

# Module 10

## Food Traditions and Food Systems in Rural Alaska

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### Key Terms and Concepts

- community food security and health
- ecosystem-carrying capacity
- feedback loops (positive and negative)
- food systems
- food traditions
- informal and formal economic systems
- predator–prey models
- seasonal round
- subsistence
- system model

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### Learning Objectives/Outcomes

Upon completion of this module, you should be able to

1. explain how changes in subsistence integrate with other elements of a regional food system.
2. explain why changes in subsistence have occurred, and discuss whether these changes are favourable for the lives of Aboriginal Alaskans.
3. describe how economic components interact with subsistence and food systems.

4. describe how these economic components have affected the security of regional food systems within which people live and upon which they depend.
  5. describe how the system of sharing changed or remained the same, and how it now relates to food security.
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## Overview

The study of regional food traditions and food systems is one way to understand individual and community identity and community health. In part, food system studies strive to identify and understand nutritional, physiological, and cultural dimensions of what people eat at home and in celebration, how and when food is prepared, and how food is shared among family and friends. Healthy foods harvested and consumed locally by local residents make for healthy communities.

As ecosystems change, food systems also change. Food and food choices not only reflect the biology and ecology of a region, but also link culture, cultural identity, and economics. Food is an item of trade, a way of strengthening and defining kinship ties, and a source of stories and many other aspects of cultural activity (Mauss 1925; Nelson 1983; Nabhan 1998 and 2002). Food studies are a priority in the context of interdisciplinary research, as the study of food systems requires multiple data sets, methods, and theoretical approaches that cross disciplinary lines. Food is socio-cultural, it is political, and it is economic; it links and crosses the boundaries of these dimensions.

To simplify an understanding of food systems in rural Alaska, consider the following categories. (See table 10.1) For this module, subsistence is addressed directly and the other categories implicitly.

**Table 10.1** Categories of food system analysis in Alaska

<b>Subsistence</b>	Traditional and innovative activities
<b>Food security/Community and individual health</b>	Perceptions of risk. What constitutes a secure food system for a particular community?
<b>Regional linkages</b>	Production, distribution, and allocation of subsistence and imported foods; integration of these three versus fragmentation.
<b>Community design</b>	Creating new systems that incorporate traditional food procurement activities, but that also create new ways to maintain/create diversity.

# Lecture

## Subsistence

Many attempts have been made to describe the economies of rural Alaska villages. Different researchers focus on different parts of the economy, hunting and fishing practices or wage labour for example, generally using different methods to understand them. Some use the tools of neo-classical economics to value components of the economic system through measures such as average per-capita income and unemployment rates. Anthropologists have contributed perspectives on traditional subsistence practices and their role in the lives of Alaska indigenous peoples (Magdanz 2002, Hensel 1996, Caulfield 1983). Biologists, sociologists, psychologists, and health workers each have a specific focus, as well. Food systems analysis as opposed to the study of subsistence requires perspectives and contributions from multiple disciplines.

The role of formal and informal economies in the villages of indigenous peoples of the North has been well studied (Ross and Usher 1986). The formal economy represents the modern, industrial, global system to which local and regional economies are linked, while the informal economy is composed of the activities that people undertake on a day-to-day basis to support and feed themselves; the latter are not necessarily measurable by dollar values and market standards. The informal economy includes subsistence activities such as hunting and fishing as well as non-wage household labour, both of which are difficult to measure in standard economic terms. The Alaska Department of Fish and Game (ADF&G) estimates the per-capita cash value of subsistence foods at \$3,063 per person compared with the per-capita income of \$6,205 (Egeland et al. 1998, 10; Wolfe and Bosworth 1994), although these values may fluctuate over time. Replacement costs for subsistence foods are estimated at 22% for rural Alaska (Wolfe and Bosworth 1994). However, the dualities of traditional/modern and informal/formal are incomplete when describing how rural Alaskans actually make economic decisions. This is to say that food choice is not always optimized in terms of dollar values or market standards.

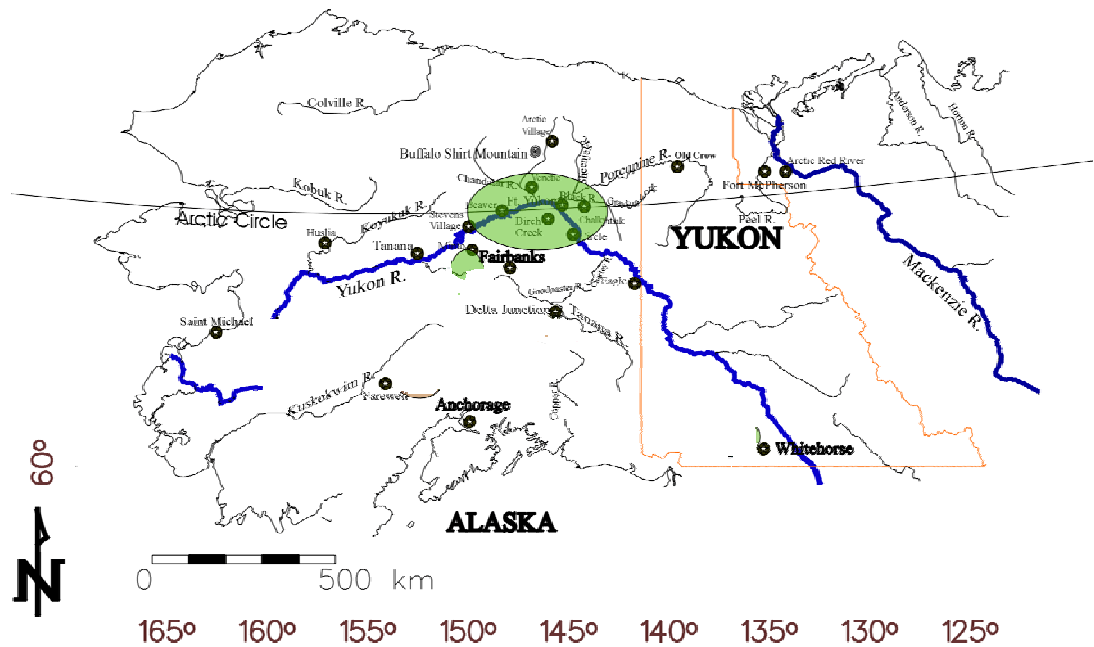
Rural Alaska economies are interactive complex systems that include human institutions, individual choice and opportunity, and the local ecosystem. The ecological characteristics of the local and regional area, the cultural preferences of the people living there, the political systems that manage both people and resources, the cost of living, and many other inputs and outputs to and from the system that condition the everyday activities of people are all important considerations. Finally, food and food choice are also about health and quality of life. Where country foods are contaminant free and locally procured in sufficient quantities, they make for a better diet and a healthier lifestyle (Nabhan 1998). This is especially true in small, rural communities where food choice in the local store is severely constrained by what is available on the shelf, or by a lack of cash to purchase quality food even if it is available.

There is a need to bring together the fragments of subsistence and food system analysis into a better conceptual framework for understanding rural Alaska subsistence economies. Biological and social systems theory has become better defined and more appropriately scaled in the literature in recent years (Gunderson and Holling 2002), with systems modellers integrating components of systems that have traditionally been studied separately. We now recognize that system inputs and outputs do not usually interact in a linear cause-effect fashion, but instead interact in complex, sometimes unpredictable and unanticipated patterns and feedback loops. Systems theory also addresses issues of temporal and spatial scale, and it incorporates changes over time and space into the analysis.

Systems theory can be used as a tool to assist people in making decisions about how to appropriately manage their activities within a system (Berkes and Folke 1998), especially in the face of change. In rural Alaska, there is an urgent need to address food security—that is, the reliability and quality of food available to rural residents. Using a system rather than a legal perspective to address subsistence will better reflect the challenges and opportunities facing rural Alaskans today. Understanding human action through individual choice is probably more complex in the real world than we can capture with even the best systems models, but at least a holistic systems view is a better approximation of real-world complexity than is knowledge fragmented by one or another academic discipline (Savory 1998). In the following section is an attempt at a fictional account of the activities of two individuals in the real setting of the Yukon Flats area of Alaska. Table 10.2 and figure 10.1 provide demographic information for the region and the geographic setting.

**Table 10.2** Demographic information for the Yukon Flats area of Alaska (ADCED, Community Database Online: 2000 Population and Housing Characteristics for Fort Yukon. Data from 2000 US Census.)

	<b>Fort Yukon</b>	<b>Beaver</b>	<b>Birch Creek</b>	<b>Chalkytsik</b>	<b>Arctic Village</b>	<b>Venetie</b>	<b>Stevens Village</b>
<b>Population</b>	595	84	28	83	152	202	87
<b>White</b>	64	4	0	2	12	7	3
<b>Alaska Native or American Indian</b>	512	72	28	81	131	186	83
<b>Male</b>	315	51	15	48	81	113	57
<b>Female</b>	280	33	13	35	71	89	30
<b>Per-capita income</b>	\$13,360	\$8,441	\$5,952	\$11,509	\$10,761	\$7,314	\$7,113
<b>Percent below poverty</b>	18.60%	11.10%	37.00%	52.60%	46.30%	42.80%	61.20%
<b>Total potential work force (age 16+)</b>	449	86	18	47	76	144	62
<b>Total employment</b>	237	55	2	17	47	44	22
<b>Percent unemployed</b>	18.00%	17.90%	0%	0%	16.70%	36.20%	38.90%
<b>Percent not working (unemployed and not seeking)</b>	47.20%	36.10%	88.90%	63.80%	38.20%	69.40%	64.50%



**Fig. 10.1** Geographic setting of the Yukon Flats area of Alaska. Green circle indicates the Yukon Flats region. (Stephenson et al. 2001)

The following fictional discussion of life in Gwichyaa Zhee (Fort Yukon), Alaska, serves as an illustration of a regional food tradition.

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The churning Yukon River defines the landscape in much of interior Alaska. Thousands of years of motion have resulted in a dynamic landscape in which the river is a habitat for waterfowl and rodents and a transportation route for people and salmon. In the Yukon Flats, the shifting channels have created a wide flood plain dotted with lakes and moose. By the time the Yukon River reaches Gwichyaa Zhee, its murky waters have travelled hundreds of miles from Canada and eastern Alaska, fed by tributaries that start in several different mountain ranges. The Sheenjok and the Colleen rivers flow out of the Brooks Range to the north to merge with the Porcupine, which joins the Yukon at Gwichyaa Zhee. For generations, this confluence has served as a gathering spot for Gwich'in Athabascan people during their seasonal rounds of the Yukon Flats and Brooks Range. In the late 1800s, thanks to the fur trade and then the gold rush, it became a permanent settlement in order to facilitate people's changing economic relationship with the land. At Gwichyaa Zhee, the Yukon has recently been reinforced with jetties to minimize the erosion that has taken many buildings down the river, such as the old fur-trading post that gave Fort Yukon its English name. In modern times, about 1,200 people live in the

Yukon Flats, almost half of them in Fort Yukon. About 90% of Fort Yukon residents are Athabascan.

One of them is Steve, a man in his late fifties who lives in a log cabin a block from the north bank of the Yukon. Today, in early June, Steve has an objective. Now that the river ice has broken up and the salmon are starting to run, he needs to fix his 40-horsepower outboard motor so he can get out on the river. He knew he would have problems with his motor this spring; it was starting to give him trouble at the end of last summer. He had meant to deal with it earlier, but somehow he just had not gotten around to it. During the winter, he had too many other things to worry about, like whether his snow machine would get him out to his trapline 20 miles south of town. Steve swore every year that he would give up trapping, as so many other trappers have already done. It just wasn't profitable anymore—and barely worth the hassle of keeping his equipment in shape. The price for fur has been rock bottom in the last few years, but he still managed to sell enough muskrat pelts this spring to pay for the new part he needed for his outboard motor. Besides, his wife used some of the furs for sewing mukluks to sell in Fairbanks.

Today, Steve is expecting his part to arrive on a Warbelow's airplane from Fairbanks. He anticipates working on his boat as long as necessary today to get it going. He has never considered quitting fishing like he has trapping, even though he doesn't make a cent from the Yukon River salmon. Very few people do any commercial fishing up here in this part of the river. Steve's fish are all for eating and sharing. With whom he shares them may vary from year to year, but of course he has his immediate family first. His mother lives in Fairbanks now and doesn't get out to fish camp much, herself; but she still needs her salmon strips. Then he has his wife and kids, too.

Only one son lives at home now. He's finishing up high school, and then he wants to join his older brother in Fairbanks. But Steve still has another son and a daughter living in Fort Yukon. They have families of their own now, although his son had a fight with his girlfriend this winter and moved out to a friend's house. He usually stops by his parents' house at least once a day for a meal. Steve knows his wife and youngest son will probably eat more fish than he will; but those other two living in town—Steve decided that they have to help him this year if they want any fish of their own. But it will all depend on how the fish are running. If this year is as good as they're predicting, then he'll have so many fish that he'll be able to give the excess to his neighbour to feed his dog team.

Steve heads out on his four-wheeler well before he knows the flight will be coming in. He has some other errands to run first; some people to talk to. Of course, his wife, Angie, wants him to go to the store to pick up butter and eggs. He can't believe how often they have to buy butter and eggs. Sometimes Angie runs the errand herself, but only if she can get away from babysitting her daughter's kids for the day. Sometimes she takes them along.

The Alaska Commercial Company, or AC store, is the only store in town. Its big green metal hulk rests on the main street between the school and the post office and across from the building that houses offices of the regional tribal organization and the local radio station, KZPA. On a pleasant June day like this one the main street is busy. Fort Yukon, with no roads connecting it to other communities, still has many miles of its own roads, and many people own cars or trucks in addition to the more common four-wheeler. Today, there are four-wheelers buzzing all over town kicking up dust, and several vehicles are parked in front of the AC store. As Steve pulls up, he sees his neighbour get in his truck and drive next door to the post office and park there.

Inside, Steve passes by the slushie machine and the small selection of fresh vegetables to head for the coolers with milk, eggs, and butter. A woman pushing a heavily loaded cart walks by with four youngsters in tow. At the top of her heap of food Steve notices a variety of frozen TV dinners, fish fillets, and chicken breasts. Pushing past the kids, he gets his butter and eggs and then swings up the aisle with coffee in it. Steve can never have too much coffee. Finally, he heads to the checkout. He knows most of the people in the store, but he simply nods politely at a few of them as he waits in line. Most people are paying either with cash or food stamps. Steve has a little cash left from his last unemployment cheque.

Tossing his bag of groceries in the basket bungeed to the front of his four-wheeler, he drives down the dusty road a block to the tribal offices. Here, he takes his time. He has almost an hour before the plane is due in. Inside, several people are gathered around the coffee maker, including the man he is here to see, his brother-in-law Eric. Eric works on housing issues for the tribe, but he, too, is gearing up to go fishing soon.

“Heard anything about the fish?” Steve asks as he helps himself to a Styrofoam cup and pours himself some coffee. The town is abuzz with stories about lots of fish, more fish than usual, passing the counting stations at the mouth of the Yukon, hundreds of miles to the southwest.

“Still coming,” Eric growls. “Bet the first ones will be here in a couple of weeks.”

“Getting my part for my motor today. Gotta get that fixed up so I can go set up my net. You running your wheel this year?”

“Don’t know. My wife wants to go to camp with Betty this year.”

As they confer, a young woman walks by. Unlike Steve and Eric, who are both dark-featured, she has fairly light hair and green eyes. While most people in town can be identified as Gwich’in, many of them have at least one non-Aboriginal ancestor not too far in their background, and some of them show it more than others.

Knowing that the young woman is studying their traditional language, Steve asks her, “Rose, neenjit doonch’yàa?” Steve is a fluent Gwich’in speaker, and Rose likes to practise with him. She is just learning.

Before she can say anything, her uncle Eric replies for her, “She’s been running around here like crazy all day.”

Rose ignores him and tells Steve, “Shigwitr’it gwànlíi.” I have a lot of work. As she hustles off, she hears Steve call after her, “Lagoffi yindhan?” *Lagoffi*—coffee—a word borrowed from the French, who first introduced that strange and addictive drink to the Gwich’in. She pauses long enough to say “Akwàa” over her shoulder and then turns into her office.

Rose has a meeting to prepare for later that afternoon. She manages the Head Start program for the tribe, and she has invited several parents to discuss their impressions of the last year’s program and share suggestions for the future. She’s nervous about the meeting. Even though she has worked for the tribe in different positions for a few years, she has been managing Head Start only since January. She was just next door at the tribal hall, setting up chairs for the meeting. It took longer than she expected because the place still wasn’t totally cleaned up from last weekend’s dance, where the popular Gwich’in Boys, a local rock band composed of recent high school grads, had played until 4 a.m. Rose spent an hour sweeping and straightening. One of her former positions for the tribe had been the janitor, so she figured it was easier to do the cleaning herself than to ask anyone else to do it. But now she has only a couple of hours to review her notes and prepare her talk. Meanwhile, her sister is watching her own two kids, ages 3 and 5. Rose is excited about her oldest, Charlie, starting kindergarten next year. She will get to see first-hand how her efforts to teach him Gwich’in pay off when he starts language immersion with the new kindergarten teacher.

As she thinks about her kids, the thought of their father crosses her mind, as it often does. She kept him around for a few years, hoping that he would stop drinking and shape up, too, but after Rita was born, she gave up on him and kicked him out. Now he still wanders around town, never really living in one place, soliciting food and money from whomever he can, taking an occasional job doing construction or firefighting but usually losing it because he can’t stay sober. Rose is more concerned about her kids and what they need. She worries about who will be a good male role model for Charlie. It’s not that construction and firefighting are bad jobs. It’s possible to make a good living working various seasonal jobs, but only if you don’t squander the income on alcohol or drugs.

Back at the coffee pot, Steve is finishing up his conversation with Eric. He still has some time before the plane comes in, so he stops by a few more offices in the tribal building before leaving, just to chat with people. When he hears the roar of the Warbelow’s plane engine, he jumps onto his four-wheeler and speeds



the half mile to the airport, passing the town cop, an outsider from Houston, going the other direction. The cop doesn't bother Steve. Despite the fact that he's only been in Fort Yukon a few months, the cop knows who the troublemakers are and aren't, and he knows that when a plane comes in, he can expect to see more speeding than usual over the 25 miles per hour limit.

Steve pulls up next to the grey sheet-metal hangar that serves as the Fort Yukon office for several bush airlines, as well as the public waiting room. Ignoring the sign that prohibits private vehicles outside the designated parking area inside a chain-link fence, a handful of people are standing around next to their trucks and the Warbelow's van, waiting for passengers to disembark. The airport provides an excellent spot for getting a sense of the pancake-flat landscape around Fort Yukon—a pilot's dream for a landing strip.

Steve chats with a few people but stops the pilot as soon as he can to ask about the part. Sure enough, he's got it. Steve takes it home eagerly and gets to work on his outboard, stopping first at the one gas station in town, Yukon Trader, to fill up his four-wheeler tank and another five-gallon jug in case he gets his motor working. Having used up most of his cash at the AC, he signs Trader Dan's notebook for credit.

Meanwhile, Rose starts her meeting at the tribal hall. She invited people to arrive at 1:00 p.m.; so at about 1:10, a few moms with their kids start trickling in. The first one is Bethany, a white woman in town who married a Gwich'in man and works for the tribal consortium. She joins Rose at the coffee maker, where coffee, tea, and doughnuts are ready. She also has a jar of canned salmon, accompanied with Pilot Boy crackers. As people arrive, the fish quickly disappears. It is unusual for someone to have fish at a social event this late in the season and before this year's fish start running through Fort Yukon, and the women appreciate Rose's contribution. By 1:30, the meeting is underway.

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## **Subsistence in Alaska**

We can see that in day-to-day life, Steve and Rose are not dividing their daily activities along lines easily identified as either modern or traditional. They are simply doing what appeals to them and is necessary for them to make a living for themselves and their families in their local community. However, as subsistence has come to mean more than an activity, and to reflect a legal mandate with a codified term and a management incentive, it is important to understand how it is described in all these contexts. In order to address these discrepancies, a brief review of the historical development of the concept of subsistence follows.

## Subsistence: A Brief History

In 1959, Alaska formally became a state and the constitution, which had been ratified in 1956, came into effect. The constitution addresses the use of natural resources with the following clause: “Wherever occurring in their natural state, fish, wildlife, and waters are reserved to the people for their common use” (State of Alaska Const. of 1956 art. VIII, § 3). By this clause, equal access to natural resources was codified. Simple though this stipulation may appear, it did not forestall the ensuing conflict over the use of resources between various groups of citizens in the new state. For one thing, statehood did not resolve the land claims of the State of Alaska, the federal government, the Alaska indigenous tribes, and private citizens. The federal government took a significant step in resolving these land disputes in 1971 with the passage of the Alaska Native Claims Settlement Act (ANCSA). Through ANCSA, Alaska indigenous peoples received designated lands and money in exchange for land that would then belong to the state and federal governments. ANCSA also created many regional and local Aboriginal corporations—economic bodies that were initially funded by the federal government—an approach that differed significantly from the reservation and tribal model of the lower 48 states and parts of Canada. Through ANCSA, Alaska Aboriginal groups gave up rights to subsistence harvest on public land. Apparently, the intent was for the federal government to address subsistence management at a later date through additional legislation.

Before the federal government took action on subsistence, the state passed its own first subsistence law in 1978 to ensure that subsistence users have a harvest priority in times of scarcity; however, the law does not define who subsistence users are. Two years later, the United States Congress passed the Alaska National Interest Lands Conservation Act (ANILCA), attempting to return subsistence rights to Alaska Aboriginal people through Title VIII, which established the eligibility for subsistence priority in resource management decisions with three criteria. These are “(1) customary and direct dependence upon the populations as the mainstay of livelihood; (2) local residency; and (3) the availability of alternative resources”(ANILCA, PL96-847 S804). Further, ANILCA defines subsistence use as

customary and traditional uses by rural Alaska residents of wild renewable resources for direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation; for the making and selling of handicraft articles out of nonedible byproducts of fish and wildlife resources taken for personal or family consumption; for barter, or sharing for personal or family consumption; and for customary trade. (ANILCA, PL 96-847 S803)

Meanwhile, Alaska continued to debate and refine its natural resource management laws. Regarding a subsistence priority, the Alaska State Supreme Court decided in 1989 in *McDowell v. State of Alaska* that the state could not give any group of residents priority over others because of the common use clause in the state constitution. The result is that there is dual management of

fish and game resources in Alaska by both state and federal agencies. The federal agencies recognize a rural priority when allowing for subsistence priority according to ANILCA, while the state allows any state resident to apply for subsistence hunting and fishing permits.

## **Subsistence: Research Perspectives**

And yet the question of what actually constitutes subsistence activities and a subsistence lifestyle remains. Many researchers have taken their turns at defining subsistence, but Henry Huntington offers a good summary:

*Subsistence*: Resource dependence that is primarily outside the cash sector of the economy. This term has a specific application in laws relating to Alaska wildlife, but has eluded a comprehensive definition. To indigenous peoples it describes their culture and their relationship to the land, and thus the economic definition seems inadequate (see Berger, 1985). To others, subsistence no longer exists in Alaska because the cash economy appears to predominate throughout the state, so that no one is truly dependent upon the land. For the purposes of this study, I accept “dependence” as either for cultural purposes or for nutritional need. It should also be noted that this definition does not describe subsistence users. Since I am looking at the way current management affects the ability of the hunters in northern Alaska to provide for their needs, I am not directly concerned with the status of hunters outside the region. Thus, subsistence users can be defined as those people who have no adequate means of replacing what they gain, culturally or materially, from harvesting subsistence resources. (Huntington 1992, 15–16)

The Berger reference in Huntington’s passage marks a fundamental landmark in the quest for a workable definition of subsistence. In the early 1980s, Canadian Judge Thomas Berger travelled to more than 60 Alaska villages for the Alaska Native Review Commission. His task was to assess how rural Alaska Aboriginal people had been affected by, and how they responded to, ANCSA. He held dozens of hearings and collected the results in a book entitled *Village Journey: The Report of the Alaska Native Review Commission*. In it, Berger attempts to integrate what he heard indigenous peoples say into a succinct concept for his wider audience:

The traditional economy is based on subsistence activities that require special skills and a complex understanding of the local environment that enables the people to live directly from the land. It also involves cultural values and attitudes: mutual respect, sharing, resourcefulness, and an understanding that is both conscious and mystical of the intricate interrelationships that link humans, animals, and the environment. To this array of activities and deeply embedded values, we attach the word “subsistence,” recognizing that no one word can adequately encompass all these related concepts. (Berger 1985, 51)

## Subsistence as Identity

The above definitions have two primary components. One is the cultural value of subsistence activities; the other is the practical purpose served by subsistence—producing food and other resources, local production for local consumption. While subsistence in fact has multiple cultural values in both material and symbolic ways, in political discourse the primary cultural value of subsistence has been its direct parallel with Aboriginal identity. In many ways, Berger’s review of ANCSA set the stage for the elevation of subsistence to new heights in the political arena. In his report, Berger “made subsistence virtually synonymous with [N]ative identity throughout Alaska” (Dombrowki 2003, 19).

Anthropologist Kirk Dombrowski shares some insight about indigenous peoples in southeast Alaska and their interaction with subsistence. He points out that, at social functions, “[e]lite members of all [N]ative villages derive prestige from being able to provide ‘Indian foods’ at any of the social gatherings that they sponsor” (Dombrowki 2003, 17), much as we see with Rose’s sharing of canned salmon in the story earlier in this module. Dombrowski writes that there is a distinct divide between the practice of subsistence as a livelihood and its identity with a distinctly Aboriginal lifestyle. He attributes the origin of this divide to ANCSA, which “helped place subsistence politics at the center of local/larger differences by officially extinguishing [N]ative hunting and fishing rights on the lands taken by the state and federal governments by the Act” (Dombrowki 2003, 20). Later, he explains, “One immediate result of this . . . has been a dramatic increase in the symbolic importance of subsistence in [N]ative identity . . . Anything that imperils or even affects subsistence is seen as something that directly affects not just [N]ative people, but their [N]ativeness” (Dombrowki 2003, 33).

While Dombrowski is writing about the southeast region of Alaska, his observations can be broadened to include much if not all of the rest of Alaska. Subsistence as identity is especially important to indigenous peoples who have left their rural homelands for one of Alaska’s urban centres. One often hears “subsistence is our way of life” from both rural and urban residents. It is the urban residents who tend to dominate the indigenous Alaska political organization known as the Alaska Federation of Natives (AFN), which was originally formed to facilitate the creation and passage of ANCSA. For AFN, subsistence has become important symbolically because of its political power. However, as discussed below, these urban Alaska indigenous peoples still maintain material and symbolic links with subsistence practices as well.

Certainly, while rural Alaskan people are the more frequent subsistence practitioners of the two groups, the urban dwellers also value subsistence as a part of their cultural identity. Several people spoke to that topic in the hearings held by Berger in Fort Yukon. In his photo essay on subsistence, Berger quotes Jonathon Solomon, now the traditional chief in Fort Yukon, as saying, “The most important thing in the Indian life is the identity with land . . .” (Solomon,

as quoted in Berger 1985). In tapes of Berger's hearings, this theme is repeated by Clarence Alexander, who later also served as chief, and many others (ANRC 1984). Berger elaborates,

In 1971, Alaska Natives believed that, if they owned their own land, they could protect the traditional economy and a village way of life. Subsistence is at the core of village life, and land is at the core of subsistence. You cannot protect the one unless you protect the other. The law has protected neither. (Berger 1985, 60)

## **Subsistence as Practice**

A significant problem with research and the definitions regarding Alaska subsistence has been the attempt to capture a snapshot in time and space of what constitutes subsistence practices. Creating a law to dictate what are "traditional" subsistence practices has only exacerbated this tendency to freeze subsistence in time and space. Subsistence is a dynamic enterprise, but government regulatory regimes sometimes constrain subsistence activities within a steel web of exact definitions, exact location, and exact numbers, with little or no allowance for innovation and change (Berger 1985, 67). For instance, federal land managers have typically interpreted "customary and traditional" to mean those methods used at the time of ANILCA's passage. However, such a snapshot cannot encapsulate the continually evolving system that is subsistence. The myriad ways that Alaska indigenous peoples make a living and feed themselves has changed throughout time and will continue to do so in the future. It has also changed within and across regions. Some of the resources an individual may use to support himself or herself in Alaska have become physically farther and farther removed from the individual, as people have settled into permanent communities.

Hence, we return to the stories of Steve and Rose to identify some of the trends in how the economic systems of Gwich'in Athabascans have existed and changed through the years. Some, but not all the elements of their lives can be said to be "traditional." Steve is heavily involved with subsistence practices such as fishing and trapping. In fact, these practices provide his primary livelihood. On the other hand, Rose works a full-time job in town and does little in the way of subsistence herself. However, she views the Gwich'in language as an important enough part of her life to invest time and energy into learning and teaching it. Inasmuch as teaching children the language is a part of her job, it could be said that part of her income comes from a traditional part of the culture as well.

Literature about the Gwich'in in the last 100 years has attempted to describe subsistence practices from a variety of perspectives. The first non-indigenous incursion into the Yukon Flats area was in the early 1800s, with the arrival of French fur traders associated with the Hudson's Bay Company. Alexander Murray established the first Fort Yukon trading post in 1847. Some of his early

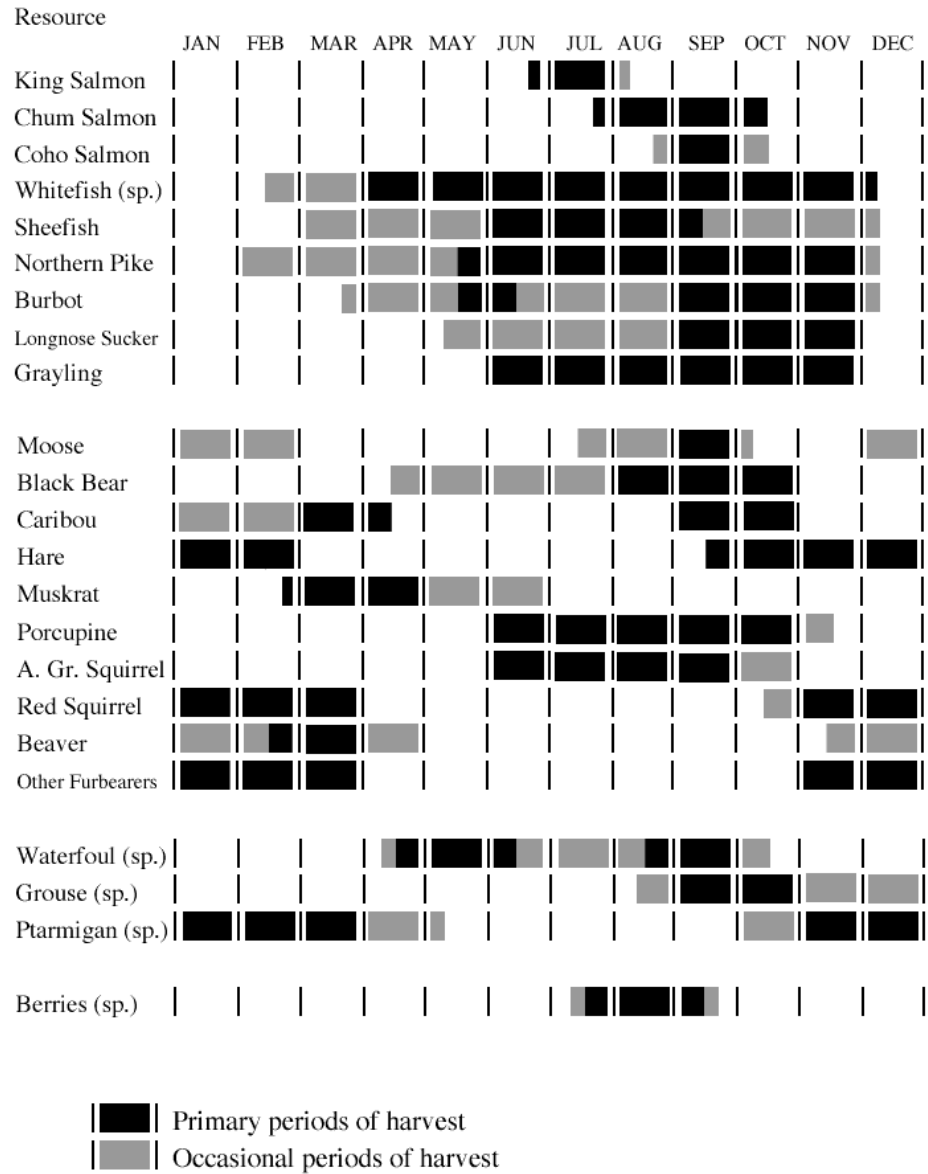
journals shed light on the Gwich'in (also referred to as "Kutchin" in early anthropological and historical literature) prior to contact. The first ethnographic works were in the early 1900s, with researchers such as Cornelius Osgood (1936), Robert McKennan (1965), and Richard Slobodin (1981) following ethnographic approaches typical of the time to delineate the different parts of this "new" Aboriginal culture. The obligatory anthropological categories of social organization, religion, mythology, material culture, and subsistence practices identify normal areas of inquiry.

Under the heading "Food: General Kutchin," Osgood, the earliest ethnographer, writes,

Between the fourth of July and the first of September the Indians of the Yukon Flats fish in the river for king and dog salmon. When the fishing season is over, they hunt the moose and caribou, a procedure, which lasts until the river begins to freeze. While this latter process is going on both hunting and fishing cease. During the winter food is hunted and if game is scarce, the Indians tend to scatter. (Osgood 1936, 34)

As is apparent in the story of Steve and Rose, this general pattern continues today. Indeed, this description of the "seasonal round" of subsistence patterns has come to define subsistence research in the last 30 years, at least since 1978 with the establishment of the Subsistence Division within the Alaska Department of Fish and Game (ADF&G), concurrent with the passage of the state's first subsistence law. The Subsistence Division contributes research on subsistence to enlighten the management decisions of ADF&G. Some of the technical papers that relate to the subsistence practices of the Gwich'in include no. 16, *Subsistence Land Use in Upper Yukon–Porcupine Communities, Alaska* (Caulfield 1983), and no. 179, *Patterns of Fish and Wildlife Use for Subsistence in Fort Yukon, Alaska* (Sumida and Andersen, 1990), among many others.

For a schematic of the typical pattern of subsistence seasonal rounds in Fort Yukon, see figure 10.2.



Source: Sumida and Andersen (1990)

Fig. 10.2 Seasonal round of subsistence activities in Fort Yukon, ca. 1987

While these seasonal patterns may have remained roughly consistent through at least the last 100 years of Western research, much has changed in how Gwich'in people practise subsistence today. Sumida and Andersen write:

This general seasonal round has evolved in response to a number of factors including the relative abundance of specific resources at certain times of the year, the migration patterns of some resources, the prevailing environmental conditions during various seasons which affect travel and access to resource use areas, preferences for

certain qualities found in resources at certain times of the year, and regulatory constraints. (Sumida and Andersen 1990, 23)

How do the changes in subsistence integrate with other elements of a regional food system? Why have these changes occurred, and are they favourable for the lives of the Gwich'in?

## Modern Subsistence

Even McKennan, writing in 1965 on the basis of fieldwork with the Chandalar Kutchin in 1933, addressed changes in regional food systems introduced by the economies of “white men”:

Since the arrival of white man, life has become more secure. The fur trade has provided new foods, such as flour, sugar, rice and beans. Fishing has become more important, largely because of the introduction of the fish net . . . The white man's rifle has replaced the bow and arrow and the surround, and the steel trap has replaced the snare and deadfall. But in spite of such changes the Chandalar Kutchin life continues to follow the old, basic patten of hunting nomadism, reinforced now by the trapping of such fur-bearing animals as marten, fox, wolverine, mink, otter, beaver, and muskrat. (McKennan 1965, 28)

It is notable that McKennan mentions security. While it is difficult to know exactly what he meant by “life has become more secure,” he does seem to be referring to economic security. For him, there was no question that subsistence was mostly defined by its practical rather than its symbolic purposes. Although subsistence continues to fill a nutritional need in parts of Alaska, security has cultural as well as material and symbolic elements and meaning for rural Alaska communities.

Much has occurred since McKennan's time to change the practices of subsistence. We have already discussed the primary political changes wrought by ANCSA and ANILCA and state natural resource management laws. In rural Alaska, these laws have affected the practice of subsistence by forcing regulatory changes on hunting and fishing practices that previously had been regulated by the practitioners themselves (Berkes and Folke 1998, Usher 1987; and Huntington 1992). While subsistence had once been integrated into indigenous cultural and social networks, it is now subject to Western scientific analysis tools such as predator–prey models and concepts such as ecosystem-carrying capacity. Predator–prey models help us to understand the positive and negative effects of predation on prey populations; and while carrying capacity has different definitions, it is commonly defined as a condition where population growth, size, and density are in equilibrium with the potential of the ecosystem to support it. In other words, population size must adjust to the capacity of the natural system to support and sustain the population. Where population exceeds this threshold, it can only be sustained through material or energy inputs and exchanges from outside the system (Odum 1971; Krebs 1978;



Aber and Melillo 1991), and thus it would be said to have exceeded the carrying capacity of the system. In the Yukon Flats, the majority of the land area belongs to the Yukon Flats National Wildlife Refuge, and game animals are managed by the ADF&G. At one time, information about how and when to hunt moose was cultural practice, like the many different terms the Gwich'in used for moose of different sexes and ages. Observations about what the moose population was doing in the Yukon Flats were passed by word of mouth (Paul Williams Sr. 2003). Today, the English words *cow*, *bull*, and *calf* are the most common designators for moose.

The Alaska Department of Fish and Game (ADF&G) monitors moose populations through aerial surveys and harvest reporting. The Board of Game makes management decisions based on these numbers and creates regulations, which the Gwich'in are expected to honour. Currently, the moose population is at an historic low because of excessive predation, and many Gwich'in are concerned about being able to continue to hunt this animal that has traditionally played a fundamental role in their subsistence culture. Of course, there are differing opinions regarding solutions for this moose population problem, all of them political, and almost none of them definitive.

A second fundamental change affecting the way subsistence is practised today has been the shift from a nomadic to sedentary lifestyle for Alaska indigenous peoples. McKennan's quote earlier in this module mentions that the Chandalar "Kutchin" were still following a nomadic lifestyle when he met them. However, virtually no one is nomadic today. McKennan refers to one agent of change—the new economic practice of fur-trading, which organized people's activities around permanent trading posts. However, a more significant influence was the law passed in 1929 requiring all Alaskan children to attend school. Formerly nomadic families moved to villages where their children could attend government-run schools.

In conjunction with ever-changing hunting technology and modes of transportation, the shift to sedentary lifestyles has had a tremendous effect on subsistence practices—and on the land. Because of improved motorized transportation provided by outboard motor boats, all-terrain vehicles (ATVs), and snowmobiles, hunters live in town for most of the year rather than following a seasonal round from variable residential locations. Rather than shifting locations in parallel with the seasonal round, Alaskan hunters now radiate out from a home base. While much good research remains to be conducted on the effects of settlement on subsistence and on natural resources, one can hypothesize that permanence has intensified the effects on fish and game resources in local areas, forcing hunters to travel even farther to access reliable game resources. Permanent settlement concentrates people in one place, places that are sometimes traditional use areas and sometimes not. The cumulative effect of too many people using too few concentrated local subsistence resources is sometimes a degraded local environment.

The Yukon Flats is a part of the vast Subarctic boreal forest, which circles the globe in high latitudes. In the Flats, the forest is dominated by white and black spruce, interspersed with hundreds of acidic lakes and ever-shifting river channels. The Gwich'in have at one time or another made use of the majority of plant and animal species in this ecosystem. They used to move with the seasons to access the most dependable resources at different times of the year. Today, available resources still shift with the seasons, but the large-scale interaction with the landscape around Fort Yukon, for instance, is quite different. During the summer months, most activities are focused along the Yukon River. Serving as a transportation corridor all year, during the summer the river is also the source of fish. Salmon provide a large part of Gwich'in subsistence identity in the Yukon Flats. Moose, well-adapted as they are to the boggy terrain of the boreal forest, also rank high in importance for the Gwich'in. But how much actual caloric and nutritional value do these foods provide for people? When making choices about how to make a living, Gwich'in Athabascans in the Yukon Flats must consider a completely different set of needs and opportunities than their ancestors did 100 years ago, which was yet a different array from 100 years before that. For those Gwich'in such as Steve who want to continue fishing and trapping and hunting as much as possible, the opportunity exists, but subsistence may not provide the same type or level of security as it once did. McKennan clearly believed that the Gwich'in were more secure because of the new opportunities available to them through the external economic system of fur-trading. What other options are open to Gwich'in people for making a living?

## **Non-Subsistence Options and Economic Opportunity?**

Fort Yukon serves as a regional hub for the Yukon Flats. Much larger than any other village in the region, its population fluctuates around 550. Partly because of its hub status, there are more alternatives to subsistence in Fort Yukon than there are in smaller villages. This said, however, there is still not enough opportunity for full-time employment—even here—to offset the need for the harvest of country food; nor do people necessarily want to forgo participation in subsistence activities. The town contains an airport that serves many airlines; a store; two restaurants; a gas station; a post office; a school; a radio station; a state office building; a tribal office building and hall; a city building; a unit of the Interior-Aleutians Campus of the University of Alaska Fairbanks; and the offices of two regional tribal organizations: the Council of Athabaskan Tribal Governments (CATG) and the Tanana Chiefs Conference (TCC). Fort Yukon also was the site of a military base for about 20 years starting in the early 1950s, with the result being a legacy of contaminants that the military has still not resolved. Fort Yukon is currently a regional centre for summertime wildfire firefighting, coordinated by the Bureau of Land Management (BLM). Because of its array of options, Fort Yukon serves as a reasonable model for understanding common issues that many rural communities must confront today.

One way of addressing economic security is through employment statistics. In spite of the fact that there are more job options open to Fort Yukon residents

than there are in many villages of smaller size, the Alaska Department of Community and Economic Development (ADCED) reports (on the basis of 2000 US Census figures) that Fort Yukon has an unemployment rate of almost 50% and a poverty rate of almost 20%. Of the reported 237 employed individuals, only 10 are listed as employed in the category that includes hunting and fishing. There are certainly many more than 10 people involved in subsistence hunting and fishing in Fort Yukon, but only those people who earn their monetary living as commercial fishers are counted in ADCED's category (ADCED, Community Database Online: Economy, Employment, Income and Poverty for Fort Yukon. Data from 2000 US Census).

So we again turn to Steve and Rose for a qualitative portrayal of how wage labour interacts with subsistence in an integrated economic and food system. First of all, it is apparent that modern subsistence practitioners are partially dependent upon formal economic systems and cash to provide them with supplies that they need in order to continue hunting or fishing. For instance, Steve must have access to cash in order to pay for his boat and its maintenance. Some of this cash he acquires through the sale of furs; some through so-called government transfers and/or unemployment compensation. Another form of cash for many rural Alaskan residents comes in the form of dividends, such as the one received by all Alaskans through the Alaska Permanent Fund. If an ANCSA indigenous corporation turns a profit, its shareholders may also receive dividends. A misunderstanding held by many urban Alaskans is that Alaska indigenous peoples receive large monthly dividends thanks to ANCSA. This is not the case. Most corporations are not profitable enough to provide more than a small annual allotment to their shareholders. Steve probably cannot support much of his subsistence practices through dividends from his regional corporation—Doyon, Limited—or through his village corporation, Gwichyaa Zhee.

As Ross and Usher (1986) explain, whether or not subsistence users consciously budget their time and money, the fact is that they must make choices about how to acquire what they need to continue practising subsistence:

To the extent that Native people—primarily oriented to traditional activities—desire wage employment, they seek casual or seasonal employment in which they can earn predetermined amounts of cash to meet specified needs, rather than full-time career-oriented occupations. One of the chief problems with wage employment is that it demands time. By comparison, the welfare system does not, which is why those oriented chiefly to domestic production find that essential cash resources are much more sensibly obtained from the welfare system than from wage employment. (Ross and Usher 1986, 149)

On the other hand, there are certainly those Gwich'in, such as Rose, who choose to commit more fully to the paid jobs available to them. However, that does not mean those individuals are entirely removed from subsistence networks in rural communities. Rose still has canned fish to offer at her meeting. Steve shares his fish with his mother in Fairbanks. As Usher points out, many Aboriginal

families have some people employed in wage-earning jobs and some who practise more traditional lifestyles: “Many families have already found out that if everyone in the household worked for wages with no one hunting any more, their grocery bills skyrocketed, they were not eating as well, and life was not as enjoyable” (1986, 150). James Magdanz, a researcher for the Subsistence Division of the ADF&G, has done extensive work showing that rural Alaskans practising subsistence cannot be viewed solely as individuals acquiring food for themselves but are actually each integrated into subsistence networks that share food among and between families and communities (Magdanz 2002).

## **Putting It All Together: The Modern Food System**

Returning to our topic, the questions are, How do economic components interact with subsistence and food systems? and, secondarily, How have these components affected the security of regional food systems within which people live and upon which people depend? Food security can be defined as the quality and reliability of food sources. A regional food system can be defined as the larger economic system of food procurement of which subsistence is a part. Without attempting to fully answer the second question, this section of the module addresses the elements that must be considered part of an integrated system and incorporated into a descriptive systems model. The intent here is not to build a model, but rather to describe the important elements in a regional food framework.

When modelling a system, one must especially emphasize components that have the largest effect on other components of the system and for points of feedback between components. For instance, regional food systems that were once defined by nomadism are now characterized by small sedentary settlements. Because the Fort Yukon Gwich'in are sedentary, they have different opportunities and risks in their regional food systems. They now have wage labour options and other sources of food, namely village stores and grocery stores in urban centres. But how much freedom do they have to choose their food sources? and do they see their options in the same way that a systems modeller would? Steve procures much of his food from wild sources, but he also buys butter, eggs, and coffee—and likely tea and sugar—at the store. What is the caloric and nutritional value of each of these sources? Are the village stores more or less secure sources of food? Are the village stores places where healthy foods can be obtained at reasonable cost, with some element of choice involved?

There is also a positive feedback loop between a sedentary lifestyle and dependence on food sources other than subsistence resources. If a Gwich'in family chooses to live in Fort Yukon and to still hunt and fish as much as possible, the hunters need transportation and access to the fish and game. Whereas at one time human- or dog-powered travel may have been feasible, the only practical options now are modern machines that require cash input to buy

and maintain. This is in part because sedentary hunters must travel farther and faster from a central location. Cash requires either wage jobs or dependence on welfare. If wage jobs within the family are sought, the family has to stay in town for the job. Therefore, even if a family wants to practise subsistence, they are locked into a sedentary system, which produces a higher localized impact on the region's natural resources and hence may eventually require individuals to travel even farther from town to access resources, in turn requiring them to invest more cash in fuel and maintenance.

Another element of the system only briefly mentioned in this module so far is the aspect of sharing in a subsistence system. When an individual makes choices in Fort Yukon about how to procure food, he or she may consider not only all the elements addressed so far, but also the human social network of which he or she is a part. Subsistence food procurement traditionally involved sharing through kinship relationships. One did not rely solely on oneself or even on one's immediate family for food. Sharing helped provide economic security. How has the system of sharing changed or remained the same, and how does it now relate to food security? For instance, as suggested earlier by Dombrowski, subsistence sharing remains a social system with intangible rewards, such as prestige and identity. Steve and Rose both share subsistence foods in the Fort Yukon story—both within and outside of kinship relationships, and within and outside of Fort Yukon.

Finally, a modeller must attend to issues of scale across time and space. Many of the temporal and spatial changes in the food system of the Yukon Flats have been addressed in this module. Subsistence practices are always changing with the passage of time, but what about the spatial change as well? Clearly, a regional food network has both local and global connections. Where food sources were once almost entirely local and regional, sharing networks have now expanded to urban centres in Alaska, and to non-subsistence food sources that are better described as global. How does this change affect the security of the entire system? The import of “long distance” foods to rural Alaska is costly in terms of high prices for comparatively low-quality food, and it is costly in terms of health (Goldsmith, Howe, Angvik, Leask, and Hill 2004). Nutrition-related maladies such as dental caries and diabetes are on the rise, as are all forms of chronic disease related to smoking and a lack of exercise. (For similar examples from the American southwest and the Mexican borderlands, see Nabhan 2002.)

## Summary

### Continuing Issues

The past 30 years have brought great changes to Alaska rural communities and their regional food systems. During this time, Alaska indigenous peoples have become more sedentary and more reliant on imported foods. Hunter-gatherer economic systems are extensive instead of intensive with respect to the extent of land resources needed to make a living, and they function only in the context of large land-use patterns and high residential mobility (Binford 2001). When access to land is restricted, the potential for local hunters to cope with resource shortages is diminished, even where predictable, seasonally available salmon and other fish runs are present. Fish provide a measure of economic stability to the system, in part because they are predictable, in part because fish can be stored for long periods of time. The fish harvest also provides the family work and enhances community health. The division of land among Aboriginal corporations, federal agencies, and state interests has fragmented the landscape that was once used by Alaska indigenous peoples for resource acquisition and traditional cultural activities.

The activities of life are now confined to the village, which is the centre for school, stores, and cash-income jobs. As a result, the regional food systems in these communities have been fragmented. While the majority of foods consumed were once subsistence resources, more communities are now relying on imported foods for all or part of their diet. The combination of imported foods and a sedentary lifestyle is proving deadly for rural people: for instance, the rate of occurrence of diabetes in indigenous peoples of Alaska is approximately 18 individuals out of 1,000. Historically, diabetes was not thought to be present in Arctic and Subarctic populations, but it is now nearing levels of other developed countries (Nobmann 1992; AMAP 2003). According to the Alaska Department of Public Health, in 1950 the major cause of death among Alaska indigenous peoples was infectious disease. By the 1980s, cancer, heart disease, and injuries had become the leading causes of death; in addition, the rate of cardiovascular disease has also increased (Egeland et. al 1998). We know from nutritional information that the diet of Alaska indigenous peoples has drastically changed, but we are still learning how these changes have affected the cultural integrity of Alaska communities and the changes in individual and community health.

As demonstrated by Wilkins, Bowdish and Sobal (2002), local sources of food make a difference to individuals and their connection to the economics and ecology within their own communities; this is also a truism for urban communities (Wilkins, Bowdish and Sobal, 2002; Pelletier 2000). As this module examines, local sources of food are important to rural Alaskans for multiple reasons; we have considered the structure and composition of rural communities in Alaska and have seen how food moves through the system.

However, we have yet to understand and examine how these changes in a community food system affect cultural integrity. In his book, *Coming Home to Eat: The Pleasures and Politics of Local Foods*, Gary Paul Nabhan (2002) discusses the Western paradigmatic obsession with nutritional values, chemical composition, packaging, and diseases associated with food (Nabhan 2002, 27). One result of this obsession is the nutritional values brought by government mandate to rural villages in Alaska. In one chart of nutritional recommendations produced by the United States Department of Health and Human Services, Indian Health Service and the Alaska Area Native Health Service, the fat content of selected snacks is plotted on a graph expressing each item's percentage daily values (Jensen 1994). Agutuk, or Eskimo ice cream, made with shortening is listed as having the highest daily value of fat when plotted against other snacks listed. Among the other snacks listed, as containing **less** percentages of fat are ice cream, potato chips, and chocolate candy with peanuts.

One assumes that these charts were distributed in rural Alaska to increase awareness of health issues. In all likelihood, agutuk with shortening may contribute to issues of obesity, but so do potato chips, ice cream, and chocolate candy with peanuts. In addition, with increased rates of diabetes in rural Alaska, these sugar-filled suggestions do not make good health sense. Couldn't other alternative traditional foods be suggested? What about agutuk made with white fish, a more traditional recipe? There are excellent charts also provided as part of the Jensen report with nutritional values of subsistence foods, but the chart described above is at the heart of the dichotomy of country foods and imported foods. Do healthy food systems make healthy communities? The harvest and consumption of local foods need to be more clearly linked in nutrition research with the identity of the people harvesting and consuming them. The fracturing of this association may be contributing to the struggle of communities to understand the changes within their culture. How do we assist communities in designing a system that allows them affordable access to healthy food choices and allows for adaptation to change without the collapse of the social structure?

In conclusion, more questions have been raised in this module than have been answered about how to understand subsistence systems in interior Alaska. However, the intention is not to offer further proscriptive definitions of subsistence, but rather to suggest different ways of understanding and researching the place of subsistence, food traditions, and food systems in modern Alaska. Perhaps using a systems approach will help illuminate the points of an integrated food system where informed management can make the most difference in ensuring food security in rural Alaska villages in the face of store-bought foods and what are becoming chronic health issues in rural Alaska communities.

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## Student Activity

How secure is your food source? Do you know where your food comes from?

1. Pick one day of the week and keep a log of all the food you eat and where you suspect it came from originally.
  2. Factoring in the distance it travelled to get to you and how, estimate the price of fuel it cost to transport that item of food to you. Also include the labour costs of harvesting and transporting the food item.
  3. Create a spreadsheet comparing how much you paid for each item in the grocery store versus the cost of harvesting and transporting that item to you.
  4. For comparison, create a column in your spreadsheet with the foods that you grow or harvest yourself and the input required to produce, collect, and obtain that food item.
  5. Write a short summary of what you learned from this exercise and how this spreadsheet would look different if you were someone living in a rural community in Alaska.
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## Study Questions

1. How do the changes in subsistence integrate with other elements of a regional food system?
2. Why have these changes occurred? Are they favourable for the lives of Aboriginal Alaskans?
3. How do economic components interact with subsistence and food systems?
4. How have these economic components affected the security of regional food systems within which people live and upon which they depend?
5. How has the system of sharing changed or remained the same? How does it now relate to food security?



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