care Food Program*;
<http://www.fns.usda.gov/cnd/care/CACFP/aboutcacfp.htm>

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- ⁶⁴ Alaska Department of Education & Early Development. *Child and Adult Care Food Program*; <http://www.eed.state.ak.us/tls/cnp/CACFP.html>
- ⁶⁵ Food & Nutrition Service, U.S. Department of Agriculture. *Special Milk Program*; <http://www.fns.usda.gov/cnd/milk/>
- ⁶⁶ Food & Nutrition Service, U.S. Department of Agriculture. *Food Distribution Program on Indian Reservations*; http://www.fns.usda.gov/fdd/programs/fdpir/about_fdpir.htm
- ⁶⁷ Alaska Native Tribal Health Consortium. *Food Distribution Program on Indian Reservations*; <http://www.anthc.org/chs/wp/fdpir/>
- ⁶⁸ Food & Nutrition Service, U.S. Department of Agriculture. *Commodity Supplemental Food Program*; <http://www.fns.usda.gov/fdd/programs/csfp/>
- ⁶⁹ Alaska Department of Health & Social Services. *Commodity Supplemental Food Program (CSFP)*; <http://www.hss.state.ak.us/dpa/programs/nutri/CSFP/default.htm>
- ⁷⁰ Food & Nutrition Service, U.S. Department of Agriculture. *The Emergency Food Assistance Program*; <http://www.fns.usda.gov/fdd/programs/tefap/>
- ⁷¹ Alaska Department of Education & Early Development. *The Emergency Food Assistance Program (TEFAP): Alaska participation list for household distribution*; <http://www.eed.state.ak.us/tls/cnp/pdf/Household.pdf>
- ⁷² Morgan, S. Who is hungry in Alaska: Anti-hunger network in Alaska; <http://www.rasmuson.org/blog/?p=2947>
- ⁷³ Food Bank of Alaska, *2011 Annual Report: "Tools of the Trade"*; http://www.foodbankofalaska.org/_uploads/page/1/food_bank_of_alaska_2011.pdf
- ⁷⁴ National Heart Lung and Blood Institute, National Institutes of Health. *Calculate your body mass index*; <http://www.nhlbisupport.com/bmi/>
- ⁷⁵ US Department of Health and Human Services. *The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity 2001*; <http://www.surgeongeneral.gov/library/calls/obesity/CalltoAction.pdf>
- ⁷⁶ The Centers for Disease Control and Prevention (CDC) conducts the national Youth Risk Behavior Survey (YRBS). This survey, conducted every two years in the spring, tracks health related behaviors among youth. Participants are students in public and private schools in the 9th through 12th grades.
- ⁷⁷ Alaska Department of Health and Social Services, Women's, Children's & Family Health Section. *Low birthweight and preterm births in Alaska*; http://www.epi.alaska.gov/mcheipi/pubs/facts/na/Vol2_Num05.pdf
- ⁷⁸ The Centers for Disease Control and Prevention (CDC) conducts the national Youth Risk Behavior Survey (YRBS). This survey, conducted every two years in the spring, tracks health related behaviors among youth. Participants are students in public and private schools in the 9th through 12th grades.
- ⁷⁹ Alaska Department of Health & Social Services; *2009 Alaska Youth Risk Behavior Survey*; <http://www.hss.state.ak.us/dph/chronic/school/pubs/2009AKHQuestionnaire.pdf>
- ⁸⁰ Centers for Disease Control and Prevention, (2011, June 17). Beverage consumption among high school students –United States, 2010. *Morbidity and Mortality Weekly Report (MMWR)*, 60 (23), 778-780.
- ⁸¹ The Centers for Disease Control and Prevention (CDC) conducts the national Youth Risk Behavior Survey (YRBS). This survey, conducted every two years in the spring, tracks health related behaviors among youth. Participants are students in public and private schools in the 9th through 12th grades.
- ⁸² The CUBS Survey is a 3 year follow-up of the Alaska Pregnancy Risk Assessment Monitoring System (PRAMS) The purpose of the Alaska CUBS Survey is to collect information about the behaviors, health and experiences of pre-school aged children.
- ⁸³ State of Alaska Epidemiology Section. *Foodborne Outbreaks in Alaska 2000-2003*; http://www.epi.alaska.gov/bulletins/docs/rr2004_02.pdf and *Foodborne Outbreaks in Alaska, 2004-2008*; http://www.epi.alaska.gov/bulletins/docs/rr2010_02.pdf

Chapter 7: Food Waste and Waste Management

Waste takes place at every stage in the food system. Because of the complexity of the food system and the myriad of possibilities for loss, it is extremely difficult to estimate the amount of loss in each component, much less the total amount, the edible amount, or the value. In their report, *Estimating and Addressing America's Food Losses*, the authors discuss the difficulty of estimating food loss. “[D]ue to the enormous size and diversity of the American food industry, few studies estimate aggregate marketing losses across the entire food sector. Typically, researchers report food losses as a percentage of food servings, household food stocks, or retail inventories at specific points in the marketing system, such as fresh fruit and vegetable losses in supermarket produce departments, household plate waste, or preparation and storage losses in foodservice operations.”⁸⁴

Unfortunately we were not able to locate data on food waste or food waste management in Alaska at the statewide level. We are presenting data on food waste for the U.S. as whole, which has obvious problems since the structure of Alaska’s economy is quite different from that in other states, however looking at US information does give a sense of the scale of the problem. This is clearly an area where information for Alaska is needed.

Estimates of Waste

Table 7.1. Food Loss within the Food System

Farm and post-harvest	Preharvest losses due to severe weather, disease, and predation Harvest losses attributed to mechanization, production practices, and decisions Storage losses due to insects, mold, deterioration, shrinkage, and spoilage
Processing and wholesaling	Removal of inedible portions— bones, blood, peels, pits, etc. Discard of substandard products (bruised fruit, etc.) Shrinkage in storage Poor handling or packaging failure Transportation losses
Retail	5.4 billion pounds of food were lost at the retail level in 1995 Retail losses were less than 2 percent of edible food supplies Dairy products and fresh fruits and vegetables accounted for half of retail losses
Consumer and foodservice	91 billion pounds of food were lost by consumers and foodservice in 1995 Foodservice and consumer losses accounted for 26 percent of edible food supplies Fresh fruits and vegetables accounted for nearly 20 percent of consumer and foodservice losses
<p>Source: U.S. Department of Agriculture, <i>Economic Research Service</i>, http://www.ers.usda.gov/Publications/FoodReview/Jan1997/Jan97a.pdf</p> <p>Note: Foodservice and consumer losses include storage, preparation, and plate waste at the household and foodservice levels.</p>	

Waste can occur in any component in the food system, but is especially apparent in the production, processing, and consumption of food. Table 7.1 shows the key points of loss in the food system.

Estimates of the amount of food lost, the value of that food, and the percentage increase vary among different sources. The Economic Research Service (USDA) estimates that roughly 356 billion pounds of consumable food were available in 1995 and about 96 billion (27 percent) were lost. Of the 356 billion pounds available, two-thirds of these losses occurred at three stages: fresh fruits and vegetables, fluid milk, grain products, and sweeteners (mostly sugar and high-fructose corn syrup).⁸⁵ In an article entitled, “The Progressive Increase of Food Waste in America and Its Environmental Impact,” the authors found that US per capita food waste had

increased by 50% since 1974. Also in 1974, the food waste was 30% of the available food supply and was 40% by 2003. The article goes on to say that roughly 49 million people could have been fed by those lost resources.⁸⁶

According to *A Citizen's Guide to Food Recovery*, up to one-fifth of America's food goes to waste each year, with an estimated 130 pounds of food per person ending up in landfills. The annual value of this lost food is estimated at around \$31 billion.⁸⁷

Waste Management

Waste management is conceived of as activities to collect, store, process, and transform discarded food materials into useable products for soil amendments, like compost. Again, we could not locate any statewide efforts aimed at food waste management. We did find local activities around the state, but none that were statewide, which is the focus of this report. Among the promising efforts:

Biomass projects based on oil from the fishing industry:

UniSea, Inc. uses biodiesel with up to 70% pollock oil at their Unalaska facility for electricity production. The Alaska Energy Authority is also working with UniSea Inc. to test the use of fish oil diesel blends in electric power generation in a 2.2 MW generator. UniSea now uses around 1 million gallons of up to 70% fish oil for electricity production each year in their Unalaska facility. Currently all processing of the fish oil into biodiesel is outsourced to a commercial facility in Hawaii.

There are several operations around the state that collect used cooking oil to make traditional waste vegetable oil biodiesel available. The Alaska Biodiesel and Straight Vegetable Oil (SVO) Network operates in Southcentral Alaska and provides resources and classes for people interested in making biodiesel or converting their cars to run on SVO.⁸⁸

Producing compost from biosolids:

Golden Heart Utilities Wastewater Treatment Facility in Fairbanks produces compost from biosolids. The waste is collected from utilities, pumping companies, and public institutions and processed to fulfill the requirements of the Alaska Department of Environmental Conservation and the Environmental Protection Agency.⁸⁹

⁸⁴“Estimating and Addressing America’s Food Losses,” Page3;

<http://www.ers.usda.gov/Publications/FoodReview/Jan1997/Jan97a.pdf>

⁸⁵ “Estimating and Addressing America’s Food Losses,” Page3;

<http://www.ers.usda.gov/Publications/FoodReview/Jan1997/Jan97a.pdf>

⁸⁶ Hall, KD, Guo J., Dore M, Chow CC (2009). The Progressive Increase of Food Waste in America and Its Environmental Impact, Laboratory of Biological Modeling, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda,

Maryland, United States of America. PLoS ONE | November 2009 | Volume 4 | Issue 11 | e7940;

<http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0007940>

⁸⁷ A Citizen's Guide to Food Recovery. <http://www.usda.gov/news/pubs/gleaning/two.htm>

⁸⁸ Renewable Energy Alaska Project,

<http://alaskarenewableenergy.org/alaskas-resources/types-renewable-energy/biomass/>

⁸⁹ Cooperative Extension Service, University of Alaska Fairbanks, <http://www.uaf.edu/ces/ah/compost/goldenheart/>

Chapter 8: Conclusion

The list of information we'd like to know is quite long. While we've located and compiled an extensive list of indicators, some of the most basic information isn't collected, is proprietary, or isn't readily available.

Food Imports and Transport

The majority of imported food enters Alaska via shipping containers on vessels coming through the Port of Anchorage. Additional foods are transported into the state via barge and truck as well. Not only is the quantity of food transported through each mode currently unknown, but the mode of transportation from production locations to ports in Washington, Oregon, and California is unknown. An understanding of the quantity of food coming into Alaska by each mode should be of interest to the state – especially when considering disaster preparedness for the state. At this time, there is no known data collection identifying the costs of shipping within the state.

Special consideration should be given to the cost of shipping food within the state of Alaska once it has been received at the Port of Anchorage. Costs associated with the need to ship food to rural communities should be of interest to the state – especially monetary and environmental costs associated with the use of fossil fuels. At this time, there is no known data collection identifying the costs of shipping within the state.

Food Security

Disaster Preparedness - In the fall of 2012 Governor Parnell announced plans for two food stockpiles- in Anchorage and Fairbanks.⁹⁰ The plan is to have stockpiles that could feed 40,000 people for up to one week. While this may be beneficial to people in Anchorage and Fairbanks, it does not address disaster relief for remote villages where food security is already at dangerous levels. Additionally, it does not provide for nearly enough people – with over 700,000 people in the state, it seems woefully inadequate should a disruption in supply chains occur. It would help in planning efforts to know and maintain information on all sources and quantities of food around the state – including food inventories in retail establishments.

Freedom from hunger and access to safe and nutritious food at all times are important tenets to the idea of food security. This is a particularly painful concern in rural Alaska where there is higher unemployment and higher food costs. Knowing the quantity of food distributed by food pantries and church larders and the unmet need would be important to document. While we have presented some of this information, much charitable food distribution is unreported. This gap in data tends to hide the true need for food assistance, especially in smaller communities throughout the state.

Keep farmland as farmland. Virtually everyone agrees that subdivisions now stand on some of what was previously farmland in the Mat-Su Valley, although no one has estimated how much total acreage has been converted.⁹¹ The Alaska Farmland Trust is one example of efforts to keep existing farmland; it has used conservation easements to help retain about 120 acres so far.⁹²

Increasing the number of farmer’s markets, in more Alaska communities and building greenhouses in a number of remote communities, to reduce the need for rural Alaskans to rely on expensive vegetables from far-away places—and to improve local access to healthy foods. In Bethel there is also a farm, the only one of its kind in the region, producing vegetables.⁹³

Food storage information was also difficult to locate. We heard that one of the potential uses of the space not used by the Co-op Market, at the Foodland Building, could be for food storage. We were unable to substantiate this information. Additionally, we were unable to clearly identify food storage warehouses from the state’s collected data on business licensing.

A potential difficulty could be the ongoing updating of the indicators. While there is a centralized baseline now, updating the indicators is time consuming. Yet the ability to respond quickly to inquiries and to monitor trends is vital. It becomes especially important if new processes, techniques, or changes are implemented and the impacts need to be documented.

⁹⁰ <http://www.ktuu.com/news/parnell-plans-to-stockpile-food-in-anchorage-fairbanks-082812,0,3563124.story>

⁹¹ Experts in the agriculture industry say getting adequate data for such an estimate would be very difficult and time consuming

⁹² See Alaska Farmland Trust, www.akfarmland.com.

⁹³ We could not find a list of all the rural communities with greenhouses, but some examples include existing greenhouses in Chena Hot Springs and Nikolski and planned ones in Ft. Yukon and St. George. The farm in Bethel is Meyers Farm; see www.meyersfarm.net.

Appendices

Appendix A: Definitions of “Food-at-home”

Food-at-home expenditures include food sales from (1) Food Stores; (2) Other Stores; (3) Home Delivery and Mail Order; (4) Farmers, Manufacturers, and Wholesalers; and (5) Home Production and Donations.⁹⁴

Food Stores include grocery stores; specialty food stores; sales to restaurants, institutions, and others; and military outlets, stores, exchanges, and canteens.

Other Stores include department stores; other general merchandise stores; warehouse/wholesale clubs and supercenters; variety stores; gas stations; health and personal care stores; beer, wine and liquor stores; full-service restaurants; limited-service eating places; drinking places; and special food service or other eating places.

Home Delivery and Mail Order Electronic Shopping and Mail-Order Houses include establishments primarily engaged in retailing all types of merchandise using non-store means, such as catalogs, toll free telephone numbers, or electronic media, and vending machines and other direct selling establishments.

Farmers, Manufacturers, and Wholesalers Purchases Directly from Farmers and Fishermen, includes purchases directly from manufacturers and purchases by wholesales.

Home Production and Donations Home Production include home production of meat and dairy, and food donations to families from the Special Supplemental Program for Women, Infants, and Children (WIC) and special distributions from The Emergency Food Assistance Program (TEFAP).

⁹⁴ Detailed definitions of at-home food expenditures is available from the Economic Research Service, U.S. Department of Agriculture, at: <http://www.ers.usda.gov/Briefing/CPIFoodAndExpenditures/measuringtheersfoodexpendituresseries.htm#fah>

Appendix B: Definition of “Food away-from-home”

Food-away-from-home expenditures include food sales from (1) Eating and Drinking Places, (2) Hotels and Motels, (3) Retail Stores and Direct Selling, (4) Recreational Places, (5) Schools and Colleges, and (6) All Other.⁹⁵

Eating and Drinking Places include full-service restaurants; limited-service restaurants; other eating places or special food services; and drinking places.

Hotels and Motels include traveler accommodation.

Retail Stores and Direct Selling includes grocery stores; specialty food stores; department stores; warehouse/wholesale clubs and superstores; all other general merchandise stores; gas stations; health and personal care stores; beer, wine, and liquor stores; vending machines and other direct selling establishments; and food service contractors or contract feeding.

Recreational Places include motion picture theaters; bowling centers; sporting and recreation camps; amusement parks, arcades, and theme parks; commercial sports and racetracks; museums, zoos, historical sites; and membership sports and golf courses;.

Schools and Colleges include sales from day schools; sales from boarding schools; higher education food sales; and child nutrition subsidies.

All Other Military includes exchanges; military clubs; veteran’s canteen services; organization hotels and lodging houses; civic, social and fraternal organizations; grocery and related wholesalers; and contract feeding in offices.

⁹⁵ Detailed definitions of food-away-from home expenditures is available from the Economic Research Service, U.S. Department of Agriculture, at: <http://www.ers.usda.gov/Briefing/CPIFoodAndExpenditures/measuringtheersfoodexpendituresseries.htm#fah>

Appendix C: List of Data Sources

Indicator	Report ID	Data Year(s)	Source(s)	Source Title(s)	Web Address
Demographic Indicators					
Alaska Population, 1960-2010	Figure 1.1	1960 1970 1980 1990 2000 2010	U.S. Census Bureau	Historical Population Estimates, Census 2000, Census 2010	http://www.census.gov/popest/data/state/asrh/1980s/tables/st6070ts.txt ; http://www.census.gov/popest/data/state/asrh/1980s/tables/st8090ts.txt ; http://quickfacts.census.gov/qfd/states/02000.html
Population Growth, Alaska and U.S., 1960-2010	Table 1.1	1960 1970 1980 1990 2000 2010	U.S. Census Bureau	Historical Population Estimates, Census 2000, Census 2010	http://www.census.gov/popest/data/state/asrh/1980s/tables/st6070ts.txt ; http://www.census.gov/popest/data/state/asrh/1980s/tables/st8090ts.txt ; http://quickfacts.census.gov/qfd/states/02000.html
Population Growth Projections for Alaska, 2009-2034	Table 1.2	2009-2034	Alaska Department of Labor & Workforce Development	Alaska Population Projections 2009-2034, Table 1.4	http://labor.alaska.gov/research/pop/popproj.htm
Alaska Population and Population Density, 1960-2010	Table 1.3	1960-2010	U.S. Census Bureau	Resident Population Data: Population Density	http://2010.census.gov/2010census/data/apportionment-dens-text.php
Racial Distribution in Alaska, 2000, 2010	Figure 1.2	2000 2010	U.S. Census Bureau	Profile of General Population and Housing Characteristics: Census 2000 Summary File 1 (SF 1); Profile of General Population and Housing Characteristics: 2010 Demographic Profile Data	http://quickfacts.census.gov/qfd/states/02000lk.html
Urban and Rural Population in Alaska, 2000, 2010	Table 1.4	2000 2010	U.S. Census Bureau	Table GCT-P1: Urban/Rural and Metropolitan/Nonmetropolitan Population: 2000 Census Summary File 2; Table PCT2: Urban and Rural Universe: Total population 2010 Census Summary File 2	http://factfinder2.census.gov/
Median Household Income: Alaska and U.S., 2000-2010	Figure 1.3	2000-2010	U.S. Census Bureau	Table H-8. Median Household Income by State: 1984 to 2010 (Households as of March of the following year. Income in current and 2010 CPI-U-RS adjusted dollars ²⁸)	http://www.census.gov/hhes/www/income/data/statemedian/index.html
Demographic Indicators					

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Per Capita Income: Alaska and U.S., 2000-2011	Figure 1.4	2000-2011	Bureau of Economic Analysis	National Income and Product Accounts Table 2.1 Personal Income and Its Disposition; Regional Data: GDP & Personal Income Table SA1-3	http://www.bea.gov/iTable/index_regional.cfm ; http://www.bea.gov/iTable/iTable.cfm?ReqID=9&step=1
Alaska Income and Employment Summary, 2000-2011	Table 1.5	2000-2011	Bureau of Economic Analysis	Regional Data: GDP & Personal Income Table SA04	http://www.bea.gov/iTable/iTable.cfm?ReqID=9&step=1
Alaska Annual Average Monthly Employment, 2001-2011	Figure 1.5	2001-2011	Research and Analysis Section, Alaska Department of Labor & Workforce Development	Monthly Employment Statistics Current Data (Not Seasonally Adjusted)	http://labor.alaska.gov/research/ces/ces.htm
Trends in Alaska Unemployment Rate, 2001-2012	Figure 1.6	2001-2012	Research and Analysis Section, Alaska Department of Labor & Workforce Development	Unemployment Rates and Employment Current Data: Alaska (Not Seasonally Adjusted)	http://labor.alaska.gov/research/labforce/labforce.htm
Poverty Trends: Percent of Alaska and U.S. Population Below Poverty Line	Figure 1.7	1959 1969 1979 1989 1999 2009	U.S. Census Bureau	Table CPH-L-162 - Persons by Poverty Status in 1959, 1969, 1979, 1989, and 1999 by state; Census 2010 - State & County QuickFacts	http://www.census.gov/hhes/www/poverty/data/census/1960/index.html ; http://quickfacts.census.gov/qfd/states/02000.html
Annual Average Number of TANF Recipients in Alaska, 2000-2011	Figure 1.8	2000-2011	Administration for Children & Families, U.S. Department of Health and Human Services	Caseload Data 2011	http://www.acf.hhs.gov/programs/ofa/data-reports/caseload/caseload_current.htm
Population by Age: Alaska, 2000-2010	Figure 1.9	2000-2010	U.S. Census Bureau	Population by Age	http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk
Production Indicators					
Census of Agriculture: Alaska, 1997, 2002, 2007	Table 2.1	1997 2002 2007	Economic Research Service, U.S. Department of Agriculture	State Fact Sheets: Alaska	http://www.ers.usda.gov/StateFacts/AK.htm
Certified Organic Operations in Alaska, 2004-2008	Table 2.2	2004 2005 2006 2007 2008	Economic Research Service, U.S. Department of Agriculture	Organic Production : State-Level Tables	http://www.ers.usda.gov/Data/Organic/
Production Indicators					
Crop Production Employment, 2006-2010	Table 2.3	2006-2010	Alaska Department of Labor & Workforce Development	Quarterly Census of Employment and Wages (QCEW)	http://labor.alaska.gov/research/qcew/qcew.htm

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Farm income and value added data, 2009, 2010	Table 2.4	2009 2010	Economic Research Service, U.S. Department of Agriculture	State Fact Sheets: Alaska	http://www.ers.usda.gov/StateFacts/AK.htm
Top five agriculture commodities, 2010	Table 2.5	2010	Economic Research Service, U.S. Department of Agriculture	State Fact Sheets: Alaska	http://www.ers.usda.gov/StateFacts/AK.htm
Top five agriculture exports, estimates, 2010	Table 2.6	2010	Economic Research Service, U.S. Department of Agriculture	State Fact Sheets: Alaska	http://www.ers.usda.gov/StateFacts/AK.htm
Alaska Cash Receipts from Farm Marketings, 2003-2010	Table 2.7	2003- 2010	Economic Research Service, U.S. Department of Agriculture	Alaska Cash Receipts from Farm Marketings 2003-2010	http://www.nass.usda.gov/Statistics_by_State/Alaska/Publications/Annual_Statistical_Bulletin/2011/akcash11.pdf
Alaska Commercial Fishing: Salmon (all species) Harvest, 2000-2011	Table 2.8	2000- 2011	Alaska Department of Fish and Game	Commercial Fisheries: Alaska Commercial Salmon Harvests and Exvessel Values	http://www.adfg.alaska.gov/index.cfm?adfg=CommercialByFisherySalmon.exvesselquery
Alaska Commercial Fishing: Groundfish Harvest, 2007-2008	Table 2.9	2007 2008	Alaska Department of Fish and Game	Information by Fishery: Commercial Groundfish Harvests & Exvessel Values (State-Managed Fisheries)	http://www.adfg.alaska.gov/index.cfm?adfg=CommercialByFisheryGroundfish.exvessequery
Alaska Commercial Fishing: Shellfish Harvest (Pounds), 2001-2009	Figure 2.1	2000- 2009	Alaska Department of Fish and Game	Commercial Fisheries: Alaska Shellfish Harvests & Exvessel Values, 2000-2009	http://www.adfg.alaska.gov/index.cfm?adfg=CommercialByFisheryshellfish.exvessel_2009
Alaska Commercial Fishing: Shellfish Harvest by Type, 2001-2009	Figure 2.2	2000- 2009	Alaska Department of Fish and Game	Commercial Fisheries: Alaska Shellfish Harvests & Exvessel Values, 2000-2009	http://www.adfg.alaska.gov/index.cfm?adfg=CommercialByFisheryshellfish.exvessel_2009
Alaska Commercial Fishing: Shellfish Harvest (Exvessel Value), 2001-2009	Figure 2.3	2000- 2009	Alaska Department of Fish and Game	Commercial Fisheries: Alaska Shellfish Harvests & Exvessel Values, 2000-2009	http://www.adfg.alaska.gov/index.cfm?adfg=CommercialByFisheryshellfish.exvessel_2009

Production Indicators

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Indicator	Report ID	Data Year(s)	Source(s)	Source Title(s)	Web Address
Alaska Sport Fishing: Total Harvest, 2001-2010	Figure 2.4	2001-2010	Alaska Department of Fish and Game	Sport Fishing Survey, Regional Species Summary, Statewide, All species, All watertypes, 2001-2010	http://www.adfg.alaska.gov/sf/sportfishingsurvey/index.cfm?ADFG=region.home
Alaska Sport Fishing: Total Harvest, 2001-2010	Table 2.10	2001-2010	Alaska Department of Fish and Game	Sport Fishing Survey, Regional Species Summary, Statewide, All species, All watertypes, 2001-2010	http://www.adfg.alaska.gov/sf/sportfishingsurvey/index.cfm?ADFG=region.home
Alaska Sport Fishing: Salmon Harvest, 2001-2010	Figure 2.5	2001-2010	Alaska Department of Fish and Game	Sport Fishing Survey, Regional Species Summary, Statewide, All species, All watertypes, 2001-2010	http://www.adfg.alaska.gov/sf/sportfishingsurvey/index.cfm?ADFG=region.home
Alaska Sport Fishing: Non-Salmon Harvest, 2001-2010	Figure 2.6	2001-2010	Alaska Department of Fish and Game	Sport Fishing Survey, Regional Species Summary, Statewide, All species, All watertypes, 2001-2010	http://www.adfg.alaska.gov/sf/sportfishingsurvey/index.cfm?ADFG=region.home
Alaska Seafood Exports (in millions), 2010	Figure 2.7	2010	Office of the Governor of Alaska	Alaska 2010 Total Exports	http://gov.alaska.gov/parnell_media/resources_files/charts.pdf
Processing Indicators					
Alaska Food Manufacturing Employment, 2006-2010	Table 2.11	2006-2010	Alaska Department of Labor & Workforce Development	Quarterly Census of Employment and Wages (QCEW)	http://labor.alaska.gov/research/qcew/qcew.htm
Alaska Animal Slaughtering, Processing Employment, 2006-2010	Table 2.12	2006-2010	Alaska Department of Labor & Workforce Development	Quarterly Census of Employment and Wages (QCEW)	http://labor.alaska.gov/research/qcew/qcew.htm
Alaska Beef, Veal, and Pork Production, 2006-2010	Table 2.13	2006-2010	Alaska Field Office, National Agricultural Statistics Service (NASS), U.S.D.A.	Alaska Agricultural Statistics 2011	http://www.nass.usda.gov/Statistics_by_State/Alaska/Publications/Annual_Statistical_Bulletin/annual2011.pdf
Alaska Seafood Product Preparation Employment, 2006-2010	Table 2.14	2006-2010	Alaska Department of Labor & Workforce Development	Quarterly Census of Employment and Wages (QCEW)	http://labor.alaska.gov/research/qcew/qcew.htm
Consumption Indicators					

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Indicator	Report ID	Data Year(s)	Source(s)	Source Title(s)	Web Address
Weekly Food Costs for a Family of Four: Bethel and Anchorage, 2004-2011	Figure 4.1	2004-2011	Cooperative Extension Service, University of Alaska Fairbanks	Alaska Food Cost Survey	http://www.uaf.edu/ces/hhfd/fcs/
Food Cost per week for Family of 4 in Selected Alaska Cities; 2004-2011	Table 4.1	2004-2011	Cooperative Extension Service, University of Alaska Fairbanks	Alaska Food Cost Survey	http://www.uaf.edu/ces/hhfd/fcs/
Alaska Retail Food Expenditures, 2002, 2007	Table 4.2	2002-2007	American Fact Finder, U.S. Census Bureau	2002 Economic Census: Retail Trade, Alaska and 2007 Economic Census: Retail Trade, Alaska	http://www.census.gov/popest/data/historica/2000s/vintage_2007/state.html
Food expenditures at home, by outlet type (U.S.), 1990-2010	Figure 4.2	1990-2010	Economic Research Service, U.S. Department of Agriculture	Food CPI and Expenditures: Food Expenditure Tables: Table 2	http://www.ers.usda.gov/Briefing/CPIFoodAndExpenditures/Data/Expenditures_tables/
Food expenditures at home, by outlet type (U.S.): Comparison between 1958 and 2010	Figure 4.3	1990-2010	Economic Research Service, U.S. Department of Agriculture	Food CPI and Expenditures: Food Expenditure Tables: Table 2	http://www.ers.usda.gov/Briefing/CPIFoodAndExpenditures/Data/Expenditures_tables/
Food expenditures away from home, by outlet type (U.S.) 1990-2010	Figure 4.4	1990-2010	Economic Research Service, U.S. Department of Agriculture	Food CPI and Expenditures: Food Expenditure Tables: Table 3	http://www.ers.usda.gov/Briefing/CPIFoodAndExpenditures/Data/Expenditures_tables/
Food expenditures away from home, by outlet type (U.S.): Comparison between 1958 and 2010	Figure 4.5	1990-2010	Economic Research Service, U.S. Department of Agriculture	Food CPI and Expenditures: Food Expenditure Tables: Table 3	http://www.ers.usda.gov/Briefing/CPIFoodAndExpenditures/Data/Expenditures_tables/
Food expenditures at eating and drinking places in Alaska, 2002, 2007	Table 4.3	2002-2007	American FactFinder, U.S. Census Bureau	2002 Economic Census: Accommodation and Foodservices, Alaska & 2007 Economic Census: Accommodation and Food Services	http://www.census.gov/econ/census02/data/ak/AK000_72.HTM ; http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2007_US_72A1&prodType=table

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Indicator	Report ID	Data Year(s)	Source(s)	Source Title(s)	Web Address
Alaska Population Living in Poverty, 2005-2010	Table 4.4	2005-2010	American FactFinder, U.S. Census Bureau	DP03: Selected Economic Characteristics, American Community Survey 1-Year Estimates (Respective Years)	http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_10_1YR_DP03&prodType=table ; http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_09_1YR_DP3&prodType=table ; http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_08_1YR_DP3&prodType=table ; http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_07_1YR_DP3&prodType=table ; http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_06_EST_DP3&prodType=table ; http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_05_EST_DP3&prodType=table
Alaska Earned Income Tax Credit Returns, 2004-2008	Table 4.5	2004-2008	Brookings	EITC Interactive: Explore Tax Return Data from 1997-2008	http://www.brookings.edu/projects/EITC.aspx
Prevalence of Household-level “Food Insecurity” (Low and Very Low Food Security): Alaska and U.S., 2001-2010	Figure 4.6	2001-2010	Economic Research Service, U.S. Department of Agriculture	Household Food Security: Annual Reports	http://www.ers.usda.gov/Briefing/FoodSecurity/readings.htm#statistical
Prevalence of Household-level “Very Low Food Security”, Alaska and U.S., 2001-2010	Figure 4.7	2001-2010	Economic Research Service, U.S. Department of Agriculture	Household Food Security: Annual Reports	http://www.ers.usda.gov/Briefing/FoodSecurity/readings.htm#statistical
Annual Food Stamp Eligibility and Participation in Alaska, 2006-2010	Figure 4.8	2006-2010	Food Research and Action Center (FRAC)	Alaska Demographics, Poverty and Food Security	http://frac.org/reports-and-resources/reports-2/
Annual WIC Participation in Alaska, 2007-2011	Figure 4.9	2007-2011	Food and Nutrition Service, U.S. Department of Agriculture	WIC Program: Total Participation	http://www.fns.usda.gov/pd/26wifypart.htm
National School Meal Programs: Participation in Alaska, 2006-2011	Table 4.6	2006-2011	Food and Nutrition Service, U.S. Department of Agriculture	School Breakfast Program: Total Participation; Total Breakfasts Served; Cash Payments & National School Lunch Program: Total Participation; Total Lunches Served; Cash Payments	http://www.fns.usda.gov/pd ; http://www.fns.usda.gov/pd/08sbfypart.htm ; http://www.fns.usda.gov/pd/09sbmeals.htm ; http://www.fns.usda.gov/pd/10sbcash.htm ; http://www.fns.usda.gov/pd/01slfypart.htm ; http://www.fns.usda.gov/pd/05slmeals.htm ; http://www.fns.usda.gov/pd/06slcash.htm

Consumption Indicators

Appendix C: List of Data Sources

Indicator	Report ID	Data Year(s)	Source(s)	Source Title(s)	Web Address
National Summer Food Service Program: Participation in Alaska, 2006-2011	Table 4.7	2006-2011	Food and Nutrition Service, U.S. Department of Agriculture	Summer Food Service Program: Average Daily Attendance; Total Meals Served; Cash Payments	http://www.fns.usda.gov/pd/ ; http://www.fns.usda.gov/pd/04sffypart.htm ; http://www.fns.usda.gov/pd/03sfsmeals.htm ; http://www.fns.usda.gov/pd/02sfcash.htm
Child and Adult Care Food Program: Participation in Alaska, 2006-2011	Table 4.8	2006-2011	Food and Nutrition Service, U.S. Department of Agriculture	Child and Adult Care Food Program: Average Daily Attendance; Total Meals Served, Cash Payments	http://www.fns.usda.gov/pd/ ; http://www.fns.usda.gov/pd/12ccfypart.htm ; http://www.fns.usda.gov/pd/13ccmeals.htm ; http://www.fns.usda.gov/pd/14cccash.htm
Special Milk Program: Total Half-Pints Served in Alaska, 2006-2011	Table 4.9	2006-2011	Food and Nutrition Service, U.S. Department of Agriculture	Special Milk Program: Total Half-Pints Served	http://www.fns.usda.gov/pd/ ; http://www.fns.usda.gov/pd/11smhpfy.htm
Food Distribution Program on Indian Reservations: Participation in Alaska, 2006-2011	Table 4.10	2006-2011	Food and Nutrition Service, U.S. Department of Agriculture	Food Distribution Program on Indian Reservations: Persons Participating	http://www.fns.usda.gov/pd/ ; http://www.fns.usda.gov/pd/21irpart.htm
Commodity Supplemental Food Program: Participation in Alaska, 2006-2011	Table 4.11	2006-2011	Food and Nutrition Service, U.S. Department of Agriculture	Commodity Supplemental Food Program: Total Participation	http://www.fns.usda.gov/pd/ ; http://www.fns.usda.gov/pd/20csfp.htm
The Emergency Food Assistance Program (TEFAP): Total Food Cost in Alaska 2006-2011	Table 4.12	2006-2011	Food and Nutrition Service, U.S. Department of Agriculture	The Emergency Food Assistance Program (TEFAP): Total Food Cost	http://www.fns.usda.gov/pd/ ; http://www.fns.usda.gov/pd/22tefap.htm
Percent of Overweight (25.0-29.9 BMI) Adults: Alaska, 1995-2010	Figure 4.10	1995-2010	Centers for Disease Control and Prevention (CDC)	Behavioral Risk Factor Surveillance System Survey Data	http://apps.nccd.cdc.gov/youthonline/App/Results.aspx?LID=AK#
Percent of Obese (30+ BMI) Adults: Alaska, 1995-2010	Figure 4.11	1995-2010	Centers for Disease Control and Prevention (CDC)	Behavioral Risk Factor Surveillance System Survey Data	http://apps.nccd.cdc.gov/youthonline/App/Results.aspx?LID=AK#
Alaska Overweight and Obese High School Students 2003- 2011	Table 4.13	2003-2011	Centers for Disease Control and Prevention (CDC)	Behavioral Risk Factor Surveillance System Survey Data	http://apps.nccd.cdc.gov/youthonline/App/Results.aspx?LID=AK#
Alaska Low Birth Weight Births, 1999-2009	Figure 4.12	1999-2009	Alaska Bureau of Vital Statistics	Alaska Bureau of Vital Statistics 2009 Annual Report	http://www.hss.state.ak.us/dph/bvs/PDFs/2009/2009_Annual_Report.pdf
Per Capita Consumption of Selected Food Commodities (U.S.), 2000-2009	Table 4.14	2000-2009	U.S. Census Bureau	Health & Nutrition: Food Consumption and Nutrition, Tables 217 and 218;	http://www.census.gov/compendia/statab/cats/health_nutrition/food_consumption_and_nutrition.html

Consumption Indicators

Appendix C: List of Data Sources

Indicator	Report ID	Data Year(s)	Source(s)	Source Title(s)	Web Address
Fruit and Vegetable Consumption by Alaska High School Students, 2003-2011	Table 4.15	2003-2009; 2011	Centers for Disease Control and Prevention (CDC); Alaska Chronic Disease Prevention and Health Promotion	Behavioral Risk Factor Surveillance System Survey Data; 2011 Youth Risk Behavior Survey Results (PowerPoint)	http://apps.nccd.cdc.gov/youthonline/App/Results.aspx?LID=AK# ; http://www.hss.state.ak.us/dph/chronic/school/pubs/2011AKTradHS_Graphs.pdf
Milk Consumption by Alaska High School Students, 2003-2011	Table 4.16	2003-2009; 2011	Centers for Disease Control and Prevention (CDC); Alaska Chronic Disease Prevention and Health Promotion	Behavioral Risk Factor Surveillance System Survey Data; 2011 Youth Risk Behavior Survey Results (PowerPoint)	http://apps.nccd.cdc.gov/youthonline/App/Results.aspx?LID=AK# ; http://www.hss.state.ak.us/dph/chronic/school/pubs/2011AKTradHS_Graphs.pdf
Milk Consumption by Alaska High School Students, 2003-2011	Table 4.16	2003-2009; 2011	Centers for Disease Control and Prevention (CDC); Alaska Chronic Disease Prevention and Health Promotion	Behavioral Risk Factor Surveillance System Survey Data; 2011 Youth Risk Behavior Survey Results (PowerPoint)	http://apps.nccd.cdc.gov/youthonline/App/Results.aspx?LID=AK# ; http://www.hss.state.ak.us/dph/chronic/school/pubs/2011AKTradHS_Graphs.pdf
Soda or Pop Consumption by Alaska High School Students, 2003-2011	Table 4.17	2003-2009; 2011	Centers for Disease Control and Prevention (CDC); Alaska Chronic Disease Prevention and Health Promotion	Behavioral Risk Factor Surveillance System Survey Data; 2011 Youth Risk Behavior Survey Results (PowerPoint)	http://apps.nccd.cdc.gov/youthonline/App/Results.aspx?LID=AK# ; http://www.hss.state.ak.us/dph/chronic/school/pubs/2011AKTradHS_Graphs.pdf
100% Fruit Juice Consumption by Alaska High School Students, 2003-2011	Table 4.18	2003-2009; 2011	Centers for Disease Control and Prevention (CDC); Alaska Chronic Disease Prevention and Health Promotion	Behavioral Risk Factor Surveillance System Survey Data; 2011 Youth Risk Behavior Survey Results (PowerPoint)	http://apps.nccd.cdc.gov/youthonline/App/Results.aspx?LID=AK# ; http://www.hss.state.ak.us/dph/chronic/school/pubs/2011AKTradHS_Graphs.pdf
Milk Consumption by Alaska Children Three Years Old and Younger, 2008-2010	Table 4.19	2008-2010	Women's, Children's, and Family Health Section, Alaska Department of Health & Social Services	Alaska CUBS Results (Q6)	http://www.epi.hss.state.ak.us/mcheper/cubs/data/2008/CUBS_Results_Nutrition.pdf ; http://www.epi.hss.state.ak.us/mcheper/cubs/data/2009/CUBS_Results_Nutrition.pdf ; http://www.epi.hss.state.ak.us/mcheper/cubs/data/2010/CUBS_Results_Nutrition.pdf
Cups of Water Consumed: Alaska Children Three Years Old and Younger, 2008-2010	Table 4.20	2008-2010	Women's, Children's, and Family Health Section, Alaska Department of Health & Social Services	Alaska CUBS Results (Q7a)	http://www.epi.hss.state.ak.us/mcheper/cubs/data/2008/CUBS_Results_Nutrition.pdf ; http://www.epi.hss.state.ak.us/mcheper/cubs/data/2009/CUBS_Results_Nutrition.pdf ; http://www.epi.hss.state.ak.us/mcheper/cubs/data/2010/CUBS_Results_Nutrition.pdf
Cups of Milk Consumed: Alaska Children Three Years Old and Younger, 2008-2010	Table 4.21	2008-2010	Women's, Children's, and Family Health Section, Alaska Department of Health & Social Services	Alaska CUBS Results (Q7b)	http://www.epi.hss.state.ak.us/mcheper/cubs/data/2008/CUBS_Results_Nutrition.pdf ; http://www.epi.hss.state.ak.us/mcheper/cubs/data/2009/CUBS_Results_Nutrition.pdf ; http://www.epi.hss.state.ak.us/mcheper/cubs/data/2010/CUBS_Results_Nutrition.pdf

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Indicator	Report ID	Data Year(s)	Source(s)	Source Title(s)	Web Address
Cups of Fruit Juice Consumed: Alaska Children Three Years Old and Younger, 2008-2010	Table 4.22	2008-2010	Women's, Children's, and Family Health Section, Alaska Department of Health & Social Services	Alaska CUBS Results (Q7c)	http://www.epi.hss.state.ak.us/mcheper/cubs/data/2008/CUBS_Results_Nutrition.pdf ; http://www.epi.hss.state.ak.us/mcheper/cubs/data/2009/CUBS_Results_Nutrition.pdf ; http://www.epi.hss.state.ak.us/mcheper/cubs/data/2010/CUBS_Results_Nutrition.pdf
Cups of Soda or Pop Consumed: Alaska Children Three Years Old and Younger, 2008-2010	Table 4.23	2008-2010	Women's, Children's, and Family Health Section, Alaska Department of Health & Social Services	Alaska CUBS Results (Q7d)	http://www.epi.hss.state.ak.us/mcheper/cubs/data/2008/CUBS_Results_Nutrition.pdf ; http://www.epi.hss.state.ak.us/mcheper/cubs/data/2009/CUBS_Results_Nutrition.pdf ; http://www.epi.hss.state.ak.us/mcheper/cubs/data/2010/CUBS_Results_Nutrition.pdf
Cups of Sweetened or Fruit Drinks Consumed: Alaska Children Three Years Old and Younger, 2008-2010	Table 4.24	2008-2010	Women's, Children's, and Family Health Section, Alaska Department of Health & Social Services	Alaska CUBS Results (Q7e)	http://www.epi.hss.state.ak.us/mcheper/cubs/data/2008/CUBS_Results_Nutrition.pdf ; http://www.epi.hss.state.ak.us/mcheper/cubs/data/2009/CUBS_Results_Nutrition.pdf ; http://www.epi.hss.state.ak.us/mcheper/cubs/data/2010/CUBS_Results_Nutrition.pdf
Consumption of Fresh, Canned, Frozen, or Dried Fruit: Alaska Children Three Years Old and Younger, 2008-2010	Table 4.25	2008-2010	Women's, Children's, and Family Health Section, Alaska Department of Health & Social Services	Alaska CUBS Results (Q8a)	http://www.epi.hss.state.ak.us/mcheper/cubs/data/2008/CUBS_Results_Nutrition.pdf ; http://www.epi.hss.state.ak.us/mcheper/cubs/data/2009/CUBS_Results_Nutrition.pdf ; http://www.epi.hss.state.ak.us/mcheper/cubs/data/2010/CUBS_Results_Nutrition.pdf
Consumption of French Fries, Tator Tots, or Potato Chips: Alaska Children Three Years Old and Younger, 2008-2010	Table 4.26	2008-2010	Women's, Children's, and Family Health Section, Alaska Department of Health & Social Services	Alaska CUBS Results (Q8b)	http://www.epi.hss.state.ak.us/mcheper/cubs/data/2008/CUBS_Results_Nutrition.pdf ; http://www.epi.hss.state.ak.us/mcheper/cubs/data/2009/CUBS_Results_Nutrition.pdf ; http://www.epi.hss.state.ak.us/mcheper/cubs/data/2010/CUBS_Results_Nutrition.pdf
Consumption of Other Vegetables or a Salad: Alaska Children Three Years Old and Younger, 2008-2010	Table 4.27	2008-2010	Women's, Children's, and Family Health Section, Alaska Department of Health & Social Services	Alaska CUBS Results (Q8c)	http://www.epi.hss.state.ak.us/mcheper/cubs/data/2008/CUBS_Results_Nutrition.pdf ; http://www.epi.hss.state.ak.us/mcheper/cubs/data/2009/CUBS_Results_Nutrition.pdf ; http://www.epi.hss.state.ak.us/mcheper/cubs/data/2010/CUBS_Results_Nutrition.pdf
Consumption of Candy, Cookies, or Other Sweets: Alaska Children Three Years Old and Younger, 2008-2010	Table 4.28	2008-2010	Women's, Children's, and Family Health Section, Alaska Department of Health & Social Services	Alaska CUBS Results (Q8d)	http://www.epi.hss.state.ak.us/mcheper/cubs/data/2008/CUBS_Results_Nutrition.pdf ; http://www.epi.hss.state.ak.us/mcheper/cubs/data/2009/CUBS_Results_Nutrition.pdf ; http://www.epi.hss.state.ak.us/mcheper/cubs/data/2010/CUBS_Results_Nutrition.pdf
Waste/Recycling Indicators					
Food Loss Within the Food System	Table 5.1	1995	Economic Research Service, U.S. Department of Agriculture	Waste in the food system	http://www.ers.usda.gov/Publications/FoodReview/Jan1997/Jan97a.pdf