Technical Paper No. 389

Subsistence Harvests in Northwest Alaska: Selawik, 2010–2011

by
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December 2013

Alaska Department of Fish and Game **Division of Subsistence**

Symbols and Abbreviations

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Weights and measures (metric)	
centimeter	cm
deciliter	dL
gram	g
hectare	ha
kilogram	kg
kilometer	km
liter	L
meter	m
milliliter	mL
millimeter	mm

Weights and measures (English)	
cubic feet per second	ft^3/s
foot	ft
gallon	gal
inch	in
mile	mi
nautical mile	nmi
ounce	oz
pound	lb
quart	qt
yard	yd

Time and temperature	
day	d
degrees Celsius	°C
degrees Fahrenheit	°F
degrees kelvin	K
hour	h
minute	min
second	s

Physics and chemistry	
all atomic symbols	
alternating current	AC
ampere	A
calorie	cal
direct current	DC
hertz	Hz
horsepower	hp
hydrogen ion activity (negative log of)	pH
parts per million	ppm
parts per thousand	ppt, ‰
volts	V
watts	W

General	
Alaska Administrative Code	AAC
all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.
all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.
at	@
compass directions:	
east	E
north	N
south	S
west	W
copyright	©
corporate suffixes:	
Company	Co.
Corporation	Corp.
Incorporated	Inc.
Limited	Ltd.
District of Columbia	D.C.
et alii (and others)	et al.
et cetera (and so forth)	etc.
exempli gratia (for example)	e.g.
Federal Information Code	FIC
id est (that is)	i.e.
latitude or longitude	lat. or long.
monetary symbols (U.S.)	$, ¢
months (tables and figures): first three letters	Jan,...,Dec
registered trademark	®
trademark	™
United States (adjective)	U.S.
United States of America (noun)	USA
U.S.C.	United States Code
U.S. state	use two-letter abbreviations (e.g., AK, WA)

Measures (fisheries)	
fork length	FL
mideye-to-fork	MEF
mideye-to-tail-fork	METF
standard length	SL
total length	TL

Mathematics, statistics	
all standard mathematical signs, symbols and abbreviations	
alternate hypothesis	H_A
base of natural logarithm	e
catch per unit effort	CPUE
coefficient of variation	CV
common test statistics	(F, t, χ^2, etc.)
confidence interval	CI
correlation coefficient (multiple)	R
correlation coefficient (simple)	r
covariance	cov
degree (angular)	°
degrees of freedom	df
expected value	E
greater than	>
greater than or equal to	?
harvest per unit effort	HPUE
less than	<
less than or equal to	?
logarithm (natural)	ln
logarithm (base 10)	log
logarithm (specify base)	$\log_2$, etc.
minute (angular)	'
not significant	NS
null hypothesis	H_O
percent	%
probability	P
probability of a type I error (rejection of the null hypothesis when true)	α
probability of a type II error (acceptance of the null hypothesis when false)	β
second (angular)	"
standard deviation	SD
standard error	SE
variance	
population	Var
sample	var

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The Division of Subsistence Technical Paper series was established in 1979 and represents the most complete collection of information about customary and traditional uses of fish and wildlife resources in Alaska. The papers cover all regions of the state. Some papers were written in response to specific fish and game management issues. Others provide detailed, basic information on the subsistence uses of particular communities which pertain to a large number of scientific and policy questions.

Technical Paper series reports are available through the Alaska Resources Library and Information Services (ARLIS), the Alaska State Library and on the Internet: http://www.adfg.alaska.gov/sf/publications/. This publication has undergone editorial and professional review.

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ABSTRACT

In October 2011, 61 of 169 households in Selawik answered questions about their harvest and use of subsistence resources in the previous year. The comprehensive subsistence survey asked heads of households about their use, harvest, and sharing of 92 species of fish, land mammals, marine mammals, marine invertebrates, birds, and wild plants and berries. Questions included how much was harvested, when, and where. The project also collected information on community demographics, income, food security, wild food networks, and customary trade. Researchers mapped the areas used by Selawik residents for subsistence hunting, fishing, and gathering in the 12-month study period.

Between October 2010 and September 2011, Selawik households harvested an estimated 175,095 lb of wild foods (by edible weight), an average of 533 lb per capita. Nonsalmon fishes, particularly whitefish species, predominated in the harvest, providing more than one-half (250,162 lb) of the total subsistence harvest by edible weight. Caribou contributed another 92,947 lb of wild foods, 20% of harvest. Just 6 species—broad whitefish, caribou, sheefish, northern pike, humpback whitefish, and moose—provided 90% of the total subsistence harvest.

This project was funded through cooperative agreement between the Northwest Arctic Borough (NWAB) and the Division of Subsistence, Alaska Department of Fish and Game (ADF&G). Its findings are meant to complement a multi-year subsistence mapping project in 6 Northwest Alaska communities being undertaken by the NWAB with funding from the Oak Foundation. Analyses of harvest levels of specific species, demographics, harvest areas, village economies, harvest assessments, food security, and wild food networks help to characterize contemporary subsistence economies in Western Alaska and contribute to our knowledge of subsistence statewide.

Key words: subsistence fishing, subsistence hunting, Selawik, whitefishes, caribou, food security, Northwest Alaska

INTRODUCTION

This report summarizes the results of research conducted in 2011 on the subsistence harvest and use of wild food by residents of Selawik, Alaska. This project was conducted cooperatively by the Division of Subsistence, the Northwest Arctic Borough (NWAB) and the Native Village of Selawik. Its findings are meant to complement a multi-year subsistence mapping project being conducted by the NWAB in the communities of Buckland, Deering, Kivalina, Noatak, Noorvik, and Selawik.

Selawik is a predominately Iñupiaq community located within the Northwest Arctic Borough. Its residents, like those of other small, Alaska Native communities in rural Alaska, remain substantially dependent on their annual harvests of salmon, nonsalmon fishes, land and marine mammals, migratory waterfowl, and plants and berries. The harvest and use of traditional Iñupiaq foods, *niqipiaq*, or "real food" is the most visible manifestation of an economic, cultural, and spiritual system based upon thousands of years of the Iñupiat's occupancy in the region. After more than a century of rapid social, economic, and technological change, this lifeway–subsistence–continues to sustain these communities.

Subsistence harvests of wild foods in Northwest Alaska are diverse. Harvests vary from community to community, and harvests vary over time in both amounts and species harvested. Species harvested include, but are not limited to, salmon, inconnu (commonly called sheefish), Dolly Varden, whitefishes, caribou, moose, bearded seals, beluga whales (white whales), other seals, geese, ducks, crabs, clams, wild berries, and wild greens. Appendix A provides the common, scientific, and Iñupiaq names of species harvested by residents of Selawik. Processing and preservation methods are a mix of old and new. Wild fish, game, birds, and plants are variously dried, salted, smoked, pickled, fermented, and frozen. *Paniqtuq* (dried, uncooked) fish or game figures prominently, with some foods half-dried or half-cooked (*iyamaagłuq*), and others frozen raw to be served later in that state, sliced thin (*quaq*). Almost universally, seal oil (*uqsraq*) figures prominently as a condiment and preservative itself. Each community's subsistence patterns, the composition of harvest by species, harvest techniques, gear types, and processing methods are based upon that community's unique mixture of local weather conditions, riverine and terrestrial environment, and species abundance.

Previous comprehensive harvest studies in the region have documented annual subsistence harvests ranging from 347 lb per capita in Kiana (2006) to 940 lb of wild foods per capita in Kivalina (1983) (ADF&G Community Subsistence Information System [CSIS[1]]). This study is the first comprehensive harvest study conducted in Selawik.

Ongoing climate change and a growing list of proposed development projects are poised to

1. ADF&G Division of Subsistence, Community Subsistence Information System (CSIS): http://www.adfg.alaska.gov/sb/CSIS.

dramatically change life in the Arctic. Residents of communities across the north have been observing changes in their environment for years: warmer temperatures that lead to earlier spring breakup and later fall freezeups, thawing permafrost, reduced thickness in sea ice, the spread of brushy vegetation, drying tundra lakes, and erratic weather patterns (Hinzman et al. 2005; H. Huntington and Fox 2005; H. P. Huntington et al. 2007; Gregory, Failing, and Leiserowitz 2006; Kruse 2011; McBeath and Shepro 2007; Moerlein and Carothers 2012).

Environmental change is happening more rapidly than scientists have predicted. In July 2012, the extent of sea ice in summer was the lowest ever measured, prompting speculation by scientists that sea ice-free summers could be a reality by the end of this decade, not mid-century as proposed in the most pessimistic of earlier forecasts (National Snow and Ice Data Center. Arctic sea ice shatters previous low records; Antarctic sea ice edges to record high, Press release, October 12, 2012; Overland and Wang 2013).

How these changes will affect sea ice-dependent species such as certain types of seals, walruses, and polar bears is uncertain. The federal government listed both ringed and bearded seals as threatened under the Endangered Species Act in December 2012. Polar bears were listed as threatened in 2008. Several times in recent years, Pacific walrus have hauled out in groups of thousands on the Northwest Alaska coast in response to a lack of sea ice. At the time of the preparation of this report, state and federal agencies were working to determine the cause of an unexplained mortality event (UME) occurring in various seal species and walruses. It is uncertain at this writing if abnormalities being observed in polar bears (skin lesions and alopecia) were related to those seen in seals and walruses.

These changes will likely alter weather patterns and species distributions. As noted in the *The Economist*, "Perhaps not since the 19th-century clearance of America's forests has the world seen such a spectacular environmental change" ("The Vanishing North" 2012). Changes in habitat will affect both the species who depend upon it and the people who rely upon those wild resources.

As the Arctic warms, interest in the resources it contains has mushroomed. Increased access, coupled with high mineral prices, has spurred a rush to the north as Arctic and non-Arctic nations alike seek to stake a claim to new shipping routes, commercial fisheries, natural gas, oil, coal, and rare earth metals present in the region. A number of projects within Northwest Alaska were proposed or already underway in late 2012. These included offshore drilling in the Chukchi Sea, a proposed road from the Dalton Highway to the Ambler mining district, a 500-mile road connecting the Elliot Highway to Nome, and a pipeline across the North Slope to transport oil and gas from Chukchi Sea wells to the Trans-Alaska Pipeline system. Proposed industrial developments could impact not only renewable resources through habitat alteration, but also social and economic systems by providing increased employment and dividend income to residents of the region (Fried and Robinson 2008).

Taken singly or as a whole, these developments may have substantial impacts on life in Northwest Alaska's small communities. For planning, impact assessment, and decision making, local residents,

agencies, and non-governmental organizations need updated baseline and time series information on customary and traditional use and harvest of fish, wildlife, and vegetation by subsistence users.

Background

NORTHWEST ALASKA

The boundaries of Northwest Alaska, as a region, have been described in several ways (and sizes). This report follows the example of previous Division of Subsistence publications, defining it as all lands and water that drain into the Chukchi Sea between Cape Espenberg and Point Hope, including marine waters under both state and federal jurisdictions; in area, this region totals about 38,600 mi^2, about the size of the state of Ohio (Magdanz et al. 2011). Ernest Burch, Jr., who authored several ethnohistoric works on the area, bounded it on the Alaska coastline between Cape Thompson in the north and Cape Espenberg to the south, including, between those two points, the inland areas drained by rivers reaching to the sea, and the waters and floors of Kotzebue Sound and the Chukchi Sea east of those points (Burch Jr. 1998).

This area (Figure 1-1) contains the boundaries of several political bodies and resource management areas which are largely similar, including:

- The Northwest Arctic Borough, a home rule borough;
- NANA Regional Corporation, Inc., an Alaska Native Claims Settlement Act (ANCSA) regional corporation;
- The Northwest Arctic Region, a federal subsistence management area;
- The Kotzebue Area, a state fishing regulatory area; and
- Game Management Unit 23, a state hunting regulatory area.

Land ownership is a mix of state, federal, and Alaska Native owned lands. Federal lands within the area include parts of Bering Land Bridge National Park and Preserve, Selawik National Wildlife Refuge, Cape Krusenstern National Monument, Noatak National Park and Preserve, Gates of the Arctic National Park, and Kobuk Valley National Park.

Eleven communities are located within the borough, the largest of which is the regional center of Kotzebue, with a 2011 population of 3,224.[2] Smaller communities include Ambler, Buckland, Deering, Kiana, Kivalina, Kobuk, Noatak, Noorvik, Selawik, and Shungnak, which range in size from 123 (Deering) to 829 (Selawik). The total 2011 population of the borough, 7,651, is predominately

2. For the first time, in 2010, the U.S. Census included 309 people at the Red Dog mine in the population of the NWAB. The mine provides housing to shift workers, who work a combination of weeks on and weeks off. Some workers do not live within the NWAB, while others reside in NWAB communities

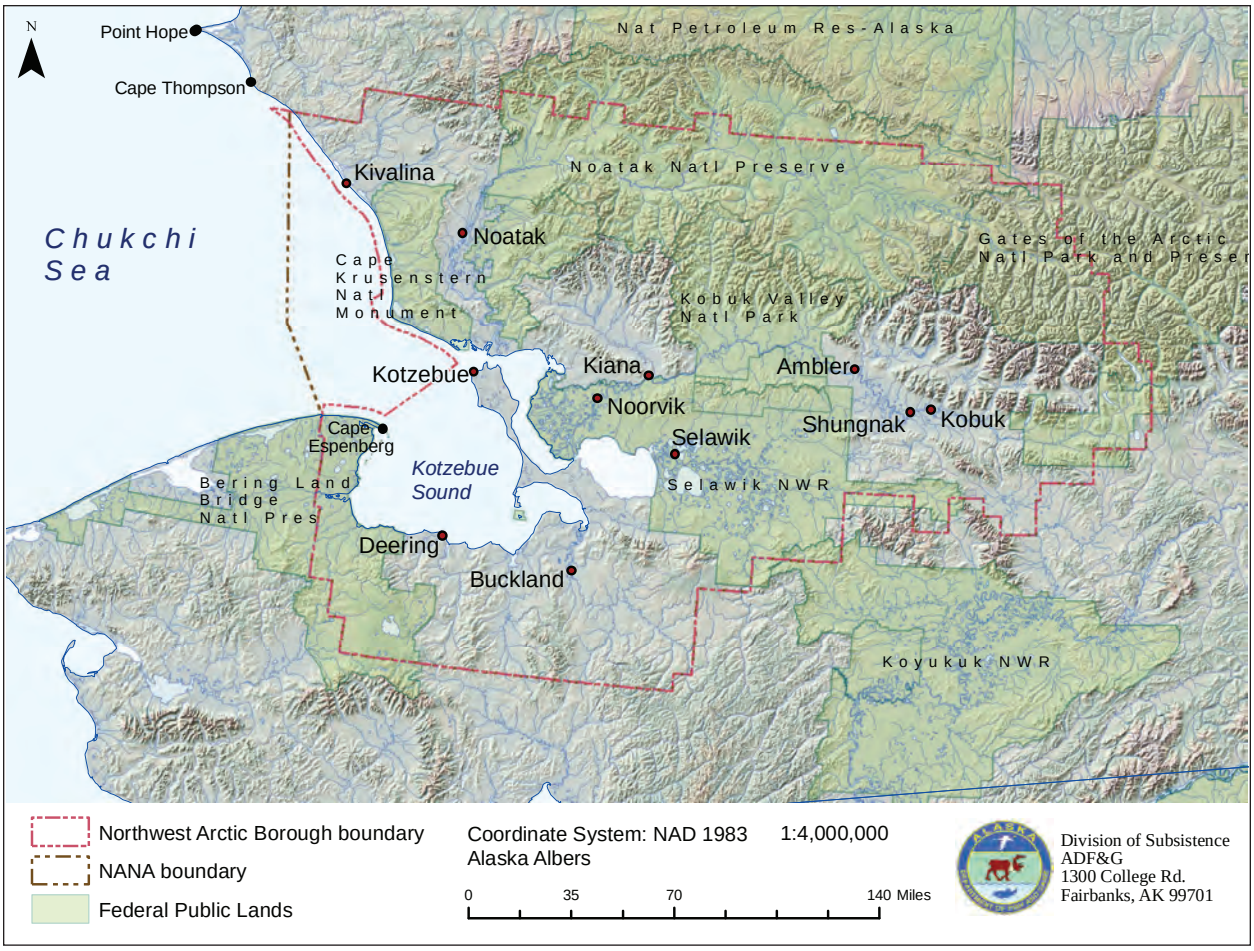


Figure 1-1.–Map of Northwest Alaska, showing communities and administrative boundaries.

Alaska Native (81%) the majority of which are Iñupiat (ADLWD n.d.). The percentage of the population that is Alaska Native tends to be higher in the smaller outlying communities (from 85 to 96%) than in Kotzebue, where it is 74%. Kotzebue serves as a hub for transportation, goods, and services in the area, with daily jet service from Anchorage and a number of local airlines serving outlying communities. It does not have a natural harbor; deep draft vessels must anchor 15 miles offshore and cargo lightered to the docking facility (ADCCED).

Borough residents are employed in occupations related to government, mining, health care, services, and construction. The largest employers include the Red Dog mine, the Maniilaq Association (an ANCSA non-profit regional corporation), the Northwest Arctic Borough School District, and the Kikkitagruk Inupiat Corporation. A small-scale commercial fishery for chum salmon takes place near Kotzebue; in 2010, 138 borough residents held commercial fishing permits. Over the 5-year period 2007–2011, the local unemployment rate was 26%, with an estimated 900 of the 3,478 persons in the labor force[3] not working a job (United States Census Bureau 2013). By industry, the largest employer of borough residents was local government, with 38% of those employed, followed by

3. The labor force being persons aged 16 and older.

education and health services (17%), trade, transportation and utilities (10%), professional and business services (6%), and natural resources and mining (6%), and others (ADLWD n.d.).

Adjusting for inflation, between 2007–2011, the average median household income was $36,875. Per capita income was $10,973. Nearly 20% of residents had incomes below the poverty level. (United States Census Bureau 2013).

A regional health center in Kotzebue operated by the Maniilaq Association and a system of health clinics in the villages provide medical services. Community health aides staff the village clinics. Via internet-based telemedicine links, the Maniilaq Health Center in Kotzebue provides access to medical records, libraries, and teleconferencing with doctors. More serious health conditions require treatment in Anchorage; in serious medical emergencies, patients are transported by medevac to Anchorage or Seattle.

The physical environment of Northwest Alaska varies dramatically with a mosaic of vegetation determined by elevation, climate (influenced by a variety of factors, including distance from the coast), and wildlife. Arctic and alpine tundra are both characterized by the presence of plants growing low to the ground with shrubs, sedges, liverworts, grasses, mosses, and lichens. Some classifications distinguish between the varieties of tundra. Wet tundra, such as that found on the Selawik River delta, is underlaid by permafrost and is host to lichens, mosses, heath, willows, and dwarf birches. Moist tundra hosts a variety of sedges, grasses, willows, lichens, and mosses. Alpine tundra, often found on the margins of rivers and in hilly and mountainous terrain, has tussock grasses, dwarf trees, heath, and small shrubs. The tundra and northern extent of boreal forest meet within the Kobuk River drainage.

Based on the archaeological record, Alaska Natives have occupied Northwest Alaska for at least 12,500 years. One of the oldest sites is located on the Kobuk River at Onion Portage, a major caribou crossing point and hunting location, where researchers have excavated materials belonging to the Paleo Arctic tradition. Other important sites exist in the vicinity of the Kobuk River (Ahteut, Ekseavik, Ambler Island), at Trail Creek Caves near Deering, at Cape Krusenstern, the Choris Peninsula, and Point Hope. Recently, researchers at the University of Alaska Fairbanks found faunal remains at the Raven Bluff site on the Kivalina River that were dated at approximately 10,000 years old (“Raven Bluff: An Archaeologist’s Dream” 2010).

Alaska Natives, including the Iñupiat of Northwest Alaska, are among the very few indigenous peoples of the world who inhabit their traditional territories; who are a majority of the population in their territories; whose territories have been largely unaffected by agriculture, industrial development, or roads; who manage their political and economic affairs through both traditional (tribal) and contemporary (borough and corporate) structures; and who continue to rely substantially on hunting, fishing, and gathering to provide for their sustenance (Burch Jr. 1985; Fall, Utermohle,

Photograph courtesy Alaska Department of Community and Regional Affairs

Figure 1-2.–View of the frozen Selawik River and the Rainbow Bridge. Several bridges connect the community, which is spread across several waterways.

and Barnhardt 1995; Georgette and Loon 1993; Magdanz, Utermohle, and Wolfe 2002; Magdanz, Walker, and Paciorek 2004; Magdanz, Braem, et al. 2010).

ABOUT SELAWIK

With an estimated population of 829 based on the 2010 U.S. census, Selawik is one of the largest of 12 communities in the NWAB, second only to the regional center of Kotzebue. Different Iñupiaq names describe the area and site: Akuliġaq[4], which means "where the river meets together" and Siiḷvik, "where the sheefish spawn." (NANA Regional Corporation and National Park Service 1992; NANA Regional Corporation 2012; Anderson and Anderson 1977). Situated at the mouth of the Selawik River within a sprawling maze of waterways of the river delta, the community's physical environment is defined by water (Figure 1-2). River channels divide the community into areas called "airport side," "church side," and "school side, which are connected by 2 bridges and a system of raised wooden boardwalks. Due to its low elevation, the community is vulnerable to flooding.

The environment in the immediate vicinity of Selawik is primarily low-lying wetlands characterized

4. May be placename referred to as Akuliġan by Anderson, meaning "middle." "The large island Selawik village is on" (Anderson and Anderson 1977).

by slow, winding rivers and sloughs and thousands of lakes and ponds, although generally, the mosaic pattern of vegetation common in the region is present in the wider area. The riverine environment is rich in various nonsalmon fishes, chief of which are whitefish species; sheefish, broad whitefish, and humpback whitefish predominate; chum and pink salmon, common to other Northwest Alaska communities, are present but in very low abundance. The area is a significant habitat for hundreds of migratory bird species that frequent the delta wetlands, arriving each spring, nesting over summer, and departing in the fall. Caribou from the Western Arctic caribou herd are present seasonally both in spring and fall due to Selawik's location within the migratory range of the herd.

This project did not gather seasonal round information, although harvest timing data were collected for land and marine mammals (month of harvest) and migratory birds (season of harvest). Seasonal round information detailed in Anderson and Anderson (1977) focused on the pre-village period and that of the 1920s–1940s.

Georgette and Shiedt (2005) described the timing of the community's whitefishes fishing effort. Selawik residents fish for whitefishes primarily in spring (late May to June) and fall (late August to September) when whitefishes migrate into and out of lake systems. Not only is it easy to harvest them in large numbers at these times, but also the weather in these seasons is cool and dry enough to process fish with less likelihood of them being spoiled by heat, mold, or insects.

The spring harvest, using set gillnets, typically lasts for about 3 weeks after breakup, with whitefishes, northern pike, and other species being harvested. Fall fishing for whitefishes and pike, with set gillnets, begins in August when temperatures cool and lasts until freezeup. After freezeup, Selawik fishers set nets under the ice near the village and fish until thickening ice threatens to freeze in their nets. In the fall, a few households seine for humpback whitefish on the Fish River northeast of Selawik. Both the variety of whitefishes and river are known locally as *Ikuuyiq* (Georgette and Shiedt 2005).

As is the case for the entire region, Selawik is not connected to the statewide road system. Travel to and from Selawik is possible by aircraft, as well as by boat, snowmachine, or dog sled, depending on the season. The community is located 549 air miles from Alaska's largest city, Anchorage, and 90 miles (an approximately 45-minute flight) from Kotzebue. It lies within the 2.15 million acre Selawik National Wildlife Refuge.

The City of Selawik incorporated as a first class city in 1974 but changed to a second class form of government in 1977. The Native Village of Selawik, a federally recognized tribe, organized in 1940 under the Indian Reorganization Act. The community is served by a pre-kindergarten–12 grade school, the Davis-Ramoth School, which is part of the Northwest Arctic Borough School District. Land line and cell telephone, cable, and internet service are available. Two stores, Rotman's and an Alaska Native Industries Cooperative Association (ANICA) store, sell groceries, clothing, and other supplies necessary to village life, such as ammunition, tools, spark plugs, household goods, etc.

Utilities are provided by the Alaska Village Electric Cooperative (AVEC) and a city-run water and sewer system. Ninety-five percent of homes are connected to the circulating water and vacuum sewer system, while a few still rely on honeybuckets. Wastewater is disposed of at a sewage lagoon (a 200-acre pond) one-half mile from the village. Residents are responsible for disposing of their own household waste at an open dump covering about 18 acres on the surrounding tundra. A Maniilaq Association clinic staffed with village health aides provides basic health services; serious medical emergencies require medevac to Kotzebue or Anchorage. Additional health and safety services are provided by volunteers with Selawik Area Search and Rescue. The village has 1 village public safety officer (VPSO) and 2 Alaska State Troopers posted in the village. Alcohol sales and importation are banned in Selawik under the state local option law.

THE ETHNOGRAPHIC PAST: SELAWIK

The 2 primary sources of ethnographic information on Selawik are *Selawik Inupiat (Eskimo) Archeological Settlements, Resources and Subsistence Lifeways, Northwest Alaska* (Anderson and Anderson 1977) and *The Iñupiaq Eskimo Nations of Northwest Alaska* (Burch Jr. 1998). The following section relies heavily upon both.

The Alaska Natives inhabiting the Selawik River drainage, referred to in general as the Siiḷviŋmiut, actually constituted 2 nations, the Kiitaaġmiut[5] in the western or lower portion of the area, and the Siiḷvim Kaŋianiġmiut[6], in the eastern and upper portion (Burch Jr. 1998). The 2 nations were on good terms, linked by kinship and followed similar, but distinct subsistence patterns. The upriver people's subsistence was distinguished by a greater number and variety of terrestrial fur-bearing animals and conditions that allowed longer winter ice fishing seasons. The lower river people had better conditions for spring ice fishing, carried out at Selawik Lake, and a greater accessibility to the coast and its late spring and summer resources (Anderson and Anderson 1977, 36).

Most early ethnographic descriptions of the people of the Selawik River describe the Kiitaaġmiut, simply because few non-Natives reached the territory of the upriver people. Both groups traveled in the summer to participate in the annual trade fair at Sheshalik (*Sisauliq*).

The first mention of a Native settlement on the Selawik River comes from the expedition of Lavrentiy Zagoskin, 1842–1844. Unable to explore Kotzebue Sound as planned, Zagoskin (1967, 124–126) learned of several settlements from Natives from northern Norton Sound and King Island present at St. Michael. These include *Akshadak-Kosh-Kun* and *Kanykgmyut* (settlements on the Buckland River), *Kikikhtagyuk* (on the Baldwin Peninsula), *Kualyuq* (a river, the Kiwalik, and also a settlement), *Kivualinagmyut* (the Kivalina River and settlement), and *Kubok* (the Kobuk river and settlement).

5. The name translates in Iñupiaq to "people down below" (Burch Jr. 1998:221).
6. The name translates in Iñupiaq to "Selawik headwaters people" (Burch Jr 1998:221).

> Chilivik, [the present Selawik], on the river of the same name. Very populous. The mouth of this river, which the natives say is important, is marked "unexplored" on Captain Beechey's map. The Yunnaka River[7] natives call it [the Selawik] Tyneka-khotana, and say that they have kinsmen living near the headwaters who sell their goods to the coastal people. (Zagoskin 1967, 126)

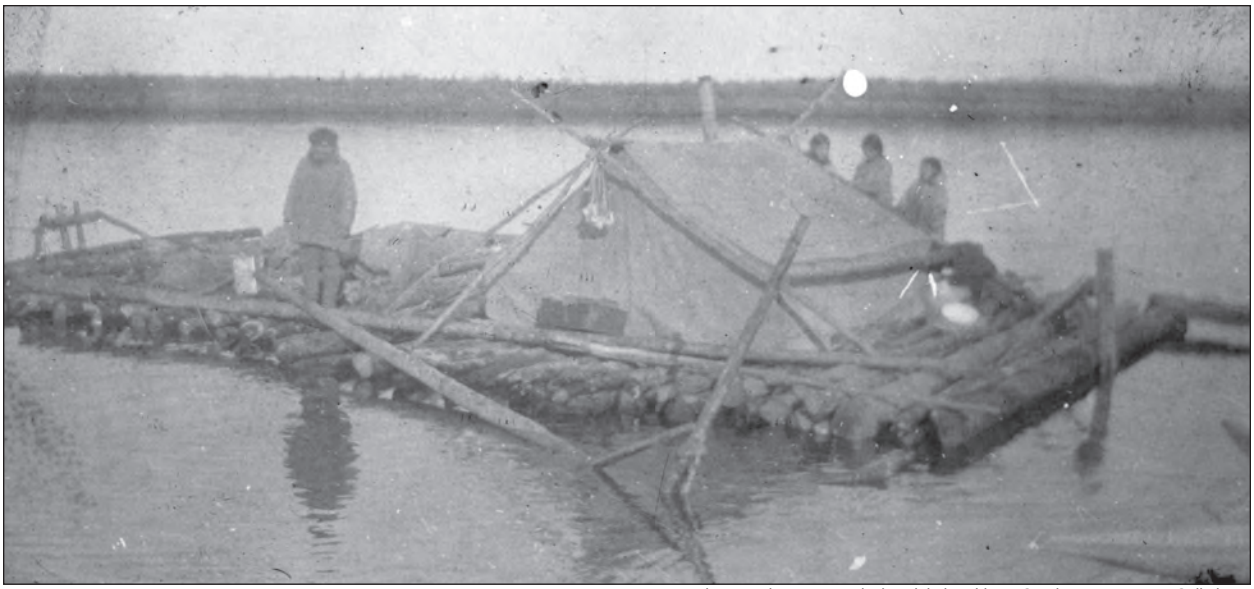
Non-Natives appear to have had little influence on the lives of the Kitaaġmiut prior to the establishment of the permanent settlement in 1908. As detailed in Anderson and Anderson (1977) and Burch (1998), the first European to have reached the Selawik region was John Simpson, the surgeon aboard the *HMS Plover*. The Plover expedition, part of the 1850–1851 search for Sir John Franklin, overwintered in Kotzebue Sound in 1851. In May 1851, Simpson traveled to the Selawik Lake area. Meeting local people at the mouth of Selawik (or perhaps Tuklomarak) River (Burch 1998, 222), he described several huts on the banks with a "high stage" for drying fish.

> The few natives we met were to all appearance very poor, living in temporary sheds of deer skin. They do not even possess the usual clay cooking utensils, but boil their fish in wooden vessels by throwing in hot stones. They seem to subsist at this season entirely on fish, which they catch with a baited hook let down through holes in the ice. (Burch Jr. 1998, 240)

From them, he learned of a larger village 4 days' travel upriver and another on the Ko'-wuk (Kobuk) River. Little information on the Kiitaaġmiut came from the accounts of Johan Jacobsen (1883) or the Cantwell expedition (1884). J.L. Purcell, part of George Stoney's expedition in 1884, provided a brief report on the people encountered; Stoney did not publish any information on the people or country. The photographer Edward S. Curtis made the first "serious" effort to gather information on Selawik people in 1927, according to Burch, taking a few photographs, describing contemporary Native life, and a few legends (Burch Jr. 1998).

Burch (1998, 231–232) estimates of the population within the Kitaaġmiut territory in the early 19th century bear out Zagoskin's informants' description of "very populous." He estimated about 700 people lived in 27 settlements. In the Siiḷvim Kaŋianiġmiut territory, he estimated 484–652 people lived in 24 settlements. He disputes 1880 census information that listed "Selawigamute-Kotzebue Sound" with a population of just 100.[8] As late as 1883, Jacobsen reported the area to be heavily populated in 18 settlements. In 1900, the most reliable count, according to Burch, was 259. The decline of both nations prior to the founding of modern, sedentary village came as a result of the decline and eventual disappearance of the Nulato Hills caribou herd (NCHC). The NHCH was the

7. The "Yunnaka" river to which Zagoskin refers is the Koyukuk River.
8. Burch suggests that the 1880 census, given that no census enumerator actually visited the Selawik area, based its information on "guesswork or a highly biased sample of the population." The guesswork he attributes to a number given by William Healy Dall in the 1870s, of 100. However, he notes that Dall indicated they were residents of the Kobuk River, "which supports the view that he did not have the faintest idea of what he was saying" (Burch Jr. 1998, 231).



Photograph courtesy Alaska Digital Archives, Candace Waugaman Colletionm

Figure 1-3.– Selawik inhabitants floating home on a raft of logs with their tent set up for the trip. "In the spring before the ice and snow is gone the people from Selawik go up the river with their dog team and tents. There they hunt muskrats and cut their winter's supply of wood. Then when the ice goes out of river they make a raft out of their wood, put on their tent, sled dogs, muskrats and float back down to their village."

most important source of hides for clothing, and while caribou meat could perhaps be replaced by other species, the need for clothing drove hunters far from their own territories, and some emigration to other territories.[9]

The short-lived gold rush to the Kobuk and Koyukuk River drainages bypassed the Selawik area. The few prospectors that came to the area apparently fared poorly, according to Anderson's informants (Anderson and Anderson 1977). The singular event marking a change in the history of Selawik people came with the establishment of a school and church in 1908 and the introduction of reindeer herding in 1909. The modern village site was selected by "influential *Siilavingmiit*" due to its proximity to good winter and summer fishing sites, the presence of alder for firewood, and its proximity to Kotzebue. Families living in various small settlements in the area were quickly drawn by the church, school, and eventually, stores and post office. Despite the permanence of the new community, families continued to move seasonally.

As was true for the pre-village period, spring meant a move away from the winter settlement (Figure 1-3). Between late March and early April, nearly every family would take their children out of school, load dog sleds with camping gear and kayaks and leave for spring muskrat camp.

9. "Whatever factors produced the Great Famine elsewhere seem not to have affected the fish resources of the Kiitaaġmiut in the lower Selawik district. The decline of the NHCH must have had a slow and relatively subtle, but nonetheless highly significant effect, however" (Burch 1998, 241).

Because the muskrat season was so economically important, this part of the seasonal round took precedence over the school schedule, and by May the village itself was abandoned for the entire summer, except for the teachers and a trader or two (Anderson and Anderson 1977, 43).

From muskrat camps, families moved as necessary to harvest fish, migratory waterfowl, and caribou, and to tend traplines. This pattern persisted into the 1950s, with the number of people living outside of town fluctuating in response to the changing prices of furs.

SUBSISTENCE MANAGEMENT IN ALASKA

Alaska is unique in the nation in having both state and federal laws that provide priorities for customary and traditional subsistence hunting and fishing over other consumptive uses, such as commercial fishing. Aboriginal hunting and fishing rights were extinguished by the Alaska Native Claims Settlement Act in 1971. Recognizing the lack of legal protection for Alaska's subsistence traditions, and mindful of the risks to subsistence posed by competing commercial and recreational uses, both the Alaska Legislature and the U.S. Congress subsequently adopted laws intended to preserve opportunities for customary and traditional uses of fish and wildlife in Alaska.

In 1978, the Alaska legislature adopted priorities for subsistence over other consumptive uses of fish and game, including a subsistence fishing priority under AS 16.05.251(b) and a subsistence hunting priority under AS 16.05.255(b). In 1980, the U.S. Congress adopted a similar subsistence priority in the Alaska National Interest Lands Conservation Act (ANILCA). In 1987, AS 16.05.251(b) and AS 16.05.255(b) were repealed in response to the *McDowell v. State* decision, and the legislature adopted similar priorities under AS 16.05.258, as amended in 1992. As a result, the State of Alaska became out of compliance with Title VIII of ANILCA.

Currently, the Alaska Board of Fisheries and the Alaska Board of Game manage subsistence on state and private lands, which include ANCSA corporation lands. The Federal Subsistence Board manages subsistence on federal public lands (about 60% of the state). Under this system of dual management, there are overlapping state–federal jurisdictions in many areas. The practical consequence of this system is that subsistence harvesters must consult separate regulations depending on where they are hunting or fishing—on state or federal lands. In many cases, the regulations on state and federal lands in the vicinity of one another are identical. One important difference between the 2 occurs in Northwest Alaska, where the caribou bag limit on state lands for residents living north of the Yukon River is 5 per day. On federal lands, for federally qualified subsistence users, the bag limit is 15 per day.

Under the Marine Mammal Protection Act of 1972, "coastal Alaska Natives" were granted an exemption which allowed them to continue to hunt for marine mammals for subsistence. In 2003, the Alaska Migratory Bird Co-Management Council adopted regulations establishing spring and summer subsistence hunts for migratory birds by permanent residents of villages within eligible

subsistence harvest areas. Also in 2003, the North Pacific Fishery Management Council adopted regulations recognizing subsistence harvest of Pacific halibut *Hippoglossus stenolepis* by eligible members of Alaska Native tribes and eligible residents of rural Alaska communities.

Alaska is also unique in the nation in having an applied anthropological research group established by statute to conduct "policy research" (Trotter II and Schensul 1998, 692) regarding customary and traditional uses of fish and wildlife resources. The ADF&G Division of Subsistence conducts systematic social science research "on all aspects of the role of subsistence hunting and fishing in the lives of the residents of the state" (AS 16.05.094).

The duties of the division, as an agency of state government, include assisting the department regulatory bodies "in determining what uses of fish and game, as well as which users and what methods, should be termed subsistence uses, users, and methods" (AS 16.05.094). The division also conducts research and applies the results of previous research to evaluate the impact of state and federal laws and regulations on subsistence hunting and fishing," as well as to the development of "statewide and regional management plans so that those plans recognize and incorporate the needs of subsistence users of fish and game" (AS 16.05.094). This law directs the Division to:

> compile existing data and conduct studies to gather existing information, including data from subsistence users, on all aspects of the role of subsistence hunting and fishing in the lives of the residents of the state;
>
> quantify the amount, nutritional value, and extent of dependence on food acquired through subsistence hunting and fishing;
>
> make information gathered available to the public, appropriate agencies, and other organized bodies. Assist the department, the Board of Fisheries and the Board of Game in determining which uses of fish and game, as well as what users and what methods, should be termed subsistence users, uses, and methods;
>
> evaluate the impact of state and federal laws and regulations on subsistence hunting and fishing and, when corrective action is indicated, make recommendations to the department;
>
> make recommendations to the boards of fisheries and game regarding adoption, amendment, and repeal of regulations affecting subsistence fishing and hunting;
>
> participate with other divisions in the preparation of statewide and regional management plans so that those plans recognize and incorporate the needs of subsistence users of fish and game.

Much of the division's research is conducted in partnership with local communities. Projects follow the ethical principles of social science, which include informed consent, anonymity of participants, and directly informing communities of research findings. ADF&G policy articulates and reinforces a government-to-government relationship between the department, the boards of Fisheries and Game, and the federally recognized tribes in Alaska. It also promotes consultation and coordination with these tribes, with the goal of ensuring the department conducts consultation in a culturally sensitive manner.

A planning effort by the Division of Subsistence, Maniilaq Association, and the NWAB found widespread support for harvest survey research during meetings in the 11 Northwest Alaska communities in 2006 and 2007 (Magdanz, Georgette, et al. 2010). Of the 146 meeting participants, 94% thought harvest surveys should be conducted in their communities, and 74% favored a cooperative approach involving tribes and 1 or more regional organizations, usually including a resource management agency. Ongoing harvest monitoring efforts rely on the continuing public support of the residents of Northwest Alaska and on the continuing financial support of the cooperating organizations.

Research Questions

The principal questions addressed by harvest monitoring efforts in Northwest Alaska have been 1) how much subsistence food was harvested for subsistence, and 2) whether those harvests exceeded harvestable surpluses of fish stock and wildlife populations. Related questions involved the role of subsistence foods in Northwest Alaska's economy, the impacts of economic development on subsistence activities, the lands and water used for subsistence, the impacts of competing, nonsubsistence uses of fish and wildlife, and the impacts of climate changes.

Most fish stocks and wildlife populations, although variable over time, were in natural and healthy conditions in Northwest Alaska at the time of this writing. Both the Alaska Board of Fisheries and the Alaska Board of Game had found that harvestable surpluses of all fish and wildlife species, except for muskoxen, were sufficient to provide for the amount necessary for subsistence uses, and to provide for other nonsubsistence uses. Muskoxen were managed for limited subsistence uses only. The status of moose and caribou stocks argued for continued monitoring of harvest of both species.

The Western Arctic caribou herd population has experienced declines in recent years, dropping from an estimated 348,000 animals in 2009 to 325,000 in July of 2011, a decline of 5% between censuses. At its peak in 2003, the herd numbered 490,000 caribou. Since then, it has declined at a rate of 4–6% annually. Among factors influencing this decline may be those related to population density of the herd (e.g., range conditions, disease) and those independent of population (e.g., weather events, resource development). The trend is consistent with annual estimates of increasing

adult cow mortality and declining calf survival.[10] Moose population had also declined in Northwest Alaska due to extreme weather conditions in the mid-1990s, recovered slightly, and then stabilized at low densities (Dau 2008: 558; C. Westing, Area Wildlife Biologist, ADF&G Kotzebue, personal communication).

Much like the fish and wildlife populations, neither the environment nor the economy of Northwest Alaska has remained static. Supplies of and demand for fish and wildlife have changed over time, sometimes dramatically and rapidly. The dynamic environment and economy of Northwest Alaska thus create a need for frequently updated information about subsistence harvests, demographics, employment, and income for the region as a whole, and especially for communities adjacent to proposed developments. In order of increasing scope, research problems include:

managing species where demand exceeded supply;

sustainably allocating species among competing uses;

documenting subsistence economies;

assessing and mitigating impacts for development; and

monitoring long-term ecological conditions.

To manage species where demand may exceed supply, managers need timely harvest data for selected species, in some cases on a yearly basis. Fortunately, this involves only a handful of fish and big game species in Northwest Alaska. To sustainably allocate fish and wildlife, regulatory bodies need periodic harvest data over periods of time sufficient for normal variation in harvests, which for some species means decades.

To better document Alaska's subsistence economy, policymakers need substantially complete estimates of harvests and better descriptions of subsistence systems. To assess impacts or to monitor long-term changes, investigators need an initial comprehensive survey to collect baseline subsistence harvest, social, and economic data; they also need post impact surveys to measure changes and assess impacts.

Impact assessment and ecological monitoring are more complex than harvest monitoring, because the nature and scope of potential impacts and the course of human adaptations are not known in advance. For example, residents of Northwest Alaska might adapt to persistent and adverse changes in caribou migration patterns by increasing subsistence moose or salmon harvests or by purchasing

10. Alaska Department of Fish and Game, "Western Arctic Caribou Herd Numbers 325,000 Animals in Recent Survey," press release, July 3, 2012.

imported foods. The latter adaptation implies increased reliance on wage labor or on transfer payments. Fully evaluating the impact of changes in caribou migrations requires information on caribou movement, caribou harvests, caribou harvest locations, other species' harvests, employment, wages, other types of income, and perhaps household spending patterns. Thus, impact assessment and ecological monitoring require a greater range of data than basic harvest monitoring.

General Study Objectives

The objectives of continuing harvest monitoring efforts are to

develop a sampling strategy to coordinate data collection in each of the 11 communities in Northwest Alaska on a rotating basis;

design a household survey instrument to collect data about subsistence hunting, fishing, gathering, and other topics that are compatible with information collected in previous rounds of household surveys;

identify, obtain and coordinate funds to conduct surveys from ADF&G, other State of Alaska agencies, federal agencies, nongovernmental organizations, industry, and other sources;

obtain approvals from study communities to conduct comprehensive surveys; and

maintain lists of all occupied households in each Northwest Alaska Borough community and update the lists for each community just prior to each administration of the survey.

The Division of Subsistence and cooperating agencies conduct annual harvest monitoring projects in individual communities. Each year, they select study communities, train community residents in administration of the survey instruments, and attempt to administer surveys to occupied households in each study community. Then, they collaboratively review and interpret survey findings, periodically publish reports of survey findings, and communicate study findings to the communities. Summary results are published online at the Community Subsistence Information System (CSIS) website maintained by the ADF&G Division of Subsistence.[11]

Rationale and Literature Review

Compared to other regions of Alaska, a relatively large body of information, both qualitative (ethnographic) and quantitative, has been developed discussing subsistence in Northwest Alaska.

11. ADF&G Division of Subsistence, Community Subsistence Information System (CSIS): http://www.adfg.alaska.gov/sb/CSIS.

Qualitative information regarding subsistence comes from a variety of sources (excluding the exploration literature): the various works of Ernest Burch Jr. (1971, 1975a, 1975b, 1980, 1985, 1988, 1991, 1994, 1998, 2006; Burch Jr. et al. 1999), Douglas Anderson (Anderson and Anderson 1977; Anderson et al. 1977), and Foote and Williamson (1966). Other works include Georgette and Loon (1988, 1990, 1993), Georgette and Shiedt (2005), Giddings Jr. (1952, 1956, 1961), Loon (2007), Loon and Georgette (1989), Lucier and VanStone (1991, 1995), Morseth (1997), Patterson (1974), and Saario and Kessel (1966). Detailed description of practices (and Iñupiaq terms) relating to subsistence fisheries and gathering of wild plants was documented by Anore Jones in *Nauriat Niġiñaqtuat, Plants That We Eat*, and *Iqaluich Niġiñaqtuat, Fish That We Eat*. (Jones 1983, 2006). Limited information is also contained in Edward Nelson's *The Eskimo About Bering-Strait*. Nelson traveled to Kotzebue Sound in 1881 and collected a number of examples of the material culture of the Iñupiat people in the region, with a few ethnographic descriptions and photos of people from Noatak, Hotham Inlet, and Kotzebue Sound (Nelson 1983).

Subsistence use area and placename information has been collected in several studies (Anderson and Anderson 1977; Foote and Williamson 1966; NANA Regional Corporation and National Park Service 1992; Schroeder, Andersen, and Hildreth 1987; Tetra Tech Inc. 2008). Section of 14(h)(1) of the Alaska Native Claims Settlement Act authorized the U.S. Department of Interior to convey fee title to existing cemeteries and historical places to Alaska Native regional corporations. The Bureau of Indian Affairs (BIA) documented such sites, and it is likely that valuable information also exists in BIA materials archived in Anchorage, Alaska.

In addition to published materials, a wealth of information resides in the field notes and other materials within the Ernest S. Burch, Jr. Collection, Don C. Foote Collection, and the Charles V. Lucier Collection housed at the University of Alaska Fairbanks Alaska Polar Regions Collections archive.

During the past 50 years, 2 different methods have been used to collect quantitative subsistence harvest data in Northwest Alaska. Both methods—mandatory reporting and voluntary surveys—have had substantial limitations.

For big game species like moose, ADF&G has relied on a system of mandatory harvest reports and permits since statehood. Before hunting, individual hunters must purchase a hunting license and, for selected species, obtain a report or permit that indicates their intent to hunt that species. After hunting or at the end of the season, hunters are supposed to mail a postage-paid postcard reporting their efforts and harvest, if any. Comparisons of survey and report data in the early 1990s indicated that only about 11% of the caribou harvested in Northwest Alaska were being reported and that reporting rates were variable and unpredictable (Georgette, S. 1994. Summary of Western Arctic caribou herd overlays [1984–92] and comparison with harvest data from other sources. Alaska Department of Fish and Game Division of Subsistence, Unpublished manuscript).

For comprehensive estimates of subsistence harvests, ADF&G and other researchers have relied on household surveys. Most early survey efforts were not systematic; population sizes were unknown; sampling rates not recorded, and data analysis methods were not published. As a result, most early survey results cannot be reliably compared with more recent survey results. Important exceptions are the U.S. Fish and Wildlife Service salmon survey (Raleigh 1958), Project Chariot-related research (Saario and Kessel 1966; Foote and Williamson 1966), surveys of Kivalina in the early 1980s (Burch Jr. 1985), and a 1986 survey of Kotzebue (Georgette and Loon 1993). These efforts were more systematic, better documented, and provided more reliable estimates.

Beginning in the 1990s, the quality and quantity of survey data improved as a result of a series of unrelated circumstances. In 1991 and 1992, the Division of Subsistence conducted comprehensive harvest surveys in Kotzebue and Kivalina, which were control communities for Exxon Valdez spill impact assessment studies. A series of waterfowl harvest surveys were conducted from 1993 through 1997 to support waterfowl treaty negotiations between the United States, Japan, Mexico, Canada, and the former Soviet Union. The Northwest Alaska salmon harvest survey project began in 1994, prompted by declining chum salmon stocks in Western Alaska, and continued through 2004. The National Park Service funded comprehensive harvest surveys in Deering and Noatak for 1994, in Shungnak for 2002, in Buckland for 2004, and in Kiana in 2006 to provide information for management of Western Arctic parklands. Teck-Cominco, through TetraTech Inc., funded comprehensive harvest surveys in Kivalina and Noatak for 2007, as part of a Supplemental Environmental Impact Statement (SEIS) related to expansion of the Red Dog mine. In 1998, the Western Arctic caribou herd harvest survey program began in selected communities and contributed big game harvest data for 1 or 2 communities in most subsequent years. The Native Village of Kotzebue conducted harvest surveys of tribal households in 2002, 2003, and 2004.

As of 2013, comprehensive subsistence harvest data had been collected 5 times for Kivalina, 5 times for Kotzebue, 2 times for Noatak, and 1 time each for 5 other communities in the NWAB. Comprehensive data was collected for the first time in Noorvik, Ambler, and Kobuk in winter 2013. For a majority of the communities in the NWAB, comprehensive estimates of subsistence harvests existed for only a single year, if at all. Harvest data for a limited range of species have been collected more often. Salmon harvests were the most thoroughly documented, with annual estimates of harvests for 6 communities (Ambler, Kiana, Kobuk, Noatak, Noorvik, and Shungnak) from 1994 through 2004; in most years these also included estimates for sheefish, whitefishes, and in Noatak, Dolly Varden (known locally as “trout”). Large land mammals (“big game”) surveys were conducted at least once in every NWAB community except Kotzebue since 1998. Waterfowl surveys were conducted at least once in every NWAB community during the 1990s. In the spring of 2013, a “big game” survey and waterfowl survey were conducted in Kotzebue.

Over the last 50 years, substantial funds have been invested in harvest reporting and survey

research in Northwest Alaska. Whether harvest data were collected in comprehensive or limited surveys, subsistence harvest monitoring in Northwest Alaska usually has been driven by the data needs and funding situations of individual agencies rather than by a coordinated strategy. Neither mandatory harvest reporting systems nor voluntary community household surveys provided sufficient data to estimate regionwide subsistence harvest of fish and wildlife with reasonable confidence, nor to monitor trends in subsistence harvests and use patterns. Although mandatory harvest reporting appears to be improving for some big game species, the harvest reporting system does not collect comprehensive harvest data or socioeconomic data. In contrast, household surveys collect a wide range of data and are best suited to fulfill the multiple data needs of resource management agencies, user communities, and industry. Consequently, this program uses household survey methods.

One of the policy objectives of Alaska subsistence management is determining the amounts reasonably necessary for subsistence uses. This is achieved primarily through reviews of historical harvests, the assumption being that people were able to harvest what they needed. But historical data are not always available, and sometimes harvests are limited by factors other than subsistence demand, so subsistence surveys have long included a series of harvest assessment questions (e.g. "Did your household get enough salmon last year for your needs?").

Beginning in Buckland in 2004, the Division's subsistence surveys adopted a food security protocol to assess whether households were able to obtain the food they needed. These food security protocols have been extensively reviewed (Coates 2004; Webb et al. 2006; Wunderlich and Norwood 2006) and have been used around the world. In recognition of the unique role that subsistence foods play in rural Alaska, in consultation with the U.S. Department of Agriculture, the division adapted standard food security protocols used in the United States to include both subsistence and store bought foods.

Relationships with Alaska Native Communities

A majority of the residents of Northwest Alaska are Alaska Native or American Indian who have maintained their subsistence customs and traditions throughout their history. The project is intended to encourage a collaborative, working relationship among state and federal agencies, tribes, communities, nongovernmental organizations, and industries. The ethical conduct of all researchers must meet or exceed the principles of conduct adopted by the Alaska Federation of Natives in 1993 and the Interagency Arctic Research Policy Committee on June 28, 1990. All personnel are to work in a manner that develops, rather than jeopardizes, relations among the cooperators, and between the cooperators and the public.

METHODS

Most data for this report were collected by teams of local and non-local researchers administering comprehensive household surveys during face-to-face interviews in respondents' homes. In Selawik, 8 researchers conducted surveys over a 10-day period. Two of the local researchers dropped out of the project because of conflicting obligations. Researchers coordinated the efforts of different organizations and relied on a standard survey instrument to minimize respondent fatigue, maximize organizational efficiencies, and reduce agency costs. This brief, intense, cooperative approach to subsistence survey research evolved from, and built on, earlier efforts in Northwest Alaska, such as the Northwest Alaska salmon surveys and the Western Arctic caribou herd (WACH) surveys. The Division of Subsistence has conducted similar research efforts elsewhere in Northwest Alaska and throughout the state. This chapter summarizes the general research design, samples, instruments, limitations, data collection procedures, and data analysis methods.

General Research Design

The Division of Subsistence utilizes a number of social science research methods to fulfill its mission, including both quantitative and qualitative methods. As characterized by Trotter and Schensul:

> Applied projects must be designed to create the highest level of confidence in the research results. To provide this confidence, quantitative social sciences have most commonly favored probabilistic (random) sampling techniques that allow for statistical analysis of the data collected. These techniques work well when the universe from which the sample is to be drawn can be identified and where everyone in a population…has an equal chance of being chosen to express their viewpoint. It does not work for qualitative approaches, where other conditions apply. (Trotter II and Schensul 1998:702–703)

Much of the research conducted by the Division of Subsistence is quantitative in nature and involves documenting the amount of fish and wildlife resources harvested by a community of users with the principal unit of analysis being the household. In these cases, probabilistic sampling or census approaches are used to develop estimates of harvests for an entire community or series of communities.

In small communities, sampling designs often strive for a complete census to survey each household regarding subsistence resource harvest and use activities. In larger communities, simple

random samples (or, less commonly, stratified random samples) are used to estimate a community's harvest and use patterns. Survey results are expanded to the whole community based upon the patterns identified in the sample of surveyed households. It is essential that sampled households be representative of the study population.

Confidentiality is maintained through the use of identification codes in place of residents' names or addresses. Households and individuals are assigned numerical codes before surveys begin. The household code sheet is maintained by the principal investigators during survey administration and remains in their custody after the survey is complete. Surveyors have codes only for the households they are assigned to survey. Household code sheets do not accompany surveys when surveys are submitted for data entry and analysis.

Sampling

In Selawik, the goal was to survey a random sample of 45 "high-harvesting" households and 46 "other" households, with a minimum goal of surveying 30 households from each stratum. In Selawik, researchers identified 169 occupied households. Researchers and local research assistants then assigned each household to 1 of the 2 strata based on their harvest history and the local research assistants' knowledge of the households' typical harvest efforts. Households' harvest history came from data collected by the Selawik Refuge, USFWS, in 2006. In total, project staff identified 58 high harvesting and 111 other households from which to draw the random sample.

Samples did not include households who had lived in the study community for less than 3 months, or whose members had lived in Alaska for less than 1 year and thus were not considered Alaska residents for the purposes of hunting and fishing. Samples included households occupied by certified teachers. Although teachers typically were short-term residents of the community, they met the other criteria for eligibility, and could hunt and fish under both state and federal subsistence rules.

Between October 6 and October 14, 2011, project staff surveyed 31 high-harvesting households and 30 other households (Table 2-1).

Survey Instrument

The primary purpose of the household survey was to collect information about the harvest and uses of edible wild foods. In its simplest form, this type of survey includes a core harvest module that collects, for example, caribou or salmon harvest reports on a single sheet (Appendix B). By adding more core harvest modules, a single-species survey can evolve into a comprehensive survey, while maintaining comparability with single-species efforts. Additional modules can be added to collect demographic, economic, spatial, assessment, food security, or social network data as needed. For this project, researchers collected information from each household about permanent household

Table 2-1. – Sample achievement, Selawik, 2010.

	Hunters	Others	Total
Total households	58	111	169
Sampled households	31	30	61
Percentage of households sampled	53.4%	27.0%	36.1%
Unable to contact	6	10	16
Refused	8	6	14
Sampled population	167.0	147.0	314.0
Estimated population	312.5	543.9	856.4

Source ADF&G Division of Subsistence household surveys, 2011.

residents, residents' participation in subsistence activities, amounts of wild food harvested, wages earned, and other income received by household members. Researchers also asked questions to assess household food security, networks of food sharing, and to determine whether households were able to harvest sufficient wild foods. At the request of the tribal council, a page asking about customary trade of subsistence foods was added.

The demography section included questions about the gender, kin relationships, age, birthplace, length of residency, and ethnicity of each household member. The harvest section asked which wild foods were used and harvested and how much was harvested by the household. In the case of fish species, households were asked what type of gear was used and the number of fish that were used solely to feed dogs. For large and small land mammals, furbearers, and marine mammals, questions asked about the sex and month of harvest of animals as well. For migratory birds, questions asked about season of harvest. The employment section asked respondents to list each job held by each member of the household and, for each job, the months employed, the schedule worked, and the amount earned in the study year. Respondents were asked to estimate household income from other nonemployment sources, such as the Alaska Permanent Fund dividend, Social Security, and public assistance programs.

A "food security" section used a standard national questionnaire to assess whether or not the household had enough food to eat, whether from subsistence sources or from market sources. The protocol used in this survey was a modified version for the 12-month food security scale questionnaire developed by the U.S. Department of Agriculture (USDA). This questionnaire is administered nationwide each year as part of the annual Current Population Survey (CPS), with results averaged over a 3-year period. From 2009–2011, approximately 134,000 U.S. households were interviewed, including 1,736 in Alaska (Coleman-Jensen et al. 2012:vi, 17). From CPS data, the USDA prepares an annual report on food security in the United States.

Food security protocols have been extensively reviewed (Coates 2004; Webb et al. 2006; Wunderlich and Norwood 2006) and have been used around the world, including in northern Burkina

Faso (Frongillo and Nanama 2006), Bangladesh (Coates et al. 2006), Bolivia and the Philippines (Melgar-Quinonez et al. 2006), and Brazil (Pérez-Escamilla et al. 2004). Although there have been efforts to develop a universal food security measurement protocol (Swindale and Bilinsky 2006), researchers often modify the protocol slightly to respond to community social, cultural, and economic circumstances, as was done here.

For this study, the food security protocol was modified by the addition of several questions designed to determine whether food insecurities, if any, were related to subsistence foods or store-bought foods. The wording of some questions was changed slightly. As in Brazil (Pérez-Escamilla et al. 2004), the USDA term "balanced meals" was difficult to interpret for indigenous Alaska populations, and was replaced with the term "healthy meals" to reflect unique dietary and cultural circumstances in rural Alaska.

One of the policy objectives in Alaska subsistence management is determining the amounts reasonably necessary for subsistence uses. This is achieved primarily through reviews of historical harvests, the assumption being that people were able to harvest what they needed in the past. Historical data are not always available, and sometimes harvests are limited by factors other than subsistence demand, however, so subsistence surveys have long included a series of harvest assessment questions (e.g., "Did your household get enough salmon last year for your needs?")

To that end, a subsistence assessments section asked whether households harvested less, more, or the same amount of particular categories of subsistence foods (salmon for example) than in recent years and whether they got enough of that food. In the event that harvests changed or were insufficient, respondents were asked why this occurred and of which type of subsistence food they did not get enough. In an effort to understand if effort at harvesting subsistence resources had changed, households were asked if they spent less, more, or the same amount of time trying to get them. If there was a change in effort, in follow up, they were asked why.

A "network" section asked households to document who harvested and processed the resources that the household used, even if household members did not harvest it themselves. It also asked household members to document to which households or other communities they gave resources and from which households they received resources. In this way, data analyzed from the network module provide a graphic representation of resource distribution webs by community.

To document the areas used for subsistence, the survey asked households to locate on a map the areas where they searched for and where they actually harvested selected subsistence resources. Maps were available at 3 different scales or extents (1:250,000; 1:500,000; and 1:800,000) to accommodate both local and distant searches and harvests.

The "customary trade" section asked households about purchases and sales of subsistence foods. Questions asked what kind of food was bought or sold, how it was processed (e.g., dried, frozen, rendered), the quantity, the cash value, and where the person lived.

Limitations and Assumptions

The harvest survey collected information on subsistence activities during a single year. This assumed that respondents could remember their important activities during the previous year. To minimize recall problems, surveys were conducted with household heads or other knowledgeable adults on the assumption that they were most likely to be aware of all household members' activities. Respondent recall bias was not expected to change significantly over time or from community to community. It was not expected to affect comparisons of data from this study with other studies employing similar methods.

For fish harvested in large quantities such as whitefishes and salmon, respondents frequently reported harvests in quantities divisible by 5, 10, 25, and 100—in other words, responses were heaped. This "digit bias" is common to studies asking respondents to recall a year's worth of activities (Chu et al. 1992; Beaman, Vaske, and Miller 2005). In a review of salmon survey results, (Magdanz et al. 2011), it was found that fish harvest quantities divisible by 5 were reported 4 times as often, harvest quantities divisible by 10 were reported 6 times as often, and harvest quantities divisible by 25 were reported 7 times as often as would be expected if quantities were randomly distributed. Especially for whitefishes, households that harvest large quantities of fish may report quantities other than individual fish, such as 15-gallon washtubs and 100 pound gunny sacks. The assumption, therefore, was that while a household may not have reported precisely how many fish they harvested, they did report the magnitude of their harvests correctly. The assumptions were that these "heaped" responses were valid estimates, that slightly high estimates were as common as slightly low estimates, and that their precision was sufficient for the analyses in this study.

In most small, rural, subsistence-dependent communities in Alaska, approximately 30% of the households harvest 70% of the wild foods (Wolfe and Walker 1987; Wolfe et al. 2009). Not only do a few "superhouseholds" typically account for a majority of the community harvest, but many households report zero harvests of individual species, and some report no subsistence harvest at all. A preponderance of zero-harvest households, heaped responses, and log-normal distribution of harvests are typical features of subsistence harvest data from small, rural Alaska communities (Magdanz et al. 2011). These factors and the relatively small size of the communities increase the potential for biased samples, so most subsistence survey projects in small communities attempt to survey all eligible households. Due to the large size of Selawik (169 households) and budget constraints, a census approach was not possible in this project.

Upon review of survey results, researchers believe the achieved sample (61 households total) may have been too small, resulting in large confidence intervals with individual species. The performance of the stratification of households, upon examination, did not perform as expected—perhaps due to the small sample size, but likely also to households not being appropriately classified as "high" and

"other" harvesters. Statistically, the harvests between the 2 groups were not significantly different, an independent samples t-test comparing these groups resulted in $p = 0.241$. In this test, a statistically significant difference would have produced $p < .05$. The effect size of this difference r, was also calculated, resulting in $r = 0.152$, indicating the differences between the 2 groups had a small effect on estimates. An effect size of $r > 0.3$ would indicate a difference between the samples, though not significant, as moderate, and $r > 0.5$ would be considered a large effect.

The harvests between the 2 groups were not that different. The average harvest for high-harvesting households was 3,392 lb per household, while the average for others was 2,330 lb per household. The standard deviation for each of these groups is nearly the same, 3,501 versus 3,505, meaning, confidence interval issues come equally for both parts. Some high-harvesting households did not harvest a lot of wild foods; some other harvesting households did. It is certainly possible that there is a great deal of variability, year to year, in the harvests of high harvesters, therefore, 2006 harvest information did not function as a good predictor of harvest patterns in 2011. Misclassification may also have occurred due to local perceptions of who is a "high harvester."

For example, with regard to broad whitefish, high-harvest households accounted for only 32% of harvest—yet, those households' harvests of "charismatic" species like caribou, sheefish, moose, bearded seal, spotted seal, and black bear were indeed quite high relative to those of other harvesting households. It is possible that when local research assistants were asked to identify high-harvesting households in a village, they named those households most active in harvest of "charismatic" species, omitting the families engaging in less prestigious activities—those who tend nets daily all summer to bring home broad and round whitefish or who jig for burbot every night in November.

Further, the likelihood of drawing a bad sample increases the smaller the sample size is in relation to the community when one is as large as Selawik. Larger samples in each stratum may have resulted in better estimates.

Some respondents were reluctant to provide information about personal and household incomes, especially earned income. Some community researchers were personally reluctant to ask respondents about income. As a consequence, employment and income data are often missing. For approximately 27% of job cases reported, households did not provide income information.

Data for this project were collected for the study period from October 2010 to September 2011. Standardization in data collection procedures was important because many different people gathered data. One or more principal investigators were present throughout the administration of the surveys or administered surveys themselves or with additional help from local surveyors. Standardization and quality control were accomplished through an initial orientation process, daily reviews of surveys as they were completed, and a post-administration review of all surveys. ADF&G staff coded all of the surveys, and coded surveys were reviewed by principal investigators before data entry.

Procedures

In January 2011, ADF&G signed a cooperative agreement with the Northwest Arctic Borough (NWAB) describing tasks related to 2 objectives: 1) the compilation of an electronic database of literature related to subsistence hunting and fishing in Northwest Alaska, and 2) the collection of subsistence harvest and socioeconomic data in Selawik (Appendix C). Approval from the Native Village of Selawik had been previously obtained in an August 2011 tribal council meeting. Jim Magdanz, ADF&G, participated by telephone to discuss the project goals and procedures, which included hiring and training local research assistants, project staff, sampling, and reporting.

Prior to the survey effort, ADF&G staff worked with the NWAB and Native Village of Selawik to finalize the survey itself, include dialect appropriate species Iñupiaq names, and consult on local hires. The survey team included Jim Magdanz, Nicole Braem, and Andrew Brenner (ADF&G Subsistence Division), John Chase (NWAB), Katie Moerlein (volunteer), and Selawik residents Jimmy Allen, Lottie Ballot, Kathy Davis, Wynona Harris, and Linda Mitchell. These local research assistants were paid for their time in orientation and survey review, as well as $50 for each completed survey.

ADF&G staff acted as the community lead for the data collection, and conducted an orientation and training session with community assistants. During orientation, the group verified household lists, reviewed the survey instrument, and practiced administering the survey to one another. At the end of training, each researcher selected a group of households to survey and made appointments by phone, VHF radio, and in person to conduct surveys.

Surveyors worked in teams of 2: 1 community surveyor and 1 ADF&G staff member. Surveys were conducted in person, usually at the respondent's home, at a time selected by the respondent. Community workers administered the surveys in most cases while ADF&G employees conducted the mapping.

Either the male or female head of each household answered questions about the household as a whole. Sometimes, both heads of the household or other family members would assist the respondent by providing information.

At the conclusion of the survey administration, researchers convened again for project evaluation meetings. They discussed the performance of the instrument, subjectively assessed the quality of the data, and made suggestions to improve the survey process in the future.

Surveys were coded for data entry by ADF&G staff during fieldwork, and entered by ADF&G staff in Anchorage. Data were entered by Margaret Cunningham and Zayleen Kalalo. Data analysis was conducted by ADF&G research analyst Patricia Fox and ADF&G Information Management coordinator David Koster, with assistance from Jim Magdanz. Map data were entered into ESRI

ArcGIS[1] by ADF&G staff analyst Terri Lemons. Braem and Seth Wilson prepared the maps of subsistence use areas and harvest locations that appear in this report.

After survey data and map data had been entered, analyzed, and summarized, Magdanz, Braem, and NWAB planning department staff participated in a community data review meeting in Selawik in July 2012. They provided attendees with summary tables of harvest and income estimates and showed each community a Microsoft PowerPoint presentation summarizing the results, including mapped data.

Data Analysis

Survey responses were coded following standardized codebook conventions used by the Division of Subsistence to facilitate data entry. Data were stored within a Microsoft SQL Server at ADF&G in Anchorage. Database structures included rules, constraints, and referential integrity to ensure that data were entered completely and accurately. Data entry screens were available on a secure internet site. Daily incremental backups of the database occurred, and transaction logs were backed up hourly. Full backups of the database occurred twice weekly. This ensured that no more than 1 hour of data entry would be lost in the unlikely event of a failure. All survey data were entered twice, and each set was compared to minimize data entry errors.

Once data were entered and confirmed, information was processed with the use of the Statistical Package for the Social Sciences (SPSS), Version 20. Initial processing included standardized logic checking of the data. Logic checks are often needed in complex data sets where rules, constraints, and referential integrity do not capture all of the possible inconsistencies that may appear. Harvest data collected in units of numbers of animals, gallons, or buckets were converted to pounds usable weight using standard factors (Appendix D).

SPSS was also used for analyzing the survey information. Analysis included review of raw data frequencies, cross tabulations, table generation, estimation of population parameters, and calculation of confidence intervals for the estimates. Missing information was dealt with situationally. The Division of Subsistence has standardized practices for dealing with missing information, such as minimal value substitution or use of an average response for similarly characterized households. Typically, missing data are an uncommon, randomly occurring phenomenon in household surveys conducted by the division. In unusual cases where a substantial amount of survey information is missing, the household survey is treated as a "nonresponse" and not included in community estimates.

Harvest estimates were calculated based upon the application of weighted means (Cochran 1977). These calculations are standard methods for extrapolating sampled data. As an example, the formula for harvest expansion is

1. Product names are given for scientific completeness; they do not constitute endorsement.

$$H_i = \bar{h}_i S_i \tag{1}$$

where:

$$\bar{h}_i = \frac{h_i}{n_i} \tag{2}$$

H_i = the total harvest (numbers of resource or pounds) for the community *i*,
$\bar{h}_i$ = the mean harvest per returned survey
h_i = the total harvest reported in returned surveys,
n_i = the number of returned surveys, and
S_i = the number of households in a community.

As an interim step, the standard deviation (SD) (or variance [V], which is the SD squared) was also calculated with the raw, unexpanded data. The standard error (SE), or SD of the mean, was also calculated for each community. This was used to estimate the relative precision of the mean, or the likelihood that an unknown value would fall within a certain distance from the mean. In this study, the relative precision of the mean is shown in the tables as a confidence limit (CL), expressed as a percentage. Once SE was calculated, the CL was determined by multiplying the SE by a constant that reflected the level of significance desired, based on a normal distribution. The constant for 95% confidence limits is 1.96. Though there are numerous ways to express the formula below, it contains the components of a SD, V, and SE:

$$C.L.\%(\pm) = \frac{t_{\alpha/2} \times \frac{s}{\sqrt{n}} \times \sqrt{\frac{N-n}{N-1}}}{\bar{x}} \tag{3}$$

where:

S = sample standard deviation,
n = sample size,
N = population size,
$t_{\alpha/2}$ = student's t statistic for alpha level (α=.95) with n–1 degrees of freedom.

Small CL percentages indicate that an estimate is likely to be very close to the actual mean of the sample. Larger percentages mean that estimates could be further away from the sampled mean.

Summaries results were added to the Division of Subsistence CSIS. This publicly accessible database includes community-level findings only, not household-level information.

Food security responses were analyzed following USDA procedures (Bickel et al. 2000) to provide comparability between results from other Northwest Alaska communities, lower and middle Yukon River communities and USDA results for Alaska and the nation.

COMPREHENSIVE SURVEY RESULTS SELAWIK, 2010–2011

In October 2011, researchers surveyed 61 of 169 households (36%) in Selawik. The surveyed households reported harvesting 175,095 edible pounds of wild foods between October 2010 and September 2011. The average harvest per household was 2,701 lb; the average harvest per person was 533 lb. Expanding for 108 unsurveyed households, Selawik's estimated total harvest of wild foods in 2009 was 456,494 lb (± 29%).

Seven of the top 10 species (by edible weight) harvested by Selawik in 2010 were fish, making up approximately 70% of the total estimated harvest (Figure 3-1). The importance of various whitefish species to Selawik's annual subsistence effort is underscored by the fact that 4 of the top 10 species by weight are whitefishes: broad and humpback, sheefish, and least cisco. In reflection of its relatively low abundance in the Selawik vicinity, only one salmon species, chum, appeared in any notable amount, contributing just 1% of harvest, 5,273 lb. Caribou made up 20% of harvest, 92,947 lb, and moose another 5%, 21,283 lb. Canada geese, the only species not a fish or a land

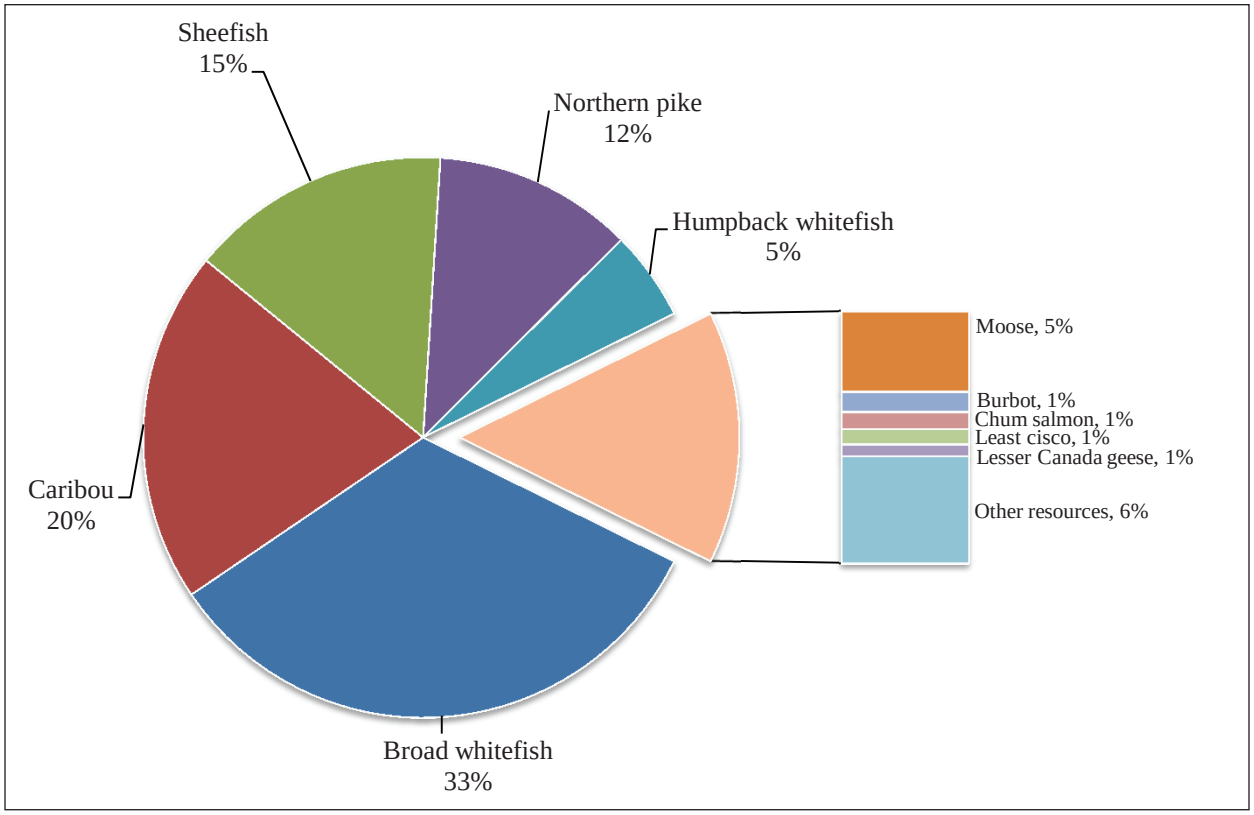


Figure 3-1.– Top 10 species harvest ranked by estimated edible weight, Selawik, 2010–2011.

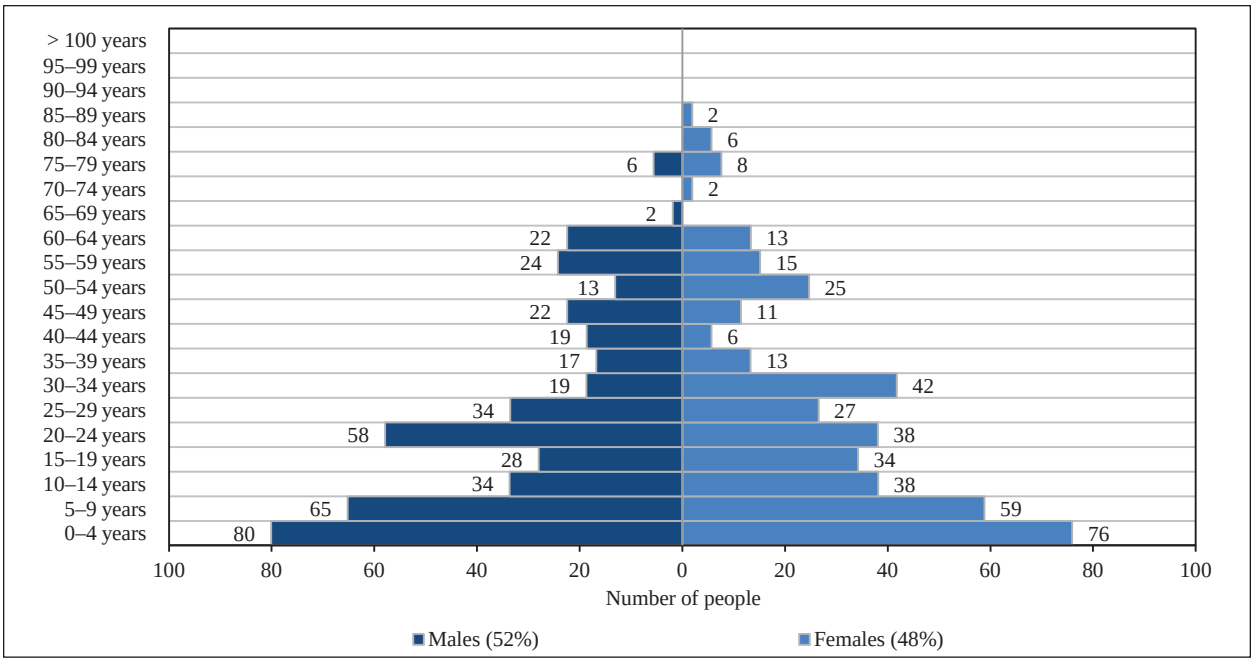


Figure 3-2.– Population profile, Selawik, 2010–2011.

mammal in the top 10, contributed just 3,205 lb, 1%, to the harvest. Overall, just 6 species—broad whitefish, caribou, sheefish, northern pike, humpback whitefish, and moose—provided 90% of the total subsistence harvest.

This chapter summarizes findings from the household surveys, including demographic characteristics, responses to harvest assessment questions, harvest estimates, employment, income, food security, harvest network, and customary barter and trade. Harvest numbers are expanded estimates. Results from this survey are available online as part of the Division of Subsistence CSIS.

Demographics

The 61 surveyed households included 314 people. Expanding for unsurveyed households, this project estimated Selawik's 2010 population to be 856 (Figure 3-2). By comparison, the U.S. 2010 Census estimated 829. Demographic information collected in this study, found that households ranged in size from 1 to 19 people, with an average of 5.1 people per household. Ages in surveyed households ranged from less than 1 year to 85 years old; the average age was 24.1. Broken down by sex, 52% of the population (442) was male, while 48% (414) of residents were female. Ninety-seven percent of the population was Alaska Native.

The survey also asked about the number of years each household member had lived in Selawik. On average, residents had lived there for 21.6 years. For heads of households, the average length of residency was 39.5 years. An overwhelming majority of household heads were born in Selawik, 83%. Another 9% were born in other places in Alaska such as Noorvik, Fairbanks, Kaktovik and

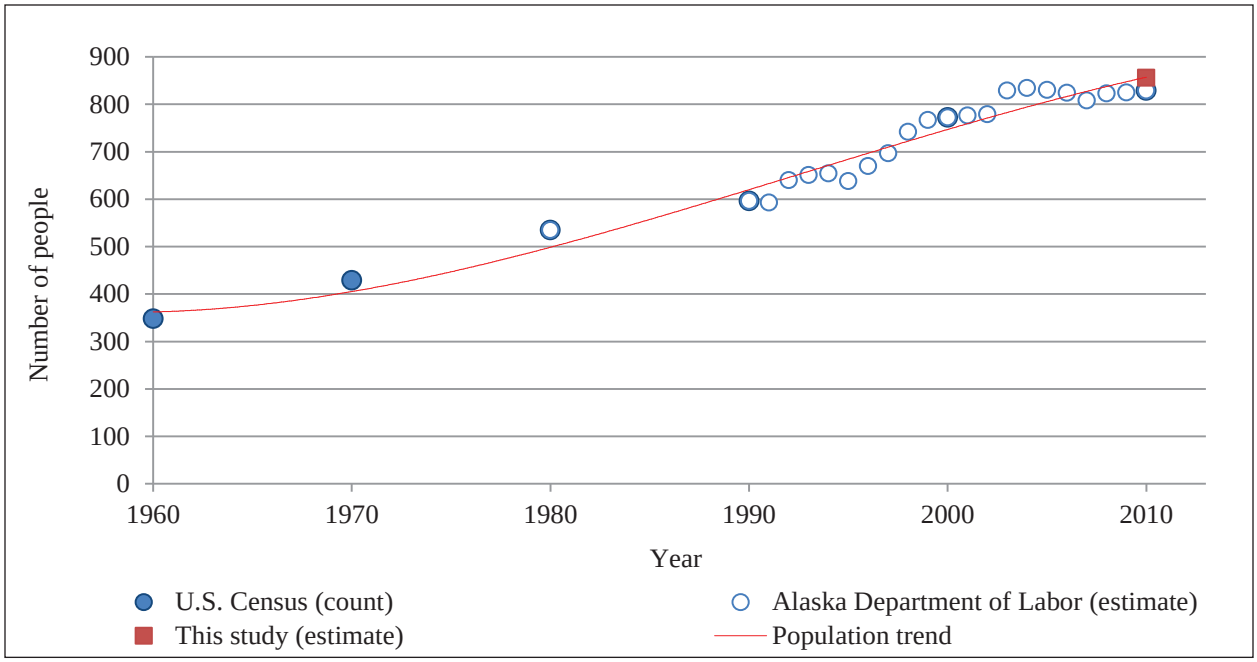


Figure 3-3.– Population history, Selawik, 1960–2010.

others. Only 5% were born outside of Alaska. Three percent of households did not provide birthplace information.

Selawik has grown rapidly in population since 1980, particularly between the period of 1980 and 2000 (Figure 3-3). Growth appears to have slowed and leveled off around 2003. However, as seen in Figure 3-2, Selawik has a very young population structure, with a large base of persons, 48% (414), under the age of 20. This suggests that Selawik has the potential to continue to grow in size.

Wild Food Uses and Harvests

The primary purpose of the household survey was to collect information on the harvest and uses of edible wild foods. Respondents were asked about whether their household used or tried to harvest each resource during the study year. If they tried to harvest a resource, they were asked how much they harvested and for other details of the harvest, such as gear type, sex of the animal, and month of harvest.

Tables 3-1 through 3-6 and figures in this section summarize responses to the harvest questions expanded for unsurveyed households. “Use” in this context can mean harvesting, processing, or consumption of a resource, and use of fur, hide, or other parts for handicrafts, clothing, etc. The most widely used resource catgory by Selawik residents was land mammals (97%), which represented only about 25%, 115,909 lb, of the community’s total subsistence harvest by edible weight (figures 3-4 and 3-5). Vegetation, both plants and berries, was the next most widely used category, by 95% of households, but represented an even smaller proportion of harvest (1% or 6,307 lb). Fish, largely

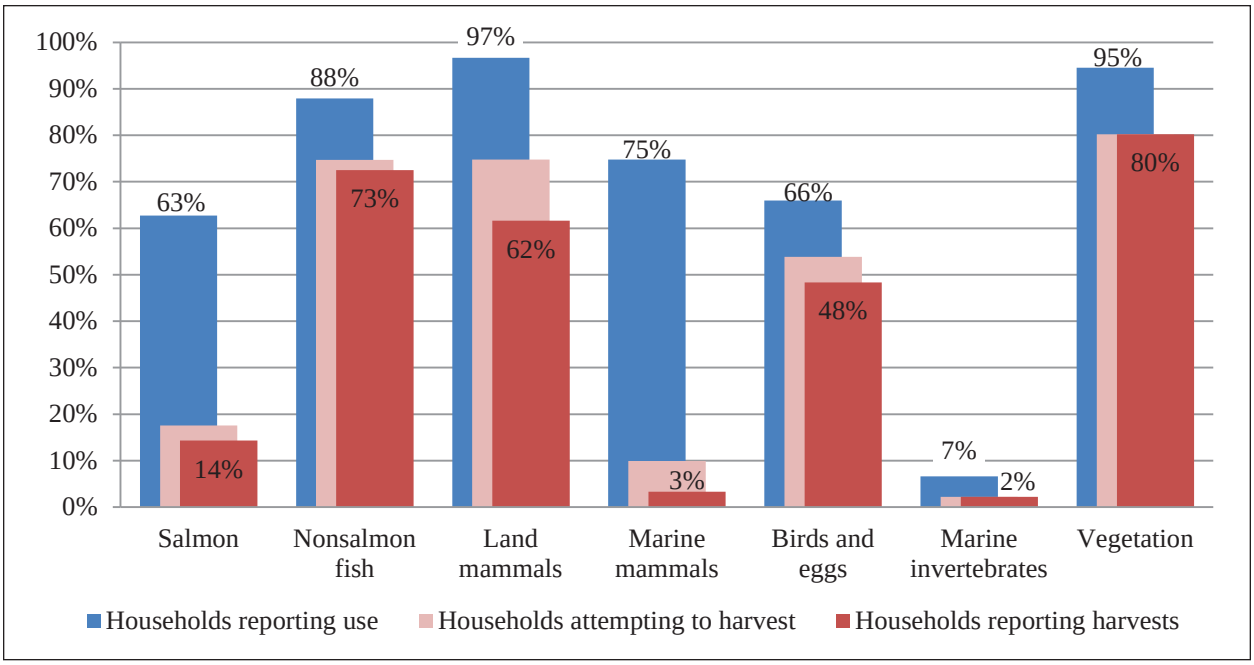


Figure 3-4.– Percentages of households using, attempting to harvest, or harvesting subsistence resources, by category, Selawik, 2010–2011.

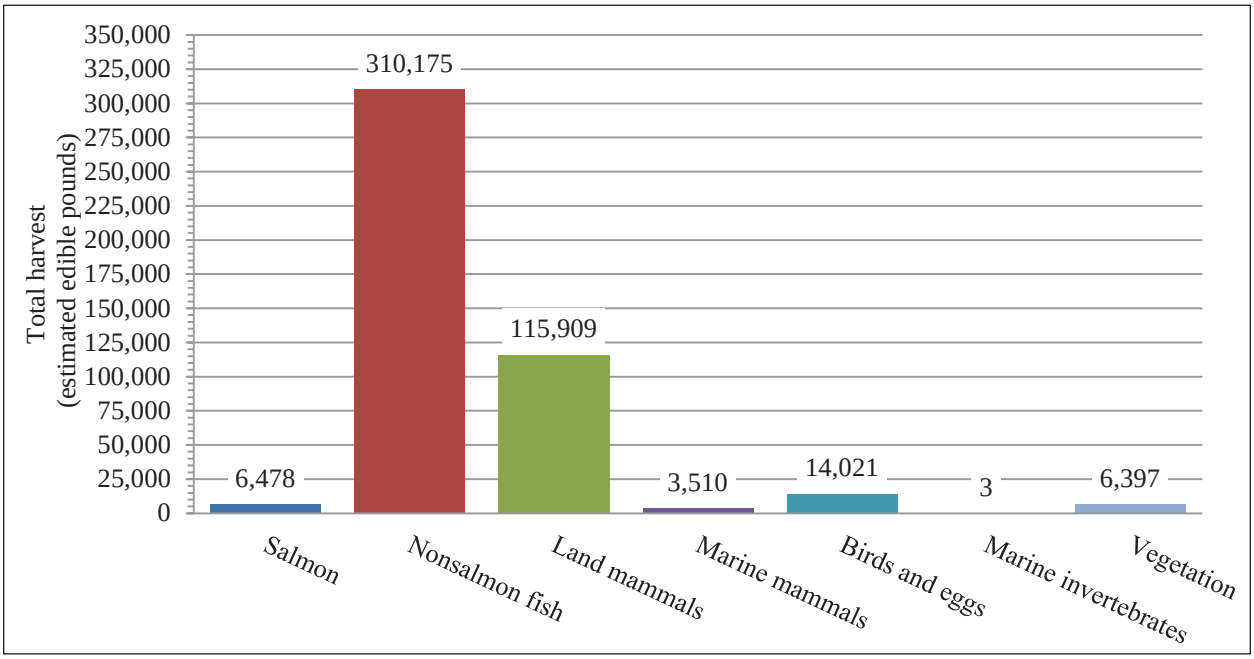


Figure 3-5.–Total estimated edible pounds harvested by the community, by resource category, Selawik, 2010–2011.

nonsalmon with a small complement of salmon species, made up the bulk of the community's harvest, 69%, or 316,653 lb. Nonsalmon species were more commonly used than salmon (88% of households versus 63%.) Very few households used marine invertebrates, 7%, which are not commonly harvested near Selawik.

Sharing, which can be roughly measured by the percentages of households saying they gave away or received a resource, accounts for the sometimes wide margin between the number of housholds harvesting something and the number actually using it. This includes sharing between households located in Selawik and that taking place between Selawik households and those in other communities. For example, only 3% of households in Selawik harvested marine mammals, but 75% reported using them. Few households (14%) reported harvesting salmon, and it made up only 1% of the total harvest—yet 63% of households used it. The most commonly received resource category was land mammals (86%). Fish were the most commonly given away (81%). The Iñupiaq cultural value of sharing remains robust in Selawik, and will be discussed in more detail in the section of this report describing the information collected on wild food networks in the community.

The survey asked about harvest and use of 92 subsistence resources. On average, Selawik households used 17 different subsistence resources; some households used none, while the maximum number was 46 (Appendix E1). The average number of resources households tried to harvest was 11, but ranged from 0 to 32 resources. Households, on average, harvested 9 resources. The most harvested by any household was 32.

All whitefish species combined constituted over one-half (55%) of the total subsistence harvest by edible weight, 250,172 lb, but 3 species predominated (Table 3-1). The greater part of the whitefish harvest was broad whitefish, both in sheer number (47,394 fish) and total pounds (151,722 lb). Sheefish, the largest member of the whitefish family, contributed less than half as many pounds, 68,958, with 6,190 fish caught. Humpback whitefish were also harvested in large numbers, 12,647 fish, but because of their relative size, constituted 23,705 edible pounds. Lesser harvests of least cisco and round whitefish also occurred. In all, whitefishes combined made up 79% of the fish harvested in the study period, 250,172 lb. The Selawik River does not have a salmon run, although strays are occasionally caught in the Selawik area. Residents who harvest salmon typically travel to the Kobuk River delta to do so (S. Georgette, Outreach Specialist, U.S. Fish and Wildlife Service, Selawik Refuge, Kotzebue, personal communication). The only species harvested in any quantity was chum, 879 fish contributing 5,273 lb. Minor harvests of coho salmon and sockeye salmon took place, however, review of surveys indicates that the sockeye salmon harvest took place elsewhere in Alaska. Selawik fishers took 15,956 northern pike, totaling 52,653 lb, the greatest amount for any species other than whitefish. Lesser harvests of smelt, burbot (also known locally as mudshark or *tittaaliq*), and Arctic grayling were also documented in the study. While no harvest of saffron cod (known locally as tomcod) was reported in this study, 19% of households said they had received and

Table 3-1. – Estimated use and harvest of fish, Selawik, 2010–2011.

	Percentage of households					Estimated pounds harvested			Total estimated amount[a] harvested by community	95% conf. limit
	Using	Attempting harvest	Harvesting	Receiving	Giving away	Total for community	Mean per household	Mean per capita		
Fish										
Salmon										
Chum salmon	43.0%	14.3%	11.0%	40.8%	20.9%	5,273.0 lb	31.2 lb	6.2 lb	878.8 ind	± 131%
Coho salmon	2.2%	2.2%	2.2%	0.0%	0.0%	38.5 lb	0.2 lb	0.0 lb	7.4 ind	± 171%
Chinook salmon	6.6%	0.0%	0.0%	6.6%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Pink salmon	6.6%	0.0%	0.0%	6.6%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Sockeye salmon	8.8%	3.3%	3.3%	6.6%	4.4%	833.5 lb	4.9 lb	1.0 lb	166.7 ind	± 152%
Unknown salmon	14.3%	2.2%	2.2%	14.3%	6.6%	333.0 lb	2.0 lb	0.4 lb	55.5 ind	± 171%
Subtotal	**62.7%**	**17.6%**	**14.3%**	**62.7%**	**28.6%**	**6,478.0 lb**	**38.3 lb**	**7.6 lb**	**1,108.4 ind**	**± 108%**
Char										
Dolly Varden	17.6%	8.8%	4.4%	14.3%	6.6%	61.7 lb	0.4 lb	0.1 lb	18.7 ind	± 77%
Subtotal	**17.6%**	**8.8%**	**4.4%**	**14.3%**	**6.6%**	**61.7 lb**	**0.4 lb**	**0.1 lb**	**18.7 ind**	**± 77%**
Whitefishes										
Sheefish	76.9%	63.7%	57.1%	45.1%	46.2%	68,957.7 lb	408.0 lb	80.5 lb	6,190.4 ind	± 32%
Broad whitefish	81.3%	57.1%	55.0%	54.9%	47.3%	151,722.3 lb	897.8 lb	177.2 lb	47,393.6 ind	± 52%
Bering cisco	1.1%	0.0%	0.0%	1.1%	1.1%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Least cisco	28.6%	23.1%	20.9%	16.5%	18.7%	3,992.6 lb	23.6 lb	4.7 lb	6,230.0 ind	± 79%
Humpback whitefish	50.6%	28.6%	26.4%	34.0%	25.3%	23,705.2 lb	140.3 lb	27.7 lb	12,647.1 ind	± 45%
Round whitefish	5.5%	5.5%	5.5%	2.2%	5.5%	1,718.9 lb	10.2 lb	2.0 lb	907.5 ind	± 148%
Unknown whitefishes	2.2%	1.1%	1.1%	1.1%	0.0%	74.8 lb	0.4 lb	0.1 lb	37.4 ind	± 136%
Subtotal	**87.9%**	**70.3%**	**68.1%**	**67.1%**	**59.4%**	**250,171.6 lb**	**1,480.3 lb**	**292.1 lb**	**73,406.1 ind**	**± 38%**
Anadromous/marine fish										
Herring	6.6%	0.0%	0.0%	6.6%	1.1%	0.0 lb	0.0 lb	0.0 lb	0.0 gal	± 0%
Smelt	8.8%	1.1%	1.1%	7.7%	6.6%	561.3 lb	3.3 lb	0.7 lb	149.7 gal	± 136%
Eulachon (hooligan, candlefish)	1.1%	0.0%	0.0%	1.1%	1.1%	0.0 lb	0.0 lb	0.0 lb	0.0 gal	± 0%
Saffron cod	18.7%	0.0%	0.0%	18.7%	4.4%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Pacific halibut	3.3%	2.2%	2.2%	3.3%	2.2%	1,400.0 lb	8.3 lb	1.6 lb	1,400.0 lb	± 632%
Subtotal	**26.4%**	**3.3%**	**3.3%**	**25.3%**	**12.1%**	**1,961.3 lb**	**11.6 lb**	**2.3 lb**		**± 453%**
Other fish										
Burbot	50.6%	39.6%	31.9%	25.3%	28.6%	4,541.4 lb	26.9 lb	5.3 lb	1,081.3 ind	± 44%
Arctic grayling	17.6%	12.1%	12.1%	5.5%	8.8%	733.6 lb	4.3 lb	0.9 lb	815.1 ind	± 89%
Northern pike	71.4%	56.0%	47.3%	38.5%	39.6%	52,653.2 lb	311.6 lb	61.5 lb	15,955.5 ind	± 41%
Longnose sucker	1.1%	1.1%	1.1%	0.0%	0.0%	52.4 lb	0.3 lb	0.1 lb	37.4 ind	± 136%
Subtotal	**78.0%**	**62.6%**	**58.3%**	**45.1%**	**47.3%**	**57,980.5 lb**	**343.1 lb**	**67.7 lb**	**17,889.3 ind**	**± 39%**
All fish	**91.2%**	**75.8%**	**72.5%**	**81.4%**	**70.4%**	**316,653.2 lb**	**1,873.7 lb**	**369.8 lb**		**± 35%**
All resources	**98.9%**	**91.2%**	**91.2%**	**96.7%**	**89.0%**	**456,493.5 lb**	**2,701.1 lb**	**533.1 lb**		**± 29%**

Source ADF&G Division of Subsistence household surveys, 2011.

Note "All resources" include all species of fish, wildlife, and plants reported on the survey.

a. Amount of resource harvested is individual units, unless otherwise specified.

Table 3-2. – Estimated use and harvest of marine invertebrates, Selawik, 2010–2011.

	Percentage of households					Estimated pounds harvested			Total estimated amount[a] harvested by community	95% conf. limit
	Using	Attempting harvest	Harvesting	Receiving	Giving away	Total for community	Mean per household	Mean per capita		
Marine invertebrates										
Clams	2.2%	2.2%	2.2%	2.2%	0.0%	3.0 lb	0.0 lb	0.0 lb	29.6 gal	± 171%
King crab	4.4%	0.0%	0.0%	4.4%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Tanner crab	0.0%	0.0%	0.0%	0.0%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Unknown crab	0.0%	0.0%	0.0%	0.0%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Mussels	0.0%	0.0%	0.0%	0.0%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 gal	± 0%
Octopus	2.2%	2.2%	0.0%	2.2%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Unknown marine invertebrates	0.0%	0.0%	0.0%	0.0%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 gal	± 0%
Subtotal	**6.6%**	**2.2%**	**2.2%**	**6.6%**	**0.0%**	**3.0 lb**	**0.0 lb**	**0.0 lb**		**± 171%**
All marine invertebrates	**6.6%**	**2.2%**	**2.2%**	**6.6%**	**0.0%**	**3.0 lb**	**0.0 lb**	**0.0 lb**		**± 171%**
All resources	**98.9%**	**91.2%**	**91.2%**	**96.7%**	**89.0%**	**456,493.5 lb**	**2,701.1 lb**	**533.1 lb**		**± 29%**

Source ADF&G Division of Subsistence household surveys, 2011.

Note "All resources" include all species of fish, wildlife, and plants reported on the survey.

a. Amount of resource harvested is individual units, unless otherwise specified.

used it (possibly from sources outside of Selawik). Two species of fish not present in the Selawik area, Pacific halibut and eulachon, appear in survey results. In the case of eulachon, a household(s) received it from elsewhere; in the case of halibut, it was harvested in another part of Alaska.

Part of Selawik's fish harvest was used exclusively to feed dogs, nearly 35,000 lb, or approximately 11% of fish harvested (Appendix E2). As in the harvest for human consumption, this was predominately whitefish, 25,000 lb. This came from 3,676 broad whitefish, 2,095 humpback whitefish, 2,062 least cisco, 776 sheefish, and 76 round whitefish. Smaller amounts of other species such as northern pike, longnose sucker, and chum salmon were fed to dogs as well.

A set gillnet was the primary means used for harvesting fish in Selawik in 2010, with 67%, 204,973 lb, of the total fish harvest (by edible weight) caught with that gear type (Figure 3-6). A variety of fish species were taken this way, including Dolly Varden ("trout" locally), longnose sucker, Arctic grayling, burbot (mudshark or *tittaaliq*), northern pike, various whitefishes, and salmon species. Whitefishes and northern pike predominated in the setnet harvest, with 152,675 lb and 45,671 lb, respectively.

Various whitefishes also were the main component of harvest by "other gear" type, making up 77,594 lb of the 88,352 lb of fish in that category. A greater quantity of burbot (3,963 lb) came from "other gear" than by setnet; for northern pike, only a fraction (6,136 lb) came from "other gear" than from setnets. The category "other gear" includes jigging (not to be confused with rod and reel), spears, and setlines, and in the case of smelt, small handnets. Most of the remainder of fish harvest occurred by "other gear" types, 88,352 lb or 28% of fish harvested. Review of survey results indicates that the 1,400 lb of halibut taken by rod and reel occurred in another region of Alaska where it is legal subsistence gear for halibut. The seemingly anomalous harvest of sockeye

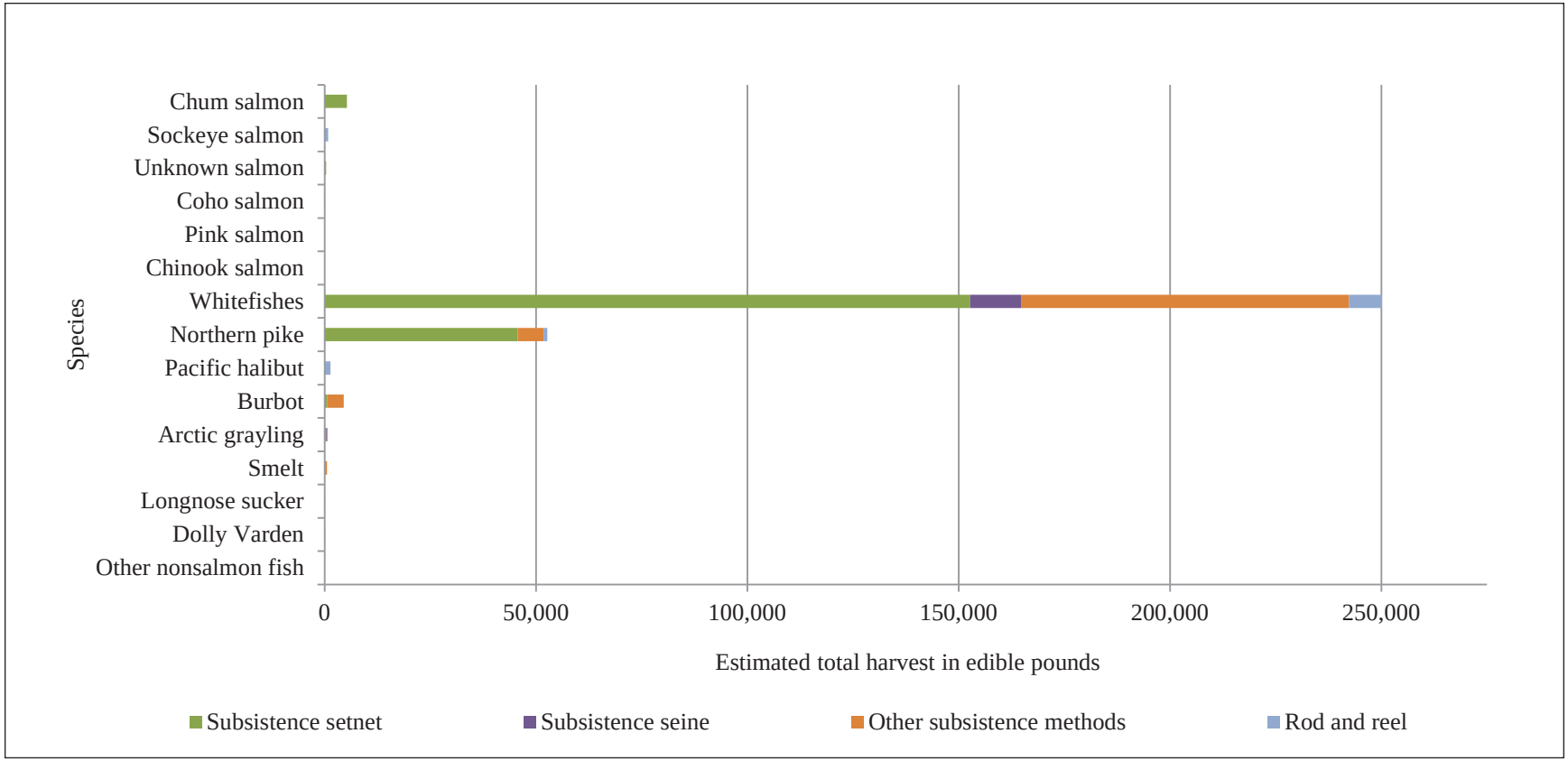


Figure 3-6.–Fish harvest by gear type, Selawik, 2010–2011.

salmon that was taken by "other gear" came from participation in the Chitina dipnet fishery located in the Copper River drainage. Choices in gear type are made based on their relative success for a targeted species, the amount of labor necessary to operate it, cost, and the number of locations suitable for its use within an acceptable distance of a community.

Just 4% of fish harvest was accomplished by seining, some 12,397 lb combined Arctic grayling and whitefishes; nearly as much came from rod and reel harvests, 10,390 lb. No households reported retaining fish from commercial harvests for their own use, nor any fish taken by drift setnet or fish wheel.

With its location on a freshwater river delta, Selawik residents have little access to marine invertebrates. Not surprisingly, virtually no harvest of these resources took place. (Table 3-2). The species harvested were (unknown) clams, with an estimated weight of 3 lb. A few households reported use of king crab that they received from another household. A small percentage of households (2%) reported using octopus that they received from another region of Alaska.

The overwhelming majority of land mammal harvest came from 2 species, caribou and moose, that made up 114,230 lb of the 115,909 lb harvested in the study period (Table 3-3). Selawik hunters took an estimated 684 caribou and 40 moose. Four black bear provided another 329 lb of meat.

Caribou were harvested in all months of the year except June and July (Appendix E3). Just 13 caribou were taken in October 2010, which may be a result of few caribou present nearby, it being late enough that bulls were already in rut and less desirable, or factors affecting transportation such as low water, freezeup, or both. The community took caribou steadily between November 2010 and April 2011. Most caribou harvested in this time period were females (262 of 316 caribou, or 83%). Local hunters may select for cow caribou for several reasons: the taste of meat from bulls during the rut, and afterwards, their generally poor condition compared to females which enter winter in better shape. The opposite pattern holds in fall prior to the rut, when bulls are fat and in prime condition. Over half of Selawik's caribou harvest came in the last 2 months of the study period, August and September 2011. Those are open water months during which travel by boat is possible, and caribou usually move through the area on their annual southward migration into their winter range. Most of the caribou killed in those 2 months were males (344 of 348 caribou). Over the 12 month study period, 60% of caribou harvested were bulls, 39% were cows, and 1% were of unknown sex.

Nearly all moose harvested by Selawik were taken in August and September (Appendix E3). Most were bulls (38 of 40 taken, or 95%).

Survey questions allowed respondents to indicate whether any furbearing animals they harvested were used for food. A variety of small land mammals served as a source of meat and furs, but beavers, snowshoe hares and muskrats were taken in larger quantities than any others. Selawik hunters harvested an estimated 120 beavers (840 edible pounds), 205 snowshoe hares (304 edible

Table 3-3. – Estimated use and harvest of land and marine mammals, Selawik, 2010–2011.

	Percentage of households					Estimated pounds harvested			Total estimated amount[a] harvested by community	95% conf. limit
	Using	Attempting harvest	Harvesting	Receiving	Giving away	Total for community	Mean per household	Mean per capita		
Land mammals										
Large land mammals										
Black bear	12.1%	8.8%	2.2%	9.9%	3.3%	329.3 lb	1.9 lb	0.4 lb	3.7 ind	± 95%
Brown bear	0.0%	0.0%	0.0%	0.0%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Caribou	96.7%	70.4%	53.9%	80.2%	59.4%	92,946.8 lb	550.0 lb	108.5 lb	683.4 ind	± 37%
Moose	74.8%	49.5%	23.1%	64.8%	34.1%	21,282.7 lb	125.9 lb	24.9 lb	39.6 ind	± 43%
Muskox	0.0%	0.0%	0.0%	0.0%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Dall sheep	0.0%	0.0%	0.0%	0.0%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Subtotal	**96.7%**	**73.7%**	**59.4%**	**85.7%**	**61.6%**	**114,558.8 lb**	**677.9 lb**	**133.8 lb**	**726.7 ind**	**± 34%**
Small land mammals										
Beaver	26.5%	19.9%	14.4%	8.8%	8.8%	840.0 lb	5.0 lb	1.0 lb	119.7 ind	± 76%
Arctic fox	0.0%	0.0%	0.0%	0.0%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Red fox	1.1%	1.1%	1.1%	0.0%	1.1%	*Not usually eaten*			3.7 ind	± 136%
Alaska hare	1.1%	1.1%	1.1%	0.0%	0.0%	*Not usually eaten*			3.7 ind	± 136%
Snowshoe hare	14.3%	13.2%	13.2%	4.4%	12.1%	303.5 lb	1.8 lb	0.4 lb	204.9 ind	± 85%
Unknown hare	2.2%	0.0%	0.0%	0.0%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
River (land) otter	9.9%	9.9%	7.7%	2.2%	4.4%	*Not usually eaten*			22.4 ind	± 69%
Lynx	2.2%	3.3%	1.1%	1.1%	1.1%	*Not usually eaten*			7.5 ind	± 136%
Marmot	0.0%	0.0%	0.0%	0.0%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Marten	1.1%	0.0%	0.0%	1.1%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Muskrat	13.2%	11.0%	11.0%	3.3%	7.7%	206.6 lb	1.2 lb	0.2 lb	203.1 ind	± 113%
Porcupine	1.1%	1.1%	1.1%	0.0%	1.1%	*Not usually eaten*			3.7 ind	± 136%
Parka (ground) squirrel	0.0%	0.0%	0.0%	0.0%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Red (tree) squirrel	0.0%	0.0%	0.0%	0.0%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Wolf	16.5%	6.6%	4.4%	9.9%	3.3%	*Not usually eaten*			33.5 ind	± 102%
Wolverine	6.6%	3.3%	1.1%	5.5%	1.1%	*Not usually eaten*			3.7 ind	± 136%
Subtotal	**51.7%**	**38.5%**	**34.1%**	**18.7%**	**27.5%**	**1,350.1 lb**	**8.0 lb**	**1.6 lb**	**606.1 ind**	**± 59%**
Marine mammals										
Bearded seal	26.4%	4.4%	2.2%	24.2%	11.0%	3,143.2 lb	18.6 lb	3.7 lb	7.5 ind	± 107%
Harbor seal	2.2%	0.0%	0.0%	2.2%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Ringed seal	3.3%	0.0%	0.0%	3.3%	2.2%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Spotted seal	4.4%	3.3%	1.1%	3.3%	2.2%	366.7 lb	2.2 lb	0.4 lb	3.7 ind	± 136%
Unknown seal	72.6%	2.2%	0.0%	72.6%	25.3%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Walrus	6.6%	0.0%	0.0%	6.6%	2.2%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Beluga	28.6%	0.0%	0.0%	28.6%	9.9%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Bowhead	46.2%	0.0%	0.0%	46.2%	13.2%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Subtotal	**74.8%**	**9.9%**	**3.3%**	**74.8%**	**29.7%**	**3,509.9 lb**	**20.8 lb**	**4.1 lb**	**11.2 ind**	**± 96%**
All land mammals	**96.7%**	**74.8%**	**61.6%**	**85.7%**	**62.7%**	**115,908.9 lb**	**685.9 lb**	**135.4 lb**		**± 34%**
All marine mammals	**74.8%**	**9.9%**	**3.3%**	**74.8%**	**29.7%**	**3,509.9 lb**	**20.8 lb**	**4.1 lb**		**± 96%**
All resources	**98.9%**	**91.2%**	**91.2%**	**96.7%**	**89.0%**	**456,493.5 lb**	**2,701.1 lb**	**533.1 lb**		**± 29%**

Source ADF&G Division of Subsistence household surveys, 2011.

Note "All resources" include all species of fish, wildlife, and plants reported on the survey.

a. Amount of resource harvested is individual units, unless otherwise specified.

pounds) and 203 muskrats (207 edible pounds.) The community took an estimated 34 wolves and 4 wolverines, and lesser quantities of other furbearers.

Because of its location on a freshwater delta, Selawik residents have to travel to southern Kotzebue Sound to harvest seals. There is a long tradition of doing so, but not by a large number of households (S. Georgette, Outreach Specialist, U.S. Fish and Wildlife Service, Kotzebue, personal communication). Only a few Selawik households hunted marine mammals during the study period, ranging from 2–4% of households depending on species (Table 3-3). An estimated 8 bearded seals, *ugruk*, (an estimated 3,143 lb) were harvested and 4 spotted seals, *natchiq*, (an estimated 368 lb). Marine mammals were widely shared, however, in light of the low levels of particpation in hunting them. Just 2% of households harvested bearded seal but nearly one-quarter of households said they received it. Marine mammals are not only a source of meat, but also of blubber and oil (*uqsraq*). Seal oil, made by rendering blubber, appears in the table as "unknown seal." Its importance is evident by its widespread distribution, with 73% of households receiving it and using it. The second most widely used marine mammal, bowhead whale, is not harvested by Selawik households. However, 46% of households used it, most likely having received *maktak* (a delicacy consisting of the epidermis and blubber) from other communities with active whaling crews. Several other species of marine mammal, such as beluga, walrus, and ringed seal were not harvested by surveyed households but were used. A small percentage of households used harbor seal, a species not present in Northwest Alaska, having received it from another region in Alaska.

A variety of migratory waterfowl and upland game birds were harvested by Selawik hunters (Table 3-4). Their contribution to the overall subsistence harvest was small relative to other types of subsistence resources, but they provide variety to a subsistence diet heavily weighted toward fish. They also are often the first source of fresh meat after a long winter. Several species of ducks were harvested in large numbers, including mallards, black scoters, white-winged scoters, wigeons, and teals. In all, ducks added 5,119 lb of wild food, or 6 lb per person. Of geese species, lesser Canada (805 birds) and white-fronted (734 birds) were harvested in the greatest quantity. Snow geese, brant, and cacklers were also harvested; while cacklers are not abundant near Selawik, at times they are present locally and harvested[1]. Taken as a category, geese contributed another 7,371 lb of wild food, 9 lb per per person. Tundra swan and sandhill cranes did not figure prominently in bird harvest. In addition to the various migratory birds, 1,424 ptarmigan were harvested.

The survey did not ask about egg harvest by species, instead asking by broad categories: duck eggs, geese eggs, swan eggs, shorebird eggs, gull eggs, etc. An estimated 237 duck eggs, 130 geese

1. While most geese harvested in Northwest Alaska are lesser Canada geese, previous projects have documented harvest, albeit in small numbers (Georgette 2000). Respondents in various communities described unusually small Canada geese. "A Selawik hunter, for instance, said that in Selawik and in Kotzebue areas he had occasionally seen duck-sized Canada geese arriving from the west, a different direction from which the larger Canada geese come" (Georgette 2000:12).

Table 3-4. – Estimated use and harvest of birds, Selawik, 2010–2011.

	Percentage of households					Estimated pounds harvested			Total estimated amount[a] harvested by community	95% conf. limit
	Using	Attempting harvest	Harvesting	Receiving	Giving away	Total for community	Mean per household	Mean per capita		
Migratory birds										
Ducks										
Bufflehead	0.0%	2.2%	0.0%	0.0%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Canvasback	4.4%	4.4%	4.4%	0.0%	2.2%	214.6 lb	1.3 lb	0.3 lb	107.3 ind	± 148%
Common eider	1.1%	3.3%	1.1%	0.0%	1.1%	7.8 lb	0.0 lb	0.0 lb	1.9 ind	± 0%
King eider	0.0%	2.2%	0.0%	0.0%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Spectacled eider	0.0%	2.2%	0.0%	0.0%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Steller's eider	0.0%	2.2%	0.0%	0.0%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Goldeneye	2.2%	4.4%	2.2%	0.0%	2.2%	59.2 lb	0.4 lb	0.1 lb	74.0 ind	± 171%
Harlequin	0.0%	2.2%	0.0%	0.0%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Mallard	40.6%	34.0%	26.4%	19.8%	20.9%	1,021.6 lb	6.0 lb	1.2 lb	523.9 ind	± 57%
Long-tailed duck	3.3%	5.5%	3.3%	0.0%	3.3%	332.3 lb	2.0 lb	0.4 lb	248.0 ind	± 166%
Northern pintail	28.6%	22.0%	20.9%	13.2%	17.6%	432.3 lb	2.6 lb	0.5 lb	277.1 ind	± 54%
Scaup	3.3%	4.4%	2.2%	1.1%	2.2%	310.8 lb	1.8 lb	0.4 lb	185.0 ind	± 171%
Black scoter	30.8%	29.7%	24.2%	6.6%	23.1%	846.4 lb	5.0 lb	1.0 lb	500.8 ind	± 80%
Surf scoter	3.3%	5.5%	3.3%	0.0%	3.3%	245.7 lb	1.5 lb	0.3 lb	155.5 ind	± 163%
White-winged scoter	5.5%	6.6%	3.3%	2.2%	3.3%	720.7 lb	4.3 lb	0.8 lb	314.7 ind	± 161%
Northern shoveler	6.6%	7.7%	5.5%	2.2%	5.5%	103.3 lb	0.6 lb	0.1 lb	94.8 ind	± 106%
Teal	5.5%	7.7%	4.4%	3.3%	2.2%	161.6 lb	1.0 lb	0.2 lb	310.8 ind	± 163%
Wigeon	16.5%	15.4%	11.0%	12.1%	6.6%	554.2 lb	3.3 lb	0.6 lb	423.0 ind	± 121%
Unknown ducks	4.4%	2.2%	2.2%	1.1%	2.2%	109.0 lb	0.6 lb	0.1 lb	58.0 ind	± 99%
Subtotal	**58.3%**	**41.8%**	**36.3%**	**30.8%**	**30.8%**	**5,119.4 lb**	**30.3 lb**	**6.0 lb**	**3,274.8 ind**	**± 102%**
Geese										
Brant	7.7%	5.5%	5.5%	3.3%	5.5%	452.7 lb	2.7 lb	0.5 lb	198.5 ind	± 159%
Cacklers	7.7%	5.5%	5.5%	4.4%	7.7%	260.1 lb	1.5 lb	0.3 lb	111.6 ind	± 93%
Lesser Canada geese	51.7%	34.1%	26.4%	34.0%	23.1%	3,205.4 lb	19.0 lb	3.7 lb	805.4 ind	± 65%
Emperor geese	0.0%	0.0%	0.0%	0.0%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Snow geese	9.9%	7.7%	5.5%	4.4%	5.5%	342.4 lb	2.0 lb	0.4 lb	85.6 ind	± 149%
White-fronted geese	34.1%	25.3%	22.0%	16.5%	19.8%	3,110.7 lb	18.4 lb	3.6 lb	733.7 ind	± 66%
Subtotal	**53.9%**	**35.2%**	**27.5%**	**37.4%**	**27.5%**	**7,371.3 lb**	**43.6 lb**	**8.6 lb**	**1,934.8 ind**	**± 70%**
Other migratory birds										
Tundra swan (whistling)	1.1%	1.1%	1.1%	0.0%	0.0%	21.0 lb	0.1 lb	0.0 lb	1.9 ind	± 136%
Sandhill crane	1.1%	1.1%	1.1%	0.0%	1.1%	12.6 lb	0.1 lb	0.0 lb	1.9 ind	± 136%
Whimbrel	0.0%	0.0%	0.0%	0.0%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Subtotal	**2.2%**	**2.2%**	**2.2%**	**0.0%**	**1.1%**	**33.6 lb**	**0.2 lb**	**0.0 lb**	**3.7 ind**	**± 98%**
Other birds										
Spruce grouse	0.0%	0.0%	0.0%	0.0%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Ptarmigan	36.3%	29.7%	27.5%	16.5%	24.2%	1,423.8 lb	8.4 lb	1.7 lb	1,423.8 ind	± 84%
Subtotal	**36.3%**	**29.7%**	**27.5%**	**16.5%**	**24.2%**	**1,423.8 lb**	**8.4 lb**	**1.7 lb**	**1,423.8 ind**	**± 83%**
All migratory birds	**61.6%**	**44.0%**	**38.5%**	**40.7%**	**40.7%**	**12,524.3 lb**	**74.1 lb**	**14.6 lb**	**5,213.3 ind**	**± 80%**
All other birds	**36.3%**	**29.7%**	**27.5%**	**16.5%**	**24.2%**	**1,423.8 lb**	**8.4 lb**	**1.7 lb**	**1,423.8 ind**	**± 83%**
All resources	**98.9%**	**91.2%**	**91.2%**	**96.7%**	**89.0%**	**456,493.5 lb**	**2,701.1 lb**	**533.1 lb**		**± 29%**

Source ADF&G Division of Subsistence household surveys, 2011.

Note "All resources" include all species of fish, wildlife, and plants reported on the survey.

a. Amount of resource harvested is individual units, unless otherwise specified.

Table 3-5. – Estimated use and harvest of eggs, Selawik, 2010–2011.

	Percentage of households					Estimated pounds harvested			Total estimated amount[a] harvested by community	95% conf. limit
	Using	Attempting harvest	Harvesting	Receiving	Giving away	Total for community	Mean per household	Mean per capita		
Bird eggs										
Duck eggs	9.9%	8.8%	8.8%	1.1%	4.4%	35.6 lb	0.2 lb	0.0 lb	237.2 ind	± 91%
Geese eggs	5.5%	4.4%	4.4%	3.3%	0.0%	35.1 lb	0.2 lb	0.0 lb	129.9 ind	± 126%
Swan eggs	4.4%	1.1%	1.1%	3.3%	2.2%	2.4 lb	0.0 lb	0.0 lb	3.7 ind	± 136%
Shorebird eggs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Gull eggs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Loon eggs	1.1%	0.0%	0.0%	1.1%	1.1%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Unknown eggs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0 lb	0.0 lb	0.0 lb	0.0 ind	± 0%
Subtotal	**13.2%**	**9.9%**	**9.9%**	**5.5%**	**6.6%**	**73.0 lb**	**0.4 lb**	**0.1 lb**	**370.9 ind**	**± 102%**
All birds and eggs	**66.0%**	**53.8%**	**48.4%**	**41.8%**	**49.5%**	**14,021.1 lb**	**83.0 lb**	**16.4 lb**		**± 80%**
All resources	**98.9%**	**91.2%**	**91.2%**	**96.7%**	**89.0%**	**456,493.5 lb**	**2,701.1 lb**	**533.1 lb**		**± 29%**

Source ADF&G Division of Subsistence household surveys, 2011.
Note "All resources" include all species of fish, wildlife, and plants reported on the survey.
a. Amount of resource harvested is individual units, unless otherwise specified.

eggs, and 4 swan eggs were harvested (Table 3-5). Use was not widespread, ranging from 1–10% of households. Less than 10% of households tried to harvest any of the various eggs.

Harvest and use of berries and wild plants was common, although harvest of wild plants was less so than berries. Salmonberries, blueberries, and lowbush cranberries made up the bulk of berry harvest, with a combined volume of 1,322 gallons (Table 3-6). Seventy-four percent of households used blueberries, while 71% used salmonberries and 43% used cranberries. Lesser quantities of currants, raspberries, blackberries, and other berries were harvested and were less widely used as well. Selawik households gathered a variety of plants, with use occuring for every species included on the survey. Stinkweed, *sarġiq*, a medicinal plant, was the most commonly used (26% of households) and collected in the greatest quantity (591 gallons.) Other plants harvested in quantity were wild rhubarb (91 gallons) and sourdock (88 gallons.) An estimated 232 cords of firewood were harvested by households.

CUSTOMARY TRADE

At the request of the Native Village of Selawik, the survey included questions about customary trade.[2] State law defines customary trade as the "limited, non-commercial exchange, for minimal amounts of cash, as restricted by the appropriate board, of fish or game resources" (AS 16.05.940). Federal law defines it similarly as the "exchange for cash of fish and wildlife resources… not

2. Customary trade is frequently confused with "barter," which is legal both for fish and wildlife in Alaska. Barter is defined in state regulations as "the exchange or trade of fish or game, or their parts, taken for subsistence uses for other fish or game or their parts; or for other food or for nonedible items other than money if the exchange is of a limited and noncommercial nature" (AS 16.05.940) and in federal regulations as "the exchange of fish or wildlife or their parts taken for subsistence uses; for other fish, wildlife or their parts; or, for other food or for nonedible items other than money, if the exchange is of a limited and noncommercial nature" (50 CFR 100.4).

Table 3-6. – Estimated use and harvest of vegetation, Selawik, 2010–2011.

	Percentage of households					Estimated pounds harvested			Total estimated amount[a] harvested by community	95% conf. limit
	Using	Attempting harvest	Harvesting	Receiving	Giving away	Total for community	Mean per household	Mean per capita		
Berries										
Blueberry	73.7%	59.4%	57.2%	34.1%	30.8%	1,898.8 lb	11.2 lb	2.2 lb	484.5 gal	± 31%
Lowbush cranberry	42.9%	35.2%	35.2%	17.6%	22.0%	1,288.7 lb	7.6 lb	1.5 lb	324.9 gal	± 44%
Currants	1.1%	1.1%	1.1%	0.0%	1.1%	15.0 lb	0.1 lb	0.0 lb	3.7 gal	± 136%
Raspberry	3.3%	3.3%	3.3%	0.0%	1.1%	11.7 lb	0.1 lb	0.0 lb	2.9 gal	± 96%
Salmonberry	71.5%	60.5%	55.0%	25.3%	30.8%	1,909.5 lb	11.3 lb	2.2 lb	512.4 gal	± 43%
Blackberry	16.6%	9.9%	7.7%	9.9%	3.3%	142.2 lb	0.8 lb	0.2 lb	35.5 gal	± 55%
Other wild berry	1.1%	1.1%	1.1%	1.1%	1.1%	1.9 lb	0.0 lb	0.0 lb	1.9 gal	± 136%
Subtotal	**85.7%**	**73.7%**	**71.5%**	**40.7%**	**45.1%**	**5,267.7 lb**	**31.2 lb**	**6.2 lb**	**1,365.9 gal**	**± 32%**
Plants/greens/mushrooms										
Wild rhubarb	15.4%	12.1%	12.1%	4.4%	8.8%	330.8 lb	2.0 lb	0.4 lb	91.1 gal	± 71%
Eskimo potato	5.5%	6.6%	4.4%	0.0%	4.4%	29.9 lb	0.2 lb	0.0 lb	7.5 gal	± 87%
Hudson's Bay (Labrador) tea	13.2%	11.0%	8.8%	2.2%	3.3%	22.9 lb	0.1 lb	0.0 lb	22.9 gal	± 115%
Sourdock	9.9%	7.7%	7.7%	3.3%	3.3%	87.8 lb	0.5 lb	0.1 lb	87.8 gal	± 112%
Willow leaves	3.3%	3.3%	3.3%	0.0%	1.1%	9.6 lb	0.1 lb	0.0 lb	9.6 gal	± 109%
Wild celery	8.8%	7.7%	5.5%	1.1%	2.2%	24.6 lb	0.1 lb	0.0 lb	24.6 gal	± 131%
Wild rose hips	2.2%	2.2%	2.2%	0.0%	0.0%	15.0 lb	0.1 lb	0.0 lb	3.7 gal	± 95%
Other wild greens	2.2%	2.2%	2.2%	0.0%	2.2%	18.5 lb	0.1 lb	0.0 lb	18.5 gal	± 171%
Fireweed	1.1%	1.1%	1.1%	0.0%	0.0%	0.2 lb	0.0 lb	0.0 lb	0.2 gal	± 136%
Stinkweed	26.4%	18.7%	18.7%	9.9%	9.9%	590.6 lb	3.5 lb	0.7 lb	590.6 gal	± 109%
Subtotal	**40.7%**	**28.6%**	**26.4%**	**17.6%**	**24.2%**	**1,129.7 lb**	**6.7 lb**	**1.3 lb**	**856.5 gal**	**± 74%**
Wood										
Wood	31.9%	29.7%	28.6%	14.3%	12.1%	0.0 lb	0.0 lb	0.0 lb	231.6 cord	± 67%
Subtotal	**31.9%**	**29.7%**	**28.6%**	**14.3%**	**12.1%**	**0.0 lb**	**0.0 lb**	**0.0 lb**	**231.6 cord**	**± 67%**
All vegetation	**94.5%**	**80.2%**	**80.2%**	**52.8%**	**58.3%**	**6,397.4 lb**	**37.9 lb**	**7.5 lb**		**± 33%**
All resources	**98.9%**	**91.2%**	**91.2%**	**96.7%**	**89.0%**	**456,493.5 lb**	**2,701.1 lb**	**533.1 lb**		**± 29%**

Source ADF&G Division of Subsistence household surveys, 2011.

Note "All resources" include all species of fish, wildlife, and plants on the survey.

a. Amount of resource harvested is individual units, unless otherwise specified.

otherwise prohibited by Federal law or regulation, to support personal and family needs; and does not include trade which constitutes a significant commercial enterprise" (50 CFR 50.100.4). Both state and federal rules provide for customary trade of fish, however, neither provide for customary trade of big game meat such as caribou and moose (5 AAC 92.200; 50 CFR 100.7).

With regard to the customary trade of fish, the set of rules that applies depends on where the fish were caught. For fish caught in state-managed fisheries, the Alaska Board of Fisheries must authorize customary trade of a given species in a specific area, with annual limits, permits, and reporting requirements. For fish caught in a federally managed fishery, qualified rural residents in all regions of Alaska may participate; in 3 federal subsistence regions there are established limits, permits, and/or reporting requirements. The Board of Fisheries has so far authorized customary trade of subsistence-caught finfish in Norton Sound and herring roe on kelp in Prince William Sound.

Table 3-7. – Customary trade profiles by harvest type and community estimate, Selawik, 2010–2011.

	Harvest type, reported					
	High		Other		Community estimate	
	Number	Percentage	Number	Percentage	Number	Percentage
Households						
Total	58.0		111.0		169.0	
Sampled	31.0		30.0		61.0	
Engaging in customary trade	15.0	48.4%	7.0	23.3%	54.0	31.9%
Bought	10.0	66.7%	6.0	85.7%	40.9	75.8%
Sold	4.0	26.7%	1.0	14.3%	11.2	20.7%
Unknown	1.0	6.7%	0.0	0.0%	1.9	3.5%
Mean value per trade	$125		$92		$109	
Mean value per trading household	$184		$131		$158	
Bought						
Number of occurrences	14.0		9.0		59.5	
Average times per household	1.4		1.5		1.5	
Mean amount	$76		$99		$89	
Sold						
Number of occurrences	8.0		1.0		18.7	
Average times per household	2.0		1.0		1.7	
Mean amount	$213		$20		$174	
Unknown						
Number of occurrences	> 1.0		0.0		> 2.0	
Average times per household	Unknown		0.0		Unknown	
Mean amount	Unknown		0.0		Unknown	

Source ADF&G Division of Subsistence household surveys, 2011.

Thus, customary trade of subsistence-caught fish in Selawik is likely legal[3], given that it is surrounded by federal lands. Customary trade of caribou is not.

In this study, 15 households in the "high-harvesting" strata and 7 in the "other" strata, or 22 of the 61 surveyed households, reported engaging in customary trade either as buyers or sellers (Table 3-7). Table 3-7 shows both reported values and estimates of customary trade. They reported 23 instances of buying subsistence foods, and 9 instances of selling subsistence foods. One household reported an "unknown type" of trade. The average estimated amount per trade was $109. In total, the reported trades had a value of $3,675 (Table 3-8).

Nearly all traded food originated in Selawik (Table 3-8), 27 occurrences, with fewer trades with Noatak, Kivalina, Noorvik, and Kotzebue. Households primarily traded berries (various species) and whitefishes, and lesser amounts of caribou and other fishes (Table 3-9). Berries were traded

3. Unless it was harvested in a state-managed fishery such as Kotzebue, where the Alaska Board of Fisheries has not authorized it.

Table 3-8. – Locations where resources were traded, Selawik, 2010–2011.

	Occurrences		Total value of trades	
Community	Number	Percentage	Number	Percentage
Kivalina	1	3.0%	$400	10.9%
Kotzebue	1	3.0%	$150	4.1%
Noatak	1	3.0%	$20	0.5%
Noorvik	1	3.0%	$25	0.7%
Selawik	27	81.8%	$3,080	83.8%
Unknown	2	6.1%	Unknown	

Source ADF&G Division of Subsistence households surveys, 2011.

Table 3-9. – Most frequently traded resources, Selawik, 2010–2011.

Resource	Households reporting this type of exchange	Units	Trade amount	Total trade value	Average trade value
Berries	2	gal	15.0	$650	$43 (per gal)
Berries	1	unk	Unknown	$50	
Blackberry	1	gal	1.0	$50	$50 (per gal)
Blueberry	4	gal	7.0	$265	$38 (per gal)
Broad whitefish	1	unk	22.0	$100	$5 (units unk)
Caribou	4	gal	15.0	$395	$26 (per gal)
Caribou	2	ind	4.0	$275	$69 (per caribou)
Cloudberry	1	gal	3.0	$150	$50 (per gal)
Cloudberry	1	unk	Missing	Missing	
Dolly Varden	2	ind	22.0	$420	$19 (per fish)
Land mammals	1	gal	4.0	$40	$10 (per gal)
Lowbush cranberry	2	gal	7.0	$160	$23 (per gal)
Nonsalmon fish	1	gal	4.0	$25	$6 (per gal)
Northern pike	1	gal	20.0	$500	$25 (per gal)
Salmonberry	4	gal	10.0	$295	$30 (per gal)
Sheefish	1	unk	Missing	Missing	
Unknown seal	1	gal	2.5	$100	$40 (per gal)
Unknown whitefishes	1	ind	20	$150	$8 (per fish)
Whitefishes	1	lb	70	$50	$1 (per lb
Unknown	1	unk	Unknown	Unknown	Unknown

Source ADF&G Division of Subsistence household surveys, 2011.

either fresh or frozen by the gallon. Caribou was traded both dried and fresh. Fish were traded in fresh, frozen, and dried form. The one occurrence of "unknown seal" is likely seal oil, given that the amount was reported in gallons, indicating that rendered blubber was the product that was traded.

SEARCH AND HARVEST AREAS

Selawik respondents were asked to locate on a map where they searched for or harvested resources. Individual household search areas were aggregated to create community-level use areas by species (i.e., chum salmon, caribou, etc.) and resource categories (small land mammals, berries and greens, etc.) Figures 3-7 to 3-13 depict the areas used by surveyed households. In total, surveyed households used 2,050 mi^2 in the study period. Given the minimal household sample, the use areas depicted in the maps that follow should be viewed as minimal as well. Resource use areas vary to some degree from year to year in accordance with species abundance. Areas not used in 2010–2011 might be used in other years.

The overall area used by Selawik households extended west overland nearly as far as Candle, between the Kiwalik and Buckland river drainages, and south beyond the Selawik Hills. The area extended north into the Hockley Hills. The eastern bounds largely mirror the Tagagawik River, with a few areas to the east also used (Figure 3-7).

The few salmon harvested in the vicinity of Selawik were taken in set gillnets (Figure 3-8). It is unknown if they were targeted or taken incidentally while fishing for other species. A few Selawik households traveled to the Kobuk River and Kotzebue, locations with strong chum salmon runs. A far greater number of fishing sites were documented for nonsalmon species such as burbot, sheefish[4], other whitefishes, and northern pike. Many were in the immediate vicinity of Selawik on the various channels surrounding the community, at Siktagvik, Putuniq, and the Fish (Ikuuyiq) River particularly for whitefishes (Figure 3-9). Locations for burbot and sheefish often overlapped. Selawik Lake as a whole was marked by several households because they used so many locations to jig for sheefish during the winter.

Caribou hunting areas extended nearly to Candle on the Seward Peninsula, including the Selawik Hills (Figure 3-10). Caribou hunting is open with few restrictions year-round in GMU 23. Selawik often has access to caribou in winter months, as well as during the fall migration period. Use areas reflect this seasonality in that the use area is composed of terrain accessible by boat and snowmachine. Moose search areas were largely confined to river corridors and the coastline of Selawik Lake, which is consistent with harvests occurring largely in August and September (as described earlier). These included the Singauruk River to the west, the Fish River and assorted lakes and sloughs north of the

4. Sheefish, while considered a whitefish by the scientific community, is not commonly recognized as one by residents of Northwest Alaska. This study, therefore, asked households to map sheefish as an individual species, and all other whitefishes simply as "whitefish" in order to not miss sheefish sites and areas.

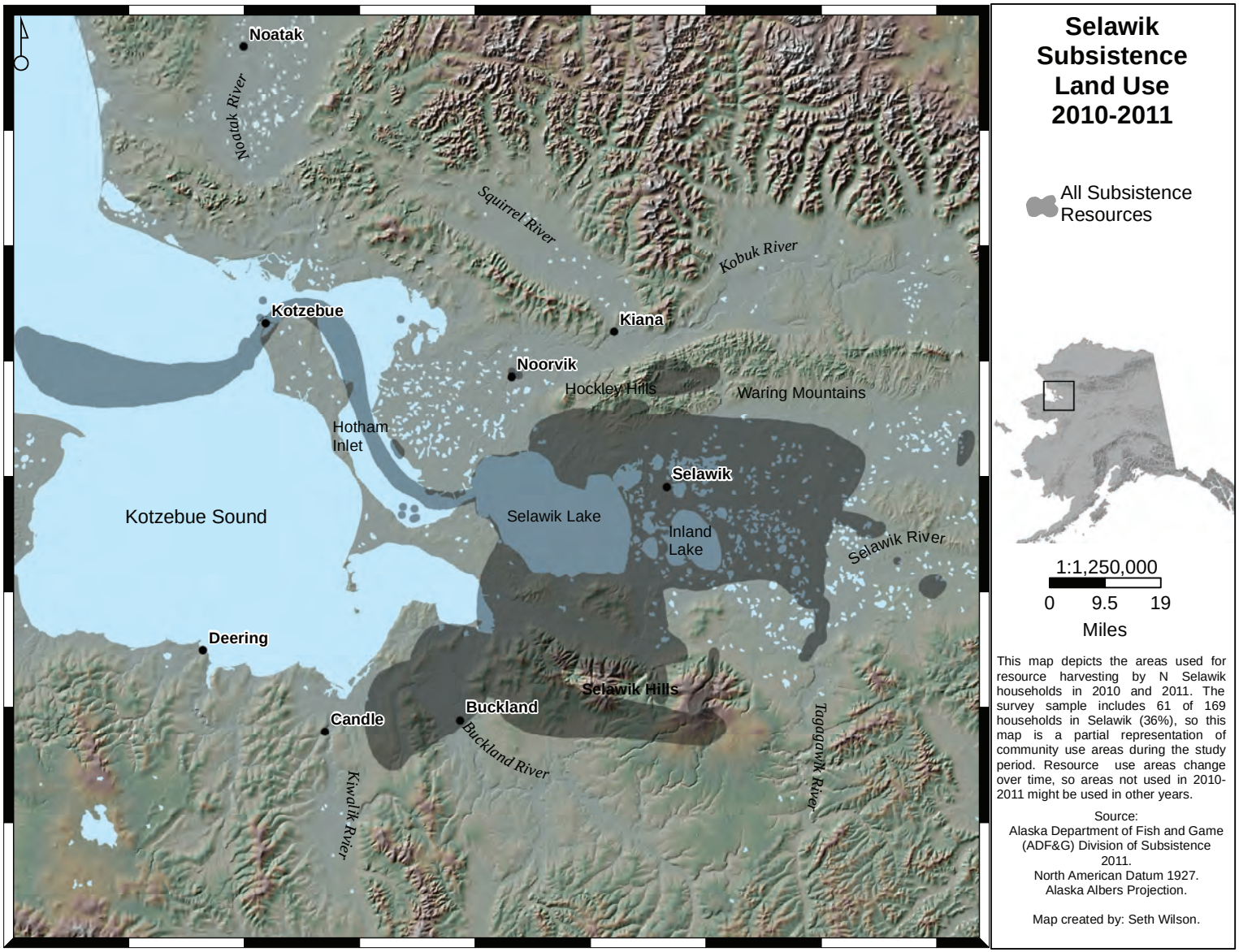


Figure 3-7.–Harvest locations and search areas, all resources, Selawik, 2010–2011.

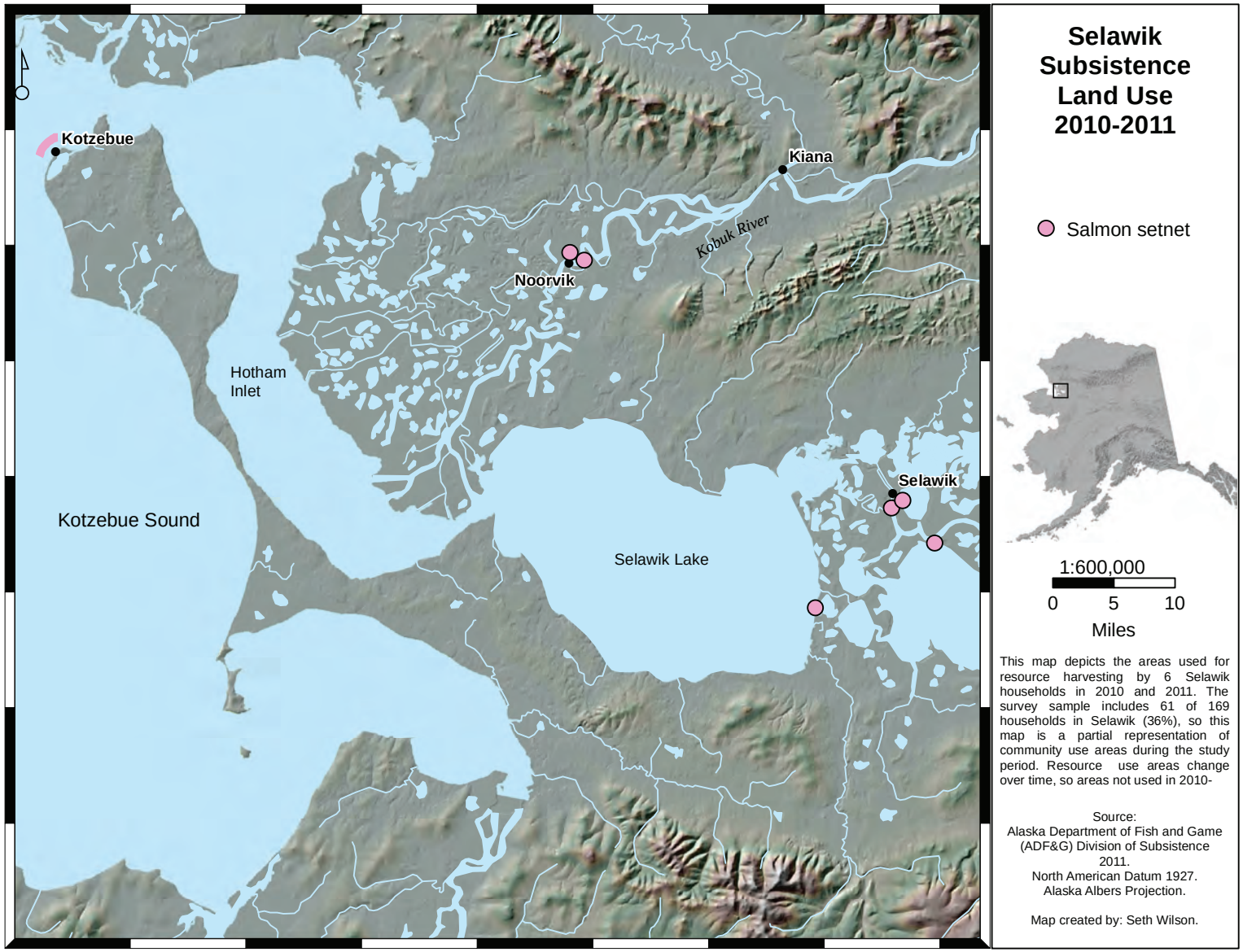


Figure 3-8.–Harvest locations and search areas, salmon, Selawik, 2010–2011.

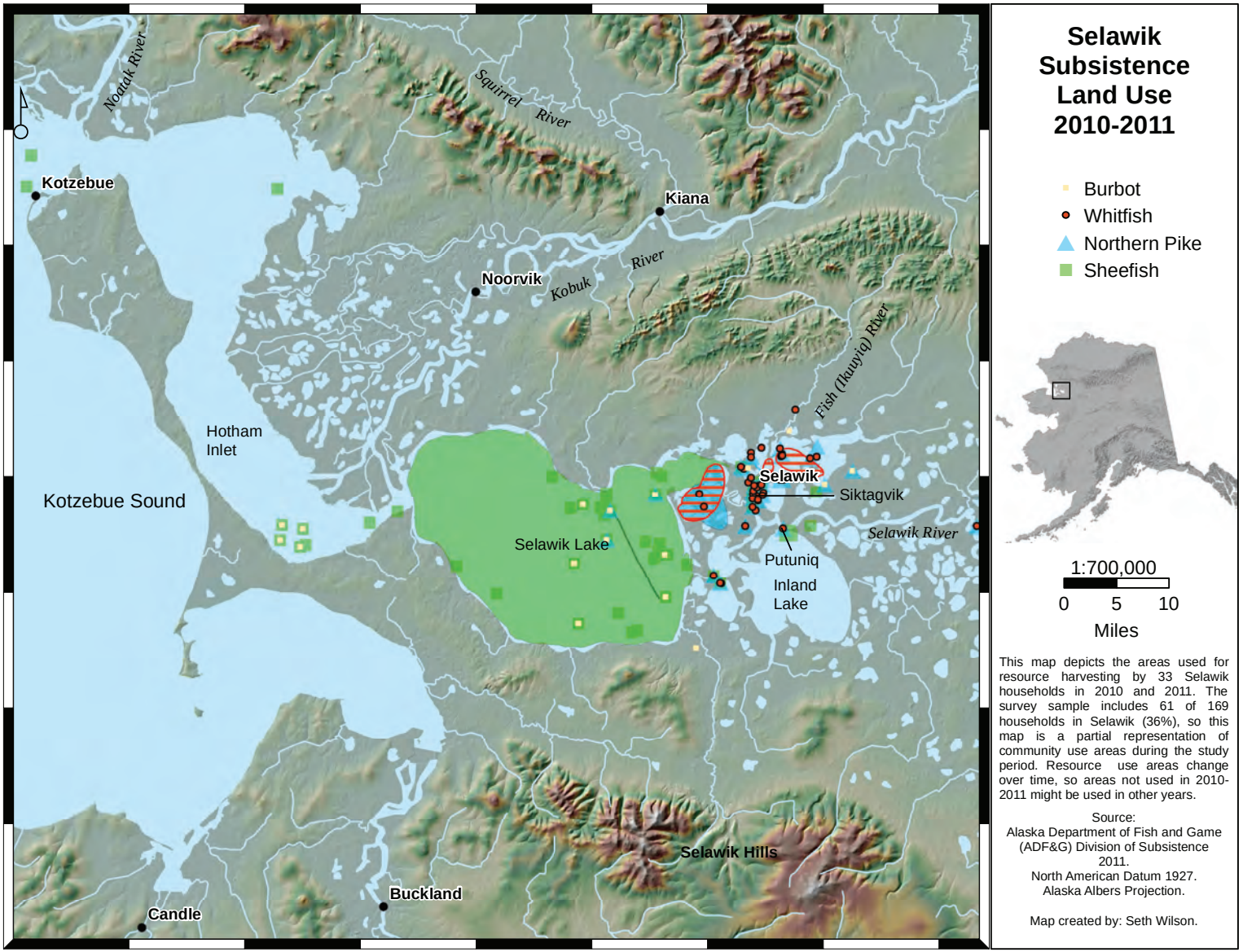


Figure 3-9.–Harvest locations and search areas, whitefishes, sheefish, northern pike, and burbot, Selawik, 2010–2011.

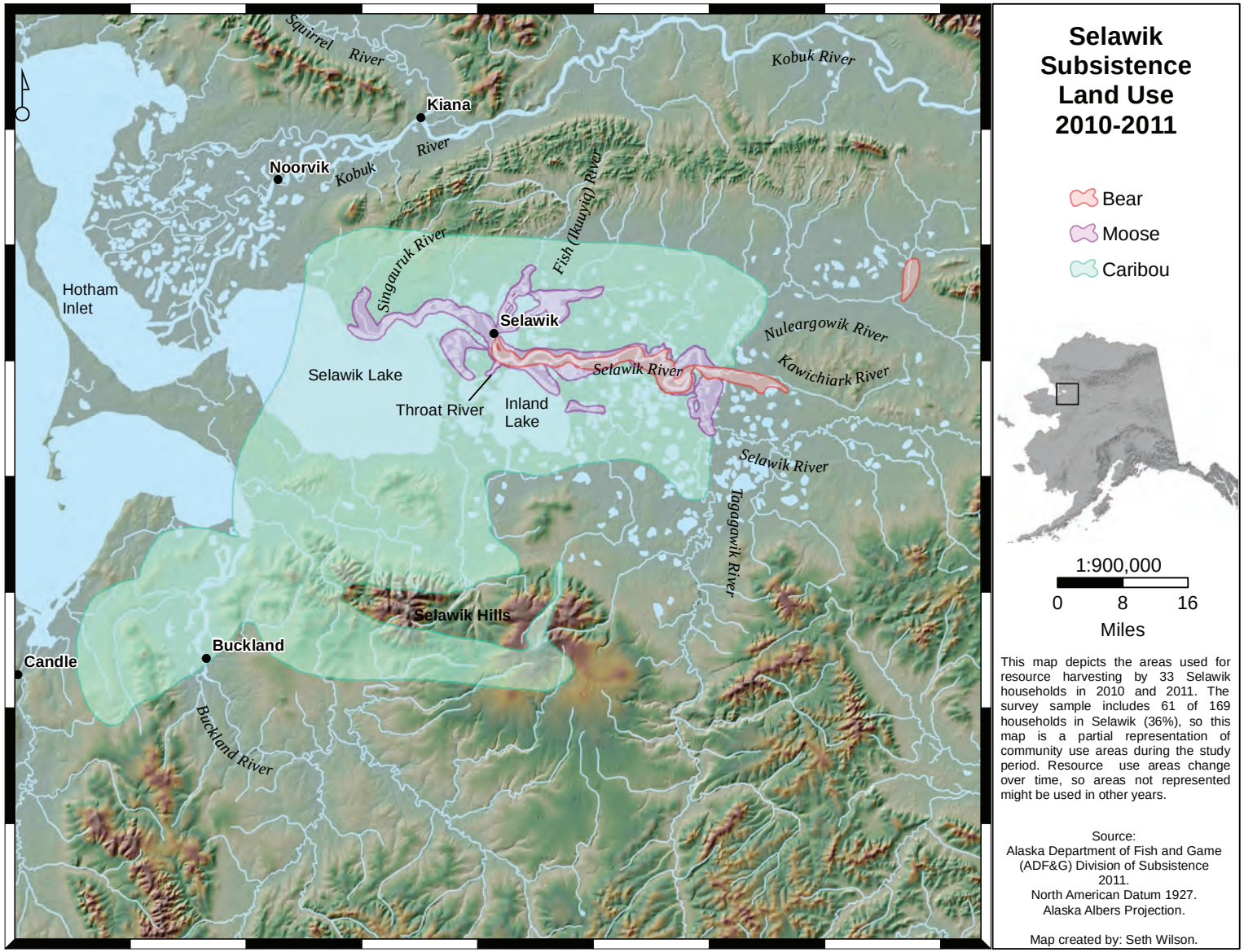


Figure 3-10.–Harvest locations and search areas, large land mammals, Selawik, 2010–2011.

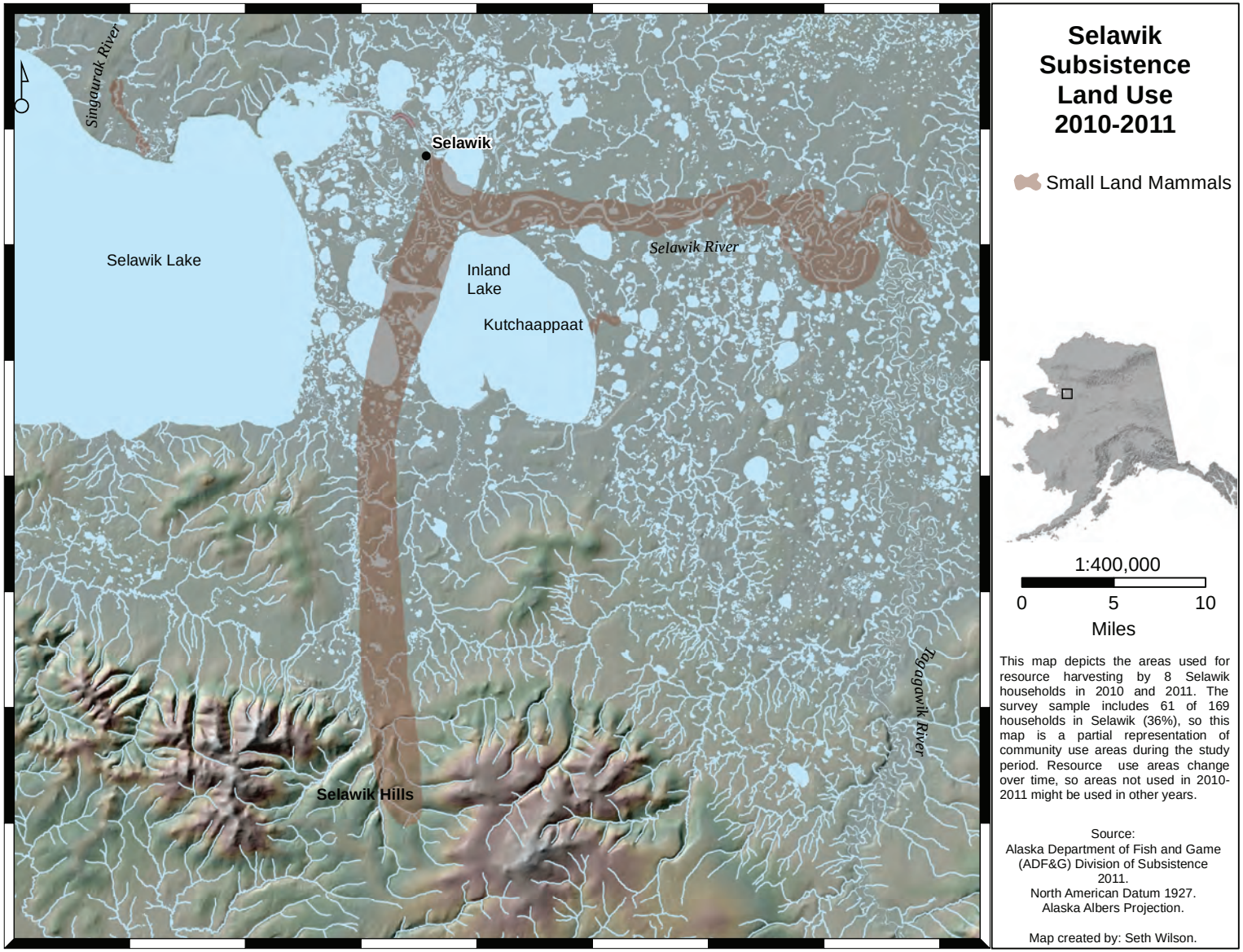


Figure 3-11.–Harvest locations and search areas, small land mammals, Selawik, 2010–2011.

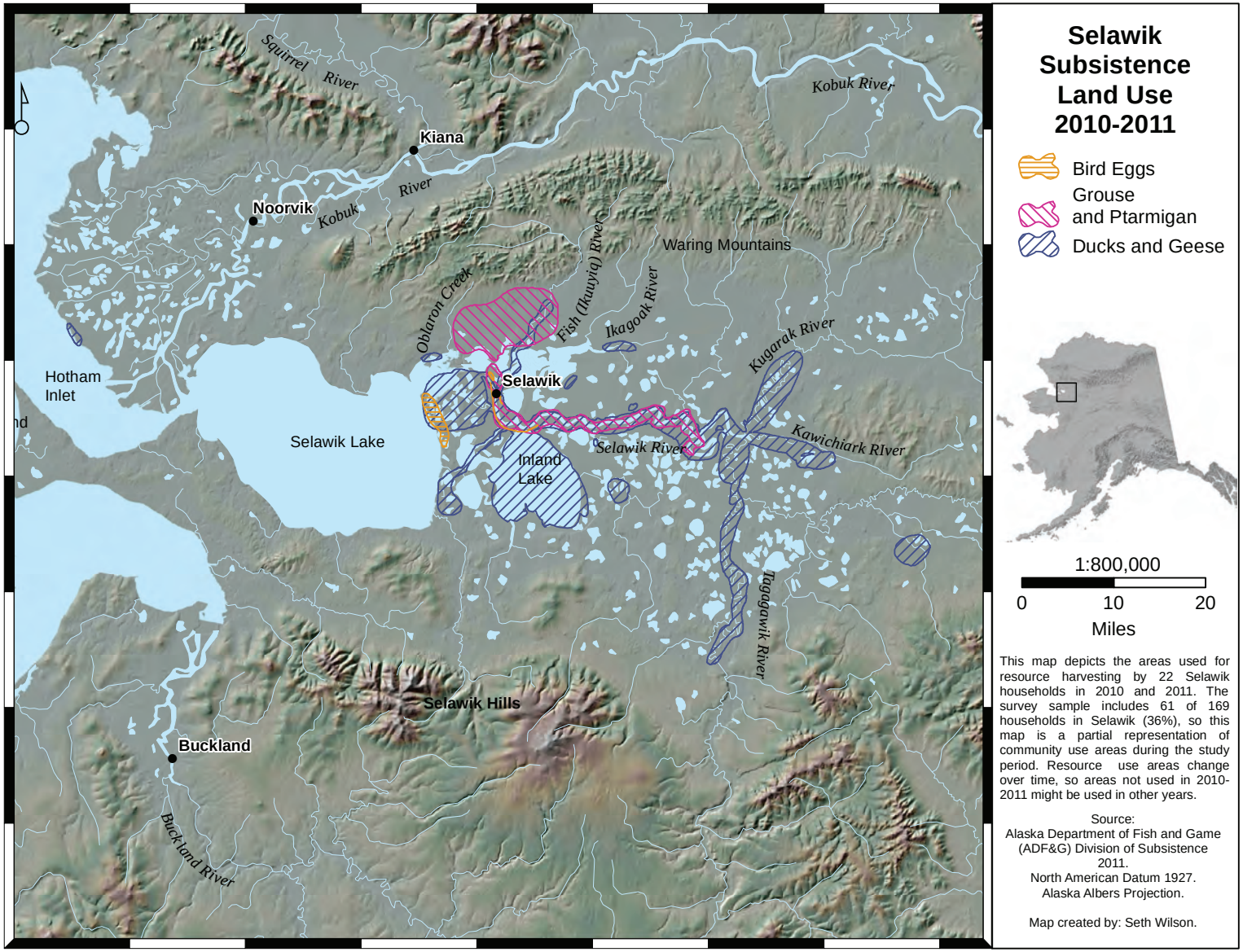


Figure 3-12.–Harvest locations and search areas, birds and eggs, Selawik, 2010–2011.

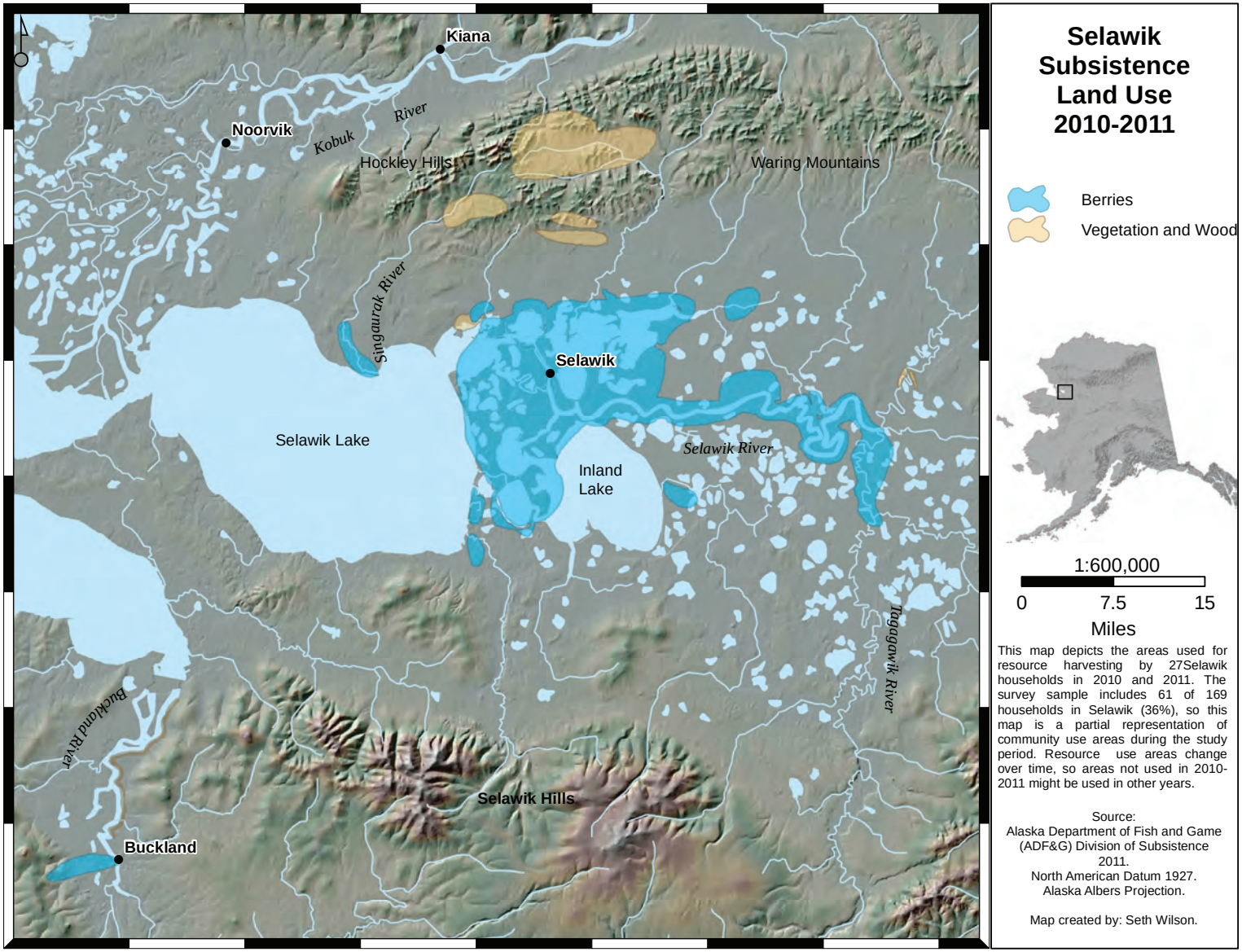


Figure 3-13.–Harvest locations and search areas, berries and greens, Selawik, 2010–2011.

community, Nuleargowik River, Throat River, Inland Lake, and mainstem Selawik River. Brown bear hunting occurred mainly along the Selawik and Kawichiark rivers.

This project only documented search and harvest areas for 3 small land mammal species: beaver, wolf, and wolverine (Figure 3-11). Areas mapped included the Selawik River drainage, a swath of land extending north to south from the village to the Selawik Hills, a small area near Kutchaappaat, and the Singauruk River.

Households were asked to document their harvests of birds and eggs by categories: migratory waterfowl (ducks, geese, etc.), ptarmigan and grouse, and bird eggs. Egging occurred in an area on the eastern shore of Selawik Lake (Figure 3-12). Search and harvest areas for ducks and geese were scattered along the many small lakes in the vicinity of Selawik, Inland Lake, and the Fish, Selawik, Kawichiark, Tagagawik, and Kugarak rivers. Ptarmigan and grouse hunting occurred along the Selawik River and in an area north of Selawik roughly bounded by Oblaron Creek and the Ikagoak River.

The harvest of berries occurred in a large area surrounding Selawik that included the Selawik and Tagagawik rivers (Figure 3-13). Smaller areas were documented on the eastern shore of Selawik lake, the Singaurak River, and near Buckland. The harvest of greens and firewood occurred mostly north of the community in the Hockley Hills.

HARVEST ASSESSMENTS

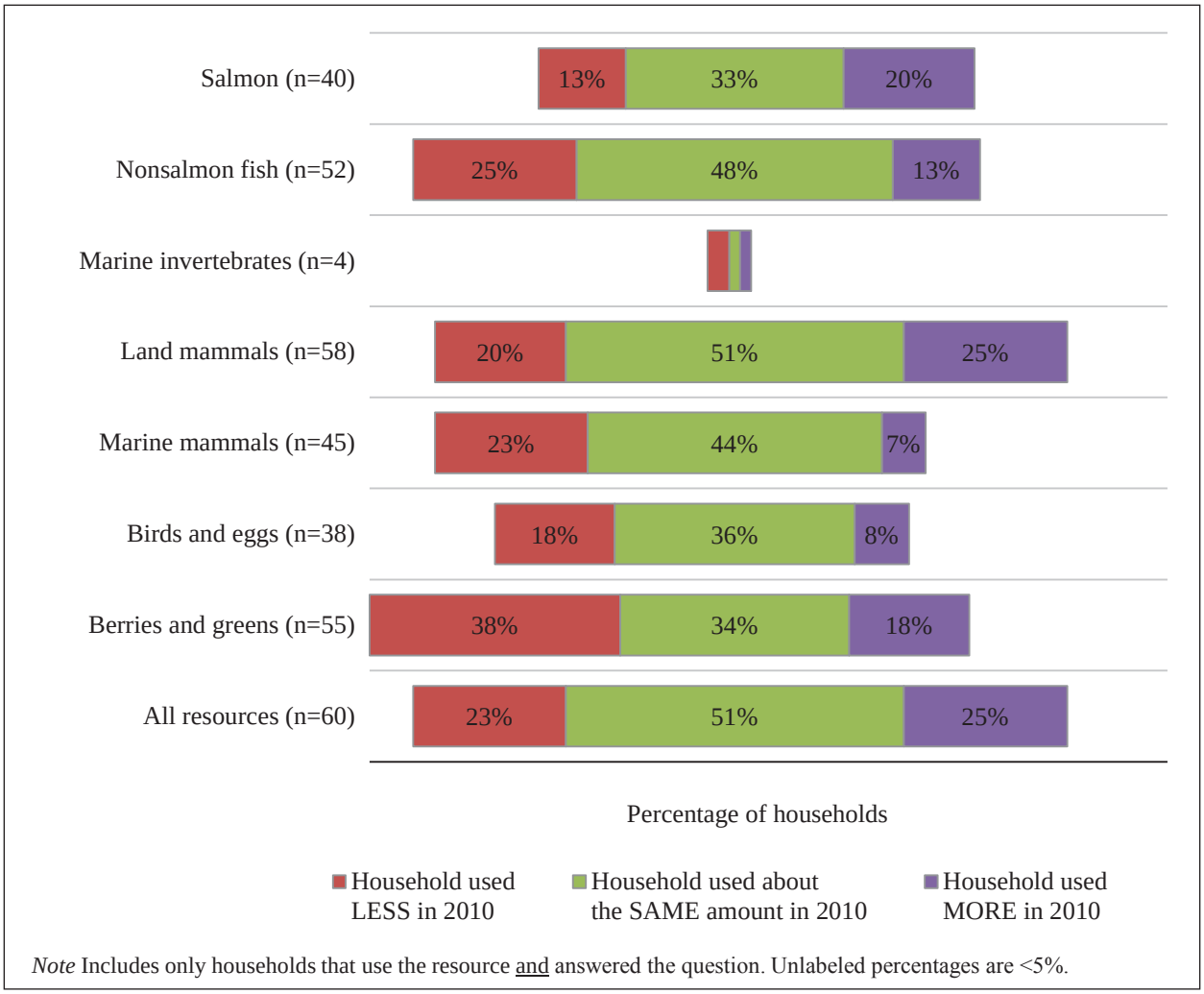
The survey asked respondents to assess their household's harvests, by category such as "salmon" or "large land mammals," in 3 ways:

whether they used less, same, or more of 8 categories of resources in the study year as in recent years;

whether their household spent less, the same, or more time trying to get that resource than in recent years;

whether they "got enough" in the last 12 months.

If households said their use was different (less or more) of a resource, they were asked why. If the amount of time a household spent trying to get a resource was different, they were asked why their effort was different. If a household said that it did not get enough of a resource category, 2 questions were asked in follow-up: what kind they needed, and why the household did not get enough of the resource. Percentages in figures 3-14 and 3-15 do not include households that did not respond to the question or reported that they do not use the resource. Subsistence harvest success



Note Includes only households that use the resource and answered the question. Unlabeled percentages are <5%.

Figure 3-14.–Harvest assessments, Selawik, 2010–2011. Responses to the questions: "Did your household use less, more, or about the same amount in 2010 as in the past?

can also be assessed by comparing current harvest estimates with past harvest estimates, which will be discussed in a later section.

Figure 3-14 depicts responses to the "less, same, more" assessment question. Households that said they did not ordinarily use something are not included within results. This results in fewer responses for less commonly used categories like marine invertebrates, and manifests in the chart as a very short bar compared to categories such as berries and greens, which are ordinarily used by most households. Some households did not respond to the question.

Questions in the assessment section attempt to give context to the harvest estimates generated in the survey. In a given year, a household's subsistence harvests and uses may be affected by a variety of factors. A broken outboard during fall hunting season may limit or prevent participation in the caribou hunt. Dealing with a death or illness in the household or immediate family may preoccupy people at an important fishing time. Wage work may provide money to buy gas, but limit time when

key members of a family can do subsistence activities. The continuing high price of gasoline may limit how far a household can travel to hunt and fish. Weather (good or poor) can affect the ability to travel, to set nets, and to process foods by traditional methods. For those who do not harvest foods, the success of other households may affect how much food they receive.

Taking all subsistence foods into consideration, just over half, 51%, of households said they used about the same amount in the previous 12 months as in recent years. Nearly equal numbers of households said they used less (23%) or said they used more (25%). Several explanations for less use of subsistence foods in general were given including: family or personal reasons, resource availability, no equipment or equipment problems, resources too far away, that fuel was too expensive or a combination of these factors. Of all reasons, resource availability was the most common given (4 of the 13 households who said they used less). Of households that used more subsistence foods, 46% said the reason why was the household needed more subsistence food; 18% said it was because store-bought food was too expensive. Nine percent said they received more. Complete results for reasons given for using less (or more) of resources are compiled in Appendix E4.

For nonsalmon fish, which in the case of Selawik is perhaps the most important category due to the preponderance of whitefishes in the harvest, 48% of households said they used about the same amount. One-quarter of households said they used less, while 13% said they used more. The most common responses for less use were family or personal issues (by 5 of 14 households) and no equipment or equipment problems (by 3 of 14 households). Households that said they used more attributed this to needing more, increased effort, and increased availability of nonsalmon fish.

For land mammals, the harvest of which is largely composed of caribou, 51% of households said they used about the same amount. Those who used less most commonly cited family or personal issues or no equipment or equipment problems. Reasons households gave for using more included increased availability, receiving more, needing more, increased effort, and increased success. Of the most commonly used resources, berries and greens had the fewest households saying they used the same amount, 34%; this was also the category with the highest percentage of households saying they used less, 38%. Low effort, resource availability, and no equipment or equipment problems were the explanations more frequently given.

For salmon, a less commonly used resource, 33% said they used about the same amount; a greater portion of households said they used more (20%) than said they used less (19%.) Forty-four percent of households said their marine mammal use was the same.

Across categories, family or personal issues, resource availability, no equipment or equipment problems, and not trying/low effort were the most common explanations for lesser use. Explanations most frequently given for increased use included receiving more, needing more, and increased effort. Two factors that researchers expected to have the most effect upon use, high fuel prices and store-bought food being expensive, were not cited as frequently as those described above.

Many of the reasons given for different use may be interrelated, making it difficult to discern which factor was indeed the one most responsible for changes in use. Or, was one a factor and the other reasons given responses to that factor? For example, in response to higher fuel prices, the prices of imported foods at the village store have continually increased. A household may decide to use less store-bought food and rely upon caribou and moose instead. When asked why the household used more land mammals, the response may be "needed more" or it may be "increased effort" or "increased success." Or it may be all 3. The household may not attribute all those responses to the expense of store-bought food. The design of the assessment section does not lend itself to a deep, detailed examination of factors affecting harvest. While it provides useful information, the results should be interpreted with caution.

For subsistence resources in general, 45% of households spent about the same amount of time trying to get them as they had in previous years. Thirty percent of households said they spent less time, and 18% put more time into subsistence activities. Of the 2 categories that contributed the most food in the study year, nonsalmon fish and land mammals, 47% and 40% of households said they spent the same amount of time getting them. Twenty-four percent of households spent less time trying to get nonsalmon fish, while 19% said they spent less time trying to get land mammals. Of all categories, land mammals were the one that the highest percentage (24%) of households said they spent more time trying to get them. Vegetation (berries and wild plants) was the category that the most households said they spent less time getting (31%), folllowed by nonsalmon fish (24%) and birds and eggs (24%).

Of the households that said they spent less time getting subsistence foods in general, 56% said it was because of lack of equipment or broken equipment (Appendix E5). The second most commonly cited reason (by 33%) was personal or family reasons. Of those spending less time getting berries and wild plants, 73% blamed a lack of equipment or broken equipment, and 42% said it was due to the expense of fuel. Poor resource availability, personal and family reasons, and a lack of time were given as reasons by a lesser numbers of households. A lack of equipment or broken equipment (by 31%) and personal or family reasons (by 25%) were the reasons most frequently the cause for lesser time spent getting nonsalmon fish.

Considering subsistence foods overall, of households that spent more time getting them, 73% said they did so because of poor resource availability, with weather/environmental conditions and needing more the next most common reasons (Appendix E5). For land mammals, those who spent more time most frequently attributed this to poor resource availability (33%), resources being far away (27%), and their household needing more (13%).

Responses to the "get enough" questions indicate that most households got enough subsistence foods (Figure 3-15). For subsistence foods overall, 72% of surveyed households said they got enough during the study period. Twenty-six percent said they did not get enough. Just under 2%

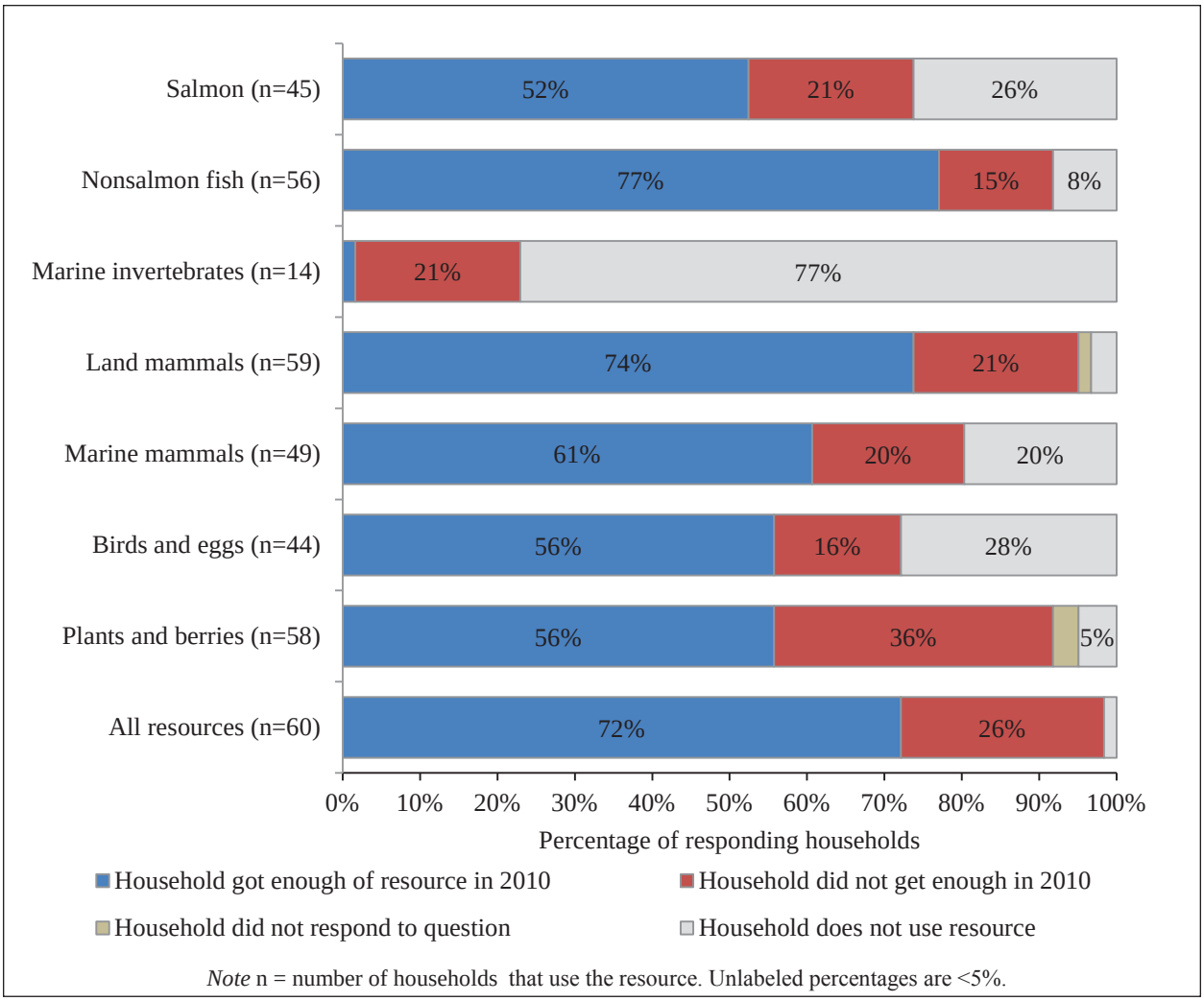


Figure 3-15.–Harvest assessments, Selawik, 2010–2011. Responses to the questions: "Did your household get enough in 2010?"

said they do not do not use any subsistence foods. Across the various categories of resource (salmon, marine mammals, etc.), the percentage of households not getting enough ranged from 15% for nonsalmon fish to 36% for plants and berries. Respondents gave several reasons for not getting enough (Appendix E6). For vegetation, the most commonly given explanation was “personal or family issues,” with a few other households saying “low effort” or “weather or environment” was the cause. For land mammals, households named personal or family issues, too far to go to get them, low effort, having to work, and high gas prices. Of the all reasons given for not getting enough, most frequently households either gave no reason or said it was due to personal or family issues.

Table 3-10. – Estimated earned and other income, Selawik, 2010–2011.

Income source	Number of people	Number of households	Total for community	Mean per household	Percentage of total
Earned income					
Local government, including tribal	131.6	105.8	$2,659,786	$15,738	28.9%
Services	79.7	59.5	$1,200,683	$7,105	13.0%
Federal government	25.2	22.3	$266,021	$1,574	2.9%
Mining	9.7	9.3	$97,462	$577	1.1%
Retail trade	11.8	7.5	$87,033	$515	0.9%
Industry not indicated	5.8	5.6	$66,714	$395	0.7%
Transportation, communication, and utilities	7.8	7.4	$46,929	$278	0.5%
State government	5.8	5.6	$12,436	$74	0.1%
Earned income subtotal	**240.6**	**148.6**	**$4,437,063**	**$26,255**	**48.2%**
Other income					
Native corporation dividends		142.9	$1,315,154	$7,782	14.3%
Food stamps		79.9	$975,914	$5,775	10.6%
Alaska Permanent Fund dividend		161.6	$973,925	$5,763	10.6%
Social Security		35.3	$369,585	$2,187	4.0%
Unemployment		46.4	$197,880	$1,171	2.1%
Energy assistance		74.3	$176,247	$1,043	1.9%
Pension/retirement		9.4	$135,207	$800	1.5%
TANF (Temporary Assistance for Needy Families)		26.0	$127,183	$753	1.4%
Meeting honoraria		7.5	$120,879	$715	1.3%
Supplemental Security income		16.7	$90,632	$536	1.0%
Adult public assistance		18.5	$68,295	$404	0.7%
Disability		11.1	$54,838	$324	0.6%
Longevity bonus		11.1	$45,507	$269	0.5%
Citgo fuel voucher		81.7	$43,903	$260	0.5%
Child support		5.6	$40,318	$239	0.4%
Other		7.5	$13,471	$80	0.1%
Investments/stocks/bonds		–	$13,471	$80	0.1%
Veterans assistance		–	$12,521	$74	0.1%
Workers' compensation/insurance		0.0	$0	$0	0.0%
Foster care		0.0	$0	$0	0.0%
Other income subtotal		**165.3**	**$4,774,930**	**$28,254**	**51.8%**
Community income total			**$9,211,994**	**$54,509**	**100.0%**

Source ADF&G Division of Subsistence household surveys, 2011.

Note In cases where less than 4 households received an income source, the number of households has been obscured ("–") to

Jobs and Income

Respondents were asked about both earned income (jobs held and wages earned by all household members 16 years old and older) and unearned income from sources such as the Alaska Permanent Fund dividend, Social Security, and public assistance. The survey also asked about months worked and the work schedule. During the study period, Selawik households earned and received an estimated $9.2 million. Of that, $4.4 million (48%) came from wage earnings and $4.8 million (52%) came from other sources (Table 3-10). Per capita income was $10,747; mean household income was $54,509.

By comparison, the 2006–2010 American Community Survey[5] estimated total income from wages of $6,014,009. Mean household income was $38,675, and per capita income $9,681. The

5. The American Community Survey (ACS) uses a series of monthly samples to provide demographic, social, economic and housing information every year; in 2005, it replaced the census-long form questionnaire. For small areas, it used 5 years of samples (2006–2010) to come up with an estimate. After this initial five year sample, small area data will be produced annually. Reference: U.S. Census Bureau. Design and Methodology American Community Summary. U.S. Government Printing Office, Washington, D.C. 2009.
http://www.census.gov/acs/www/Downloads/survey_methodology_ch01.pdf

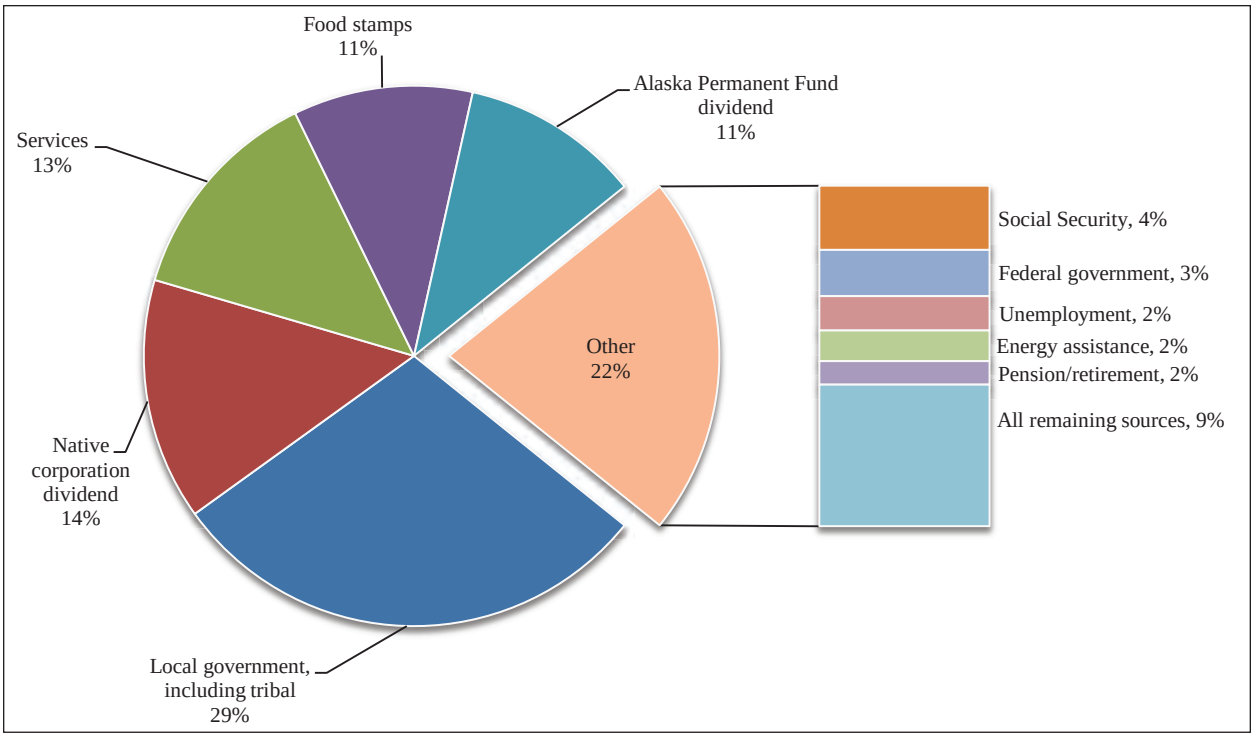


Figure 3-16.–Top 10 income sources ranked by estimated amount, Selawik, 2010–2011.

differences between results may be due to differences in sample size, stratification used in this project, and missing data. Of jobs reported by respondents in this study, 27% did not provide income information for the job.

Figure 3-16 shows the top income sources, both from wages and other income sources. Table 3-10 lists income by source, the estimated number of people employed, households, and the community overall. More than three-quarters of the total community income came from 5 sources: employment with local government and in service occupations, Native corporation dividends, food stamps (the SNAP program), and the Alaska Permanent Fund dividend (PFD). The category local government includes work at city and tribal governments. The service sector includes education, health care, social services and tourism or guiding. Other significant sources of income include Social Security, employment with the federal government, unemployment compensation, energy assistance, and pension or retirement payments.

Wage work was concentrated in 3 areas: local government, services, and federal government. In total, they made up the majority of earned income, $4.1 million of $4.4 million total. Other sources of wage income include mining (likely at the Red Dog Mine), retail (3 stores operate in Selawik), transportation, and state government. These made up just 7% of Selawik's earned income.

An estimated 241 persons over the age of 16 (49%) were employed during the study period (Table 3-11). The number of jobs held by employed adults ranged from 1 to 3, with an average of 1.2. Just 28% of adults were employed year round, and on average, they worked during 28.5 weeks of the

Table 3-11. – Employment characteristics, Selawik, 2010–2011.

Characteristic	Selawik
All adults	
Number	492.4
Mean weeks employed	13.9
Employed adults	
Number	240.6
Percentage	48.9%
Jobs	
Number	287.2
Mean	1.2
Minimum	1.0
Maximum	3.0
Months employed	
Mean	6.6
Minimum	1.0
Maximum	12.0
Percentage employed year-round	27.9%
Mean weeks employed	28.5
Households	
(Total) number	169.0
Employed	
Number	148.6
Percentage	87.9%
Jobs per employed household	
Mean	1.7
Minimum	1.0
Maximum	7.0
Employed adults	
Minimum	1.0
Maximum	5.0
Mean	
Employed households	1.6
Total households	1.4
Mean person-weeks of employment	36.7

Source ADF&G Division of Subsistence household surveys, 2011.

Table 3-12. – Reported job schedules, Selawik, 2010–2011.

	Jobs		Employed adults		Employed households	
Schedule	Number	Percentage	Number	Percentage	Number	Percentage
Full-time	164.2	57.2%	152.3	66.0%	113.3	76.3%
Part-time	46.1	16.1%	46.0	19.9%	42.8	28.8%
Shift	2.0	0.7%	2.0	0.9%	1.9	1.3%
On-call (occasional)	67.0	23.3%	59.3	25.7%	46.5	31.3%
Part-time shift	0.0	0.0%	0.0	0.0%	0.0	0.0%
Schedule not reported	7.9	2.7%	7.9	3.4%	7.5	5.0%

Source ADF&G Division of Subsistence household surveys, 2011.

year. At the household level, the majority (88%) had at least one member employed at some point during the year.

Job schedules give a more nuanced picture of the Selawik economy (Table 3-12). Over half of jobs held (57%) were full-time (35 weeks or more a week.) Nearly one-quarter of jobs held (23%) were "on call," meaning they were occasional jobs. In many rural communities these types of jobs are day work a few times a month, such as bingo caller, chopping wood for the tribal government, or other "as needed" tasks. Part-time work made up 16% of jobs held, and a few jobs were shift work. Not all respondents provided information on the shifts worked by household members.

Income from other sources was more diverse, although 3 sources predominated: Native corporation dividends, food stamps, and the Alaska PFD. In 2010, the NANA corporation dividend was $14 per share; in many households, the sum of all shares held by members totalled to several hundred. The 2010 Alaska PFD was $1,281. The importance of the NANA dividend to Selawik in 2010 is clear—it was the second largest contributor to community income, totalling $1.3 million, 15% of the total. During the community data review meeting in Selawik in July 2012, several Selawik residents suggested that the survey results underestimate the contribution of food stamps. Even if underestimated, food stamps narrowly exceeded the value of the Alaska PFD. Taken together, these 3 sources made up 68% of unearned income, approximately $3.3 million.

Lesser sources of "other income" were a mix of programs and payments such as Social Security, Temporary Assistance for Needy Families (TANF), pensions/disability, adult public assistance, and others. Nearly half of households received a fuel voucher for heating oil distributed to low income families in the United States by the CITGO-Venezuela Heating Oil Program, which has been in place since 2005.

Food Security

Respondents were asked a short series of questions intended to assess their household's food security; that is, "access by all people at all times to enough food for an active, healthy life"

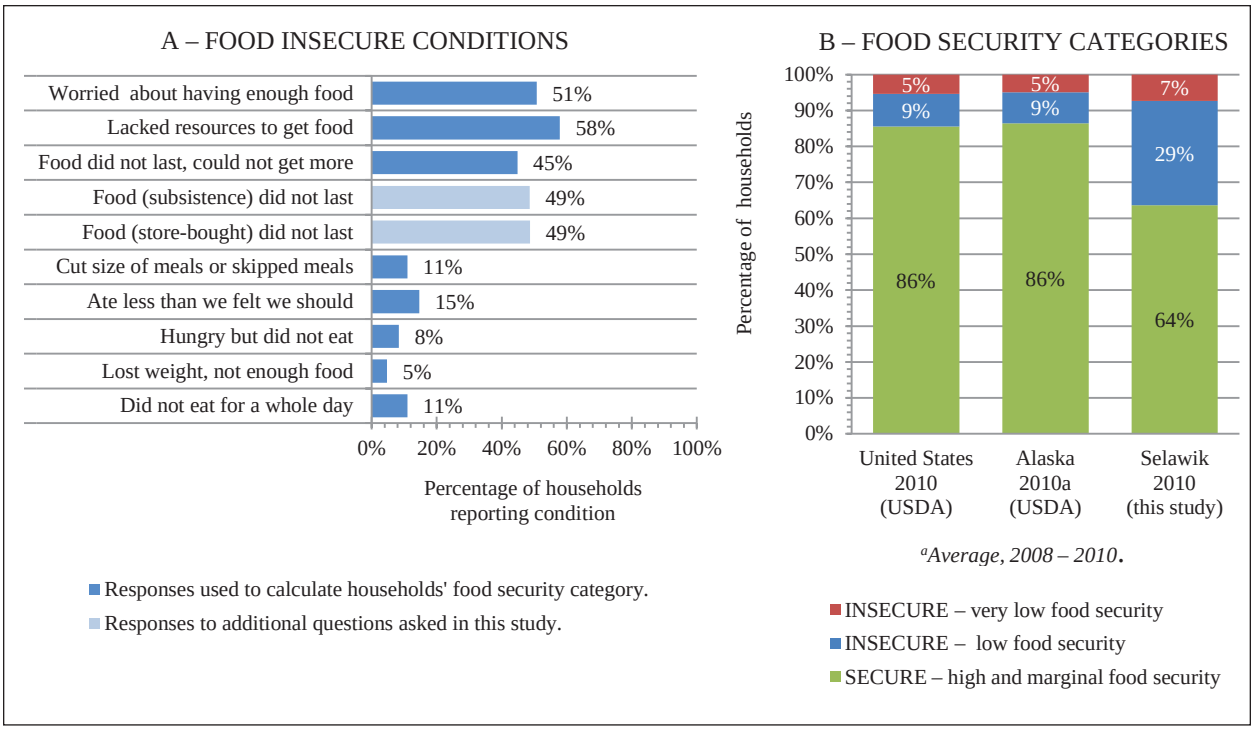


Figure 3-17.–Food security results, Selawik, 2010–2011.

(Coleman-Jensen et al. 2012:2). Food security questions were modeled on questions developed by the USDA and modified by ADF&G to account for diffterences in access to subsistence and store-bought foods. Core questions and Selawik responses are summarized in Figure 3-17A.

Food security results for Selawik portray a community more food insecure than the United States as a whole and Alaska overall. Half of households (51%) said they worried about having enough food. A higher percentage (58%) said they could not get the kinds of foods they wanted because of a lack of resources, meaning a household did not have what they needed to hunt, fish, gather, or buy food.

Based on their responses to these questions, households were broadly categorized as being food secure or food insecure following a USDA protocol (Bickel et al. 2000). Food secure households were broken down further into 2 subcategories—high or marginal food security. Food insecure households were divided into 2 subcategories: low food security or very low food security.

Households scoring as having high food security did not report any indications of food access problems or limitations. Those with marginal food security reported 1 or 2 instances of food access problems or limitations, typically anxiety over food sufficiency or shortage of food in the house; however, they gave little or no indication of changes in diet or food intake. Households of low food security reported reduced quality, variety or desirability of their diet; they, too, gave little indication of reduced food intake. Households characterized as having very low food security reported multiple instances of disrupted eating patterns and reduced food intake (Coleman-Jensen et al. 2012:4).

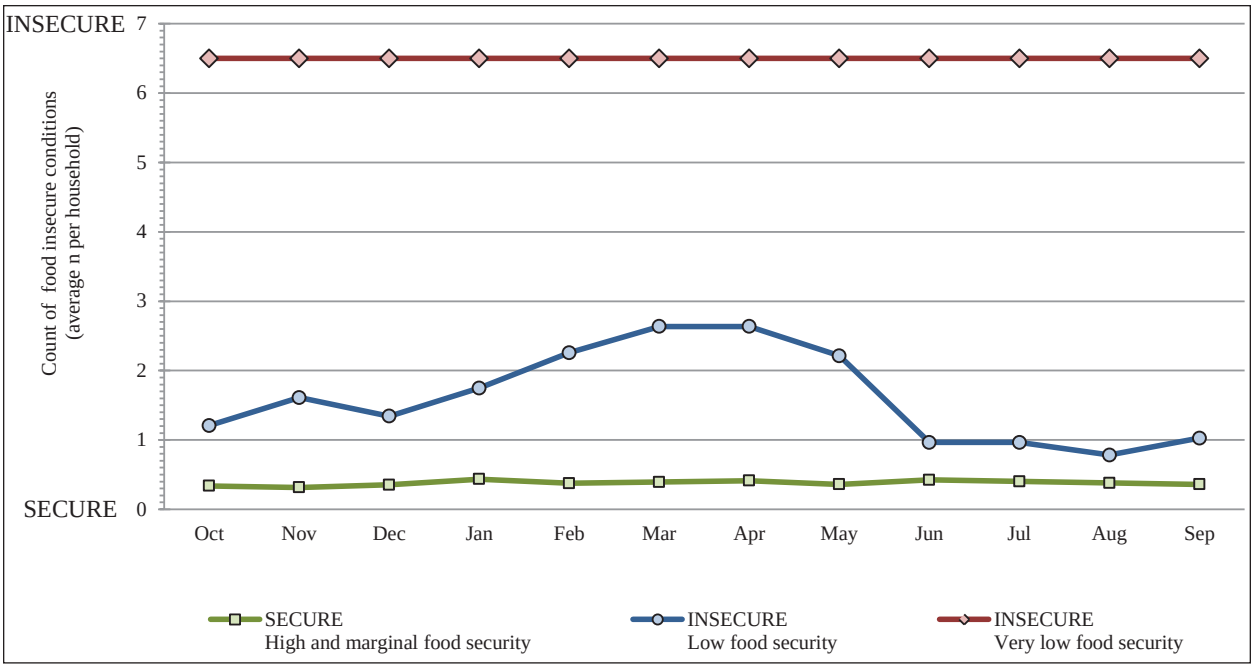


Figure 3-18.–Food insecure conditions by month and by household category, Selawik, 2010–2011.

Thirty-three percent of Selawik households had high food security, while 32% had marginal food security (Figure 3-17B). Twenty-nine percent of households had low food security and 7% were of very low food security. There was no difference between store-bought and subsistence foods; equal numbers of households, 49%, said that those types of foods did not last, and they could not get more at some point in the year.

Several households reported instances of disrupted eating patterns, reduced food intake, or both—11% of households said they had cut the size of their meals or skipped them during the year, while 15% said they had eaten less than they felt they should. Eleven percent of households said they experienced the most severe condition, specifically, there were times when they did not eat for an entire day.

Households that reported food insecure conditions, i.e. their food did not last, and they could not get more, were asked to name the months in which those conditions existed. For the most food insecure households, these conditions existed year-round (Figure 3-18). Households of low food security, on the other hand, had their food insecurity gradually increase between January 2011 and April 2011. They reported fewer conditions in May and through the summer months. A possible explanation for this pattern is the timing of the subsistence cycle. In spring, more daylight and less severe temperatures mean better conditions for travel and subsistence activities than in the dead of winter. After breakup, subsistence harvest activities intensify and continue through the fall. In general, more food is available. For households considered food secure (both of high and marginal levels), there was no observable difference in conditions through the year.

Wild Food Networks

While subsistence harvest surveys collect information based on individual households, in reality, much of the production (harvest and processing) of subsistence foods is achieved by households within a community that work cooperatively. This cooperation is often organized based on kinship in the manner of traditional Iñupiaq communities. The organization of the contemporary mixed market-subsistence economies that predominate in rural Alaska communities has been documented ethnographically by numerous researchers. Of particular interest for Northwestern Alaska are Anderson et al. (1977); Burch (1988); Ellanna (1983); Langdon and Worl (1981); Magdanz (1990); Magdanz et al. (2002); Wolfe and Walker (1987);Wolfe and Ellanna (1983); Fall (1990).

Cooperation in the production of foods is only part of the picture. Subsistence foods are widely distributed among households within a community through sharing, barter, and trade (Charnley 1984; Kari 1983; Lonner 1980; Magdanz 1988; Magdanz and Wolfe 1988; Pete 1991; Schroeder, Andersen, and Hildreth 1987; Stickney 1984; Stokes 1985; Wolfe et al. 1993).

In this study, survey questions asked households who harvested and processed the subsistence foods they used during the year. It also asked which households shared (gave) or traded a resource to the household. Figure 3-19 shows the flow of wild foods into surveyed households from other Selawik households and communities in Alaska. Symbol shapes depict the type of household; colors show the age of heads of household, and size indicates the amount of its subsistence harvest in 2010–2011 by edible weight. Arrows show the direction of food from one household to another, with the weight of lines showing the number of resources. The position of a household relative to the center of the figure shows how tied it was to other households in Selawik. The figure is a partial representation of sharing, trade, and barter in 2010–2011 because it only documents the food flows into the 61 surveyed households.

Previous studies have found a positive association between the ages of household heads and the amount of subsistence foods harvested. Household characteristics associated with higher food production were multiple-working age males, commercial fishing involvement, and higher wage incomes. Characteristics common to lower producing households included female household heads, age of elders, non-Native household heads, and single-person households (Wolfe et al. 2009). Household "developmental cycles", i.e., the relative age or "maturity" of household heads and number of productive household members, have also been associated with harvests.

The 61 surveyed households in Selawik reported 148 sources of support, with most sources (127) living in Selawik (Figure 3-19). Contrary to what might be expected, 5 of the surveyed Selawik households with larger harvests were younger couples, several of which were located within the center of the graph. Two mature households harvested substantial amounts, but were not as central in the food network as lesser producers and several households headed by single elders or elder

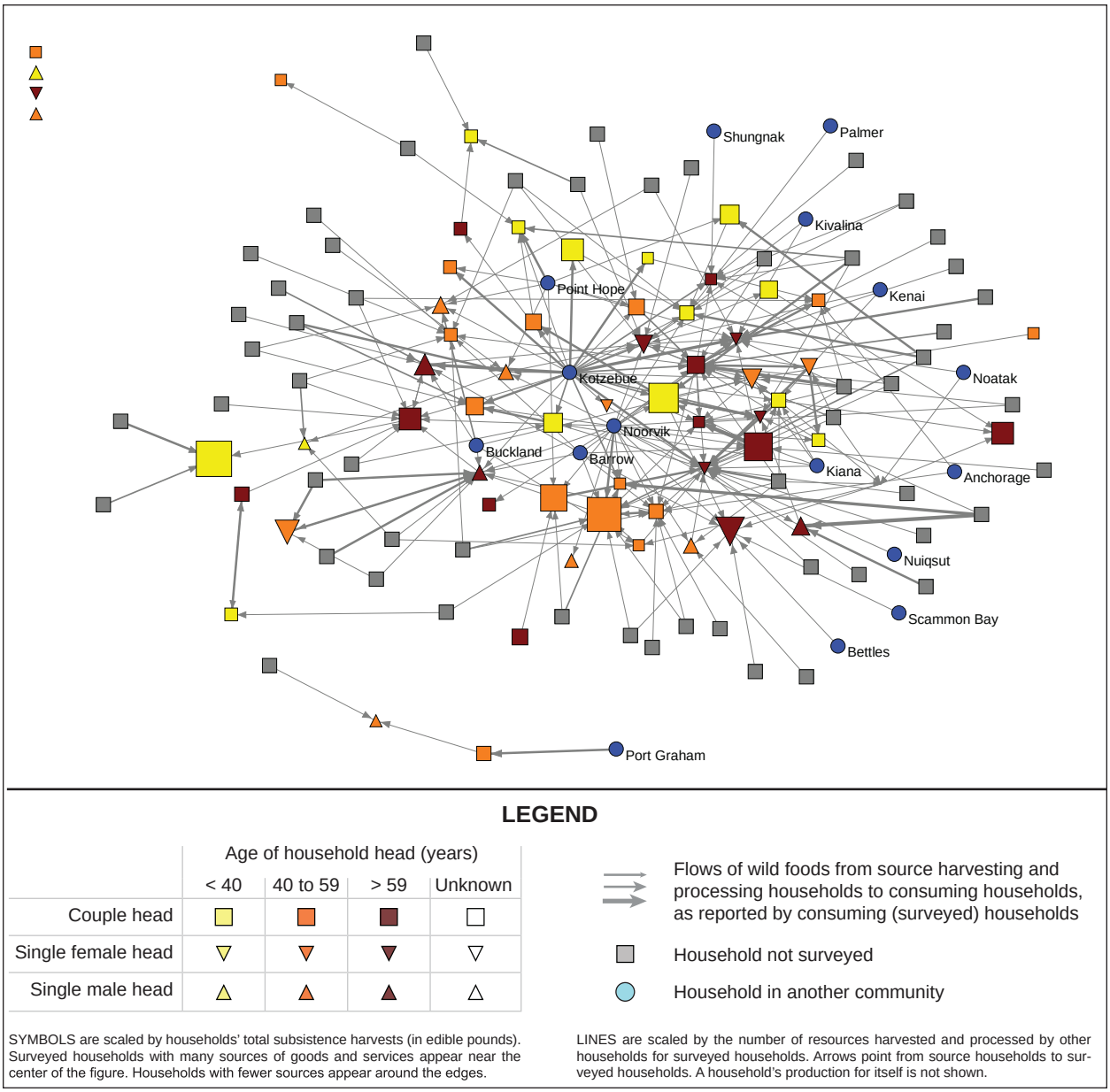


Figure 3-19.–Wild food harvesting and processing network, Selawik, 2010–2011.

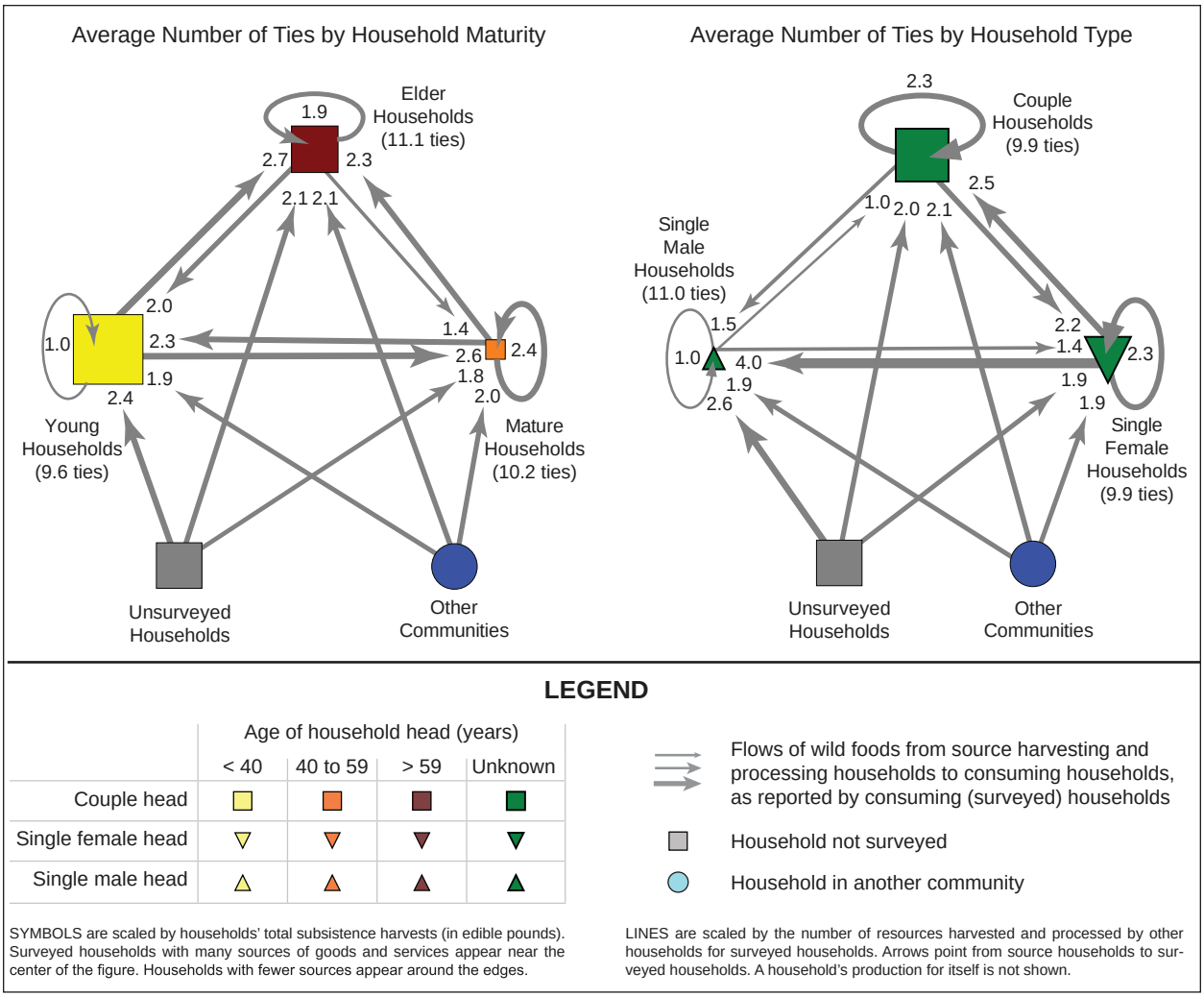


Figure 3-20.–Wild food harvesting and processing network, by household maturity and type, Selawik, 2010–2011.

couples. Of most interest is the importance of food sources from households in other communities as shown by their nearness to the center of the chart. The majority of food sources outside Selawik itself were located in other Iñupiaq communities: Point Hope, Buckland, Noorvik, Kiana, Kotzebue, Barrow, and others. Selawik households reported that they received foods from as far away as Port Graham and Scammon Bay.

Figure 3-20 depicts the Selawik wild foods network with individual households collapsed into groups by household maturity and types of heads. Their average harvests are represented by the size of symbols. Looking at harvests by household maturity (ages of heads), young households and elder households, on average, harvested more subsistence foods than mature households. Elder households, as might be expected, had the highest average of food sources, 11.1. Looking at the network from the perspective of household structure (couple, single male, and single female heads) shows an unexpected pattern. Households headed by single females harvested nearly twice

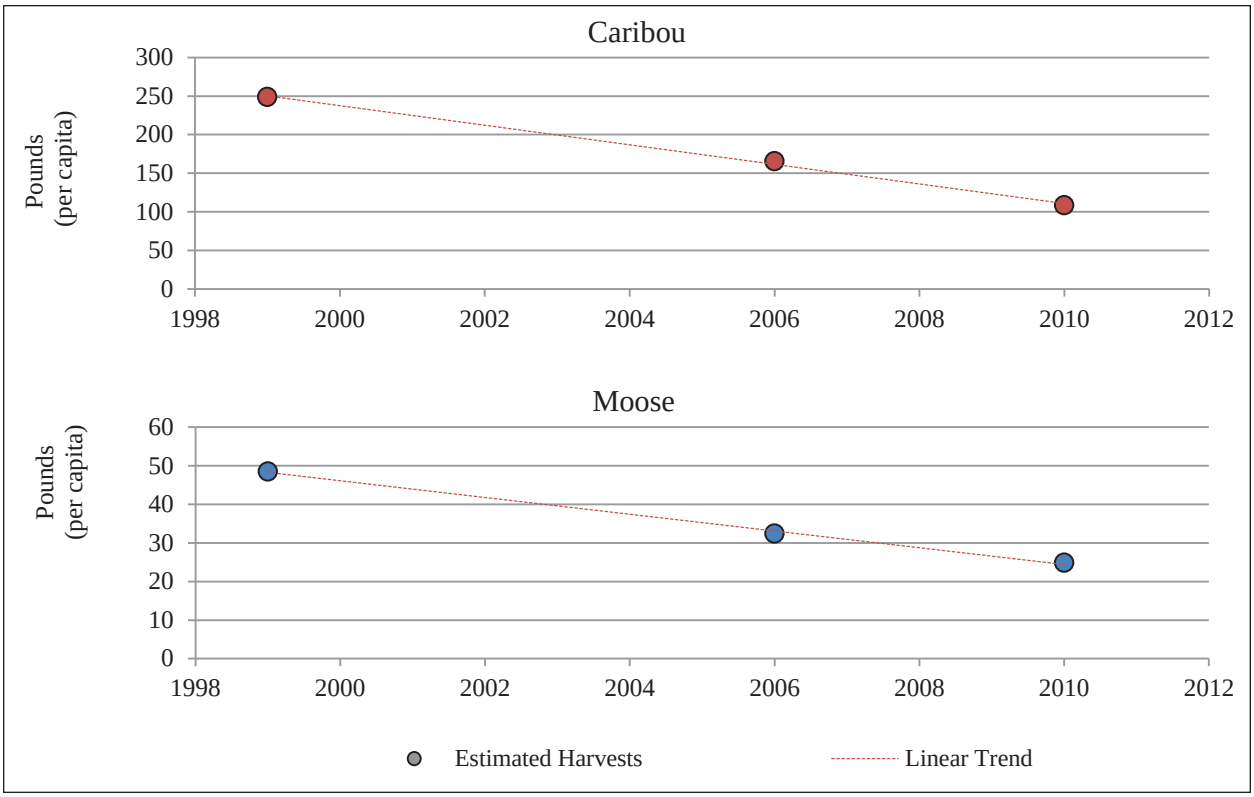


Figure 3-21.–Estimated pounds (per capita) of moose and caribou harvested by residents of Selawik, 1998–2010/2011.

as much subsistence foods, on average, than those headed by single males. Single male households also reported more food inflows from others than either couple households or single female headed ones. As a group, they named single female households as food sources more often than single female households named them.

Comparisons with Prior Results

Comparison of harvest data collected in Selawik in 2011 to previously collected information will focus largely on pounds per capita harvests. Comparisons made on the basis of pounds per person of wild food (or per capita numbers of animals or fish) allow one to control for changes in community size over time. Such an approach is also useful when comparing harvests by communities of different sizes.

Selawik households have been surveyed on their subsistence harvests 4 times prior to 2011. Information was collected on migratory bird harvest for 1993 and 1997, big game harvest for 1999, and major species harvests for 2006 (CSIS). Thus, the most complete data sets for species exist for big game such as caribou, moose, and black and brown bears, a few furbearers, and migratory birds. Selawik was not included in the salmon surveys conducted in Northwest Alaska between 1994 and 2004.

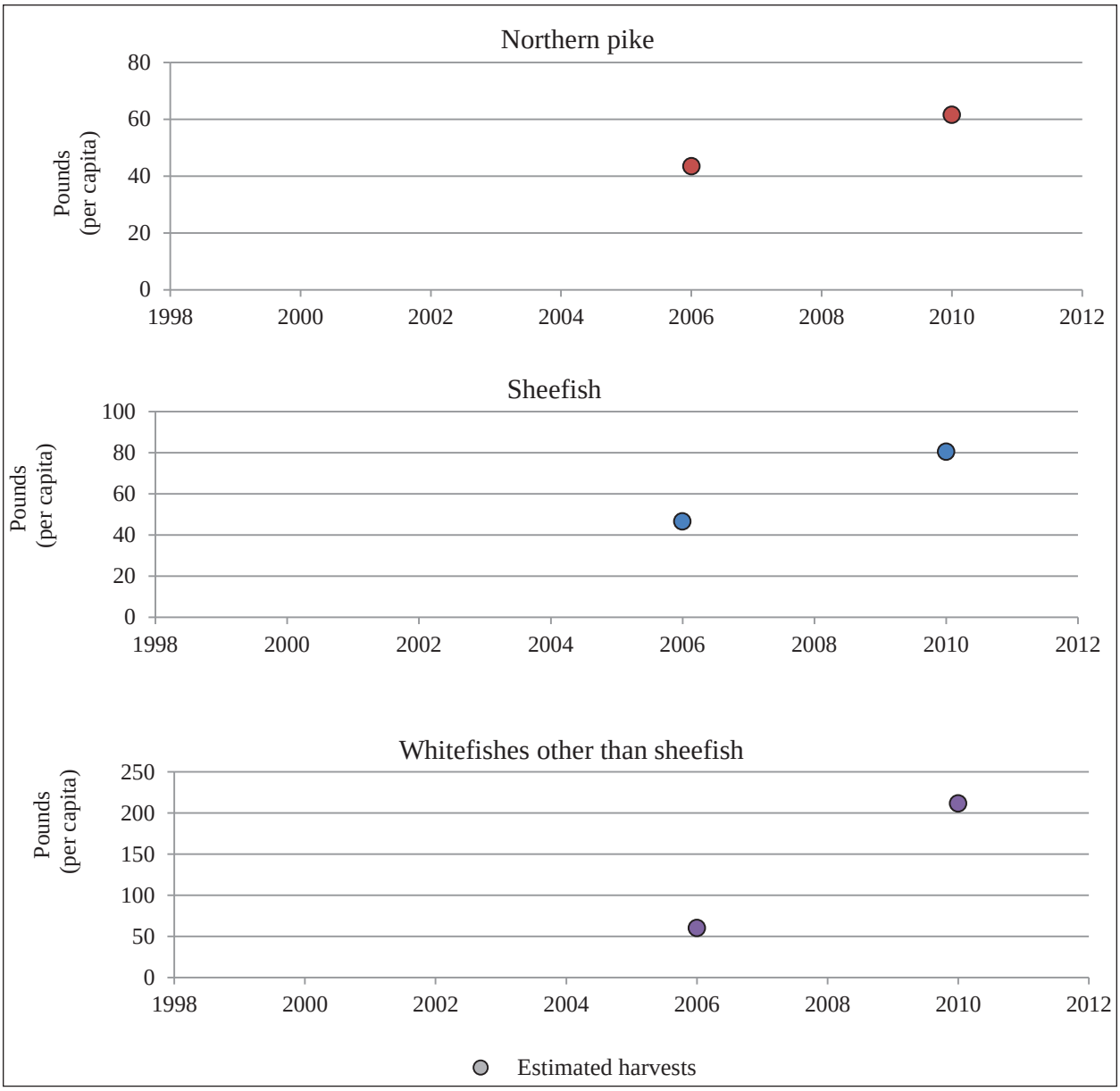


Figure 3-22.–Estimated pounds (per capita) of northern pike, sheefish, and whitefishes harvested by residents of Selawik, 1998–2010/2011.

Caribou and moose harvests data were first collected in 1999, when the community harvested an estimated 1,289 caribou, 249 lb per person, and 64 moose, 49 lb per person (Figure 3-21.) The 2 surveys since 1999 have documented lesser harvests of both species. Caribou harvests have declined by 13 lb per year, while moose harvests have declined by 2 lb yearly. The reasons for these observed declines are not known, nor is it known if 1999, the first study year, was simply a very good year relative to later ones for caribou and moose harvests. As discussed earlier in this chapter, 76% of households said they got enough land mammals in the 2010–2011 study year. About half

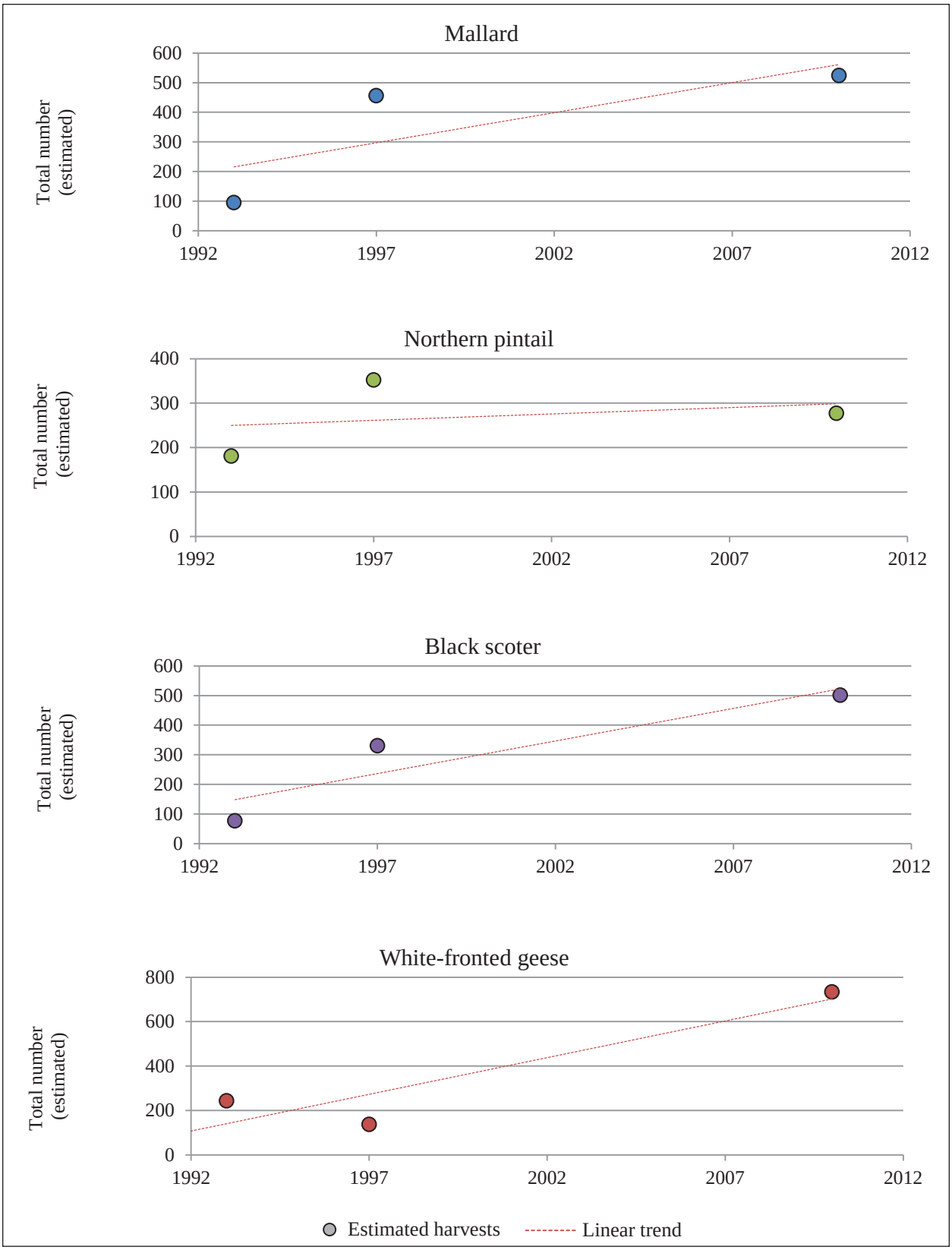


Figure 3-23.–Estimated numbers of selected species of birds harvested by residents of Selawik, 1992–2010/2011.

of households said they used the same amount of land mammals as in recent years, and a greater percentage of households said they used more land mammals (25%) than said they used less (20%).

No trend is apparent for black and brown bear harvests between 1999 and 2006. Black bear harvests ranged from 4 in this study period to 7 in 1999. No more than 1 brown bear has been harvested in any study year. Estimated wolf harvests have increased from 2 in 1999, to 18 in 2006, and 34 in 2010–2011. This increase in harvest may reflect increased wolf presence and abundance locally. Anecdotal evidence, in the form of comments at advisory committee meetings and the WACH workgroup, seems to confirm this trend.

Information on fish harvests has only been collected once before, in 2006 (Figure 3-22). Northern pike, sheefish, and whitefishes (as a general category other than sheefish) were included in that effort. Given the limited dataset, no discussion of trends is possible. Sheefish harvest estimates for 2010–2011 are nearly double those from 2006, while all other whitefish species combined are 4 times greater than in the previous survey. The difference between northern pike harvests was less pronounced, with about 4,800 more fish harvested in 2010–2011, a difference in per capita harvest of 18 lb. As noted in the "Methods" section of this report, this may be indicative of problems with stratification that skewed whitefishes harvests high. Confidence intervals for the individual whitefish species contributing the most edible pounds vary from ±32% for sheefish to ±52% for broad whitefish (Table 3-1). However, it is also possible that Selawik households simply had a very successful year in nonsalmon fish harvests. As described earlier in the discussion of assessment questions results, just 15% of households said they didn't get enough nonsalmon fish, which in Selawik's case is overwhelmingly composed of whitefishes.

Information on migratory bird harvests was collected previously for 1993 and 1997. For the species most commonly harvested across the 3 study years and/or in greatest numbers, where trend lines can be drawn, most showed increases in the total number of migratory birds harvested between 1992 and 2007 (Figure 3-23). This is most pronounced for white-fronted geese, where total harvests were 244 in 1992, 138 in 1997, and 734 in this study period. Harvests of lesser Canada geese also increased, from 403 in 1993 to 805 in 2010–2011. However, when accounting for the increase in population in Selawik in the same time frame by tracking pounds per capita harvests, the trends are less pronounced or show no increase in harvests. Pound per capita harvest of white-fronted geese increased from 1.8 lb per person in 1993 to 3.6 lb in 2010–2011; lesser Canada geese rose from 2.4 to 3.7 lb per person. However, confidence intervals around the harvest estimates for the 2 species (Table 3-4) should be considered in terms of this "increase."

SUMMARY AND DISCUSSION SELAWIK, 2010–2011

Subsistence harvests of wild foods make major contributions to the mental and physical well-being of residents in Alaska's rural communities. Previous studies have documented the social, cultural, economic, nutritional, and psychological benefits associated with subsistence activities and foods (Ballew, Hamrick, and Nobmann 2004; Fall and Wolfe 2012; Heller and Scott 1967; Johnson et al. 2009; McGrath-Hanna et al. 2003; Nobmann 1997; Poppel et al. 2007; Receveur et al. 1998; Richmond and Ross 2009; Wolfe 2000). Unfortunately, conventional economic indicators do not measure subsistence's contributions (Goldsmith 2007)[1]. Throughout Northwest Alaska, the harvesting, processing, and distribution of wild foods structure human relationships while sustaining and continuing indigenous traditions (Bodenhorn 2000; Burch Jr. 1975a; Langdon and Worl 1981; Magdanz, Utermohle, and Wolfe 2002; Wolfe et al. 2009).

Where reliable, comprehensive estimates were available—in late 2012, for 8 of 11 Northwest communities—subsistence harvests provided approximately 500 lb of wild food per person per year. With a regional population of about 7,300 people, the data suggested that subsistence contributed about 3.5 million pounds of natural, nutritious food to the Northwest Alaska diet each year (Magdanz, Koster, et al. 2011:69). Most of that food was unprocessed or processed in traditional ways. It was high in protein, low in saturated fats, and low in sugars.

This chapter summarizes and reviews subsistence harvest monitoring efforts in Northwest Alaska, considering the Selawik 2010–2011 results within that context. The focus is on comprehensive community estimates comparable to the 2010–2011 estimate for Selawik. Such time series data have been used to answer two research questions

1. Are subsistence harvests changing over time?
2. Are subsistence harvests associated with population size?

The discussion will also incorporate other information such as wild food networks and food security.

1. "Even with consistency in definitions and improvements in the quality of data currently collected, the standard indicators would not provide a complete or balanced picture of the complexity of the economy. This is because the subsistence and informal sectors are nowhere captured by the indicators which are designed only to measure activity in the cash economy. Because these non-market activities consume a considerable amount of the time and effort of rural residents and contribute significantly to the economic well-being of the region, they should be included for several reasons. Without them the well-being of residents is undervalued, comparisons with urban areas are misleading, and economic development strategies are not grounded in reality." (Goldsmith 2007:45).

A Review of Subsistence Harvest Estimates

Since 1980, most subsistence harvest monitoring efforts in Alaska have used standardized methods that provided comparable estimates. In Northwest Alaska, at least 1 community has been surveyed every year since 1991, except in 2005. Counting just subsistence surveys that used ADF&G methods, 13 surveys were comprehensive (researchers asked about every species used by the study communities in the study year) and 4 limited their focus to major subsistence species. More than 80 other surveys focused on 1 species group (e.g., salmon, large land mammals, or birds).

Although these do not yet produce an estimate of total subsistence harvests on an annual basis, the data do provide an increasingly complete assessment of subsistence harvests. In addition to the 8 communities with comprehensive data, each of the 11 Northwest communities had at least 1 year of big game estimates, and 6 communities had at least 10 years of annual fish harvest estimates.

During this time, from 1980 to 2011, the community population in Northwest Alaska increased by 58%, from 4,831 to 7,651 (Figure 4-1)[2] (ADCCED [Alaska Department of Commerce, Community, and Economic Development] n.d.). Of those, 3,224 lived in Kotzebue, while 4,060 lived in 1 of the 10 smaller communities.

The 8 study communities with comprehensive subsistence estimates included 6,217 people, or 81% of the population of Northwest Alaska communities. These include Kotzebue, the largest community in the region, and 7 of the smaller communities. The 7 smaller communties averaged 428 people in 2011, ranging in size from 123 in Deering to 868 in Selawik. They included 2,993 people, 73% of the small community population in Northwest Alaska and 53% of the total community population of the region.

For the 8 communties with at least 1 year of comprehensive (or nearly comprehensive) data since 1980, 17 sets of survey data, researchers combined data and calculated the percentage of harvest contributed by individual species. In 4 of the harvest surveys (Selawik 2006, Native Village of Kotzebue 2002–2004), researchers limited the species about which they asked to those that were major contributors to the local subsistence diet, unlike more recent ADF&G projects that ask about virtually every species available for harvest. In those 4 studies, and most early Division of Subsistence studies, sheefish was not considered a whitefish—a view shared by area residents. In several studies, households were asked about their harvest of whitefishes as a general category, with edible pounds conversion factors based on local abundance of various species and their average weight per fish. Because of these dataset limitations, sheefish are not included as whitefish in the discussion of historic harvests, and whitefishes are considered as a category, not by species in Figure 4-2.

2. The value 7,651 includes 309 people at the Red Dog mine. Unlike in previous censuses, the 2010 census included workers living in shift housing at the mine. Some workers do not live in Northwest Alaska, while others reside in one of 11 communities in the borough. It is impossible to determine workers' permanent homes. Excluding those housed at Red Dog mine, the increase would be by 52%.

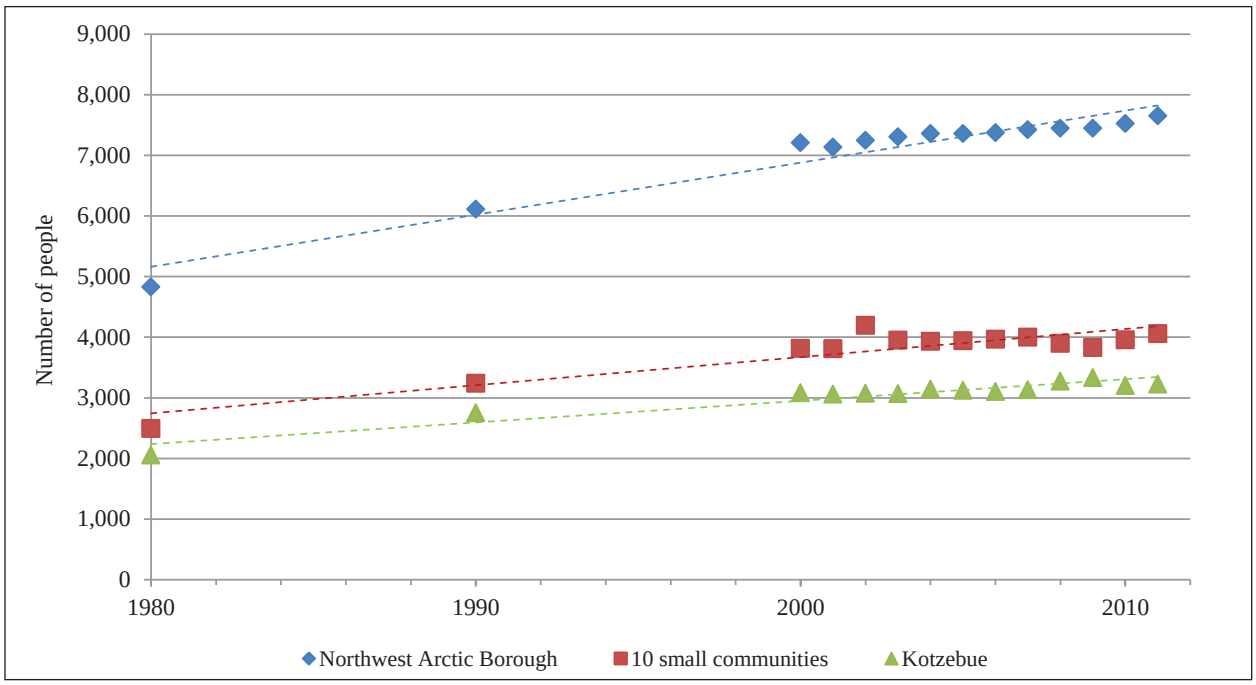


Figure 4-1.–Community populations, Northwest Alaska, 1980–2011.

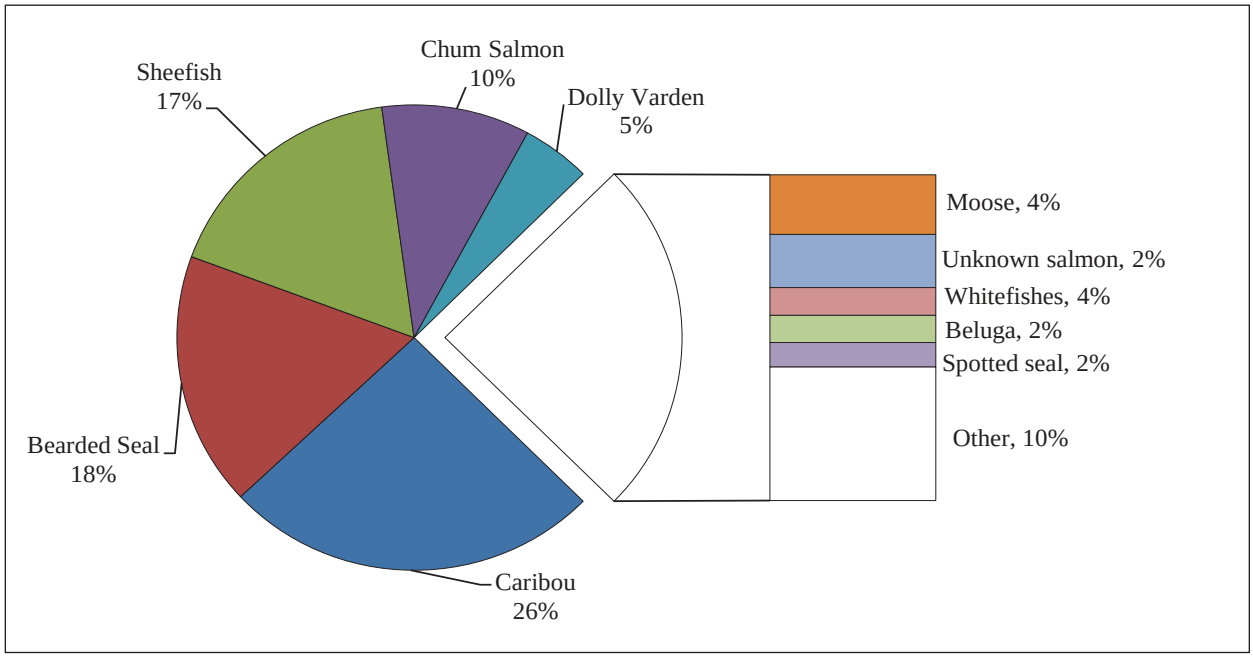


Figure 4-2.–Top 10 resources harvested for subsistence, Northwest Alaska, 1980–2011. Values based upon comprehensive subsistence harvest survey data.

Figure 4-2 shows the 10 species that contributed the most subsistence food, by edible weight, over the period 1980–2011. These 10 species constituted 90% of total harvests over time. Ninety-five percent of the total harvest would be counted with the inclusion of 4 more species: ringed seal, northern pike, berries, and walrus. Five of the top species are fish, with sheefish the largest contributor, followed by chum salmon and Dolly Varden, known locally as "trout." The contribution of chum may be slightly higher than depicted, but early surveys did not always ask about salmon by species, hence the large contribution, 2%, by "unknown salmon." Chum salmon and pink salmon are the only salmon species in real abundance in the region, therefore it is likely that the bulk of "unknown salmon" are in fact chum.

Three species in the top 10—bearded seal, beluga whale, and spotted seal—demonstrate the importance of marine mammals to the Iñupiat of Northwest Alaska. In other areas of Arctic Alaska with coastal communities, bowhead whale figures more prominently in subsistence harvest time series. However, only 1 community in Northwest Alaska (Kivalina) has active whaling crews and a quota within the Alaska Eskimo Whaling Commission—but Kivalina has not harvested a bowhead whale since 1984. Marine mammals may in fact be overrepresented in the comprehensive dataset. Two of the communities with multiple years of surveys (Kotzebue and Kivalina, 9 surveys together) have a strong marine mammal component to their annual subsistence (figures 4-3 and 4-4). Deering and Buckland both rely substantially on marine mammals as well (Figure 4-3). Notably absent from the comprehensive time series are the upriver Kobuk communities of Ambler and Kobuk, which rely heavily on caribou. It is likely that the inclusion of more datasets from communities some distance from the coast would alter the percentages in Figure 4-2.

Whether harvests of terrestrial mammals are underrepresented or not, Figure 4-2 underscores the importance of caribou to the region, which contributed 26% of harvests by edible weight between 1980 and 2011, the most of any single species. A dramatic decline in the caribou population as happened most recently in the 1970s, or disruption of local hunting patterns by increased industrial development, would have a major impact on the subsistence diet in Northwest Alaska. However, the diversity of harvest between marine mammals, various fish species, and terrestrial land mammals suggests that overall, the region's residents' vulnerability to food scarcity based on the decline of a single species is less so than in other parts of Alaska.

Comprehensive Harvest Estimates

The following discussion compares the results of comprehensive subsistence surveys in the small communities of Kivalina, Noatak, Deering, Shungnak, Buckland, Kiana, Selawik, and Kotzebue between 1980 and 2011.

For the 7 smaller communities, total annual harvests have ranged from 99,120 lb for Deering

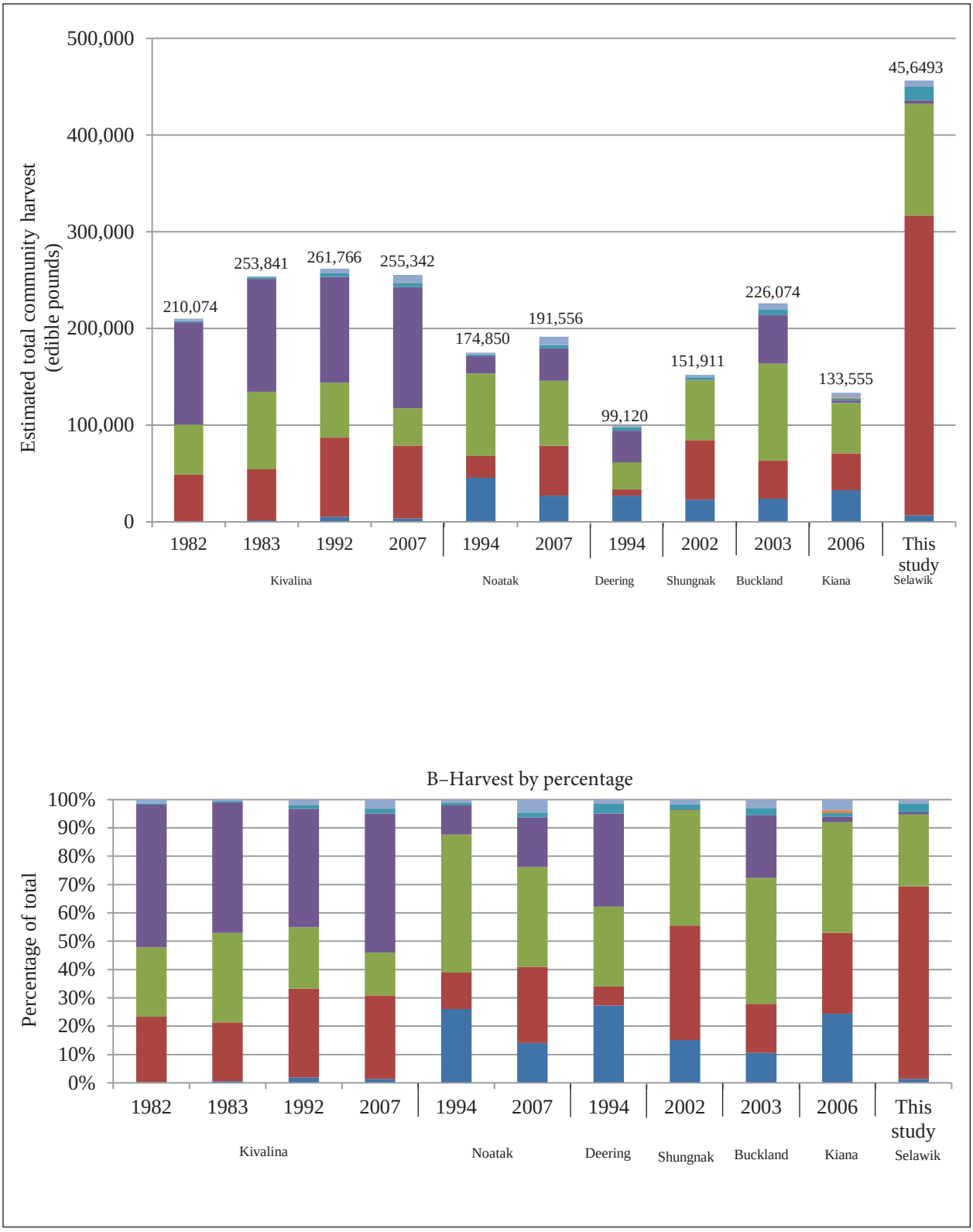


Figure 4-3.–Estimated total edible pounds by resource category (A) and percentage of harvest by category (B) of harvests by residents of 8 small communities, Northwest Alaska, 1982–2011.

in 1994 to 456,493 lb for Selawik in this study period. Only 1 community, Kivalina, has enough data to allow for a discussion of trends. Since 1982, when its estimated total harvest was 210,074 lb, overall harvests have remained stable (Figure 4-3A). Noatak's harvest in 2007, 191,556 lb, was slightly higher than in 1994, 174,850 lb. A USFWS study in Selawik in 2006 estimated its total harvest at 269,925 lb ±13%, substantially lower than in this survey, when the estimate was 456,493 ±28%. However, the difference between the 2 estimates is in part due to a difference in methods. The USFWS study only asked about major land and fish species. Regionwide, the differences among community estimates can be explained primarily by the differences in community sizes and location and also by coastal communities having greater access to marine mammals.

The region's largest community, Kotzebue, has been surveyed 5 times since 1980 (Figure 4-4). In 1986 and 1991, Division of Subsistence surveyed the entire community. The Native Village of Kotzebue undertook a survey of its tribal members for 2002–2004. The ADF&G estimate for 1986, 210,074 edible pounds, was based upon a random sampling in three strata (low, medium, and high harvesting households). In the follow-up survey conducted in 1991, the funding agency directed that researchers revisit previously surveyed households, rather than take a random approach. This likely biased the sample toward less transient and more stable households (Magdanz, Smith, et al. 2011). One of the long-term households reported exceptionally high harvests for 1991, 18% of the total reported harvest (Fall, Utermohle, and Barnhardt 1995:XIX–14). The sampling approach, which resulted in a total harvest estimate of 253,838 edible pounds, likely accounts for the differences between the 1991 results and those for 1986.

The results from the Native Village of Kotzebue's harvest study, which resulted in estimates for its tribal members' harvests for 2002, 2003, and 2004 (Whiting 2006), can be used to evaluate the 2 previous estimates. Using a 3-strata sampling approach like the one used by ADF&G, the project surveyed between 108 and 158 of the tribe's 480 households each year. Reported results were expanded to estimates for tribal member households.

In 1986, Georgette and Loon found that Alaska Native households harvested, on average, 5 times as many edible pounds of food as non-Native ones. Adjusting the Indian Reorganization Act (IRA) council estimates for the households that were not in the tribal population and for plants, which were not in the IRA survey, the IRA data indicated an average annual subsistence harvest for Kotzebue of about 1.5 million pounds, similar to the average of the 2 ADF&G estimates, 1.6 million pounds. As noted in Magdanz et al. (2011) in evaluating the various datasets, "It is unlikely that the actual Kotzebue harvests varied as much from year to year as the estimates. Note that the estimated contributions of fish, land mammals, and marine mammals were remarkably consistent across the 5 different Kotzebue survey efforts" (Magdanz, Koster, et al. 2011:75.) (Figure 4-4B).

The wide range of Kotzebtue results in Figure 4-4A illustrated the challenge of estimating subsistence harvests in a large, culturally and economically diverse regional center. Surveying

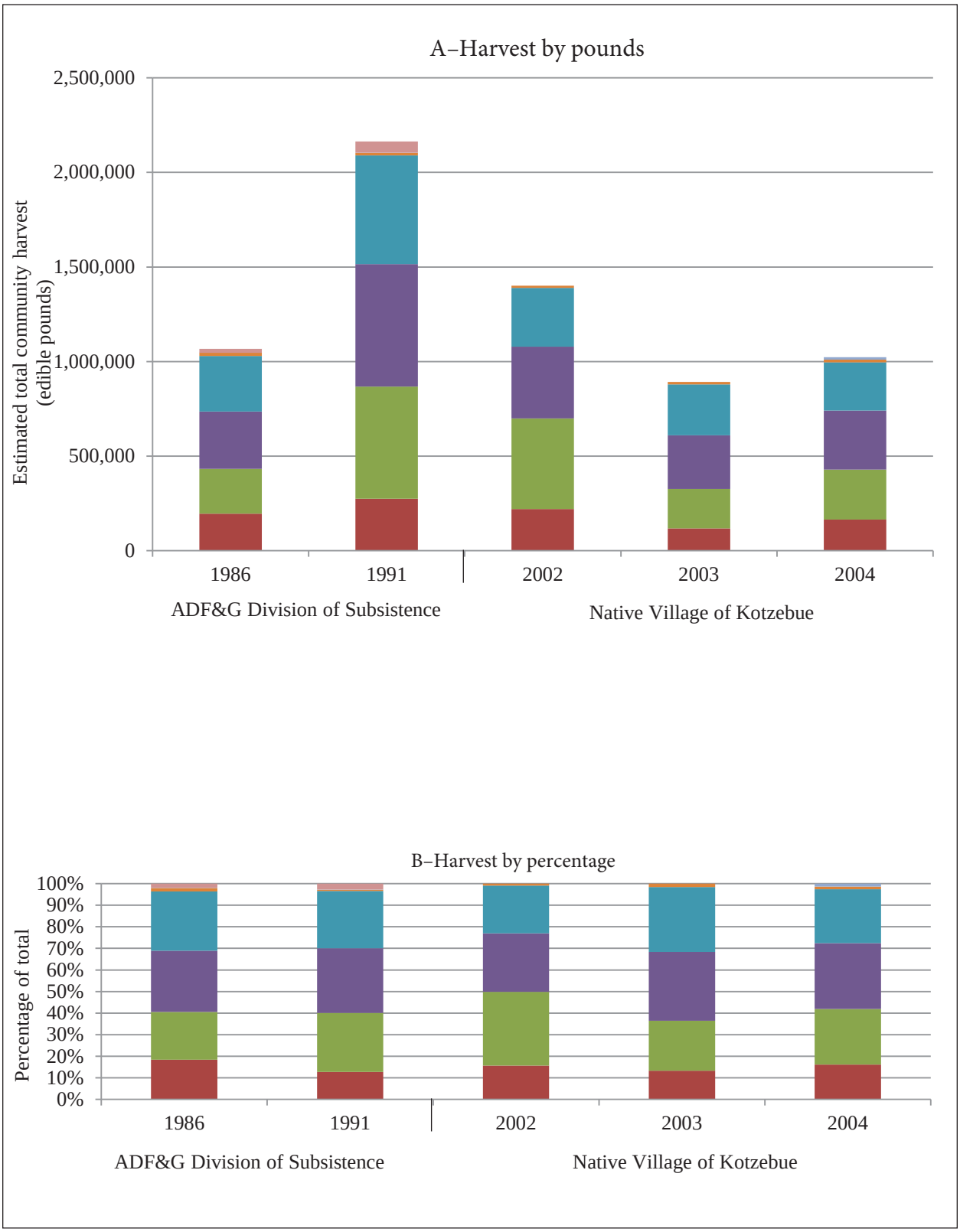


Figure 4-4.–Estimated total edible pounds by resource category (A) and percentage of harvest by category (B) harvested by residents of Kotzebue, 1986–2004.

every household would be inordinately expensive. Estimates from a simple random sample were very sensitive to the inclusion, or exclusion, of high-harvesting households. Stratified random samples were a better approach, especially if most high-harvesting households could be surveyed. But stratified samples required accurate prior knowledge of the population for stratification and estimation. These issues were usually not a problem in the 10 smaller Northwest communities, where researchers attempted to contact every household. Samples in these communities typically included 90% of all occupied households. However, in Selawik a stratified sample did not perform as well as hoped in reaching minimum sampling goals.

Given the limited dataset, except for in a few communities, it is not yet possible to truly gauge how overall subsistence harvests are changing over time. For Kivalina and Kotzebue, there is enough information to suggest that total harvests have remained stable since the 1980s. However, the population of the borough has increased by 58% since 1980. At least for those 2 communities, it appears that total subsistence harvests have not kept pace with population increases.

Although community populations in Northwest Alaska increased by 58% between 1980 and 2010, the region still had one of the lowest population densities in the United States, only about 0.03 people/mi^2. Except for Kotzebue, the communities in Northwest Alaska are only slightly larger than the estimated populations of the traditional societies occupying the same territories prior to 1850 (Burch Jr. 1998). Virtually all the lands and waters traditionally available for hunting and fishing were still accessible for community rural residents in 2011.

There is conflicting evidence that total subsistence harvests are related to total community population. The strongest evidence that subsistence harvests *are* positively associated with population size comes from the regional center of Kotzebue, where both estimated *total* harvests and populations were an order of magnitude larger than in the smaller communities. In addition to population size, access may help explain Kotzebue's high harvests. Kotzebue is located on the coast near the termination of the 3 largest watersheds in the region: the Noatak River, the Kobuk River, and the Selawik River. In addition to the marine resources like bearded seals, Kotzebue residents can harvest salmon bound for either the Noatak or Kobuk drainages, can harvest sheefish that spawn in either the Kobuk or the Selawik drainages, and can choose to hunt caribou in 3 different, major watersheds depending on the annual course of the caribou migration. Kotzebue's prime location for subsistence harvesting, combined with greater opportunities for wage work, may have favored its growth over the smaller communities in the region. Immigrants from the smaller Northwest communities to Kotzebue could continue their subsistence activities and work at wage labor in Kotzebue.

Yet, a previous study in Noatak and Kivalina—the only 2 small Northwest Alaska communities with multiple harvest estimates—found that human population size was *not* associated with total subsistence harvests (Magdanz et al. 2010). The estimated *total* harvests for Kivalina did not change significantly since the first "snowmachine era" estimate conducted in 1982. Noatak harvested

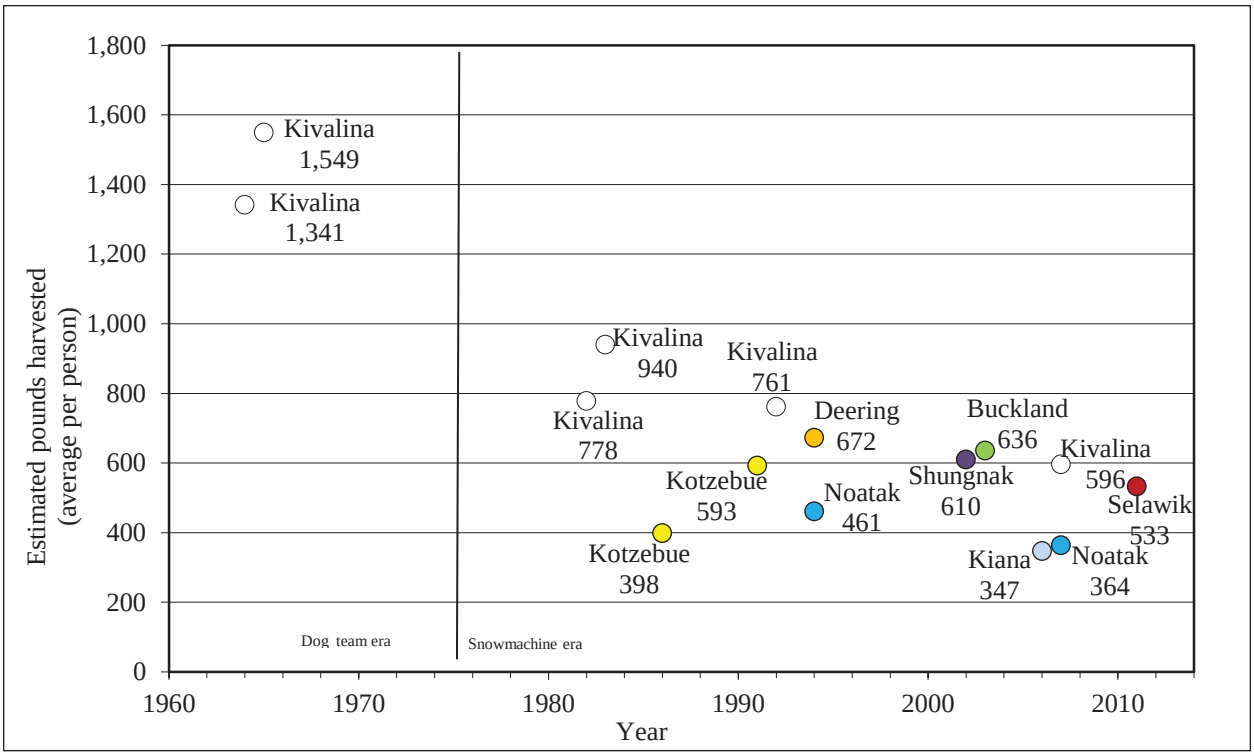


Figure 4-5.–Estimated harvest per person in Northwest Alaska communities, 1964–2011.

only slightly more food overall in 2007 than in 1992, approximately 16,000 lb, despite continued population growth.

Pounds Per Capita Harvests

A time series of per capita pounds subsistence harvests for the 8 communities allows one to control for both changes in population over time and differences in community size (figures 4-5 and 4-6). Pounds per capita harvests since 1980 are quite lower than those documented in Kivalina in 1964 and 1965. However, extending the time series that far back reveals little more than how the shift from the dog team era to the snowmachine era—when subsistence harvests became no longer essential to feed *both* humans and dogs—affected the total amount of harvests needed by Northwest communities.

A time series drawn from 1980 to 2011 would show a slight decline in pounds per capita subsistence harvests, 14 lb per year, and a weak association between time and per capita harvests. Limiting the dataset to 1990–2011, the last 20 years, shows a more modest decline, 3 lb per year and weaker association. With so few estimates any trend line is sensitive to the addition or removal of a single estimate. In each of the 2 communities surveyed twice between 1990 and 2011, Noatak and Kivalina, the difference in pounds per capita harvests is similar to the trend for all communities combined.

The differences in per capita harvests between the smallest and largest communities have been

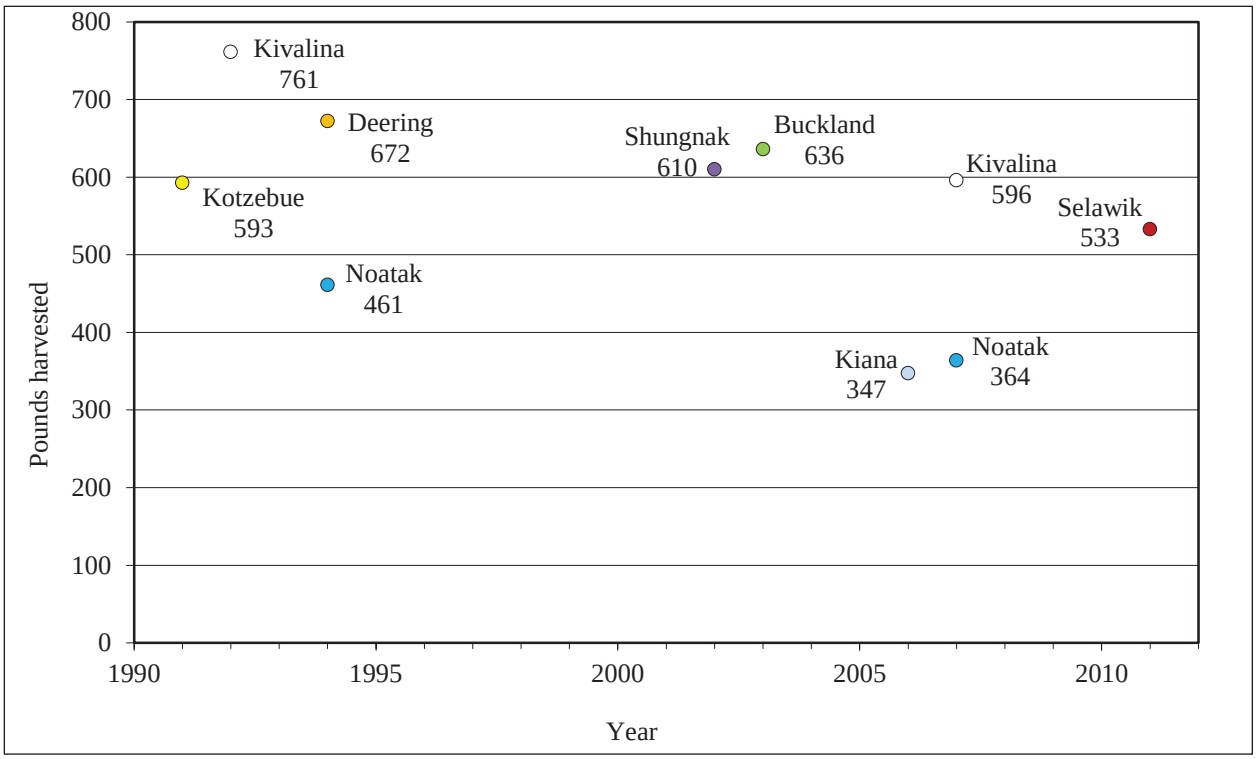


Figure 4-6.–Estimated harvest per person in Northwest Alaska communities, 1990–2011.

modest. In the 1994 survey in Deering, 148 people harvested an average of 672 lb each. In 2 surveys in Kotzebue, an average of 3,165 people harvested an average of 495 lb each. Selawik's per capita harvest, 533 lb, falls in the middle of this range. In every community, a household that did not use subsistence-caught foods was the rare exception. In Selawik in the 2010–2011 study period, 99% of the surveyed households reported using at least 1 kind of subsistence-caught food, while 91% reported harvesting subsistence food.

With the limited number of comprehensive estimates available at this time, the best assessment of the data is that in addition to community population size many other factors affect total community subsistence harvests. Those other factors, however, are still poorly understood. Even though populations grew and average per capita harvests declined over time, it does not mean that growing populations caused declining per capita harvests. Most likely, declines in per capita harvests were the result of other factors which, coincidentally, matched the increases in community populations.

The most important explanation for the harvest declines from the 1960s to the 1980s was obvious: the replacement of dog teams that were fed salmon, caribou, and seals with snowmachines that consumed gasoline. Other factors may include increased availability of store-bought foods, increased opportunity for wage work accompanied by less time for subsistence activities, changing food preferences, interseasonal variability of resource abundance (caribou in particular), and environmental change, as well as changes in the general level of physical activity and in the transmission of knowledge between generations.

These other factors have their roots in processes still at work in the region. Dramatic changes have come to Northwest Alaska since 1980, lessening its isolation materially and culturally. By the mid-1980s, the State of Alaska had funded expansion of satellite-delivered telephone and television service to communities with more than 25 people. The Rural Alaska Television Network, RATNET, rebroadcast a variety of national network entertainment programs, news, and educational programs to communities statewide. Rural households that in the past had relied upon messages broadcast by regional radio stations and VHF radio to communicate could now simply make a phone call from their own home. A generation grew up watching many of the same television shows as the rest of the United States. In the same decade, the Red Dog zinc mine began operations, providing additional job opportunities for area residents.

In the mid-1990s, schools across rural Alaska gained internet access thanks to federal subsidies. Cable television became widely available in rural communities. Even greater impacts came with the expansion of the bypass mail system, which essentially subsidized rural air service for passengers and freight. The number of local airlines providing regular service to and from Alaska villages increased, and the variety and quantity of goods reaching local stores expanded dramatically.

In the last decade a spike in the cost of petroleum products (both gasoline and diesel fuel) may be the most significant factor affecting subsistence harvests in Northwest Alaska. Gasoline, heating oil, and electricity prices in this region are among the highest in the state. The rural economy is now a petroleum-based economy. On the one hand, higher fuel prices make it more expensive to travel by boat or snowmachine, suggesting that subsistence harvests might decrease. On the other hand, higher fuel prices are factored into freight charges making imported foods more expensive, suggesting that subsistence harvests might increase. Northwest Alaskans also spend more on heating their homes with heating oil. Noatak and the Kobuk River villages have easy access to firewood, while other coastal communities such as Selawik have lesser access to standing forests or are limited to driftwood. Still, collecting firewood requires gasoline for the ATV, snowmachine, or boat used to search for the material and transport it back to the village. Households also pay more per kilowatt hour (kWh) of electricity, as the costs of generating electricity using diesel fuel[3] increase and are passed on to consumers. How households are negotiating and responding to these multiple pressure points is not well understood.

In Selawik in October 2011, residents paid $7.00 per gallon for gasoline, compared to $6.73 per gallon in the regional hub of Kotzebue (University of Alaska Fairbanks Cooperative Extension Service 2011). By comparison, the average price for gasoline in Anchorage in June 2011 was $4.11 per gallon. The primary fuel source for home heating in Selawik, heating oil, cost $6.80 per gallon, compared to $5.00 per gallon in Kotzebue. In Anchorage (where natural gas is widely available and fuel oil is a less common expenditure), heating oil cost $4.34 per gallon.

3. Virtually all electricity generated in Northwest Alaska is produced from diesel fuel (Fay, Villalobos Menendez, and West 2012:12)

The difference between energy prices between rural and urban Alaska are even greater when it comes to electricity. Selawik, like other Northwest Alaska communities, is part of the Alaska Village Electrical Cooperative. Its rates per kWh vary by use. In December 2012, Selawik residents paid $.22 per kWh for the first 500 kWh, $.62 per kWh for the next 200 kWh, and $.52 per kWh thereafter—a total of $390.00 for 1,000 kWh.[4] In Anchorage in 2012, consumers paid $136.27 for 1,000 kWh. Electricity is not just necessary for lighting and appliances; it is also required to operate the oil burning monitor heaters that are the means by which Selawik residents heat their homes. Selawik residents need to use electricity generated from oil in order to burn oil to heat their homes. It is an expensive endeavor in a community with extremely limited wage employment opportunities.

Wild Food Networks

As noted earlier, the economy of remote rural Alaska is poorly described by existing economic indicators, particularly those based upon individual households or persons.

A broad literature explores cooperation among society members (Axlerod and Hamilton 1981; Alvard 2002, 2003, 2004; Alvard and Nolin 2002; Binmore 1995, 1998; Dunbar and Spoors 1995; Henrich et al. 2005). A similarly broad literature explores Iñupiat who, like most hunter-gatherers, cooperate extensively to produce and distribute wild foods (Collings, Wenzel, and Condon 1998; Wenzel, Hovelsrud-Broda, and Kishigami 2000).

Iñupiaq food production systems are structured primarily, but not entirely, by kin relationships (Bodenhorn 1989, 2000; Burch Jr. 1975, 1998; Kishigami 2004). Iñupiaq hunters, fishers, and gatherers typically work together in crews or at camps to secure whales, seals, salmon, whitefish, caribou, and other traditional subsistence foods. Cooperation continues once harvesting and processing are complete, as subsistence foods are shared with extended family and other community members, sometimes across considerable distances (Burch Jr. 1975b; Bodenhorn 2000; Magdanz, Utermohle, and Wolfe 2002; Magdanz et al. 2007)

Iñupiaq culture places a high value on sharing, particularly of *niqipiaq* or "real food" like frozen fish, seal oil, and dried meat. Some households harvest more than is needed for their own consumption in order to provide for an elder household that no longer hunts or for a single parent household with 1 working adult and several children. Sharing networks are typically along family lines but in practice are not limited exclusively to close family households (Bodenhorn 2000; Magdanz, Utermohle, and Wolfe 2002).

Hovelsrud-Broda describes the system of cooperation in Isertoq, an Iñuit community in Greenland.

> I will not go further into the debate here over why people transfer and share their resources…
> The argument about why can be better understood if we first know what. An understanding

4. The Alaska power cost equalization program (PCE) only applies to the first 500 kWh of use.

> of the transaction systems and how these are related to socioeconomic structure and social relations will eventually lead to answers to the why question. (Hovelsrud-Broda 2000:194)

She proposes that patterns vary by resource and that cash is not shared outside the household (Hovelsrud-Broda 2000:206). Data from other Northwest Alaska communities supports observations by Hovelsrud-Broda that cash exchange networks are much less dense than subsistence food networks.

The empirical specifics of cooperative food production among hunter-gatherers—actual sources and flows of wild foods and other goods and services among village households—have received little attention. Social network analysis methods offer a unique set of tools to explore small, remote subsistence villages, and bounded populations with complex multiple relationships create unique opportunities for analyses. However, only a few scholars have applied social network methods in *Iñuit* contexts or, for that matter, among hunter-gatherers in general (Ziker and Schnegg 2005; Collings, Wenzel, and Condon 1998).

The Division of Subsistence has collected subsistence food network data in selected communities since 1995, although the approach and software have grown more sophisticated over time. Magdanz and Utermohle first published empirical data on cooperative food production in 2002, for the 1994 harvest year in Wales and Deering. Wild food production and distribution in both communities occurred among networks based on kinship, although some activities and goods crossed between these family networks (Magdanz, Utermohle, and Wolfe 2002). Researchers expanded network questions to include food sources outside the village in later studies in Shungak, Buckland, and Kiana (Magdanz, Walker, and Paciorek 2004; Magdanz, Koster, et al. 2011). As the software and means of analysis have advanced, the division has begun to collect network data more frequently, although the scope of data collected has varied as funding and time allowed. The differences in approach make it difficult to compare Selawik network data from 2010–2011 with most network data previously collected by the Division of Subsistence. An exception is for recently published information on middle and lower Kuskokwim communities (Brown et al. 2012, 2013).

As in both Kuskokwim River studies, very few Selawik households were isolated completely from the community network, giving or receiving no subsistence foods. The data from Selawik supports assertions about the extent of sharing—virtually every household is involved in exchanges of wild foods. The 2 Kuskokwim River studies found that most of the largest producing households were headed by male and female headed households, with the exception being a single male-headed household. Those patterns were similar to those described in Wales and Deering in 1994. In Lower Kalskag and Chuathbaluk, however, single female-headed households played larger roles in harvesting resources (Brown et al. 2012). Selawik households in 2010–2011 were similar in the highest production occurring in couple-headed households. It, too, had single-female headed households playing a large role in production.

On the Kuskokwim River, communities had the most ties (sources of subsistence foods) from villages on the Kuskokwim. Most received goods from as far away as the North Slope, Southeast Alaska, and the Yukon River. All except Lower Kalskag received some foods from Anchorage. Selawik's food network in 2010–2011 was unique because the regional centers of Kotzebue and Barrow were more central in the network than the communities of Buckland, Kiana, Shungnak, and Noatak. Noorvik, however, was most central to the network overall. Selawik households reported receiving goods from further removed communities (Bettles, Scammon Bay, and Nuiqsut) as well Anchorage.

Food Security

In the 4 Northwest Alaska communities where Division of Subsistence collected food security data between 2003 and 2007, 82% to 92% of surveyed households were food secure, compared with 87% to 89% in the United States as a whole (Magdanz et al. 2010; Magdanz, Koster, et al. 2011). Subsistence harvests clearly contributed to that food security, and when food insecurities were reported they were twice as likely to be related to store-bought foods as to subsistence foods. Similar circumstances prevailed among First Nations in Canada, where "39% of respondents reported having insufficient resources to purchase all the food they would need from the store if traditional food was not available" (Receveur et al. 1998).

In this study, however, only 64% of Selawik households were food secure, findings more in line with those documented in 14 middle and lower Kuskokwim River communities between 2009 and 2010 (Brown et al. 2012, 2013). Only 2 communities in those studies had lesser percentages of food secure households than Selawik, Lower Kalskag (52%) and Tuluksak (56%). Overall, Kuskokwim River communities experienced less anxiety over food overall than Selawik, yet subsistence foods were a greater source of food insecurity than store-bought ones on the Kuskokwim River. However, the cost of feeding a family of 4 in Selawik in the study period was 253% that of Anchorage (University of Alaska Fairbanks Cooperative Extension Service 2011).

The results from other studies among Canadian Iñuit resemble their Alaskan counterparts. In 2003, a study in Kugaaruk, Nunavut found that 5 out of 6 households surveyed were food insecure, and more than one-half of families experienced hunger in the past 12 months, "even though access to country food did not appear to be a problem or serious concern and country food continues to be shared" (Lawn and Harvey 2003). A similar study in Igloolik, Nunavut, found that 64% of households were food insecure (Ford and Berrang-Ford 2009). Data from a project that sampled 1,901 Iñuit households found that 62.6% of adults were from adult food insecure households (Egeland et al. 2011). It is not possible to reconcile the relatively high level of food insecurity found in Selawik households in this study with the pounds per capita harvests documented (533 lb). Robust food

distribution networks in Northwest Alaska are generally regarded to contribute to food security, both by providing wild foods and by reducing anxiety about food supplies. In Selawik, when asked if the household's food did not last and they could not get more (either because of cash or the lack of means to harvest), 45% said yes. Of those answering yes to the question, equal numbers identified both subsistence and store-bought foods as not lasting.

In the case of very low food security households, in Selawik the conditions were present year-round. On the Kuskokwim River, food security fluctuated seasonally for that group.

It is possible that food security questions focusing on individual household's food anxiety and disruption also capture those concerns as they relate to a household's ability (or responsibility) to share with others. In the course of fieldwork elsewhere, researchers have encountered households who consider the amount of subsistence food they need to be enough for their own consumption *as well as* to share with other households. While the Division of Subsistence has adapted standard USDA food security questions account for the presence of subsistence foods, evaluation and possible refinement of the questionnaire is warranted.

While they are not conventional economic indicators, data from comprehensive socioeconomic surveys can contribute to a better understanding of Alaska's rural economy. At this writing, survey research was the only reliable source of long term, consistent information about households' subsistence harvests, expenses, equipment ownership, and food distribution systems.

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Appendix A–Species List

Common name/ name used on survey form	Scientific Name	Iñupiaq Name
Chum salmon	Oncorhynchus keta	Qalugrauq
Pink salmon	Oncorhynchus gorbuscha	Amaqtuq
Chinook salmon	Oncorhynchus tshawytscha	Iqalsugruuk
Sockeye salmon	Oncorhynchus nerka	Aqalugrauq
Coho salmon	Oncorhynchus kisutch	Qalugrauq
Inconnu (sheefish)	Stenodus leucicthys	Sii
Broad whitefish	Coregonus nasus	Qalupiaq, qausriuk, siyyuiḷaq
Humpback whitefish	Coregonus pidschian	Ikuiyiq, qaalġiq
Least cisco	Coregonus sardinella	Aŋuutituuq, qalutchiaq
Round whitefish	Prosopium cylindraceum	Quptik
Bering cisco	Coregonus laurettae	(not common in area; uncertain)
Northern pike	Esox lucius	Siilik
Burbot (mudshark)	Lota lota	Tittaliq
Dolly Varden (trout)	Salvelinus malma	Qalukpik
Arctic grayling	Thymallus arcticus	Sulukpaugaq
Rainbow smelt	Osmerus mordax	Iłqugniq, Ilhuagniq
Saffron cod (tomcod)	Eleginus gracilis	Uuġaq
Pacific herring	Clupea pallasi	Ugsrugtuuq
Crab[a]		Putuvak
Tanner crab[a]		Putuvak
Clams[a]		Iviluq
Mussels[a]		Avyak
Moose	Alces alces	Tiniikaq
Caribou	Rangifer tarandus	Tuttu
Black bear	Ursus americanus	Qiqñiqłaq, Pisruktuaq
Brown bear	Ursus arctos	Akłaq
Dall sheep	Ovis dalli	Ipniaq
Muskox	Ovibos moschatus	Umikmiaq
Beaver	Castor canadensis	Paluqtaq, Aqu
Muskrat	Ondatra zibethicus	Kigvaluk
Snowshoe hare	Lepu americanus	Ukaillaitchiaq, Ukalliq, Ukvaliruq
Arctic hare (presumably Alaska hare)	Lepus othus	Ukallisugruk, Nuyuk
Porcupine	Erethizon dorsatum	Iluqutaq
Parka (ground) squirrel	Spermophilus parryii	Siksrik
Marmot[a]		Siksrikpak
Tree squirrel (presumably red squirrel)	Tamiasciurus hudsonicus	
Wolverine	Gulo gulo	Qapvik, Qavvik
Wolf	Canis lupus	Amaguq
Marten	Martes americana	Qapvaitchiaq
Lynx	Lynx Canadensis	Nuutuiyiq
Red fox	Vulpes vulpes	Kayuqtuq
Arctic fox	Alopex lagopus	Ausrhaaq
Otter[a]		Pamiuqtuuq
Bearded seal	Erignathus barbatus	Ugruk
Ringed seal	Phoca hispida	Natchiq
Spotted seal	Phoca largha	Qasigiaq
Seal oil		Usraq

-continued-

Common name/ name used on survey form	Scientific Name	Iñupiaq Name
Beluga whale	Delphinapterus leucas	Sisauq
Bowhead whale	Balaena mysticetus	Agviq
Walrus	Odobenus rosmarus	Aiviq
Wigeon		Ugiihiq
Teal		Qaiñiq
Mallard	Anas platyrhynchos	Ivugasrugruk
Pintail	Anas acuta	Ivugaq, Kurugaq
Shoveler	Anas clypeata	Aluutaq
Black scoter	Melanitta nigra	Tuuŋġaaġruk
Surf scoter	Melanitta perspicillata	
White-winged scoter	Melanitta fusca	Killalik
Bufflehead	Bucephala albeola	Nunuqsiiġiiḷaq
Goldeneye[a]		
Canvasback	Aythya valisineria	
Scaup[a]		Qaqƚutuuq
Common eider	Somateria mollissima	Mitiqliqruaq
King eider	Somateria spectabilis	Qiŋalik
Spectacled eider	Somateria fischeri	Qavaasuk
Steller's eider	Polysticta stelleri	Igniqauqtuq
Harlequin	Histrionicus histrionticus	Saġvam tiŋmiaq
Long-tailed duck (Oldsquaw)	Clangula hyemalis	Aahaaliq
White-fronted geese[a]		Kigiyuk
Canada geese[a]		Iqsraġutilik
Brant	Branta bernicla	Niġliġnaq, niqliqnaurat
Cacklers	Branta hutchinsii	
Emperor geese	Chen canagica	Liġliqpak
Snow geese	Chen caerulescens	Kaŋuq
Ptarmigan[a]		Aqargiq
Spruce grouse	Dendragapus canadensis	Napaaqtum aqargiq
Sandhill crane	Grus canadensis	Tattirgaq
Tundra (whistling) swan	Cygnus columbianus	Qugruk
Whimbrel	Numenius phaeopus	Kukukiaq
Salmonberry	Rubus chamaemorus	Aqpik
Blueberry	Vaccinium uliginosum	Asriavik
Cranberry	Vaccinium vitis-idaea	Kikmiññaq
Blackberry	Empetrum nigrum	Paunġaq
Raspberry	Rubus arcticus	Tunŋaum asriaq
Currants	Ribes triste	Niviŋŋaqutaq

Sources Georgette and Shiedt 2005; Anderson and Anderson 1977; Jones 1983.

a. In some cases, the survey did not ask by specific species, but used a broader category, such as for crab, wigeons, etc., but the species could be inferred by what is commonly available locally.

Appendix B–Survey Form

COMPREHENSIVE SUBSISTENCE SURVEY

SELAWIK, ALASKA

STUDY YEAR: October 1, 2010 to September 30, 2011

NORTHWEST ARCTIC CIAP

PRINTED 2011-10-03

PHOTOS COUTESTY SELAWIK NATIONAL WILDLIFE REFUGE

This survey is used to estimate subsistence harvests and to describe community subsistence economies. We will publish a summary report, and send it to all households in your community. We share this information with the Alaska Department of Fish and Game, the U.S. Fish and Wildlife Service and the National Park Service. We work with the Federal Regional Advisory Councils and with local Fish and Game Advisory Committees to better manage subsistence, and to implement federal and state subsistence priorities.

We will NOT identify your household. We will NOT use this information for enforcement. Participation in this survey is voluntary. Even if you agree to be surveyed, you may stop at any time.

HOUSEHOLD ID:		
COMMUNITY ID:	SELAWIK	303
INTERVIEWER:		
INTERVIEW DATE:		
START TIME:		
STOP TIME:		
	DATA CODED BY:	
	DATA ENTERED BY:	
	SUPERVISOR:	

COOPERATING ORGANIZATIONS

DIVISION OF SUBSISTENCE
ALASKA DEPTARTMENT OF FISH & GAME
KOTZEBUE, AK 99752
800-478-3420

APPROVAL PENDING
Native Village

SELAWIK NATIONAL WILDLIFE REFUGE
U.S. Fish & Wildlife Service
Kotzebue, AK 99752

NORTHWEST ARCTIC BOROUGH
CIAP Subsistence Project
Kotzebue, AK 99752

HOUSEHOLD MEMBERS

HOUSEHOLD ID

First, I would like to ask about the people in your household, permanent members of your household who sleep at your house. This includes students who return home every summer. I am NOT interested in people who lived with you temporarily, even if they stayed several months.

Last year, that is, between October 1, 2010, and September 30, 2011, WHO were the head or heads of this household?

	Is this person answering questions on this survey?	How is this person related to HEAD 1?	Is this person MALE or FEMALE?	Is this person an ALASKA NATIVE?	How OLD is this person?	Except for school or military service, has this person always lived in Selawik?	*If person has NOT always lived in Selawik…* WHEN did they LAST move here?	From WHERE did this person move?	Where is this person's birth home?*	TOTAL years lived here?
ID#	*circle*	*relation*	*circle*	*circle*	*age*	*circle*	*year*	*community in Alaska, OR state in the US, OR country*		*years*
HEAD	Y N		M F	Y N		Y N				
1										
NEXT enter spouse or partner. If household has a SINGLE HEAD, leave HEAD 2 row BLANK, and move to PERSON 3.										
HEAD	Y N		M F	Y N		Y N				
2										
BELOW, enter children (oldest to youngest), grandchildren, grandparents, or anyone else living full-time in this household.										
PERSON 3			M F	Y N		Y N				
3	0									
PERSON 4			M F	Y N		Y N				
4	0									
PERSON 5			M F	Y N		Y N				
5	0									
PERSON 6			M F	Y N		Y N				
6	0									
PERSON 7			M F	Y N		Y N				
7	0									
PERSON 8			M F	Y N		Y N				
8	0									
PERSON 9			M F	Y N		Y N				
9	0									
PERSON 10			M F	Y N		Y N				
10	0									
PERSON 11			M F	Y N		Y N				
11	0									
PERSON 12			M F	Y N		Y N				
12	0									
PERSON 13			M F	Y N		Y N				
13	0									
PERSON 14			M F	Y N		Y N				
14	0									

** "BIRTH HOME" means the place this person's PARENTS WERE LIVING when this person was born.*

PERMANENT HH MEMBERS: 01 **SELAWIK: 303**

HOUSEHOLD PARTICIPATION

HOUSEHOLD ID

This page asks about your household members' participation in subsistence activities, such as fishing, hunting, gathering, or processing subsistence foods.

Starting with the first head of household, and thinking just about LAST YEAR, did this person...

Repeat for each person in the household. Responses should be on the same row on the left and right pages.

	Fish		Big Game		Marine Mammals		Birds & Eggs		Plants & Berries	
	…try to fish or shellfish?	…process fish or shellfish?	...hunt for or try to trap land animals?	…process land animals?	…hunt for marine mammals?	…process marine mammals?	…hunt for birds or gather eggs?	…process birds or eggs?	…gather berries or plants?	…process berries or plants?
ID #	*circle each activity reported for each person, make no mark in other cells*									
HEAD 1	try to catch fish or shlfsh?	process fish or shlfsh?	hunt for land animals	process land animals	hunt for marine mamls	process land animals	hunt or gather birds or eggs	process birds or eggs	gather berries or plants	process plants
1										
NEXT, enter participation for spouse or partner. If household has a SINGLE HEAD, leave HEAD 2 row BLANK.										
HEAD 2	try to catch fish or shlfsh?	process fish or shlfsh?	hunt for land animals	process land animals	hunt for marine mamls	process land animals	hunt or gather birds or eggs	process birds or eggs	gather berries or plants	process plants
2										
BELOW, enter participation for children, grandchildren, grandparents, or anyone else living full-time in this household.										
PERSON 3	try to catch fish or shlfsh?	process fish or shlfsh?	hunt for land animals	process land animals	hunt for marine mamls	process land animals	hunt or gather birds or eggs	process birds or eggs	gather berries or plants	process plants
3										
PERSON 4	try to catch fish or shlfsh?	process fish or shlfsh?	hunt for land animals	process land animals	hunt for marine mamls	process land animals	hunt or gather birds or eggs	process birds or eggs	gather berries or plants	process plants
4										
PERSON 5	try to catch fish or shlfsh?	process fish or shlfsh?	hunt for land animals	process land animals	hunt for marine mamls	process land animals	hunt or gather birds or eggs	process birds or eggs	gather berries or plants	process plants
5										
PERSON 6	try to catch fish or shlfsh?	process fish or shlfsh?	hunt for land animals	process land animals	hunt for marine mamls	process land animals	hunt or gather birds or eggs	process birds or eggs	gather berries or plants	process plants
6										
PERSON 7	try to catch fish or shlfsh?	process fish or shlfsh?	hunt for land animals	process land animals	hunt for marine mamls	process land animals	hunt or gather birds or eggs	process birds or eggs	gather berries or plants	process plants
7										
PERSON 8	try to catch fish or shlfsh?	process fish or shlfsh?	hunt for land animals	process land animals	hunt for marine mamls	process land animals	hunt or gather birds or eggs	process birds or eggs	gather berries or plants	process plants
8										
PERSON 9	try to catch fish or shlfsh?	process fish or shlfsh?	hunt for land animals	process land animals	hunt for marine mamls	process land animals	hunt or gather birds or eggs	process birds or eggs	gather berries or plants	process plants
9										
PERSON 10	try to catch fish or shlfsh?	process fish or shlfsh?	hunt for land animals	process land animals	hunt for marine mamls	process land animals	hunt or gather birds or eggs	process birds or eggs	gather berries or plants	process plants
10										
PERSON 11	try to catch fish or shlfsh?	process fish or shlfsh?	hunt for land animals	process land animals	hunt for marine mamls	process land animals	hunt or gather birds or eggs	process birds or eggs	gather berries or plants	process plants
11										
PERSON 12	try to catch fish or shlfsh?	process fish or shlfsh?	hunt for land animals	process land animals	hunt for marine mamls	process land animals	hunt or gather birds or eggs	process birds or eggs	gather berries or plants	process plants
12										
PERSON 13	try to catch fish or shlfsh?	process fish or shlfsh?	hunt for land animals	process land animals	hunt for marine mamls	process land animals	hunt or gather birds or eggs	process birds or eggs	gather berries or plants	process plants
13										
PERSON 14	try to catch fish or shlfsh?	process fish or shlfsh?	hunt for land animals	process land animals	hunt for marine mamls	process land animals	hunt or gather birds or eggs	process birds or eggs	gather berries or plants	process plants
14										

PERMANENT HH MEMBERS: 01

EMPLOYMENT STATUS

HOUSEHOLD ID

INCLUDE EVERY PERSON 16 YEARS AND OLDER ON THIS PAGE, EVEN IF THEY DO NOT HAVE A JOB!

This page asks about jobs and income. We ask about jobs and income because we are trying to understand all parts of the community economy. Many people use wages from jobs to support subsistence activities. Starting with the first head of your household, what job or jobs did he or she have last year?

For each member of this household born before 1995, list EACH JOB held last year. For household members who did not have a job, write: RETIRED, UNEMPLOYED, STUDENT, HOMEMAKER, DISABLED, etc. There should be AT LEAST one row for each member of this household born before 1995 (this includes anyone who is 16 years old or older).

			Person Code from page 2	What kind of work did he or she do in this job?	For whom did he or she work in this job?	In the past year, what months did he or she work in this job?	WORK SCHEDULE…** FULL TIME	PART TIME	SHIFT - FULL TIME	ON-CALL, VARIES	SHIFT - PART TIME	In the past year how much did he or she earn in this job?
order	role	res.	00	job title*	employer	circle each month worked	circle one					gross income***
		1ST JOB				J F M A M J J A S O N D	FT	PT	SF	OC	SP	$ / Yr
1	6	910100000										
		2ND JOB				J F M A M J J A S O N D	FT	PT	SF	OC	SP	$ / Yr
2	6	910100000										
		3RD JOB				J F M A M J J A S O N D	FT	PT	SF	OC	SP	$ / Yr
3	6	910100000										
		4TH JOB				J F M A M J J A S O N D	FT	PT	SF	OC	SP	$ / Yr
4	6	910100000										
		5TH JOB				J F M A M J J A S O N D	FT	PT	SF	OC	SP	$ / Yr
5	6	910100000										
		6TH JOB				J F M A M J J A S O N D	FT	PT	SF	OC	SP	$ / Yr
6	6	910100000										
		7TH JOB				J F M A M J J A S O N D	FT	PT	SF	OC	SP	$ / Yr
7	6	910100000										
		8TH JOB				J F M A M J J A S O N D	FT	PT	SF	OC	SP	$ / Yr
8	6	910100000										
		9TH JOB				J F M A M J J A S O N D	FT	PT	SF	OC	SP	$ / Yr
9	6	910100000										
		10TH JOB				J F M A M J J A S O N D	FT	PT	SF	OC	SP	$ / Yr
10	6	910100000										

* If a person FISHES COMMERCIALLY or is otherwise SELF-EMPLOYED, list that as a separate job. For job title, enter COMMERCIAL FISHER, CARVER, SEWER, BAKER, etc. Work schedule usually will be ON CALL. For gross income from self-employment, enter revenue minus expenses.

If a person does not earn money from any kind of work, enter RETIRED, UNEMPLOYED, DISABLED, STUDENT, or HOMEMAKER or other appropriate description as the job title. Leave employer, months worked, schedule, and gross income blank.

** WORK SCHEDULE

FT - Fulltime (35+ hours/week)	1
PT - Parttime (<35 hours/week)	2
SF - Shift (2 wks on/2 off, etc.)	3
OC - On Call, Irregular	4
SP - Shift - part time	5
-- - Unemployed	0

*** GROSS INCOME is the same as TAXABLE INCOME on a W-2 form. Self-employment, enter revenue -

EMPLOYMENT: 23 **SELAWIK: 303**

OTHER INCOME

THIS PAGE IS ONLY FOR INCOME THAT IS NOT EARNED FROM WORKING | **HOUSEHOLD ID** _____

Between OCTOBER 1, 2010, and SEPTEMBER 30, 2011…

…Did any members of your household receive a dividend from the Permanent Fund or a Native Corporation?..... Y N

IF NO, go to the next section on this page.

If YES, continue below…

		Did anyone in your household receive income from _____ in 2010?	TOTAL amount all members of your household received from _____ in 2010.
		circle one	*dollars*
DIVIDENDS	ALASKA PERMANENT FUND DIVIDEND	Y N	$ /YR
	32		
	NATIVE CORPORATION DIVIDENDS	Y N	$ /YR
	13		

Alaska PFD IN 2010
1 PFD = $1,281
2 PFDs = $2,562
3 PFDs = $3,843
4 PFDs = $5,124
5 PFDs = $6,405
6 PFDs = $7,686
7 PFDs = $8,967
8 PFDs = $10,248
9 PFDs = $11,529
10 PFDs = $12,810
11 PFDs = $14,091
12 PFDs = $15,372

Regional Corporations	***Per Share***
NANA Regional Corp.....	*$ 14.00*
Arctic Slope Regional Corp.....	*$ 64.26*
Bering Strait Native Association.....	*$ 2.35*

Village Corporation(s)	***Per Share***
.....	*$ -*

Between OCTOBER 1, 2010, and SEPTEMBER 30, 2011…

…Did any members of your household receive OTHER income such as SENIOR BENEFITS or UNEMPLOYMENT?..... Y N

IF NO, go to the next page.

If YES, continue below…

		Received?	Total Amount?
		circle one	*dollars*
EMPLOYMENT RELATED	UNEMPLOYMENT	Y N	$ /YR
	12		
	WORKERS' COMP	Y N	$ /YR
	8		
	SOCIAL SECURITY	Y N	$ /YR
	7		
	PENSION & RETIREMENT	Y N	$ /YR
	5		
	DISABILITY	Y N	$ /YR
	31		
	VETERANS ASSISTANCE	Y N	$ /YR
	35		
ENTITLEMENTS	FOOD STAMPS (QUEST CARD)	Y N	$ /YR
	11		
	ADULT PUBLIC ASSISTANCE	Y N	$ /YR
	3		
	SUPPLEMENTAL SECURITY INCOME (SSI)	Y N	$ /YR
	10		
STATE BENEFITS	ENERGY ASSISTANCE	Y N	$ /YR
	9		
	ALASKA SENIOR BENEFITS (LONGEVITY)	Y N	$ /YR
	6		

		Received?	Total Amount?
		circle one	*dollars*
FAMILY & CHILD	TANF *(say"Tanif," used to be AFDC)*	Y N	$ /YR
	2		
	CHILD SUPPORT	Y N	$ /YR
	15		
	FOSTER CARE	Y N	$ /YR
	41		
OTHER	FUEL VOUCHERS	Y N	$ /YR
	MEETING HONORARIA *(not per diem*)*	Y N	$ /YR
	OTHER *(describe)*	Y N	$ /YR
	OTHER *(describe)*	Y N	$ /YR

** per diem covers travel expenses, and is not counted as income.*

Scratch paper for calculations

for _____ weeks =
for _____ months =

for _____ weeks =
for _____ months =

Senior benefits of $125 per month for 12 months = $1,500 per elder
Senior benefits of $175 per month for 12 months = $2,100 per elder
Senior benefits of $250 per month for 12 months = $3,000 per elder

OTHER INCOME: 24 **SELAWIK: 303**

RETAINED COMMERCIAL HARVESTS

HOUSEHOLD ID

1. Do you or members of your household USUALLY participate in commercial fisheries?..... Y N

2. During the last year (between OCTOBER 1, 2010, AND SEPTEMBER 30, 2011), did you or members of your household PARTICIPATE in a commercial fishery?..... Y N

IF the answer to QUESTION 2 is NO, go to the subsistence harvests section.

IF the answer is YES, continue on this page…

During the last year,* did you or members of your household….				***IF "…keep some from commercial catch" is YES, ask questions below…***				
…fish commercially for _____?	…keep some _____ from your COMMERCIAL CATCH for your own use or to share?	Was the _____ that you kept INCIDENTAL CATCH? *That is, NOT a target species in the fishery*		Please estimate how many fish ALL MEMBERS OF YOUR HOUSEHOLD removed from commercial harvests for personal use during the last year. *Include COMMERCIALLY HARVESTED fish that members of this household gave away, ate fresh, fed to dogs, lost to spoilage, or got by helping others. If helping others, report ONLY THIS HOUSEHOLD'S share.*				
Insert names below in blanks above	*COM FISH?*	*KEEP?*	*INCI?*	How many were removed for your OWN USE?	How many were removed for your CREW?	How many were removed to give to OTHERS?	Units ***	
				number	*number*	*number*	*specify*	*comments*
CHUM SALMON *Qalugrauq*	Y N	Y N	Y N					
111,000,001								
PINK SALMON *Amaqtuq*	Y N	Y N	Y N					
114,000,001								
CHINOOK SALMON *Iqalsugruuk*	Y N	Y N	Y N					
113,000,001								
SOCKEYE SALMON *Aqalugrauq*	Y N	Y N	Y N					
115,000,001								
COHO SALMON *Qalugrauq*	Y N	Y N	Y N					
112,000,001								
SHEEFISH *Sii*	Y N	Y N	Y N					
125,600,001								
CRABS *Putuvak*	Y N	Y N	Y N					
501,000,001								
HERRING	Y N	Y N	Y N					
120,200,001								
HALIBUT	Y N	Y N	Y N					
121,800,001								
	Y N	Y N	Y N					

RETAINED COMMERCIAL HARVESTS continued on next page…

* *"LAST YEAR" means between OCTOBER 1, 2010, and SEPTEMBER 30, 2011.*

** *"USE" includes harvesting, processing, eating, trading, feeding to dogs, etc.*

*** *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

RETAINED COMMERCIAL HARVESTS

HOUSEHOLD ID

...RETAINED COMMERCIAL HARVESTS continued from previous page.

During the last year,* did you or members of your household….				IF "…keep some from commercial catch" is YES, ask questions below…				
…fish commercially for _____?	…keep some _____ from your COMMERCIAL CATCH for your own use or to share?	Was the _____ that you kept INCIDENTAL CATCH? *That is, NOT a target species in the fishery*		Please estimate how many fish ALL MEMBERS OF YOUR HOUSEHOLD removed from commercial harvests for personal use during the last year. *Include COMMERCIALLY HARVESTED fish that members of this household gave away, ate fresh, fed to dogs, lost to spoilage, or got by helping others. If helping others, report ONLY THIS HOUSEHOLD'S share.*				
				How many were removed for your OWN USE?	How many were removed for your CREW?	How many were removed to give to OTHERS?	Units ***	
Insert names below in blanks above	***COM FISH?***	***KEEP?***	***INCI?***	***number***	***number***	***number***	***specify***	***comments***
	Y N	Y N	Y N					
	Y N	Y N	Y N					
	Y N	Y N	Y N					
	Y N	Y N	Y N					
	Y N	Y N	Y N					
	Y N	Y N	Y N					
	Y N	Y N	Y N					
	Y N	Y N	Y N					
	Y N	Y N	Y N					
	Y N	Y N	Y N					
	Y N	Y N	Y N					

During the last year, did your household fish COMMERCIALLY for any other kind of fish?..... Y N

IF YES, enter the name in a blank row above, and answer the questions in that row.

* "LAST YEAR" means between OCTOBER 1, 2010, and SEPTEMBER 30, 2011.

** "USE" includes harvesting, processing, eating, trading, feeding to dogs, etc.

*** UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.

COMMERCIALLY HARVESTED RESOURCES: 03 **SELAWIK: 303**

SUBSISTENCE HARVESTS: SALMON

HOUSEHOLD ID

1. Do you or members of your household USUALLY fish for salmon for subsistence?..... Y N

2. During the last year (between OCTOBER 1, 2010, AND SEPTEMBER 30, 2011),
did you or members of your household USE or TRY TO FISH FOR salmon?..... Y N

IF the answer to QUESTION 2 is NO, go to the SALMON summary page.

IF the answer is YES, continue on this page…

During the last year[1], did you or members of your household….

Insert names below in blanks above	…use[2] _____? *USE?*	…receive _____ from someone in another household or community? *REC?*	…give _____ to someone in another household or community? *GIVE?*	…try[2] to harvest _____? *TRY includes looking, even if you got none* *TRY?*	***IF …try to harvest is "YES," ask questions below…*** *INCLUDE salmon that members of this household gave away, ate fresh, fed to dogs, lost to spoilage, or got by helping others. If fishing with or helping others, report ONLY THIS HOUSEHOLD'S share of the harvest.* Please estimate how many salmon ALL MEMBERS OF YOUR HOUSEHOLD got for subsistence uses during the last year. How many were... *number harvested by each gear type*: Caught with a SET NET	Caught with a DRIFT NET	Caught with a SEINE NET	Caught with a FISH WHEEL	Caught with a ROD & REEL[3]	Caught with OTHER GEAR	Units[4] *specify*	How many OF THOSE were used just for dogfood? *number*
CHUM SALMON *Qalugrauq*	Y N	Y N	Y N	Y N									
111,020,000													
PINK SALMON (HUMPIES) *Amaqtuq*	Y N	Y N	Y N	Y N									
114,000,000													
CHINOOK SALMON (KINGS) *Iqalsugruuk*	Y N	Y N	Y N	Y N									
113,000,000													
SOCKEYE SALMON (REDS) *Qalugrauq*	Y N	Y N	Y N	Y N									
115,000,000													
COHO SALMON (SILVERS) *Qalugrauq*	Y N	Y N	Y N	Y N									
112,000,000													
SALMON - UNKNOWN *Qalugrauq*	Y N	Y N	Y N	Y N									
119,000,000													
	Y N	Y N	Y N	Y N									
	Y N	Y N	Y N	Y N									
	Y N	Y N	Y N	Y N									

During the last year, did your household use any other kind of salmon?..... Y N

IF YES, enter the name in a blank row above, and answer the questions in that row.

DON'T FORGET MAP! ***Refer to data collection maps and mapping instructions to map salmon.***

1 *"LAST YEAR" means between OCTOBER 1, 2010, and SEPTEMBER 30, 2011.*

2 *"USE" includes harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*

3 *"ROD AND REEL" includes fish caught in open water with a hook and and a line attached to a rod or a pole. Jigging through the ice is "other gear."*

4 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

NON-COMMERCIAL SALMON: 04 **SELAWIK: 303**

SUBSISTENCE SUMMARY: SALMON

HOUSEHOLD ID

If this household did NOT USE or HARVEST salmon last year, go to the ASSESSMENT section below.
Otherwise, continue with the network questions…

SUBSISTENCE NETWORK

During the last 12 months…

SALMON		*Enter HH ID, with most important sources first. INCLUDE this household if members caught or processed salmon for this household. For other Selawik households, enter HH ID. For other communities, enter name of other community.*									
role	*resource*										
Who CAUGHT the SALMON your household used?											
1	110,000,000										
Who PROCESSED the SALMON your household used?											
2	110,000,000										
Who else SHARED SALMON with your household?											
3	110,000,000										
Who TRADED SALMON with your household?											
3	110,000,000										

ASSESSMENTS

110,000,000

To conclude our salmon section, I am going to ask a few general questions about salmon.

During the last 12 months
…did your household use LESS, SAME, or MORE salmon than in recent years? ..... X L S M
If LESS or MORE… *X = do not use*
WHY was your USE of salmon different? 1
2

During the last 12 months
…did your household spend less, same, or more TIME trying to get salmon than in recent years? ..... X L S M
If LESS TIME or MORE TIME… *X = do not harvest*
Why was your EFFORT different for salmon? 1
2

During the last 12 months
…did your household GET ENOUGH salmon? ..... Y N
If NO…
What KIND of salmon did you need? .....
WHY did your household NOT get enough salmon? 1
2

SUMMARY OF SALMON: 66, 67 **SELAWIK: 303**

SUBSISTENCE HARVESTS: WHITEFISH

HOUSEHOLD ID _____

1. Do you or members of your household USUALLY fish for whitefish for subsistence?..... Y N

2. During the last year (between OCTOBER 1, 2010, AND SEPTEMBER 30, 2011),
did you or members of your household USE or TRY TO FISH FOR whitefish?..... Y N

IF the answer to QUESTION 2 is NO, go to the next harvest page.

IF the answer is YES, continue on this page…

During the last year[1], did you or members of your household….

…use[2] _____?

…receive _____ from someone in another household or community?

…give _____ to someone in another household or community?

…try[2] to harvest _____? *TRY includes looking, even if you got none*

IF …try to harvest is "YES," ask questions below…

INCLUDE whitefish that members of this household gave away, ate fresh, fed to dogs, lost to spoilage, or got by helping others. If fishing with or helping others, report ONLY THIS HOUSEHOLD'S share of the harvest.

Please estimate how many whitefish ALL MEMBERS OF YOUR HOUSEHOLD got for subsistence uses during the last year. How many were...

Read names below in blanks above	USE?	REC?	GIVE?	TRY?	Caught with a SET NET	Caught with a DRIFT NET	Caught with a SEINE NET	Caught with a FISH WHEEL	Caught with a ROD & REEL[3]	Caught with OTHER GEAR	Units[4]	How many OF THOSE were used just for dogfood?
					number harvested by each gear type						*specify*	*number*
BROAD WHITEFISH *Siyyuiłaq, Qausriłuk, Qalupiaq*	Y N	Y N	Y N	Y N								
126,404,000												
HUMPBACK WHITEFISH *Qaalġiq, Ikkuiyiq*	Y N	Y N	Y N	Y N								
126,408,000												
LEAST CISCO *Qalusraaq, Arŋuutituuq, Qalutchiac*	Y N	Y N	Y N	Y N								
126,406,060												
ROUND WHITEFISH *Quptik*	Y N	Y N	Y N	Y N								
126,412,000												
BERING CISCO *(uncommon)*	Y N	Y N	Y N	Y N								
126,406,040												
UNKNOWN WHITEFISH *Qalupiaq*	Y N	Y N	Y N	Y N								
126,499,000												
	Y N	Y N	Y N	Y N								
	Y N	Y N	Y N	Y N								
	Y N	Y N	Y N	Y N								

During the last year, did your household use any other kind of whitefish?..... Y N

IF YES, enter the name in a blank row above, and answer the questions in that row.

DON'T FORGET MAP! ***Refer to data collection maps and mapping instructions to map whitefish.***

1 *"LAST YEAR" means between OCTOBER 1, 2010, and SEPTEMBER 30, 2011.*

2 *"USE" includes harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*

3 *"ROD AND REEL" includes fish caught in open water with a hook and and a line attached to a rod or a pole. Jigging through the ice is "other gear."*

4 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

NON-SALMON FINFISH: 06 **SELAWIK: 303**

SUBSISTENCE HARVESTS: OTHER FISH

HOUSEHOLD ID

1. Do you or members of your household USUALLY fish for other fish for subsistence?..... Y N

2. During the last year (between OCTOBER 1, 2010, AND SEPTEMBER 30, 2011), did you or members of your household USE or TRY TO FISH FOR other fish?..... Y N

IF the answer to QUESTION 2 is NO, go to the next harvest page.

IF the answer is YES, continue on this page…

During the last year[1], did you or members of your household….

…use[2] _____?

…receive _____ from someone in another household or community?

…give _____ to someone in another household or community?

…try[2] to harvest _____? *TRY includes looking, even if you got none*

IF …try to harvest is "YES," ask questions below…

INCLUDE other fish that members of this household gave away, ate fresh, fed to dogs, lost to spoilage, or got by helping others. If fishing with or helping others, report ONLY THIS HOUSEHOLD'S share of the harvest.

Please estimate how many other fish ALL MEMBERS OF YOUR HOUSEHOLD got for subsistence uses during the last year. How many were...

Read names below in blanks above	USE?	REC?	GIVE?	TRY?	Caught with a SET NET	Caught with a DRIFT NET	Caught with a SEINE NET	Caught with a FISH WHEEL	Caught with a ROD & REEL[3]	Caught with OTHER GEAR	Units[4]	How many OF THOSE were used just for dogfood?
					number harvested by each gear type						*specify*	*number*
SHEEFISH *Sii*	Y N	Y N	Y N	Y N								
125,600,000												
NORTHERN PIKE *Siilik*	Y N	Y N	Y N	Y N								
125,500,000												
BURBOT (MUD SHARK) *Tittaliq*	Y N	Y N	Y N	Y N								
124,800,000												
DOLLY VARDEN (TROUT) *Qalukpik*	Y N	Y N	Y N	Y N								
125,006,000												
GRAYLING *Sulukpaugaq*	Y N	Y N	Y N	Y N								
125,200,000												
SMELT *Iłqaugniq*	Y N	Y N	Y N	Y N								
120,400,000												
SAFFRON COD (TOMCOD) *Uuġaq*	Y N	Y N	Y N	Y N								
121,010,000												
HERRING *Ugsrugtuuq*	Y N	Y N	Y N	Y N								
120,200,000												
	Y N	Y N	Y N	Y N								

During the last year, did your household use any other kind of other fish?..... Y N

IF YES, enter the name in a blank row above, and answer the questions in that row.

DON'T FORGET MAP! ***Refer to data collection maps and mapping instructions to map other fish.***

1 *"LAST YEAR" means between OCTOBER 1, 2010, and SEPTEMBER 30, 2011.*

2 *"USE" includes harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*

3 *"ROD AND REEL" includes fish caught in open water with a hook and and a line attached to a rod or a pole. Jigging through the ice is "other gear."*

4 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

NON-SALMON FINFISH: 06 **SELAWIK: 303**

SUBSISTENCE SUMMARY: FISH OTHER THAN SALMON

HOUSEHOLD ID

If this household did NOT USE or HARVEST fish other than salmon last year, go to the ASSESSMENT section below.

Otherwise, continue with the network questions…

SUBSISTENCE NETWORK

During the last 12 months…

WHITEFISH

role	resource	Enter HH ID, with most important sources first. INCLUDE this household if members caught or processed whitefish for this household. For other Selawik households, enter HH ID. For other communities, enter name of other community.									
Who CAUGHT the WHITEFISH your household used?											
1	126,400,000										
Who PROCESSED the WHITEFISH your household											
2	126,400,000										
Who else SHARED WHITEFISH with your household?											
3	126,400,000										
Who TRADED WHITEFISH with your household?											
3	126,400,000										

During the last 12 months…

OTHER FISH

role	resource	Enter HH ID, with most important sources first. INCLUDE this household if members caught or processed other fish for this household. For other Selawik households, enter HH ID. For other communities, enter name of other community.									
Who CAUGHT the OTHER FISH your household used?											
1	960,300,500										
Who PROCESSED the OTHER FISH your household used?											
2	960,300,500										
Who else SHARED OTHER FISH with your household?											
3	960,300,500										
Who TRADED OTHER FISH with your household?											
3	960,300,500										

ASSESSMENTS

120,000,000

To conclude our fish other than salmon section, I am going to ask a few general questions about fish other than salmon.

During the last 12 months

…did your household use LESS, SAME, or MORE fish other than salmon than in recent years?..... X L S M

If LESS or MORE… *X = do not use*

WHY was your USE of fish other than salmon different?..... 1

2

During the last 12 months

…did your household spend less, same, or more TIME trying to get fish other than salmon than in recent years?..... X L S M

If LESS TIME or MORE TIME… *X = do not harvest*

Why was your EFFORT different for fish other than salmon?..... 1

2

During the last 12 months

…did your household GET ENOUGH fish other than salmon?..... Y N

If NO…

What KIND of fish other than salmon did you need?.....

WHY did your household NOT get enough fish other than salmon?..... 1

2

SUMMARY OF FISH OTHER THAN SALMON: 66, 67 SELAWIK: 303

SUBSISTENCE HARVESTS: MARINE INVERTEBRATES

HOUSEHOLD ID _____

1. Do you or members of your household USUALLY get marine invertebrates for subsistence, such as PUTUVAK, IVILUQ, or any other marine invertebrates?..... Y N
2. During the last year (between OCTOBER 1, 2010, AND SEPTEMBER 30, 2011), did you or members of your household USE or TRY TO GET marine invertebrates?..... Y N

IF the answer to QUESTION 2 is NO, go to the MARINE INVERTEBRATES summary page.

IF the answer is YES, continue on this page…

During the last year[1], did you or members of your household….					IF ...try to harvest is "YES," ask questions below…		
…use[2] _____?	…receive _____ from someone in another household or community?	…give _____ to someone in another household or community?	…try[2] to harvest _____? TRY includes looking, even if you got none		Please estimate how many marine invertebrates ALL MEMBERS OF YOUR HOUSEHOLD got for subsistence uses during the last year. INCLUDE marine invertebrates that members of this household gave away, ate fresh, lost to spoilage, or got by helping others. If harvest with or helping others, report ONLY THIS HOUSEHOLD'S share of the harvest.		
Insert names below in blanks above	*USE?*	*REC?*	*GIVE?*	*TRY?*	How many did your HH get? *amount*	Units[3] *specify*	*comments*
KING CRAB *Putuvak*	Y N	Y N	Y N	Y N		GAL	
501,008,000							
TANNER CRAB *Putuvak*	Y N	Y N	Y N	Y N		GAL	
501,012,000							
CLAMS *Iviluq*	Y N	Y N	Y N	Y N		GAL	
500,600,000							
MUSSELS *Avyak*	Y N	Y N	Y N	Y N		GAL	
502,000,000							
OTHER INVERTEBRATES	Y N	Y N	Y N	Y N		GAL	
509,900,000							
	Y N	Y N	Y N	Y N		GAL	
	Y N	Y N	Y N	Y N		GAL	
	Y N	Y N	Y N	Y N		GAL	
	Y N	Y N	Y N	Y N		GAL	

During the last year, did your household use any other kind of marine invertebrates?..... Y N

IF YES, enter the name in a blank row above, and answer the questions in that row.

DON'T FORGET MAP! ***Refer to data collection maps and mapping instructions to map marine invertebrates.***

1 *"LAST YEAR" means between OCTOBER 1, 2010, and SEPTEMBER 30, 2011.*

2 *"USE" includes harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*

3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

4 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

SUBSISTENCE SUMMARY: MARINE INVERTEBRATES

HOUSEHOLD ID

If this household did NOT USE or HARVEST marine invertebrates last year, go to the ASSESSMENT section below.
Otherwise, continue with the network questions…

SUBSISTENCE NETWORK

During the last 12 months…

SHELLFISH		*Enter HH ID, with most important sources first.* *INCLUDE this household if members caught or processed shellfish for this household. For other Selawik households, enter HH ID. For other communities, enter name of other community.*									
role	*resource*										
Who GOT the SHELLFISH your household used?											
1	231,000,000										
Who PROCESSED the SHELLFISH your household											
2	231,000,000										
Who else SHARED SHELLFISH with your household?											
3	231,000,000										
Who TRADED SHELLFISH with your household?											
3	231,000,000										

ASSESSMENTS

500,000,000

To conclude our marine invertebrates section, I am going to ask a few general questions about marine invertebrates.

During the last 12 months
…did your household use LESS, SAME, or MORE marine invertebrates than in recent years?..... X L S M
If LESS or MORE… *X = do not use*
WHY was your USE of marine invertebrates different?..... 1
2

During the last 12 months
…did your household spend less, same, or more TIME trying to get marine invertebrates than in recent years?..... X L S M
If LESS TIME or MORE TIME… *X = do not harvest*
Why was your EFFORT different for marine invertebrates?..... 1
2

During the last 12 months
…did your household GET ENOUGH marine invertebrates?..... Y N
If NO…
What KIND of marine invertebrates did you need?.....
WHY did your household NOT get enough marine invertebrates?..... 1
2

SUMMARY OF MARINE INVERTEBRATES: 66, 67 **SELAWIK: 303**

SUBSISTENCE HARVESTS: LARGE LAND ANIMALS

HOUSEHOLD ID

1. Do you or members of your household USUALLY hunt large land animals for subsistence, such as TINIIKAQ, TUTTU, or any other large land animals?..... Y N
2. During the last year (between OCTOBER 1, 2010, AND SEPTEMBER 30, 2011), did you or members of your household USE or TRY TO HUNT large land animals?..... Y N

IF the answer to QUESTION 2 is NO, go to the next harvest page.

IF the answer is YES, continue on this page…

During the last year[1], did you or members of your household….

Insert names below in blanks above	USE? …use[2] _____?	REC? …receive _____ from someone in another household or community?	GIVE? …give _____ to someone in another household or community?	TRY? …try[2] to harvest _____? TRY includes looking, even if you got none
MOOSE *Tiniikaq* 211,800,000	Y N	Y N	Y N	Y N
211,800,001				
211,800,002				
211,800,009				
CARIBOU *Tuttu* 211,000,000	Y N	Y N	Y N	Y N
211,000,001				
211,000,002				
211,000,009				
BLACK BEAR *Qiqñiqłaq, Pisruktuaq* 210,600,000	Y N	Y N	Y N	Y N
BROWN BEAR *Akłaq* 210,800,000	Y N	Y N	Y N	Y N
DALL SHEEP *Ipniaq* 212,200,000	Y N	Y N	Y N	Y N
MUSKOX *Umikmiaq* 212,000,000	Y N	Y N	Y N	Y N
	Y N	Y N	Y N	Y N

IF ...try to harvest is "YES," ask questions below…

Please estimate how many large land animals ALL MEMBERS OF YOUR HOUSEHOLD got for subsistence uses during the last year.

INCLUDE large land animals that members of this household gave away, ate fresh, fed to dogs, lost to spoilage, or got by helping others. If hunting with or helping others, report ONLY THIS HOUSEHOLD'S share of the harvest.

SEX	October	November	December	January	February	March	April	May	June	July	August	September	Unknown	Units[3]
	number killed in each month													specify
BULL														IND
COW														IND
UNKNOWN														IND
BULL														IND
COW														IND
UNKNOWN														IND
														IND
														IND
														IND
														IND
														IND

During the last year, did your household use any other kind of large land animals?..... Y N

IF YES, enter the name in a blank row above, and answer the questions in that row.

DON'T FORGET MAP! ***Refer to data collection maps and mapping instructions to map large land animals.***

1 *"LAST YEAR" means between OCTOBER 1, 2010, and SEPTEMBER 30, 2011.*

2 *"USE" includes harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*

3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

LAND MAMMALS: 10 **SELAWIK: 303**

SUBSISTENCE HARVESTS: SMALL LAND ANIMALS

HOUSEHOLD ID ____

1. Do you or members of your household USUALLY hunt small land animals for subsistence, such as AQU, PALUQTAQ, UKAILLAITCHIAQ, UKALLIQ, or any other small land animals?..... Y N
2. During the last year (between OCTOBER 1, 2010, AND SEPTEMBER 30, 2011), did you or members of your household USE or TRY TO HUNT small land animals?..... Y N

IF the answer to QUESTION 2 is NO, go to the next harvest page.

IF the answer is YES, continue on this page…

During the last year[1], did you or members of your household….

…use[2] _____?

…receive _____ from someone in another household or community?

…give _____ to someone in another household or community?

…try[2] to harvest _____? *TRY includes looking, even if you got none*

IF …try to harvest is "YES," ask questions below…

Please estimate how many small land animals ALL MEMBERS OF YOUR HOUSEHOLD got for subsistence uses during the last year.

INCLUDE small land animals that members of this household gave away, ate fresh, fed to dogs, lost to spoilage, or got by helping others. If hunting with or helping others, report ONLY THIS HOUSEHOLD'S share of the harvest.

Insert names below in blanks above	*USE?*	*REC?*	*GIVE?*	*TRY?*	October	November	December	January	February	March	April	May	June	July	August	September	Unknown	Units[3]	Number Used For Food or for Food & Fur
					number killed in each month													*specify*	
BEAVER *Aqu, paluqtaq*	Y N	Y N	Y N	Y N														IND	
220,200,000																			
MUSKRAT *Kigvaluk*	Y N	Y N	Y N	Y N														IND	
222,400,000																			
SNOWSHOE HARE *Ukaillaitchiaq, ukalliq*	Y N	Y N	Y N	Y N														IND	
221,004,000																			
ARCTIC HARE *Ukallisugruk*	Y N	Y N	Y N	Y N														IND	
221,002,000																			
PORCUPINE *Illuqutaq*	Y N	Y N	Y N	Y N														IND	
222,600,000																			
PARKA (GROUND) SQUIRREL *Siksrik*	Y N	Y N	Y N	Y N														IND	
222,802,000																			
MARMOT *Siksrikpaq*	Y N	Y N	Y N	Y N														IND	
221,800,000																			
TREE SQUIRREL	Y N	Y N	Y N	Y N														IND	
222,804,000																			
	Y N	Y N	Y N	Y N														IND	

During the last year, did your household use any other kind of small land animals?..... Y N

IF YES, enter the name in a blank row above, and answer the questions in that row.

DON'T FORGET MAP! ***Refer to data collection maps and mapping instructions to map small land animals.***

1 *"LAST YEAR" means between OCTOBER 1, 2010, and SEPTEMBER 30, 2011.*

2 *"USE" includes harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*

3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

LAND MAMMALS: 10 **SELAWIK: 303**

SUBSISTENCE HARVESTS: FUR ANIMALS

HOUSEHOLD ID

1. Do you or members of your household USUALLY hunt or trap for fur animals for subsistence, such as QAPVIK, QAPVAITCHIAQ, or any other fur animals?..... Y N
2. During the last year (between OCTOBER 1, 2010, AND SEPTEMBER 30, 2011), did you or members of your household USE or TRY TO HUNT OR TRAP FOR fur animals?..... Y N

IF the answer to QUESTION 2 is NO, go to the LAND ANIMALS summary page.

IF the answer is YES, continue on this page…

During the last year[1], did you or members of your household….

…use[2] _____?

…receive _____ from someone in another household or community?

…give _____ to someone in another household or community?

…try[2] to harvest _____? *TRY includes looking, even if you got none*

IF …try to harvest is "YES," ask questions below…

Please estimate how many fur animals ALL MEMBERS OF YOUR HOUSEHOLD got for subsistence uses during the last year.

INCLUDE fur animals that members of this household gave away, ate fresh, fed to dogs, lost to spoilage, or got by helping others. If hunting or trapping with or helping others, report ONLY THIS HOUSEHOLD'S share of the harvest.

Insert names below in blanks above	*USE?*	*REC?*	*GIVE?*	*TRY?*	October	November	December	January	February	March	April	May	June	July	August	September	Unknown	Units[3]	Number Used For Food or for Food & Fur
					number caught in each month													*specify*	
WOLVERINE *Qapvik*	Y N	Y N	Y N	Y N														IND	
223,400,000																			
WOLF *Amaguq*	Y N	Y N	Y N	Y N														IND	
223,200,000																			
MARTEN *Qapvaitchiaq*	Y N	Y N	Y N	Y N														IND	
222,000,000																			
LYNX *Nuutuiyiq*	Y N	Y N	Y N	Y N														IND	
221,600,000																			
RED FOX *Kayuqtuq*	Y N	Y N	Y N	Y N														IND	
220,804,000																			
ARCTIC FOX *Qusrhaaq*	Y N	Y N	Y N	Y N														IND	
220,802,000																			
OTTER *Pamiuqtuuq*	Y N	Y N	Y N	Y N														IND	
221,200,000																			
	Y N	Y N	Y N	Y N														IND	
	Y N	Y N	Y N	Y N														IND	

During the last year, did your household use any other kind of fur animals?..... Y N

IF YES, enter the name in a blank row above, and answer the questions in that row.

DON'T FORGET MAP! ***Refer to data collection maps and mapping instructions to map fur animals.***

1 *"LAST YEAR" means between OCTOBER 1, 2010, and SEPTEMBER 30, 2011.*

2 *"USE" includes harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*

3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

FURBEARERS: 14 **SELAWIK: 303**

SUBSISTENCE SUMMARY: LAND ANIMALS

HOUSEHOLD ID

If this household did NOT USE or HARVEST land animals last year, go to the ASSESSMENT section below.
Otherwise, continue with the network questions…

SUBSISTENCE NETWORK

During the last 12 months…

MOOSE

role	resource	*Enter HH ID, with most important sources first. INCLUDE this household if members caught or processed moose for this household. For other Selawik households, enter HH ID. For other communities, enter name of other community.*									
Who KILLED the MOOSE your household used?											
1	211,800,000										
Who PROCESSED the MOOSE your household used?											
2	211,800,000										
Who else SHARED MOOSE with your household?											
3	211,800,000										
Who TRADED MOOSE with your household?											
3	211,800,000										

During the last 12 months…

CARIBOU

role	resource	*Enter HH ID, with most important sources first. INCLUDE this household if members caught or processed caribou for this household. For other Selawik households, enter HH ID. For other communities, enter name of other community.*									
Who KILLED the CARIBOU your household used?											
1	211,000,000										
Who PROCESSED the CARIBOU your household used?											
2	211,000,000										
Who else SHARED CARIBOU with your household?											
3	211,000,000										
Who TRADED CARIBOU with your household?											
3	211,000,000										

ASSESSMENTS

200,000,000

To conclude our land animals section, I am going to ask a few general questions about land animals.

During the last 12 months
…did your household use LESS, SAME, or MORE land animals than in recent years?..... X L S M

X = do not use

If LESS or MORE…
WHY was your USE of land animals different?..... 1
2

During the last 12 months
…did your household spend less, same, or more TIME trying to get land animals than in recent years?..... X L S M

X = do not harvest

If LESS TIME or MORE TIME…
Why was your EFFORT different for land animals?..... 1
2

During the last 12 months
…did your household GET ENOUGH land animals?..... Y N

If NO…
What KIND of land animals did you need?.....
WHY did your household NOT get enough land animals?..... 1
2

SUMMARY OF LAND ANIMALS: 66, 67

SELAWIK: 303

SUBSISTENCE HARVESTS: MARINE MAMMALS

HOUSEHOLD ID

1. Do you or members of your household USUALLY hunt marine mammals for subsistence?..... Y N

2. During the last year (between OCTOBER 1, 2010, AND SEPTEMBER 30, 2011), did you or members of your household USE or TRY TO HUNT marine mammals?..... Y N

IF the answer to QUESTION 2 is NO, go to the MARINE MAMMALS summary page.

IF the answer is YES, continue on this page…

During the last year[1], did you or members of your household….

…use[2] _____?

…receive _____ from someone in another household or community?

…give _____ to someone in another household or community?

…try[2] to harvest _____? *TRY includes looking, even if you got none*

IF ...try to harvest is "YES," ask questions below…

Please estimate how many marine mammals ALL MEMBERS OF YOUR HOUSEHOLD killed for subsistence uses during the last year.

INCLUDE marine mammals that members of this household gave away, ate fresh, fed to dogs, lost to spoilage, or got by helping others. If hunting with or helping others, report ONLY THIS HOUSEHOLD'S share of the harvest.

Insert names below in blanks above	USE?	REC?	GIVE?	TRY?	October	November	December	January	February	March	April	May	June	July	August	September	Unknown	Units[3] specify	comments
					number killed in each month														
BEARDED SEAL *Ugruk*	Y N	Y N	Y N	Y N														IND	
300,802,000																			
RINGED SEAL *Natchiq*	Y N	Y N	Y N	Y N														IND	
300,810,000																			
SPOTTED SEAL *Qasigiaq*	Y N	Y N	Y N	Y N														IND	
300,812,000																			
SEAL OIL *Ushruk*	Y N	Y N	Y N	Y N														IND	
300,899,000																			
BELUKHA WHALE *Sisuaq*	Y N	Y N	Y N	Y N														IND	
301,602,000																			
BOWHEAD WHALE *Agviq*	Y N	Y N	Y N	Y N														IND	
301,606,000																			
WALRUS *Aiviq*	Y N	Y N	Y N	Y N														IND	
301,400,000																			
	Y N	Y N	Y N	Y N														IND	
	Y N	Y N	Y N	Y N														IND	

During the last year, did your household use any other kind of marine mammals?..... Y N

IF YES, enter the name in a blank row above, and answer the questions in that row.

DON'T FORGET MAP! ***Refer to data collection maps and mapping instructions to map marine mammals.***

1 *"LAST YEAR" means between OCTOBER 1, 2010, and SEPTEMBER 30, 2011.*

2 *"USE" includes harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*

3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

MARINE MAMMALS: 12 **SELAWIK: 303**

SUBSISTENCE SUMMARY: MARINE MAMMALS

HOUSEHOLD ID

If this household did NOT USE or HARVEST marine mammals last year, go to the ASSESSMENT section below.
Otherwise, continue with the network questions…

SUBSISTENCE NETWORK

During the last 12 months…

SEALS

role	resource	Enter HH ID, with most important sources first. INCLUDE this household if members caught or processed seals for this household. For other Selawik households, enter HH ID. For other communities, enter name of other community.									
Who KILLED the SEALS your household used?											
1	300,800,009										
Who PROCESSED the SEALS your household used?											
2	300,800,009										
Who else SHARED SEALS with your household?											
3	300,800,009										
Who TRADED SEALS with your household?											
3	300,800,009										

During the last 12 months…

WHALES

role	resource	Enter HH ID, with most important sources first. INCLUDE this household if members caught or processed whales for this household. For other Selawik households, enter HH ID. For other communities, enter name of other community.									
Who KILLED the WHALES your household used?											
1	301,600,009										
Who PROCESSED the WHALES your household used?											
2	301,600,009										
Who else SHARED WHALES with your household?											
3	301,600,009										
Who TRADED WHALES with your household?											
3	301,600,009										

ASSESSMENTS

300,000,000

To conclude our marine mammals section, I am going to ask a few general questions about marine mammals.

During the last 12 months
…did your household use LESS, SAME, or MORE marine mammals than in recent years? ..... X L S M
If LESS or MORE… *X = do not use*
WHY was your USE of marine mammals different? 1
2

During the last 12 months
…did your household spend less, same, or more TIME trying to get marine mammals than in recent years? ..... X L S M
If LESS TIME or MORE TIME… *X = do not harvest*
Why was your EFFORT different for marine mammals? 1
2

During the last 12 months
…did your household GET ENOUGH marine mammals? ..... Y N
If NO…
What KIND of marine mammals did you need? .....
WHY did your household NOT get enough marine mammals? 1
2

SUMMARY OF MARINE MAMMALS: 66, 67 **SELAWIK: 303**

HARVESTS: DUCKS

HOUSEHOLD ID

1. Do you or members of your household USUALLY hunt ducks for subsistence, such as UGIIHIQ, IVUGASRUGRUK, or any other ducks?..... Y N
2. During the last year (between JANUARY 1, 2009, AND DECEMBER 31, 2009), did you or members of your household USE or TRY TO HUNT ducks?..... Y N

IF the answer to QUESTION 2 is NO, go to the next harvest page.

IF the answer is YES, continue on this page…

During the last year[1], did you or members of your household….

…use[2] _____?

…receive _____ from someone in another household or community?

…give _____ to someone in another household or community?

…try[2] to harvest _____?
TRY includes looking, even if you got none

IF …try to harvest is "YES," ask questions below…

Please estimate how many ducks ALL MEMBERS OF YOUR HOUSEHOLD killed for subsistence uses during the last year.

INCLUDE ducks that members of this household gave away, ate fresh, lost to spoilage, or got by helping others. If hunting with or helping others, report ONLY THIS HOUSEHOLD'S share of the harvest.

Insert names below in blanks above	*USE?*	*REC?*	*GIVE?*	*TRY?*	January February November December WINTER	April May June SPRING	July August SUMMER	September October FALL	Season of harvest unknown	Units[3]
					number killed in each season				*number*	*specify*
WIGEON *Ugiihiq*	Y N	Y N	Y N	Y N						IND
410,236,000										
TEAL *Qaiñiq*	Y N	Y N	Y N	Y N						IND
410,232,060										
MALLARD *Ivugasrugruk*	Y N	Y N	Y N	Y N						IND
410,214,000										
PINTAIL *Ivugaq, Kurugaq*	Y N	Y N	Y N	Y N						IND
410,220,000										
SHOVELER *Aluutaq*	Y N	Y N	Y N	Y N						IND
410,230,000										
BLACK SCOTER *Tuuŋġaaġruk*	Y N	Y N	Y N	Y N						IND
410,228,020										
SURF SCOTER -	Y N	Y N	Y N	Y N						IND
410,228,040										
WHITE-WINGED SCOTER *Killalik*	Y N	Y N	Y N	Y N						IND
410,228,060										
BUFFLEHEAD *Nunuqsiiġiiḷaq*	Y N	Y N	Y N	Y N						IND
410,202,000										
GOLDENEYE	Y N	Y N	Y N	Y N						IND
410,210,000										

DUCKS continued on next page…

1 *"LAST YEAR" means between OCTOBER 1, 2010, and SEPTEMBER 30, 2011.*

2 *"USE" includes harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*

3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

HARVESTS: DUCKS

HOUSEHOLD ID

DUCKS continued from previous page…

During the last year,* did you or members of your household….

Insert names below in blanks above	…use** _____? USE?	…receive _____ from someone in another household or community? REC?	…give _____ to someone in another household or community? GIVE?	…try** to harvest _____? INCLUDE looking, even if you got none TRY?	IF …try to harvest is "YES," ask questions below… Please estimate how many ducks ALL MEMBERS OF YOUR HOUSEHOLD got for subsistence uses during the last year. INCLUDE ducks that members of the household gave away, ate fresh, lost to spoilage, or got by helping others. If hunting with or helping others, report ONLY THIS HOUSEHOLD'S share of the harvest.					
					January February March April	May June	July August September	October November December	Season of harvest unknown	
					WINTER	SPRING	SUMMER	FALL	number	Units *** specify
					number killed in each season					
CANVASBACK	Y N	Y N	Y N	Y N						IND
410,204,000										
SCAUP *Qaqłutuuq*	Y N	Y N	Y N	Y N						IND
410,226,000										
COMMON EIDER *Mitiqliqruaq*	Y N	Y N	Y N	Y N						IND
410,206,020										
KING EIDER *Qiŋalik, qiŋalik (Barrow)*	Y N	Y N	Y N	Y N						IND
410,206,040										
SPECTACLED EIDER *Qavaasuk (Barrow)*	Y N	Y N	Y N	Y N						IND
410,206,060										
STELLER'S EIDER *Igniqauqtuq (Barrow)*	Y N	Y N	Y N	Y N						IND
410,206,080										
HARLEQUIN *Saġvam tiŋmiaq*	Y N	Y N	Y N	Y N						IND
410,212,000										
ONG-TAILED DUCK (OLDSQUAW *Aahaaliq*	Y N	Y N	Y N	Y N						IND
410,218,000										
	Y N	Y N	Y N	Y N						IND
UNKNOWN DUCKS	Y N	Y N	Y N	Y N						IND
410,299,000										
	Y N	Y N	Y N	Y N						IND
	Y N	Y N	Y N	Y N						IND

During the last year, did your household use any other kind of ducks?..... Y N

IF YES, enter the name in a blank row above, and answer the questions in that row.

* "LAST YEAR" means between OCTOBER 1, 2010, and SEPTEMBER 30, 2011.

** "USE" includes harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.

*** UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.

SUBSISTENCE HARVESTS: GEESE

HOUSEHOLD ID

1. Do you or members of your household USUALLY hunt geese for subsistence, such as KIGIYUK, NIGLIK?, or any other geese?..... Y N
2. During the last year (between OCTOBER 1, 2010, AND SEPTEMBER 30, 2011), did you or members of your household USE or TRY TO HUNT geese?..... Y N

IF the answer to QUESTION 2 is NO, go to the next harvest page.

IF the answer is YES, continue on this page…

During the last year[1], did you or members of your household….					*IF …try to harvest is "YES," ask questions below…*					
…use[2] _____?	…receive _____ from someone in another household or community?	…give _____ to someone in another household or community?	…try[2] to harvest _____? *TRY includes looking, even if you got none*		Please estimate how many geese ALL MEMBERS OF YOUR HOUSEHOLD got for subsistence uses during the last year. *INCLUDE geese that members of this household gave away, ate fresh, lost to spoilage, or got by helping others. If hunting with or helping others, report ONLY THIS HOUSEHOLD'S share of the harvest.*					
					January February November December	April May June	July August	September October	Season of harvest unknown	Units[3]
					WINTER	SPRING	SUMMER	FALL		
Insert names below in blanks above	*USE?*	*REC?*	*GIVE?*	*TRY?*	*number got in each season*				*number*	*specify*
WHITE FRONTED GEESE *Kigiyuk*	Y N	Y N	Y N	Y N						IND
410,410,000										
CANADA GEESE *Iqsraġutilik*	Y N	Y N	Y N	Y N						IND
410,404,080										
BRANT *Niġliġnaq, niqliqnaurat*	Y N	Y N	Y N	Y N						IND
410,402,000										
CACKLERS *Niglik?*	Y N	Y N	Y N	Y N						IND
410,404,040										
EMPEROR GEESE *Liġliqpak*	Y N	Y N	Y N	Y N						IND
410,406,000										
SNOW GEESE *Kaŋuq*	Y N	Y N	Y N	Y N						IND
410,408,000										
	Y N	Y N	Y N	Y N						IND
	Y N	Y N	Y N	Y N						IND
	Y N	Y N	Y N	Y N						IND
	Y N	Y N	Y N	Y N						IND

During the last year, did your household use any other kind of geese?..... Y N

IF YES, enter the name in a blank row above, and answer the questions in that row.

1 *"LAST YEAR" means between OCTOBER 1, 2010, and SEPTEMBER 30, 2011.*

2 *"USE" includes harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*

3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

BIRDS AND EGGS: 15 **SELAWIK: 303**

SUBSISTENCE HARVESTS: OTHER BIRDS

HOUSEHOLD ID

1. Do you or members of your household USUALLY hunt other birds for subsistence, such as AQARGIQ, TATTIRGAQ, or any other other birds?..... Y N
2. During the last year (between OCTOBER 1, 2010, AND SEPTEMBER 30, 2011), did you or members of your household USE or TRY TO HUNT other birds?..... Y N

IF the answer to QUESTION 2 is NO, go to the next harvest page.

IF the answer is YES, continue on this page…

During the last year[1], did you or members of your household….					IF …try to harvest is "YES," ask questions below…					
…use[2] _____?	…receive _____ from someone in another household or community?	…give _____ to someone in another household or community?	…try[2] to harvest _____? TRY includes looking, even if you got none		Please estimate how many other birds ALL MEMBERS OF YOUR HOUSEHOLD got for subsistence uses during the last year. INCLUDE other birds that members of this household gave away, ate fresh, lost to spoilage, or got by helping others. If hunting with or helping others, report ONLY THIS HOUSEHOLD'S share of the harvest.					
					January February November December	April May June	July August	September October	Season of harvest unknown	
					WINTER	SPRING	SUMMER	FALL		Units[3]
Insert names below in blanks above	*USE?*	*REC?*	*GIVE?*	*TRY?*	*number got in each season*				*number*	*specify*
PTARMIGAN *Aqargiq*	Y N	Y N	Y N	Y N						IND
421,804,990										
SPRUCE GROUSE *Napaaqtum aqargiq*	Y N	Y N	Y N	Y N						IND
421,802,020										
SANDHILL CRANE *Tattirgaq*	Y N	Y N	Y N	Y N						IND
410,802,000										
TUNDRA SWAN *Qugruk*	Y N	Y N	Y N	Y N						IND
410,604,000										
WHIMBREL *Kukukiaq*	Y N	Y N	Y N	Y N						IND
411,009,040										
	Y N	Y N	Y N	Y N						IND
	Y N	Y N	Y N	Y N						IND
	Y N	Y N	Y N	Y N						IND
	Y N	Y N	Y N	Y N						IND
	Y N	Y N	Y N	Y N						IND

During the last year, did your household use any other kind of other birds?..... Y N

IF YES, enter the name in a blank row above, and answer the questions in that row.

1 *"LAST YEAR" means between OCTOBER 1, 2010, and SEPTEMBER 30, 2011.*

2 *"USE" includes harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*

3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

SUBSISTENCE HARVESTS: EGGS

HOUSEHOLD ID

1. Do you or members of your household USUALLY gather eggs for subsistence, such as DUCK EGGS, SWAN EGGS, or any other eggs?..... Y N
2. During the last year (between OCTOBER 1, 2010, AND SEPTEMBER 30, 2011), did you or members of your household USE or TRY TO GATHER eggs?..... Y N

IF the answer to QUESTION 2 is NO, go to the BIRD & EGG summary page.

IF the answer is YES, continue on this page…

During the last year[1], did you or members of your household….					IF …try to harvest is "YES," ask questions below…		
…use[2] _____?	…receive _____ from someone in another household or community?	…give _____ to someone in another household or community?	…try[2] to harvest _____? TRY includes looking, even if you got none		Please estimate how many eggs ALL MEMBERS OF YOUR HOUSEHOLD got for subsistence uses during the last year. INCLUDE eggs that members of this household gave away, ate fresh, lost to spoilage, or got by helping others. If gathering with or helping others, report ONLY THIS HOUSEHOLD'S share of the harvest.		
Insert names below in blanks above	*USE?*	*REC?*	*GIVE?*	*TRY?*	How many did you gather? *amount*	Units[3] *specify*	*comments*
DUCK EGGS	Y N	Y N	Y N	Y N			
430,200,000							
GEESE EGGS	Y N	Y N	Y N	Y N			
430,400,000							
SWAN EGGS	Y N	Y N	Y N	Y N			
430,600,000							
GULL EGGS	Y N	Y N	Y N	Y N			
431,212,990							
SHORE BIRD EGGS	Y N	Y N	Y N	Y N			
431,099,000							
UNKNOWN EGGS	Y N	Y N	Y N	Y N			
439,900,000							
	Y N	Y N	Y N	Y N			
	Y N	Y N	Y N	Y N			
	Y N	Y N	Y N	Y N			
	Y N	Y N	Y N	Y N			IND

During the last year, did your household use any other kind of eggs?..... Y N

IF YES, enter the name in a blank row above, and answer the questions in that row.

1 *"LAST YEAR" means between OCTOBER 1, 2010, and SEPTEMBER 30, 2011.*

2 *"USE" includes harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*

3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

BIRDS AND EGGS: 15 **SELAWIK: 303**

SUBSISTENCE SUMMARY: BIRDS & EGGS

HOUSEHOLD ID

If this household did NOT USE or HARVEST birds & eggs last year, go to the ASSESSMENT section below.
Otherwise, continue with the network questions…

SUBSISTENCE NETWORK

During the last 12 months…

BIRDS

role	resource	*Enter HH ID, with most important sources first. INCLUDE this household if members caught or processed birds for this household. For other Selawik households, enter HH ID. For other communities, enter name of other community.*									
Who GOT the BIRDS your household used?											
1	430,000,000										
Who PROCESSED the BIRDS your household used?											
2	430,000,000										
Who else SHARED BIRDS with your household?											
3	430,000,000										
Who TRADED BIRDS with your household?											
3	430,000,000										

During the last 12 months…

EGGS

role	resource	*Enter HH ID, with most important sources first. INCLUDE this household if members caught or processed eggs for this household. For other Selawik households, enter HH ID. For other communities, enter name of other community.*									
Who GOT the EGGS your household used?											
1	121,200,002										
Who PROCESSED the EGGS your household used?											
2	121,200,002										
Who else SHARED EGGS with your household?											
3	121,200,002										
Who TRADED EGGS with your household?											
3	121,200,002										

ASSESSMENTS

400,000,000

To conclude our birds & eggs section, I am going to ask a few general questions about birds & eggs.

During the last 12 months
…did your household use LESS, SAME, or MORE birds & eggs than in recent years?..... X L S M

If LESS or MORE… *X = do not use*

WHY was your USE of birds & eggs different?..... 1

2

During the last 12 months
…did your household spend less, same, or more TIME trying to get birds & eggs than in recent years?..... X L S M

If LESS TIME or MORE TIME… *X = do not harvest*

Why was your EFFORT different for birds & eggs?..... 1

2

During the last 12 months
…did your household GET ENOUGH birds & eggs?..... Y N

If NO…

What KIND of birds & eggs did you need?.....

WHY did your household NOT get enough birds & eggs?..... 1

2

SUMMARY OF BIRDS & EGGS: 66, 67 **SELAWIK: 303**

SUBSISTENCE HARVESTS: BERRIES

HOUSEHOLD ID

1. Do you or members of your household USUALLY pick berries for subsistence, such as AQPIK, KIKMIÑÑAQ, or any other berries?..... Y N
2. During the last year (between OCTOBER 1, 2010, AND SEPTEMBER 30, 2011), did you or members of your household USE or TRY TO PICK berries?..... Y N

IF the answer to QUESTION 2 is NO, go to the next harvest page.

IF the answer is YES, continue on this page…

During the last year[1], did you or members of your household….					IF …try to harvest is "YES," ask questions below…		
					Please estimate how many berries ALL MEMBERS OF YOUR HOUSEHOLD got for subsistence uses during the last year.		
…use[2] _____?	…receive _____ from someone in another household or community?	…give _____ to someone in another household or community?	…try[2] to harvest _____? TRY includes looking, even if you got none		INCLUDE berries that members of this household gave away, ate fresh, lost to spoilage, or got by helping others. If picking with or helping others, report ONLY THIS HOUSEHOLD'S share of the harvest.		
Insert names below in blanks above	*USE?*	*REC?*	*GIVE?*	*TRY?*	How many did you pick? *amount*	Units[3] *specify*	*comments*
SALMONBERRY *Aqpik*	Y N	Y N	Y N	Y N		GAL	
601,016,000							
BLUEBERRIES *Asriavik*	Y N	Y N	Y N	Y N		GAL	
601,002,000							
CRANBERRIES *Kikmiññaq*	Y N	Y N	Y N	Y N		GAL	
601,004,000							
BLACKBERRIES *Paunġaq*	Y N	Y N	Y N	Y N		GAL	
601,030,000							
RASPBERRIES *Tunŋaum asriaq*	Y N	Y N	Y N	Y N		GAL	
601,020,000							
CURRANTS *Niviŋŋaqutaq*	Y N	Y N	Y N	Y N		GAL	
601,012,000							
	Y N	Y N	Y N	Y N		GAL	
	Y N	Y N	Y N	Y N		GAL	
	Y N	Y N	Y N	Y N		GAL	
	Y N	Y N	Y N	Y N		GAL	

During the last year, did your household use any other kind of berries?..... Y N

IF YES, enter the name in a blank row above, and answer the questions in that row.

1 *"LAST YEAR" means between OCTOBER 1, 2010, and SEPTEMBER 30, 2011.*

2 *"USE" includes harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*

3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

PLANTS: 17 **SELAWIK: 303**

SUBSISTENCE HARVESTS: GREENS

HOUSEHOLD ID

1. Do you or members of your household USUALLY pick greens for subsistence, such as SURA, UKPIK, QUSRIMMAQ, or any other greens?..... Y N
2. During the last year (between OCTOBER 1, 2010, AND SEPTEMBER 30, 2011), did you or members of your household USE or TRY TO PICK greens?..... Y N

IF the answer to QUESTION 2 is NO, go to the next harvest page.

IF the answer is YES, continue on this page…

During the last year[1], did you or members of your household….					*IF …try to harvest is "YES," ask questions below…*		
…use[2] _____?	…receive _____ from someone in another household or community?	…give _____ to someone in another household or community?	…try[2] to harvest _____? *TRY includes looking, even if you got none*		Please estimate how many greens ALL MEMBERS OF YOUR HOUSEHOLD got for subsistence uses during the last year. *INCLUDE greens that members of this household gave away, ate fresh, lost to spoilage, or got by helping others. If picking with or helping others, report ONLY THIS HOUSEHOLD'S share of the harvest.*		
Insert names below in blanks above	*USE?*	*REC?*	*GIVE?*	*TRY?*	How many did you pick? *amount*	Units[3] *specify*	*comments*
WILLOW LEAVES *Sura, Ukpik*	Y N	Y N	Y N	Y N		GAL	
602,031,000							
STINKWEED *Sarġiiq*	Y N	Y N	Y N	Y N		GAL	
602,044,000							
WILD RHUBARB *Qusrimmaq*	Y N	Y N	Y N	Y N		GAL	
602,006,000							
ESKIMO TEA *Tilaaquiq*	Y N	Y N	Y N	Y N		GAL	
602,018,000							
WILD CELERY *Ikuusuk*	Y N	Y N	Y N	Y N		GAL	
602,032,000							
FIREWEED *Pamiuqtaq, Quppiqutaq*	Y N	Y N	Y N	Y N		GAL	
602,042,000							
	Y N	Y N	Y N	Y N		GAL	
	Y N	Y N	Y N	Y N		GAL	
	Y N	Y N	Y N	Y N		GAL	
	Y N	Y N	Y N	Y N		GAL	

During the last year, did your household use any other kind of greens?..... Y N

IF YES, enter the name in a blank row above, and answer the questions in that row.

1 *"LAST YEAR" means between OCTOBER 1, 2010, and SEPTEMBER 30, 2011.*

2 *"USE" includes harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*

3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

PLANTS: 17 **SELAWIK: 303**

SUBSISTENCE HARVESTS: OTHER PLANTS

HOUSEHOLD ID

1. Do you or members of your household USUALLY get other plants for subsistence, such as MASRU, FIREWOOD, or any other other plants?..... Y N
2. During the last year (between OCTOBER 1, 2010, AND SEPTEMBER 30, 2011), did you or members of your household USE or TRY TO GET other plants?..... Y N

IF the answer to QUESTION 2 is NO, go to the next BERRIES & GREENS summary page.

IF the answer is YES, continue on this page…

During the last year[1], did you or members of your household….					*IF …try to harvest is "YES," ask questions below…*		
…use[2] _____?	…receive _____ from someone in another household or community?	…give _____ to someone in another household or community?	…try[2] to harvest _____? *TRY includes looking, even if you got none*		Please estimate how many other plants ALL MEMBERS OF YOUR HOUSEHOLD got for subsistence uses during the last year. *INCLUDE other plants that members of this household gave away, ate fresh, lost to spoilage, or got by helping others. If harvest with or helping others, report ONLY THIS HOUSEHOLD'S share of the harvest.*		
Insert names below in blanks above	*USE?*	*REC?*	*GIVE?*	*TRY?*	How many did you get? *amount*	Units[3] *specify*	*comments*
ESKIMO POTATO *Masru*	Y N	Y N	Y N	Y N		GAL	
602,009,000							
ROSE HIPS	Y N	Y N	Y N	Y N		GAL	
602,036,000							
FIREWOOD	Y N	Y N	Y N	Y N		CORDS	
604,000,000							
FIREWOOD (SLED LOAD)						SLED LOAD	*If UNIT is sled or boat load, enter sizes per load! N of LOGS = LENGTH= DIAMETER=*
							In coding, convert boat and sled loads to CORDS.
FIREWOOD (BOAT LOAD)						BOAT LOAD	*If UNIT is sled or boat load, enter sizes per load! N of LOGS = LENGTH= DIAMETER=*
604,000,000							*In coding, convert boat and sled loads to CORDS.*
	Y N	Y N	Y N	Y N		GAL	
	Y N	Y N	Y N	Y N		GAL	
	Y N	Y N	Y N	Y N		GAL	
	Y N	Y N	Y N	Y N		GAL	
	Y N	Y N	Y N	Y N		GAL	

During the last year, did your household use any other kind of other plants?..... Y N

IF YES, enter the name in a blank row above, and answer the questions in that row.

1 *"LAST YEAR" means between OCTOBER 1, 2010, and SEPTEMBER 30, 2011.*

2 *"USE" includes harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*

3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

PLANTS: 17 **SELAWIK: 303**

SUBSISTENCE SUMMARY: BERRIES, GREENS, & FIREWOOD

HOUSEHOLD ID

If this household did NOT USE or HARVEST berries, greens, & firewood last year, go to the ASSESSMENT section below.

Otherwise, continue with the network questions…

SUBSISTENCE NETWORK

During the last 12 months…

BERRIES & GREENS

role	resource	*Enter HH ID, with most important sources first. INCLUDE this household if members caught or processed berries & greens for this household. For other Selawik households, enter HH ID. For other communities, enter name of other community.*									
Who PICKED the BERRIES & GREENS your household used?											
1	601,000,000										
Who PROCESSED the BERRIES & GREENS your household											
2	601,000,000										
Who else SHARED BERRIES & GREENS with your household?											
3	601,000,000										
Who TRADED BERRIES & GREENS with your household?											
3	601,000,000										

During the last 12 months…

FIREWOOD

role	resource	*Enter HH ID, with most important sources first. INCLUDE this household if members caught or processed firewood for this household. For other Selawik households, enter HH ID. For other communities, enter name of other community.*									
Who PICKED the FIREWOOD your household used?											
1	602,042,002										
Who PROCESSED the FIREWOOD your household											
2	602,042,002										
Who else SHARED FIREWOOD with your household?											
3	602,042,002										
Who TRADED FIREWOOD with your household?											
3	602,042,002										

ASSESSMENTS

600,000,000

To conclude our berries, greens, & firewood section, I am going to ask a few general questions about berries, greens, & firewood.

During the last 12 months

…did your household use LESS, SAME, or MORE berries, greens, & firewood than in recent years? ..... X L S M

If LESS or MORE… *X = do not use*

WHY was your USE of berries, greens, & firewood different? 1

2

During the last 12 months

…did your household spend less, same, or more TIME trying to get berries, greens, & firewood than in recent years? ..... X L S M

If LESS TIME or MORE TIME… *X = do not harvest*

Why was your EFFORT different for berries, greens, & firewood? 1

2

During the last 12 months

…did your household GET ENOUGH berries, greens, & firewood? ..... Y N

If NO…

What KIND of berries, greens, & firewood did you need? .....

WHY did your household NOT get enough berries, greens, & firewood? 1

2

SUMMARY OF BERRIES, GREENS, & FIREWOOD: 66, 67 **SELAWIK: 303**

FOOD SECURITY

HOUSEHOLD ID

The questions on this page have been asked all over the United States to find out if Americans have enough to eat. We would like to know if people in your village have enough to eat. I am going to read you five statements about different food situations. Please tell me whether EACH statement was true for your household (HH) in the last 12 months.

Think about all your household's food, both subsistence and store-bought…

STATEMENT 1. We WORRIED that our household would not have ENOUGH FOOD.

In the last 12 months, was this OFTEN true, SOMETIMES true, or NEVER true for your household?..... [1] Often True
[2] Sometimes True
[3] Never True — HH2

STATEMENT 2. The food we had JUST DID NOT LAST, and we could not get more.

In the last 12 months, was this OFTEN true, SOMETIMES true, or NEVER true for your household?..... [1] Often True
[2] Sometimes True
[3] Never True — HH3

STATEMENT 3. We could not get the foods we wanted to eat because of a LACK OF RESOURCES.

By "lack of resources," we mean your household did NOT have what you needed to hunt, fish, gather, or buy food.

In the last 12 months, was this OFTEN true, SOMETIMES true, or NEVER true for your household?..... [1] Often True
[2] Sometimes True
[3] Never True — HH4

Now, think just about your household's SUBSISTENCE food…

STATEMENT 4. The SUBSISTENCE food we had just did not last, and we could not get more.

In the last 12 months, was this ever true for your household?..... N Y ?

If YES, in which months did this happen?..... J F M A M J J A S O N D

Now, think just about your household's STORE-BOUGHT food…

STATEMENT 5. The STORE-BOUGHT food we had just did not last, and we could not get more.

In the last 12 months, was this ever true for your household?..... N Y ?

If YES, in which months did this happen?..... J F M A M J J A S O N D

If Statement 1, Statement 2, AND Statement 3 were NEVER TRUE, go to the next page.

If Statement 1, Statement 2, OR Statement 3 was SOMETIMES TRUE or OFTEN TRUE, continue on this page…

In the last 12 months, did you or other adults in your household ever CUT THE SIZE OF YOUR MEALS OR SKIP MEALS because the HH could not get the food that was needed?..... N Y ? — AD1

If YES, how often did this happen?..... [1] Almost every month
[2] Some months…
[3] Only 1 or 2 months

In the last 12 months, did you or other adults in your household ever EAT LESS THAN YOU FELT YOU SHOULD because the HH could not get the food that was needed?..... N Y ? — AD2

In the last 12 months, were adults in the HH ever HUNGRY BUT DID NOT EAT because there was not enough food?..... N Y ? — AD3

In the last 12 months, did adults in the HH LOSE WEIGHT because there was not enough food?..... N Y ? — AD4

In the last 12 months, did you or other adults in your household ever NOT EAT FOR A WHOLE DAY because there was not enough food?..... N Y ? — AD5

If YES, how often did this happen?..... [1] Almost every month
[2] Some months…
[3] Only 1 or 2 months

FOOD SECURITY: 201 **SELAWIK: 303**

CUSTOMARY TRADE

HOUSEHOLD ID

The Selawik IRA Council wanted us to ask about purchases and sales of subsistence foods.
During the last 12 months, have you or someone in your household BOUGHT or SOLD subsistence foods?..... Y N

IF the answer is NO, go to the next page.
IF the answer is YES, continue on this page…

During the last 12 months, what kind of subsistence foods did members of your hosuehold buy or sell?

What kind of subsistence food was bought or sold?	How was this food processed?	Did your HH buy or sell this food?	How MUCH of THIS subsistence food did your household buy or sell?		How much was paid for this food?	Did the other person live in Selawik?	*If "NO"…* WHERE did the other person live?
species name	*process*	*circle one*	*amount*	*units*	*dollars*	*circle one*	*community*
		BUY SELL			$	YES NO	
		BUY SELL			$	YES NO	
		BUY SELL			$	YES NO	
		BUY SELL			$	YES NO	
		BUY SELL			$	YES NO	
		BUY SELL			$	YES NO	
		BUY SELL			$	YES NO	
		BUY SELL			$	YES NO	
		BUY SELL			$	YES NO	
		BUY SELL			$	YES NO	
		BUY SELL			$	YES NO	
		BUY SELL			$	YES NO	
		BUY SELL			$	YES NO	
		BUY SELL			$	YES NO	
		BUY SELL			$	YES NO	
		BUY SELL			$	YES NO	

CUSTOMARY TRADE: 202c **SELAWIK: 303**

SURVEY SUMMARY

HOUSEHOLD ID

ASSESSMENTS: ALL RESOURCES

0

To conclude our survey, I am going to ask a few general questions about ALL SUBSISTENCE RESOURCES.

Last year…

…did your household use LESS, SAME, or MORE subsistence resources than in recent years?..... X L S M

If LESS or MORE… *X = do not use*

WHY was your use different?..... 1

2

Last year…

…did your household spend less, same, or more TIME trying to get subsistence resources than in recent years?..... X L S M

If LESS TIME or MORE TIME… *X = do not harvest*

Why was your EFFORT different for ?..... 1

2

Last year…

…did your household GET ENOUGH subsistence resources?..... Y N

If NO…

What KIND of subsistence resources did you need?.....

WHY did your household NOT get enough all resources?..... 1

2

How would you describe the impact to your household
of not getting enough all resources last year?..... ...not noticable? (0) ...minor? (1) ...major? (2) severe? (3)

Did your household do anything DIFFERENTLY because you did NOT get enough all resources?..... Y N

IF YES…

What did your household do differently?..... 1

2

QUESTIONS, COMMENTS, CONCERNS

Do you have any questions, comments, or concerns?

ASSESSMENTS OF ALL RESOURCES & COMMENTS: 30, 66 SELAWIK: 303

INTERVIEW SUMMARY

HOUSEHOLD ID

BE SURE TO FILL IN THE STOP TIME ON THE FIRST PAGE!!!!

Use this space for interviewer's comments about survey, especially factors that might have affected the household's responses.

BE SURE TO FILL IN THE STOP TIME ON THE FIRST PAGE!!!!

INTERVIEW SUMMARY: 30 **SELAWIK: 303**

Appendix C–Cooperative Agreement

COOP 11-053

COOPERATIVE AGREEMENT

between

THE ALASKA DEPARTMENT OF FISH AND GAME

and

NORTHWEST ARCTIC BOROUGH

for

IMPROVING SUBSISTENCE INFORMATION

TO IMPLEMENT FEDERAL PLANS

This cooperative agreement is made and entered into between the Alaska Department of Fish and Game, Division of Subsistence, P.O. Box 115526, Juneau, Alaska 99811-5526, hereinafter referred to as "ADF&G," and the Northwest Arctic Borough, P.O. Box 1110, Kotzebue, Alaska 99752, hereinafter referred to as "NWAB." ADF&G enters into this cooperative agreement under the authority of AS 16.05.050(12), AS 36.30.850(b) (20), and AS 36.30.850(c).

NWAB enters into this cooperative agreement under the authority of NWAB code 1.12.01 sub-paragraph B.1.

This agreement is contingent upon federal funding to be received by the NWAB through the US Mineral Management Service / Coastal Impact Assistance Program (CIAP) under Section 384 of the Energy Policy Act of 2005 and amendment of Section 31 of the Outer Continental Shelf Lands Act (43 USC § 1356a).

I. BACKGROUND

Purpose and Rationale

This Cooperative Agreement continues a working relationship between NWAB and ADF&G to gather information needed to implement borough, state and federal plans, in two phases.

1. Phase One of Agreement supports the compilation of an electronic database of literature related to subsistence hunting and fishing in Northwest Alaska.

2. Phase Two of the Agreement supports the administration of household surveys to gather new subsistence harvest information from a community within the borough now experiencing or likely to experience development pressures in the future.

Information from both phases of the project will be used in implementing the borough's CIAP projects and federally-approved plans, by strengthening NWAB's ability to assess potential impacts to the environment and to important subsistence resources in the coastal area.

During the past few years, the NWAB has received an increasing number of permit applications for mining exploration and development and other activities which can impact and have impacted coastal resources and uses in the region, including subsistence resources and uses. Exploration, drilling and extraction of oil, gas and mineral resources in offshore areas in the region are expected to increase. Specific examples included the proposed expansion of the Red Dog Mine, proposed offshore oil development in the Chukchi Basin, ongoing mineral exploration in the Ambler and Candle mining districts, potential increases in marine traffic through the Northwest Passage, and expanded commercial fishing on newly accessible Arctic fishing grounds.

The environment and economy of Northwest Alaska are dynamic. Supplies of and demand for fish and wildlife change over time, sometimes dramatically and rapidly. Climate-related changes have occurred and were expected to continue to occur, notably the rapid summer retreat of Arctic sea ice. In addition, proposed industrial developments potentially will impact not only renewable natural resources through habitat alteration, but also social and economic systems by providing increased employment and dividend income to residents of the region.

The NWAB's land use, zoning and permitting responsibilities require frequent reviews of available subsistence information. Access to this information is critical to wise decision-making in implementation of land-use plans, including permitting of projects in areas used for subsistence. At this time, there is no single repository of existing subsistence-related articles and reports for Northwest Alaska. Phase one of this agreement would substantially expand the NWAB's ability to locate and review subsistence-related articles and reports.

The dynamic environment and economy of Northwest Alaska create a need for frequently updated information about subsistence harvests, demographics, employment, and income for the region as a whole, and especially for communities adjacent to proposed developments. Phase two of this agreement would provide funds to augment ADF&G's continuing harvest monitoring program, funding a comprehensive survey in a community where no comprehensive survey has yet been conducted, and updating the current subsistence harvest information upon with NWAB relies to fulfill its review responsibilities.

Under the terms of this agreement, the ADF&G Division of subsistence staff will:

> (1) compile a northwest Alaska subsistence literature database and deliver it to NWAB, and
>
> (2) conduct a community harvest survey, analyze survey results, write a summary report for NWAB describing the survey results, and make a summary of the results publicly available through ADF&G's website.

Subsistence Literature Collection

Since its inception in 1979, the ADF&G Division of Subsistence has assembled a collection of scholarly articles on subsistence-related topics related to Northwest Alaska, including approximately 400 paper copies in files and approximately 200 electronic copies on computers.

This collection is familiar to and frequently used by Division researchers. But it is only partially indexed and is not easily available to other agencies or researchers. Some of the older printed articles are now difficult to find in libraries or on the Internet.

This Agreement would support scanning paper copies of selected subsistence articles to create PDFs, then indexing the collection for use by both ADF&G and NWAB. It is expected that the indexed, electronic collection will contain about 500 articles relevant to the subsistence environment and economy of Northwest Alaska.

Subsistence Harvest Monitoring Program

In Northwest Alaska, a cooperative group of state and federal agencies, tribes, communities, nongovernmental organizations, and industries work together to monitor subsistence harvests using comprehensive household surveys. The cooperators seek not only to conduct a continuing program of basic subsistence monitoring, but also to integrate other studies of contemporary patterns of subsistence uses of natural resources whenever possible. The program is coordinated by the ADF&G Division of Subsistence.

Each year, the Northwest Alaska Harvest Monitoring Program administers harvest monitoring surveys to households in two or three of the eleven NWAB communities. Communities are surveyed on a flexible schedule, in which each community is surveyed at least once every five years, depending on available funding. Ideally, each year provides a geographically diverse sample of communities. Both the surveyed species and the surveyed communities are adjusted as necessary to meet changing data needs.

In communities selected for comprehensive surveys, teams of local researchers work with agency staff to conduct the surveys. Typically, the team includes one or two high school students, who participate in all aspects of the survey administration.

The program evolved from, and builds on, earlier efforts in Northwest Alaska, such as the Northwest salmon surveys and the Western Arctic caribou herd (WACH) surveys. The program coordinates efforts of different organizations to maximize efficiency and reduce costs, and relies on a standard survey instrument. The instrument is based on a series of surveys conducted by the Division of Subsistence for similar studies in Alaska in the 1980s and 1990s. Many survey questions are the same as, or similar to, questions in prior harvest assessment tools, so recent results are comparable with past results.

Harvest monitoring survey results show that residents of Northwest Alaska rely substantially on subsistence hunting, fishing, and gathering for nutrition and to support their customary and traditional ways of life. Since in the early 1980s, estimates of average subsistence harvests have ranged between 398 and 940 pounds per person per year. Earlier estimates, although not strictly comparable because of differences in methods, ranged well over 1,000 pounds per person per year. Subsistence harvests of wild foods are diverse. Harvests vary from community to community, and harvests vary over time in both amounts and species harvested. Species harvested include, but are not limited to: salmon, sheefish, Dolly Varden, whitefishes, caribou, moose, bearded seals, beluga whales, seals, geese, ducks, crabs, clams, wild berries, and wild greens.

Harvest Monitoring Partnerships

To date, multiple organizations have partnered with ADF&G Division of Subsistence to plan and conduct harvest monitoring studies in Northwest Alaska. These include: the ADF&G Division of Wildlife Conservation, the ADF&G Division of Commercial Fisheries, the U.S. National Park Service, the U.S. Fish and Wildlife Service, the Northwest Arctic Borough, Maniilaq Association, Kawerak, Inc., and Stephen R. Braund and Associates. In communities selected for comprehensive surveys, ADF&G has established cooperative agreements with local governments to assist in the harvest monitoring effort, including the Native Village of Noatak, the City of Kivalina, the Native Village of Kiana, and the Native Village of Buckland.

A majority of the residents of Northwest Alaska are Alaska Native or American Indian, who have maintained their subsistence customs and traditions throughout their history. The harvest monitoring program encourages a collaborative, working relationship between state and federal agencies, tribes, communities, nongovernmental organizations, and industries. The ethical conduct of all researchers will meet or exceed the principles of conduct adopted by the Alaska Federation of Natives in 1993 and the Interagency Arctic Research Policy Committee on June 28, 1990. All personnel are to work in a manner that develops, rather than jeopardizes, relations among the cooperators, and between the cooperators and the public.

II. OBJECTIVES

Objectives specific to the literature database phase are:

A. Collect available journal articles and government reports on subsistence hunting and fishing in Northwest Alaska, hereinafter the "Collection." "Available" articles and reports are those that currently reside in the Kotzebue ADF&G Division of Subsistence office, or are available online from public repositories. "Available" articles and reports do not include materials available only from archival or private sources.

B. Compile a full-text searchable index of the collected articles and reports, hereinafter the "Index."

C. Compile a bibliographic database of the collected articles and reports, hereinafter the "Bibliography."

Objectives specific to the community harvest survey phase are:

A. Identify a potential study community for the comprehensive survey, and obtain approval from a representative government in that community.

B. Develop a household survey based on the standard ADF&G subsistence harvest survey, train a team of local residents in survey administration, and work with the local team to administer the survey.

C. Enter survey data in a computer database, analyze survey data, and summarize survey results in a draft written report.

D. Collaboratively review and interpret study findings with NWAB and the study community.

E. Produce a final report incorporating NWAB and community comments, and publish a summary of results on ADF&G's website.

III. COVENANTS OF THE ALASKA DEPARTMENT OF FISH AND GAME:

Upon approval of this Agreement, the ADF&G Division of Subsistence will perform the following services.

For both phases of the Agreement:

A. ADF&G will consult with NWAB to refine project objectives, methods, schedules, and responsibilities as necessary.

B. ADF&G will provide regular written progress reports to NWAB upon request to assist NWAB in meeting federal CIAP grant-reporting requirements, and assembly/planning commission reports.

For the literature database phase of the Agreement:

C. For available journal articles and government reports about subsistence hunting and fishing in Northwest Alaska, ADF&G will collect, label, scan (when necessary), and organize Acrobat portable document files (PDFs) into the Collection.

D. Using Adobe Acrobat® Professional, ADF&G will compile the searchable Index of the Collection.

E. Using EndNote®, ADF&G will compile the Bibliography, an electronic citation database of the articles and reports in the Collection.

F. ADF&G will copy the Collection, Index, and Bibliography to a portable medium such as CD-ROM, DVD, or flash drive for delivery to NWAB.

For the community survey phase of the Agreement:

G. ADF&G will consult with NWAB and with governments in the study community to obtain community approval of the research, identify local research assistants, finalize the project schedule, and organize community planning and data review meetings.

H. ADF&G will seek funds for a cooperating local government to contract with local research assistants, sufficient to pay:

1. An hourly rate for survey orientation, daily survey reviews, and a final debriefing session attended by local contract researchers, and

2. A fixed payment for each survey completed by local contract researchers.

3. Administration of the local research contracts by the local cooperating government.

I. ADF&G will prepare a household survey instrument.

J. ADF&G will train local research assistants in the study community to administer the household survey.

K. ADF&G will direct and participate in the administration of surveys in the study community.

L. ADF&G will code surveys for data entry and analysis, and produce a set of standard tables and figures to serve as the basis for discussion and preparation of a final report.

M. ADF&G will provide preliminary tables and findings to NWAB and to the study community for review and comment.

N. ADF&G staff will attend a community meeting to present and discuss these results. Comments provided at these meetings will be incorporated in the final report.

O. ADF&G will write a draft final report summarizing the results of the systematic household surveys. The draft report will be provided to NWAB and the study community for review and comment.

P. ADF&G will write a final report. The final report will be provided to NWAB and the study community.

Q. ADF&G will prepare a short summary of the study findings for distribution to every household in the study communities.

R. ADF&G will add the corrected, final data from the household survey to the Division of Subsistence Community Subsistence Information System (CSIS). This publicly accessible database includes community-level study findings.

IV. COVENANTS OF THE NORTHWEST ARCTIC BOROUGH

Upon approval of this Agreement, the NWAB will perform the following services:

For both phases of the Agreement:

A. NWAB will consult with ADF&G to refine project objectives, methods, schedules, and responsibilities as necessary.

B. Based upon available grant funding, NWAB will provide federal CIAP funds to ADF&G on a reimbursable basis, not to exceed $108,000, based on the completion of products described under Products.

For the literature database phase of the Agreement:

C. If NWAB has articles or reports in its files that it wishes to be included in the Collection, NWAB will provide ADF&G with electronic copies of these articles and reports in Acrobat® PDF format.

D. During the compilation of the Collection, NWAB will periodically review the nature and extent of the subsistence articles and reports in the Collection, and provide comments and advice to ADF&G on the Collection's contents.

For the community survey phase of the Agreement:

E. NWAB will maintain confidentiality of respondent data, to abide by the same standards of confidentiality that apply to ADF&G under AS 16.05.815. NWAB agrees that raw data may not be released to any third party for any purpose.

F. NWAB will review the household survey instrument.

G. NWAB will assist with the data collection and review in the study community. NWAB will provide at least one NWAB staff member to assist in collecting and reviewing the survey data, which is expected to require 8-10 days in the study community. Travel, per diem, and lodging for NWAB personnel will be paid for by NWAB.

H. NWAB will review and provide comments on the draft final report.

V. Products and Schedule of Payments

A. An electronic (PDF) literature Collection with a full-text, searchable Index and an electronic Bibliography. Upon successful completion of these above products by ADF&G, NWAB will reimburse ADF&G a maximum of $17,000.

B. A survey research instrument, preliminary findings from the survey, and a draft report summarizing survey results, including tables, and charts illustrating findings. Upon successful completion of these above products by ADF&G, NWAB will reimburse ADF&G a maximum of $70,000.

C. A final report, a short findings summary provided to all households in the study communities, and community data set added to the ADF&G Community Subsistence Information System. Upon successful completion of these above products by ADF&G, NWAB will reimburse ADF&G a maximum of $21,000.

VI. IT IS MUTUALLY AGREED THAT:

A. Nothing in this agreement shall obligate any party in the expenditure of funds, or for future payments of money, in excess of appropriations authorized by law.

B. This project was included in the State of Alaska CIAP plan with projects submitted by NWAB and federally approved under the CIAP grant program, however this agreement is contingent upon final approval of the project and budget narratives by the State of Alaska and award of CIAP funding to NWAB. Should the federal CIAP funding be unavailable for any reason, the covenants of this agreement are non-binding.

C. This Cooperative Agreement is not the sole source of funding for ADF&G's harvest monitoring program in Northwest Alaska, ADF&G may seek additional funds from Other Funders for harvest monitoring efforts in Northwest Alaska, and those additional funds may be applied to tasks described in this project as necessary to complete those tasks. Should ADF&G be unable to procure sufficient funds from Other Funders to support ongoing harvest monitoring efforts in Northwest Alaska, the covenants of this agreement are non-binding.

D. Each party agrees that it will be responsible for its own acts and omissions including those of its officers, agents, and employees, and each party shall indemnify, defend and hold harmless the other, to the maximum extent allowed by law, from any claim of, or liability for error, omission or negligent act of whatever kind, including attorney fees, for damages to property or injury to persons occasioned by each party's own acts or omissions in connection with the terms of this agreement.

E. Both parties agree to comply with all applicable federal or State laws regulating ethical conduct of public officers and employees.

F. Each party will comply with all applicable laws, regulations, and executive orders relative to Equal Employment Opportunity.

G. Nothing herein is intended to conflict with federal, state, or local laws or regulations. If there are conflicts, this agreement will be amended at the first opportunity to bring it into conformance with conflicting laws or regulations.

H. Policy and position announcements relating specifically to this cooperative agreement may be made only by mutual consent of the agencies.

I. The effective date of this agreement shall be January 1, 2011.

J. The termination date of this agreement shall be December 31, 2013. However, either party may terminate its participation in this agreement by providing to the other party notice in writing 30 days in advance of the date on which its termination becomes effective.

K. A free exchange of research and assessment data among agencies is encouraged and is necessary to ensure the success of this cooperative study.

L. Any material published or data acquired as a result of this cooperative program may be reproduced with credit given to the agencies, or organizations responsible for the development of the material.

M. The NWAB and any agents or employees act in an independent capacity and not as officers, employees, or agents of the State in performance under this agreement.

N. This agreement is governed by the laws of the State of Alaska. All actions concerning this agreement shall be brought in the Superior Court of the State of Alaska.

O. This agreement may be amended by mutual written consent of the parties. Specifically, this agreement may be amended to provide for the mapping, digitization, and publication of subsistence use areas as part of the harvest survey task.

P. ADF&G and NWAB shall provide and maintain, for all employees engaged in work under this agreement, workers' compensation insurance coverage as required by AS 23.30.045, and where applicable, any other statutory obligations including but not limited to Federal U.S.L.&H. and Jones Act requirements.

Q. The data collected as a result of this agreement shall not be used for law enforcement purposes in any way. Confidentiality standards will protect individual hunter identities in reports. Names of hunters and other contributors will not be used in reports, tables, or other released documents unless a person has given written consent.

R. ADF&G and NWAB agree that the project's overall purpose is to advance the traditional knowledge and scientific information regarding subsistence and improve current data. Furthermore, the purpose of this agreement is to support research that uses traditional knowledge and scientific methods to collect, analyze, and publish data on subsistence harvests, land uses, and social and economic conditions in NWAB communities. Survey research methods are to be well documented, rigorous, and repeatable. Survey results are intended to be comparable with results from future studies employing similar methods, so as to assist in evaluating impacts from development or from unexpected future events.

VII. INTELLECTUAL PROPERTY UNDERSTANDING AND AGREEMENT

The parties understand and agree that the literature database prepared under this agreement will include articles, photographs, drawings, calculations, designs, diagrams, maps, and other written, graphic, pictorial, or digital works or documents, hereinafter, "the Works," which may be protected by copyright or other intellectual rights. Therefore, ADF&G and NWAB agree that the Works shall remain the intellectual property of their original owners, except that:

A. With respect to the literature owned by ADF&G and NWAB, to the extent that such literature is incorporated into the final database called for in this Agreement, each grants to the other a nonexclusive, royalty-free, perpetual license to use, publish, republish, print, and reproduce such database, as well as analyses thereof or extracts there from, and the data contained therein, to, in, or via any report, map, pamphlet, brochure, book, magazine, film, video, software, web site, or other form of print, audio, visual, multimedia, computer, digital, or other media or form of production or dissemination (whether or not in conjunction with other material, and whether alone or in conjunction with co-authors or conservation partners), all as they may deem appropriate from time to time in furthering their respective conservation missions, in each case without any need to notify or obtain any form of permission or consent from the other party; and

B. NWAB shall ensure that, in any agreement with any Other Funder that seeks to use the literature database, the Other Funder grants a similar license to NWAB and ADF&G with respect to any of the Works which are owned by the Other Funder, and which are incorporated into such database.

C. The license rights described preceding sub-paragraphs do not apply to any materials which are not incorporated into the final database product called for in this Cooperative Agreement, and the owner(s) of such materials retain ownership and control over said materials, without acknowledging any implicit or explicit right of any other entity to use, publish, republish, print, reproduce, and otherwise disseminate or distribute such materials.

VIII. FINANCIAL CONSIDERATIONS:

A. The total amount of this agreement shall not exceed $108,000 during the course of the project period (January 1, 2011 to December 31, 2013).

B. Billings for reimbursement shall be submitted to the NWAB Project Manager, John Chase, for review and approval. ADF&G will submit one final billing to the NWAB Project Manager no later than January 31, 2014. Billings will reflect products described in the Products.

C. ADF&G will maintain a separate set of financial records and shall retain all records and data for a period of three years after completion of this agreement.

IX. SIGNATURES:

For the Northwest Arctic Borough

Martha *Siikauraq* Whiting
Mayor

12-21-10
Date

For the Alaska Department of Fish and Game

Jim Simon, Acting Director
Division of Subsistence

Date

Kevin Brooks, Director
Division of Administrative Services

Date

Appendix D–Conversion Factors

The following table presents conversion factors used in determining how many pounds were harvested of each resource surveyed. For instance, if respondents reported harvesting 3 quarts of smelt, the quantity would be multiplied by the appropriate conversion factor (in this case 1.5) to show a harvest of 4.5 lb of smelt.

Common name	Scientific name	Reported units	Conversion to pounds
Chum salmon	*Onchorhynchus keta*	Individual	5.1
Coho salmon	*Onchorhynchus kisutch*	Individual	5.7
Chinook salmon	*Oncorhynchus tshawytscha*	Individual	9.5
Pink salmon	*Onchorhynchus gorbuscha*	Individual	2.6
Sockeye salmon	*Onchorhynchus nerka*	Individual	4.8
Landlocked salmon		Individual	1.5
Spawning sockeye		Individual	2.0
Herring	*Clupea harengus pallasi*	Gallon	6.0
Herring sac roe		Gallon	7.0
Herring spawn on kelp		Gallon	7.0
Smelt		Individual	0.3
Smelt		5-gallon bucket	30.0
Smelt		Gallon	6.0
Smelt		Quart	1.5
Pacific cod (gray)		Individual	3.2
Walleye pollock (whiting)		Individual	1.4
Unknown cod		Individual	3.2
Flounder		Individual	3.0
Unknown flounder		Individual	3.0
Lingcod		Individual	4.0
Unknown greenling		Individual	1.0
Halibut		Individual	21.2
Lamprey		Individual	0.6
Lamprey		Gallon	6.0
Black rockfish		Individual	1.5
Red rockfish		Individual	4.0
Unknown rockfish		Individual	2.0
Sablefish (black cod)		Individual	3.1
Bullhead sculpin		Individual	0.5
Unknown shark		Individual	9.0
Unknown sole		Individual	1.0
Stickleback (needlefish)		Individual	0.2
Wolffish		Individual	3.0
Blackfish	*Dallia pectoralis*	Individual	0.8
Blackfish	*Dallia pectoralis*	Gallon	6.0
Burbot	*Lota lota*	Individual	2.4
Burbot	*Lota lota*	Gallon	2.4
Char		Individual	0.9
Arctic char	*Salvelinus alpinus*	Individual	0.9
Dolly Varden	*Salvelinus malma*	Individual	0.9
Sea run dolly Varden		Individual	0.9
Lake trout	*Salvelinus namaycush*	Individual	1.4

- continued -

Common name	Scientific name	Reported units	Conversion to pounds
Grayling	*Thymallus arcticus*	Individual	0.7
Unknown pike		Individual	4.5
Northern pike	*Esox lucius*	Individual	4.5
Sheefish	*Stenodus leucichthys*	Individual	6.0
Unknown sturgeon		Individual	34.0
Sucker		Individual	0.7
Rainbow trout		Individual	1.4
Steelhead		Individual	1.4
Unknown trout		Individual	1.4
Broad whitefish	*Coregonus nasus*	Individual	1.4
Broad whitefish	*Coregonus nasus*	Gallon	7.0
Bering cisco	*Coregonus laurettae*	Individual	1.4
Least cisco	*Coregonus sardinella*	Individual	1.0
Humpback whitefish	*Coregonus pidschian*	Individual	3.0
Humpback whitefish	*Coregonus pidschian*	Gallon	9.0
Round whitefish	*Prosopium cylindraceum*	Individual	0.5
Unknown whitefish		Individual	1.4
Black bear		Individual	100.0
Brown bear	*Ursus arctos*	Individual	141.0
Caribou	*Rangifer arcticus*	Individual	130.0
Moose	*Alces alces*	Individual	540.0
Dall sheep	*Ovis dalli*	Individual	104.0
Beaver	*Castor canadensis*	Individual	15.0
Snowshoe hare	*Lepus americanus*	Individual	2.5
Jackrabbit		Individual	2.5
Land otter		Individual	3.0
Lynx	*Lynx canadensis*	Individual	4.0
Marmot		Individual	5.0
Mink	*Mustela vison*	Individual	2.0
Muskrat	*Ondatra zibethicus*	Individual	0.8
Porcupine	*Erithrizon dorsatum*	Individual	4.0
Parka squirrel (ground)	*Citellus parryi*	Individual	0.5
Tree squirrel		Individual	0.5
Harbor seal		Individual	56.0
Harbor seal (freshwater)		Individual	56.0
Harbor seal (saltwater)		Individual	56.0
Steller sea lion		Individual	200.0
Beluga	*Delphinapterus leucas*	Individual	831.0
Bufflehead		Individual	0.4
Common eider	*Somateria mollissima*	Individual	2.2
Unknown eider		Individual	2.2
Goldeneye		Individual	0.8
Harlequin		Individual	0.5
Mallard	*Anas platyrhynchos*	Individual	1.0
Merganser		Individual	0.6
Common merganser		Individual	1.3

- continued -

Common name	Scientific name	Reported units	Conversion to pounds
Northern pintail	*Anas acuta*	Individual	0.8
Scaup		Individual	0.9
Black scoter	*Oidemia nigra*	Individual	0.9
Surf scoter		Individual	0.9
White-winged scoter		Individual	0.9
Northern shoveler		Individual	0.6
Green winged teal		Individual	0.3
American wigeon	*Mareca americana*	Individual	0.7
Unknown wigeon		Individual	0.7
Unknown ducks		Individual	0.8
Black brant	*Branta nigricans*	Individual	1.2
Cackling Canada geese		Individual	1.2
Dusky Canada geese		Individual	3.6
Lesser Canada geese (taverner/parvipes)		Individual	1.2
Unknown Canada geese		Individual	2.0
Emperor geese	*Chen canagica*	Individual	2.5
Snow geese		Individual	2.3
White-fronted geese	*Anser albifrons*	Individual	2.4
Unknown geese		Individual	2.4
Tundra swan (whistling)		Individual	6.0
Sandhill crane	*Grus Canadensis*	Individual	8.4
Common loon		Individual	5.4
Unknown loon		Individual	3.0
Tern		Individual	1.0
Arctic tern		Individual	1.0
Grouse		Individual	0.7
Spruce grouse		Individual	0.7
Ruffed grouse		Individual	0.7
Ptarmigan		Individual	1.0
Willow ptarmigan	*Lagopus lagopus*	Individual	1.0
Duck eggs		Individual	0.2
Geese eggs		Individual	0.3
Swan eggs		Individual	0.6
Crane eggs		Individual	0.3
Gull eggs		Individual	0.3
Tern eggs		Individual	0.1
Ptarmigan eggs		Individual	0.1
Butter clams		Gallon	3.0
Butter clams		Quart	0.8
Freshwater clams		Gallon	3.0
Horse clams (gaper)		Gallon	3.0
Pacific littleneck clams (steamers)		Gallon	3.0
Pinkneck clams		Gallon	3.0
Razor clams		Gallon	3.0
Unknown clams		Gallon	3.0
Unknown cockles		Gallon	3.0

- continued -

Common name	Scientific name	Reported units	Conversion to pounds
Dungeness crab		Individual	0.7
King crab		Individual	2.3
Tanner crab, bairdi		Individual	1.6
Unknown tanner crab		Individual	1.6
Unknown crab		Individual	1.6
Unknown mussels		Gallon	1.5
Octopus		Individual	4.0
Berries		Gallon	4.0
Blueberry	*Vaccinium uliginosum*	Gallon	4.0
Blueberry	*Vaccinium uliginosum*	Quart	1.0
Blueberry	*Vaccinium uliginosum*	Pint	0.5
Blueberry	*Vaccinium uliginosum*	Half-pint	0.3
Lowbush cranberry	*Vaccinium vitis-idaea*	Gallon	4.0
Lowbush cranberry	*Vaccinium vitis-idaea*	Quart	1.0
Lowbush cranberry	*Vaccinium vitis-idaea*	Pint	0.5
Lowbush cranberry	*Vaccinium vitis-idaea*	Half-pint	0.3
Highbush cranberry	*Viburnum edule*	Gallon	4.0
Highbush cranberry	*Viburnum edule*	Quart	1.0
Highbush cranberry	*Viburnum edule*	Half-pint	0.3
Crowberry	*Empetrum nigrum*	Gallon	4.0
Gooseberry		Gallon	4.0
Gooseberry		Quart	1.0
Gooseberry		Pint	0.5
Currants		Gallon	4.0
Currants		Quart	1.0
Currants		Half-pint	0.3
Huckleberry		Gallon	4.0
Cloud berry		Gallon	4.0
Raspberry		Gallon	4.0
Raspberry		Quart	1.0
Raspberry		Pint	0.5
Raspberry		Half-pint	0.3
Salmonberry	*Rubus chamaemorus*	Gallon	4.0
Salmonberry	*Rubus chamaemorus*	Quart	1.0
Salmonberry	*Rubus chamaemorus*	Pint	0.5
Salmonberry	*Rubus chamaemorus*	Half-pint	0.3
Strawberry		Gallon	4.0
Strawberry		Quart	1.0
Blackberry		Gallon	4.0
Blackberry		Quart	1.0
Blackberry		Pint	0.5
Blackberry		Half-pint	0.3
Other wild berry		Gallon	4.0
Plants/greens/mushrooms		Gallon	4.0

- continued -

Common name	Scientific name	Reported units	Conversion to pounds
Wild rhubarb		Individual	0.1
Wild rhubarb		Gallon	1.0
Wild rhubarb		Quart	0.3
Wild rhubarb		6-gallon bucket	6.0
Wild rhubarb		Plastic bag	1.5
Eskimo potato	*Hedysarum alpinum americanum*	Gallon	4.0
Eskimo potato	*Hedysarum alpinum americanum*	Quart	1.0
Fiddlehead ferns		Gallon	1.0
Fiddlehead ferns		Quart	0.3
Nettle		Gallon	1.0
Nettle		Plastic bag	1.5
Hudson bay tea		Gallon	1.0
Hudson bay tea		Quart	0.3
Hudson bay tea		Plastic bag	1.5
Hudson bay tea		Pint	0.1
Mint		Gallon	1.0
Mint		Quart	0.3
Mint		Pint	0.1
Mint		Half-pint	0.1
Sourdock		Gallon	1.0
Spruce tips		Gallon	1.0
Willow leaves		Gallon	1.0
Willow leaves		Pint	0.1
Wild celery	*Angelica lucida*	Gallon	1.0
Wild rose hips		Gallon	4.0
Wild rose hips		Quart	1.0
Wild rose hips		Pint	0.5
Wild rose hips		Half-pint	0.3
Yarrow		Gallon	1.0
Yarrow		Quart	0.3
Yarrow		Plastic bag	0.1
Other wild greens		Gallon	4.0
Other wild greens		Pint	0.1
Other wild greens		Half-pint	0.1
Unknown mushrooms		Gallon	1.0
Unknown mushrooms		Quart	0.3
Unknown mushrooms		Pint	0.1
Fireweed	*Epilobium angustifolium*	Gallon	1.0
Fireweed	*Epilobium angustifolium*	Quart	0.3
Fireweed	*Epilobium angustifolium*	Pint	0.1
Stinkweed		Individual	0.1
Stinkweed		Gallon	1.0
Stinkweed		Quart	0.3
Stinkweed		Pint	0.1

- continued -

Common name	Scientific name	Reported units	Conversion to pounds
Puffballs		Individual	0.1
Puffballs		Gallon	1.0
Puffballs		Quart	0.3
Puffballs		Pint	0.1
Puffballs		Half-pint	0.1
Unknown greens from land		Gallon	1.0
Unknown greens from land		Quart	0.3
Unknown greens from land		Plastic bag	0.4
Unknown greens from land		Pint	0.1
Mousefoods		Gallon	1.0
Mousefoods		Quart	0.3
Sea chickweed		Gallon	1.0
Seaweed/kelp		Gallon	4.0

Note This table does not include resources where harvests were reported in pounds, where conversion factors were not known, or where the resource was not eaten (e.g., firewood).

Appendix E–Supplemental Tables

Appendix Table E1.–Resource harvest and use characteristics, Selawik, 2010–2011.

Characteristic	
Mean number of resources used per household	
Minimum	0
Maximum	46
95% confidence limit (±)	11.5%
Mean	17
Median	16
Mean number of resources attempted to harvest per household	
Minimum	0
Maximum	32
95% confidence limit (±)	17.0%
Mean	11
Median	9
Mean number of resources harvested per household	
Minimum	0
Maximum	32
95% confidence limit (±)	17.2%
Mean	9
Median	8
Mean number of resources received per household	
Minimum	0
Maximum	36
95% confidence limit (±)	15.5%
Mean	10
Median	9
Mean number of resources given away per household	
Minimum	0
Maximum	30
95% confidence limit (±)	19.0%
Mean	8
Median	7
Household harvest (lb)	
Minimum	0.0
Maximum	14,820.3
Mean	2,701.1
Median	1,596.0
Total harvest weight (lb)	456,493.5
Community per capita harvest (lb)	533.1
Percentage using any resource	99%
Percentage attempting to harvest any resource	91%
Percentage harvesting any resource	91%
Percentage receiving any resource	97%
Percentage giving away any resource	89%
Number of households in sample	61
Number of resources available	115

Source ADF&G Division of Subsistence household survey, 2011.

Appendix Table E2.–Estimated harvest of salmon and nonsalmon fish for consumption by dogs, Selawik, 2010–2011.

Resource	Amount	Pounds
Nonsalmon fish		
Longnose sucker	37.4 ind	52.4 lb
Northern pike	2,698.2 ind	8,904.0 lb
Whitefishes	8,684.9 ind	25,804.2 lb
Salmon		
Chum salmon	1.9 ind	11.2 lb
Total	**11,422.4 ind**	**34,771.8 lb**
Whitefishes		
Bering cisco	0.0 ind	0.0 lb
Unknown whitefishes	0.0 ind	0.0 lb
Round whitefish	76.6 ind	145.0 lb
Least cisco	2,061.5 ind	1,321.1 lb
Sheefish	775.9 ind	8,643.7 lb
Humpback whitefish	2,095.3 ind	3,927.4 lb
Broad whitefish	3,675.6 ind	11,766.9 lb
Total	**8,684.9 ind**	**25,804.2 lb**

Source ADF&G Division of Subsistence household surveys, 2011.

Appendix Table E3.–Estimated large land mammal and wolfe harvest by month and sex, Selawik, 2010–2011.

	Black bear	Brown bear	Caribou			Moose			Wolf
Total harvest	Unknown	Unknown	Male	Female	Unknown	Male	Female	Unknown	Unknown
October 2010	1.9	0.0	13.0	0.0	0.0	0.0	0.0	0.0	0.0
November 2010	0.0	0.0	9.4	15.0	0.0	1.9	0.0	0.0	0.0
December 2010	0.0	0.0	5.6	77.7	0.0	0.0	0.0	0.0	7.5
January 2011	0.0	0.0	13.1	9.4	0.0	0.0	0.0	0.0	24.2
February 2011	0.0	0.0	0.0	39.1	0.0	0.0	0.0	0.0	1.9
March 2011	0.0	0.0	14.8	55.8	0.0	0.0	0.0	0.0	0.0
April 2011	0.0	0.0	11.2	65.3	0.0	0.0	0.0	0.0	0.0
May 2011	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0
June 2011	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
July 2011	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
August 2011	0.0	0.0	65.3	3.7	0.0	15.8	0.0	0.0	0.0
September 2011	1.9	0.0	278.6	0.0	0.0	16.3	1.9	0.0	0.0
Unknown	0.0	0.0	0.0	0.0	4.5	3.7	0.0	0.0	0.0
Total harvest	**3.7**	**0.0**	**413.0**	**266.0**	**4.5**	**37.7**	**1.9**	**0.0**	**33.5**

Source ADF&G Division of Subsistence household surveys, 2011.

Appendix Table E3.–Estimated small land mammal harvest by month, Selawik, 2010–2011.

	Estimated harvest by month													
	2010			2011										
Resource	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Unk	**Total**
Beaver	0.0	0.0	0.0	1.9	0.0	1.9	3.7	61.7	29.9	0.0	0.0	20.6	0.0	**119.7**
Arctic fox	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Red fox	0.0	0.0	0.0	0.0	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**3.7**
Arctic hare (presumably Alaska hare)	0.0	0.0	0.0	0.0	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**3.7**
Snowshoe hare	0.0	0.0	0.0	7.5	57.9	65.1	37.4	0.0	0.0	0.0	0.0	0.0	37.0	**204.9**
Unknown hare	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Land otter	11.2	0.0	0.0	0.0	0.0	0.0	0.0	7.5	3.7	0.0	0.0	0.0	0.0	**11.2**
Lynx	0.0	0.0	0.0	0.0	0.0	7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**7.5**
Marmot	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Marten	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Muskrat	0.0	0.0	0.0	0.0	0.0	0.0	0.0	133.9	69.2	0.0	0.0	0.0	0.0	**203.1**
Porcupine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	0.0	**3.7**
Parka (ground) squirrel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Tree squirrel (presumably red squirrel)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Wolf	0.0	0.0	7.5	24.2	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**26.0**
Wolverine	0.0	0.0	0.0	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**3.7**
Total harvest	**11.2**	**0.0**	**7.5**	**37.3**	**67.3**	**74.4**	**41.2**	**203.1**	**102.8**	**0.0**	**0.0**	**24.3**	**37.0**	**587.4**

Source ADF&G Division of Subsistence household surveys, 2011.

Appendix Table E3.–Estimated marine mammal harvest by month, Selawik, October 2010 through September 2011.

	Estimated harvest by month													
	2010			2011										
Resource	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Unk	**Total**
Bearded seal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.0	1.9	0.0	0.0	**7.5**
Harbor seal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Ringed seal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Spotted seal	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	**1.9**
Unknown seal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Walrus	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Beluga whale	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Bowhead whale	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Total harvest	**1.9**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**5.6**	**0.0**	**1.9**	**1.9**	**0.0**	**9.4**

Source ADF&G Division of Subsistence household surveys, 2011.

Appendix Table E3.–Estimated birds harvest by season, Selawik, 2010–2011.

	Estimated harvest by season					
Resource	Winter	Summer	Spring	Fall	Season unknown	**Total**
Bufflehead	0.0	0.0	0.0	0.0	0.0	**0.0**
Canvasback	0.0	0.0	92.5	14.8	0.0	**107.3**
Common eider	0.0	0.0	0.9	0.9	0.0	**1.9**
King eider	0.0	0.0	0.0	0.0	0.0	**0.0**
Spectacled eider	0.0	0.0	0.0	0.0	0.0	**0.0**
Steller eider	0.0	0.0	0.0	0.0	0.0	**0.0**
Goldeneye	0.0	0.0	74.0	0.0	0.0	**74.0**
Harlequin	0.0	0.0	0.0	0.0	0.0	**0.0**
Mallard	0.0	48.1	215.6	260.2	0.0	**523.9**
Long-tailed duck	0.0	0.0	155.5	92.5	0.0	**248.0**
Northern pintail	0.0	44.4	167.5	42.9	22.2	**277.1**
Scaup	0.0	0.0	111.0	74.0	0.0	**185.0**
Black scoter	0.0	25.9	441.4	33.5	0.0	**500.8**
Surf scoter	0.0	0.0	155.5	0.0	0.0	**155.5**
White-winged scoter	0.0	18.7	185.0	111.0	0.0	**314.7**
Northern shoveler	0.0	0.0	42.6	52.2	0.0	**94.8**
Teal	0.0	0.0	88.8	222.0	0.0	**310.8**
Wigeon	0.0	37.0	245.8	140.2	0.0	**423.0**
Unknown ducks	0.0	0.0	28.1	29.9	0.0	**58.0**
Brant	0.0	0.0	198.1	0.0	0.4	**198.5**
Cacklers	0.0	18.5	93.1	0.0	0.0	**111.6**
Lesser Canada geese	0.0	20.4	595.8	189.2	0.0	**805.4**
Emperor geese	0.0	0.0	0.0	0.0	0.0	**0.0**
Snow geese	0.0	0.0	85.2	0.0	0.4	**85.6**
White-fronted geese	0.0	0.0	622.2	111.4	0.0	**733.7**
Tundra (whistling) swan	0.0	0.0	1.9	0.0	0.0	**1.9**
Sandhill crane	1.9	0.0	0.0	0.0	0.0	**1.9**
Whimbrel	0.0	0.0	0.0	0.0	0.0	**0.0**
Spruce grouse	0.0	0.0	0.0	0.0	0.0	**0.0**
Ptarmigan	1,308.0	0.0	115.7	0.0	0.0	**1,423.8**
Total harvest	**1,309.9**	**213.0**	**3,716.5**	**1,374.7**	**23.0**	**6,637.1**

Source ADF&G Division of Subsistence household surveys, 2010.

Appendix Table E4.–Reasons use of resources was less than recent years, by category, Selawik, 2010–2011.

	Reasons for less use as compared to recent years															
	Salmon		Nonsalmon fish		Marine invertebrates		Land mammals		Marine mammals		Birds and eggs		Berries and greens		All resources	
Reason	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Family or personal	1.0	12.5%	5.0	35.7%	0.0	0.0%	3.0	27.3%	1.0	7.1%	2.0	18.2%	1.0	4.5%	2.0	15.4%
Resource availibilty	0.0	0.0%	2.0	14.3%	1.0	33.3%	1.0	9.1%	4.0	28.6%	0.0	0.0%	5.0	22.7%	4.0	30.8%
Resources too far	2.0	25.0%	1.0	7.1%	0.0	0.0%	0.0	0.0%	1.0	7.1%	0.0	0.0%	0.0	0.0%	2.0	15.4%
No equipment/ equipment problems	1.0	12.5%	3.0	21.4%	0.0	0.0%	2.0	18.2%	0.0	0.0%	3.0	27.3%	5.0	22.7%	3.0	23.1%
Did not recieve	2.0	25.0%	1.0	7.1%	0.0	0.0%	0.0	0.0%	2.0	14.3%	0.0	0.0%	1.0	4.5%	1.0	7.7%
Did not try/low effort	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.0	18.2%	2.0	14.3%	3.0	27.3%	6.0	27.3%	1.0	7.7%
Unsuccessful (unlucky)	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Weather/environment	0.0	0.0%	1.0	7.1%	0.0	0.0%	1.0	9.1%	0.0	0.0%	1.0	9.1%	2.0	9.1%	1.0	7.7%
Other	0.0	0.0%	2.0	14.3%	0.0	0.0%	3.0	27.3%	1.0	7.1%	0.0	0.0%	0.0	0.0%	2.0	15.4%
Working/not enough time	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.0	9.1%	2.0	9.1%	0.0	0.0%
Regulations	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Resources too small/diseased	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Did not get enough	1.0	12.5%	0.0	0.0%	1.0	33.3%	0.0	0.0%	1.0	7.1%	1.0	9.1%	0.0	0.0%	0.0	0.0%
Did not need	0.0	0.0%	2.0	14.3%	1.0	33.3%	0.0	0.0%	2.0	14.3%	0.0	0.0%	2.0	9.1%	0.0	0.0%
Did not give any away	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Too expensive (fuel)	1.0	12.5%	0.0	0.0%	1.0	33.3%	1.0	9.1%	0.0	0.0%	2.0	18.2%	2.0	9.1%	1.0	7.7%
Used other resources	0.0	0.0%	0.0	0.0%	0.0	0.0%	0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

Source ADF&G Division of Subsistence household surveys, 2011.

Appendix Table E4.–Summary of households responding to less use than recent years, by category, Selawik, 2010–2011.

	Household response summary for reasons for less use compared to recent years															
	Salmon		Nonsalmon fish		Marine invertebrates		Land mammals		Marine mammals		Birds and eggs		Berries and greens		All resources	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total households surveyed	61.0	100.0%	61.0	100.0%	61.0	100.0%	61.0	100.0%	61.0	100.0%	61.0	100.0%	61.0	100.0%	61.0	100.0%
Households responding	43.0	70.5%	53.0	86.9%	6.0	9.8%	58.0	95.1%	46.0	75.4%	39.0	63.9%	56.0	91.8%	60.0	98.4%
Households reporting less use	9.0	20.9%	15.0	28.3%	3.0	50.0%	12.0	20.7%	15.0	32.6%	12.0	30.8%	24.0	42.9%	14.0	23.3%
Households providing reasons	8.0	88.9%	14.0	93.3%	3.0	100.0%	11.0	91.7%	14.0	93.3%	11.0	91.7%	22.0	91.7%	13.0	92.9%

Source ADF&G Division of Subsistence household surveys, 2011.

Appendix Table E4.–Reasons use of resources was more than recent years, by category, Selawik, 2010–2011.

	Reasons for more use as compared to recent years															
	Salmon		Nonsalmon fish		Marine invertebrates		Land mammals		Marine mammals		Birds and eggs		Berries and greens		All resources	
Reason	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Increased availability	3.0	25.0%	1.0	12.5%	0.0	0%	2.0	16.7%	1.0	25.0%	2.0	40.0%	0.0	0.0%	0.0	0.0%
Used other resources	0.0	0.0%	1.0	12.5%	0.0	0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Good weather	0.0	0.0%	0.0	0.0%	0.0	0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Received more	6.0	50.0%	0.0	0.0%	1.0	100.0%	2.0	16.7%	3.0	75.0%	1.0	20.0%	0.0	0.0%	1.0	9.1%
Needed more	0.0	0.0%	2.0	25.0%	0.0	0%	3.0	25.0%	0.0	0.0%	0.0	0.0%	8.0	80.0%	5.0	45.5%
Increased effort	3.0	25.0%	3.0	37.5%	0.0	0%	3.0	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.0	9.1%
Got more help	0.0	0.0%	0.0	0.0%	0.0	0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Other	0.0	0.0%	0.0	0.0%	0.0	0%	0.0	0.0%	0.0	0.0%	1.0	20.0%	1.0	10.0%	1.0	9.1%
Regulations	0.0	0.0%	0.0	0.0%	0.0	0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Traveled farther	0.0	0.0%	0.0	0.0%	0.0	0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Increased success	0.0	0.0%	0.0	0.0%	0.0	0%	3.0	25.0%	0.0	0.0%	1.0	20.0%	0.0	0.0%	0.0	0.0%
Needed less	0.0	0.0%	0.0	0.0%	0.0	0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Store-bought too expensive	0.0	0.0%	0.0	0.0%	0.0	0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.0	18.2%

Source ADF&G Division of Subsistence household surveys, 2011.

Appendix Table E4.–Summary of households responding to more use than recent years, by category, Selawik, 2010–2011.

	Household response summary for reasons for more use compared to recent years															
	Salmon		Nonsalmon fish		Marine invertebrates		Land mammals		Marine mammals		Birds and eggs		Berries and greens		All resources	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total households surveyed	61.0	100.0%	61.0	100.0%	61.0	100.0%	61.0	100.0%	61.0	100.0%	61.0	100.0%	61.0	100.0%	61.0	100.0%
Households responding	43.0	70.5%	53.0	86.9%	6.0	9.8%	58.0	95.1%	46.0	75.4%	39.0	63.9%	56.0	91.8%	60.0	98.4%
Households reporting less use	12.0	27.9%	8.0	15.1%	1.0	16.7%	15.0	25.9%	4.0	8.7%	5.0	12.8%	11.0	19.6%	15.0	25.0%
Households providing reasons	12.0	100.0%	8.0	100.0%	1.0	100.0%	12.0	80.0%	4.0	100.0%	5.0	100.0%	10.0	90.9%	11.0	73.3%

Source ADF&G Division of Subsistence household surveys, 2011.

Appendix Table E5.–Reasons less time was spent trying to get resources, by category, Selawik, 2010–2011.

	Reasons for less use as compared to recent years															
	Salmon		Nonsalmon fish		Land mammals		Marine mammals		Birds and eggs		Marine invertebrates		Berries and greens		All resources	
Reason	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
No reason given	0.0	0.0%	2.0	12.5%	1.0	7.1%	2.0	50.0%	1.0	7.1%	0.0	0.0%	1.0	5.3%	5.0	27.8%
Personal/family reasons	1.0	33.3%	4.0	25.0%	0.0	0.0%	0.0	0.0%	4.0	28.6%	0.0	0.0%	5.0	26.3%	6.0	33.3%
Positive resource availability	0.0	0.0%	1.0	6.3%	2.0	14.3%	0.0	0.0%	2.0	14.3%	0.0	0.0%	1.0	5.3%	1.0	5.6%
Negative resource availability	0.0	0.0%	0.0	0.0%	2.0	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.0	36.8%	0.0	0.0%
Resources were closer	0.0	0.0%	0.0	0.0%	1.0	7.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Resources were too far	1.0	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.0	16.7%
Was given more	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
No time/working	0.0	0.0%	1.0	6.3%	2.0	14.3%	0.0	0.0%	1.0	7.1%	0.0	0.0%	5.0	0.0%	3.0	16.7%
Fuel too expensive	0.0	0.0%	2.0	12.5%	2.0	14.3%	0.0	0.0%	2.0	14.3%	1.0	100.0%	8.0	42.1%	2.0	11.1%
Lack of equipment/ broken equipment	0.0	0.0%	5.0	31.3%	4.0	28.6%	0.0	0.0%	2.0	14.3%	0.0	0.0%	14.0	73.7%	10.0	55.6%
New or fixed equipment	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Did not need as much	0.0	0.0%	1.0	6.3%	0.0	0.0%	1.0	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Other	0.0	0.0%	1.0	6.3%	0.0	0.0%	1.0	25.0%	1.0	7.1%	0.0	0.0%	0.0	0.0%	1.0	5.6%
Did not go hunting	1.0	33.3%	1.0	6.3%	1.0	7.1%	0.0	0.0%	2.0	14.3%	0.0	0.0%	2.0	10.5%	0.0	0.0%
Weather/environmental conditions	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.0	5.3%	0.0	0.0%

Source ADF&G Division of Subsistence household surveys, 2011.

Appendix Table E5.–Reasons more time was spent trying to get resources, by category, Selawik, 2010–2011.

	Reasons for less use as compared to recent years															
	Salmon		Nonsalmon		Land mammals		Marine mammals		Birds and eggs		Marine invertebrates		Berries and greens		All resources	
Reason	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
No reason given	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.0	7.1%	0.0	0.0%	1.0	5.3%	4.0	22.2%
Personal/family reasons	0.0	0.0%	1.0	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Positive resource availability	1.0	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Negative resource availability	1.0	25.0%	0.0	0.0%	5.0	35.7%	0.0	0.0%	2.0	50.0%	1.0	100.0%	7.0	36.8%	8.0	72.7%
Resources were closer	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Resources were too far	0.0	0.0%	0.0	0.0%	4.0	26.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.0	5.6%
Lack of equipment/ broken equipment	0.0	0.0%	1.0	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
New or fixed equipment	1.0	25.0%	1.0	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.0	1000.0%	0.0	0.0%
Other	1.0	25.0%	3.0	18.8%	4.0	26.7%	0.0	0.0%	1.0	7.1%	0.0	0.0%	1.0	1000.0%	1.0	5.6%
Weather/environmental conditions	0.0	0.0%	1.0	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.0	36.4%
Needed more	0.0	0.0%	0.0	0%	2.0	13.3%	0.0	0.0	0.0	0.0%	0.0	0.0%	5.0	50.0%	2.0	18.2%

Source ADF&G Division of Subsistence household surveys, 2011.

Appendix Table E6.–Households reporting that they did not get enough of a resource, Selawik, 2010–2011.

		Reasons															
	Households did not get enough	No reason given		Personal/ family		Did not have enough help		Resource not available		Too far to get it		No equipment/ equipment problems		Not given any		No hunting/low effort	
Resource by category		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All resources	16	4.0	25.0%	2.0	12.5%	0.0	0.0%	0.0	0.0%	0.0	0%	4.0	25.0%	1.0	6.3%	1.0	6.3%
Salmon	13	4.0	30.8%	4.0	30.8%	0.0	0.0%	0.0	0.0%	0.0	0%	2.0	15.4%	1.0	7.7%	1.0	7.7%
Nonsalmon fish	9	4.0	44.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0%	1.0	11.1%	1.0	11.1%	1.0	11.1%
Land mammals	13	1.0	7.7%	3.0	23.1%	0.0	0.0%	0.0	0.0%	1.0	8%	0.0	0.0%	0.0	0.0%	2.0	15.4%
Marine mammals	12	5.0	41.7%	3.0	25.0%	0.0	0.0%	0.0	0.0%	1.0	8%	2.0	16.7%	1.0	8.3%	0.0	0.0%
Birds and eggs	10	2.0	20.0%	2.0	20.0%	0.0	0.0%	0.0	0.0%	0.0	0%	1.0	10.0%	0.0	0.0%	1.0	10.0%
Marine invertebrates	13	6.0	46.2%	3.0	23.1%	0.0	0.0%	0.0	0.0%	0.0	0%	2.0	15.4%	1.0	7.7%	1.0	7.7%
Vegetation	22	3.0	13.6%	10.0	45.5%	0.0	0.0%	0.0	0.0%	0.0	0%	3.0	13.6%	0.0	0.0%	2.0	9.1%

Appendix Table.–Continued.

		Reasons															
	Households did not get enough	Unsuccessful (unlucky)		Weather/ environment		Other		Working/ no time		Regulations		Resources too small/diseased		Gas prices too high		Did not get enough	
Resource by category		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All resources	16	1.0	6.3%	0.0	0.0%	0.0	0.0%	3.0	18.8%	1.0	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Salmon	13	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.0	7.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Nonsalmon fish	9	0.0	0.0%	2.0	22.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Land mammals	13	0.0	0.0%	0.0	0.0%	3.0	23.1%	1.0	7.7%	0.0	0.0%	0.0	0.0%	1.0	7.7%	0.0	0.0%
Marine mammals	12	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Birds and eggs	10	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.0	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Marine invertebrates	13	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Vegetation	22	0.0	0.0%	3.0	13.6%	1.0	4.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

Source ADF&G Division of Subsistence household surveys, 2011.