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Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012

edited by
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and
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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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ABSTRACT

This report provides updated information about the harvest of fish, wildlife, and wild plant resources by the communities of Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina. This report details the results of a household survey administered in these communities between January and April 2013 for the 2012 study year. These communities are located in the Copper River Basin of Southcentral Alaska. During the 2012 study year, many residents of the study communities relied on hunting, fishing, and wild food gathering for nutrition and to support their way of life. They utilized a variety of resources, including salmon and other fish, large land mammals, small land mammals, migratory waterfowl and upland game birds, and wild plants and berries. This report is the third in a series to update wild resource harvest information for the Copper River Basin and was funded by the Wrangell-St. Elias National Park and Preserve. This information was collected by research staff of the Division of Subsistence, Alaska Department of Fish and Game.

Key words: Subsistence, Copper River Basin, Wrangell-St. Elias National Park and Preserve, Kenny Lake, Willow Creek, Gakona, McCarthy, Chitina.

1. INTRODUCTION

Robbin La Vine

This report provides updated information about the harvests and uses of fish, wildlife, and wild plant resources by the 4 communities of Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina (Figure 1-1). Details on community demographics, household composition, and trends in harvests over time are also documented. Table 1-1 compares the population estimates for the 2012 calendar year (which for the purposes of this report shall be called the 2012 study year) to estimates from the 2010 U.S. Census Bureau survey. The following report describes results of a household survey administered in the study communities between January and April 2013 for the 2012 study year.

During the 2012 study year most residents of the study communities participated in fishing, hunting, and gathering of wild resources and almost all residents used wild foods in their homes due to the generosity of family, friends, and neighbors. The Copper River Basin is abundant with fish and wildlife. Residents of the study communities used a wide variety of resources including salmon (primarily sockeye, Chinook, and coho salmon); large land mammals (e.g., moose, caribou, and bear); fresh- and marine-based nonsalmon fish (e.g., Pacific halibut, rockfish, and trout); small land mammals used for fur and food (including snowshoe hare, lynx, and beaver); upland game birds and migratory waterfowl; and plants, berries, and wood. Table 1-2 presents a list, including the Linnaean taxonomic names, of resources used by the study communities in 2012.

Harvest information was collected by research staff of the Alaska Department of Fish and Game (ADF&G) Division of Subsistence. Since 1978 the Division of Subsistence has been charged with quantifying wild resource harvests by Alaska residents throughout the state and administered comprehensive resource harvest surveys in 227 communities as of November 1, 2014 (Community Subsistence Information System).[1] Data generated by the Division of Subsistence assist the Alaska Board of Fisheries and Board of Game in establishing the amount reasonably necessary for subsistence for each population or stock with a positive customary and traditional use finding, as required by Alaska Statute (AS 16.05.258(b)). The information collected by the Division of Subsistence is also used in land and resource planning to understand the harvest of wild resources by communities throughout Alaska, especially the locations and timing of hunting, fishing, and gathering activities to understand the potential impacts of development on local harvesting patterns.

Project Background

The Wrangell-St. Elias National Park and Preserve (WRST)—through Alaska Regional Natural Resource Projects funds, National Park Service (NPS) Ethnography Program, NPS Alaska Subsistence Research Projects and WRST base funding—provided financial assistance to ADF&G to conduct a multi-year, multi-

1. ADF&G CSIS: http://www.adfg.alaska.gov/sb/CSIS/. Hereinafter cited as CSIS.

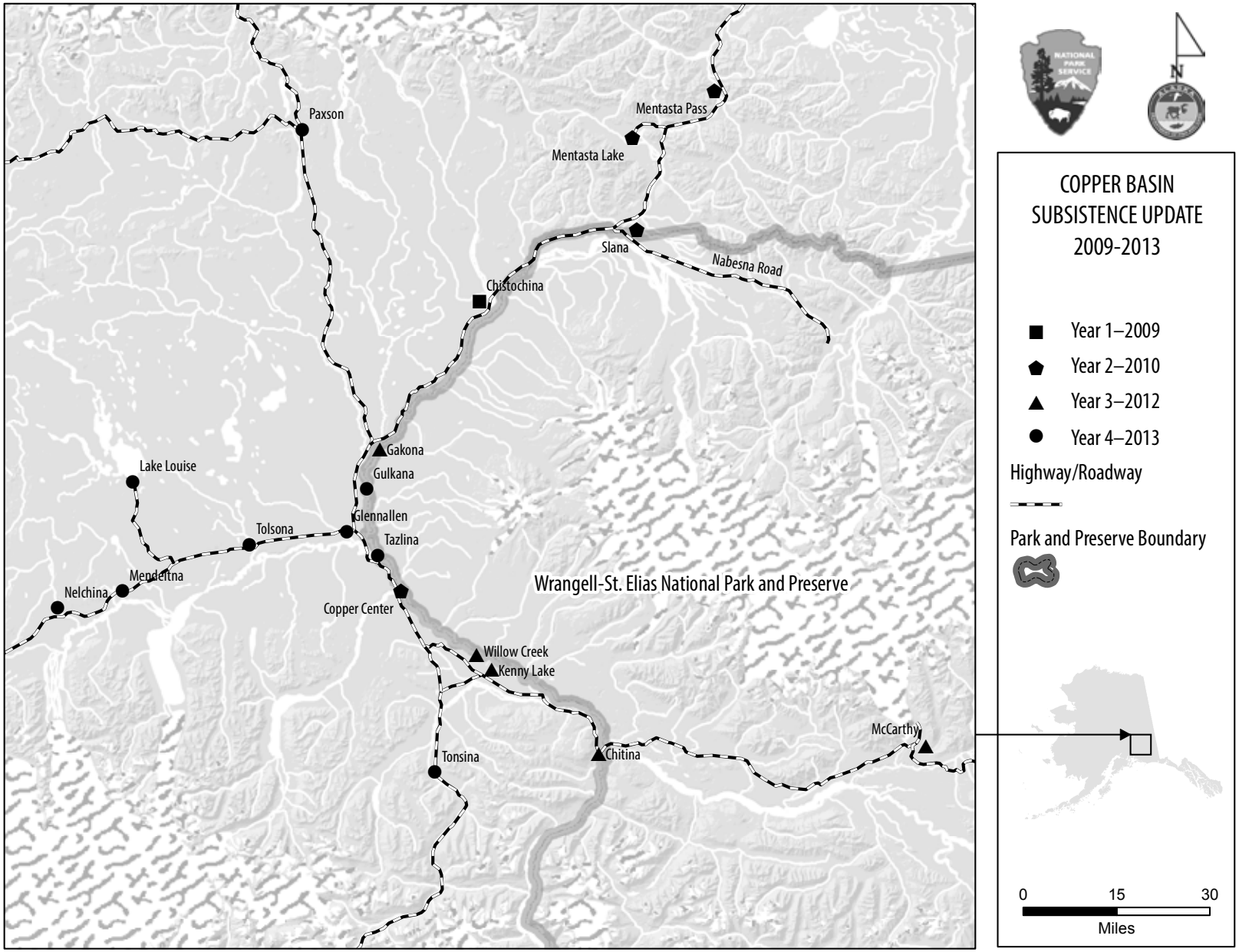

Figure 1-1.–Map of study communities, Copper River Basin, Alaska.

Table 1-1.–Population estimates, study communities, 2010 and 2012.

	Census year 2010				Study findings for 2012			
	Total population		Alaska Native population		Total population		Alaska Native population	
Community	Households	Population	People	Percentage of total	Households	Population	People	Percentage of total
Chitina[a]	52	126	45	35.7%	54	134	56	42.1%
Gakona[b]	86	218	45	20.6%	77	202	43	21.1%
Kenny Lake/Willow Creek[c]	145	355	54	15.2%	174	417	51	12.2%
McCarthy[d]	20	28	1	3.6%	58	103	1	1.4%

Source ADF&G Division of Subsistence household surveys, 2013.

a. The survey area referred to in this report as "Chitina" includes Chitina census designated place (CDP) and residences along McCarthy Road to Strelna Creek (approximately 15 miles eastbound from Chitina).

b. The survey area referred to in this report as "Gakona" includes Gakona CDP.

c. The survey area referred to in this report as "Kenny Lake/Willow Creek" includes both Kenny Lake CDP and Willow Creek CDP.

d. The survey area referred to in this report as "McCarthy" includes McCarthy CDP plus areas outside the CDP, including homesteads along McCarthy Road east of Strelna Creek. This study's boundary aligns with the western portion of the McCarthy Road survey area and Southern Wrangell Mountains survey area identified in previous studies by ADF&G Division of Subsistence.

community harvest update project. The research was funded through a cooperative agreement between WRST and ADF&G, and was conducted as a collaboration between the 2 agencies. This report presents information from research that was conducted in 2013 for the 2012 study year, or project year 3. As a whole, when complete, this study will have broad applicability in resource management and land use planning, and will provide updated baseline information about demographics, economics, and subsistence activities in this area of Alaska. Figure 1-1 illustrates all 3 phases of the research partnership with WRST. In 2010, research was conducted in Chistochina for the 2009 study year, or project year 1 (Kukkonen and Zimpelman 2012). In the spring of 2011, research was conducted in the communities of Copper Center, Slana/Nabesna Road, Mentasta Pass, and Mentasta Lake for the 2010 study year, or project year 2 (La Vine et al. 2013). Project year 3 documents the harvests and uses of wild foods for the communities of Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina for the 2012 study year. A phase 4 was planned for and completed by ADF&G and WRST through funding from the Alaska Energy Authority to provide a feasibility study for the Susitna Watana Dam Project. The project updated information for the remaining communities of the Copper River Basin; Glennallen, Gulkana, Lake Louise, Mendeltna, Nelchina, Paxson, Tazlina, Tolsona, and Tonsina for the 2013 study year.

Regulatory Context—Fish and Wildlife

The upper Copper River is part of the state and federal Prince William Sound Management Areas and contains 5 subsistence or personal use salmon fisheries managed by state or federal permit programs in the Glennallen Subdistrict, the Chitina Subdistrict, and at Batzulnetas. The state provides subsistence salmon fishing opportunities for all Alaska state residents in the Glennallen Subdistrict upstream of the Chitina-McCarthy Bridge. Under state regulations, salmon fishers may use either fish wheels or dip nets but not both gear types during a fishing season that lasts from June 1 through September 30. The state also manages a personal use dip net salmon fishery in the Chitina Subdistrict downstream from the bridge. State residents may not participate in both the state-managed subsistence fishery and the state-managed personal use salmon

Table 1-2.–List of species used for subsistence and associated scientific names, study communities, 2012.

Common name	Scientific name
Fishes	
Salmon	
Chum salmon	*Oncorhynchus keta*
Coho salmon	*Oncorhynchus kisutch*
Chinook salmon	*Oncorhynchus tshawytscha*
Pink salmon	*Oncorhynchus gorbuscha*
Sockeye salmon	*Oncorhynchus nerka*
Landlocked salmon	*Oncorhynchus spp.*
Salmon (unspecified)	*Oncorhynchus spp.*
Nonsalmon fish	
Pacific herring	*Clupea pallasi*
Smelt (unspecified)	
Pacific (gray) cod	*Gadus macrocephalus*
Pacific tomcod	*Microgadus proximus*
Walleye pollock (whiting)	*Theragra chalcogramma*
Lingcod	*Ophiodon elongatus*
Pacific halibut	*Hippoglossus stenolepis*
Black rockfish	*Sebastes melanops*
Yelloweye rockfish	*Sebastes ruberrimus*
Sablefish (black cod)	*Anoplopoma fimbria*
Burbot	*Lota lota*
Dolly Varden	*Salvelinus malma*
Lake trout	*Salvelinus namaycush*
Arctic grayling	*Thymallus arcticus*
Northern pike	*Esox lucius*
Longnose sucker	*Catostomus catostomus*
Cutthroat trout	*Oncorhynchus clarkii*
Rainbow trout	*Oncorhynchus mykiss*
Steelhead	*Oncorhynchus mykiss*
Trout (unspecified)	
Humpback whitefish	*Coregonus pidschian*
Round whitefish	*Prosopium cylindraceum*
Whitefishes (unspecified)	
Land mammals	
Large land mammals	
Bison	*Bison bison*
Black bear	*Ursus americanus*
Brown bear	*Ursus arctos*
Caribou	*Rangifer tarandus*
Deer	*Odocoileus hemionus*
Mountain goat	*Oreamnos americanus*
Moose	*Alces alces*
Dall sheep	*Ovis dalli*
Small land mammals	
Beaver	*Castor canadensis*
Coyote	*Canis latrans*
Arctic fox	*Vulpes lagopus*
Red fox–cross phase	*Vulpes vulpes*
Red fox–red phase	*Vulpes vulpes*
Snowshoe hare	*Lepus americanus*
North American river (land) otter	*Lontra canadensis*
Lynx	*Lynx canadensis*

-continued-

Table 1-2.–Page 2 of 3.

Small land mammals, continued	
Marten	*Martes americana*
Mink	*Neovison vison*
Muskrat	*Ondatra zibethicus*
Porcupine	*Erethizon dorsatum*
Arctic ground (parka) squirrel	*Spermophilus parryii*
Red (tree) squirrel	*Tamiasciurus hudsonicus*
Weasel	*Mustela nivalis*
Gray wolf	*Canis lupus*
Wolverine	*Gulo gulo*
Birds and eggs	
Migratory birds (ducks)	
Mallard	*Anas platyrhynchos*
Northern pintail	*Anas acuta*
Black scoter	*Melanitta nigra*
Green-winged teal	*Anas crecca*
Wigeon	*Anas spp.*
Ducks (unspecified)	
Migratory birds (geese)	
Cackling goose	*Branta hutchinsii minima*
Canada goose	*Branta canadensis parvipes*
Canada/cackling goose (unspecified)	*Branta spp.*
White-fronted goose	*Anser albifrons*
Migratory birds (other)	
Sandhill crane	*Grus canadensis*
Upland game birds	
Spruce grouse	*Falcipennis canadensis*
Sharp-tailed grouse	*Tympanuchus phasianellus*
Ruffed grouse	*Bonasa umbellus*
Ptarmigan	*Lagopus spp.*
Marine invertebrates	
Butter clams	*Saxidomus gigantea*
Razor clams	*Siliqua spp.*
Clams (unspecified)	
Cockles	*Serripes groenlandicus*
	Clinocardium nuttallii
	Simomactra planulata
Dungeness crab	*Cancer magister*
King crab	*Paralithodes spp.*
	Lithodes spp.
Tanner crab	*Chionoecetes spp.*
Octopus	*Octopus vulgaris*
Shrimp	*Pandalus spp.*
	Pandalopsis dispar
Vegetation	
Berries	
Blueberry	*Vaccinium uliginosum alpinum*
Lowbush cranberry	*Vaccinum vitis-idaea minus*
Highbush cranberry	*Viburnum edule*
Crowberry	*Empetrum nigrum*
Currants	*Ribes spp.*
Nagoonberry	*Rubus arcticus spp.*
Raspberry	*Rubus idaeus*

-continued-

Table 1-2.–Page 3 of 3.

Berries, continued	
Salmonberry	*Rubus spectabilis*
Soapberry	*Shepherdia canadensis*
Strawberry	*Fragaria virginiana*
Serviceberry	
Plants, greens, and mushrooms	
Fiddlehead ferns	
Hudson's Bay (Labrador) tea	*Ledum palustre*
Mint	*Mentha spp.*
Spruce tips	*Picea spp.*
Wild rose hips	*Rosa acicularis*
Yarrow	*Achillea spp.*
Other wild greens	
Mushrooms (unspecified)	
Fireweed	*Epilobium angustifolium*
Plantain	*Plantago major*
Stinkweed	*Artemisia tilesii*
Greens from land (unspecified)	
Bladder wrack	*Fucus Vesiculosus*
Wood	
Wood (unspecified)	

Source ADF&G Division of Subsistence household surveys, 2013.
Note The term "used" in the context of this table means that at least 1 household in 1 of the study communities reported using a given resource during the study year.

fishery during the same season. Federal management regulations provide subsistence fishing opportunities for rural residents only in the Glennallen Subdistrict, the Chitina Subdistrict, and at Batzulnetas. Rural resident salmon fishers may use rod and reel in addition to dip nets and fish wheels all during the same season (May 15–September 30), but may not use them at the same time. Other fishing opportunities include resident freshwater species of varying legal gear, open seasons, and harvest limits.

Hunting opportunities within and near the upper Copper River watershed are provided in 3 different Game Management Units (GMUs): 11, 12, and 13 (containing subunits 13A, 13B, 13C, 13D, and 13E). Big game hunts are available for bison, black and brown bears, caribou, Dall sheep, moose, mountain goats, wolves, and wolverines, additionally there are hunting and trapping opportunities for small game and furbearers. Some large game hunts under state regulation are by draw (lottery) for both residents and nonresidents; other general season and registration permit hunts for Alaska residents require only a harvest ticket. In addition, there is a Community Subsistence Hunt under state regulations for moose within all of GMUs 11 and 13, and a portion of GMU 12 and for caribou in GMU 13. Qualified rural residents are also able to hunt on federal lands in the area under federal subsistence regulations.

Study Objectives

The project had the following objectives:

1. Design a survey instrument to collect updated baseline information about subsistence hunting, fishing, gathering, and other topics in a way that is compatible with information collected in previous rounds of household interviews.
2. Conduct community scoping meetings.
3. Train local research assistants (LRAs) to administer the systematic household survey.
4. Conduct household surveys to record the following information:
   a) Demographic information;
   b) Involvement in use, harvest, and sharing of fish, wildlife, and wild plants in 2012;
   c) Estimates of amount of resources harvested in the study year;
   d) Information about cash employment and other sources of cash income in 2012;
   e) Assessments of changes in subsistence harvest and use patterns; and
   f) Location of fishing, hunting, and gathering activities in 2012.
5. Collaboratively review and interpret study findings.
6. Communicate study findings to the communities.
7. Produce a final report.

Research Methods

Ethical Principles for the Conduct of Research

The project was guided by the research principles outlined in the *Alaska Federation of Natives Guidelines for Research*[2] and by the National Science Foundation, Office of Polar Programs in its *Principles for the Conduct of Research in the Arctic*[3], as well as the Alaska confidentiality statute (AS 16.05.815). These principles stress community approval of research designs, informed consent, anonymity of study participants, community review of draft study findings, and the provision of study findings to each study community upon completion of the research.

Project Planning and Approvals

The task agreement under which this project was managed was modified and expanded to include multiple years and additional communities following the first project community of Chistochina that was surveyed in

2. Alaska Federation of Natives. 2013. "Alaska Federation of Natives Guidelines for Research." Alaska Native Knowledge Network. Accessed February 25, 2014. http://www.ankn.uaf.edu/IKS/afnguide.html.
3. National Science Foundation Interagency Social Science Task Force. 2012. "Principles for the Conduct of Research in the Arctic." Accessed February 25, 2014. http://www.nsf.gov/od/opp/arctic/conduct.jsp.

2010 for the 2009 study year. Project objectives, methods, schedules, and responsibilities were developed and refined by project staff from both ADF&G and WRST during the initial phase of project start-up. To meet the information needs of the participating organizations several questions related to NPS management concerns items were added to the Division of Subsistence standard household harvest survey instrument for the first study year and maintained through the remaining study years. For instance, the survey collected information about use of alternative modes of transportation. Residents of the study communities use a number of motorized modes of transportation beyond highway vehicles to access resource search, harvest, and use areas. All 4 study communities are among the 23 WRST resident zone communities whose residents are eligible to fish, hunt, and trap for subsistence purposes under federal subsistence regulations on lands designated as part of the WRST. In addition, study community residents may also fish in both the park and preserve under state fishing regulations, although bag and gear limits are not cumulative. Hunting and trapping under state regulations is limited to the national preserve. Additionally, NPS-regulated restrictions regarding the allowable use of motorized transportation equipment in the WRST area are also in place; permanent residents of the resident zone communities may use an off-road vehicle (ORV)—including an all-terrain vehicle (ATV)—for access to subsistence resources within the park and preserve. The use of aircraft to access the park for subsistence purposes is not allowed but aircraft may be used to access the preserve. Snowmachines, motor boats, and dog teams may be used for any purpose in both the park and preserve. For the 2012 study year, more assessment questions that were not asked for study years 2009 and 2010 were added to the survey to identify use of portable motorized equipment and participation in making handicrafts using natural materials. Furthermore, for the 2012 study year, the question about individual participation in building fish wheels was altered during survey administration to ask "Did this person build, maintain, or move fish wheels?"

In addition, the Division of Subsistence included a Health Impact Assessment (HIA) component to the survey for study year 2012, which was developed in cooperation with the Alaska Department of Health and Social Services (DHSS) and its contractor, Newfields. This component was added to accommodate data needs for the aforementioned Susitna Watana Dam Project. The results of this component of the study are being analyzed separately by DHSS and Newfields and do not appear in this report.

Spatial harvest and search area data were collected through digital data collection to document the locations where members of participating households hunted, fished, and gathered wild resources during the 2012 study year. WRST was responsible for meeting with federally recognized tribes in the study communities and seeking support for the project (the Gakona Village Council and the Chitina Traditional Indian Village Council), as well as providing personnel to assist ADF&G with fieldwork. ADF&G appointed Robbin La Vine as project lead in all communities for the 2012 study year, and provided 5 additional staff to assist with administering surveys in the project communities.

WRST or ADF&G staff were in continuous communication with all participating community representatives prior to the 2013 field season with many scoping meetings held well in advance of the survey effort.

The McCarthy scoping meeting was held in August 2012 as only 1 item on a full agenda of the season's final McCarthy Area Council meeting (MAC). La Vine and Barbara Cellarius (with WRST) were present and the meeting as a whole was well attended. The Kenny Lake and Willow Creek scoping meeting was held in November 2012 on the agenda of the Kenny Lake Community League's monthly meeting. La Vine and Cellarius gave the presentation with mostly League members present and a few additional members of the general public. La Vine presented project information to the Gakona Village Council 2 weeks prior to the implementation of the community survey and then again gave an advertised and community-wide presentation at the Gakona fire hall just prior to the start of the survey effort. Cellarius gave a brief project presentation to the Chitina Traditional Indian Village Council in early March 2013. The council members did not feel that a formal vote on the project was needed; they all agreed that the project was valuable and could move forward. In addition, WRST and ADF&G staff worked with community representatives to identify LRAs to assist with the survey. The LRAs were paid directly by ADF&G. Fieldwork took place between January and April 2013. Table 1-3 lists all project staff including those individuals who were involved in project management, field research, data entry, data analysis, map production, and report writing.

Systematic Household Surveys

The primary method for collecting subsistence harvest and use information in this project was a systematic household survey. The survey instrument for the 2012 study year contained all of the questions included in the study years 1 and 2 surveys plus a few additional questions that addressed new information needs (the health impact assessment and questions regarding use of portable motors and participation in making handicrafts). It was approved for use by the Office of Management and Budget (OMB). Appendix A is an example of the survey instrument used in this project. A key goal was to structure the survey instrument to collect demographic, resource harvest and use, and other economic data that are comparable with information collected in other household surveys in the study communities and with data in the CSIS. In order to achieve this goal, survey area boundaries were defined by a combination of those from past surveys, census designated place (CDP) boundaries, and community self-identification (Stratton and Georgette 1984). For this study the contemporary Gakona CDP remained consistent with survey boundaries from previous studies. Willow Creek was part of the Tonsina CDP in the previous studies, however for this study Kenny Lake and Willow Creek CDPs were combined[4] because residents of Willow Creek consider themselves to be more connected to the community of Kenny Lake. Sapa is a faith-based settlement that has unique characteristics distinct from those households in the surrounding community, however it is a part of the Kenny Lake CDP and therefore Sapa survey results are included in the data for both Kenny Lake and Willow Creek. Greater challenges exist in attempting to replicate past survey efforts in McCarthy and Chitina. For the purposes of this report the boundaries for the McCarthy survey expand beyond the contemporary CDP to include McCarthy Road extending west as far as Crystal Creek (milepost 40) and some

4. The combined CDPs that made up the community survey area are hereinafter referred to as Kenny Lake/Willow Creek in this report.

Table 1-3.–Project staff, Copper River Basin, study year 3.

Task	Name	Organization
Project design and management	Davin Holen	ADF&G Division of Subsistence
	Robbin La Vine	ADF&G Division of Subsistence
	Barbara Cellarius	WRST National Park and Preserve
Data management lead	David Koster	ADF&G Division of Subsistence
Field research lead	Robbin La Vine	ADF&G Division of Subsistence
Programmer	Garrett Zimpelman	ADF&G Division of Subsistence
	Marylynne Kostick	ADF&G Division of Subsistence
Data entry	Margaret Cunningham	ADF&G Division of Subsistence
	Theresa Quiner	ADF&G Division of Subsistence
Cartography	Bronwyn Jones	ADF&G Division of Subsistence
	Joshua Ream	ADF&G Division of Subsistence
Editorial review lead	Mary Lamb	ADF&G Division of Subsistence
Field research staff	Robbin La Vine	ADF&G Division of Subsistence
	Malla Kukkonen	ADF&G Division of Subsistence
	Bronwyn Jones	ADF&G Division of Subsistence
	Joshua Ream	ADF&G Division of Subsistence
	Mary Lamb	ADF&G Division of Subsistence
	Eric Schacht	ADF&G Division of Subsistence
	Barbara Cellarius	WRST National Park and Preserve
Local research assistants	Kim Morse	Kenny Lake
	Craig Tostenson	Willow Creek
	Terri Kaiser	Willow Creek
	Erin Nicholson	Willow Creek
	Ann Biddle	Gakona
	Roselyn Neeley	Gakona
	Laura Scott	Gakona
	Robert Sequak	Gakona
	Tamara Harper	McCarthy
	Elizabeth Schafer	McCarthy
	Lynn Welty	McCarthy
	Andrea Hand	Chitina
	Carla Somerville	Chitina
	Mike Winter	Chitina

remote homesteads off the road. Chitina boundaries are defined primarily by the contemporary CDP, which has expanded east along the McCarthy Road to include the neighborhood/community of Strelna as far as Strelna Creek and this resulted in the former study community of McCarthy Road being divided between Chitina and McCarthy for this study.

The goal was to survey a representative of each year-round household in the smaller study communities of McCarthy and Chitina, and a random sample of the larger communities of Kenny Lake/Willow Creek (25%) and Gakona (50%). Participation was voluntary and all individual- and household-level responses are confidential. The study team identified a total of 362 households in the 4 study communities (Table 1-4). The sample achieved in McCarthy was 67%, or 39 households, and 85% of households in Chitina (46 households). In Kenny Lake/Willow Creek a 39% sample was achieved (67 households) and a 55% sample

Table 1-4.–Sample achievement, study communities, 2012.

	Chitina	Gakona	Kenny Lake/Willow Creek[a]	McCarthy
Households in community	54	77	174	58
Interview goal	100%	60%	25%	100%
Households interviewed	46	42	67	39
Households failed to contact	5	29	37	16
Households declined to be interviewed	3	6	12	3
Total households attempted to interview	54	77	116	58
Refusal rate	6.1%	12.5%	15.2%	7.1%
Percentage of total households interviewed	85.2%	54.5%	38.5%	67.2%
Interview weighting factor	1.2	1.8	NA	1.5
Sampled population	114	110	164	69
Estimated population	133.8	201.7	417.2	102.6

Source ADF&G Division of Subsistence household surveys, 2013.
Note This table represents a simplified accounting of the sample size. As a result, components of the sample may not correctly sum to the number of households in the community.
a. This survey area includes the combined communities of Kenny Lake and Willow Creek, or those residences within the Kenny Lake census designated place (CDP) and the Willow Creek CDP. Sapa, a faith-based settlement, is a discrete community located within the Kenny Lake CDP and was included in this study's survey sample. These 3 communities were surveyed and analyzed as though they were different strata within a single community and the results for each strata were aggregated into the composite community referred to as "Kenny Lake/Willow Creek." While each community has its own interview weighting factor, there is no corresponding value for the composite community.

in Gakona (42 households). More detailed sampling information and associated tables are included in each community chapter.

Table 1-5 shows the length of time it took to conduct surveys in each community. On average survey interviews lasted about 1 hour in all communities. The shortest survey interview took place in Chitina and lasted 20 minutes; the longest survey took place in Kenny Lake/Willow Creek and lasted 210 minutes (or 3.5 hours).

Key Respondent Interviews

While researchers were in the study communities they consulted with tribal governments and other community leaders or representatives to identify key respondents to interview. The purpose of the key respondent interviews was to provide additional context for the quantitative data, and to provide information for the community background section at the beginning of each chapter, the seasonal round sections, harvest over time analyses, and the community comments and concerns section at the end of each chapter. The number of key respondent interviews varied among communities but averaged around 2. Respondents were supplied with a $50 honorarium for their time. Besides gathering qualitative data through the key respondent interview protocol, ADF&G staff took notes during interviews to provide additional context for this report.

Table 1-5.–Survey length, study communities, 2012.

Community	Interview length (in minutes)		
	Average	Minimum	Maximum
Chitina	53	20	147
Gakona	70	22	145
Kenny Lake/Willow Creek	63	25	210
McCarthy	63	25	135

Source ADF&G Division of Subsistence household surveys, 2013.

Researchers analyzed key respondent interviews and interview notes in preparation for this report. Key respondents were informed that, to maintain anonymity, their names would not be included in this report.

Mapping Locations of Subsistence Hunting, Fishing, and Gathering

During household interviews, the researchers asked respondents to indicate the locations of their hunting, fishing, and gathering activities during the study year. In addition, interviewers asked the respondents to mark on the maps the sites of each harvest, the species harvested, the amounts harvested, and the months of harvest. ADF&G staff established a standard mapping method. Points were used to identify harvest locations and polygons (circled areas) were used to show harvest effort areas, such as areas searched while hunting moose. Some lines were also drawn in order to depict traplines or routes taken while trolling for fish, for example, when the harvesting activity did not occur at a specific point.

Most of the harvest locations and hunting and gathering areas were documented using an application designed on the ArcGIS Runtime SDK for IOS platform; the device used to collect the data was an iPad.[5] The point, polygon, or line was drawn on a U.S. Geological Survey topographic relief map downloaded on the iPad. The iPad allowed the user to zoom in and out to the appropriate scale, and the ability to document harvesting activities wherever they occurred in the state of Alaska. Once a feature is accepted, an attribute box is filled out by the researcher that notes the species harvested, amount, method of access to the resource, and month(s) of harvest. The data were uploaded via Wi-Fi to a server. Once data collection was complete the data were downloaded into an ArcGIS file database. The application was developed by HDR, Inc., an environmental research firm located in Anchorage. Paper maps were also available to be used as a reference for respondents as well as by an LRA when an ADF&G or WRST researcher was not available for the interview. These maps were 11 in by 17 in at a scale of 1:250,000 and 1:500:000 and only documented the area within the Copper Basin. During the previous 2 years of this study the same information was collected using paper maps since the new digital data collection technology was not available at that time.

5. Product names are given because they are established standards for the State of Alaska or for scientific completeness; they do not constitute product endorsement.

Household Survey Implementation

Kenny Lake/Willow Creek

The survey effort for Kenny Lake/Willow Creek began January 16 and lasted through the beginning of April. Kenny Lake and Willow Creek combined represented the largest community of the project and project leads anticipated return trips to ensure a complete sample was surveyed. La Vine arrived early to conduct a community mapping session and create a list of occupied houses with the assistance of the LRAs. The survey administration training session was held on January 18 at the Copper Moose Bed and Breakfast with the entire team in attendance. Staff included La Vine, Malla Kukkonen, Bronwyn Jones, and project partner representative Cellarius (Table 1-3). Local research assistants were Kim Morse, Craig Tostenson, Terri Kaiser, and Erin Nicholson.

During the first week of the survey a prominent community resident passed away then another died just a few days later. Community residents and LRAs became significantly involved in the memorial proceedings and it was determined that a return trip would be necessary. La Vine returned to Kenny Lake/Willow Creek to pick up surveys and paper maps completed by LRAs during the Gakona survey in February and the Chitina survey in the beginning of April, at which time the survey effort was completed in Kenny Lake/Willow Creek.

Gakona

The survey effort in Gakona began February 19 and was mostly completed by February 28 with only a few surveys left for clean-up. La Vine arrived early for the community mapping and creation of the household survey list with the aid of LRAs. Training occurred on February 20 at the Copper River View Bed and Breakfast and survey interviews began on February 21. Staff included La Vine, Kukkonen, Jones, and Mary Lamb with assistance from LRAs Ann Biddle, Roselyn Neeley, Laura Scott, and Robert Sequak (Table 1-3). A handful of prominent households were traveling during the week of the survey. La Vine left surveys with 2 of the LRAs and returned during the Chitina survey in April once clean-up was complete.

McCarthy

Kukkonen was the community lead in McCarthy with the assistance of ADF&G staff Joshua Ream. Kukkonen and Ream traveled to McCarthy March 26 where they were joined by Cellarius for LRA training. Local research assistants included Tamara Harper, Elizabeth Schafer, and Lynn Welty (Table 1-3). The majority of the surveys were complete by April 2. The few remaining surveys were left with LRA Harper and collected by Cellarius a few weeks later upon their completion.

Chitina

The Chitina household list was created and approved by LRAs prior to the beginning of the survey effort. Training of the LRAs was conducted by La Vine at the Kenny Lake Community Hall on April 2; survey

of the community began April 3 and was completed by April 10 with 87% of the community sampled. Additional staff included Jones and Eric Schacht with assistance from LRAs Andrea Hand, Carla Somerville, and Mike Winter (Table 1-3).

Data Analysis and Review

Survey Data Entry and Analysis

All data were coded for data entry by Division of Subsistence staff in Anchorage. Surveys were reviewed and coded by the project leads in each community for consistency. Responses were coded following standardized conventions used by the Division of Subsistence to facilitate data entry. Information management staff within the Division of Subsistence set up database structures within Microsoft SQL Server[6] at ADF&G in Anchorage to hold the survey data. The database structures included rules, constraints, and referential integrity to ensure that data were entered completely and accurately. Data entry screens were available on a secured internal network. 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 catastrophic failure. All survey data were entered twice and each set compared in order to minimize data entry errors.

Once data were entered and confirmed, information was processed with the use of Statistical Package for the Social Sciences (SPSS) software, version 20. Initial processing included the performance of standardized logic checks 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 as numbers of animals, or in gallons or buckets, were converted to pounds usable weight using standard factors (see Appendix B for conversion factors).

ADF&G staff also used SPSS for analyzing the survey information. Analyses 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 on a case-by-case basis according to standardized practices, such as minimal value substitution or using an averaged 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 was missing, the household survey was treated as a “non-response” and not included in community estimates. ADF&G researchers documented all adjustments.

Harvest estimates and responses to all questions were calculated based upon the application of weighted

6. Product names are given because they are established standards for the State of Alaska or for scientific completeness; they do not constitute product endorsement.

means (Cochran 1977). These calculations are standard methods for extrapolating sampled data. As an example, the formula for harvest expansion is

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

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

where:

H_i = the total estimated harvest (numbers of resource or pounds) for the community *i*,

$\bar{h}_i$ = the mean harvest of returned surveys,

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 value of the constant is derived from student's *t* distribution, and varies slightly depending upon the size of the community. Though there are numerous ways to express the formula below, it contains the components of a SD, V, and SE:

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

where:

s = sample standard deviation,

n = sample size,

$\bar{h}$ = mean harvest of returned surveys,

N = population size, and

$t_{a/2}$ = 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 from the mean of the sample.

The corrected final data from the household survey will be added to the Division of Subsistence CSIS. This publicly-accessible database includes community-level study findings.

Population Estimates and Other Demographic Information

As noted above, a study objective was to collect demographic information for year-round (as opposed to seasonally occupied) households in each study community. For this study "year-round" was defined as residents who were domiciled in the community when the surveys took place for at least 3 months during the study year of 2012 and considered the study community to be their community of residence. Because not all households were interviewed, population estimates for each community were calculated by multiplying the average household size of interviewed households by the total number of year-round households, as identified by Division of Subsistence researchers in consultation with community officials and other knowledgeable respondents. There may be several reasons for the differences among the population estimates for each community and other demographic data that are generated from the division's household survey for 2012, estimates developed by the 2010 U.S. Census Bureau survey (U.S. Census Bureau 2011), and estimates for 2012 by the Alaska Department of Labor and Workforce Development (Alaska Department of Labor and Workforce Development 2014). While the Division of Subsistence used CDP boundaries as a starting point for defining each community sample there were some instances where community affiliation differed from bureaucratic assignments. Further discussion of community sampling, population, and demographics can be found in the following community chapters.

Map Data Entry and Analysis

As discussed above, maps were generated based on data collected using an iPad or on 11-in by 17-in paper maps. All data were entered on the iPad, whether in the field during interviews or by ADF&G or WRST research staff while coding survey data. Map features were matched to the survey form to ensure that all harvest data were recorded accurately. Once all data were entered, an ArcGIS file geodatabase was downloaded by ADF&G researchers from the server and maps showing harvest locations for each species were created in ArcGIS 10.2 using a standard template for reports. Maps show harvest locations for fish species, harvest areas for plants, berries, wood, and birds, and hunting areas for large and small land mammals. To ensure confidentiality harvest locations for large land mammals mapped during the survey were not produced for the report. Maps were reviewed at a community review meeting to ensure accuracy as well as identify any data the community would like to keep confidential.

Community Review Meetings

ADF&G staff presented preliminary survey findings and associated search area and harvest maps at a meeting in each community. The community review meeting for McCarthy was held early, prior the production of a complete data set, in order to take advantage of the last McCarthy Area Council meeting of the season in August 2013. The review took place as part of a full agenda line-up with both Kukkonen and Cellarius participating in the presentation. The Gakona review took place in March 2014 at the Gakona fire hall with

Jones and Schacht present. While it was advertised on the local radio and by word of mouth there was no community attendance. La Vine advertised a joint community review meeting for Chitina and Kenny Lake/ Willow Creek findings to be held at the Kenny Lake Library in April 2014. La Vine, Kukkonen, and Schacht were present as was project partner representative Cellarius. Approximately 4 community residents were present and while attendance was small, all gave thoughtful feedback on each data set. Comments offered at all review meeting provided context to the data sets and were wrapped into each chapter's section on community comments and concerns.

Final Report Organization

This report summarizes the results of systematic household surveys and mapping interviews conducted by staff from ADF&G and WRST, as well as LRAs, and summarizes resident feedback provided at community review meetings and during survey interviews. The findings are organized by study community in the order in which they were surveyed. Each chapter includes a community background, and sections following on demographic characteristics, employment characteristics, individual participation in harvesting and processing of wild resources, characteristics of resource harvests and uses—including the sharing of wild foods—and harvest and use trends over time. The section discussing characteristics of resource harvests and uses is organized into resource categories structured after the survey instrument resource sequence (Appendix A presents the survey form). Because of this the content structure in terms of the 2012 harvest data is consistent from one chapter to the next, with variations in presentation of historical trends and community comments and concerns.

Because of the large number of maps of hunting, fishing, and gathering areas used by each community in 2012, selected maps are included in individual chapters and the remaining maps are published as Appendix C, "Harvest Use Area Maps by Community." The final chapter of the report provides a short, general overview of the harvests and uses of wild resources in the study communities.

ADF&G provided a draft report to WRST, Ahtna, Inc., and to representatives in the study communities for their review and comment. After receipt of comments, the report was finalized. ADF&G provided a short (4-page) summary of the study findings to WRST for their distribution to participating study communities (Appendix D).

2. KENNY LAKE/WILLOW CREEK

Robbin La Vine

Community Background

The communities of Kenny Lake and Willow Creek encompass the triangle created by the intersections of the Richardson Highway with the Old Edgerton and Edgerton highways. Kenny Lake CDP stretches primarily along the Edgerton Highway and parts of the Richardson and Old Edgerton highways, and Willow Creek CDP includes the roads just south of the junction of the Richardson and Old Edgerton highways then north toward Copper Center. The Kenny Lake CDP also encompasses an area that is still referred to by longtime residents as Lower Tonsina that was historically an Alaska Native/lower Ahtna settlement. The Willow Creek CDP is only a recent distinction (at the 2000 national census); its boundaries are carved out in part from the northwest portion of the 1990 Kenny Lake CDP and extending north through what was once part of the "balance" of the census area bordering the Copper Center CDP. The local hub of Glennallen is located approximately 32 mi north of the Edgerton–Richardson intersection and Valdez is about 82 mi to the south.

The communities lie along the sloping foothills of the Chugach Mountains in the southwest portion of the Copper River Basin. Tremendous views of the Wrangell Mountains are showcased to the east. The Copper River runs along the eastern boarder of both the CDPs with the Tonsina River joining it to the south. As part of Interior Alaska, the area's temperature can range from the upper 80s ˚F in the summer to –50 ˚F in the winter.

The Kenny Lake and Willow Creek areas have a long history of human occupation. Ahtna place names and archaeological sites establish that permanent settlements existed prior to Western contact at the outlet of the Tonsina River where it flows into the Copper River. Seasonal camps and features were located near Kenny Lake, Willow Mountain, and Willow Lake (Reckord 1983). In the early 1900s, an Alaska Road Commission (ARC) roadhouse was located in Kenny Lake on the cutoff between the Richardson Highway and Chitina during the construction of the Valdez, Chitina, and Trans-Alaska Military Road that was later named Edgerton Highway (Naske 1983). By the 1950s, the Kenny Lake and Willow Creek areas were settled by homesteaders, and farms were established in the area despite climatological hardships and the lack of a consistent freshwater source for area farms.

Kenny Lake and Willow Creek are primarily road-based communities with no discernible community centers. However, some services are available along the Richardson and Edgerton highways, including a gas station and 2 stores in Kenny Lake and a restaurant in Willow Creek). Additionally, Kenny Lake has a K–12 school that serves the communities of the lower Copper Basin (Chitina, Kenny Lake, Willow Creek, and Tonsina), old and new community halls, a volunteer fire department, and a small library. Other services

that support the local economy include a number of privately owned bed-and-breakfast establishments and vacation rentals.

Sapa

"Sapa" is an American Indian place name that was used for a settlement founded in Mississippi. Later, Sapa, Alaska, was founded in 1975 as a faith-based settlement whose members were called to live off the land and labor in service to God and community. When this communal farm's founders moved to Alaska, they shared a mission of ministry and intention with other similar communities founded across Alaska during the 1970s—including Dry Creek, White Stone, Edgerton Farm (also located in Kenny Lake CDP but dispersed since the early 1980s), and others. The community of Dry Creek was described in detail by La Vine in Technical Paper No. 372, *Subsistence Harvests and Uses of Wild Resources by Communities in the Eastern Interior of Alaska, 2011* (Holen, Hazell, and Koster 2012). Like Dry Creek, Sapa has a distinct pattern of harvesting, processing, and sharing wild resources. Food is prepared in turn and eaten within the community hall, which serves as a kitchen, dining room, place of worship, community school, and offices. During the 2012 study year, most of the food was grown on the farm but it also included wild resources such as salmon harvested by fish wheel near Chitina and wild game. Only 1 member of the community harvested caribou, the rest of the wild game was shared with Sapa by neighbors and, most significantly, hunters from the community of Dry Creek.

Sapa consists of about 320 acres of farmland and once had productive greenhouses as well as a thriving for-profit endeavor called Regal Enterprises. Through Regal Enterprises, Sapa residents operated a sawmill, provided construction services, and harvested firewood. They provided the local area and beyond with flowers and vegetables from their greenhouses and, most significantly, affordable firewood throughout the Copper Basin. Due in part to increased challenges in accessing local woodlots and a loss of residents seeking greater economic opportunity, Regal Enterprises closed in fall 2012; the greenhouses closed a few years earlier. The loss of a local and affordable source of firewood had Basin-wide effects and was commented upon by most communities within this report.

At its peak of operation, Sapa consisted of about 100 residents occupying 17 households, with individuals co-housed with families in community-constructed log homes. By 2013 there were 21 residents remaining within 6 occupied households. At the time this report was written, the entire holdings of Sapa were for sale and the remaining members were gone, having moved closer to children or to similar communities across the state and the world.

Community background, history, and seasonal harvest patterns for Sapa were derived from key respondent interviews and survey notes. While Sapa has unique characteristics distinct from those households in the surrounding community, it is a part of the Kenny Lake CDP and therefore Sapa survey results are included in the data for both Kenny Lake and Willow Creek.

Table 2-1.–Population estimates, Kenny Lake/Willow Creek, 2010 and 2012.

	Census year 2010				Study findings for 2012			
	Total population		Alaska Native population		Total population		Alaska Native population	
Community	Households	Population	People	Percentage of total	Households	Population	People	Percentage of total
Kenny Lake/ Willow Creek	237	546	81	14.8%	174	417	51	12.2%

Source ADF&G Division of Subsistence household surveys, 2013.
Note Population estimates (in this table) are given as the combined population estimates of both Kenny Lake and Willow Creek.

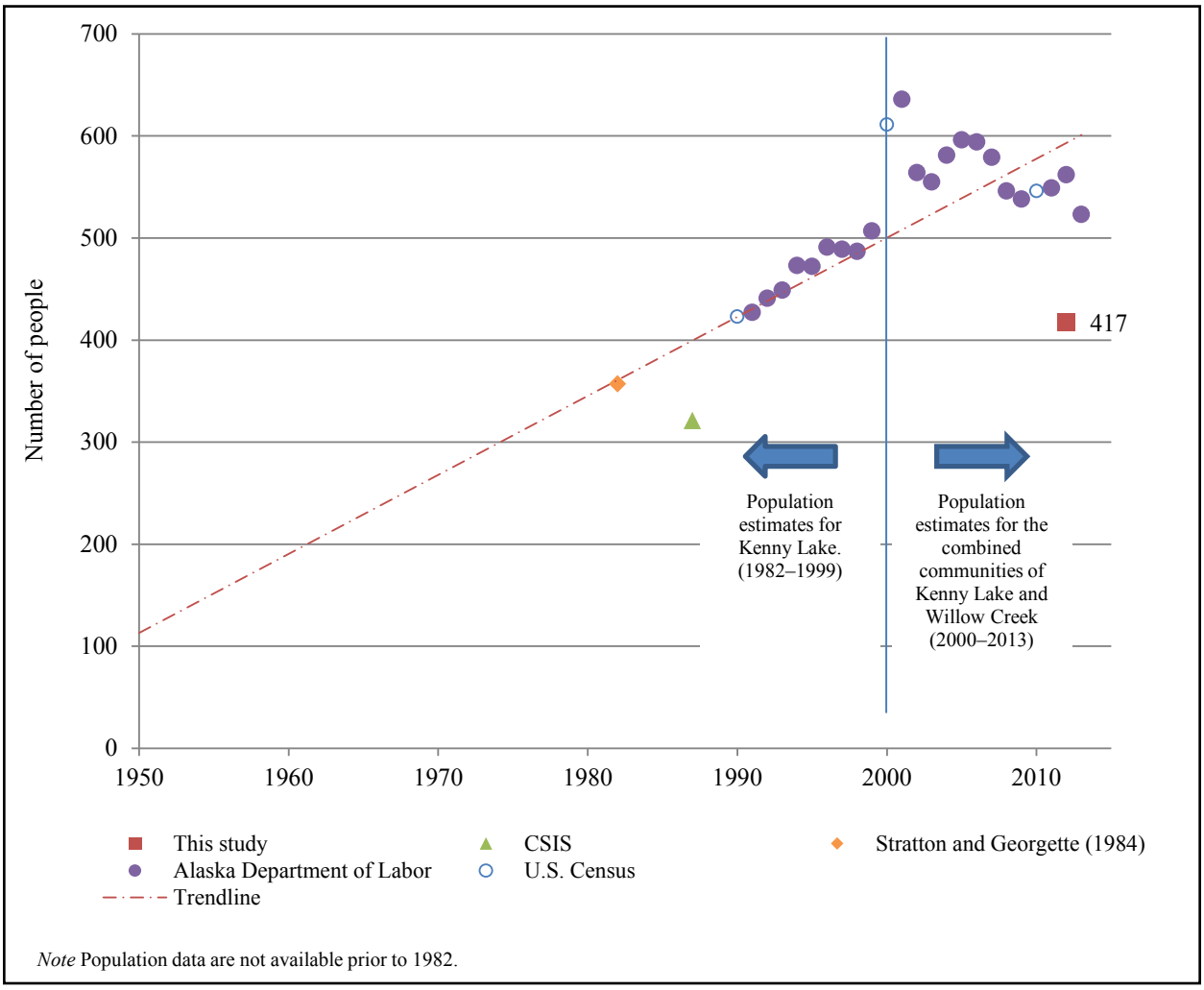

Figure 2-1.–Historical population estimates, Kenny Lake/Willow Creek, 1982–2012.

Demography

According to the federal census, in 2010 the Kenny Lake CDP had 355 residents and the Willow Creek CDP had 191 residents for a combined area population of 546 (Table 2-1). The household survey conducted in 2013 found an estimated 2012 combined population of 417 residents of which 12% were Alaska Native (Table 2-1). Figure 2-1 shows the population of the combined communities over time starting with the popula-

Table 2-2.–Sample achievement, Kenny Lake/Willow Creek, 2012.

	Kenny Lake/Willow Creek[a]
Households in community	174
Interview goal	25%
Households interviewed	67
Households failed to contact	37
Households declined to be interviewed	12
Total households attempted to interview	116
Refusal rate	15.2%
Percentage of total households interviewed	38.5%
Interview weighting factor	NA
Sampled population	164
Estimated population	417.2

Source ADF&G Division of Subsistence household surveys, 2013.
Note This table represents a simplified accounting of the sample size. As a result, components of the sample may not correctly sum to the number of households in the community.
a. This survey area includes the combined communities of Kenny Lake and Willow Creek, or those residences within the Kenny Lake census designated place (CDP) and the Willow Creek CDP. Sapa, a faith-based settlement, is a discrete community located within the Kenny Lake CDP and was included in this study's survey sample. These 3 communities were surveyed and analyzed as though they were different strata within a single community and the results for each strata were aggregated into the composite community referred to as "Kenny Lake/Willow Creek." While each community has its own interview weighting factor, there is no corresponding value for the composite community.

tion estimates produced by previous subsistence surveys for 1982 and 1987 for Kenny Lake and continuing with U.S. Census Bureau data and Alaska Department of Labor and Workforce Development estimates for Kenny Lake/Willow Creek for 2000 through 2013. The general trend for available data is one of an increase in population over time. However, the 2013 survey resulted in a smaller estimate of permanent year-round residents compared to the 2010 federal census; this may be due to a difference in determining permanent residency or the recent number of households that moved. Prior to the study, the Division of Subsistence researchers consulted with community representatives to identify 174 year-round households of Kenny Lake and Willow Creek (Table 2-2). Of these, 67 households (39%) were interviewed. The following data are expanded to cover the remaining households not surveyed.

The mean number of years of residency in the 2 communities was 16 years, with the maximum length of residence being 90 years (Table 2-3). Approximately 55% of the population was male and 45% was female. The largest age cohort of the entire population was women between the ages of 50 and 54 (18% of the female population) and the largest age cohort for men (14%) fell between the ages of 60 and 64 (Table 2-4; Figure 2-2). The largest cohort for the entire community population combined (33%) fell between the ages of 50 and 64; however, a significant portion of the population (20%) fell between the ages of 10 and 20.

Table 2-3.–Sample and demographic characteristics, Kenny Lake/Willow Creek, 2012.

Characteristics	Community Kenny Lake/ Willow Creek
Sample achievement	
Sampled households	67
Eligible households	174
Percentage sampled	38.5%
Household size	
Mean	2.4
Minimum	1
Maximum	8
Age	
Mean	42.8
Minimum[a]	0
Maximum	94
Length of residency	
Total population	
Mean	16.4
Minimum	0
Maximum	90
Heads of household	
Mean	20.0
Minimum	0
Maximum	66
Sex	
Estimated male	
Number	228.3
Percentage	54.7%
Estimated female	
Number	188.8
Percentage	45.3%
Alaska Native	
Estimated households[b]	
Number	19.7
Percentage	11.3%
Estimated population	
Number	50.7
Percentage	12.2%

Source ADF&G Division of Subsistence household surveys, 2013.
a. A minimum age of 0 (zero) is used for infants that are less than 1 year of age.
b. The estimated number of households in which at least 1 head of household is Alaska Native.

Table 2-4.–Population profile, Kenny Lake/Willow Creek, 2012.

	Male			Female			Total		
Age	Number	Percentage	Cumulative percentage	Number	Percentage	Cumulative percentage	Number	Percentage	Cumulative percentage
0–4	4.6	2.0%	2.0%	6.8	3.6%	3.6%	11.4	2.7%	2.7%
5–9	9.1	4.0%	6.0%	3.6	1.9%	5.5%	12.7	3.0%	5.8%
10–14	24.2	10.6%	16.6%	23.8	12.6%	18.1%	48.0	11.5%	17.3%
15–19	19.7	8.6%	25.2%	15.5	8.2%	26.4%	35.2	8.4%	25.7%
20–24	11.4	5.0%	30.2%	4.6	2.4%	28.8%	15.9	3.8%	29.6%
25–29	10.1	4.4%	34.6%	7.8	4.1%	32.9%	17.8	4.3%	33.8%
30–34	11.0	4.8%	39.4%	6.8	3.6%	36.5%	17.8	4.3%	38.1%
35–39	10.0	4.4%	43.8%	1.3	0.7%	37.2%	11.4	2.7%	40.8%
40–44	14.2	6.2%	50.0%	6.4	3.4%	40.6%	20.6	4.9%	45.8%
45–49	10.0	4.4%	54.4%	13.2	7.0%	47.6%	23.3	5.6%	51.3%
50–54	18.7	8.2%	62.6%	34.3	18.2%	65.8%	53.0	12.7%	64.0%
55–59	20.6	9.0%	71.6%	13.2	7.0%	72.8%	33.8	8.1%	72.2%
60–64	33.3	14.6%	86.2%	15.5	8.2%	81.0%	48.9	11.7%	83.9%
65–69	7.7	3.4%	89.6%	12.7	6.7%	87.8%	20.5	4.9%	88.8%
70–74	13.3	5.8%	95.4%	13.6	7.2%	95.0%	26.9	6.4%	95.2%
75–79	4.5	2.0%	97.4%	2.7	1.4%	96.4%	7.2	1.7%	97.0%
80–84	1.3	0.6%	98.0%	0.0	0.0%	96.4%	1.3	0.3%	97.3%
85–89	2.3	1.0%	99.0%	5.5	2.9%	99.3%	7.8	1.9%	99.1%
90–94	2.3	1.0%	100.0%	1.3	0.7%	100.0%	3.6	0.9%	100.0%
95–99	0.0	0.0%	100.0%	0.0	0.0%	100.0%	0.0	0.0%	100.0%
100–104	0.0	0.0%	100.0%	0.0	0.0%	100.0%	0.0	0.0%	100.0%
Missing	0.0	0.0%	100.0%	0.0	0.0%	100.0%	0.0	0.0%	100.0%
Total	**228.3**	**100.0%**	**100.0%**	**188.8**	**100.0%**	**100.0%**	**417.2**	**100.0%**	**100.0%**

Source ADF&G Division of Subsistence household surveys, 2013.

Very few of the household heads in Kenny Lake and Willow Creek were born in the Copper Basin—just more than 3% (Table 2-5). Almost 14% of the household heads were born in other locations throughout Alaska; the vast majority of household heads (78%) were born elsewhere in the United States.

Cash Employment and Monetary Income

Although employment opportunities in the Kenny Lake/Willow Creek area are limited, there are jobs available at retail and restaurant establishments situated along stretches of both the Richardson and Edgerton highways. Additionally, local community establishments (such as the school, community hall, and library) and private enterprise (such as vacation rental management) also generate employment opportunities.

Table 2-6 is a summary of the estimated earned income as well as other sources of income for residents in Kenny Lake/Willow Creek in 2012. The average household income for 2012 was approximately $34,287, of which earned income accounted for an average of $25,938 per household, or approximately 76% of the total community income. The estimated per capita earned income was $10,819 (Table 6-1). Other income contributed approximately 24% of the total community income, or $8,348 per household (Table 2-6). The greatest contributing sectors for earned income in Kenny Lake/Willow Creek were local government and services. The largest sources of other income were Social Security and pension or retirement, which together accounted for approximately 17% of the total community income in 2012.

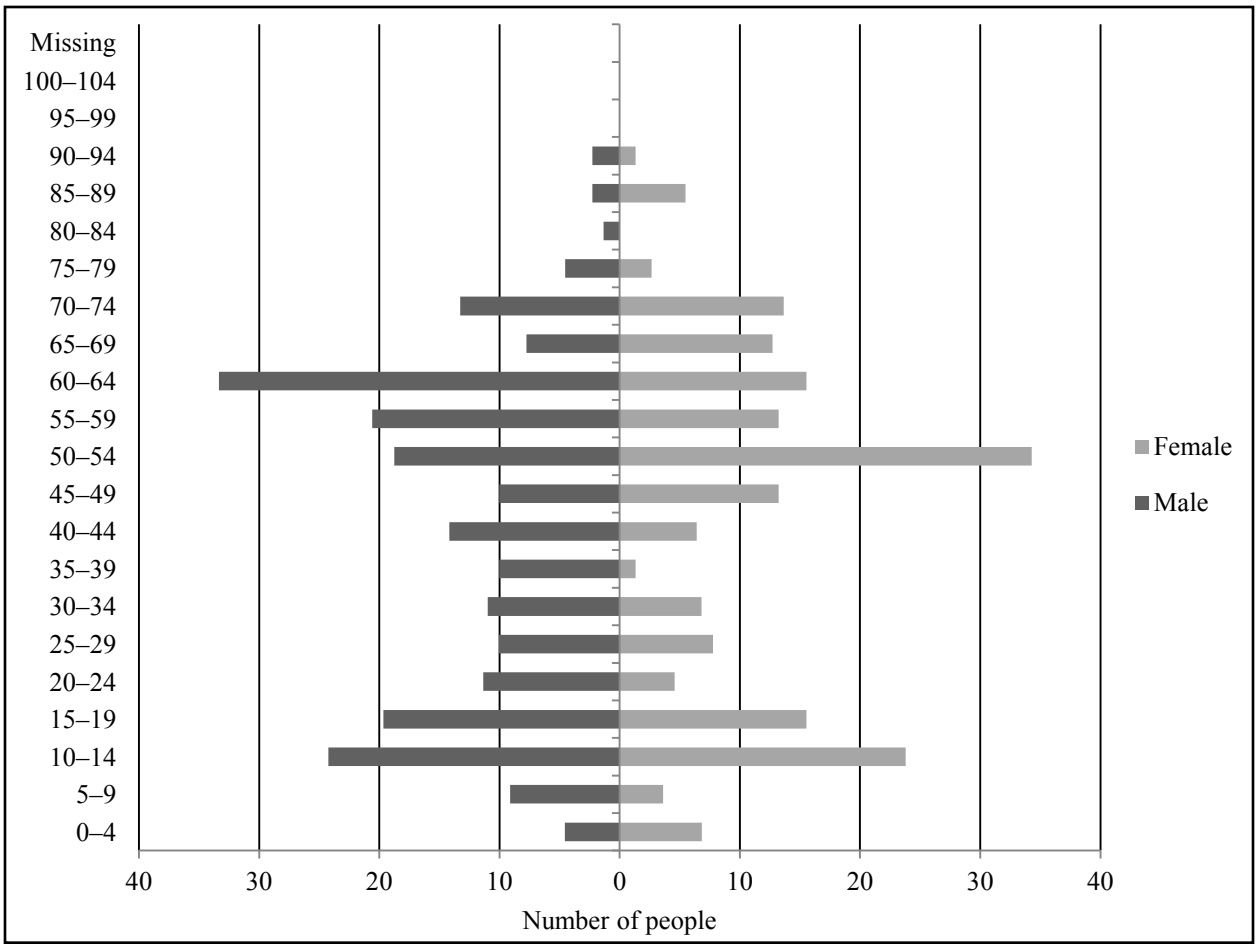

Figure 2-2.–Population profile, Kenny Lake/Willow Creek, 2012.

Table 2-5.–Birthplaces of household heads, Kenny Lake/Willow Creek, 2012.

Birthplace	Percentage
Bethel	1.2%
Big Lake	1.2%
Copper Center	0.8%
Cordova	2.4%
Fairbanks	1.2%
Kenny Lake	1.7%
Ketchikan	1.2%
Lower Tonsina	0.8%
Palmer	2.0%
Valdez	2.4%
Willow	1.2%
Other Alaska	0.8%
Other U.S.	78.0%
Foreign	5.1%
Total	**100.0%**

Source ADF&G Division of Subsistence household surveys, 2013.
Note "Birthplace" means the residence of the parents of the individual when the individual was born.

Table 2-6.–Estimated earned and other income, Kenny Lake/Willow Creek, 2012.

Income source	Number of people	Number of households	Total for community	Mean per household[a]	Percentage of total[b]
Earned income					
Federal government	8.0	7.9	$191,237	$1,099	3.2%
State government	10.4	10.3	$126,162	$725	2.1%
Local government, including tribal	58.0	51.9	$1,557,854	$8,953	25.7%
Agriculture, forestry, and fishing	26.7	22.1	$484,252	$2,783	8.0%
Construction	19.5	17.0	$147,316	$847	2.4%
Manufacturing	10.4	7.9	$62,476	$359	1.0%
Transportation, communication, and utilities	19.2	16.7	$593,536	$3,411	9.8%
Retail trade	14.4	9.4	$204,047	$1,173	3.4%
Services	71.1	59.8	$1,096,300	$6,301	18.1%
Industry not indicated	8.0	5.6	$50,054	$288	0.8%
Earned income subtotal	**193.7**	**120.3**	**$4,513,234**	**$25,938**	**74.6%**
Other income					
Social Security			$576,716	$3,314	9.5%
Pension or retirement			$456,851	$2,626	7.5%
Alaska Permanent Fund dividend			$317,506	$1,825	5.2%
Unemployment			$55,064	$316	0.9%
Food stamps			$30,906	$178	0.5%
Other			$28,955	$166	0.5%
Native corporation dividends			$21,172	$122	0.3%
Longevity bonus			$17,601	$101	0.3%
Energy assistance			$16,030	$92	0.3%
Supplemental Security income			$10,950	$63	0.2%
Adult public assistance			$3,422	$20	0.1%
Foster care			$2,509	$14	0.0%
Investments or stocks or bonds			$1,449	$8	0.0%
Child support			$1,283	$7	0.0%
Workers' compensation or insurance			$0	$0	0.0%
Other income subtotal			**$1,540,413**	**$8,853**	**25.4%**
Community income total			**$6,053,647**	**$34,791**	**100.0%**

Source ADF&G Division of Subsistence household surveys, 2013.

a. The mean is calculated using the total number of households in the community, not the number of households for this income category.

b. Income by category is calculated as a percentage of the total community income from all sources (wage-based income and non-wage-based income).

Table 2-7.–Employment by industry, Kenny Lake/Willow Creek, 2012.

Industry	Jobs	Households	Individuals	Percentage of wage earnings
Estimated total number	**279.9**	**120.3**	**193.7**	**100.0%**
Federal government (total)	**2.9%**	**6.6%**	**4.1%**	**4.2%**
Natural scientists and mathematicians	0.9%	2.0%	1.2%	0.4%
Administrative support occupations, including clerical	1.1%	2.7%	1.7%	3.8%
Handlers, equipment cleaners, helpers, and laborers	0.9%	2.0%	1.2%	0.1%
State government (total)	**3.7%**	**8.5%**	**5.4%**	**2.8%**
Teachers, librarians, and counselors	0.9%	2.0%	1.2%	0.0%
Service occupations	1.1%	2.7%	1.7%	0.5%
Agricultural, forestry, and fishing occupations	0.9%	2.0%	1.2%	2.2%
Occupation not indicated	0.9%	2.0%	1.2%	0.1%
Local and tribal governments (total)	**21.6%**	**43.1%**	**29.9%**	**34.5%**
Executive, administrative, and managerial	0.9%	2.0%	1.2%	0.5%
Teachers, librarians, and counselors	15.8%	31.9%	21.7%	27.6%
Construction and extractive occupations	1.1%	2.7%	1.7%	2.3%
Transportation and material moving occupations	1.7%	3.9%	2.5%	2.2%
Handlers, equipment cleaners, helpers, and laborers	2.0%	4.6%	2.9%	1.9%
Agriculture, forestry, and fishing (total)	**11.5%**	**18.4%**	**13.8%**	**10.7%**
Executive, administrative, and managerial	0.5%	1.1%	0.7%	0.1%
Agricultural, forestry, and fishing occupations	10.2%	16.4%	11.9%	9.9%
Handlers, equipment cleaners, helpers, and laborers	0.9%	2.0%	1.2%	0.7%
Construction (total)	**7.4%**	**14.1%**	**10.1%**	**3.3%**
Executive, administrative, and managerial	0.5%	1.1%	0.7%	0.1%
Construction and extractive occupations	7.0%	14.1%	10.1%	3.1%
Manufacturing (total)	**3.7%**	**6.6%**	**5.4%**	**1.4%**
Writers, artists, entertainers, and athletes	3.7%	6.6%	5.4%	1.4%
Transportation, communication, and utilities (total)	**6.9%**	**13.9%**	**9.9%**	**13.2%**
Executive, administrative, and managerial	2.3%	5.3%	3.3%	4.1%
Administrative support occupations, including clerical	0.9%	2.0%	1.2%	3.8%
Transportation and material moving occupations	2.9%	4.6%	4.1%	3.1%
Handlers, equipment cleaners, helpers, and laborers	0.9%	2.0%	1.2%	2.2%
Retail trade (total)	**5.2%**	**7.8%**	**7.4%**	**4.5%**
Marketing and sales occupations	5.2%	7.8%	7.4%	4.5%
Services (total)	**34.3%**	**49.7%**	**36.7%**	**24.3%**
Executive, administrative, and managerial	0.9%	2.0%	1.2%	0.5%
Health technologists and technicians	0.9%	2.0%	1.2%	0.2%
Technologists and technicians, except health	1.3%	3.1%	1.9%	1.2%
Administrative support occupations, including clerical	2.9%	4.6%	2.9%	0.8%
Service occupations	17.6%	28.1%	22.5%	9.2%
Mechanics and repairers	1.1%	2.7%	1.7%	5.8%

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Table 2-7.–Page 2 of 2.

Industry	Jobs	Households	Individuals	Percentage of wage earnings
Services (total), continued				
Construction and extractive occupations	4.0%	9.2%	5.8%	2.0%
Transportation and material moving occupations	2.0%	4.6%	2.9%	0.5%
Handlers, equipment cleaners, helpers, and laborers	3.6%	8.4%	5.2%	4.0%
Industry not indicated (total)	**2.9%**	**4.6%**	**4.1%**	**1.1%**
Executive, administrative, and managerial	0.9%	2.0%	1.2%	0.2%
Teachers, librarians, and counselors	0.9%	2.0%	1.2%	0.7%
Technologists and technicians, except health	1.1%	2.7%	1.7%	0.2%

Source ADF&G Division of Subsistence household surveys, 2013.

Table 2-8.–Employment characteristics, Kenny Lake/Willow Creek, 2012.

Characteristic	Community Kenny Lake/Willow
All adults	
Number	339.5
Mean weeks employed	21.6
Employed adults	
Number	193.7
Percentage	57.0%
Jobs	
Number	279.9
Mean	1.4
Minimum	1
Maximum	4
Months employed	
Mean	8.7
Minimum	1
Maximum	12
Percentage employed year-round	41.2%
Mean weeks employed	37.9
Households	
Number	174
Employed	
Number	120.3
Percentage	69.1%
Jobs per employed household	
Mean	1.6
Minimum	1
Maximum	6
Employed adults	
Mean	
Employed households	1.6
Total households	1.1
Minimum	
Employed households	1
Maximum	
Employed households	2
Mean person-weeks of employment	43.0

Source ADF&G Division of Subsistence household surveys, 2013.

In 2012, most of the jobs held by Kenny Lake/Willow Creek residents (approximately 34%) came from the services sector (Table 2-7). Other employment sectors of significance included local and tribal governments (including employment at schools) (22% of jobs) and agriculture, forestry, and fishing (12% of jobs). However, local and tribal governments contributed the highest percentage to community earned income (35%), followed by the services sector (24%), transportation, communication, and utilities (13%), and agriculture, forestry, and fishing (11%).

An estimated 340 adults were of working age (over 16) in Kenny Lake/Willow Creek of which 194 (or 57%) were employed at some point throughout the study year (Table 2-8). Of these employed adults 41% were employed year-round with the mean length of employment extending just under 9 months during the study year. On a household level, 120 of the 174 households (69%) contained at least 1 adult who was employed during 2012. The average number of jobs during the study year per employed household was 1.6 with the average number of employed adults per employed household also being 1.6.

Levels of Individual Participation in the Harvesting and Processing of Wild Resources

Table 2-9 reports the expanded levels of individual participation in the harvest and processing of wild resources by Kenny Lake/Willow Creek residents in 2012. Approximately 86% of all residents participated in the harvest of wild resources while 90% participated in the processing of wild resources. With reference to specific resource categories, 78% of community members gathered vegetation while 82% processed; 57% of community members participated in the harvest of fish while 69% processed; 27% participated in hunting large land mammals while about 29% processed large land mammals; about 13% participated in hunting or trapping small game or furbearers and 15% processed; and about 11% participated in hunting birds while 10% processed harvests. The survey also included questions about participation in craft activities relating to subsistence efforts or using subsistence resources. In Kenny Lake/Willow Creek, 10% of residents built or repaired fish wheels or helped to place or remove a fish wheel. In 2012, 18% of residents sewed skins and 74% of residents cooked wild foods.

Household Resource Harvest and Use Patterns and Sharing of Wild Resources

Table 2-10 summarizes resource harvest and use characteristics for Kenny Lake/Willow Creek in 2012 at the household level. Most households (97%) used wild resources in 2012, while 95% attempted to harvest resources. The average harvest was 338 lb usable weight per household, or 141 lb per capita. During the study year, households attempted to harvest an average of 8 kinds of resources, harvested an average of 7 resources, and used an average of 10 kinds of resources. The maximum number of resources used by any household was 55 while some households did not use any. In addition, households gave away an average of 3 kinds of resource while an estimated 65% of households shared resources with other households and 79% received resources.

Table 2-9.–Individual participation in subsistence harvesting, processing, and craft activities, Kenny Lake/ Willow Creek, 2012.

			Kenny Lake/ Willow Creek
Estimated population			**417.2**
Fish			
	Fish		
		Number	236.4
		Percentage	56.7%
	Process		
		Number	288.2
		Percentage	69.1%
Large land mammals			
	Hunt		
		Number	112.0
		Percentage	26.9%
	Process		
		Number	119.8
		Percentage	28.7%
Small land mammals or furbearers			
	Hunt or trap		
		Number	54.9
		Percentage	13.2%
	Process		
		Number	62.6
		Percentage	15.0%
Birds and eggs			
	Hunt		
		Number	43.9
		Percentage	10.5%
	Process		
		Number	40.7
		Percentage	9.8%
Berries, plants, or wood			
	Gather		
		Number	325.3
		Percentage	78.0%
	Process		
		Number	341.5
		Percentage	81.9%

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Table 2-9.–Page 2 of 2.

			Kenny Lake/ Willow Creek
Any resource			
	Attempt		
		Number	358.0
		Percentage	85.8%
	Process		
		Number	373.9
		Percentage	89.6%
Build, maintain, or place fish wheels			
		Number	41.1
		Percentage	9.8%
Sew skins or cloth			
		Number	74.1
		Percentage	17.8%
Cook wild foods			
		Number	308.9
		Percentage	74.0%

Source ADF&G Division of Subsistence household surveys, 2013.

Table 2-10.–Resource harvest and use characteristics, Kenny Lake/Willow Creek, 2012.

Characteristic	Community Kenny Lake/ Willow Creek
Number of resources used per household	
Mean	10.3
Minimum	0
Maximum	55
95% confidence limit (±)	16.9%
Median	13
Number of resources attempted per household	
Mean	8.1
Minimum	0
Maximum	48
95% confidence limit (±)	19.6%
Median	9
Number of resources harvested per household	
Mean	6.7
Minimum	0
Maximum	35
95% confidence limit (±)	20.0%
Median	7
Number of resources received per household	
Mean	4.8
Minimum	0
Maximum	35
95% confidence limit (±)	22.4%
Median	6
Number of resources given away per household	
Mean	2.5
Minimum	0
Maximum	11
95% confidence limit (±)	23.6%
Median	3
Household harvest (pounds)	
Mean	337.6
Minimum	0
Maximum	4,234
95% confidence limit (±)	42.1%
Median	112.7
Total estimated harvest weight (pounds)	58,734.0
Community per capita estimated harvest (pounds)	140.8
Percentage of households using any resource	96.8%
Percentage of households attempting to harvest any resource	94.8%
Percentage of households harvesting any resource	92.9%
Percentage of households receiving any resource	79.2%
Percentage of households giving away any resource	65.1%
Number of households in sample	67
Number of resources available	117

Source ADF&G Division of Subsistence household surveys, 2013.

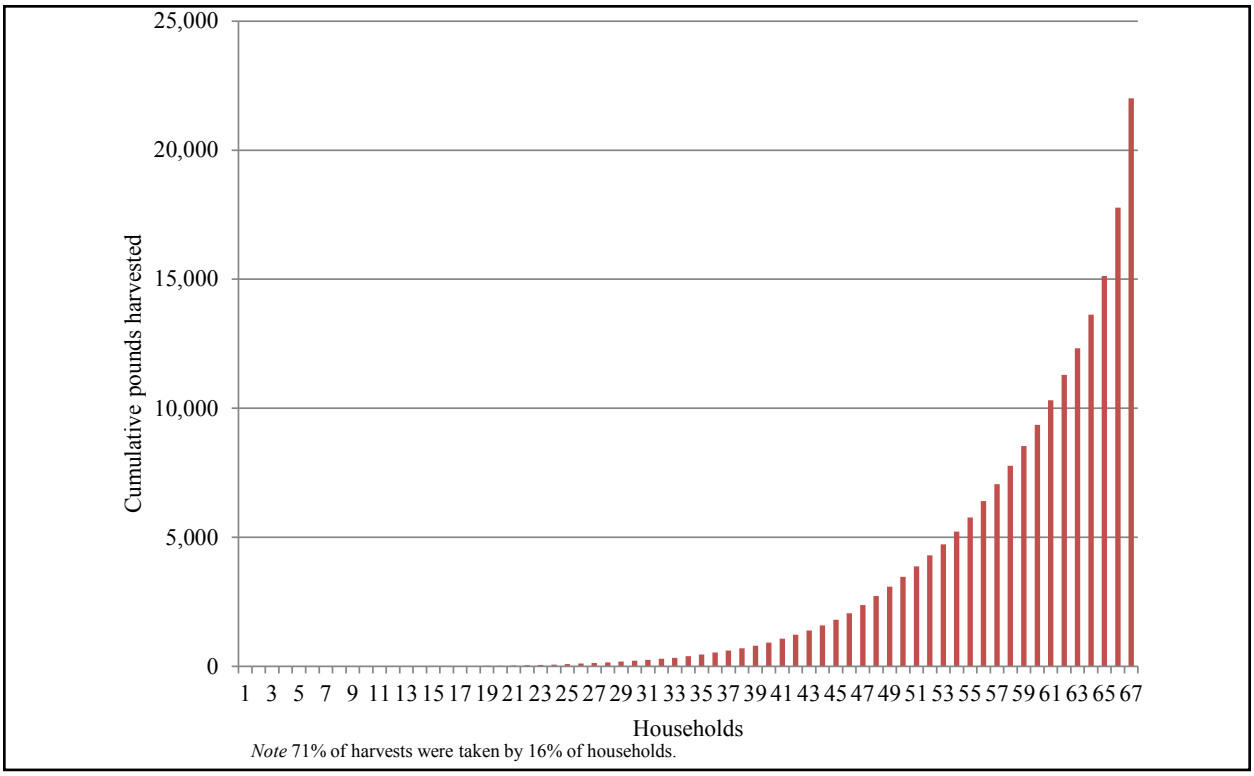

Figure 2-3.–Household specialization, Kenny Lake/Willow Creek, 2012.

Previous studies by the Division of Subsistence (Wolfe 1987; Wolfe et al. 2010) have shown that in most rural Alaska communities, a relatively small portion of households produces most of the community's fish and wildlife harvests, which they share with other households. A recent study of 3,265 households in 66 rural Alaska communities found that about 33% of the households accounted for 76% of subsistence harvests (Wolfe et al. 2010). Although overall the set of very productive households was diverse, factors that were associated with higher levels of subsistence harvests included larger households with a pool of adult male labor, higher wage income, involvement in commercial fishing, and community location.

As shown in Figure 2-3, in the 2012 study year in Kenny Lake/Willow Creek, about 71% of the harvested wild resources as estimated in usable pounds were harvested by 16% of the community's households. Further analysis of the study findings, beyond the scope of this report, might identify characteristics of the highly productive households in Kenny Lake/Willow Creek as well as the other study communities.

The survey included questions about residents' use of alternative and motorized modes of transportation to access wild food harvest areas. Figure 2-4 demonstrates the percentage of community households that used alternate means of transportation (in addition to or aside from using cars, trucks, or traveling on foot). Approximately 39% of the Kenny Lake/Willow Creek households used a boat when harvesting wild foods; 16% owned, 16% borrowed (usually accompanying a friend in his/her own craft), 5% chartered, and 2% leased a boat. About 36% of households used ATVs and 29% used snowmachines that were owned or bor-

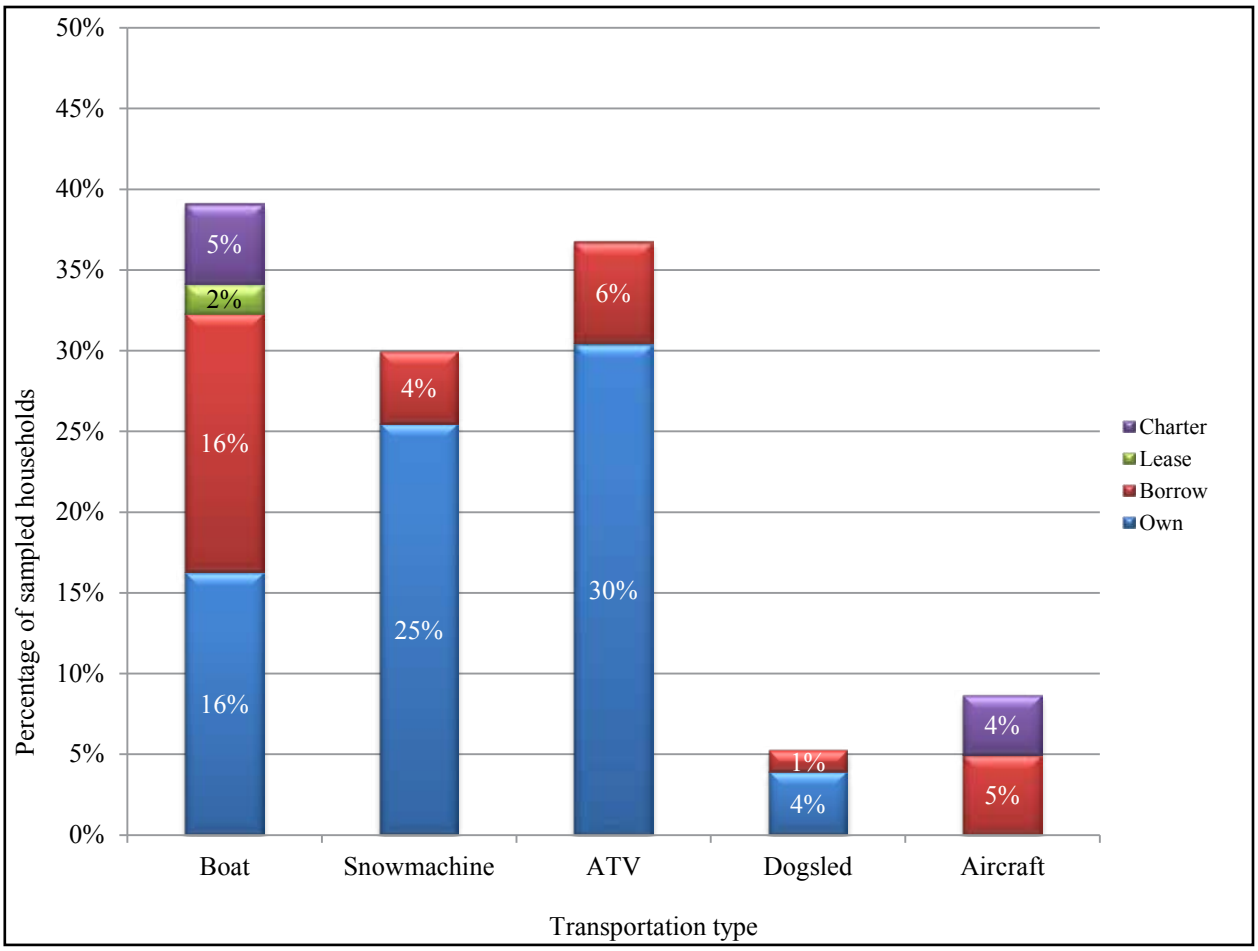

Figure 2-4.–Alternative modes of transportation used by sampled households to access wild resources, Kenny Lake/Willow Creek, 2012.

rowed, 9% used aircraft that were owned or chartered (5% and 4%, respectively), and 5% used a dogsled when harvesting wild resources.

This survey also included questions about the use of portable motors when harvesting wild resources, the results of which are shown in Figure 2-5. Seventy-eight percent of households used a chain saw, 23% used a winch, 19% used an ice auger, and generators and other portable motors were each used by 8% of households.

Figure 2-6 demonstrates the percentage of households that used natural materials for handicrafts; 7% used antlers, 6% used horns, and 4% used bark. Significantly, 20% of households used other natural materials, most of which were fur, skins, and diamond willow.

In most Copper Basin communities, firewood is used as a primary source of home heating. Table 2-11 demonstrates the percentage of sampled households that used wood for home heating in Kenny Lake/Willow Creek. Approximately 24% of the sampled households used only firewood to heat their homes, while about 12% did not use wood at all. The vast majority of sampled households (approximately 88%) used at least some firewood to heat their homes.

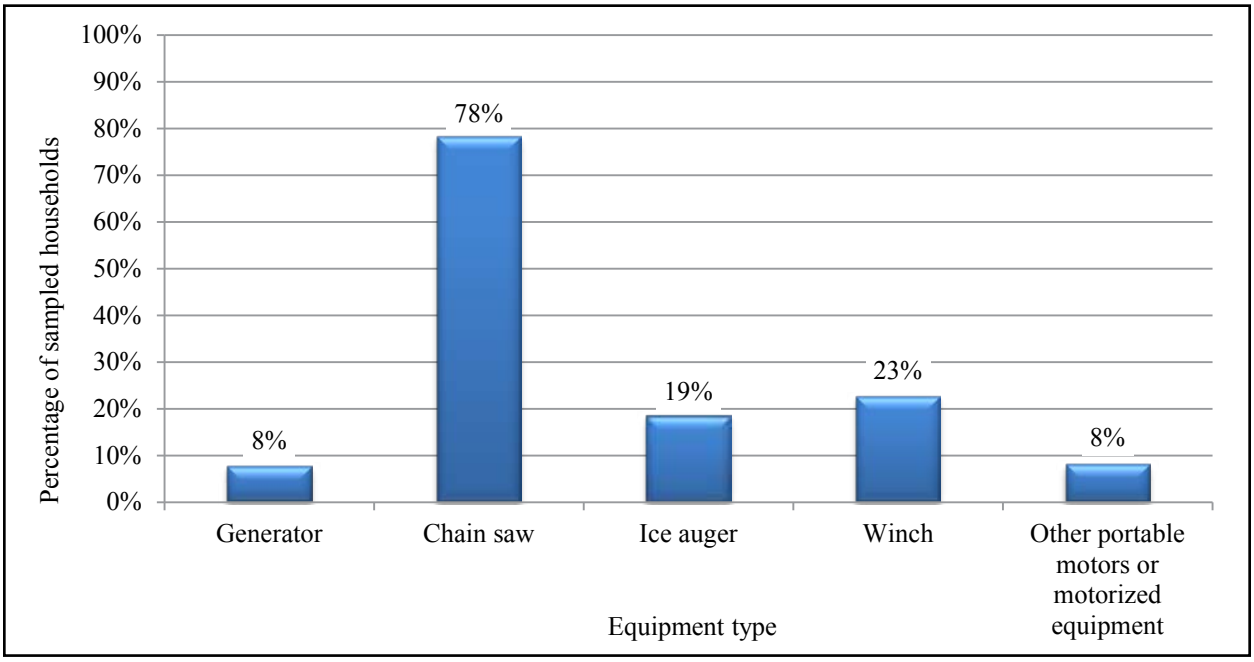

Figure 2-5.–Portable motorized equipment used by sampled households while searching for and harvesting wild resources, Kenny Lake/Willow Creek, 2012.

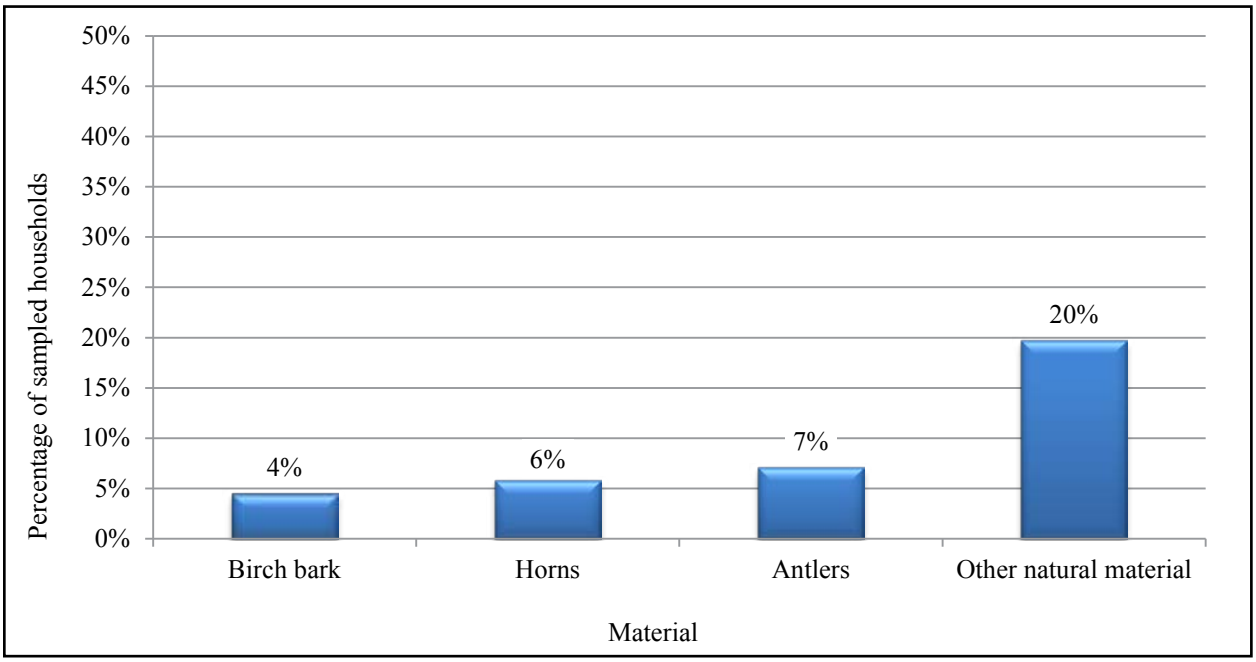

Figure 2-6.–Natural materials used by sampled households for making handicrafts, Kenny Lake/Willow Creek, 2012.

Table 2-11.–Use of firewood for home heating in sampled households, Kenny Lake/Willow Creek, 2012.

Community	Average annual cost of home heating	Household use of wood for home heating as a percentage of total fuel for heating											
		0%		1%–25%		26%–50%		51%–75%		76%–99%		100%	
		Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Kenny Lake/Willow Creek	$2,761	20	11.6%	13	7.6%	34	19.5%	18	10.2%	48	27.6%	41	23.5%

Source ADF&G Division of Subsistence household surveys, 2013.

Harvest Quantities and Composition

Table 2-12 reports estimated wild resource harvests and uses by Kenny Lake/Willow Creek residents in 2012 and is organized first by general category and then by species. All edible resources are reported in pounds usable weight (see Appendix B for conversion factors[1]). The harvest category includes resources harvested by any member of the surveyed household during the study year. The use category includes all resources taken, given away, or used by a household, and resources acquired from other harvesters, either as gifts, by barter or trade, through hunting partnerships, or as meat given by hunting guides and non-local hunters. Purchased foods are not included but resources such as firewood are included because they are an important part of the subsistence way of life. Differences between harvest and use percentages reflect sharing among households, which results in a wider distribution of wild foods.

In 2012, residents of Kenny Lake/Willow Creek harvested an estimated total of 58,734 lb, or 141 lb per capita, of wild resources (Table 2-12). In terms of pounds harvested, salmon constituted the largest portion of the community harvest (67%) totaling 39,052 lb, or 94 lb per capita (Figure 2-7; Table 2-12). Large land mammals as a category ranked second for contributing to the harvest in 2012 by composing 19% of the total Kenny Lake/Willow Creek harvest by weight (Figure 2-7). The community harvested approximately 11,330 lb of large land mammals, or 27 lb per capita (Table 2-12). Nonsalmon fish contributed 8% of the harvest with 4,870 lb total, or 12 lb per capita. Vegetation made up 4% of the harvest with 6 lb per capita (2,418 usable pounds), and small land mammals/furbearers, marine invertebrates, and birds each made up approximately 1% or less of the harvest (Figure 2-7; Table 2-12).

Seasonal Round

Residents of Kenny Lake/Willow Creek harvest a wide variety of resources and like most rural Alaska communities they often target specific species during certain times of the year, following a cyclical harvest pattern that is defined in part by seasonal availability, and in part by laws, regulations, and land access. Many Kenny Lake/Willow Creek subsistence harvest activities occur in the lower to middle Copper River drainage where most of the critical resources can be found, but residents also travel up the Richardson Highway to the Denali Highway in pursuit of moose, caribou, plants and berries, and birds (Figure 2-8). Residents will travel just as far for deep sea fishing opportunities occurring primarily out of Valdez.

While harvest activities are ongoing throughout the year, we will begin our discussion with the most harvested resource in the community—salmon. In early June, Chinook salmon are the first to arrive in the Copper River watershed, followed quickly by sockeye salmon. Fishing starts in earnest by mid-June and continues through the coho run into September. Most residents harvest their salmon by fish wheel and less often by rod and reel or dip net. Some residents may travel to Valdez for rod and reel fishing of coho and pink salmon later in the season.

1. Resources that are not eaten, such as firewood and some furbearers, are included in the table but are given a conversion factor of zero.

Table 2-12.–Estimated harvests and uses of fish, game, and vegetation resources, Kenny Lake/Willow Creek, 2012.

	Percentage of households					Harvest weight (lb)			Harvest quantity[a]			95% confidence limit (±)
Resource	Use	Attempt	Harvest	Receive	Give	Total	Mean per household	Per capita	Total	Unit	Mean per household	harvest
All resources	**96.8%**	**94.8%**	**92.9%**	**81.1%**	**65.1%**	**58,734.0**	**337.6**	**140.8**	**14,209**		**81.7**	**42.1%**
Fish	**88.7%**	**70.3%**	**68.0%**	**66.9%**	**54.0%**	**43,921.9**	**252.4**	**105.3**	**11,389**		**65.5**	**46.4%**
Salmon	**85.0%**	**60.9%**	**56.5%**	**61.3%**	**52.2%**	**39,051.5**	**224.4**	**93.6**	**7,434**		**42.7**	**49.5%**
Chum salmon	3.2%	4.5%	3.2%	1.3%	3.2%	769.4	4.4	1.8	156	ind	0.9	139.0%
Coho salmon	31.0%	26.5%	23.4%	12.1%	8.2%	2,432.1	14.0	5.8	396	ind	2.3	47.0%
Chinook salmon	52.9%	38.0%	29.2%	29.8%	19.8%	4,779.5	27.5	11.5	312	ind	1.8	53.4%
Pink salmon	8.9%	8.9%	7.6%	1.3%	5.0%	758.1	4.4	1.8	260	ind	1.5	91.8%
Sockeye salmon	83.2%	57.7%	48.9%	56.9%	49.0%	30,265.3	173.9	72.6	6,263	ind	36.0	51.7%
Landlocked salmon	5.8%	8.9%	4.5%	2.6%	3.2%	47.0	0.3	0.1	47	ind	0.3	91.9%
Salmon (unspecified)	1.3%	0.0%	0.0%	1.3%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Nonsalmon fish	**63.2%**	**48.3%**	**45.1%**	**40.4%**	**23.1%**	**4,870.4**	**28.0**	**11.7**	**3,955**		**22.7**	**47.0%**
Pacific herring	8.2%	5.0%	5.0%	4.5%	3.2%	257.1	1.5	0.6	43	gal	0.2	108.9%
Pacific herring roe	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Pacific herring sac roe	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	gal	0.0	0.0%
Pacific herring spawn on kelp	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	gal	0.0	0.0%
Smelt	3.2%	0.0%	0.0%	3.2%	0.0%	0.0	0.0	0.0	0	gal	0.0	0.0%
Cod	6.3%	4.5%	4.5%	3.7%	0.0%	182.3	1.0	0.4	141		0.8	103.3%
Pacific (gray) cod	4.5%	2.6%	2.6%	1.8%	0.0%	127.8	0.7	0.3	32	ind	0.2	129.3%
Pacific tomcod	1.8%	1.8%	1.8%	1.8%	0.0%	54.5	0.3	0.1	109	ind	0.6	165.6%
Flounder	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Starry flounder	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Greenling	17.6%	8.2%	8.2%	9.5%	1.3%	51.3	0.3	0.1	21		0.1	75.0%
Lingcod	17.6%	8.2%	8.2%	9.5%	1.3%	51.3	0.3	0.1	21	ind	0.1	75.0%
Pacific halibut	42.2%	16.3%	13.1%	33.6%	11.0%	2,727.8	15.7	6.5	2,728	lb	15.7	60.7%
Arctic lamprey	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Rockfish	20.8%	14.5%	14.5%	7.6%	7.6%	593.2	3.4	1.4	148		0.9	70.0%
Rockfish (unspecified)	20.8%	14.5%	14.5%	7.6%	7.6%	593.2	3.4	1.4	148	ind	0.9	70.0%
Sculpin	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Burbot	5.2%	2.6%	1.3%	3.9%	0.0%	5.5	0.0	0.0	2	ind	0.0	149.6%
Char	16.2%	16.8%	14.9%	4.5%	5.8%	314.8	1.8	0.8	259		1.5	56.4%
Dolly Varden	9.5%	10.0%	8.2%	4.5%	3.2%	167.0	1.0	0.4	186	ind	1.1	76.5%
Lake trout	11.8%	11.8%	10.5%	1.3%	2.6%	147.7	0.8	0.4	74	ind	0.4	63.6%
Arctic grayling	13.9%	14.4%	12.6%	1.3%	0.8%	104.3	0.6	0.3	149	ind	0.9	61.7%

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Table 2-12.–Page 2 of 5.

Resource	Percentage of households					Harvest weight (lb)			Harvest quantity[a]			95% confidence limit (±)
	Use	Attempt	Harvest	Receive	Give	Total	Mean per household	Per capita	Total	Unit	Mean per household	harvest
Nonsalmon fish, continued												
Northern pike	1.3%	1.3%	0.0%	0.0%	1.3%	0.0	0.0	0.0	0	ind	0.0	0.0%
Longnose sucker	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Trout	28.1%	28.1%	26.8%	13.4%	6.3%	527.2	3.0	1.3	377		2.2	40.6%
Cutthroat trout	1.3%	2.6%	1.3%	1.3%	0.0%	22.4	0.1	0.1	16	ind	0.1	149.6%
Rainbow trout	28.1%	28.1%	26.8%	13.4%	6.3%	504.9	2.9	1.2	361	ind	2.1	41.7%
Trout (unspecified)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Whitefishes	7.6%	6.3%	6.3%	1.3%	0.0%	107.0	0.6	0.3	86		0.5	89.2%
Broad whitefish	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Cisco	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Least cisco	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Humpback whitefish	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Round whitefish	6.3%	5.0%	5.0%	1.3%	0.0%	59.1	0.3	0.1	59	ind	0.3	106.9%
Whitefishes (unspecified)	2.6%	1.3%	1.3%	1.3%	0.0%	47.9	0.3	0.1	27	ind	0.2	149.6%
Land mammals	**72.1%**	**44.9%**	**26.0%**	**60.6%**	**29.4%**	**11,606.3**	**66.7**	**27.8**	**353**		**2.0**	**50.2%**
Large land mammals	**70.8%**	**43.6%**	**22.1%**	**60.6%**	**29.4%**	**11,329.8**	**65.1**	**27.2**	**54**		**0.3**	**50.9%**
Bison	5.0%	0.0%	0.0%	1.3%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Black bear	10.0%	5.0%	1.3%	5.0%	5.0%	132.3	0.8	0.3	2	ind	0.0	149.6%
Brown bear	1.3%	3.2%	0.0%	1.3%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Caribou	62.7%	34.2%	16.3%	44.5%	16.2%	4,815.1	27.7	11.5	37	ind	0.2	51.0%
Deer	3.9%	1.3%	0.0%	3.9%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Mountain goat	2.6%	0.0%	0.0%	2.6%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Moose	59.8%	38.4%	8.2%	53.0%	16.8%	6,382.4	36.7	15.3	14	ind	0.1	70.9%
Dall sheep	6.3%	5.0%	0.0%	6.3%	1.8%	0.0	0.0	0.0	0	ind	0.0	0.0%
Small land mammals	**18.1%**	**15.2%**	**15.2%**	**4.2%**	**4.7%**	**276.5**	**1.6**	**0.7**	**300**		**1.7**	**63.3%**
Beaver	2.6%	0.0%	0.0%	2.6%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Coyote	7.6%	10.2%	7.6%	1.3%	0.0%	0.0	0.0	0.0	25	ind	0.1	89.5%
Fox	8.9%	10.2%	8.9%	1.3%	0.0%	0.0	0.0	0.0	67		0.4	78.0%
Arctic fox	1.3%	0.0%	0.0%	1.3%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Red fox	8.9%	10.2%	8.9%	1.3%	0.0%	0.0	0.0	0.0	67		0.4	78.0%
Red fox–cross phase	3.9%	5.2%	3.9%	1.3%	0.0%	0.0	0.0	0.0	23	ind	0.1	97.2%
Red fox–red phase	8.9%	10.2%	7.6%	1.3%	0.0%	0.0	0.0	0.0	44	ind	0.3	76.4%
Hare	9.7%	8.4%	8.4%	1.3%	0.0%	191.8	1.1	0.5	110		0.6	74.6%
Snowshoe hare	9.7%	8.4%	8.4%	1.3%	0.0%	191.8	1.1	0.5	110	ind	0.6	74.6%

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Table 2-12.–Page 3 of 5.

Resource	Percentage of households					Harvest weight (lb)			Harvest quantity[a]			95% confidence limit (±) harvest
	Use	Attempt	Harvest	Receive	Give	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Small land mammals, continued												
North American river (land) otter	1.3%	0.0%	0.0%	1.3%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Lynx	8.6%	8.4%	7.1%	2.8%	1.5%	48.2	0.3	0.1	21	ind	0.1	52.5%
Marmot	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Marten	2.6%	2.6%	1.3%	1.3%	0.0%	0.0	0.0	0.0	9	ind	0.1	149.6%
Mink	1.3%	0.0%	0.0%	1.3%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Muskrat	3.2%	1.8%	1.8%	1.3%	0.0%	5.8	0.0	0.0	3	ind	0.0	165.6%
Porcupine	6.3%	6.3%	6.3%	1.3%	3.2%	30.8	0.2	0.1	47	ind	0.3	110.1%
Squirrel	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Arctic ground (parka) squirrel	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Red (tree) squirrel	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Weasel	2.6%	1.3%	1.3%	1.3%	0.0%	0.0	0.0	0.0	7	ind	0.0	149.6%
Gray wolf	2.6%	7.1%	1.3%	1.3%	0.0%	0.0	0.0	0.0	7	ind	0.0	149.6%
Wolverine	2.6%	1.3%	1.3%	1.3%	0.0%	0.0	0.0	0.0	5	ind	0.0	149.6%
Birds and eggs	**24.5%**	**24.5%**	**20.8%**	**10.0%**	**3.7%**	**175.5**	**1.0**	**0.4**	**274**		**1.6**	**49.3%**
Migratory birds	**1.3%**	**0.0%**	**0.0%**	**1.3%**	**0.0%**	**0.0**	**0.0**	**0.0**	**0**		**0.0**	**0.0%**
Ducks	1.3%	0.0%	0.0%	1.3%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Canvasback	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Eider	0.0%	0.0%	0.0%	0.0%	0.0%	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	0.0	0.0	0	ind	0.0	0.0%
Goldeneye	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Mallard	1.3%	0.0%	0.0%	1.3%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Northern pintail	1.3%	0.0%	0.0%	1.3%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Scoter	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Black scoter	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Teal	1.3%	0.0%	0.0%	1.3%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Green-winged teal	1.3%	0.0%	0.0%	1.3%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Wigeon	1.3%	0.0%	0.0%	1.3%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Duck (unspecified)	1.3%	0.0%	0.0%	1.3%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Geese	1.3%	0.0%	0.0%	1.3%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Brant	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Canada/cackling goose	1.3%	0.0%	0.0%	1.3%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Cackling goose	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Canada goose	1.3%	0.0%	0.0%	1.3%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%

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Table 2-12.–Page 4 of 5.

Resource	Percentage of households					Harvest weight (lb)			Harvest quantity[a]			95% confidence limit (±) harvest
	Use	Attempt	Harvest	Receive	Give	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Migratory birds, continued												
Canada/cackling goose	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Emperor goose	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Snow goose	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
White-fronted goose	1.3%	0.0%	0.0%	1.3%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Goose (unspecified)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Swan	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Tundra (whistling) swan	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Crane	1.3%	0.0%	0.0%	1.3%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Sandhill crane	1.3%	0.0%	0.0%	1.3%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Other birds	**24.5%**	**24.5%**	**20.8%**	**10.0%**	**3.7%**	**175.5**	**1.0**	**0.4**	**274**		**1.6**	**49.3%**
Upland game birds	24.5%	24.5%	20.8%	10.0%	3.7%	175.5	1.0	0.4	274		1.6	49.3%
Grouse	22.6%	22.6%	18.9%	10.0%	0.0%	135.7	0.8	0.3	194		1.1	49.4%
Spruce grouse	22.6%	22.6%	18.9%	8.2%	0.0%	133.5	0.8	0.3	191	ind	1.1	49.3%
Ruffed grouse	1.8%	1.8%	1.8%	1.8%	0.0%	2.2	0.0	0.0	3	ind	0.0	165.6%
Ptarmigan	6.8%	6.8%	6.8%	1.3%	3.7%	39.8	0.2	0.1	80		0.5	86.3%
Bird eggs	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0**	**0.0**	**0.0**	**0**		**0.0**	**0.0%**
Duck eggs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Goose eggs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Seabird and loon eggs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Gull eggs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Eggs (unspecified)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Marine invertebrates	**17.6%**	**9.5%**	**9.5%**	**12.6%**	**6.3%**	**612.4**	**3.5**	**1.5**	**572**		**3.3**	**88.3%**
Clams	6.8%	1.3%	1.3%	6.8%	1.8%	35.9	0.2	0.1	12		0.1	149.6%
Butter clams	1.8%	0.0%	0.0%	1.8%	1.8%	0.0	0.0	0.0	0	gal	0.0	0.0%
Freshwater clams	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	gal	0.0	0.0%
Razor clams	6.8%	1.3%	1.3%	6.8%	1.8%	1.7	0.0	0.0	1	gal	0.0	149.6%
Clams (unspecified)	1.3%	1.3%	1.3%	1.3%	0.0%	34.2	0.2	0.1	11	gal	0.1	149.6%
Cockles	1.8%	1.8%	1.8%	0.0%	0.0%	4.2	0.0	0.0	1	gal	0.0	165.6%
Crabs	4.5%	0.0%	0.0%	4.5%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Dungeness crab	3.2%	0.0%	0.0%	3.2%	0.0%	0.0	0.0	0.0	0	lb	0.0	0.0%
King crab	1.3%	0.0%	0.0%	1.3%	0.0%	0.0	0.0	0.0	0	lb	0.0	0.0%
Tanner crab	1.3%	0.0%	0.0%	1.3%	0.0%	0.0	0.0	0.0	0	lb	0.0	0.0%
Octopus	1.3%	1.3%	1.3%	1.3%	0.0%	18.3	0.1	0.0	5	ind	0.0	149.6%

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Table 2-12.–Page 5 of 5.

Resource	Percentage of households					Harvest weight (lb)			Harvest quantity[a]			95% confidence limit (±) harvest
	Use	Attempt	Harvest	Receive	Give	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Marine invertebrates, continued												
Shrimp	12.1%	7.6%	7.6%	8.9%	4.5%	554.0	3.2	1.3	554	lb	3.2	96.0%
Squid	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	gal	0.0	0.0%
Vegetation	**92.9%**	**92.1%**	**88.8%**	**45.6%**	**40.1%**	**2,417.8**	**13.9**	**5.8**	**1,621**		**9.3**	**27.2%**
Berries	**74.6%**	**70.9%**	**66.8%**	**33.1%**	**23.4%**	**2,113.8**	**12.1**	**5.1**	**533**		**3.1**	**28.9%**
Blueberry	57.3%	51.0%	47.1%	18.6%	9.5%	798.8	4.6	1.9	200	gal	1.1	30.3%
Lowbush cranberry	43.3%	35.9%	33.6%	19.2%	7.6%	382.4	2.2	0.9	96	gal	0.5	47.6%
Highbush cranberry	31.0%	27.9%	26.0%	6.3%	7.1%	368.0	2.1	0.9	92	gal	0.5	42.3%
Crowberry	7.1%	7.1%	7.1%	0.0%	1.3%	54.1	0.3	0.1	14	gal	0.1	86.3%
Currants	7.6%	5.8%	5.8%	3.2%	1.3%	44.6	0.3	0.1	11	gal	0.1	122.9%
Nagoonberry	1.3%	1.3%	1.3%	0.0%	0.0%	2.9	0.0	0.0	1	gal	0.0	149.6%
Raspberry	40.5%	36.0%	36.0%	14.7%	7.6%	395.2	2.3	0.9	99	gal	0.6	47.3%
Salmonberry	1.3%	1.3%	1.3%	0.0%	0.0%	18.3	0.1	0.0	5	gal	0.0	149.6%
Strawberry	1.3%	1.3%	1.3%	0.0%	0.0%	0.6	0.0	0.0	0	gal	0.0	149.6%
Other wild berry	12.6%	12.1%	8.7%	4.5%	1.3%	48.9	0.3	0.1	17	gal	0.1	131.2%
Plants, greens, and mushrooms	**44.6%**	**41.5%**	**41.5%**	**10.8%**	**9.7%**	**304.1**	**1.7**	**0.7**	**253**		**1.5**	**63.5%**
Fiddlehead ferns	1.3%	1.3%	1.3%	0.0%	0.0%	9.1	0.1	0.0	9	gal	0.1	149.6%
Hudson's Bay (Labrador) tea	3.9%	3.9%	3.9%	1.3%	2.6%	18.3	0.1	0.0	18	gal	0.1	89.1%
Mint	1.3%	1.3%	1.3%	0.0%	0.0%	0.6	0.0	0.0	1	gal	0.0	149.6%
Wild rose hips	8.4%	8.4%	8.4%	3.2%	3.2%	68.6	0.4	0.2	17	gal	0.1	84.6%
Yarrow	1.3%	1.3%	1.3%	0.0%	0.0%	0.6	0.0	0.0	1	gal	0.0	149.6%
Other wild greens	16.5%	16.5%	16.5%	1.3%	4.5%	51.8	0.3	0.1	52	gal	0.3	76.5%
Mushrooms (unspecified)	30.5%	27.3%	26.0%	6.3%	2.6%	42.8	0.2	0.1	43	gal	0.2	55.3%
Fireweed	7.9%	7.9%	7.9%	0.0%	0.8%	16.2	0.1	0.0	16	gal	0.1	66.2%
Greens from land (unspecified)	1.8%	1.8%	1.8%	0.0%	0.0%	96.2	0.6	0.2	96	gal	0.6	165.6%
Wood	**84.5%**	**78.8%**	**75.4%**	**20.1%**	**19.1%**	**0.0**	**0.0**	**0.0**	**835**		**4.8**	**21.6%**
Wood (unspecified)	19.7%	18.4%	16.5%	1.3%	5.5%	0.0	0.0	0.0	11	cord	0.1	74.9%
Firewood	83.2%	75.6%	72.2%	18.8%	17.3%	0.0	0.0	0.0	824	cord	4.7	21.7%

Source ADF&G Division of Subsistence household surveys, 2013.

Note For small land mammals, species that are not typically eaten show a non-zero harvest quantity with a zero harvest weight. Harvest weight is not calculated for species harvested but not eaten.

a. Summary rows that include incompatible units of measure have been left blank.

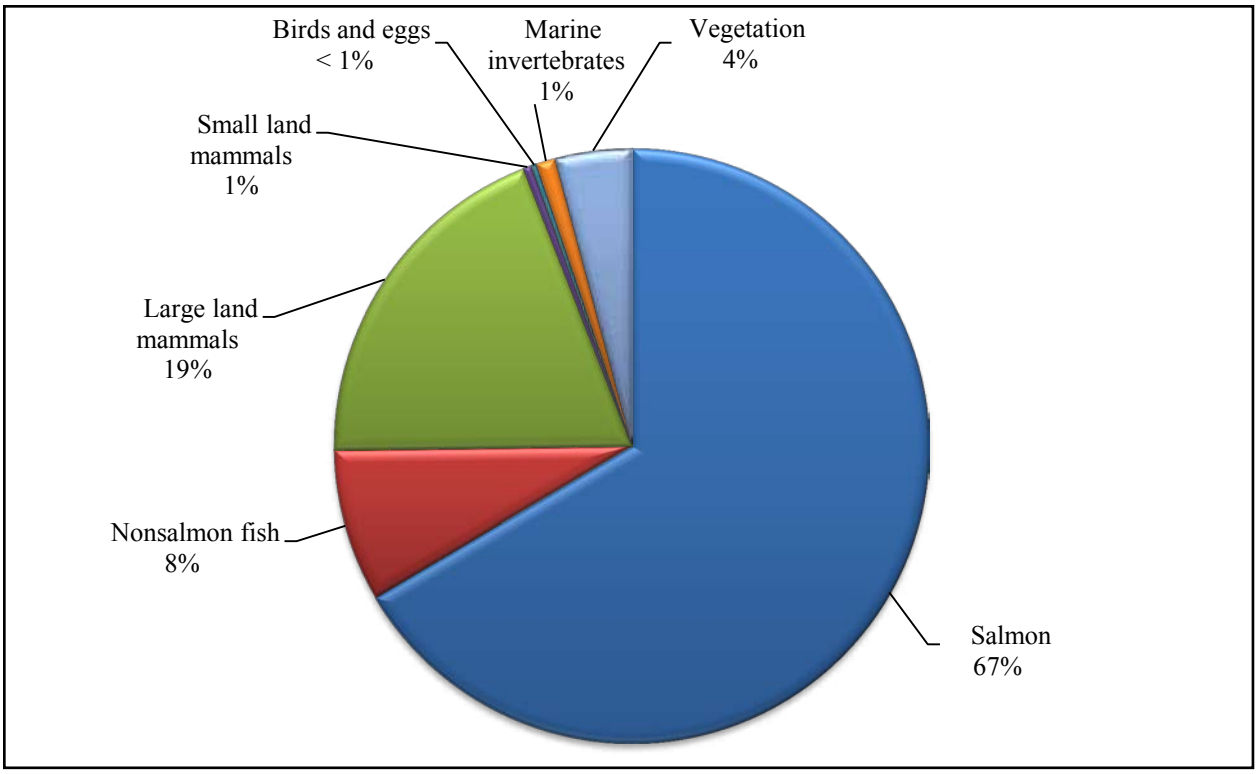


Figure 2-7.–Composition of harvest by resource category in pounds usable weight, Kenny Lake/Willow Creek, 2012.

Nonsalmon freshwater fish are harvested throughout the year and across a large area extending east of Chitina and as far north as the Tangle Lakes area on the Denali Highway. For some families, freshwater fish precedes salmon as the first resource harvested for the summer season. Once the ice clears from local lakes and streams residents may target freshwater fish as early as May using rod and reel. Hot spots for this type of fishing include Strelna, Silver, and Van lakes. Many kinds of nonsalmon fish are also harvested during the fall using rod and reel, and during winter and spring months by jigging through the ice.

Large land mammal hunting is an important fall activity that starts in August. Depending on the resource and regulations, hunting effort can stretch through November with some opportunities existing for a spring harvest. During the study year most of the harvests took place between August and October with much of the effort taking place along McCarthy Road, and Richardson, Edgerton, and Denali highways.

The majority of small land mammals are trapped for their fur during the winter months when snow is on the ground but others are harvested for their meat as well as their fur throughout the year. An average trapping season most commonly extends from November through February depending on the snow conditions and the quality of the fur the trappers are harvesting.

Migratory birds and upland game birds are both harvested at different times throughout the year. Waterfowl

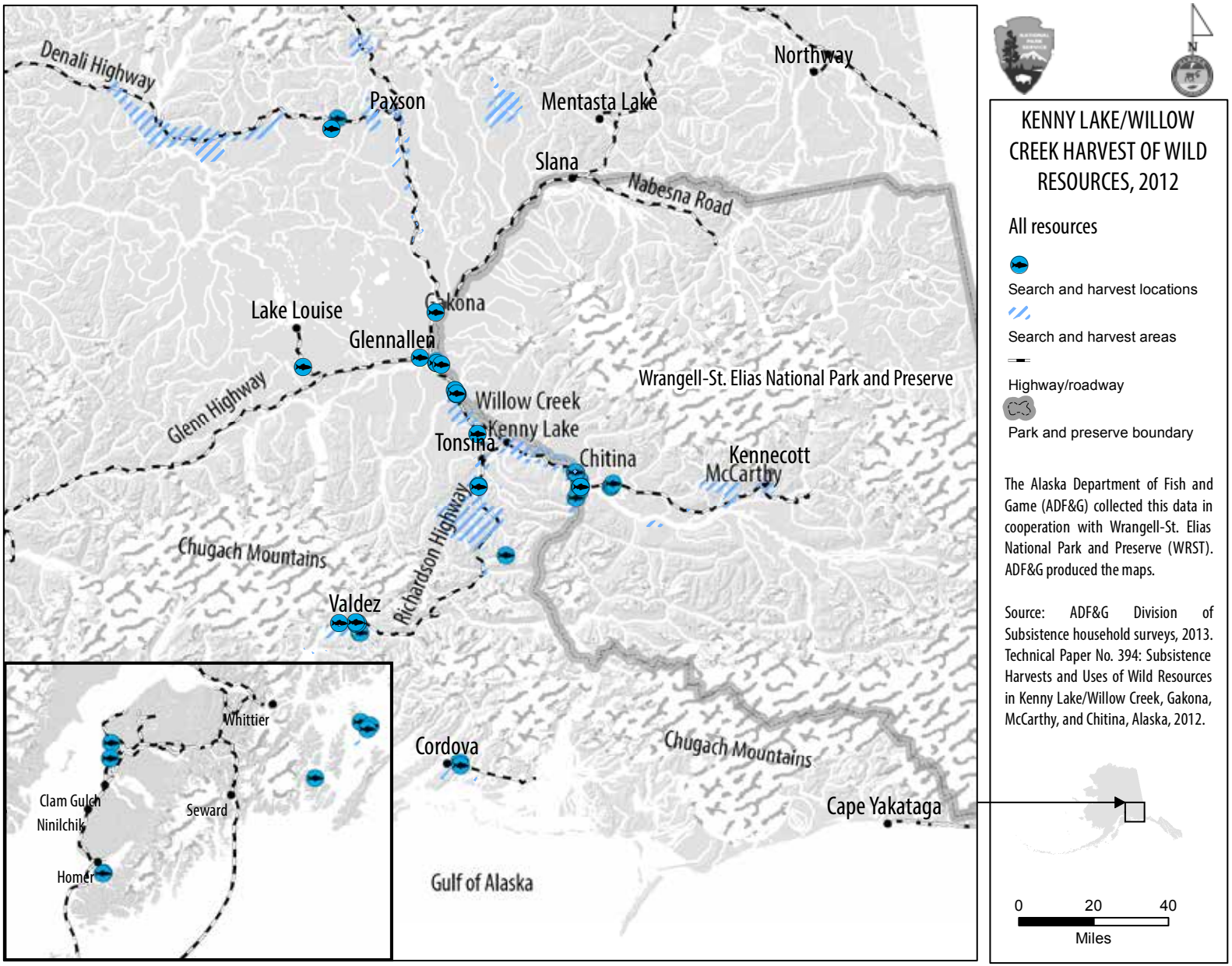


Figure 2-8.–Wild resources search and harvest areas, Kenny Lake/Willow Creek, 2012.

Table 2-13.–Top ranked resources harvested and used by households, Kenny Lake/Willow Creek, 2012.

Harvested			Used		
Rank[a]	Resource	Pounds per capita	Rank[a]	Resource	Percentage of households using
1.	Sockeye salmon	72.6	1.	Firewood	83.2%
2.	Moose	15.3	1.	Sockeye salmon	83.2%
3.	Caribou	11.5	3.	Caribou	62.7%
4.	Chinook salmon	11.5	4.	Moose	59.8%
5.	Pacific halibut	6.5	5.	Blueberry	57.3%
6.	Coho salmon	5.8	6.	Chinook salmon	52.9%
7.	Blueberry	1.9	7.	Lowbush cranberry	43.3%
8.	Chum salmon	1.8	8.	Pacific halibut	42.2%
9.	Pink salmon	1.8	9.	Raspberry	40.5%
10.	Unknown rockfish	1.4	10.	Coho salmon	31.0%
			10.	Highbush cranberry	31.0%

Source ADF&G Division of Subsistence household surveys, 2013.
Note "Unknown" means "unspecified" (i.e., respondents may have known the specific species, but that information was not collected during the survey).
a. Resources used by the same percentage of households share the lowest rank value instead of having sequential rank values.

are hunted in the spring but are most often harvested in the summer, and upland game birds are harvested opportunistically throughout the year while hunting for other resources.

Kenny Lake/Willow Creek residents harvest plants, mushrooms, and berries during spring, summer, and fall. For example, mint is sought during the spring; mushrooms, rose hips, and yarrow are sought during the summer; blueberries, raspberries, currants, and salmonberries are gathered during late summer; and highbush and lowbush cranberries are gathered during fall. Harvesting firewood for home heating is an important year-round activity for Kenny Lake/Willow Creek residents.

Use and Harvest Characteristics by Resource Category

Table 2-12 helps identify the roles sharing and receiving resources play in the use patterns of resources harvested in 2012. Estimates of sharing indicate that 81% of Kenny Lake/Willow Creek households received wild resources from other households and 65% of households gave resources away. Fish, large land mammals, and vegetation were the most commonly shared and received resources. Fish were used by 89% of households, given away by 54% of households, and received by 67% of households. Large land mammals were used by 71% of households, given away by 29% of households, and received by 61% of households. Vegetation was used by 93% of households—the most of any resource category—and 40% of households gave away and 46% received vegetation resources.

Table 2-13 lists the top 10 ranked resources harvested, in terms of pounds per capita, and the 10 ranked most used resources by Kenny Lake/Willow Creek households during the 2012 study year. Sockeye salmon

made the largest contribution to the community harvest (73 lb per capita) and tied with firewood as the most used resource (83% of households used sockeye salmon and firewood). Moose was the second most harvested resource contributing approximately 15 lb per capita, but was ranked the fourth most used resource (60% of households used moose). Caribou was the third most harvested (12 lb per capita) and the third most used resource (used in 63% of households). Chinook salmon contributed approximately the same per capita harvest weight as caribou (12 lb), but was ranked sixth on the most used list. Of note, 7 of the top 10 most harvested resources were fish (sockeye salmon, Chinook salmon, Pacific halibut, coho salmon, chum salmon, pink salmon, and unspecified kinds of rockfish), but only 4 fish species were among the most used resources (sockeye salmon, Chinook salmon, Pacific halibut, and coho salmon).

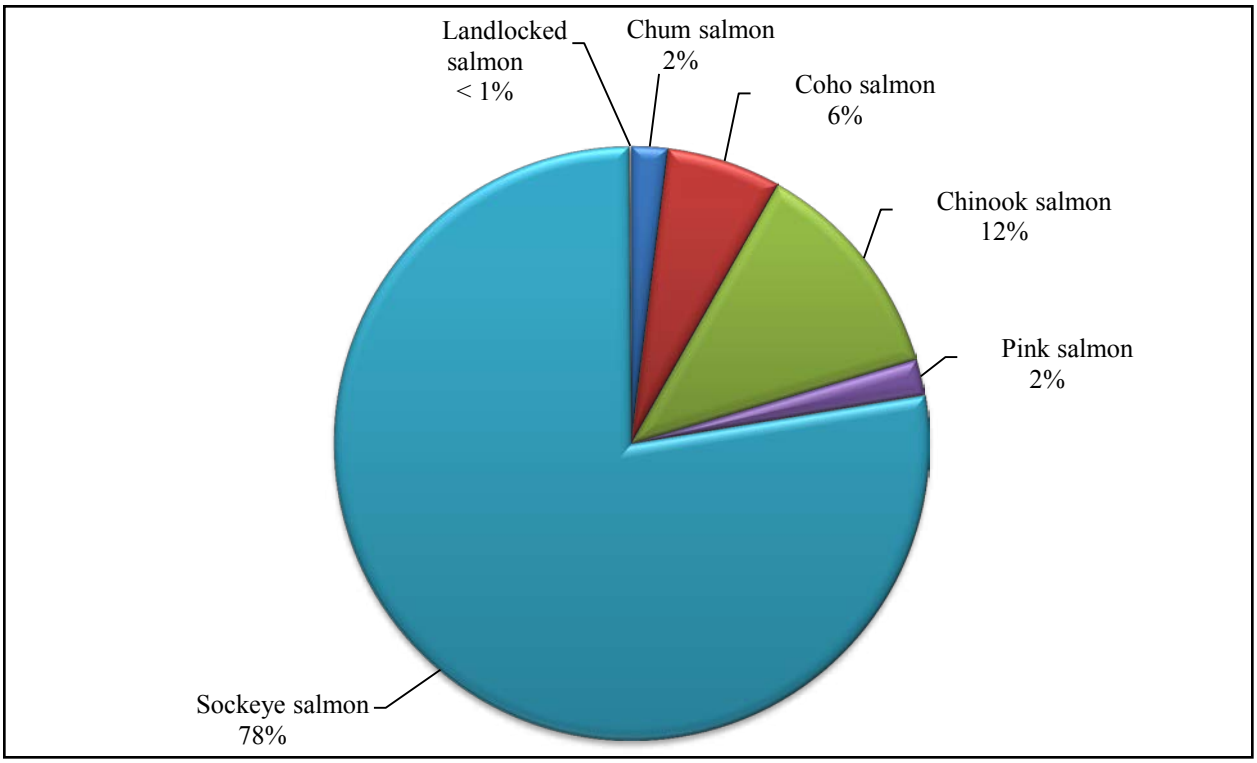


Figure 2-9.–Composition of salmon harvest in pounds usable weight, Kenny Lake/Willow Creek, 2012.

Salmon

Salmon composed 67% of the Kenny Lake/Willow Creek harvest in pounds usable weight for 2012 totaling 39,052 lb, or 94 lb per capita, most of which was sockeye salmon (Figure 2-7; Table 2-12). Sockeye salmon made up 78% (30,265 lb, or 73 lb per capita) of the total salmon harvest with the remaining composition of the salmon harvest as follows: 12% Chinook salmon (4,780 lb total, or 12 lb per capita), 6% coho salmon (2,432 lb total, or 6 lb per capita), and 2% each for chum salmon and pink salmon (Figure 2-9; Table 2-12). Sockeye salmon were used in more households than any other kind of salmon (83% of households in Kenny Lake/Willow Creek used sockeye salmon), and sockeye salmon was the most successfully harvested (49% of households), received (57% of households), and shared (49% of households) of the salmon species used in the community (Table 2-12). Chinook salmon was the second most used salmon species (53% of households) followed by coho salmon (31% of households).

During the 2012 study year, residents harvested the bulk of their salmon (73% of the total harvest in pounds) by fish wheel, while the remaining harvest was taken by rod and reel (13%), dip net (10%), and a small amount (2%) was removed from a commercial catch (Table 2-14). Sockeye and Chinook salmon were harvested locally from fish wheels along the Copper River, with some harvests by rod and reel occurring along the Klutina and Tonsina rivers (Figure 2-10). Coho salmon were also harvested by fish wheel in the Copper River Basin but some residents traveled to Valdez to rod and reel fish for coho and pink salmon. A very small amount of landlocked salmon was harvested in Strelna Lake by rod and reel.

Table 2-14.–Estimated percentages of salmon harvested by gear type, resource, and total salmon harvest, Kenny Lake/Willow Creek, 2012.

				Subsistence methods											
		Removed from commercial catch		Fish wheel		Dip net		Other		Subsistence gear, any method		Rod and reel		Any method	
Resource	Percentage base	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Salmon	**Gear type**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
	Resource	**1.9%**	**2.4%**	**72.4%**	**72.9%**	**10.5%**	**10.1%**	**1.7%**	**1.7%**	**84.6%**	**84.7%**	**13.6%**	**13.0%**	**100.0%**	**100.0%**
	Total	**1.9%**	**2.4%**	**72.4%**	**72.9%**	**10.5%**	**10.1%**	**1.7%**	**1.7%**	**84.6%**	**84.7%**	**13.6%**	**13.0%**	**100.0%**	**100.0%**
Chum salmon	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	15.4%	15.2%	2.1%	2.0%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.1%	2.0%	2.1%	2.0%
Coho salmon	Gear type	3.3%	3.0%	0.8%	1.0%	3.5%	4.3%	0.0%	0.0%	1.2%	1.4%	31.5%	38.6%	5.3%	6.2%
	Resource	1.2%	1.2%	11.5%	11.5%	6.9%	6.9%	0.0%	0.0%	18.4%	18.4%	80.4%	80.4%	100.0%	100.0%
	Total	0.1%	0.1%	0.6%	0.7%	0.4%	0.4%	0.0%	0.0%	1.0%	1.1%	4.3%	5.0%	5.3%	6.2%
Chinook salmon	Gear type	18.9%	43.1%	4.3%	12.5%	1.5%	4.4%	5.5%	15.5%	4.0%	11.6%	3.5%	10.6%	4.2%	12.2%
	Resource	8.4%	8.4%	74.5%	74.5%	3.7%	3.7%	2.2%	2.2%	80.4%	80.4%	11.3%	11.3%	100.0%	100.0%
	Total	0.4%	1.0%	3.1%	9.1%	0.2%	0.4%	0.1%	0.3%	3.4%	9.8%	0.5%	1.4%	4.2%	12.2%
Pink salmon	Gear type	6.6%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	24.9%	14.5%	3.5%	1.9%
	Resource	3.5%	3.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	96.5%	96.5%	100.0%	100.0%
	Total	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.4%	1.9%	3.5%	1.9%
Sockeye salmon	Gear type	71.1%	51.0%	94.6%	86.5%	95.0%	91.3%	94.5%	84.5%	94.7%	87.0%	21.1%	20.4%	84.2%	77.5%
	Resource	1.6%	1.6%	81.3%	81.3%	11.9%	11.9%	1.9%	1.9%	95.0%	95.0%	3.4%	3.4%	100.0%	100.0%
	Total	1.3%	1.2%	68.5%	63.0%	10.0%	9.2%	1.6%	1.5%	80.1%	73.6%	2.9%	2.6%	84.2%	77.5%
Landlocked salmon	Gear type	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	3.5%	0.7%	0.6%	0.1%
	Resource	0.0%	0.0%	24.2%	24.2%	0.0%	0.0%	0.0%	0.0%	24.2%	24.2%	75.8%	75.8%	100.0%	100.0%
	Total	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.5%	0.1%	0.6%	0.1%
Salmon (unspecified)	Gear type	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%
	Resource	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	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, 2013.

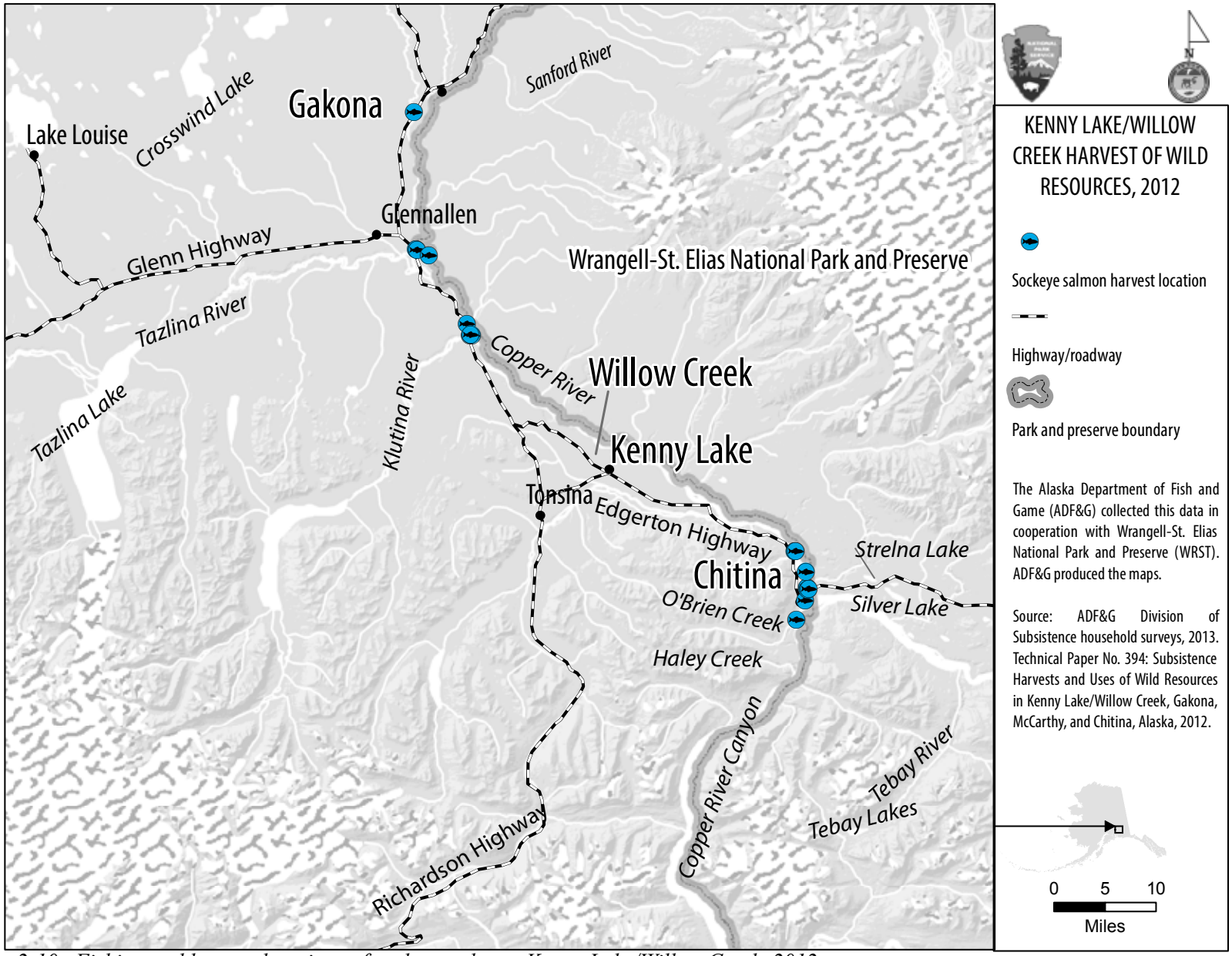


Figure 2-10.–Fishing and harvest locations of sockeye salmon, Kenny Lake/Willow Creek, 2012.

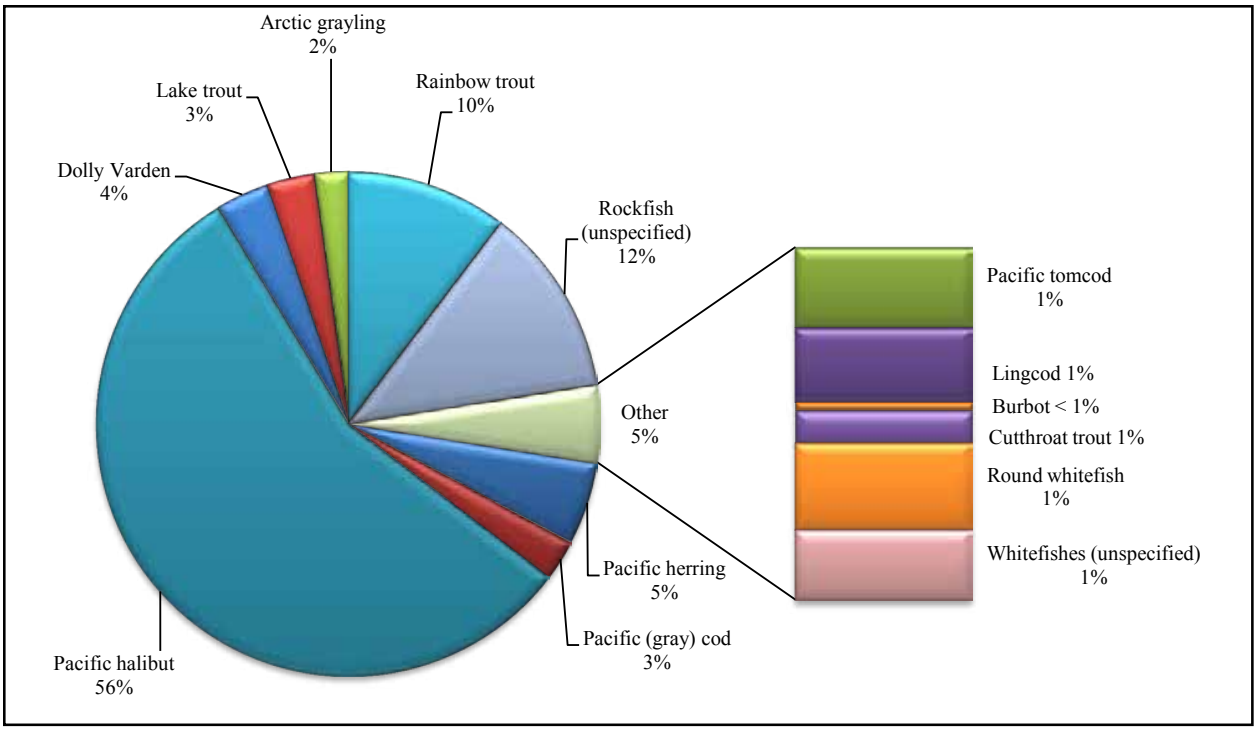


Figure 2-11.–Composition of nonsalmon fish harvest in pounds usable weight, Kenny Lake/Willow Creek, 2012.

Nonsalmon Fish

Kenny Lake/Willow Creek households harvested an estimated total of 4,870 lb, or 12 lb per capita, of nonsalmon fish; this harvest made up 8% of the total wild resource harvest in 2012 (Table 2-12; Figure 2-7). In terms of total pounds and percentages, the largest portion of the nonsalmon fish harvest (56%) was Pacific halibut (2,728 lb, or about 7 lb per capita); in fact, the majority of the nonsalmon fish harvest for Kenny Lake/Willow Creek was marine fish (about 78% combined), including unspecified rockfish species (593 lb, or a little more than 1 lb per capita), Pacific herring (257 lb total harvest), Pacific (gray) cod (128 lb), Pacific tomcod (55 lb), and lingcod (51 lb) (Figure 2-11; Table 2-12). The remaining approximately 22% of the nonsalmon fish harvest was composed of freshwater species such as rainbow trout (505 lb, or 1 lb per capita), Dolly Varden (167 lb), lake trout (148 lb), and Arctic grayling (104 lb) (Figure 2-11; Table 2-12).

The majority of the nonsalmon fish harvest in pounds was taken by rod and reel (90%), with 2% of the harvest taken by jigging through the ice or ice fishing and about 2% taken by other subsistence methods (Table 2-15). Pacific herring were the only nonsalmon fish harvested by other subsistence methods (45% of the Pacific herring harvest); most likely the harvest was obtained by rod and reel.

During the 2012 study year, Kenny Lake/Willow Creek residents reported harvesting rainbow trout in Silver Lake, in the Tonsina River drainage, as well as in small lakes along the Lake Louise access road. Dolly Varden were also reportedly harvested in the Tonsina River drainage south of the community of Tonsina (Figure 2-12). Residents also traveled to Valdez to harvest Pacific halibut and rockfish in Prince William Sound.

Table 2-15.–Estimated percentages of nonsalmon fish harvested by gear type, resource, and total nonsalmon fish harvest, Kenny Lake/Willow Creek, 2012.

				Subsistence methods									
		Removed from commercial catch		Ice fishing or jigging through the ice		Other		Subsistence gear, any method		Rod and reel[a]		Any method	
Resource	Percentage base	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Nonsalmon fish	**Gear type**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
	Resource	**2.1%**	**6.6%**	**1.3%**	**1.5%**	**0.5%**	**2.4%**	**1.8%**	**3.9%**	**96.1%**	**89.5%**	**100.0%**	**100.0%**
	Total	**2.1%**	**6.6%**	**1.3%**	**1.5%**	**0.5%**	**2.4%**	**1.8%**	**3.9%**	**96.1%**	**89.5%**	**100.0%**	**100.0%**
Pacific herring	Gear type	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	27.0%	61.3%	0.6%	3.2%	1.1%	5.3%
	Resource	0.0%	0.0%	0.0%	0.0%	44.9%	44.9%	44.9%	44.9%	55.1%	55.1%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.5%	2.4%	0.5%	2.4%	0.6%	2.9%	1.1%	5.3%
Pacific herring sac roe	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pacific herring spawn on kelp	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Unknown smelt	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pacific (gray) cod	Gear type	33.1%	34.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.4%	0.8%	2.6%
	Resource	85.7%	85.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.3%	14.3%	100.0%	100.0%
	Total	0.7%	2.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.4%	0.8%	2.6%
Pacific tomcod	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.9%	1.3%	2.8%	1.1%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.8%	1.1%	2.8%	1.1%
Starry flounder	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Lingcod	Gear type	7.6%	4.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.8%	0.5%	1.1%
	Resource	29.3%	29.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	70.7%	70.7%	100.0%	100.0%
	Total	0.2%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.7%	0.5%	1.1%
Pacific halibut	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	71.8%	62.5%	69.0%	56.0%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	69.0%	56.0%	69.0%	56.0%

-continued-

Table 2-15.–Page 2 of 3.

				Subsistence methods									
		Removed from commercial catch		Ice fishing or jigging through the ice		Other		Subsistence gear, any method		Rod and reel[a]		Any method	
Resource	Percentage base	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Arctic lamprey	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Rockfish (unspecified)	Gear type	59.3%	61.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.6%	9.1%	3.7%	12.2%
	Resource	33.1%	33.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	66.9%	66.9%	100.0%	100.0%
	Total	1.2%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.5%	8.1%	3.7%	12.2%
Sculpin	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Burbot	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%
Dolly Varden	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.9%	3.8%	4.7%	3.4%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.7%	3.4%	4.7%	3.4%
Lake trout	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	3.4%	1.9%	3.0%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	3.0%	1.9%	3.0%
Arctic grayling	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.9%	2.4%	3.8%	2.1%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.8%	2.1%	3.8%	2.1%
Northern pike	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Longnose sucker	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cutthroat trout	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.5%	0.4%	0.5%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.5%	0.4%	0.5%
Rainbow trout	Gear type	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	73.0%	38.7%	8.1%	9.9%	9.1%	10.4%
	Resource	0.0%	0.0%	14.4%	14.4%	0.0%	0.0%	14.4%	14.4%	85.6%	85.6%	100.0%	100.0%
	Total	0.0%	0.0%	1.3%	1.5%	0.0%	0.0%	1.3%	1.5%	7.8%	8.9%	9.1%	10.4%

-continued-

Table 2-15.–Page 3 of 3.

				Subsistence methods									
		Removed from commercial catch		Ice fishing or jigging through the ice		Other		Subsistence gear, any method		Rod and reel[a]		Any method	
Resource	Percentage base	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Trout (unspecified)	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Broad whitefish	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Least cisco	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Humpback whitefish	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Round whitefish	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%	1.4%	1.5%	1.2%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%	1.2%	1.5%	1.2%
Whitefishes (unspecified)	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	1.1%	0.7%	1.0%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	1.0%	0.7%	1.0%

Source ADF&G Division of Subsistence household surveys, 2013.

a. Federal regulations recognize rod and reel as subsistence gear. Under state regulations, rod and reel fishing is governed under sport fishing regulations.

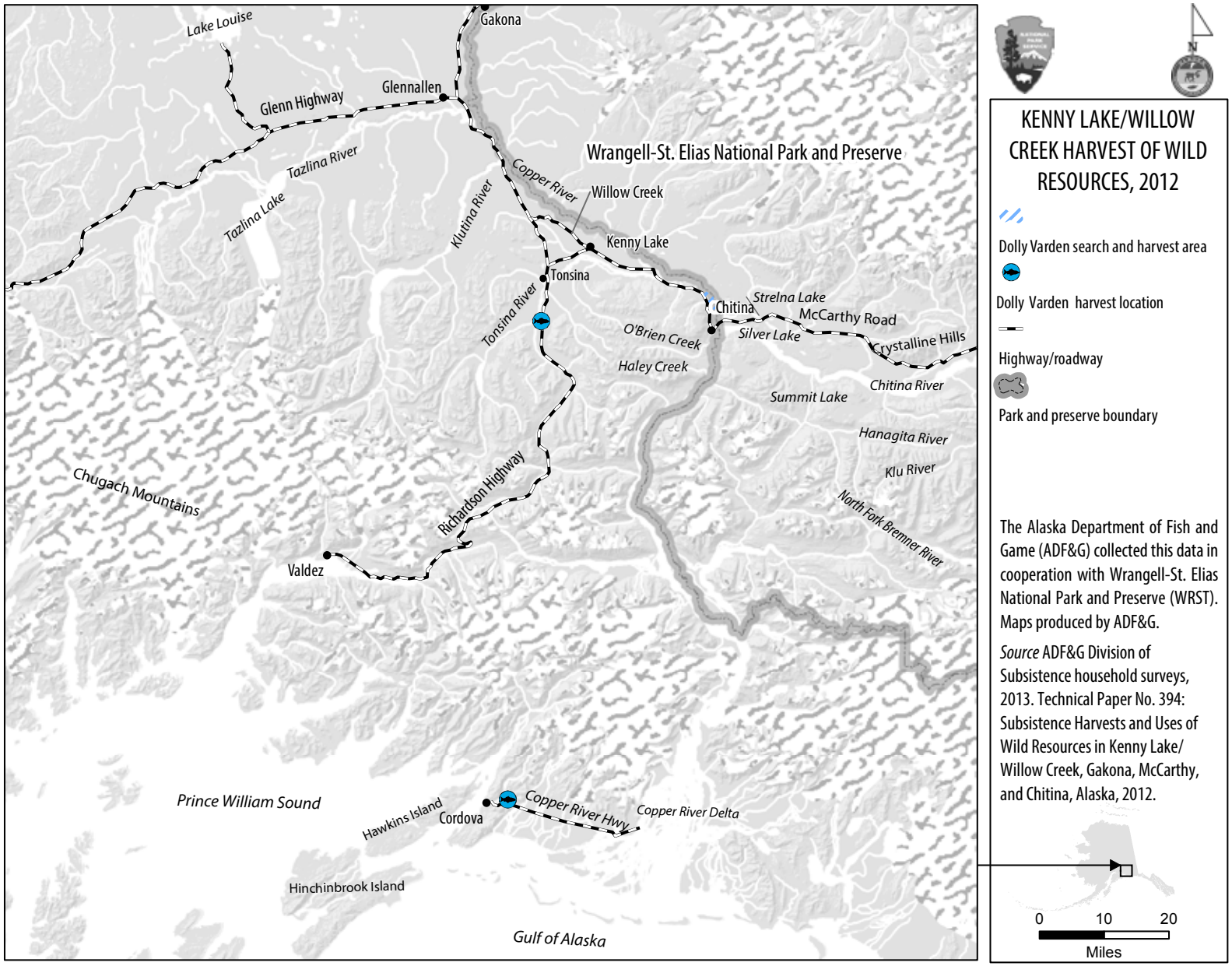


Figure 2-12.–Fishing and harvest locations of Dolly Varden, Kenny Lake/Willow Creek, 2012.

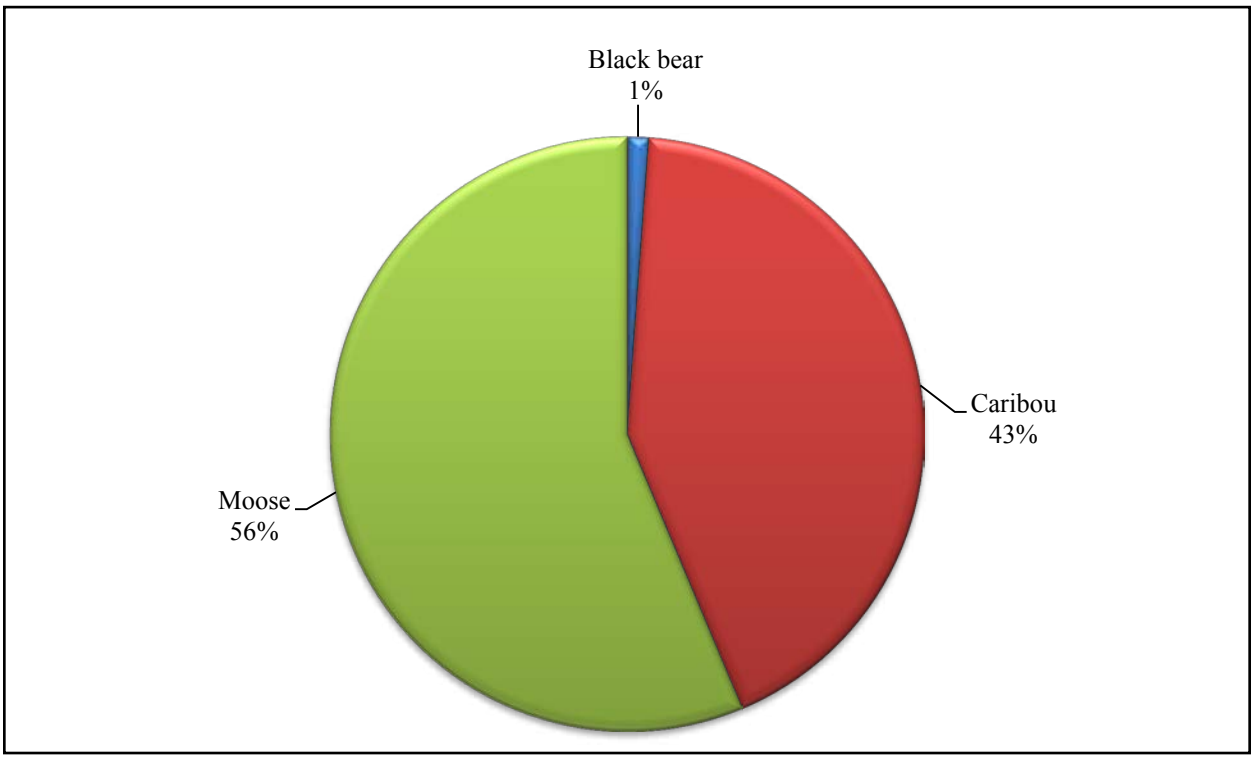


Figure 2-13.–Composition of large land mammal harvest in pounds usable weight, Kenny Lake/Willow Creek, 2012.

Large Land Mammals

In 2012, large land mammals, predominately moose, made up 19% of the total Kenny Lake/Willow Creek wild resource harvest by weight (Figure 2-7). Caribou, moose, and black bears made up the composition of the large land mammal harvest for the community (Figure 2-13). Moose provided 56% of the usable pounds of large land mammals harvested by Kenny Lake/Willow Creek households, and was used by 60% of households (38% hunted moose and 8% of households in the community were successful harvesters) (Table 2-12). According to the study, successful moose hunting took place in August, September, and October (Table 2-16). In August 2012 an estimated 2 moose were harvested; an estimated 9 moose were harvested in September; and an estimated 3 moose were harvested in October 2012. Moose was shared more widely among Kenny Lake/Willow Creek households than any other large land mammal (53% received moose from other households and 17% gave moose away) (Table 2-12).

In 2012, Kenny Lake/Willow Creek households harvested 37 caribou, which made up 43% of the usable pounds of harvested large land mammals (Table 2-12; Figure 2-13). Caribou harvests by Kenny Lake/Willow Creek households took place in January, September, and November (Table 2-16). Sixteen percent of households shared their harvests of caribou with others, almost the same number as those households sharing moose (17%), but fewer households received caribou (45%) as compared to households that received moose (53%).

Table 2-16.–Estimated large land mammal harvests by month and sex, Kenny Lake/Willow Creek, 2012.

	Black	Brown	Dall	Caribou			Moose		
Harvest month	bear	bear	sheep	Total	Male	Female	Total	Male	Female
January	0.0	0.0	0.0	3.2	3.2	0.0	0.0	0.0	0.0
February	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
March	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
April	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
June	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
July	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
August	0.0	0.0	0.0	0.0	0.0	0.0	2.3	2.3	0.0
September	0.0	0.0	0.0	28.3	17.4	11.0	8.7	8.7	0.0
October	0.0	0.0	0.0	0.0	0.0	0.0	3.2	3.2	0.0
November	0.0	0.0	0.0	5.5	2.3	3.2	0.0	0.0	0.0
December	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unknown month	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total harvest	**2.3**	**0.0**	**0.0**	**37.0**	**22.9**	**14.2**	**14.2**	**14.2**	**0.0**

Source ADF&G Division of Subsistence household surveys, 2013.

In 2012, 2 black bears were harvested and used by 10% of households (Table 2-12). The 2 estimated black bear harvests were in April (Table 2-16). Black bears made up 1% of the usable pounds of large land mammals harvested by Kenny Lake/Willow Creek households (Figure 2-13).

During the 2012 study year, Kenny Lake/Willow Creek households reported searching for moose south of the town of McCarthy, along the Richardson Highway from Sourdough to Paxson, and around Tonsina and Mankomen lakes (Figure 2-14). Caribou were hunted around Tonsina Lake, along the Richardson Highway from Gakona to Paxson, and along the Denali Highway.

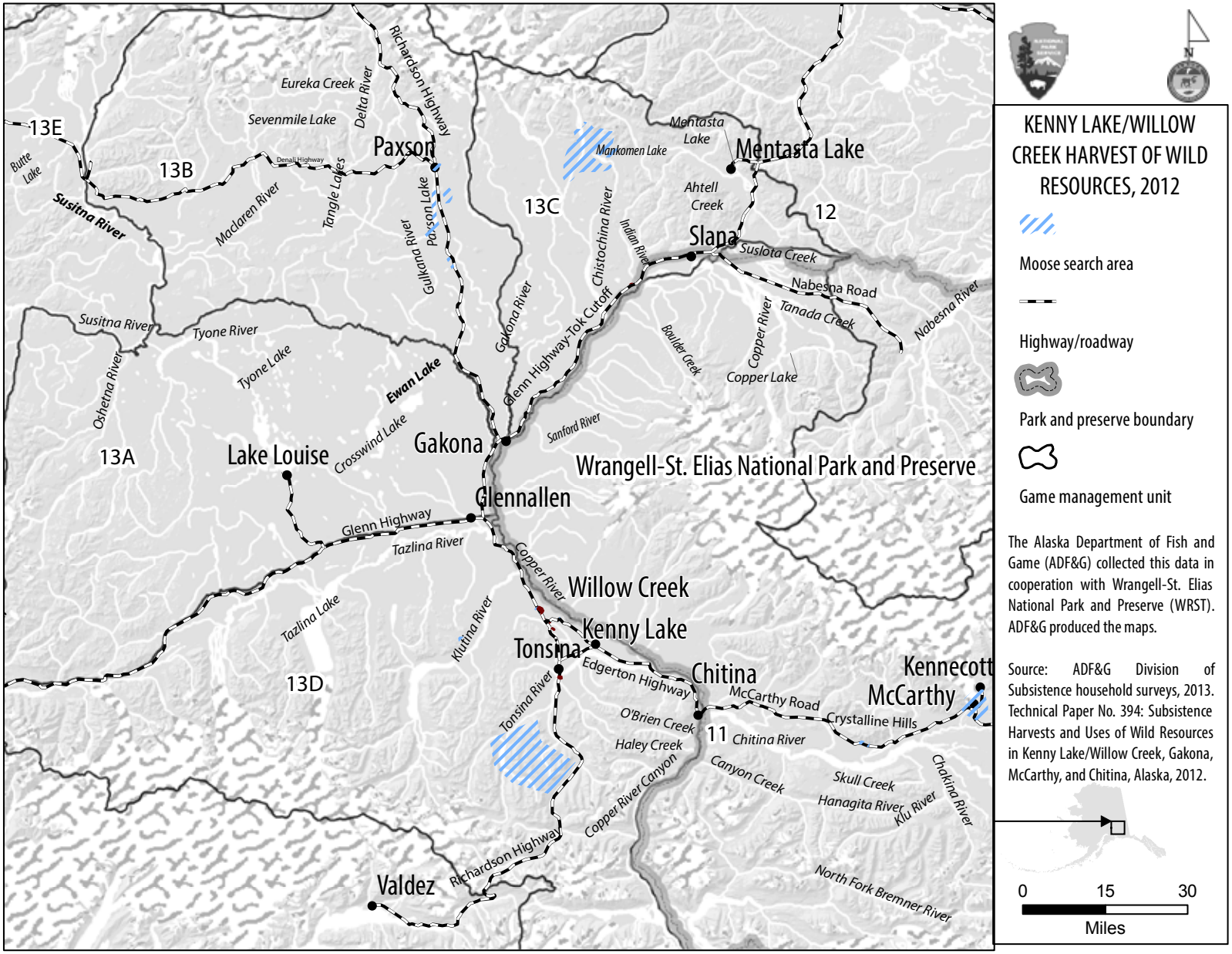


Figure 2-14.–Hunting locations of moose, Kenny Lake/Willow Creek, 2012.

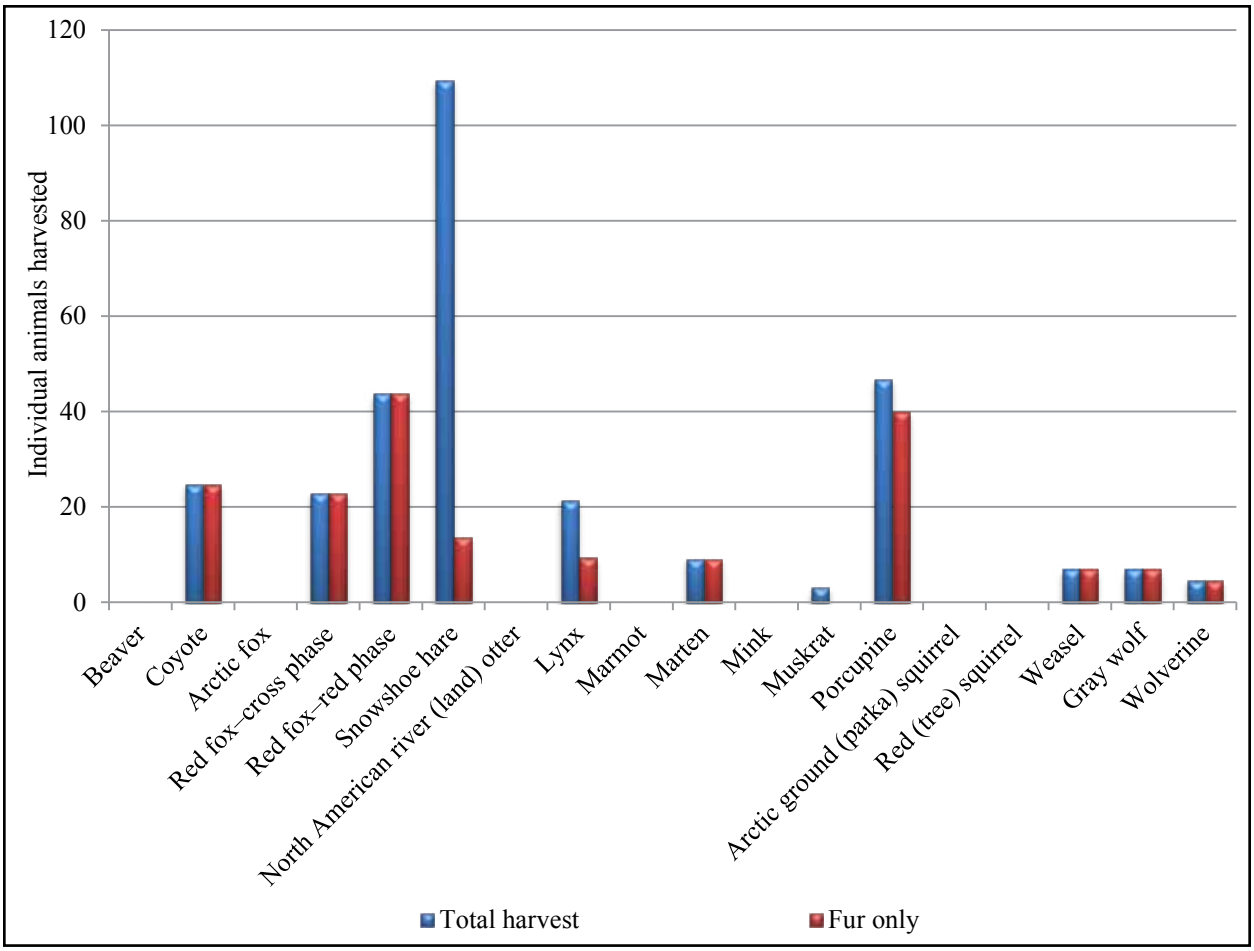


Figure 2-15.–Estimated small land mammal/furbearer harvests for fur and food only, Kenny Lake/Willow Creek, 2012.

Small Land Mammals/Furbearers

The harvest and use of small land mammals is a traditional activity for Copper Basin residents, both for collecting food and trapping as a source of income from fur sales. Even so, most households in Kenny Lake/Willow Creek do not hunt or trap for small land mammals; only 18% of households used 15% harvested these resources. It is important to note that the animals harvested for fur only (see Figure 2-15) represent the harvests of a small number of households; and while more households reported using snowshoe hares than any other small land mammals, that use only occurred in 10% of the households.

As listed in Table 2-12, the total harvest of small land mammals by Kenny Lake/Willow Creek households in 2012 contributed a total 277 lb (less than 1 lb per capita) or approximately 1% to the overall usable harvest, the majority of which was snowshoe hare (192 lb). Porcupines were harvested throughout the year and muskrats in the spring, but the remaining animals were harvested mostly in the colder months, including January through March and October through December (Table 2-17). Snowshoe hares made up the largest percentage of the usable (or edible) harvest (69%), followed by lynx (18%), porcupines (11%), and muskrats

Table 2-17.–Estimated small land mammal/furbearer harvests by month, Kenny Lake/Willow Creek, 2012.

Species	January	February	March	April	May	June	July	August	September	October	November	December	Unknown	**Total**
Small land mammals	**37.0**	**57.5**	**7.8**	**15.5**	**0.0**	**3.2**	**3.2**	**6.4**	**2.3**	**21.5**	**26.9**	**49.8**	**68.4**	**299.6**
Beaver	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**
Coyote	10.1	6.8	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	2.3	0.0	**24.7**
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	5.5	5.5	3.2	0.0	0.0	0.0	0.0	0.0	0.0	2.3	6.8	25.1	18.3	**66.7**
Snowshoe hare	6.8	27.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.0	4.6	4.6	50.2	**109.6**
North American river (land) otter	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**
Lynx	4.6	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	9.1	0.0	**21.5**
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	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	0.0	0.0	**9.1**
Mink	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	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**3.2**
Porcupine	3.2	6.4	0.0	12.3	0.0	3.2	3.2	6.4	2.3	3.2	0.0	6.4	0.0	**46.7**
Arctic ground (parka) 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**
Red (tree) 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**
Weasel	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	2.3	0.0	**6.8**
Gray wolf	2.3	2.3	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**6.8**
Wolverine	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**4.6**

Source ADF&G Division of Subsistence household surveys, 2013.

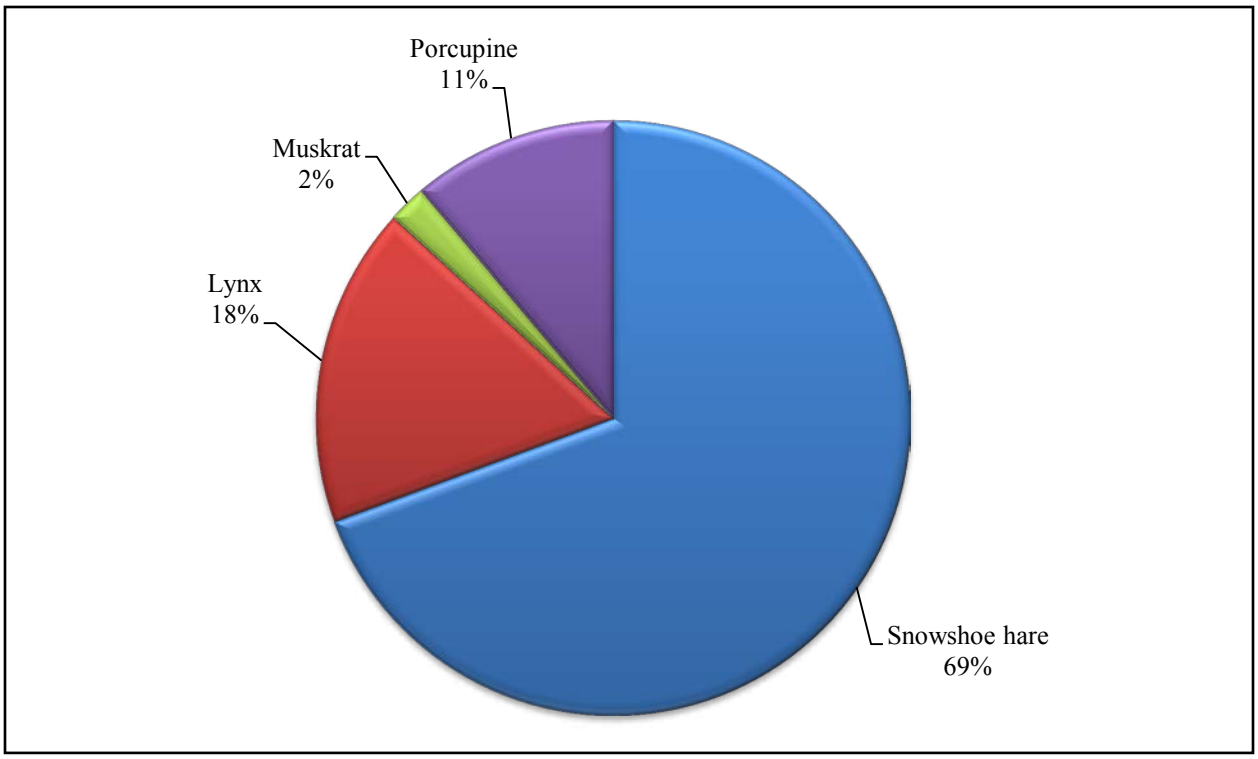


Figure 2-16.–Composition of small land mammal/furbearer harvest by pounds usable weight, Kenny Lake/ Willow Creek, 2012.

(2%) (Figure 2-16). Most furbearers (coyotes, foxes, martens, weasels, gray wolves, and wolverines) were harvested for their fur only. Others, such as snowshoe hares, lynx, porcupines, and muskrats were harvested for both food and fur (Figure 2-15). For example, of the 110 arctic hares harvested, 96 were harvested for both food and fur, and of the 21 lynx harvested approximately 12 were harvested for food and fur.

The search and harvest areas for small land mammals/furbearers in 2012 included areas east and north of the Crystalline Hills along the McCarthy Road, west of the Richardson Highway in the Squirrel Creek drainage, around Willow Lake and Willow Creek drainage, and around Hudson Lake (Figure 2-17).

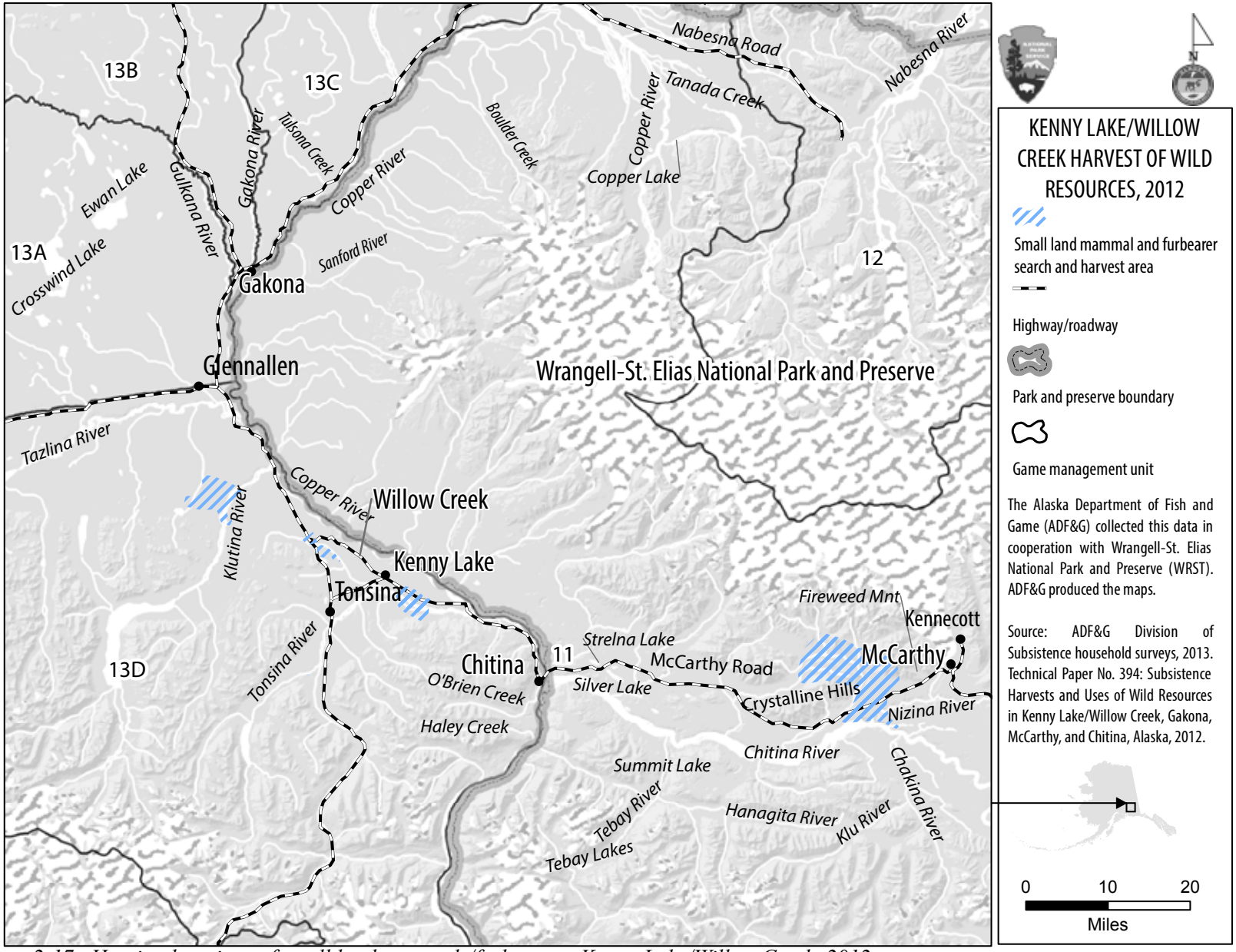


Figure 2-17.–Hunting locations of small land mammals/furbearers, Kenny Lake/Willow Creek, 2012.

Table 2-18.–Estimated bird harvests by season, Kenny Lake/Willow Creek, 2012.

	Estimated harvest by season				
Resource	Winter	Spring	Summer	Fall	Season unknown
Canvasback	0.0	0.0	0.0	0.0	0.0
Spectacled eider	0.0	0.0	0.0	0.0	0.0
Goldeneye	0.0	0.0	0.0	0.0	0.0
Mallard	0.0	0.0	0.0	0.0	0.0
Northern pintail	0.0	0.0	0.0	0.0	0.0
Black scoter	0.0	0.0	0.0	0.0	0.0
Green-winged teal	0.0	0.0	0.0	0.0	0.0
Wigeon	0.0	0.0	0.0	0.0	0.0
Unknown ducks	0.0	0.0	0.0	0.0	0.0
Brant	0.0	0.0	0.0	0.0	0.0
Cackling goose	0.0	0.0	0.0	0.0	0.0
Canada goose	0.0	0.0	0.0	0.0	0.0
Unknown Canada/cackling goose	0.0	0.0	0.0	0.0	0.0
Emperor goose	0.0	0.0	0.0	0.0	0.0
Snow goose	0.0	0.0	0.0	0.0	0.0
White-fronted goose	0.0	0.0	0.0	0.0	0.0
Unknown geese	0.0	0.0	0.0	0.0	0.0
Tundra (whistling) swan	0.0	0.0	0.0	0.0	0.0
Sandhill crane	0.0	0.0	0.0	0.0	0.0
Spruce grouse	35.2	5.5	83.7	66.3	0.0
Ruffed grouse	0.0	0.0	0.0	0.0	3.2
Ptarmigan	41.2	0.0	38.5	0.0	0.0
Duck eggs	0.0	0.0	0.0	0.0	0.0
Goose eggs	0.0	0.0	0.0	0.0	0.0
Gull eggs	0.0	0.0	0.0	0.0	0.0
Unknown eggs	0.0	0.0	0.0	0.0	0.0
Total harvest	**76.4**	**5.5**	**122.2**	**66.3**	**3.2**

Source ADF&G Division of Subsistence household surveys, 2013.

Birds and Eggs

Birds were hunted and used by 25% of Kenny Lake/Willow Creek households (Table 2-12). The total bird harvest was exclusively composed of upland game birds (grouse and ptarmigan). In 2012, Kenny Lake/Willow Creek households harvested a total of 176 lb, or less than 1 lb per capita. Spruce grouse accounted for most of the bird harvest by the community (134 lb), followed by ptarmigan (40 lb), and ruffed grouse (2 lb).

Spruce grouse were harvested throughout the year but primarily in the summer months while ptarmigan were harvested in both winter and summer months (Table 2-18). Areas of harvest for upland birds were around Willow Lake and Willow Creek near the junction of the Old Edgerton and Richardson highways.

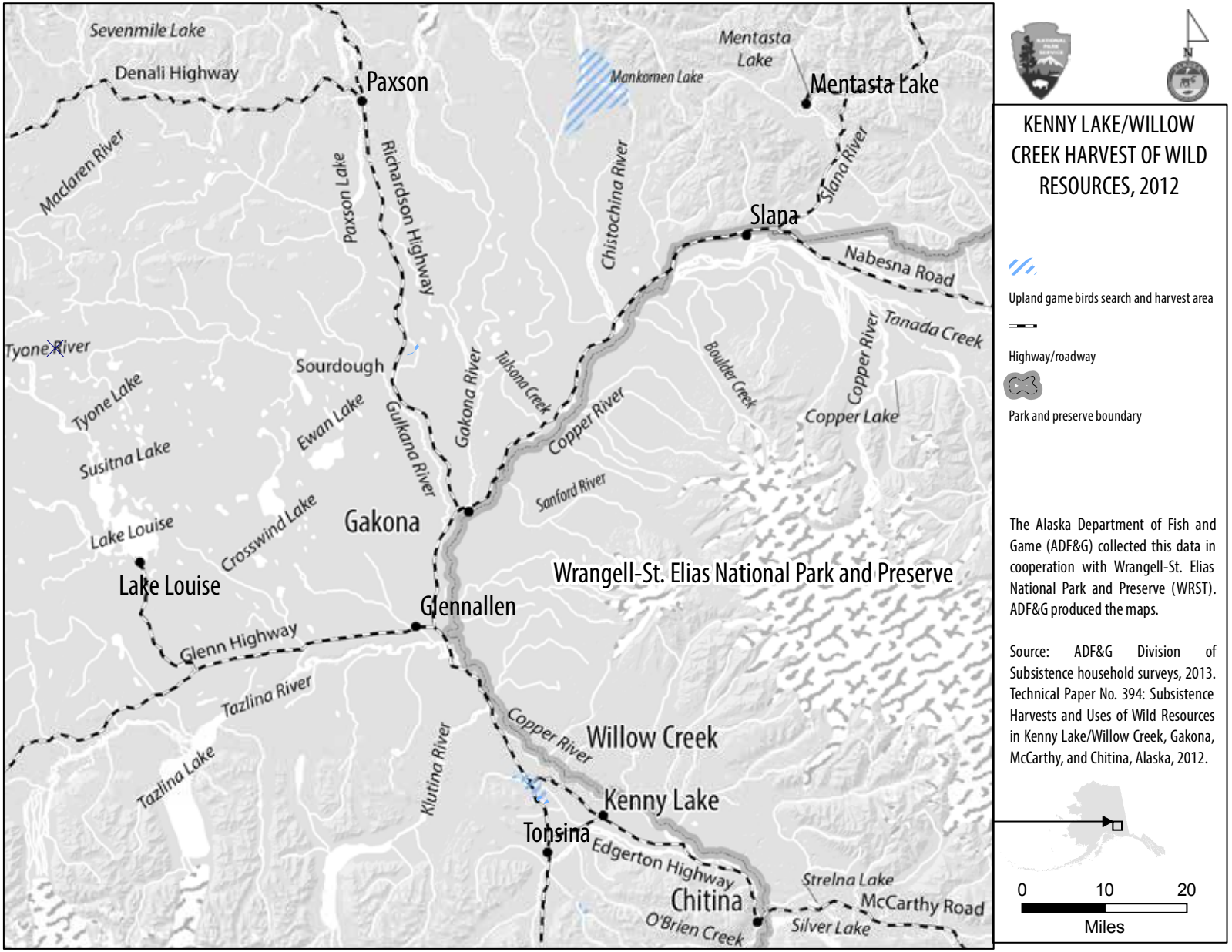


Figure 2-18.–Hunting and harvest locations of upland game birds, Kenny Lake/Willow Creek, 2012.

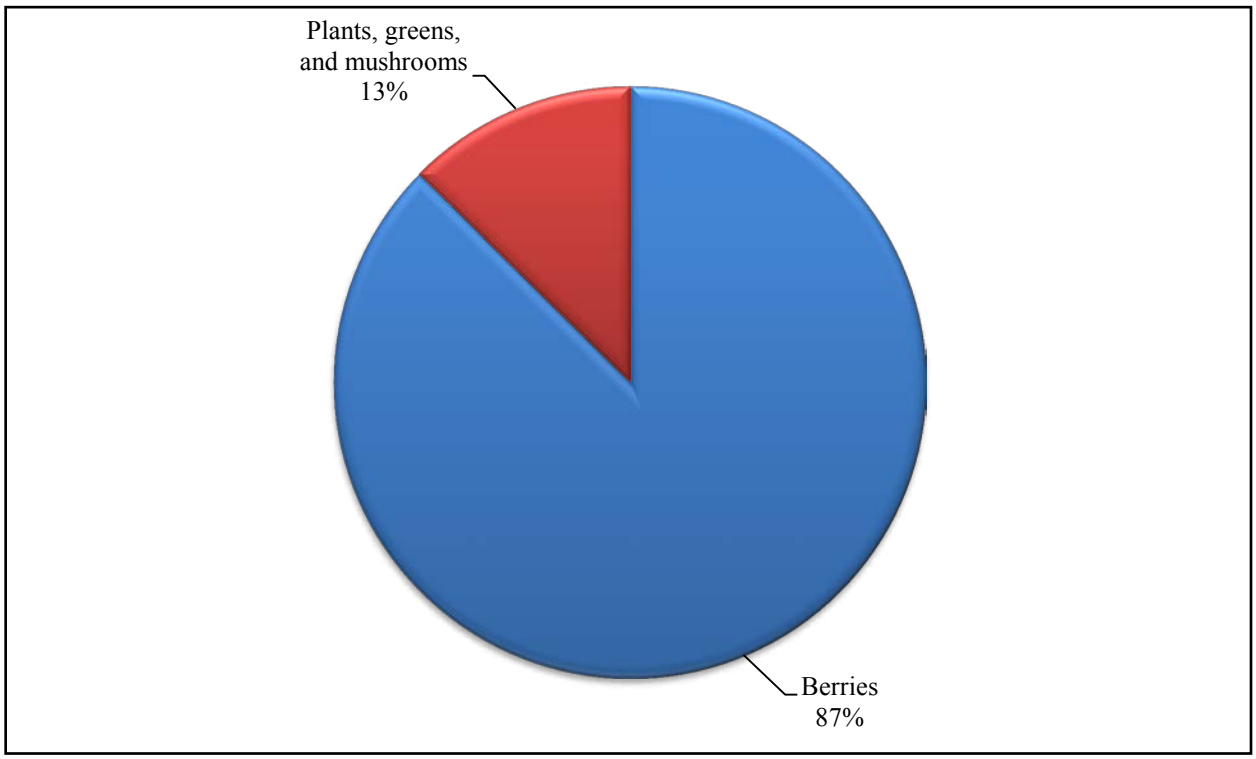


Figure 2-19.–Composition of vegetation harvest by type and pounds usable weight, Kenny Lake/Willow Creek, 2012.

Additionally, upland game birds were harvested south of Tonsina along Bernard Creek and areas surrounding Mankomen Lake (Figure 2-18).

Marine Invertebrates

As listed in Table 2-12, the total harvest of marine invertebrates by Kenny Lake/Willow Creek households in 2012 was made up of shrimp (554 lb, or about 1 lb per capita), octopus (18 lb), cockles (4 lb), and razor clams (2 lb) and other clams of unspecified species (34 lb). Marine invertebrates were used by 18% of households and were harvested in the Prince William Sound and Kachemak Bay areas.

Vegetation

The majority (93%) of households in Kenny Lake/Willow Creek used vegetation during the 2012 study year during which time firewood was of critical importance (83% of households used) (Table 2-12). While a large majority of households used at least some firewood to heat their homes (Table 2-11), the wood harvest did not contribute to the overall estimated usable harvest weight for the community.

In 2012, Kenny Lake/Willow Creek households harvested 2,418 lb, or 6 lb per capita, of edible vegetation; this included a total harvest of 2,114 lb, or 5 lb per capita, of berries and a total of 304 lb, or almost 1 lb per

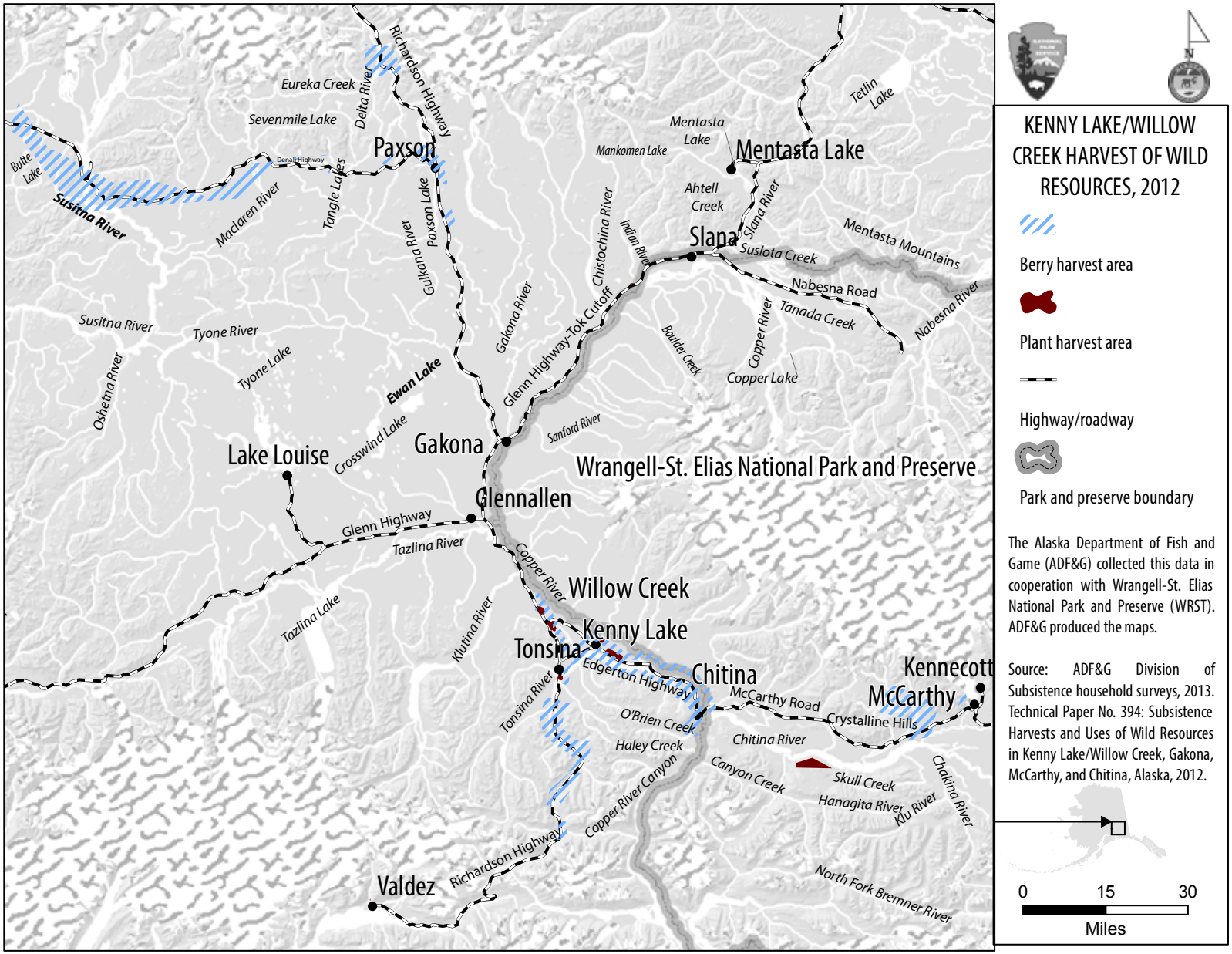


Figure 2-20.–Gathering and harvest locations of berries and plants, greens, and mushrooms, Kenny Lake/Willow Creek, 2012.

Table 2-19.–Changes in household uses of resources compared to recent years, Kenny Lake/Willow Creek, 2012.

Resource category	Sampled households	Valid responses[a]	Households reporting use[b]					
			Less		Same		More	
			Number	Percentage	Number	Percentage	Number	Percentage
Any resource[c]	67	67	56	84%	54	81%	29	43%
All resources	67	67	32	48%	23	34%	12	18%
Salmon	67	58	22	38%	25	43%	11	19%
Nonsalmon fish	67	47	26	55%	14	30%	7	15%
Large land mammals	67	54	26	48%	17	31%	11	20%
Small land mammals	67	14	8	57%	3	21%	3	21%
Migratory birds	67	5	5	100%	0	0%	0	0%
Other birds	67	21	15	71%	6	29%	0	0%
Bird eggs	67	0	0	0%	0	0%	0	0%
Marine invertebrates	67	13	7	54%	3	23%	3	23%
Vegetation	67	63	26	41%	29	46%	8	13%

Source ADF&G Division of Subsistence household surveys, 2013.
a. Valid responses do not include households that did not provide any response and households reporting never using resources from the category.
b. Percentages based on valid responses only.
c. The number of households that gave a valid response in at least 1 of the resource categories. Households are counted only once even though they may give more than 1 valid response.

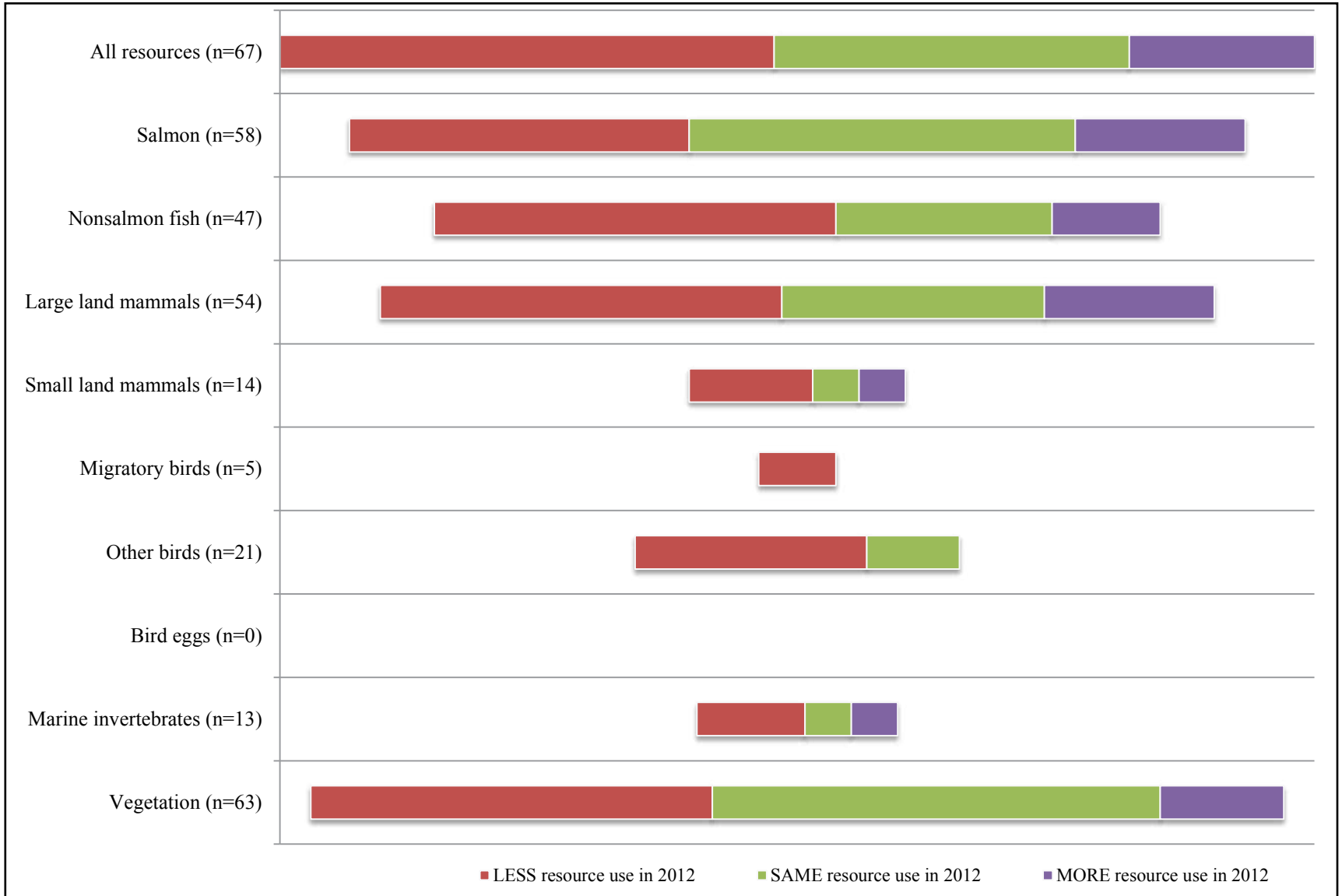
capita, of plants, greens, and mushrooms (Table 2-12; Figure 2-19). Berries were used by 75% of households and were harvested by 67% of households with the largest harvests coming from blueberries (approximately 2 lb per capita) and lowbush and highbush cranberries (approximately 1 lb per capita each). Plants, greens, and mushrooms were used by 45% percent of households and were harvested by 42% of households.

Plants and berries were harvested along the Edgerton Highway between its junction with the Richardson Highway and Chitina (Figure 2-20). Plants and berries were also collected along the Richardson Highway from Tiekel up to Copper Center, north of Sourdough, and along the Denali Highway. Kenny Lake/Willow Creek residents also harvested berries north of McCarthy Road east of the Crystalline Hills.

Comparing Harvests and Uses in 2012 with Previous Years

Harvest Assessments

For 10 resource categories and for all resources combined, survey respondents were asked to assess whether their uses and harvests in the 2012 study year were less, more, or about the same as other recent years. “Other recent years” was defined as about the last 5 years. Table 2-19 reports the number of valid responses for each category, the number of households that did not respond, and the number of households that did not use a resource category or all resources combined. In Table 2-19, response percentages are based on the number of valid responses for each category to contextualize these assessments within the set of community households that typically use each category.



Note The value for *n* is the total number of households reporting use of resources in the indicated resource category.

Figure 2-21.–Changes in household uses of resources compared to recent years, Kenny Lake/Willow Creek, 2012.

Figure 2-21 depicts responses to the "less, same, more" assessment question. Households that said they did not ordinarily "use" something are not included within the results. This results in fewer responses for less commonly used categories such as migratory birds or bird eggs, and manifests in the chart as a very short bar (or no bar) compared to categories such as salmon and vegetation which are ordinarily used by most households. Some households did not respond to the question.

All sampled households (67) were asked to take their entire year of harvest into consideration and assess whether their use of all resources was less, same, or more than in recent years. Of those 67 households, 32 (or 48%) said they used less wild resources in general over the previous 12 months compared to recent years (Table 2-19). A smaller number, 34% of all sampled households, said they used about the same amount, and only 18% said they used more. For salmon use, 58 valid responses were provided and a majority of those responses (25 households, or 43%) reported the same level of use of salmon in the study year as compared to recent years. For vegetation as well, a majority of the 63 responding households that used vegetation (29 households, or 46%) reported their use was the same during the study year as in recent years. For the remainder of the resource categories, the majority of the valid responses reported less use during the study year as compared to recent years. There was not one resource category for which a majority of valid responses indicated the level of use was more during the study year as compared to recent years.

Table 2-20 and Table 2-21 depict, by resource category, the reasons Kenny Lake/Willow Creek respondents gave for less or more use. This was an open-ended question and respondents could provide more than one reason for each resource category. Project staff grouped the responses into categories, such as regulations hindering residents from harvesting resources, sharing of harvests, effects of weather on animals and subsistence activities, changes in the animal populations, personal reasons such as work and health, and other factors affecting residents' opportunities to engage in hunting, fishing, and gathering activities.

Of the surveyed households that provided assessments for the 2012 study year, the reasons most cited for less use of any wild resource were less sharing (48%), fewer resources available (36%), fuel or equipment too expensive (32%), and work interfered (21%) (Table 2-20). Less sharing was the main reason cited for less use of salmon (64% of responding households), large land mammals (58% of responding households), vegetation (31% of responding households), migratory birds (60% of responding households), and marine invertebrates (57% of responding households). Of those households that reported their use of all resources was more during the study year as compared to recent years (12 households of the 67), more sharing and economic factors were the main reasons cited for more use of any resource (Table 2-21).

Harvest Data

Changes in the harvest of resources by Kenny Lake/Willow Creek residents can also be discerned through comparisons with findings from other study years. Comprehensive subsistence harvest surveys were conducted in the Kenny Lake area in 1983 (for a study year spanning June 1982 through May 1983) and 1988 (for a

Table 2-20.–Reasons for less household uses of resources compared to recent years, Kenny Lake/Willow Creek, 2012.

		Households reporting less use										
			No reason reported		Fewer resources available		Poor weather		Work interfered		Competition	
Resource category	Households using[a]	Total households	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource[b]	67	56	0	0.0%	20	35.7%	10	17.9%	12	21.4%	0	0.0%
All resources	67	32	0	0.0%	6	18.8%	3	9.4%	7	21.9%	0	0.0%
Salmon	58	22	0	0.0%	3	13.6%	2	9.1%	3	13.6%	0	0.0%
Nonsalmon fish	47	26	0	0.0%	0	0.0%	0	0.0%	3	11.5%	0	0.0%
Large land mammals	54	26	0	0.0%	3	11.5%	0	0.0%	2	7.7%	0	0.0%
Small land mammals	14	8	0	0.0%	0	0.0%	2	25.0%	3	37.5%	0	0.0%
Migratory birds	21	5	0	0.0%	1	20.0%	1	20.0%	0	0.0%	0	0.0%
Other birds	21	15	0	0.0%	5	33.3%	1	6.7%	1	6.7%	0	0.0%
Marine invertebrates	13	7	0	0.0%	0	0.0%	0	0.0%	1	14.3%	0	0.0%
Vegetation	63	26	0	0.0%	7	26.9%	6	23.1%	5	19.2%	0	0.0%

Table 2-20.–Continued.

		Households reporting less use								
			Regulations		Less sharing		Other personal reasons		Fuel or equipment too expensive	
Resource category	Households using[a]	Total households	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource[b]	67	56	2	3.6%	27	48.2%	3	5.4%	18	32.1%
All resources	67	32	1	3.1%	11	34.4%	1	3.1%	5	15.6%
Salmon	58	22	0	0.0%	14	63.6%	0	0.0%	2	9.1%
Nonsalmon fish	47	26	0	0.0%	8	30.8%	3	11.5%	9	34.6%
Large land mammals	54	26	1	3.8%	15	57.7%	1	3.8%	2	7.7%
Small land mammals	14	8	0	0.0%	1	12.5%	1	12.5%	0	0.0%
Migratory birds	21	5	0	0.0%	3	60.0%	0	0.0%	0	0.0%
Other birds	21	15	0	0.0%	3	20.0%	0	0.0%	4	26.7%
Marine invertebrates	13	7	0	0.0%	4	57.1%	0	0.0%	1	14.3%
Vegetation	63	26	0	0.0%	8	30.8%	1	3.8%	1	3.8%

Source ADF&G Division of Subsistence household surveys, 2013.
Note Percentages are calculated using the number of households reporting less use as a base.
Note The category "bird eggs" is not included in this table because no (zero) households in Kenny Lake/Willow Creek reported using resources from this category.
a. "Households using" data include only households that used a resource and responded to the question about use.
b. The number of households that gave a valid response in at least 1 of the resource categories. Households are counted only once even though they may give more than 1 valid response.

Table 2-21.–Reasons for more household uses of resources compared to recent years, Kenny Lake/Willow Creek, 2012.

		Households reporting more use											
	Households	Total	No reason reported		More resources available		Better weather		Work related		Less competition	
Resource category	using[a]	households	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource[b]	67	29	2	6.9%	4	13.8%	3	10.3%	1	3.4%	0	0.0%
All resources	67	12	1	8.3%	1	8.3%	1	8.3%	1	8.3%	0	0.0%
Salmon	58	11	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Nonsalmon fish	47	7	0	0.0%	1	14.3%	0	0.0%	0	0.0%	0	0.0%
Large land mammals	54	11	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Small land mammals	14	3	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Migratory birds	5	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Other birds	21	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Marine invertebrates	0	3	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Vegetation	63	3	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%

Table 2-21.–Continued.

		Households reporting more use								
	Households	Total	Better regulations		More sharing		Other personal reasons		Economic	
Resource category	using[a]	households	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource[b]	67	29	0	0.0%	21	72.4%	1	3.4%	6	20.7%
All resources	67	12	0	0.0%	6	50.0%	1	8.3%	2	16.7%
Salmon	58	11	0	0.0%	8	72.7%	1	9.1%	2	18.2%
Nonsalmon fish	47	7	0	0.0%	5	71.4%	0	0.0%	1	14.3%
Large land mammals	54	11	0	0.0%	8	72.7%	0	0.0%	0	0.0%
Small land mammals	14	3	0	0.0%	2	66.7%	0	0.0%	0	0.0%
Migratory birds	5	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Other birds	21	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Marine invertebrates	0	3	0	0.0%	2	66.7%	0	0.0%	1	33.3%
Vegetation	63	3	0	0.0%	2	66.7%	0	0.0%	1	33.3%

Source ADF&G Division of Subsistence household surveys, 2013.

Note Percentages are calculated using the number of households reporting more use as a base.

Note The category "bird eggs" is not included in this table because no (zero) households in Kenny Lake/Willow Creek reported using resources from this category.

a. "Households using" data include only households that used a resource and responded to the question about use.

b. The number of households that gave a valid response in at least 1 of the resource categories. Households are counted only once even though they may give more than 1 valid response.

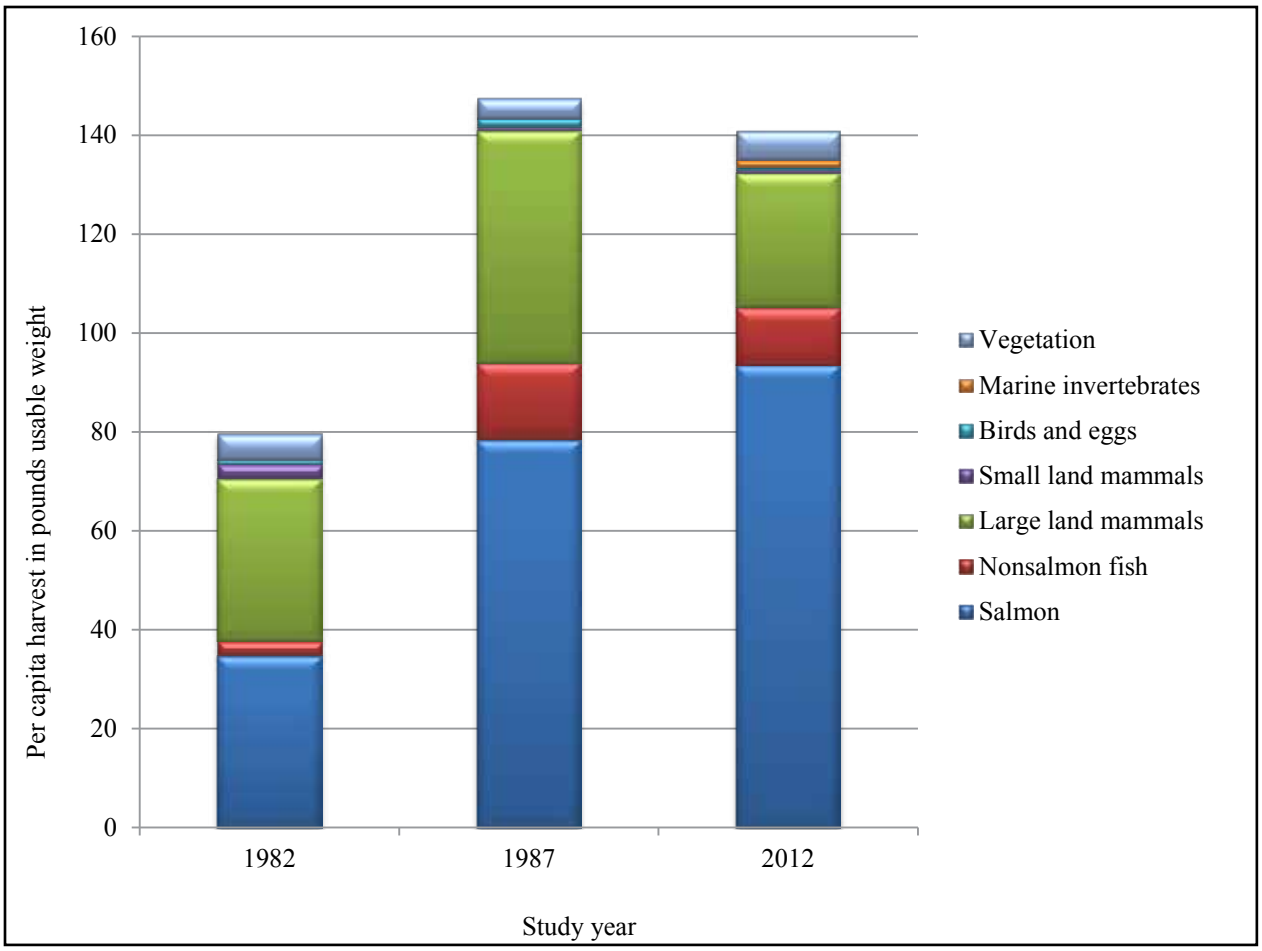


Figure 2-22.–Estimated harvests by pounds per capita and by resource category, Kenny Lake/Willow Creek, 1982, 1987, and 2012.

study year spanning June 1987 through May 1988) by the Division of Subsistence (Stratton and Georgette 1984). There was no Willow Creek CDP during the earlier studies and portions of what is now the Willow Creek CDP were surveyed as both sections of the Kenny Lake community and also part of Upper Tonsina and Tonsina for the 1982 and 1987 studies. While Kenny Lake and Willow Creek CDPs have some notable distinctions they also share local services (the school, library, and stores) and a harvest and sharing pattern that extends across community borders.

In 1982, the per capita harvest of wild resources by Kenny Lake households was 80 lb (Figure 2-22). In 1987, the per capita harvest of wild resources increased to 147 lb (an increase of approximately 68 lb), then decreased slightly to 141 lb per capita in 2012.

With regard to individual resource categories, salmon per capita harvests more than doubled between 1982 and 1987 (35 lb per capita to 79 lb per capita; a 44 lb per capita increase) then increased slightly between 1987 and 2012 (to 94 lb per capita). Between 1982 and 1987, the large land mammal harvest increased from 33 lb to 47 lb per capita, then decreased by 20 lb to 27 lb per capita. The nonsalmon fish harvest increased

from 1982 to 1987 (from 3 lb per capita to 16 lb per capita) then decreased slightly from 1987 to 2012 (from 16 lb per capita to 12 lb per capita); the 2012 harvest is approximately 9 lb more than the 1982 harvest. Per capita harvests for vegetation began at 5 lb in 1982 and decreased slightly to 4 lb per capita in 1987 only to end in 2012 at 6 lb per capita. The per capita harvest of birds remained roughly the same for all 3 study years, staying at or below 2 lb per capita. Small land mammal per capita harvests began at 3 lb per capita in 1982 and dropped to less than 1 lb per capita for each subsequent study year.

In summary, the estimated per capita harvest for Kenny Lake/Willow Creek has increased from 1982 to 2012, with only a slight dip in the per capita harvest occurring when comparing 1987 to 2012. The increase over time can be attributed to the salmon harvest, which more than doubled from 1982 to 2012 even while the large land mammal harvest (the second biggest contributor to the overall per capita harvests) decreased over the same time period.

Current and Historical Harvest Areas

During the 1983 and 1984 fieldwork seasons, ADF&G researchers conducted interviews with more than 200 hunters and fishers in 20 communities in or near the Copper River Basin to map areas where hunting, fishing, trapping, and gathering of wild resources occurred between 1964 and 1984 (Stratton and Georgette 1985). This effort produced 2 separate publications by 2 different ADF&G divisions; the Division of Habitat published the maps and the Division of Subsistence published a description of the project and mapping methods. The maps depicting the harvest and use areas used by study community residents during this 20-year span are published in *Alaska Habitat Management Guide Southcentral Region: Reference Maps—Volume 3. Community Use of Fish, Wildlife, and Plants* (Alaska Department of Fish and Game Division of Habitat 1985).[2] Information about the mapping project is available in *Copper Basin Resource Use Map Index and Methodology* (Stratton and Georgette 1985). A total of 8 harvest and use (referred to in this report as "search") maps were produced that show activities for Kenny Lake area residents for 1964–1984. These maps cover harvest and use areas for select large land mammal species (moose, caribou, and Dall sheep), waterfowl, furbearers (small land mammals), fish (salmon and freshwater fish), and vegetation. Absent from these maps are harvest and use areas for upland game birds, and black and brown bears. Changes in the resource harvest and use/search areas by Kenny Lake area residents can be discerned through limited comparisons of the maps published in 1985, which depict harvest and use areas for 20 years, and the maps produced from this study, which only reflect search and harvest areas for the study year 2012.

While there are some similarities between the harvest and use/search areas in the historical and the 2012 maps, there also are noticeable differences. In the historical maps, the harvest and use areas cover a wide expanse of land in the Copper River Basin and Copper River tributaries—including the Chitina, Tonsina, Klutina, Gulkana, and Gakona rivers. Additionally, the harvest and use areas follow along a number of roads

2. A complete index of documents published in 1985 and 1986 as part of *Alaska Habitat Management Guide* is available online: http://www.arlis.org/docs/vol1/C/AHMG/index.html

and highways, including along the north and south sides of McCarthy Road, along Glenn Highway–Tok Cutoff, the Edgerton, Richardson, and Denali highways, and along Nabesna Road. The 2012 harvest and search area maps did not include areas along the Glenn Highway–Tok Cutoff and Nabesna Road. However, harvest and search areas in the 2012 maps included activity on the Kenai Peninsula. Another important observation is that the historical maps, which demonstrate harvest patterns prior to the formation of Wrangell-St. Elias National Park and Preserve (WRST) in 1980, illustrate harvest and use areas for moose, caribou, Dall sheep, and small land mammals extending farther into the area of WRST than those of this study; the 2012 maps show limited harvest and search activity of all wild resources in the park and preserve area by Kenny Lake/Willow Creek residents.

With regard to specific species, the most noticeable differences in the harvest and use/search areas in the 2 map sets were visible with moose, caribou, Dall sheep, small land mammals, and vegetation. The first difference is that the historical maps depict caribou harvest and use areas along Glenn Highway–Tok Cutoff and Nabesna Road; in 2012, no resources were reportedly harvested by Kenny Lake/Willow Creek residents in these areas. Other noticeable differences from historical caribou harvest and use maps is the activity in the area west of Gulkana around Ewan and Crosswind lakes and south of Lake Louise along its access road. The difference in harvest and use/search areas for moose when comparing the 2012 study year to the historical maps is that the historical maps demonstrate a road hunt strategy and include areas around the Glenn Highway, Glenn Highway–Tok Cutoff, Nabesna Road, McCarthy Road, the Klutina access road, and Lake Louise access road. For the 2012 maps, residents focused their moose search areas along the Richardson Highway between Sourdough and Paxson, the area surrounding Mankomen Lake, south of the town of McCarthy, and up the Tonsina River drainage to Tonsina Lake. The only Dall sheep search area documented for the 2012 study year is located off the road system near Mankomen Lake. Historical maps depict Dall sheep harvest and use areas along the southwest-facing slopes of Wrangell Mountains bordering McCarthy Road, in the mountains along the Nabesna Road, and in the mountains flanking the upper extent of the Chitina River. Historical harvest and use areas for Dall sheep were also located in the mountains west of Chitina and around Tonsina Lake. As for small land mammals and furbearers, the historical harvest and use maps are more expansive and encompass a large portion of the southern drainage of the Copper River Basin, including the Tonsina River drainage, the Chitina River and its tributaries, and down the Copper River corridor as far south as the sand dunes at the mouth of the Bremner River. The only small land mammal search and harvest area that encompassed new territory on the 2012 maps was located between the Klutina River and Hudson Lake drainage.

The historical maps show that Kenny Lake residents reported salmon harvest and use/search areas similar to those of the 2012 study year. In 2012, the harvest and search/use areas for salmon were almost the same as those depicted in the historical maps. One difference between the maps includes a historical salmon harvest and use area located south of the community of Tonsina along the Little Tonsina River. Another difference

between the map sets includes a 2012 salmon harvest area located in the Valdez Port/Prince William Sound area.

The 2012 study found Kenny Lake/Willow Creek residents' nonsalmon harvest areas were similar to the areas shown in the historical maps for Kenny Lake. For both harvest and use/search area map sets, residents reported fishing along the Edgerton Highway south of Willow Creek and east of Chitina along McCarthy Road. Additionally, residents reported harvest and use/search areas in Klutina Lake, Tonsina River, Moose Creek, Tangle Lakes, and Tiekel River in both sets of maps.

Lastly, according to the 2012 study, Kenny Lake/Willow Creek residents harvest vegetation in areas south and east of town along Edgerton Highway and McCarthy Road. In both map sets, residents indicated they traveled north to the Richardson and Denali highways to harvest vegetation. Historical maps depict different harvest and use areas that include areas along the Glenn Highway–Tok Cutoff and Nabesna Road. In addition, both maps depict a harvest area pattern that shows that Kenny Lake/Willow Creek residents likely harvest vegetation resources closer to highways or well-established roads.

Local Comments and Concerns

Following is a summary of local observations of wild resource populations and trends that were recorded during the surveys. Some households did not offer any additional information during the survey interviews, so not all households are represented in the summary. In addition, respondents expressed their concerns about wild resources during the community meeting to review preliminary data. These concerns have been included in the summary.

Weather

Overall, 2012 was a wet year and the summer months in particular had a lot of rain. The wet conditions caused problems for hunting and harvesting of all wild resources. Some residents noted that the poor weather and low availability of resources, such as migratory waterfowl and plants and berries, discouraged them from hunting and gathering resources during 2012. One resident also commented on high water in the Copper River and how it negatively impacted the use of fish wheels.

Large Land Mammals

Many respondents cited 2012 as a poor year for the harvest of moose and caribou. Reasons that it was a poor year included warm weather during the open hunting seasons and increased hunting pressure from non-local residents. A number of individuals commented about hunting regulations and land tenure impacting their hunting of large land mammals. One individual stressed the need for large mammal habitat management rather than predator control.

Fish

A few respondents expressed concern regarding the catch limit for dipnetting on the Copper River. They commented that the limit is too high. One respondent expressed the belief that non-local residents do not use all the salmon they catch, which results in waste. In addition, 2012 was reportedly a bad year for coho salmon in the Valdez area. The salmon did not come into the bay as they normally do and stayed in more open waters of Prince William Sound. Many residents were not able to harvest them at all, or caught substantially less than they had in recent years.

Small Land Mammals/Furbearers

One household commented that there were hardly any hares in the vicinity during 2012. The resident indicated he/she usually harvests a few right around his/her property and did not have the opportunity in 2012.

Birds

Many households reported that 2012 was a poor year for harvesting birds. Residents attributed the poor year to low populations of upland game birds. Many households also commented on how the wet year affected their ability to harvest waterfowl in the area.

Vegetation

Many respondents reported that 2012 was a bad berry harvest year. They thought that the wet summer was the main reason for the poor availability of wild berries. One respondent expressed concern with people picking berries and selling them. In addition, 1 household reported not harvesting mushrooms because they had worms due to the wet summer.

Firewood

Some households in the area rely exclusively on firewood for home heating or supplement firewood for fuel for heating their homes. Access to firewood harvest areas is very important for residents and due to restrictions on Ahtna-owned and publicly owned land, many residents are experiencing more problems with accessing their traditional wood harvest areas. A few households commented that they are not able to purchase a firewood harvesting permit from Alaska Native corporations (Ahtna, Inc., and Chugach Alaska Corp.) that now limit access to the areas from which residents used to harvest firewood. Several households speculated that access problems to firewood harvest areas will only increase in the future.

Other Comments

Hunting Regulations

Several households voiced concerns about the timing for the fall moose and caribou hunting season. The main complaint was that the season began too early in August; the meat is more likely to spoil in the warm August weather while it is being processed in the field. One household in particular commented that the presence of insects such as "whitesox, yellow jackets, and hornets" is a problem for hunters while they are taking care of the meat in the field after a successful hunt. Insects swarm the harvested animal and also the people working to process the meat thus making it uncomfortable to try and get the job done and imposing the need to work at a faster pace to prevent meat contamination. If the hunting seasons began later this would not be a problem. Others added that the early beginning of the hunting seasons interferes with other important summer comingled/concurrent harvesting activities such as picking berries which may not be ripe in August.

Several households also brought up concerns about the state's current proxy hunting regulations; many felt they are too restrictive and seem almost discriminatory toward older citizens. Because of the restrictive regulations, it is difficult to help local elders even when non-related community members would like to help. A similar, general concern about the complexity of the continuously changing hunting and fishing regulations was also brought up by several households; the complexity of the regulations may, at times, keep people from harvesting wild resources because they are afraid they are not correctly following them. It was also mentioned that it would be good if state and federal hunting and fishing regulations were more consistent; it would make them easier to follow, particularly in areas where land access opportunities have recently changed. On another note, one household expressed satisfaction with the existing roadkill salvage program; it is very helpful for older residents.

Acknowledgements

The Division of Subsistence would like to thank local research assistants Terri Kaiser, Kim Morse, Erin Nicholson, and Craig Tostenson in Kenny Lake, Willow Creek, and Sapa for their knowledge, assistance, and excellence in getting the household surveys completed during the fieldwork session that took place in January 2013. Researchers could not have collected the data without their local guidance, so we cannot thank them enough for their contributions. In addition, we would like to thank C. D. and Kathy McCurry for letting the Division of Subsistence use their bed-and-breakfast to hold interviews, surveys, meetings, and training sessions for the project.

3. GAKONA

Bronwyn Jones, Robbin La Vine, Malla Kukkonen, and Eric Schacht

Community Background

Gakona is located at the confluence of the Copper and Gakona rivers at milepost 2 on the Glenn Highway–Tok Cutoff, which lies just east of the Richardson Highway. The immediate area is characterized by a rolling topography that is wooded with spruce, birch, and aspen, along with more shrub-like alder and willow. High sandy banks of the Copper and Gakona rivers cut out most of the views of the mountain ranges to the north, south, and west, but the Wrangell Mountains are in clear view to the east. The closest hub community is Glennallen, which is located approximately 15 mi southwest along the Richardson Highway.

The present site of Gakona was historically occupied seasonally as a firewood and fish camp by Ahtna Athabascan groups (Stratton and Georgette 1984:90). Gakona's positioning at the junction of the Valdez–Fairbanks and Valdez–Eagle trails made it an accessible location, and later it became an important stagecoach station and stop in the early 20th century (Smith 1974:74). In 1904, Doyle's Roadhouse was constructed. The roadhouse became an essential stopping point for trail travelers because it included a trading post, blacksmith shop, and a post office. Subsequently some travelers and Ahtna people settled in Gakona permanently (Stratton and Georgette 1984:91).

In 1929 the Alaska Road Commission widened Eagle Trail for easier access to gold mines in Chistochina and Nabesna—located to the east. As a response, a larger structure, the Gakona Lodge, was built that year by the owner of Doyle's Roadhouse to accommodate the increase in travelers and business. The lodge is still in operation as the Historic Gakona Lodge and Trading Post and is registered with the National Register of Historical Places. Currently it is open seasonally from May through September and is a popular destination for Chinook salmon and sockeye salmon sport fishers to visit.[1] The lodge offers private rooms, cabins, a restaurant, and tavern. The lodge contains many old relics of the gold rush era.

In 1983, at the time of the first harvest survey in the community, Gakona had several established local services, which included the lodge, a gas station and small store, post office, elementary school, chapel, and a building supply business (Stratton and Georgette 1984). The Gakona public school was established in the late 1940s and was in use until 2008. Gakona Elementary School was voted to be closed on April 1, 2008 by the Copper River Board of Education due to low student enrollment. School-age children either attend school in Glennallen or are home schooled. The school was still inactive during the 2012 study year.

1. The Historic Gakona Lodge and Trading Post. n.d., "History of Gakona Lodge, Est. 1904 – National Register of Historic Places." Accessed June 2014. http://www.gakonalodge.com/gakona-lodge/history-of-gakona-lodge-est-1904-national-register-of-historic-places/

Table 3-1.–Population estimates, Gakona, 2010 and 2012.

	Census year 2010				Study findings for 2012			
	Total population		Alaska Native population		Total population		Alaska Native population	
Community	Households	Population	People	Percentage of total	Households	Population	People	Percentage of total
Gakona	86	218	45	20.6%	77	202	43	21.1%

Source ADF&G Division of Subsistence household surveys, 2013.

In 2012, the community had a volunteer fire department, post office, a non-Native residential area, and an Ahtna village, the Native Village of Gakona.[2]

Demography

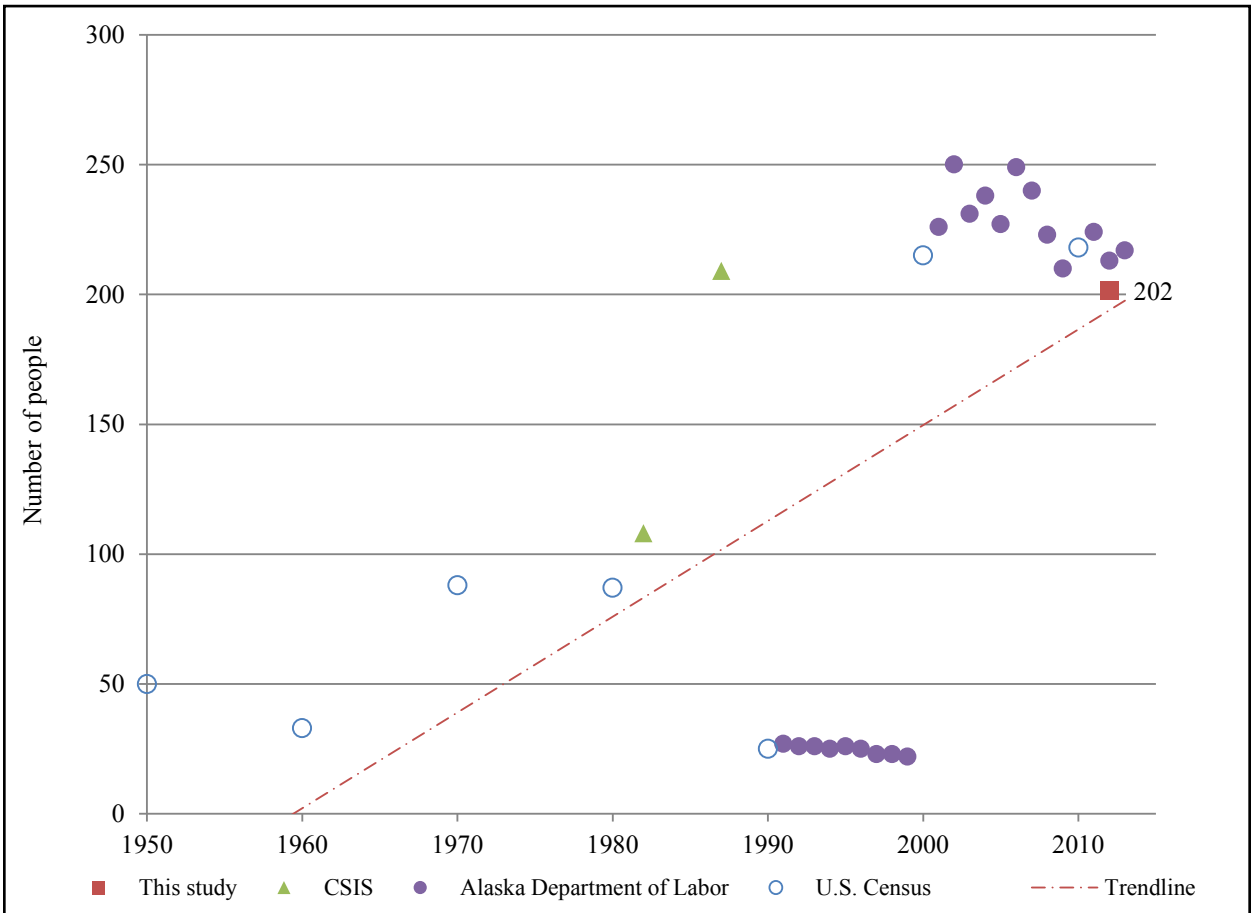
Like many road-based rural Alaska communities, the community of Gakona encompasses a large geographic area with most of the residences bordering the roads; Gakona is located along the Glenn Highway–Tok Cutoff starting at milepost 2 and stretches approximately to milepost 13. The survey area for this project aligns with the federal Gakona census designated place (CDP) boundaries. The Native Village of Gakona, a federally recognized tribe and village center within the Gakona CDP, is located at milepost 4.8 on the Glenn Highway–Tok Cutoff and comprises the Gakona Village Council office, Gakona health clinic, the Buster Gene Memorial Facility, and several housing units available for tribal members. Many Gakona homes, as well as the Native Village of Gakona, are located off the road generally out of sight; most residents access their homes with highway vehicles via private driveways.

According to the U.S. Census Bureau, Gakona had 218 residents in 86 households in 2010 (Table 3-1). This survey found a somewhat smaller population in Gakona in 2012: an estimated total of 202 people in 77 households. Despite the small decline in the total population between the 2 surveys, the Alaska Native population has essentially remained the same. The 2010 federal census found 21% (45 residents) of Gakona residents were Alaska Native; in this survey conducted for study year 2012, Alaska Natives were 21% of the total community (43 residents).

Figure 3-1 portrays Gakona population estimates over time (since the 1950s) based on U.S. Census Bureau data, estimates developed by the Alaska Department of Labor and Workforce Development (ADLWD), and estimates by the ADF&G Division of Subsistence. The relatively low population estimates for the 1990s and the apparent large increase in 2000 are the result of an expansion of the area included in the Gakona CDP for the 2000 census. The chart demonstrates that the Gakona population has increased since the 1950s; according to the ADLWD, the community reached its population peak in 2002 with approximately 250 people residing in the community. The chart also shows that during the 21st century, Gakona's population has continued to experience small annual fluctuations.

Prior to the survey, the Division of Subsistence researchers, in consultation with community officials and

2. Alaska Department of Commerce, Community, and Economic Development (ADCCED) Division of Community and Regional Affairs, Juneau. n.d. "Alaska Community Database Online: Community Information." Accessed June 2014. http://commerce.state.ak.us/cra/DCRAExternal/community/Details/c60b50ca-2a7a-47ef-89fb-35559aec8c19



Note Population estimates by the U.S. Census and Alaska Department of Labor for 2000 and subsequent years for Gakona census designated place (CDP) include gained territory after the federal CDP boundary was changed.

Figure 3-1.–Historical population estimates, Gakona, 1950–2012.

Table 3-2.–Sample achievement, Gakona, 2012.

	Gakona
Households in community	77
Interview goal	60%
Households interviewed	42
Households failed to contact	29
Households declined to be interviewed	6
Total households attempted to interview	77
Refusal rate	12.5%
Percentage of total households interviewed	54.5%
Interview weighting factor	1.8
Sampled population	110
Estimated population	201.7

Source ADF&G Division of Subsistence household surveys, 2013.
Note This table represents a simplified accounting of the sample size. As a result, components of the sample may not correctly sum to the number of households in the community.

Table 3-3.–Sample and demographic characteristics, Gakona, 2012.

Characteristics	Community Gakona
Sample achievement	
Sampled households	42
Eligible households	77
Percentage sampled	54.5%
Household size	
Mean	2.6
Minimum	1
Maximum	7
Age	
Mean	41.8
Minimum[a]	0
Maximum	94
Length of residency	
Total population	
Mean	18.2
Minimum	0
Maximum	68
Heads of household	
Mean	22.1
Minimum	1
Maximum	68
Sex	
Estimated male	
Number	102.7
Percentage	50.9%
Estimated female	
Number	99.0
Percentage	49.1%
Alaska Native	
Estimated households[b]	
Number	15.0
Percentage	19.5%
Estimated population	
Number	42.6
Percentage	21.1%

Source ADF&G Division of Subsistence household surveys, 2013.
a. A minimum age of 0 (zero) is used for infants that are less than 1 year of age.
b. The estimated number of households in which at least 1 head of household is Alaska Native.

other knowledgeable respondents, estimated and confirmed 77 year-round households in Gakona. Table 3-2 describes the sample achievement of this study; the survey staff were able to interview 42 of the 77 (55%) Gakona households making the sampled community population 110. The survey staff were unable to make contact with 29 households and 6 households declined to be interviewed. The following data are expanded to cover the remaining households not surveyed from the original 77.

According to the survey results, approximately 51% of Gakona's population was male and 49% female in study year 2012 (Table 3-3). Furthermore, the estimated mean age of the community population was 42 years

Table 3-4.–Population profile, Gakona, 2012.

	Male			Female			Total		
Age	Number	Percentage	Cumulative percentage	Number	Percentage	Cumulative percentage	Number	Percentage	Cumulative percentage
0–4	3.7	3.6%	3.6%	7.3	7.4%	7.4%	11.0	5.5%	5.5%
5–9	7.3	7.1%	10.7%	7.3	7.4%	14.8%	14.7	7.3%	12.7%
10–14	9.2	8.9%	19.6%	5.5	5.6%	20.4%	14.7	7.3%	20.0%
15–19	7.3	7.1%	26.8%	7.3	7.4%	27.8%	14.7	7.3%	27.3%
20–24	3.7	3.6%	30.4%	3.7	3.7%	31.5%	7.3	3.6%	30.9%
25–29	0.0	0.0%	30.4%	3.7	3.7%	35.2%	3.7	1.8%	32.7%
30–34	3.7	3.6%	33.9%	3.7	3.7%	38.9%	7.3	3.6%	36.4%
35–39	7.3	7.1%	41.1%	1.8	1.9%	40.7%	9.2	4.5%	40.9%
40–44	7.3	7.1%	48.2%	9.2	9.3%	50.0%	16.5	8.2%	49.1%
45–49	1.8	1.8%	50.0%	3.7	3.7%	53.7%	5.5	2.7%	51.8%
50–54	16.5	16.1%	66.1%	7.3	7.4%	61.1%	23.8	11.8%	63.6%
55–59	5.5	5.4%	71.4%	12.8	13.0%	74.1%	18.3	9.1%	72.7%
60–64	11.0	10.7%	82.1%	7.3	7.4%	81.5%	18.3	9.1%	81.8%
65–69	7.3	7.1%	89.3%	3.7	3.7%	85.2%	11.0	5.5%	87.3%
70–74	5.5	5.4%	94.6%	11.0	11.1%	96.3%	16.5	8.2%	95.5%
75–79	3.7	3.6%	98.2%	0.0	0.0%	96.3%	3.7	1.8%	97.3%
80–84	1.8	1.8%	100.0%	0.0	0.0%	96.3%	1.8	0.9%	98.2%
85–89	0.0	0.0%	100.0%	1.8	1.9%	98.1%	1.8	0.9%	99.1%
90–94	0.0	0.0%	100.0%	1.8	1.9%	100.0%	1.8	0.9%	100.0%
95–99	0.0	0.0%	100.0%	0.0	0.0%	100.0%	0.0	0.0%	100.0%
100–104	0.0	0.0%	100.0%	0.0	0.0%	100.0%	0.0	0.0%	100.0%
Missing	0.0	0.0%	100.0%	0.0	0.0%	100.0%	0.0	0.0%	100.0%
Total	**102.7**	**100.0%**	**100.0%**	**99.0**	**100.0%**	**100.0%**	**201.7**	**100.0%**	**100.0%**

Source ADF&G Division of Subsistence household surveys, 2013.

of age and the mean household size was 2.6. For the total Gakona population, the mean length of residency in Gakona was 18 years; for heads of households the corresponding estimate was a few years more at 22 years

Table 3-4 and Figure 3-2 portray the population profile for the community in 2012. For the male population, the largest age cohort was 50–54 years of age (16% of the male population) followed by age cohorts 60–64 years of age (11% of the male population) and 10–14 years of age (9% of the male population) (Table 3-4). With the exception of no males present in the age cohort 25–29 years of age, the remaining male population was relatively evenly spread out between age cohorts 0–4 years of age and 80–84 years of age (Figure 3-2). For the female population, the largest age cohorts were 55–59 years of age (13% of the female population), 70–74 years of age (11% of the female population), and 40–44 years of age (9% of the female population). The remaining Gakona female population was relatively evenly spread out between age cohorts 0–4 years of age and 65–69 years of age (Figure 3-2). In 2012 the oldest Gakona resident was a female in the age cohort 90–94 years of age. Furthermore, the largest age cohort of all population was males between ages of 50–54 years of age (Table 3-4; Figure 3-2). A relatively low portion of the population (22%) was school-age (5 to 19 years old), which is why there are no schools in Gakona.

The majority (78%) of the Gakona household heads interviewed were born outside Alaska in other U.S. locations (Table 3-5). Approximately 6% of the Gakona household heads were born in Gakona and 3% in Anchorage or Gulkana. An estimated 1% of Gakona household heads were born in Copper Center, Fairbanks,

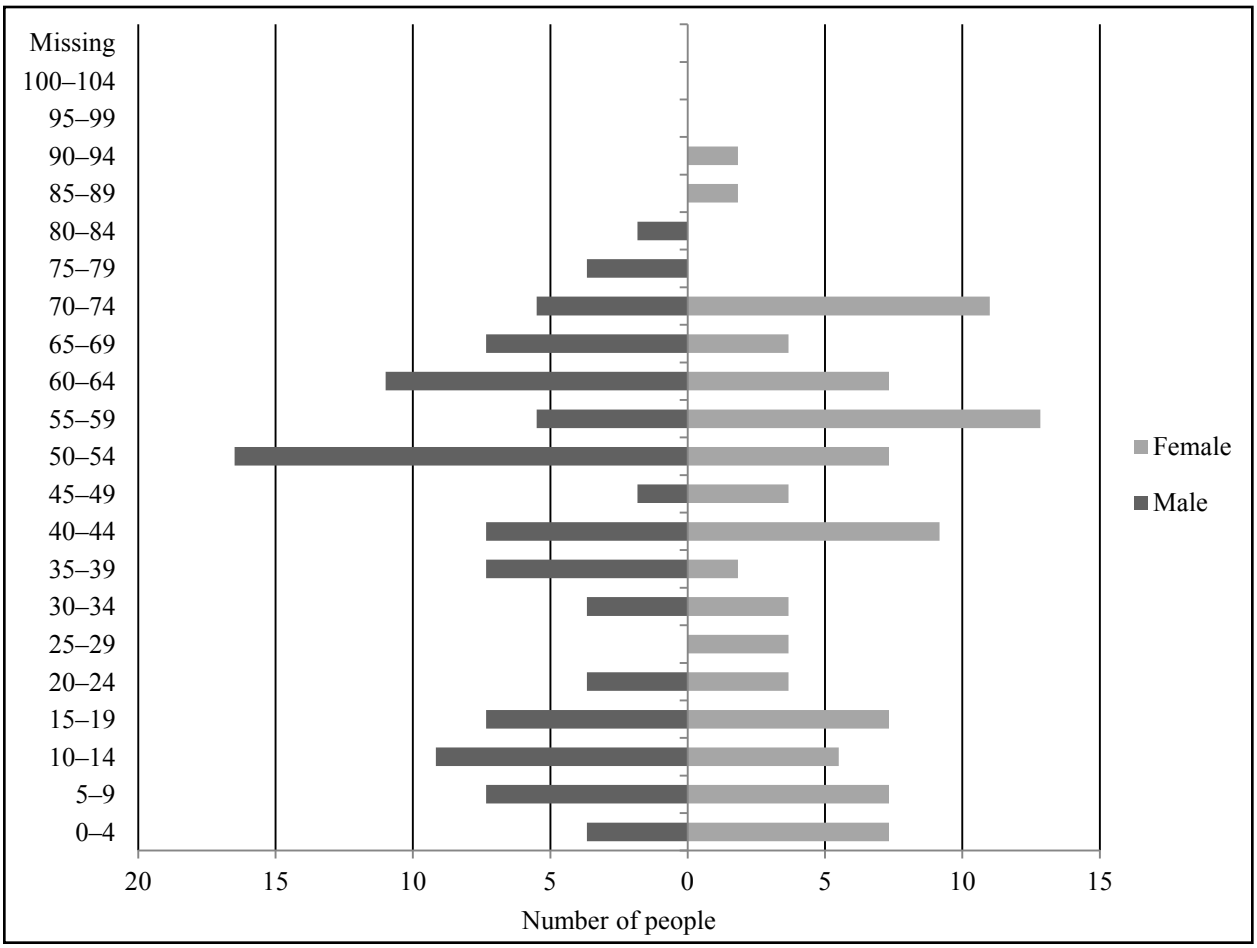


Figure 3-2.–Population profile, Gakona, 2012.

Table 3-5.–Birthplaces of household heads, Gakona, 2012.

Birthplace	Percentage
Anchorage	2.8%
Copper Center	1.4%
Fairbanks	1.4%
Gakona	5.6%
Gulkana	2.8%
Minto	1.4%
Northway	1.4%
Sand Point	1.4%
Other U.S.	77.8%
Foreign	4.2%
Total	**100.0%**

Source ADF&G Division of Subsistence household surveys, 2013.
Note "**B**irthplace" means the residence of the parents of the individual when the individual was born.

Minto, Northway, or Sand Point. In addition, an estimated 4% of Gakona household heads were born outside the United States. Copper Center and Gulkana are within a short driving distance from Gakona.

Cash Employment and Monetary Income

While local employment opportunities in Gakona are limited, the location of Gakona—along the Glenn Highway–Tok Cutoff approximately 15 mi northeast of Glennallen, which is the regional hub for the large Copper River region—enables community residents to travel on the state-maintained highways to nearby communities for work. Among the 4 study communities for study year 2012, the percentage of employed adults who worked year-round was highest in Gakona (Table 6-1).

The majority of income available to Gakona households during study year 2012 came from employment (80%). The estimated per capita earned income was $17,373 (Table 6-1). According to survey results, the mean annual earned income for a Gakona household was $45,501 (Table 3-6). Most of the earned income (22% each) came from employment in construction or with the federal government (Table 3-7). In comparison, the mean other income per Gakona household was $11,247, coming mostly from pensions or retirement, Social Security, or Alaska Permanent Fund dividends (Table 3-6). Pensions or retirement and Social Security were the largest sources of other income for Gakona households; per household income from pensions or retirement averaged $3,559 for the year and income from Social Security was an estimated $3,401 that year. The mean annual total income for a Gakona household during the study year was $56,747. The mean annual total income of Gakona households was the highest among the 4 study communities surveyed for study year 2012 (Table 6-1).

As noted above, in 2012 most of the income available to Gakona households came from employment, specifically from occupations in the construction sector and employment with the federal government (Table 3-6; Table 3-7). A considerable percentage of Gakona households' earned income came from occupations with local and tribal governments (16%), employment in the services sector (12%), and from occupations with state government (11%) (Table 3-7). In terms of number of households, most Gakona households were employed by local and tribal governments (including the school system) (38% of all households) and in occupations in the services sector (32%), or employed by the federal government (32%) (Table 3-7). A number of Gakona residents worked year-round but seasonal employment was not uncommon during study year 2012.

Table 3-8 describes the employment characteristics of Gakona adults for study year 2012. The survey estimated there was a total of 161 adults over age 16 in Gakona; the mean length of employment for all working-age adults in Gakona was approximately 29 weeks (or a little over 7 months). In comparison, the survey found 125 of the 161 adults were employed in 2012. For the 125 employed adults, the mean length of employment was longer, approximately 9 months. The minimum time of employment for the 125 employed adults was 1 month and the maximum 12 months. Approximately 54% of the employed Gakona adults worked year-round. At the household level, approximately 81% (62 households) of the total 77 households

Table 3-6.–Estimated earned and other income, Gakona, 2012.

Income source	Number of people	Number of households	Total for community	Mean per household[a]	Percentage of total[b]
Earned income					
Federal government	22.8	20.2	$754,665	$9,801	17.3%
State government	17.1	12.8	$391,311	$5,082	9.0%
Local government, including tribal	32.3	23.8	$546,277	$7,095	12.5%
Agriculture, forestry, and fishing	9.5	9.2	$176,567	$2,293	4.0%
Mining	1.9	1.8	$55,674	$723	1.3%
Construction	15.2	11.0	$768,306	$9,978	17.6%
Manufacturing	3.8	3.7	$9,862	$128	0.2%
Transportation, communication, and utilities	7.6	7.3	$225,050	$2,923	5.2%
Retail trade	3.8	1.8	$155,093	$2,014	3.5%
Services	32.3	20.2	$420,738	$5,464	9.6%
Earned income subtotal	**125.3**	**62.3**	**$3,503,542**	**$45,501**	**80.2%**
Other income					
Pension or retirement			$274,007	$3,559	6.3%
Social Security			$261,879	$3,401	6.0%
Alaska Permanent Fund dividend			$170,625	$2,216	3.9%
Unemployment			$54,083	$702	1.2%
Supplemental Security income			$41,250	$536	0.9%
Native corporation dividends			$16,795	$218	0.4%
Food stamps			$13,933	$181	0.3%
Energy assistance			$13,750	$179	0.3%
Other			$11,000	$143	0.3%
Longevity bonus			$8,663	$113	0.2%
Adult public assistance			$0	$0	0.0%
Workers' compensation or insurance			$0	$0	0.0%
Child support			$0	$0	0.0%
Foster care			$0	$0	0.0%
Other income subtotal			**$865,985**	**$11,247**	**19.8%**
Community income total			**$4,369,528**	**$56,747**	**100.0%**

Source ADF&G Division of Subsistence household surveys, 2013.

a. The mean is calculated using the total number of households in the community, not the number of households for this income category.

b. Income by category is calculated as a percentage of the total community income from all sources (wage-based income and non-wage-based income).

Table 3-7.–Employment by industry, Gakona, 2012.

Industry	Jobs	Households	Individuals	Percentage of wage earnings
Estimated total number	**161.3**	**62.3**	**125.3**	**100.0%**
Federal government (total)	**14.1%**	**32.4%**	**18.2%**	**21.5%**
Executive, administrative, and managerial	2.4%	5.9%	3.0%	3.4%
Engineers, surveyors, and architects	2.4%	2.9%	3.0%	3.2%
Social scientists, social workers, religious workers, and lawyers	1.2%	2.9%	1.5%	3.0%
Technologists and technicians, except health	3.5%	8.8%	4.5%	5.9%
Administrative support occupations, including clerical	1.2%	2.9%	1.5%	2.2%
Service occupations	2.4%	5.9%	3.0%	3.8%
Handlers, equipment cleaners, helpers, and laborers	1.2%	2.9%	1.5%	0.1%
State government (total)	**10.6%**	**20.6%**	**13.6%**	**11.2%**
Executive, administrative, and managerial	1.2%	2.9%	1.5%	1.5%
Social scientists, social workers, religious workers, and lawyers	1.2%	2.9%	1.5%	0.9%
Technologists and technicians, except health	1.2%	2.9%	1.5%	0.7%
Administrative support occupations, including clerical	3.5%	8.8%	4.5%	5.0%
Construction and extractive occupations	1.2%	2.9%	1.5%	0.4%
Transportation and material moving occupations	1.2%	2.9%	1.5%	2.3%
Handlers, equipment cleaners, helpers, and laborers	1.2%	2.9%	1.5%	0.4%
Local and tribal governments (total)	**23.5%**	**38.2%**	**25.8%**	**15.6%**
Executive, administrative, and managerial	3.5%	8.8%	4.5%	3.9%
Natural scientists and mathematicians	1.2%	2.9%	1.5%	0.2%
Teachers, librarians, and counselors	3.5%	8.8%	4.5%	0.2%
Administrative support occupations, including clerical	3.5%	8.8%	4.5%	4.9%
Service occupations	5.9%	11.8%	6.1%	1.6%
Construction and extractive occupations	2.4%	5.9%	3.0%	3.0%
Transportation and material moving occupations	2.4%	5.9%	3.0%	1.9%
Handlers, equipment cleaners, helpers, and laborers	1.2%	2.9%	1.5%	0.0%
Agriculture, forestry, and fishing (total)	**5.9%**	**14.7%**	**7.6%**	**5.0%**
Executive, administrative, and managerial	1.2%	2.9%	1.5%	2.3%
Marketing and sales occupations	1.2%	2.9%	1.5%	0.0%
Agricultural, forestry, and fishing occupations	3.5%	8.8%	4.5%	2.7%
Mining (total)	**1.2%**	**2.9%**	**1.5%**	**1.6%**
Construction and extractive occupations	1.2%	2.9%	1.5%	1.6%
Construction (total)	**9.4%**	**17.6%**	**12.1%**	**21.9%**
Executive, administrative, and managerial	2.4%	5.9%	3.0%	13.4%
Construction and extractive occupations	4.7%	5.9%	6.1%	4.1%
Handlers, equipment cleaners, helpers, and laborers	2.4%	5.9%	3.0%	4.4%
Manufacturing (total)	**2.4%**	**5.9%**	**3.0%**	**0.3%**
Writers, artists, entertainers, and athletes	2.4%	5.9%	3.0%	0.3%
Transportation, communication, and utilities (total)	**4.7%**	**11.8%**	**6.1%**	**6.4%**
Transportation and material moving occupations	4.7%	11.8%	6.1%	6.4%

-continued-

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Industry	Jobs	Households	Individuals	Percentage of wage earnings
Retail trade (total)	**7.1%**	**2.9%**	**3.0%**	**3.6%**
Executive, administrative, and managerial	5.9%	8.8%	6.1%	4.4%
Services (total)	**25.9%**	**32.4%**	**25.8%**	**12.0%**
Executive, administrative, and managerial	7.1%	11.8%	9.1%	5.5%
Social scientists, social workers, religious workers, and lawyers	2.4%	5.9%	3.0%	1.6%
Marketing and sales occupations	7.1%	2.9%	3.0%	3.6%
Service occupations	5.9%	8.8%	6.1%	1.0%
Mechanics and repairers	1.2%	2.9%	1.5%	0.2%
Handlers, equipment cleaners, helpers, and laborers	2.4%	5.9%	3.0%	0.1%

Source ADF&G Division of Subsistence household surveys, 2013.

Table 3-8.–Employment characteristics, Gakona, 2012.

Characteristic	Community Gakona
All adults	
Number	161.3
Mean weeks employed	29.2
Employed adults	
Number	125.3
Percentage	77.6%
Jobs	
Number	161.3
Mean	1.3
Minimum	1
Maximum	3
Months employed	
Mean	8.7
Minimum	1
Maximum	12
Percentage employed year-round	54.1%
Mean weeks employed	37.5
Households	
Number	77.0
Employed	
Number	62.3
Percentage	81.0%
Jobs per employed household	
Mean	2.1
Minimum	1
Maximum	6
Employed adults	
Mean	
Employed households	2.0
Total households	1.6
Minimum	
Employed households	1
Maximum	
Employed households	2
Mean person-weeks of employment	43.0

Source ADF&G Division of Subsistence household surveys, 2013.

in the community contained at least 1 household member who was employed. The mean number of jobs for employed Gakona households was 2.1.

Levels of Individual Participation in the Harvesting and Processing of Wild Resources

Table 3-9 reports the expanded levels of individual participation in the harvest and processing of wild resources by all Gakona residents in 2012. The majority (87%) of Gakona residents attempted to harvest some wild resources in 2012. With reference to specific resource categories, 86% of all residents gathered plants (including berries), 71% fished, 43% hunted for large land mammals, 27% hunted for birds, and 25% hunted or trapped for small land mammals. Interestingly, a high percentage (92%) of Gakona residents engaged in processing some wild resources. Most residents (86%) participated in processing plants followed by 74% of the population participating in processing fish. Fewer individuals (49%) participated in processing large land mammals, and 26% participated in processing small land mammals. The least number (24%) of individuals participated in processing birds.

For the most part, Gakona residents' individual participation in harvesting and processing of wild resource was evenly distributed among the different resource categories; a few more individuals participated in processing small land mammals rather than hunting for them. In comparison, a few more Gakona residents hunted for birds rather than processed them.

The survey included questions about participation in craft activities relating to subsistence efforts or using subsistence resources. In Gakona, 22% of residents built or repaired fish wheels or helped to place or remove a fish wheel. In 2012, 16% of residents sewed skins and 83% of residents cooked wild foods.

Household Resource Harvest and Use Patterns and Sharing of Wild Resources

Table 3-10 summarizes resource harvest and use characteristics for Gakona in 2012 at the household level. Most households (98%) used wild resources in 2012, while 93% attempted to harvest or harvested resources. The average harvest was 449 lb usable weight per household, or 171 lb per capita. During the study year, households harvested an average of 8 kinds of resources and used an average of 11 kinds of resources. The maximum number of resources used by any household was 32. In addition, households gave away an average of 4 kinds of resources and an estimated 79% of households shared resources with other households.

Previous studies by the Division of Subsistence (Wolfe 1987; Wolfe et al. 2010) have shown that in most rural Alaska communities, a relatively small portion of households produces most of the community's fish and wildlife harvests, which they share with other households. A recent study of 3,265 households in 66 rural Alaska communities found that about 33% of the households accounted for 76% of subsistence harvests (Wolfe et al. 2010). Although overall the set of very productive households was diverse, factors that were

Table 3-9.–Individual participation in subsistence harvesting, processing, and craft activities, Gakona, 2012.

			Gakona
Estimated population			**201.7**
Fish			
	Fish		
		Number	143.0
		Percentage	70.9%
	Process		
		Number	148.5
		Percentage	73.6%
Large land mammals			
	Hunt		
		Number	86.2
		Percentage	42.7%
	Process		
		Number	99.0
		Percentage	49.1%
Small land mammals or furbearers			
	Hunt or trap		
		Number	49.5
		Percentage	24.5%
	Process		
		Number	53.2
		Percentage	26.4%
Birds and eggs			
	Hunt		
		Number	55.0
		Percentage	27.3%
	Process		
		Number	47.7
		Percentage	23.6%
Berries, plants, or wood			
	Gather		
		Number	172.3
		Percentage	85.5%
	Process		
		Number	172.3
		Percentage	85.5%

-continued-

Table 3-9.–Page 2 of 2.

		Gakona
Any resource		
	Attempt	
	Number	176.0
	Percentage	87.3%
	Process	
	Number	185.2
	Percentage	91.8%
Build, maintain, or place fish wheels		
	Number	44.0
	Percentage	21.8%
Sew skins or cloth		
	Number	33.0
	Percentage	16.4%
Cook wild foods		
	Number	166.8
	Percentage	82.7%

Source ADF&G Division of Subsistence household surveys, 2013.

associated with higher levels of subsistence harvests included larger households with a pool of adult male labor, higher wage income, involvement in commercial fishing, and community location.

As shown in Figure 3-3, in the 2012 study year in Gakona, about 70% of the wild resource harvest, as estimated in usable pounds, was harvested by 23% of the community's households. Further analysis of the study findings, beyond the scope of this report, might identify characteristics of the highly productive households in Gakona and the other Copper River Basin study communities.

The survey included questions about Gakona residents' use of alternative or motorized modes of transportation to access wild food harvest areas. Figure 3-4 demonstrates the percentage of community households that used alternate means of transportation (in addition to or aside from using cars, trucks, or traveling on foot). The figure also shows whether the equipment used was chartered, leased, or borrowed, or was an owned a piece of personal property. The most commonly used means of surface transportation was an ATV; 30% of Gakona households used an ATV for attempting to harvest and harvesting wild resources and nearly the same percentage of Gakona households used snowmachines (29%) or boats (25%). A much smaller percentage of households (7%) used an aircraft while pursuing and harvesting wild resources. For study year 2012, Gakona households did not report using any dogsleds for accessing wild resource harvest and use areas.

Figure 3-4 also portrays ownership of alternative modes transportation. While 30% of Gakona households

Table 3-10.–Resource harvest and use characteristics, Gakona, 2012.

Characteristic	Community Gakona
Number of resources used per household	
Mean	11.0
Minimum	0
Maximum	32
95% confidence limit (±)	13.1%
Median	15
Number of resources attempted per household	
Mean	9.0
Minimum	0
Maximum	29
95% confidence limit (±)	16.5%
Median	10.5
Number of resources harvested per household	
Mean	7.7
Minimum	0
Maximum	28
95% confidence limit (±)	17.1%
Median	9
Number of resources received per household	
Mean	4.9
Minimum	0
Maximum	23
95% confidence limit (±)	17.1%
Median	8
Number of resources given away per household	
Mean	3.8
Minimum	0
Maximum	27
95% confidence limit (±)	26.4%
Median	4.5
Household harvest (pounds)	
Mean	449.0
Minimum	0
Maximum	2,944
95% confidence limit (±)	28.0%
Median	397.5
Total estimated harvest weight (pounds)	34,570.1
Community per capita estimated harvest (pounds)	171.4
Percentage of households using any resource	97.6%
Percentage of households attempting to harvest any resource	92.9%
Percentage of households harvesting any resource	92.9%
Percentage of households receiving any resource	92.9%
Percentage of households giving away any resource	78.6%
Number of households in sample	42
Number of resources available	111

Source ADF&G Division of Subsistence household surveys, 2013.

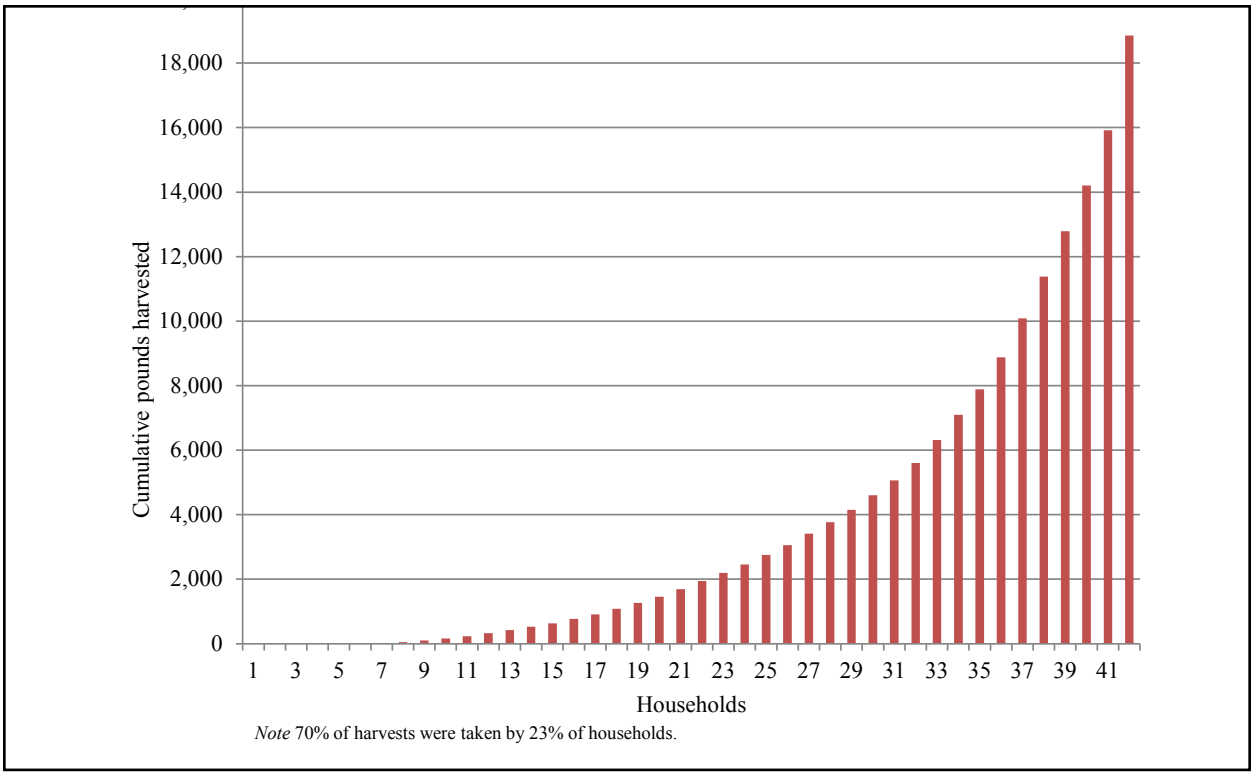

Figure 3-3.–Household specialization, Gakona, 2012.

used an ATV while attempting to harvest wild resources, 25% of the households owned the ATV and 5% borrowed the ATV they used. In comparison, all of the Gakona households owned the snowmachine that they reported using. Fourteen percent of Gakona households used an owned the boat, 5% borrowed a boat, and 3% leased or chartered the boat they used for harvesting wild resources in 2012. While 7% of households reported the use of aircraft for harvest efforts, 3% owned, 3% chartered, and 1% borrowed the aircraft.

In addition, the survey asked about Gakona household members' use of portable motorized equipment while attempting to harvest or harvesting wild resources during the study year. Figure 3-5 shows that a chain saw was the most commonly used motorized equipment having been operated by 44% of Gakona households for harvesting purposes. In addition, 18% of community households reported using an ice auger and another 18% used a winch while harvesting wild resources. Furthermore, 9% of Gakona households reported using a generator and 5% used another type of portable or motorized equipment for harvesting purposes.

Another survey question focused on documenting study community households' use of natural materials for handicrafts. Figure 3-6 shows that overall in 2012, only a very small percentage of Gakona households reported making handicrafts from natural materials; 6% said they had used antlers for handicrafts, and 4% reported using bark. More households (9%) said they had used some other natural materials, such as diamond willow, for making handicrafts during the study year.

Firewood is important for Gakona residents as a source of household heat; many households combine

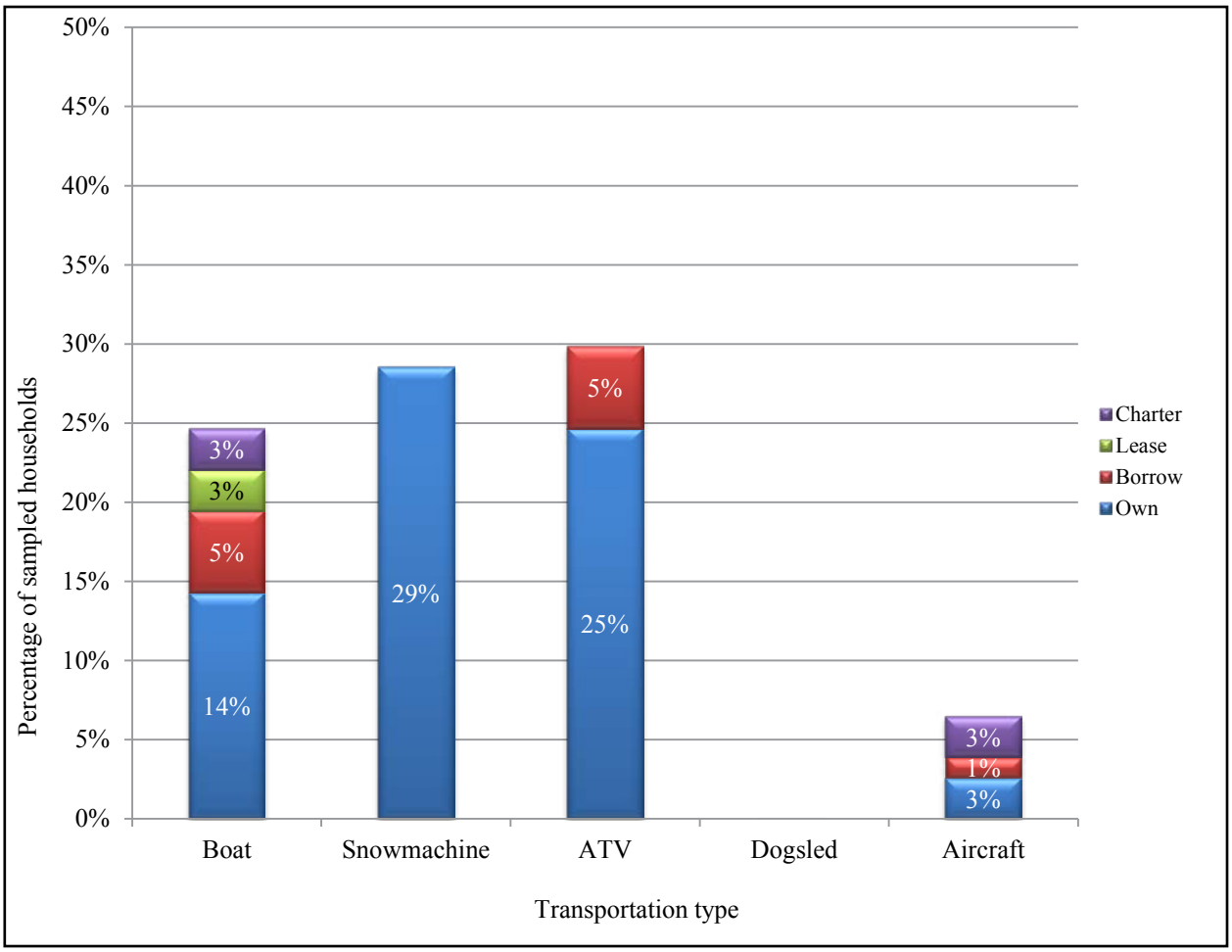

Figure 3-4.–Alternative modes of transportation used by sampled households to access wild resources, Gakona, 2012.

firewood with heating oil to stay warm during the coldest months of the year. A few Gakona households rely entirely on firewood to heat their homes; according to the survey results 5 households (12%) of the 42 interviewed Gakona households heat their homes only with firewood (Table 3-11). The majority (36%) of sampled Gakona households reported relying mostly (76%–99% of their home heat) on firewood as a source of home heat. Nine sampled households said they do not use any firewood as a source of their home heating. Compared to the other study communities, Gakona has the smallest percentage of sampled households relying on firewood as the single source of home heat. The survey also asked Gakona residents about the annual

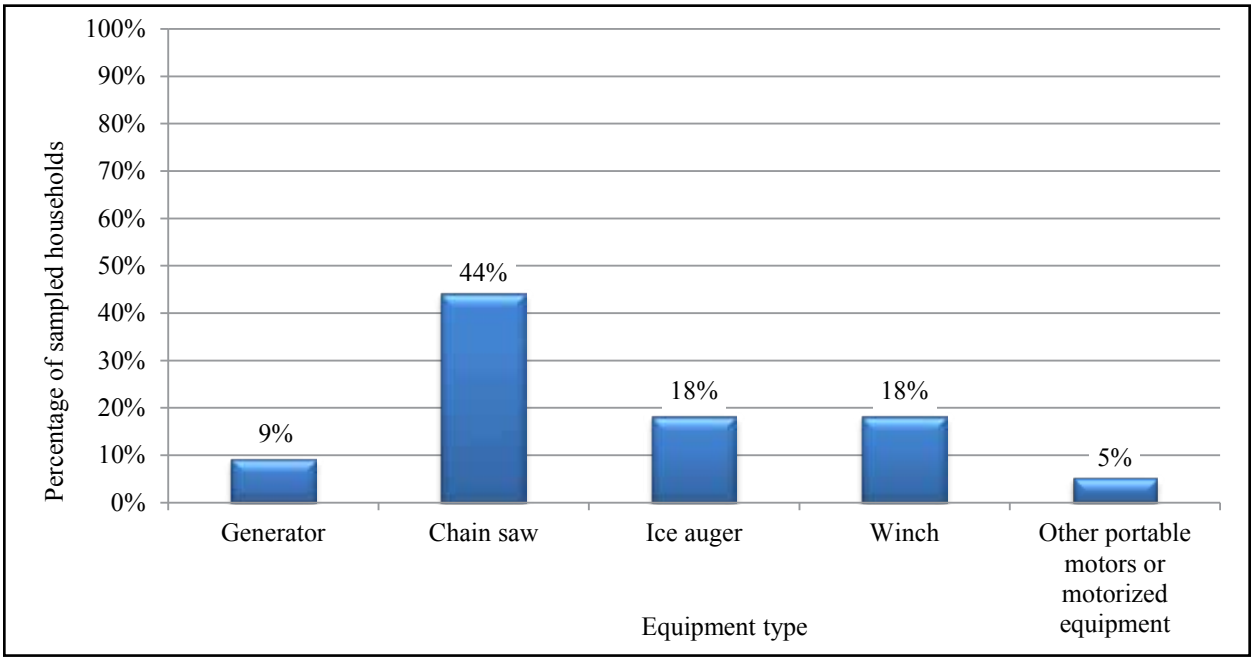

Figure 3-5.–Portable motorized equipment used by sampled households while searching for and harvesting wild resources, Gakona, 2012.

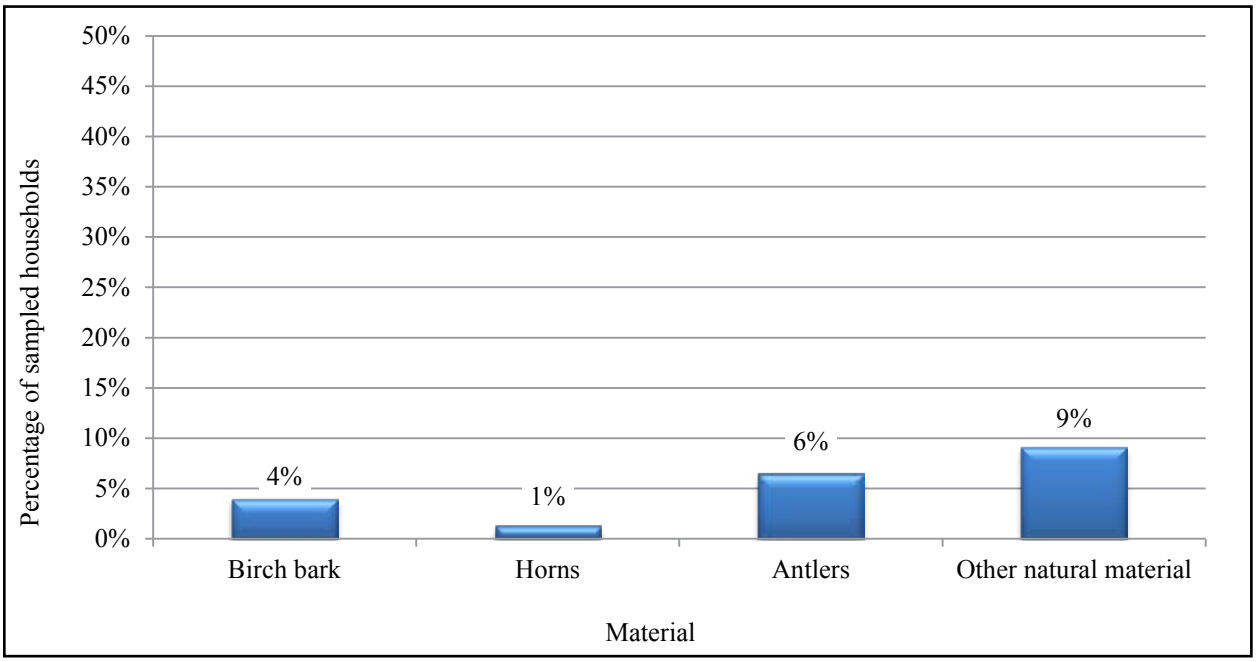

Figure 3-6.–Natural materials used by sampled households for making handicrafts, Gakona, 2012.

Table 3-11.–Use of firewood for home heating in sampled households, Gakona, 2012.

Community	Average annual cost of home heating	Household use of wood for home heating as a percentage of total fuel for heating											
		0%		1%–25%		26%–50%		51%–75%		76%–99%		100%	
		Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Gakona	$4,333	9	21.4%	2	4.8%	1	2.4%	10	23.8%	15	35.7%	5	11.9%

Source ADF&G Division of Subsistence household surveys, 2013.

cost of their home heating. Based on survey results, the calculated average annual cost of home heating in Gakona in 2012 was $4,333.

Harvest Quantities and Composition

Table 3-12 reports estimated wild resource harvests and uses by Gakona residents in 2012 and is organized first by general category and then by species. All edible resources are reported in pounds usable weight (see Appendix B for conversion factors[3]). The harvest category includes resources harvested by any member of the surveyed household during the study year. The use category includes all resources taken, given away, or used by a household, and resources acquired from other harvesters, either as gifts, by barter or trade, through hunting partnerships, or as meat given by hunting guides and non-local hunters. Purchased foods are not included but resources such as firewood are included because they are an important part of the subsistence way of life. Differences between harvest and use percentages reflect sharing among households, which results in a wider distribution of wild foods.

According to survey results, Gakona residents harvested an estimated total of 34,570 lb of wild resources in 2012 (Table 3-12). At the household level, the average harvest was 449 lb and at the individual level the per capita harvest was 171 lb. Salmon made up most (56%) of the overall harvest totaling 19,348 lb, or 96 lb per capita (Figure 3-7; Table 3-12). Large land mammals was the second most harvested resource category (24%) with the community harvest totaling 8,278 lb, or 41 lb per capita. The third most harvested resource category was nonsalmon fish at 10% of the harvest, or approximately 17 lb per capita. The remaining resource categories—small land mammals, vegetation, birds and eggs, and marine invertebrates—each contributed to the overall harvest substantially less than the 3 categories listed above (Table 3-12; Figure 3-7). Out of these 4 smaller resource categories, small land mammals composed the next largest (6%) portion of the overall harvest; the total community harvest was 2,089 lb, or approximately 10 lb per capita (Table 3-12). Vegetation harvests composed 3% of the overall harvest (1,048 lb, or 5 lb per capita). The harvests of both marine invertebrates and birds and eggs each made up approximately 1% of the community's total wild resource harvest in 2012 (Figure 3-7).

Seasonal Round

Gakona residents harvest wild resources throughout the year and, like most rural Alaska communities, they target specific species at certain seasons of the year following a cyclical harvest pattern. This seasonal harvest pattern is defined in part by seasonal resource availability, and in part by laws, regulations, and land access. A small number of Gakona residents have access to small airplanes or marine boats and use these modes of transportation to travel to more distant wild resource search and harvest areas (e.g., to Prince William Sound). However, the majority of Gakona residents' resource search and harvest activities take place

3. Resources that are not eaten, such as firewood and some furbearers, are included in the table but are given a conversion factor of zero.

Table 3-12.–Estimated harvests and uses of fish, game, and vegetation resources, Gakona, 2012.

Resource	Percentage of households					Harvest weight (lb)			Harvest quantity[a]			95% confidence limit (±) harvest
	Use	Attempt	Harvest	Receive	Give	Total	Mean per household	Per capita	Total	Unit	Mean per household	
All resources	**97.6%**	**92.9%**	**92.9%**	**92.9%**	**78.6%**	**34,570.1**	**449.0**	**171.4**	**8,542**		**110.9**	**28.0%**
Fish	**95.2%**	**83.3%**	**83.3%**	**88.1%**	**69.0%**	**22,714.0**	**295.0**	**112.6**	**6,178**		**80.2**	**30.2%**
Salmon	**92.9%**	**73.8%**	**73.8%**	**76.2%**	**64.3%**	**19,348.4**	**251.3**	**95.9**	**3,764**		**48.9**	**29.9%**
Chum salmon	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Coho salmon	9.5%	7.1%	7.1%	7.1%	4.8%	270.3	3.5	1.3	44	ind	0.6	81.7%
Chinook salmon	47.6%	40.5%	33.3%	16.7%	11.9%	1,880.2	24.4	9.3	123	ind	1.6	71.3%
Pink salmon	2.4%	2.4%	2.4%	0.0%	0.0%	5.3	0.1	0.0	2	ind	0.0	136.2%
Sockeye salmon	92.9%	73.8%	73.8%	76.2%	64.3%	17,124.5	222.4	84.9	3,544	ind	46.0	28.6%
Landlocked salmon	4.8%	4.8%	4.8%	0.0%	2.4%	47.7	0.6	0.2	48	ind	0.6	108.6%
Salmon (unspecified)	2.4%	2.4%	2.4%	0.0%	0.0%	20.4	0.3	0.1	4	ind	0.0	136.2%
Nonsalmon fish	**76.2%**	**50.0%**	**50.0%**	**54.8%**	**26.2%**	**3,365.6**	**43.7**	**16.7**	**2,415**		**31.4**	**55.1%**
Pacific herring	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	gal	0.0	0.0%
Pacific herring roe	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Pacific herring sac roe	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	gal	0.0	0.0%
Pacific herring spawn on kelp	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	gal	0.0	0.0%
Smelt	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	gal	0.0	0.0%
Cod	7.1%	2.4%	2.4%	7.1%	2.4%	220.0	2.9	1.1	55		0.7	136.2%
Pacific (gray) cod	7.1%	2.4%	2.4%	7.1%	2.4%	220.0	2.9	1.1	55	ind	0.7	136.2%
Pacific tomcod	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Flounder	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Starry flounder	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Greenling	14.3%	9.5%	9.5%	7.1%	2.4%	149.6	1.9	0.7	62		0.8	120.1%
Lingcod	14.3%	9.5%	9.5%	7.1%	2.4%	149.6	1.9	0.7	62	ind	0.8	120.1%
Pacific halibut	52.4%	16.7%	16.7%	40.5%	19.0%	1,356.7	17.6	6.7	1,357	lb	17.6	61.5%
Arctic lamprey	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Rockfish	19.0%	11.9%	11.9%	9.5%	9.5%	543.7	7.1	2.7	152		2.0	72.1%
Black rockfish	2.4%	2.4%	2.4%	0.0%	2.4%	33.0	0.4	0.2	22	ind	0.3	136.2%
Yelloweye rockfish	4.8%	2.4%	2.4%	2.4%	2.4%	19.4	0.3	0.1	7	ind	0.1	136.2%
Rockfish (unspecified)	16.7%	9.5%	9.5%	9.5%	7.1%	491.3	6.4	2.4	123	ind	1.6	79.1%
Sablefish (black cod)	2.4%	2.4%	2.4%	2.4%	2.4%	113.7	1.5	0.6	37	ind	0.5	136.2%
Sculpin	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Char	23.8%	23.8%	21.4%	9.5%	7.1%	356.8	4.6	1.8	213		2.8	52.2%
Burbot	26.2%	23.8%	19.0%	9.5%	9.5%	224.4	2.9	1.1	94	ind	1.2	55.1%

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Table 3-12.–Page 2 of 5.

Resource	Percentage of households					Harvest weight (lb)			Harvest quantity[a]			95% confidence limit (±) harvest
	Use	Attempt	Harvest	Receive	Give	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Nonsalmon fish, continued												
Dolly Varden	11.9%	9.5%	9.5%	4.8%	2.4%	56.1	0.7	0.3	62	ind	0.8	101.8%
Lake trout	16.7%	19.0%	16.7%	4.8%	4.8%	300.7	3.9	1.5	150	ind	2.0	58.2%
Arctic grayling	21.4%	19.0%	14.3%	9.5%	4.8%	237.4	3.1	1.2	339	ind	4.4	79.6%
Northern pike	2.4%	2.4%	2.4%	0.0%	2.4%	51.3	0.7	0.3	18	ind	0.2	136.2%
Longnose sucker	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Trout	11.9%	14.3%	11.9%	4.8%	2.4%	74.4	1.0	0.4	53		0.7	80.8%
Cutthroat trout	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Rainbow trout	11.9%	14.3%	11.9%	4.8%	2.4%	74.4	1.0	0.4	53	ind	0.7	80.8%
Trout (unspecified)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Whitefishes	11.9%	9.5%	7.1%	4.8%	0.0%	37.6	0.5	0.2	35		0.5	88.0%
Broad whitefish	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Cisco	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Least cisco	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Humpback whitefish	2.4%	2.4%	2.4%	0.0%	0.0%	6.4	0.1	0.0	4	ind	0.0	136.2%
Round whitefish	7.1%	7.1%	4.8%	2.4%	0.0%	31.2	0.4	0.2	31	ind	0.4	103.2%
Whitefishes (unspecified)	2.4%	0.0%	0.0%	2.4%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Land mammals	**85.7%**	**57.1%**	**38.1%**	**73.8%**	**33.3%**	**10,366.8**	**134.6**	**51.4**	**1,067**		**13.9**	**40.2%**
Large land mammals	**83.3%**	**57.1%**	**33.3%**	**73.8%**	**33.3%**	**8,277.5**	**107.5**	**41.0**	**33**		**0.4**	**34.9%**
Bison	2.4%	0.0%	0.0%	2.4%	2.4%	0.0	0.0	0.0	0	ind	0.0	0.0%
Black bear	21.4%	2.4%	0.0%	21.4%	2.4%	0.0	0.0	0.0	0	ind	0.0	0.0%
Brown bear	2.4%	4.8%	0.0%	2.4%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Caribou	50.0%	35.7%	19.0%	33.3%	16.7%	2,383.3	31.0	11.8	18	ind	0.2	47.0%
Deer	11.9%	2.4%	0.0%	11.9%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Mountain goat	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Moose	81.0%	47.6%	16.7%	54.8%	21.4%	5,775.0	75.0	28.6	13	ind	0.2	47.5%
Dall sheep	16.7%	7.1%	2.4%	9.5%	4.8%	119.2	1.5	0.6	2	ind	0.0	136.2%
Small land mammals	**31.0%**	**28.6%**	**26.2%**	**11.9%**	**9.5%**	**2,089.3**	**27.1**	**10.4**	**1,034**		**13.4**	**125.4%**
Beaver	11.9%	11.9%	11.9%	2.4%	7.1%	1,952.5	25.4	9.7	227	ind	3.0	134.2%
Coyote	4.8%	7.1%	4.8%	0.0%	0.0%	0.0	0.0	0.0	20	ind	0.3	104.9%
Fox	11.9%	9.5%	7.1%	4.8%	0.0%	0.0	0.0	0.0	77		1.0	107.0%
Red fox	11.9%	9.5%	7.1%	4.8%	0.0%	0.0	0.0	0.0	77		1.0	107.0%
Red fox–cross phase	4.8%	7.1%	4.8%	0.0%	0.0%	0.0	0.0	0.0	20	ind	0.3	104.9%
Red fox–red phase	11.9%	9.5%	7.1%	4.8%	0.0%	0.0	0.0	0.0	57	ind	0.7	108.0%

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Table 3-12.–Page 3 of 5.

Resource	Percentage of households					Harvest weight (lb)			Harvest quantity[a]			95% confidence limit (±) harvest
	Use	Attempt	Harvest	Receive	Give	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Small land mammals, continued												
Hare	7.1%	11.9%	7.1%	0.0%	0.0%	36.7	0.5	0.2	18		0.2	88.9%
Snowshoe hare	7.1%	11.9%	7.1%	0.0%	0.0%	36.7	0.5	0.2	18	ind	0.2	88.9%
North American river (land) otter	4.8%	4.8%	4.8%	0.0%	0.0%	0.0	0.0	0.0	20	ind	0.3	113.5%
Lynx	9.5%	9.5%	9.5%	0.0%	4.8%	44.0	0.6	0.2	350	ind	4.5	136.2%
Marmot	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Marten	7.1%	9.5%	7.1%	0.0%	0.0%	0.0	0.0	0.0	108	ind	1.4	87.1%
Mink	2.4%	2.4%	2.4%	0.0%	0.0%	0.0	0.0	0.0	11	ind	0.1	136.2%
Muskrat	2.4%	4.8%	2.4%	0.0%	0.0%	39.6	0.5	0.2	46	ind	0.6	136.2%
Porcupine	7.1%	4.8%	2.4%	4.8%	2.4%	16.5	0.2	0.1	4	ind	0.0	136.2%
Squirrel	2.4%	2.4%	2.4%	0.0%	0.0%	0.0	0.0	0.0	2		0.0	136.2%
Arctic ground (parka) squirrel	2.4%	2.4%	2.4%	0.0%	0.0%	0.0	0.0	0.0	2	ind	0.0	136.2%
Red (tree) squirrel	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Weasel	4.8%	7.1%	4.8%	0.0%	0.0%	0.0	0.0	0.0	92	ind	1.2	97.1%
Gray wolf	2.4%	4.8%	2.4%	0.0%	0.0%	0.0	0.0	0.0	55	ind	0.7	136.2%
Wolverine	4.8%	7.1%	4.8%	0.0%	0.0%	0.0	0.0	0.0	4	ind	0.0	95.1%
Birds and eggs	**38.1%**	**35.7%**	**35.7%**	**7.1%**	**9.5%**	**206.1**	**2.7**	**1.0**	**332**		**4.3**	**49.7%**
Migratory birds	**9.5%**	**4.8%**	**4.8%**	**4.8%**	**0.0%**	**12.3**	**0.2**	**0.1**	**15**		**0.2**	**102.9%**
Ducks	9.5%	4.8%	4.8%	4.8%	0.0%	10.1	0.1	0.1	13		0.2	98.7%
Canvasback	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Eider	0.0%	0.0%	0.0%	0.0%	0.0%	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	0.0	0.0	0	ind	0.0	0.0%
Goldeneye	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Mallard	2.4%	2.4%	2.4%	0.0%	0.0%	3.7	0.0	0.0	4		0.0	136.2%
Northern pintail	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Scoter	2.4%	0.0%	0.0%	2.4%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Black scoter	2.4%	0.0%	0.0%	2.4%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Teal	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Green-winged teal	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Duck (unspecified)	4.8%	2.4%	2.4%	2.4%	0.0%	6.4	0.1	0.0	9		0.1	136.2%
Geese	4.8%	2.4%	2.4%	2.4%	0.0%	2.2	0.0	0.0	2		0.0	136.2%
Brant	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Canada/cackling goose	4.8%	2.4%	2.4%	2.4%	0.0%	2.2	0.0	0.0	2		0.0	136.2%
Cackling goose	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%

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Table 3-12.–Page 4 of 5.

Resource	Percentage of households					Harvest weight (lb)			Harvest quantity[a]			95% confidence limit (±)
	Use	Attempt	Harvest	Receive	Give	Total	Mean per household	Per capita	Total	Unit	Mean per household	harvest
Migratory birds, continued												
Canada goose	2.4%	2.4%	2.4%	0.0%	0.0%	2.2	0.0	0.0	2	ind	0.0	136.2%
Canada/cackling goose (unspecified)	2.4%	0.0%	0.0%	2.4%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Emperor goose	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Snow goose	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
White-fronted goose	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Goose (unspecified)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Swan	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Tundra (whistling) swan	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Crane	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Sandhill crane	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Other birds	**33.3%**	**33.3%**	**33.3%**	**2.4%**	**9.5%**	**193.8**	**2.5**	**1.0**	**317**		**4.1**	**52.9%**
Upland game birds	33.3%	33.3%	33.3%	2.4%	9.5%	193.8	2.5	1.0	317		4.1	52.9%
Grouse	31.0%	31.0%	31.0%	2.4%	9.5%	123.2	1.6	0.6	176		2.3	44.8%
Spruce grouse	28.6%	28.6%	28.6%	2.4%	9.5%	111.7	1.5	0.6	160	ind	2.1	47.4%
Sharp-tailed grouse	7.1%	7.1%	7.1%	0.0%	0.0%	9.0	0.1	0.0	13	ind	0.2	87.7%
Ruffed grouse	2.4%	2.4%	2.4%	0.0%	0.0%	2.6	0.0	0.0	4	ind	0.0	136.2%
Ptarmigan	16.7%	19.0%	16.7%	0.0%	7.1%	70.6	0.9	0.4	141		1.8	76.4%
Bird eggs	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0**	**0.0**	**0.0**	**0**		**0.0**	**0.0%**
Duck eggs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Goose eggs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Seabird and loon eggs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Gull eggs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Eggs (unspecified)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Marine invertebrates	**26.2%**	**7.1%**	**7.1%**	**23.8%**	**11.9%**	**235.1**	**3.1**	**1.2**	**230**		**3.0**	**94.5%**
Clams	2.4%	2.4%	2.4%	2.4%	0.0%	8.3	0.1	0.0	3		0.0	136.2%
Freshwater clams	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	gal	0.0	0.0%
Razor clams	2.4%	2.4%	2.4%	2.4%	0.0%	8.3	0.1	0.0	3	gal	0.0	136.2%
Crabs	4.8%	0.0%	0.0%	4.8%	2.4%	0.0	0.0	0.0	0		0.0	0.0%
Dungeness crab	2.4%	0.0%	0.0%	2.4%	0.0%	0.0	0.0	0.0	0	lb	0.0	0.0%
King crab	4.8%	0.0%	0.0%	4.8%	2.4%	0.0	0.0	0.0	0	lb	0.0	0.0%
Tanner crab	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	lb	0.0	0.0%
Octopus	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Shrimp	21.4%	7.1%	7.1%	19.0%	9.5%	226.9	2.9	1.1	227	lb	2.9	93.2%

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Table 3-12.–Page 5 of 5.

Resource	Percentage of households					Harvest weight (lb)			Harvest quantity[a]			95% confidence limit (±) harvest
	Use	Attempt	Harvest	Receive	Give	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Marine invertebrates, continued												
Squid	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	gal	0.0	0.0%
Vegetation	**92.9%**	**90.5%**	**90.5%**	**50.0%**	**61.9%**	**1,048.2**	**13.6**	**5.2**	**735**		**9.5**	**31.7%**
Berries	**76.2%**	**73.8%**	**69.0%**	**38.1%**	**35.7%**	**909.6**	**11.8**	**4.5**	**227**		**3.0**	**33.4%**
Blueberry	73.8%	64.3%	61.9%	28.6%	28.6%	469.3	6.1	2.3	117	gal	1.5	39.7%
Lowbush cranberry	47.6%	45.2%	42.9%	16.7%	16.7%	188.6	2.4	0.9	47	gal	0.6	47.7%
Highbush cranberry	14.3%	14.3%	14.3%	4.8%	9.5%	69.7	0.9	0.3	17	gal	0.2	68.8%
Crowberry	9.5%	9.5%	9.5%	0.0%	2.4%	6.0	0.1	0.0	1	gal	0.0	88.0%
Currants	2.4%	0.0%	0.0%	2.4%	0.0%	0.0	0.0	0.0	0	gal	0.0	0.0%
Raspberry	50.0%	50.0%	45.2%	7.1%	19.0%	167.8	2.2	0.8	42	gal	0.5	39.9%
Salmonberry	2.4%	2.4%	2.4%	0.0%	2.4%	7.3	0.1	0.0	2	gal	0.0	136.2%
Serviceberry	2.4%	2.4%	2.4%	0.0%	2.4%	0.9	0.0	0.0	0	gal	0.0	136.2%
Other wild berry	2.4%	0.0%	0.0%	2.4%	0.0%	0.0	0.0	0.0	0	gal	0.0	0.0%
Plants, greens, and mushrooms	**35.7%**	**38.1%**	**35.7%**	**11.9%**	**19.0%**	**138.6**	**1.8**	**0.7**	**104**		**1.4**	**69.0%**
Hudson's Bay (Labrador) tea	7.1%	7.1%	7.1%	0.0%	4.8%	3.8	0.0	0.0	4	gal	0.0	92.8%
Wild rose hips	9.5%	9.5%	9.5%	2.4%	4.8%	45.8	0.6	0.2	11	gal	0.1	110.5%
Other wild greens	4.8%	4.8%	2.4%	2.4%	4.8%	9.4	0.1	0.0	9	gal	0.1	136.2%
Mushrooms (unspecified)	31.0%	31.0%	28.6%	7.1%	11.9%	73.6	1.0	0.4	74	gal	1.0	80.2%
Fireweed	7.1%	7.1%	7.1%	2.4%	2.4%	6.0	0.1	0.0	6	gal	0.1	83.2%
Wood	**83.3%**	**81.0%**	**81.0%**	**23.8%**	**33.3%**	**0.0**	**0.0**	**0.0**	**404**		**5.2**	**22.2%**
Wood (unspecified)	19.0%	19.0%	19.0%	2.4%	7.1%	0.0	0.0	0.0	9	cord	0.1	86.9%
Firewood	83.3%	78.6%	78.6%	21.4%	26.2%	0.0	0.0	0.0	395	cord	5.1	21.7%

Source ADF&G Division of Subsistence household surveys, 2013.

Note For small land mammals, species that are not typically eaten show a non-zero harvest quantity with a zero harvest weight. Harvest weight is not calculated for species harvested but not eaten.

a. Summary rows that include incompatible units of measure have been left blank.

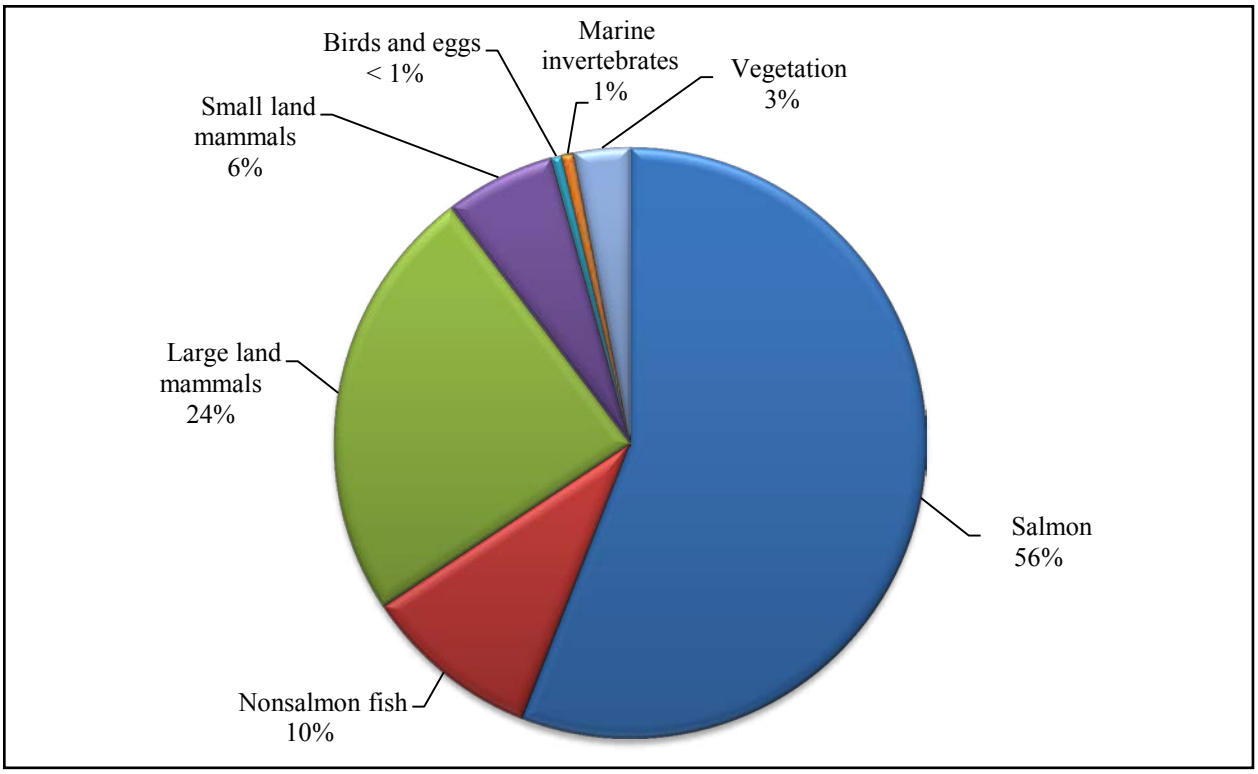

Figure 3-7.–Composition of harvest by resource category in pounds usable weight, Gakona, 2012.

close to the community or in the larger Copper River Basin area (Figure 3-8). Besides airplanes and boats, motorized vehicles such as highway vehicles, 4-wheelers, and snowmachines are commonly used modes of transportation used by Gakona residents (discussed above). Another reported mode of transportation employed by Gakona residents was walking; residents walked to harvesting areas that were only a short distance from their home, or might not have been accessible by other means.

According to key respondent interviews conducted with knowledgeable long-term residents of Gakona, the first harvesting activities usually take place in late May after the snow on lower elevations has fully melted. In a typical year, these activities include the harvest of fresh vegetation such as spring mushrooms and fiddlehead ferns. In 2012, only a few Gakona residents harvested locally available mushrooms. Preparations to harvest salmon begin in late May, and in early June residents begin to harvest sockeye and Chinook salmon. Sockeye salmon is the most important wild resource for Gakona residents, and is targeted and harvested by most community members. The first larger runs of sockeye salmon start making their way up the Copper River in early May and usually reach Chitina by the beginning of June. Gakona residents often travel to Chitina to dipnet or use fish wheels as a means of harvesting the early sockeye salmon runs. Gakona has several fish wheels near the community located along the Copper River that the community residents use to harvest Chinook, sockeye, and coho salmon as the fish runs reach the upper portion of the river. Depending on the timing of the salmon runs and fishing regulations, the harvest of Chinook, sockeye, and coho salmon continues throughout the summer months from early June through August. Gakona residents consume some

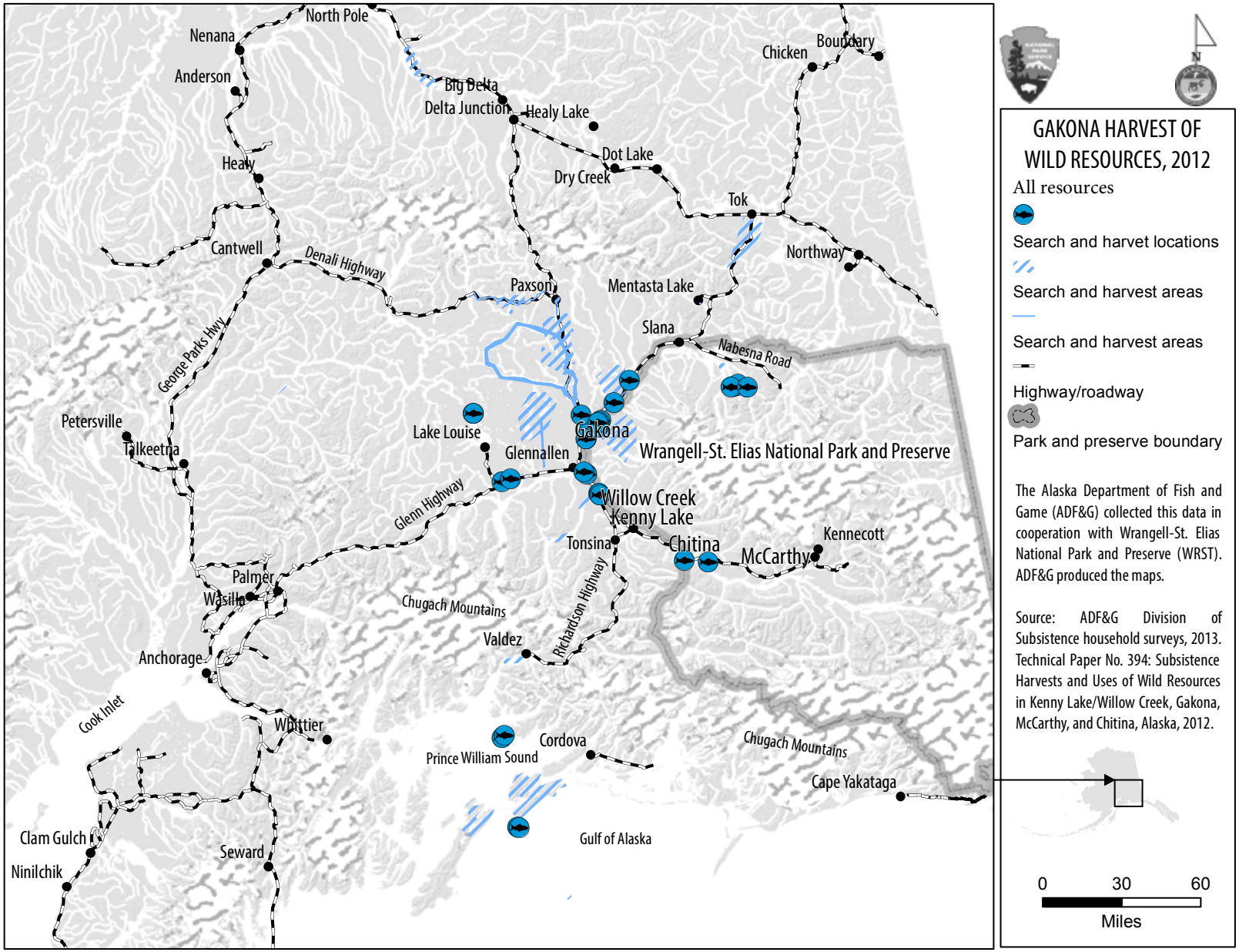

Figure 3-8.–Wild resources search and harvest areas, Gakona, 2012.

of the harvested salmon fresh but more is frozen, canned, smoked, or salted to be consumed later. Throughout the summer months Gakona residents spend time harvesting nonsalmon fish species with rod and reel from local small lakes, rivers, and streams in and around the community.

Wild berries—including blueberries, raspberries, black and red currants, and highbush and lowbush cranberries—begin to ripen in late July. Wild berries and plants are harvested locally by many Gakona households during the first part of August. Large land mammal hunting, which is subject to different hunting regulations on state and federal lands in the larger Gakona area, generally begins in August and continues through September. Depending on the year, the harvest of wild mushrooms, such as shaggy manes, milk caps, puff balls, and orange delicious, takes place throughout the summer and harvesting activities stretch into early fall. Hunting for both migratory and upland game birds is also tied to regulated seasons that differ in the length of legal harvest period. In the Gakona area, migratory waterfowl are harvested during late fall and early winter months while upland birds, such as the different species of ptarmigan and grouse, are locally harvested from early fall through the winter months. After snowfall, most Gakona households are busy harvesting firewood to replenish their wood piles in preparation for the cold winter months. Often the harvest of firewood continues throughout the winter months, especially if the weather stays cold. Once the lakes freeze, some residents ice fish for nonsalmon species such as burbot, lake trout, and rainbow trout. Returning migratory waterfowl are sometimes harvested in the spring; this generally takes place in the larger Gakona area.

Use and Harvest Characteristics by Resource Category

Table 3-12 depicts household participation in the harvest, use, and sharing of wild resources in 2012. According to survey results, 93% of households attempted to harvest, successfully harvested, and received some wild resources in 2012. More households (98%) used some wild resources. Regarding sharing, survey results indicate that 79% of Gakona households shared some wild resources with other households in the community, or with households located outside the community (Table 3-12). Survey results indicate that the most shared resource categories in Gakona in 2012 were fish and vegetation; 69% of community households gave away some fish and 62% gave some vegetation resources, particularly berries. In comparison, the most received resource categories were fish and large land mammals with 88% of Gakona households receiving some fish resources and 74% receiving large land mammals. Fish, vegetation, and large land mammals were also the most widely used resource categories with 95% of Gakona households using fish. Nearly a similar amount (93%) of Gakona households used vegetation and 83% used large land mammals.

A small number (12%) of Gakona households shared marine invertebrates while 24% of community households received some (Table 3-12). An even smaller portion (approximately 10%) of Gakona households shared birds, all of which were upland game birds. In comparison, 7% of community households received birds, some of which were migratory birds. More Gakona households used birds (38%) than ma-

Table 3-13.–Top ranked resources harvested and used by households, Gakona, 2012.

Harvested			Used		
Rank[a]	Resource	Pounds per capita	Rank[a]	Resource	Percentage of households using
1.	Sockeye salmon	84.9	1.	Sockeye salmon	92.9%
2.	Moose	28.6	2.	Firewood	83.3%
3.	Caribou	11.8	3.	Moose	81.0%
4.	Beaver	9.7	4.	Blueberry	73.8%
5.	Chinook salmon	9.3	5.	Pacific halibut	52.4%
6.	Pacific halibut	6.7	6.	Caribou	50.0%
7.	Unknown rockfish	2.4	6.	Raspberry	50.0%
8.	Blueberry	2.3	8.	Chinook salmon	47.6%
9.	Lake trout	1.5	8.	Lowbush cranberry	47.6%
10.	Coho salmon	1.3	10.	Unknown mushrooms	31.0%

Source ADF&G Division of Subsistence household surveys, 2013.
Note "Unknown" means "unspecified" (i.e., respondents may have known the specific species, but that information was not collected during the survey).
a. Resources used by the same percentage of households share the lowest rank value instead of having sequential rank values.

rine invertebrates (26%) during study year 2012. Harvesting numbers for birds and marine invertebrates indicate that more Gakona households harvested birds (36%) than marine invertebrates (7%). While birds, particularly upland game birds, are available for Gakona residents to hunt in and around Gakona relatively easily, the harvest of marine invertebrates requires community residents to travel substantial distances to a marine environment where these resources are available. Taking into consideration the small percentage of Gakona households that actually harvested marine invertebrates, it is likely that some of these resources were received from outside the community.

Table 3-13 lists the top 10 ranked resources harvested, in terms of pounds per capita, and the 10 ranked most used resources by Gakona households during the 2012 study year. Both large land mammals and salmon are important for Gakona residents and this is reflected in the list's top 3 ranked most harvested resources; sockeye salmon was the most harvested single resource followed by moose and caribou. For study year 2012, sockeye salmon was also the most widely used single resource in Gakona with 93% of community households using sockeye salmon. In addition to being the second most harvested resource, moose ranked third on the list of top used resources; blueberries ranked fourth and Pacific halibut ranked fifth on the same list. Furthermore, caribou shared sixth place with raspberries, and Chinook salmon ranked eighth place in a tie with lowbush cranberries on the list of most used resources. Only 1 small land mammal species (beaver) made it onto the top resources harvested list (ranked fourth); other than that, all resources on both lists fall into the 3 most shared categories of fish, large land mammals, and vegetation.

Of all the individual resources included on the 2 lists, Pacific halibut and rockfish (unspecified species)

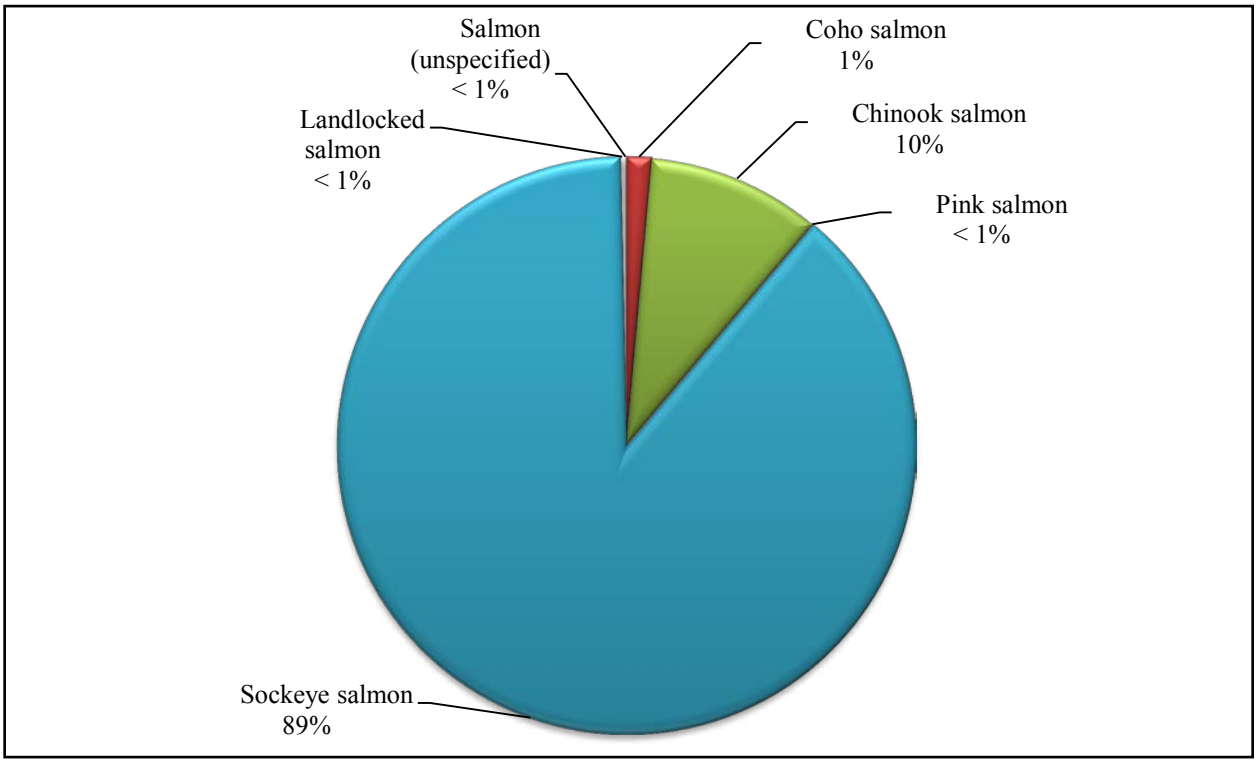

Figure 3-9.–Composition of salmon harvest in pounds usable weight, Gakona, 2012.

are the 2 resources that require substantial travel and boat access to harvest. Table 3-12 shows that less than 20% of Gakona households harvested either of these 2 resources; approximately 17% harvested Pacific halibut and 10% harvested unspecified kinds of rockfish. Of these 2 resources, only Pacific halibut placed on both the top 10 ranked most harvested and used resources lists. Pacific halibut placed sixth among the 10 most harvested resources and unspecified rockfish placed seventh; Pacific halibut was the only nonsalmon fish species appearing on the list of top most used resources (ranked fifth) with 52% of Gakona households using Pacific halibut (Table 3-13). Furthermore, Table 3-12 shows that 17% of Gakona households used unspecified rockfish. This indicates that while some sharing took place within the community, unspecified rockfish was not generally available to the community at large during 2012.

Salmon

For the community of Gakona, salmon composed 56% of the estimated wild resource harvest in pounds usable weight for 2012 totaling 19,348 lb, or 96 lb per capita (Figure 3-7; Table 3-12). According to survey results, 74% of community households attempted to harvest salmon and all attempts resulted in successful harvests (Table 3-12). Sockeye salmon was the primary salmon species targeted by Gakona households; approximately 89% (or 17,125 lb) of the total salmon harvest was sockeye salmon (Figure 3-9; Table 3-12). Chinook salmon made up 10% (1,880 lb), and coho salmon made up 1% (or 270 lb) of the total salmon har-

Table 3-14.–Estimated percentages of salmon harvested by gear type, resource, and total salmon harvest, Gakona, 2012.

				Subsistence methods											
	Percentage	Removed from commercial catch		Fish wheel		Dip net		Other		Subsistence gear, any method		Rod and reel		Any method	
Resource	base	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Salmon	**Gear type**	**0.0%**	**0.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**0.0%**	**0.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
	Resource	**0.0%**	**0.0%**	**87.9%**	**88.5%**	**3.3%**	**3.1%**	**0.0%**	**0.0%**	**91.2%**	**91.6%**	**8.8%**	**8.4%**	**100.0%**	**100.0%**
	Total	**0.0%**	**0.0%**	**87.9%**	**88.5%**	**3.3%**	**3.1%**	**0.0%**	**0.0%**	**91.2%**	**91.6%**	**8.8%**	**8.4%**	**100.0%**	**100.0%**
Chum salmon	Gear type	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%
	Resource	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	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%
Coho salmon	Gear type	0.0%	0.0%	0.6%	0.7%	0.0%	0.0%	0.0%	0.0%	0.5%	0.6%	7.7%	9.7%	1.2%	1.4%
	Resource	0.0%	0.0%	41.7%	41.7%	0.0%	0.0%	0.0%	0.0%	41.7%	41.7%	58.3%	58.3%	100.0%	100.0%
	Total	0.0%	0.0%	0.5%	0.6%	0.0%	0.0%	0.0%	0.0%	0.5%	0.6%	0.7%	0.8%	1.2%	1.4%
Chinook salmon	Gear type	0.0%	0.0%	3.2%	9.5%	0.0%	0.0%	0.0%	0.0%	3.1%	9.2%	5.0%	15.6%	3.3%	9.7%
	Resource	0.0%	0.0%	86.6%	86.6%	0.0%	0.0%	0.0%	0.0%	86.6%	86.6%	13.4%	13.4%	100.0%	100.0%
	Total	0.0%	0.0%	2.8%	8.4%	0.0%	0.0%	0.0%	0.0%	2.8%	8.4%	0.4%	1.3%	3.3%	9.7%
Pink salmon	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.3%	0.0%	0.0%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	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%
Sockeye salmon	Gear type	0.0%	0.0%	96.2%	89.8%	97.1%	96.6%	0.0%	0.0%	96.3%	90.1%	72.4%	71.5%	94.2%	88.5%
	Resource	0.0%	0.0%	89.8%	89.8%	3.4%	3.4%	0.0%	0.0%	93.2%	93.2%	6.8%	6.8%	100.0%	100.0%
	Total	0.0%	0.0%	84.6%	79.5%	3.2%	3.0%	0.0%	0.0%	87.8%	82.5%	6.4%	6.0%	94.2%	88.5%
Landlocked salmon	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.4%	2.9%	1.3%	0.2%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	0.2%	1.3%	0.2%
Salmon (unspecified)	Gear type	0.0%	0.0%	0.0%	0.0%	2.9%	3.4%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.1%	0.1%
	Resource	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.1%	0.1%

Source ADF&G Division of Subsistence household surveys, 2013.

vest. In addition, a very small amount (48 lb) of landlocked salmon and pink salmon (5 lb) were harvested by a few households (Table 3-12).

During the 2012 study year, Gakona households harvested the majority of their salmon (89% of the total harvest in pounds) with fish wheels; the remaining harvest was taken mostly using dip nets (3%) and rod and reel (8%) (Table 3-14). No salmon were removed from commercial catches for home use during the 2012 study year.

Survey results demonstrate that salmon is a profoundly important resource for Gakona residents; 93% of Gakona households used some salmon during study year 2012 (Table 3-12). Two salmon species (sockeye and Chinook salmon) also are included among the top 10 ranked most harvested and used resources in Gakona for study year 2012 (Table 3-13). Regarding sharing and receiving, survey results indicate that sockeye salmon was the most widely shared salmon species with 64% of Gakona households giving some sockeye salmon away (Table 3-12). In comparison, 12% of community households gave away some Chinook salmon, and only 5% gave away coho salmon. However, a much larger number (76%) of community households received some salmon; at the species level, most of the received salmon was sockeye salmon (76% of households received), followed by Chinook salmon (17%), and coho salmon (7%).

Gakona residents harvested their sockeye salmon and Chinook salmon locally from fish wheels located along the Copper River near Gakona and near the confluence of the Copper and Klutina rivers; some Chinook were sought along the Klutina River itself. In addition, some households used dip nets along the Copper River in the vicinity of Chitina, approximately 80 mi south of Gakona (Figure 3-10; Figure 3-11).

Nonsalmon Fish

Gakona residents harvested an estimated total of 3,366 lb, or 17 lb per capita, of nonsalmon fish in 2012 (Table 3-12). In pounds usable weight, the nonsalmon fish harvest from both marine and freshwater environments made up 10% of the community's total wild resource harvest (Figure 3-7). According to survey data, 50% of community households attempted to harvest some nonsalmon fish and all attempts were successful (Table 3-12). In terms of percentages and pounds, the largest portion of the nonsalmon fish harvest was Pacific halibut (40%, or 1,357 lb), unspecified species of rockfish (15%, or 544 lb), lake trout (9%, or 301 lb), and Arctic grayling, burbot, and Pacific cod each composed 7% of the nonsalmon fish harvest (harvests totaled 237 lb, 224 lb, and 220 lb, respectively) (Figure 3-12; Table 3-12).

During the 2012 study year, Gakona households harvested the majority of their nonsalmon fish (86% of the total harvest in pounds) with rod and reel; the remaining harvest was taken with subsistence gear, for example while ice fishing or jigging through the ice (Table 3-15). At the species level, all Pacific halibut, which is a marine species, were harvested with rod and reel as well as were the majority of lingcod, various cod and rockfish species, Dolly Varden, lake trout, and Arctic grayling (Table 3-15). In comparison, the majority of rainbow trout, burbot, and northern pike were harvested while ice fishing or jigging through the

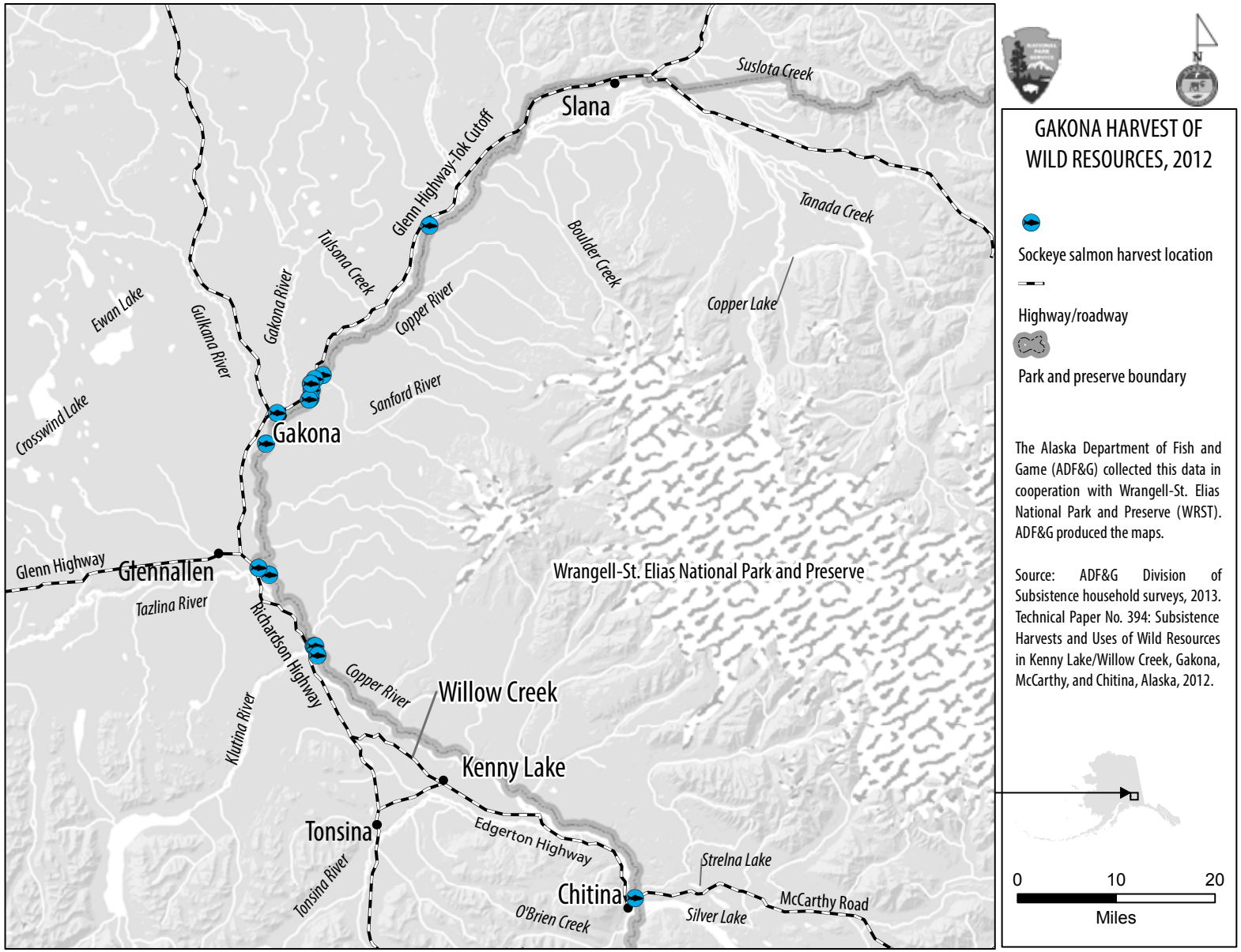

Figure 3-10.–Fishing and harvest locations of sockeye salmon, Gakona, 2012.

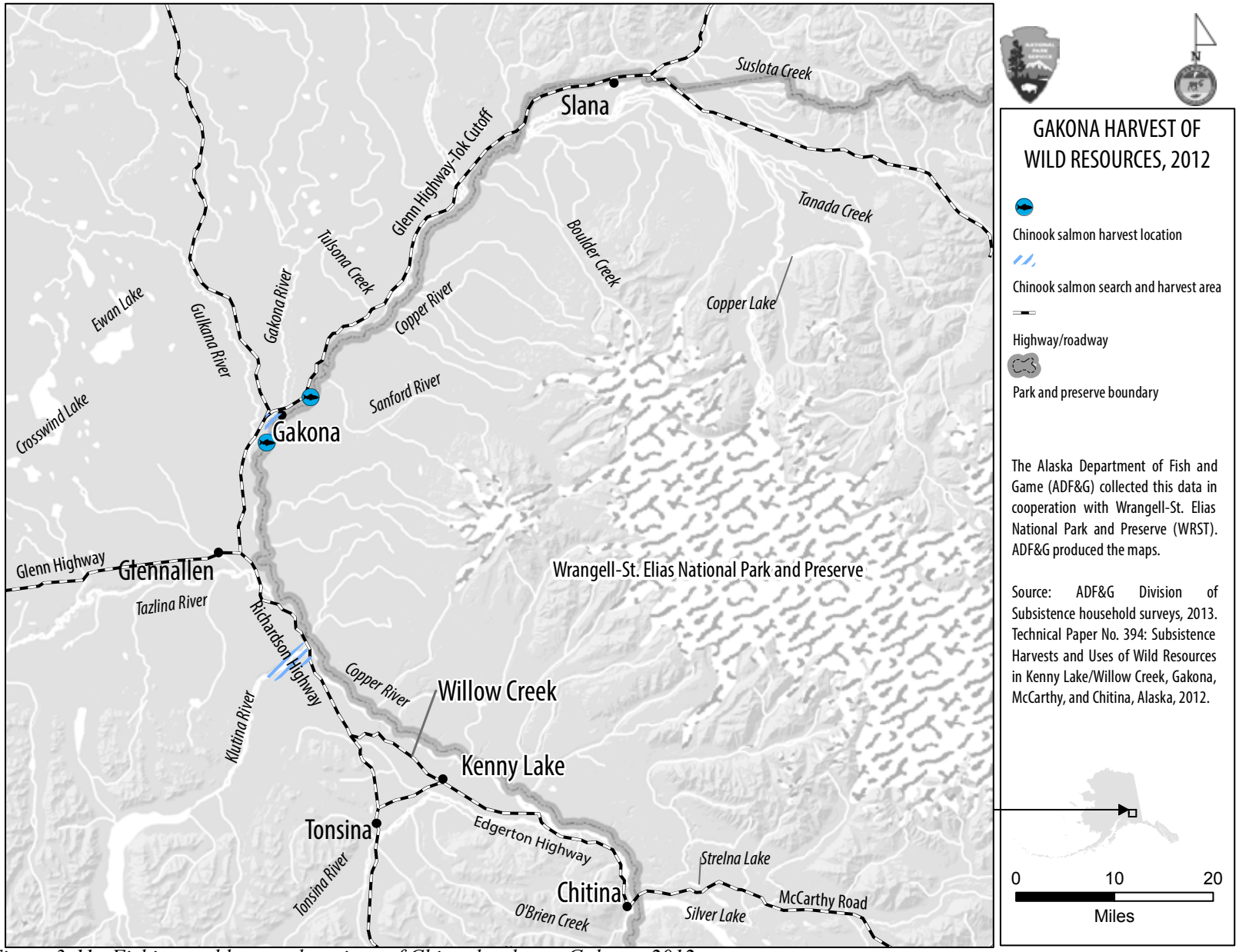

Figure 3-11.–Fishing and harvest locations of Chinook salmon, Gakona, 2012.

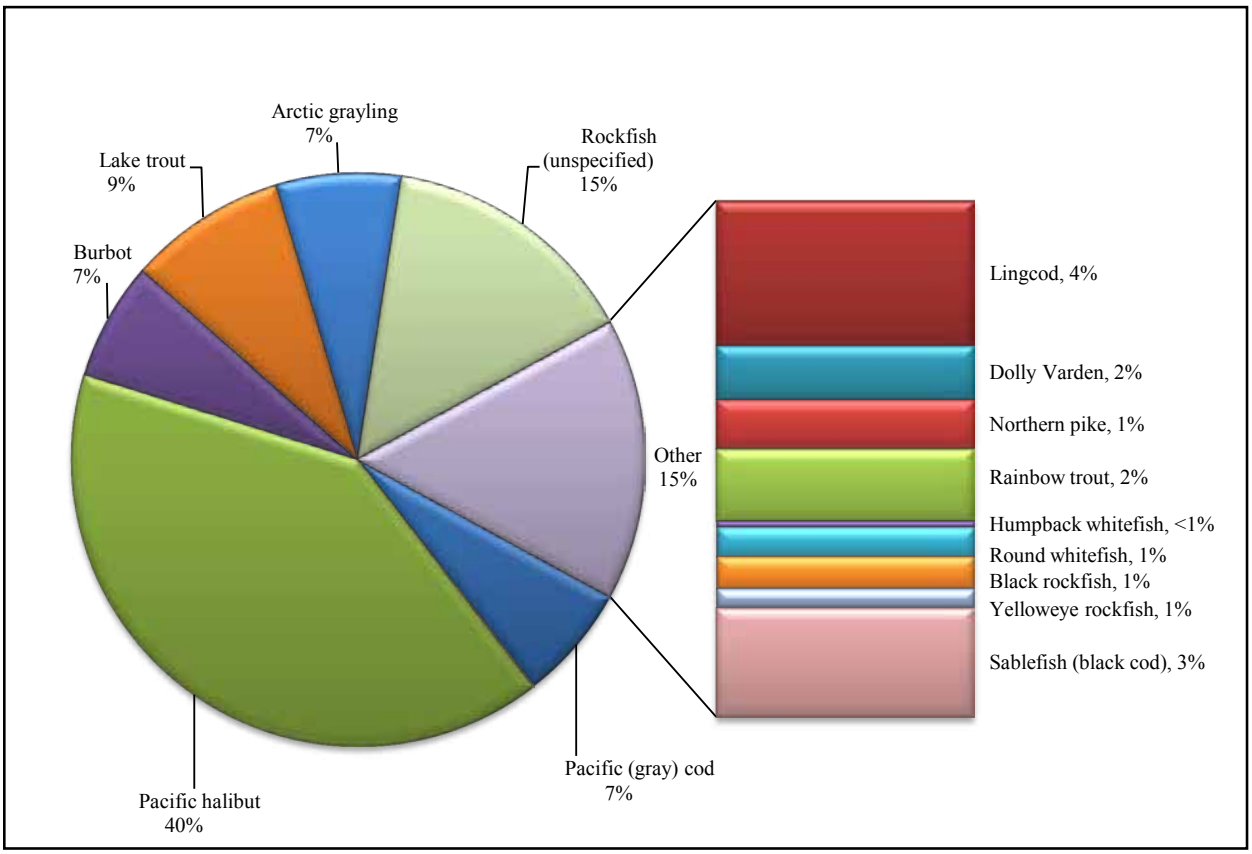

Figure 3-12.–Composition of nonsalmon fish harvest in pounds usable weight, Gakona, 2012.

ice. Regarding sharing and receiving, survey results indicate that Pacific halibut was the most widely shared nonsalmon fish species with 41% of Gakona households receiving some Pacific halibut and 19% giving some away (Table 3-12).

In 2012, Gakona residents harvested freshwater nonsalmon fish such as northern pike, burbot, and lake trout from Crosswind and Ewan lakes; both are located west of the community (Figure 3-13). Rainbow trout were harvested from water bodies along the Glenn Highway west of Glennallen; these locations are easily reachable with highway vehicles. Arctic grayling were also harvested in bodies of water located along highways; residents harvested Arctic grayling along the Richardson Highway and the Glenn Highway–Tok

Table 3-15.–Estimated percentages of nonsalmon fish harvested by gear type, resource, and total nonsalmon fish harvest, Gakona, 2012.

				Subsistence methods									
		Removed from commercial catch		Ice fishing or jigging through the ice		Other		Subsistence gear, any method		Rod and reel[a]		Any method	
Resource	Percentage base	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Nonsalmon fish	**Gear type**	**0.0%**	**0.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
	Resource	**0.0%**	**0.0%**	**7.9%**	**12.1%**	**2.7%**	**1.9%**	**10.6%**	**14.0%**	**89.4%**	**86.0%**	**100.0%**	**100.0%**
	Total	**0.0%**	**0.0%**	**7.9%**	**12.1%**	**2.7%**	**1.9%**	**10.6%**	**14.0%**	**89.4%**	**86.0%**	**100.0%**	**100.0%**
Pacific herring	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pacific herring sac roe	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pacific herring spawn on kelp	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Unknown smelt	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pacific (gray) cod	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.5%	7.6%	2.3%	6.5%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.3%	6.5%	2.3%	6.5%
Pacific tomcod	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Starry flounder	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Lingcod	Gear type	0.0%	0.0%	0.0%	0.0%	2.8%	7.0%	0.7%	0.9%	2.8%	5.0%	2.6%	4.4%
	Resource	0.0%	0.0%	0.0%	0.0%	2.9%	2.9%	2.9%	2.9%	97.1%	97.1%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	2.5%	4.3%	2.6%	4.4%
Pacific halibut	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	62.9%	46.8%	56.2%	40.3%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	56.2%	40.3%	56.2%	40.3%

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Table 3-15.–Page 2 of 3.

				Subsistence methods									
		Removed from commercial catch		Ice fishing or jigging through the ice		Other		Subsistence gear, any method		Rod and reel[a]		Any method	
Resource	Percentage base	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Arctic lamprey	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Black rockfish	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	1.1%	0.9%	1.0%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	1.0%	0.9%	1.0%
Yelloweye rockfish	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.7%	0.3%	0.6%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.6%	0.3%	0.6%
Rockfish (unspecified)	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.7%	17.0%	5.1%	14.6%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.1%	14.6%	5.1%	14.6%
Sablefish (black cod)	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.7%	3.9%	1.5%	3.4%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%	3.4%	1.5%	3.4%
Sculpin	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Burbot	Gear type	0.0%	0.0%	42.3%	47.6%	2.8%	7.0%	32.1%	42.2%	0.5%	0.9%	3.9%	6.7%
	Resource	0.0%	0.0%	86.3%	86.3%	2.0%	2.0%	88.2%	88.2%	11.8%	11.8%	100.0%	100.0%
	Total	0.0%	0.0%	3.3%	5.8%	0.1%	0.1%	3.4%	5.9%	0.5%	0.8%	3.9%	6.7%
Dolly Varden	Gear type	0.0%	0.0%	1.9%	0.8%	0.0%	0.0%	1.4%	0.7%	2.7%	1.8%	2.6%	1.7%
	Resource	0.0%	0.0%	5.9%	5.9%	0.0%	0.0%	5.9%	5.9%	94.1%	94.1%	100.0%	100.0%
	Total	0.0%	0.0%	0.2%	0.1%	0.0%	0.0%	0.2%	0.1%	2.4%	1.6%	2.6%	1.7%
Lake trout	Gear type	0.0%	0.0%	30.8%	28.9%	0.0%	0.0%	22.9%	25.0%	4.2%	6.3%	6.2%	8.9%
	Resource	0.0%	0.0%	39.0%	39.0%	0.0%	0.0%	39.0%	39.0%	61.0%	61.0%	100.0%	100.0%
	Total	0.0%	0.0%	2.4%	3.5%	0.0%	0.0%	2.4%	3.5%	3.8%	5.4%	6.2%	8.9%
Arctic grayling	Gear type	0.0%	0.0%	0.0%	0.0%	55.6%	40.8%	14.3%	5.5%	14.0%	7.3%	14.0%	7.1%
	Resource	0.0%	0.0%	0.0%	0.0%	10.8%	10.8%	10.8%	10.8%	89.2%	89.2%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	1.5%	0.8%	1.5%	0.8%	12.5%	6.3%	14.0%	7.1%
Northern pike	Gear type	0.0%	0.0%	9.6%	12.6%	0.0%	0.0%	7.1%	10.9%	0.0%	0.0%	0.8%	1.5%
	Resource	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.8%	1.5%	0.0%	0.0%	0.8%	1.5%	0.0%	0.0%	0.8%	1.5%

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Table 3-15.–Page 3 of 3.

				Subsistence methods									
		Removed from commercial catch		Ice fishing or jigging through the ice		Other		Subsistence gear, any method		Rod and reel[a]		Any method	
Resource	Percentage base	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Longnose sucker	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cutthroat trout	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Rainbow trout	Gear type	0.0%	0.0%	15.4%	10.1%	0.0%	0.0%	11.4%	8.7%	1.1%	1.2%	2.2%	2.2%
	Resource	0.0%	0.0%	55.2%	55.2%	0.0%	0.0%	55.2%	55.2%	44.8%	44.8%	100.0%	100.0%
	Total	0.0%	0.0%	1.2%	1.2%	0.0%	0.0%	1.2%	1.2%	1.0%	1.0%	2.2%	2.2%
Trout (unspecified)	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Broad whitefish	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Least cisco	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Humpback whitefish	Gear type	0.0%	0.0%	0.0%	0.0%	5.6%	10.2%	1.4%	1.4%	0.0%	0.0%	0.2%	0.2%
	Resource	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.2%	0.2%	0.2%	0.2%	0.0%	0.0%	0.2%	0.2%
Round whitefish	Gear type	0.0%	0.0%	0.0%	0.0%	33.3%	35.0%	8.6%	4.7%	0.4%	0.3%	1.3%	0.9%
	Resource	0.0%	0.0%	0.0%	0.0%	70.6%	70.6%	70.6%	70.6%	29.4%	29.4%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.9%	0.7%	0.9%	0.7%	0.4%	0.3%	1.3%	0.9%
Whitefishes (unspecified)	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	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, 2013.

a. Federal regulations recognize rod and reel as subsistence gear. Under state regulations, rod and reel fishing is governed under sport fishing regulations.

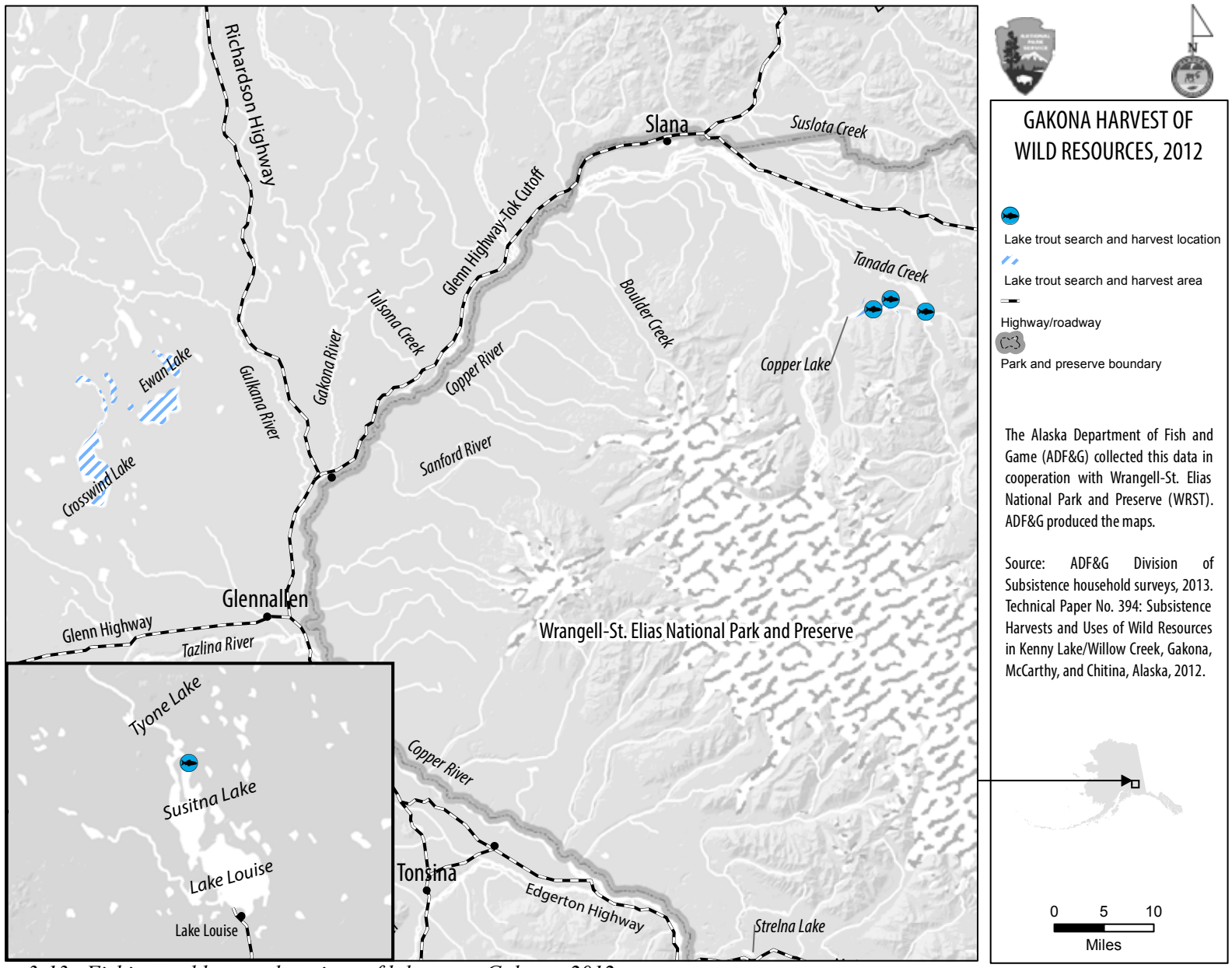


Figure 3-13.–Fishing and harvest locations of lake trout, Gakona, 2012.

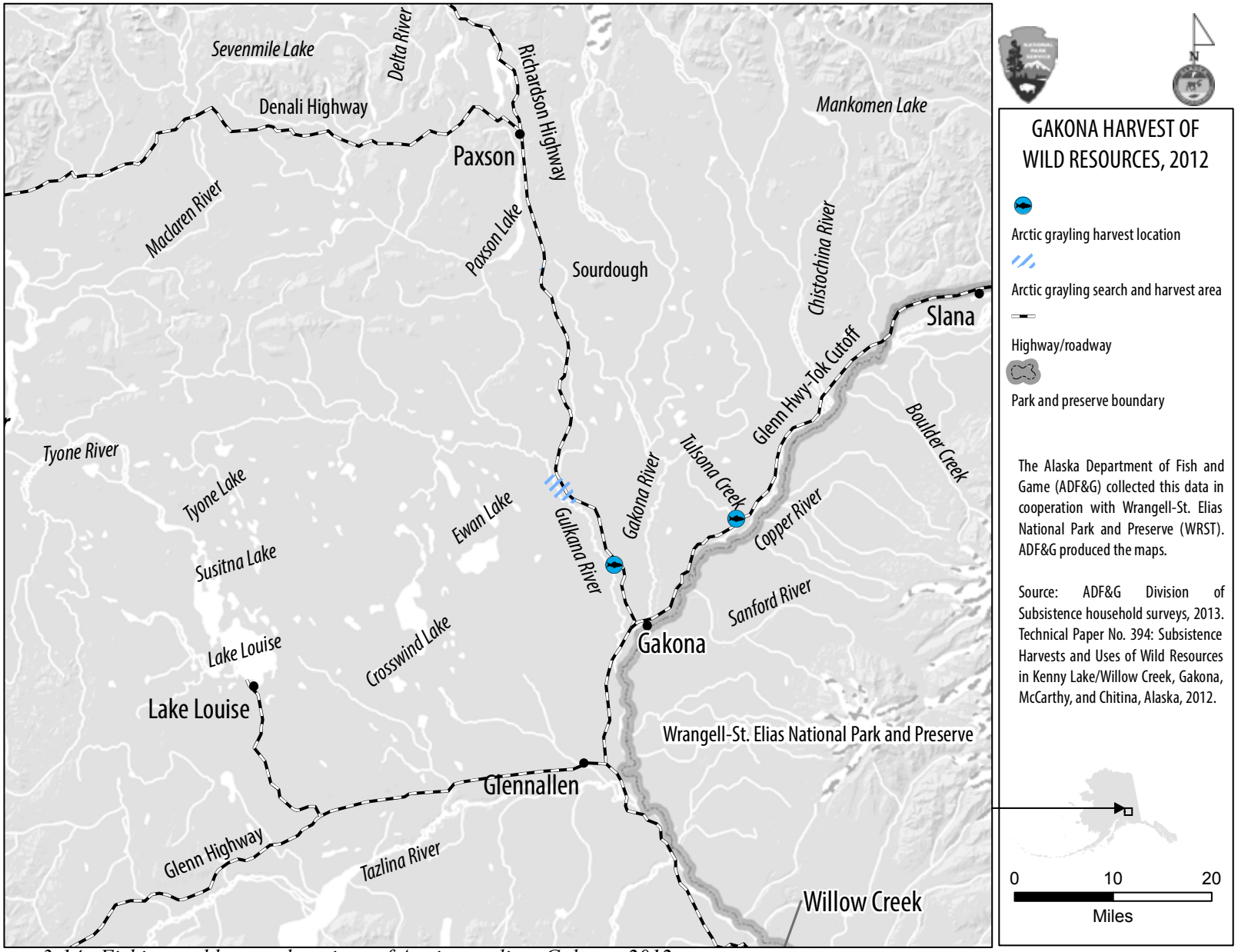


Figure 3-14.–Fishing and harvest locations of Arctic grayling, Gakona, 2012.

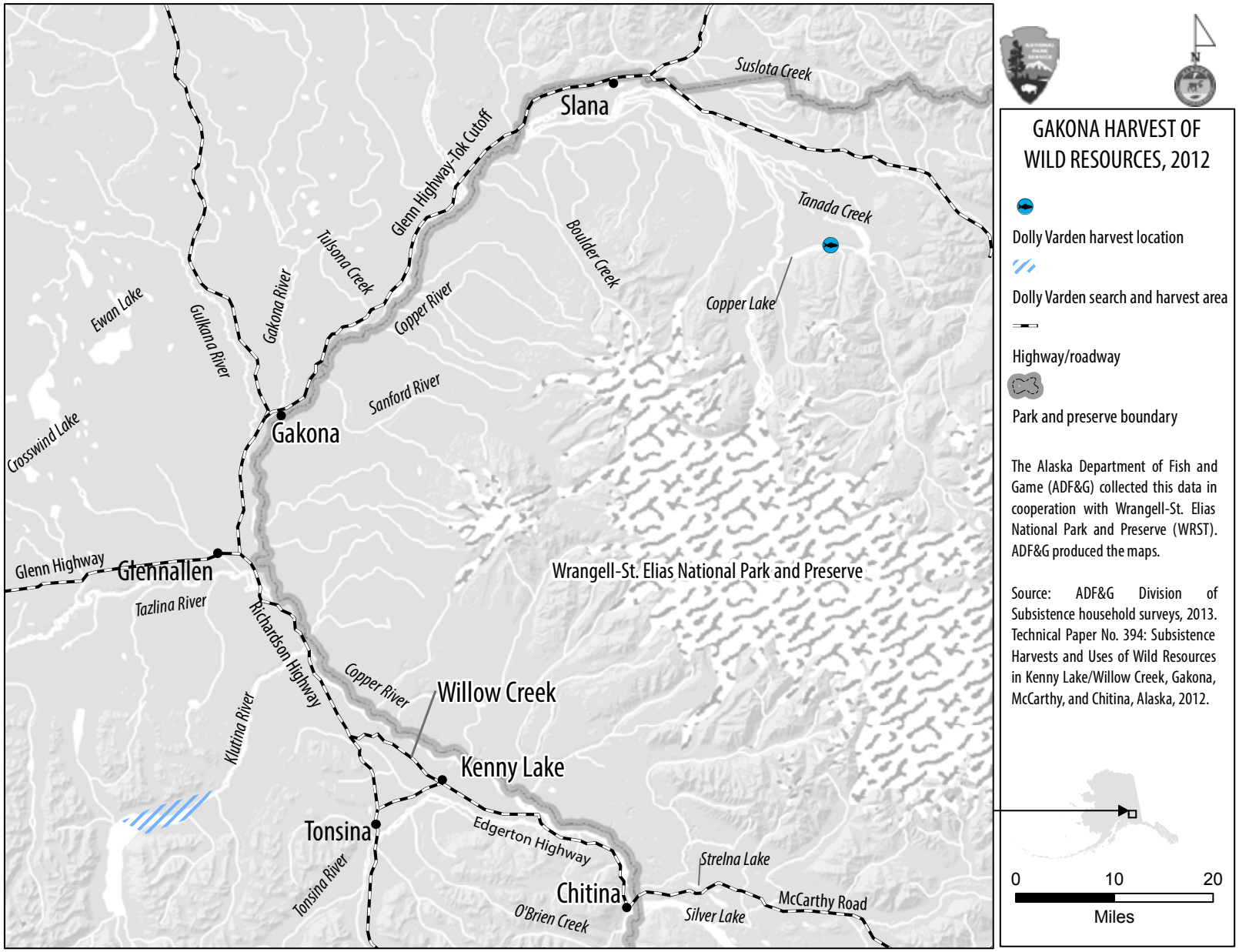


Figure 3-15.–Fishing and harvest locations of Dolly Varden, Gakona, 2012.

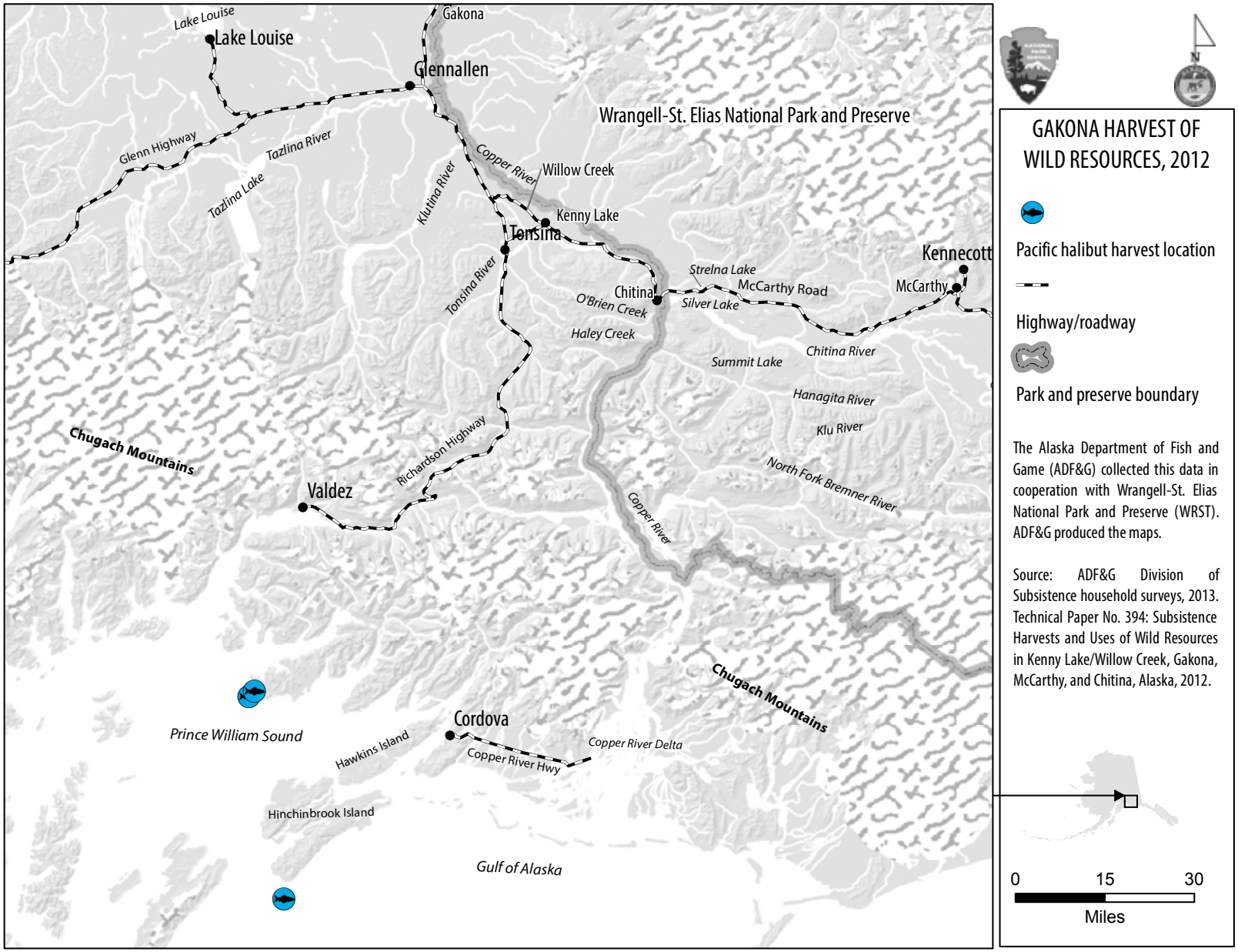


Figure 3-16.–Fishing and harvest locations of Pacific halibut, Gakona, 2012.

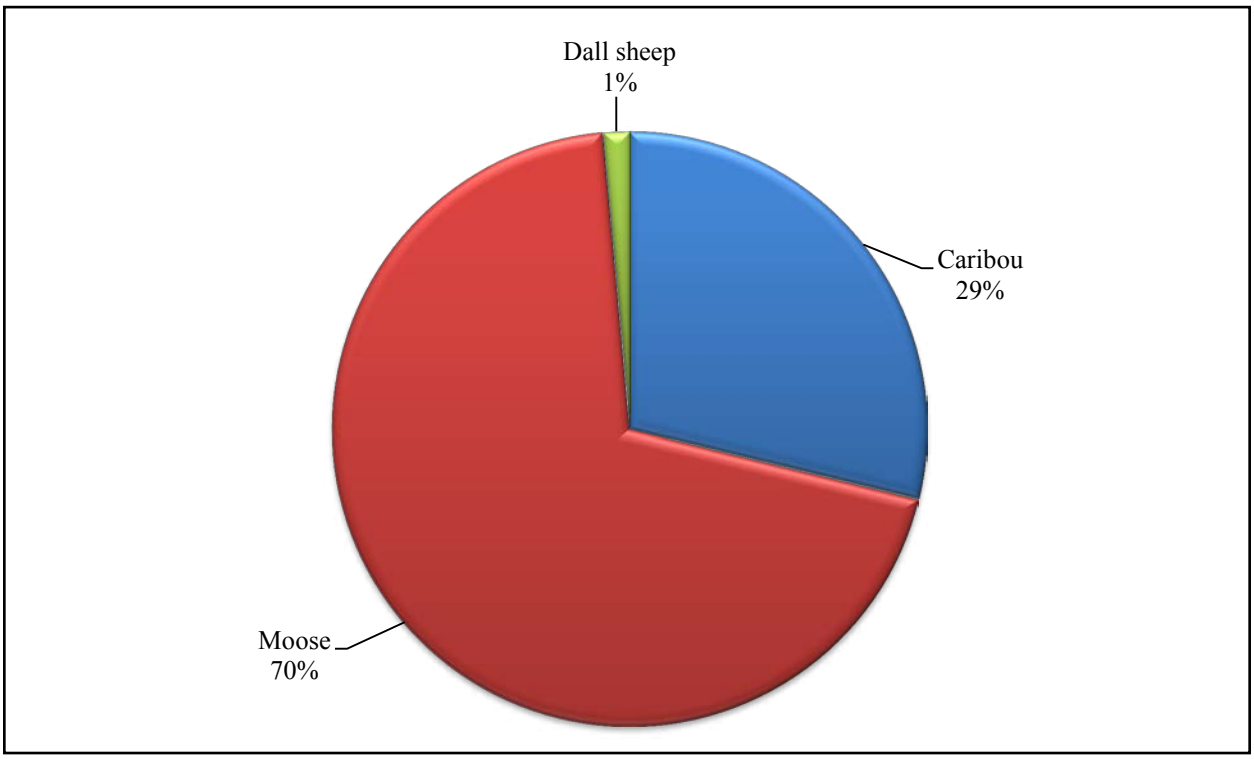


Figure 3-17.–Composition of large land mammal harvest in pounds usable weight, Gakona, 2012.

Cutoff north of Gakona (Figure 3-14). Dolly Varden were harvested north and south of the community. To the south, Dolly Varden were harvested along Klutina River and to the north harvests were near Slana in Copper Lake (Figure 3-15). Marine fishing for species such as Pacific halibut and various rockfish species took place near Hinchinbrook Island, which is located south of Valdez in Prince William Sound (Figure 3-16).

Large Land Mammals

In 2012, the harvest of large land mammals made up 24% of Gakona residents' overall wild resource harvest (Figure 3-7). In pounds usable weight, the estimated total harvest was 8,278 lb, or approximately 41 lb per capita (Table 3-12). The largest portion of the large land mammal harvest (70%) was moose (5,775 lb, or 29 lb per capita); another 29% of the large mammal harvest was caribou (2,383 lb, or 12 lb per capita), and 1% was Dall sheep (119 lb, or less than 1 lb per capita) (Figure 3-17; Table 3-12).

According to survey results, Gakona households attempted to harvest moose (48%), caribou (36%), Dall sheep (7%), brown bears (5%), and also black bears and deer (2% of households each) (Table 3-12). In comparison, only 17% of Gakona households successfully harvested moose, 19% harvested caribou, and 2% harvested Dall sheep. No households successfully harvested bears or deer, but each of those species was shared with Gakona households and used by a small percentage of households. Additionally, 2% of households received and used bison in 2012 (Table 3-12). Table 3-16 also shows that the estimated total number of large land mammal harvested was small—totaling approximately 33 animals. At the species level most

Table 3-16.–Estimated large land mammal harvests by month and sex, Gakona, 2012.

Harvest month	Black bear	Brown bear	Dall sheep	Caribou Total	Caribou Male	Caribou Female	Moose Total	Moose Male	Moose Female
January	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
February	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
March	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
April	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
June	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
July	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
August	0.0	0.0	1.8	1.8	1.8	0.0	0.0	0.0	0.0
September	0.0	0.0	0.0	14.7	12.8	1.8	11.0	11.0	0.0
October	0.0	0.0	0.0	1.8	1.8	0.0	0.0	0.0	0.0
November	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	1.8
December	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unknown month	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total harvest	**0.0**	**0.0**	**1.8**	**18.3**	**16.5**	**1.8**	**12.8**	**11.0**	**1.8**

Source ADF&G Division of Subsistence household surveys, 2013.

of the harvest was made up of moose and caribou with an estimated 18 caribou and 13 moose and 2 Dall sheep harvested during 2012. The majority of caribou that were harvested were male (90%); out of the 13 moose harvested, 2 were female. All large game were harvested between August and November in 2012.

Regardless of a small number of Gakona households successfully harvesting the 2 most targeted large land mammal species (moose and caribou), many more community households used these resources after receiving some either from other households in Gakona or other Alaska communities. According to the survey, 55% of Gakona households received some moose and 81% used moose during study year 2012 (Table 3-12). In comparison, 33% of community households received some caribou and 50% used caribou.

In 2012, Gakona residents used many areas in the Copper River Basin and close to the community for hunting and harvesting large land mammals. The northernmost moose search areas were along the Richardson Highway near Big Delta and the southernmost search areas was approximately 5 mi south of Glennallen. Residents searched for moose along the Sanford River southeast of Gakona, as well as northeast of Gakona along Tulsona Creek (Figure 3-18). Similarly to moose search and harvest areas, caribou hunting took place away from the community along the Richardson Highway and the Denali Highway (Figure 3-19). Community members traveled to Prince William Sound in search of deer during the study year. Gakona residents used ATVs, highway vehicles, airplanes, or walked to access and travel around these subsistence hunting areas.

Small Land Mammals/Furbearers

As listed in Table 3-12, the total harvest of small land mammals by Gakona residents in 2012 for food was 2,089 lb (10 lb per capita). The usable (or edible) harvest of small land mammals in Gakona consisted

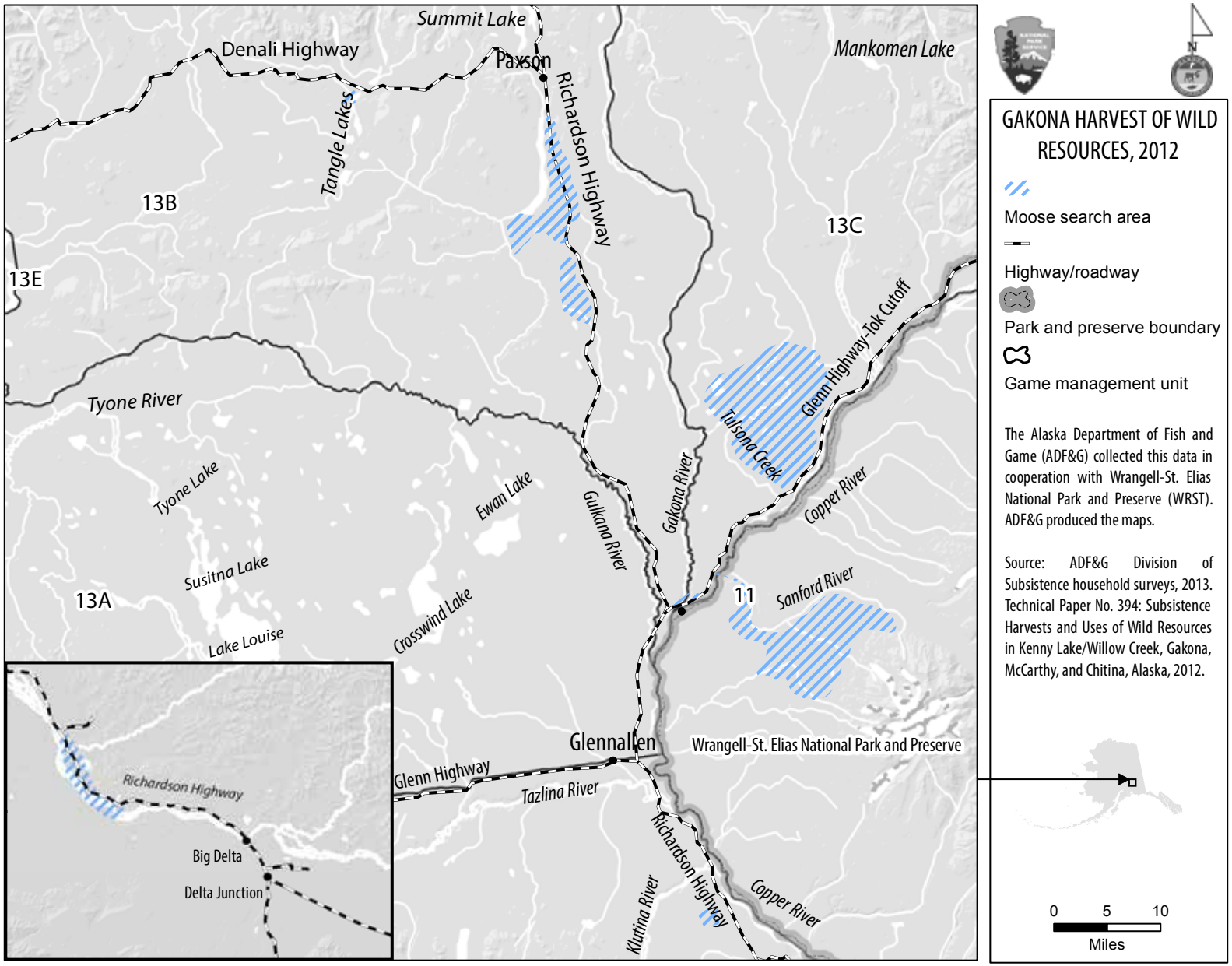


Figure 3-18.–Hunting locations of moose, Gakona, 2012.

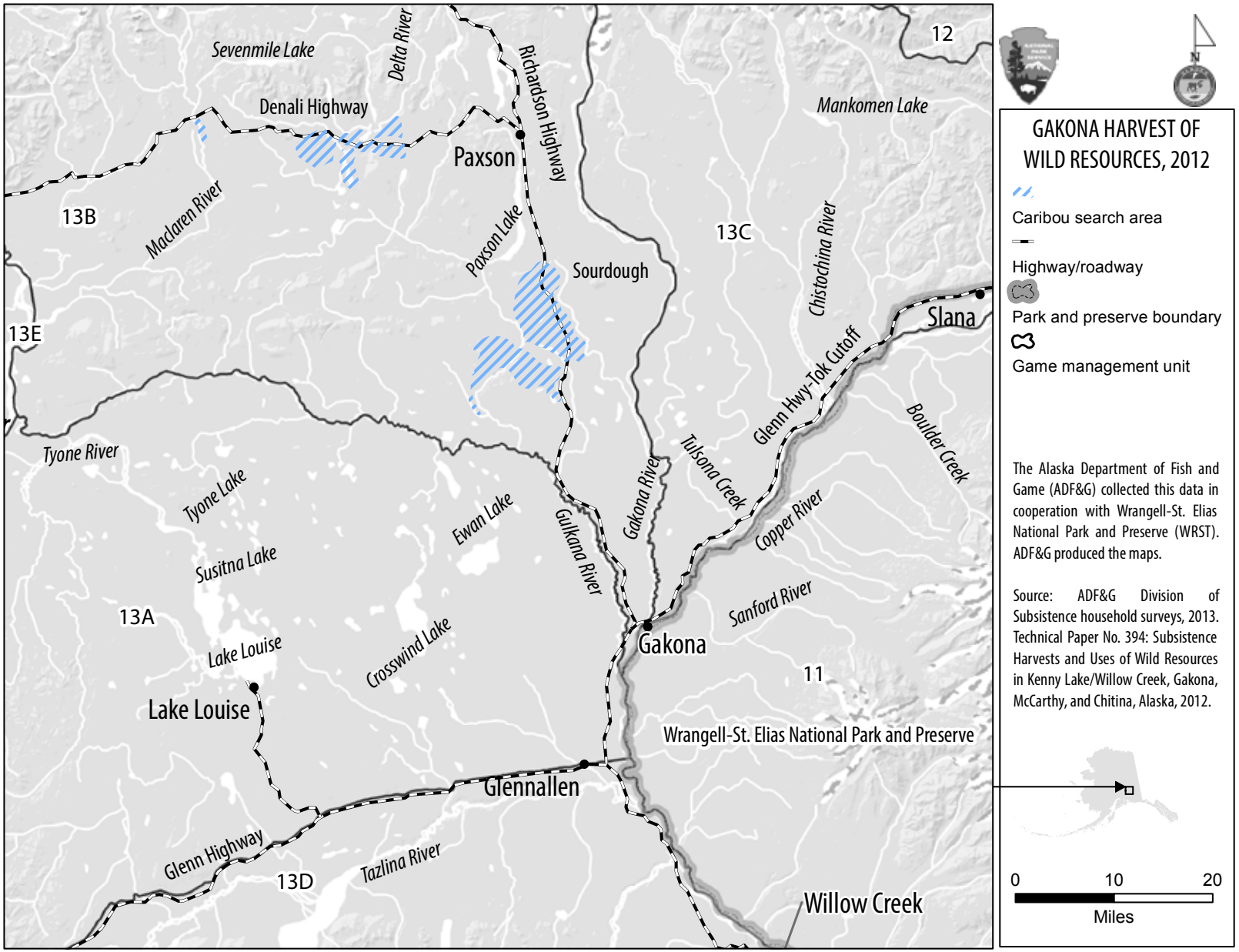


Figure 3-19.–Hunting locations of caribou, Gakona, 2012.

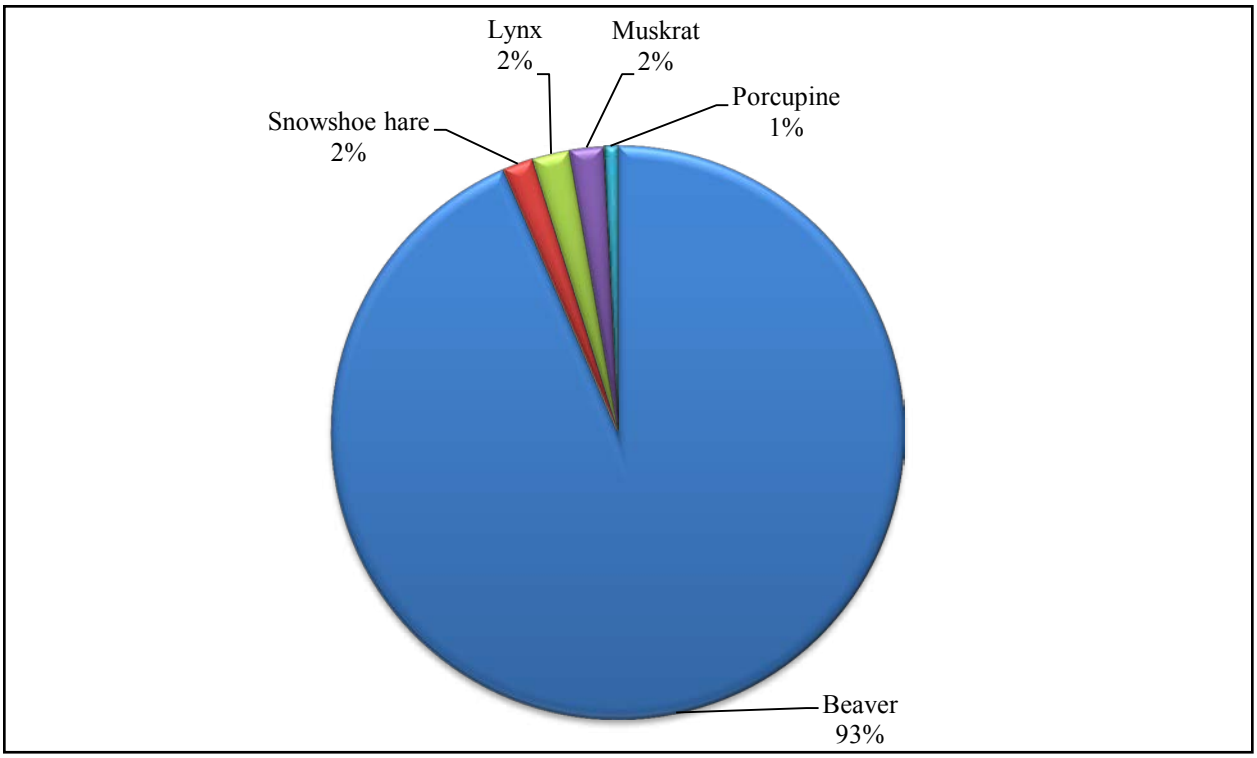


Figure 3-20.–Composition of small land mammal/furbearer harvest by pounds usable weight, Gakona, 2012.

of the following species: beavers (93%), lynx (2%), muskrats (2%), snowshoe hares (2%), and porcupines (1%) (Figure 3-20). In terms of the edible harvest weight, Gakona households used beavers (1,953 lb), followed by lynx (44 lb), muskrats (40 lb), snowshoe hares (37 lb), and porcupines (17 lb). The harvest of small land mammals composed approximately 6% of Gakona's total usable pounds harvested of wild food resources in 2012 (Figure 3-7).

In 2012, Gakona residents harvested the majority of small land mammals for either fur or food during the colder months, particularly December through March; however, April, May and September through October were also reasonably productive. Porcupine was the only animal harvested in the summer (Table 3-17). Figure 3-21 represents small land mammals harvested for both food and fur in the 2012 study year. Most furbearers such as coyotes, foxes, mink, river otters, martens, squirrels, weasels, gray wolves, and wolverines were harvested for fur only. Beavers, lynx, and muskrats were the only species that were harvested for both food and fur. Gakona residents reported harvesting 227 beavers, of which 97 were used for fur only; of the 350 lynx harvested, 339 were used for fur only; and of 46 muskrats harvested, 26 were used for fur only.

Gakona residents' search effort and harvest of small land mammals and furbearers that took place in the winter months of 2012 was conducted mostly by snowmachine and primarily focused on 3 large areas. One area was near the community of Gakona at the confluence of the Copper River and the Sanford River, and extended south to follow the Sanford River. Another larger search and harvest area was located northwest of

Table 3-17.–Estimated small land mammal/furbearer harvests by month, Gakona, 2012.

Species	January	February	March	April	May	June	July	August	September	October	November	December	Unknown	**Total**
Small land mammals	**179.7**	**117.3**	**152.2**	**66.0**	**33.0**	**0.0**	**1.8**	**0.0**	**88.0**	**69.7**	**95.3**	**205.3**	**23.8**	**1,034.0**
Beaver	9.2	5.5	97.2	14.7	14.7	0.0	0.0	0.0	42.2	23.8	3.7	16.5	0.0	**227.3**
Coyote	3.7	1.8	1.8	1.8	1.8	0.0	0.0	0.0	1.8	1.8	3.7	1.8	0.0	**20.2**
Red fox	0.0	16.5	9.2	7.3	5.5	0.0	0.0	0.0	0.0	5.5	5.5	12.8	14.7	**77.0**
Snowshoe hare	0.0	0.0	11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	3.7	**18.3**
North American river (land) otter	5.5	1.8	1.8	1.8	1.8	0.0	0.0	0.0	0.0	1.8	1.8	3.7	0.0	**20.2**
Lynx	77.0	62.3	18.3	18.3	0.0	0.0	0.0	0.0	18.3	18.3	22.0	110.0	5.5	**350.2**
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	44.0	9.2	0.0	9.2	0.0	0.0	0.0	0.0	9.2	0.0	18.3	18.3	0.0	**108.2**
Mink	1.8	1.8	0.0	0.0	0.0	0.0	0.0	0.0	1.8	1.8	1.8	1.8	0.0	**11.0**
Muskrat	7.3	7.3	3.7	3.7	1.8	0.0	0.0	0.0	5.5	5.5	5.5	5.5	0.0	**45.8**
Porcupine	0.0	0.0	0.0	0.0	1.8	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	**3.7**
Arctic ground (parka) squirrel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0	**1.8**
Red (tree) 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**
Weasel	23.8	5.5	1.8	1.8	0.0	0.0	0.0	0.0	5.5	5.5	23.8	23.8	0.0	**91.7**
Gray wolf	5.5	5.5	7.3	7.3	5.5	0.0	0.0	0.0	3.7	5.5	7.3	7.3	0.0	**55.0**
Wolverine	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	**3.7**

Source ADF&G Division of Subsistence household surveys, 2013.

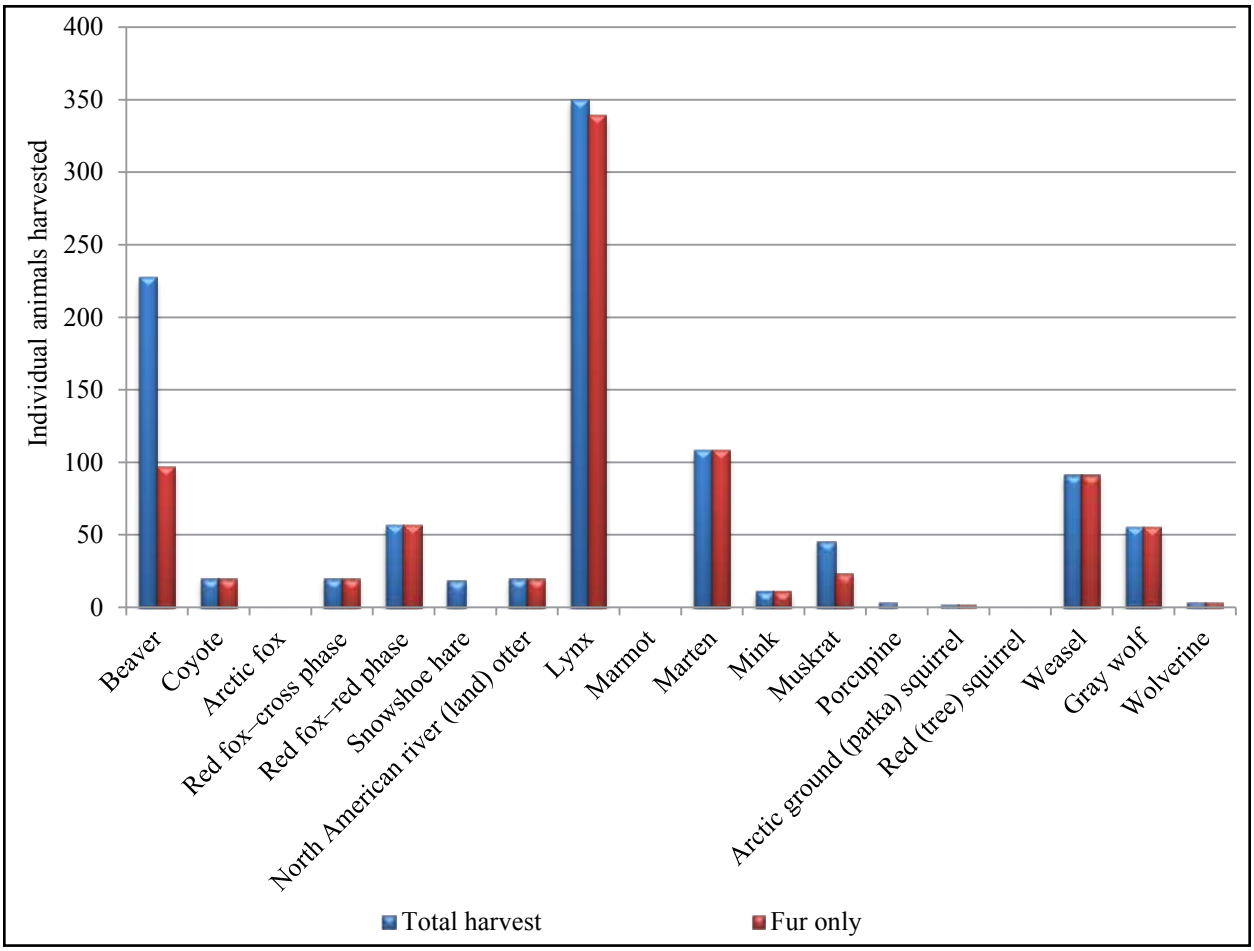


Figure 3-21.–Estimated small land mammal/furbearer harvests for fur and food only, Gakona, 2012.

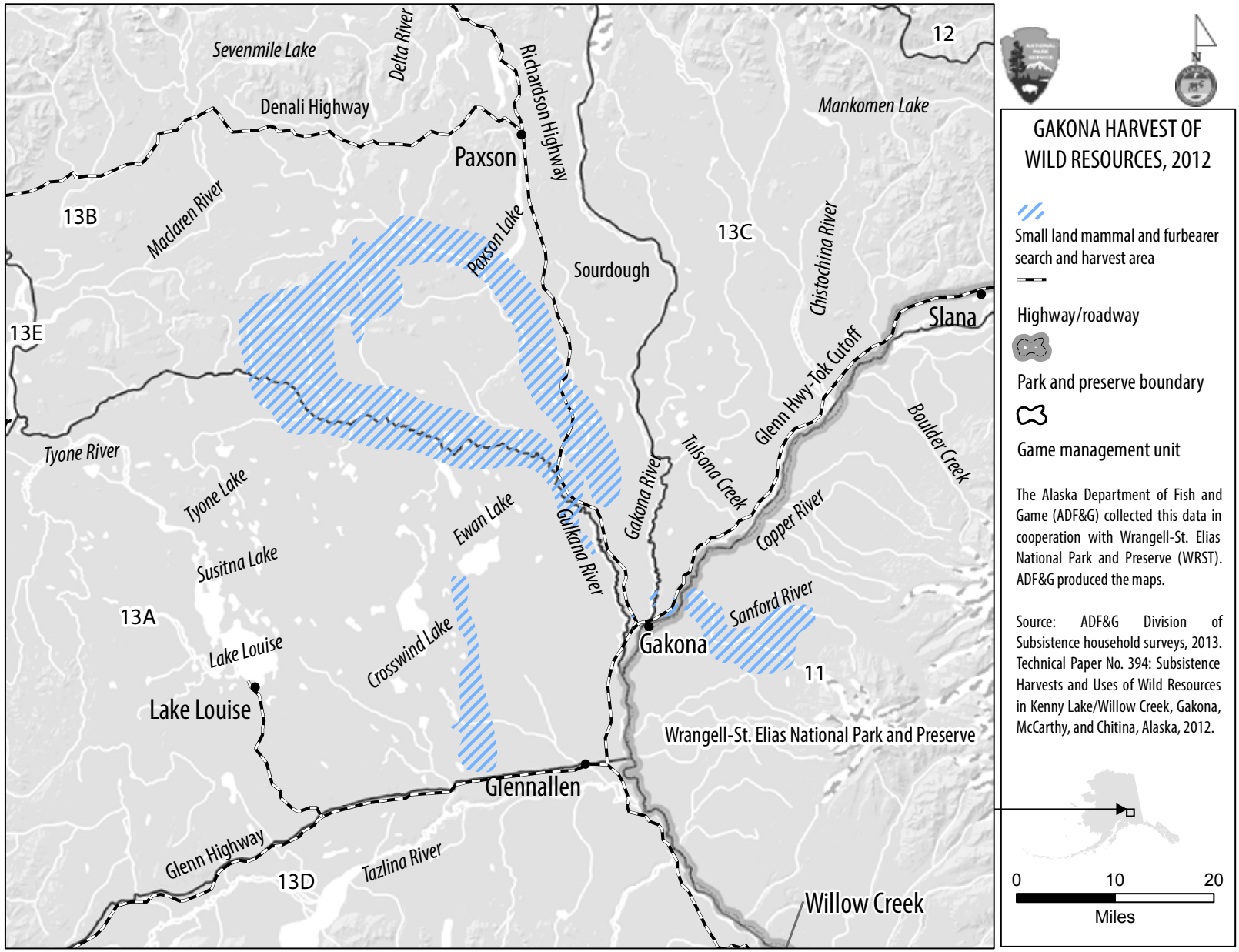


Figure 3-22.–Hunting locations of small land mammals/furbearers, Gakona, 2012.

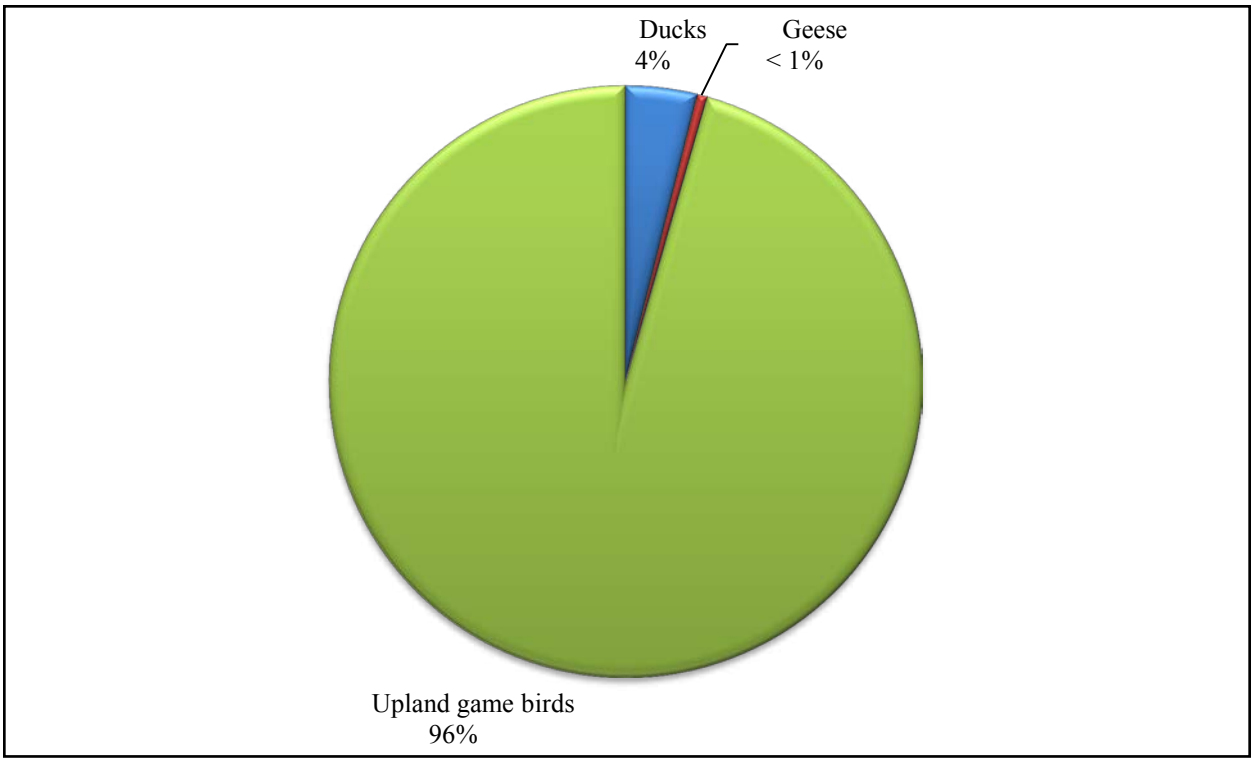


Figure 3-23.–Composition of bird harvests by type and individual bird harvest amount, Gakona, 2012.

Gakona and looped along the Gulkana River crossing over toward Paxson Lake and followed the Richardson Highway south. In addition, a smaller search and harvest area was located near Crosswind and Ewan lakes and extended south toward the Glenn Highway, and ended southwest of Gakona (Figure 3-22).

Birds and Eggs

For study year 2012, the harvest of birds totaled approximately 206 lb, or 1 lb per capita, and made up less than 1% of Gakona households' total wild resource harvest (Table 3-12; Figure 3-7). In terms of pounds usable weight, the majority of the harvest (194 lb, or 1 lb per capita) was upland game birds—for the most part consisting of spruce grouse (112 lb) and ptarmigan (71 lb) (Table 3-12). The remaining 6% of the bird harvest (12 lb, or less than 1 lb per capita) was composed of migratory birds, particularly ducks, such as mallards, and geese, specifically Canada goose (Figure 3-23; Table 3-12). No bird egg harvests were reported by Gakona residents in 2012.

Approximately 36% of Gakona households attempted to harvest birds in 2012 and all hunting households were successful (Table 3-12). An estimated 38% of Gakona households used some birds. Thirty-three percent of Gakona households used upland game birds, which is more than the 10% of households that used migratory waterfowl. At the species level, spruce grouse was the most widely used upland game species with 29% of Gakona households using the resource during 2012. Regarding sharing, survey results indicate that a small number (approximately 7%) of Gakona households received some birds during 2012. Gakona

Table 3-18.–Estimated bird harvests by season, Gakona, 2012.

	Estimated harvest by season				
Resource	Winter	Spring	Summer	Fall	Season unknown
Canvasback	0.0	0.0	0.0	0.0	0.0
Spectacled eider	0.0	0.0	0.0	0.0	0.0
Goldeneye	0.0	0.0	0.0	0.0	0.0
Mallard	3.7	0.0	0.0	0.0	0.0
Northern pintail	0.0	0.0	0.0	0.0	0.0
Black scoter	0.0	0.0	0.0	0.0	0.0
Green-winged teal	0.0	0.0	0.0	0.0	0.0
Unknown ducks	9.2	0.0	0.0	0.0	0.0
Brant	0.0	0.0	0.0	0.0	0.0
Cackling goose	0.0	0.0	0.0	0.0	0.0
Canada goose	0.0	1.8	0.0	0.0	0.0
Unknown Canada/cackling goose	0.0	0.0	0.0	0.0	0.0
Emperor goose	0.0	0.0	0.0	0.0	0.0
Snow goose	0.0	0.0	0.0	0.0	0.0
White-fronted goose	0.0	0.0	0.0	0.0	0.0
Unknown geese	0.0	0.0	0.0	0.0	0.0
Tundra (whistling) swan	0.0	0.0	0.0	0.0	0.0
Sandhill crane	0.0	0.0	0.0	0.0	0.0
Spruce grouse	7.3	0.0	67.8	84.3	0.0
Sharp-tailed grouse	0.0	0.0	3.7	9.2	0.0
Ruffed grouse	0.0	3.7	0.0	0.0	0.0
Ptarmigan	97.2	0.0	12.8	31.2	0.0
Duck eggs	0.0	0.0	0.0	0.0	0.0
Goose eggs	0.0	0.0	0.0	0.0	0.0
Gull eggs	0.0	0.0	0.0	0.0	0.0
Unknown eggs	0.0	0.0	0.0	0.0	0.0
Total harvest	**117.3**	**5.5**	**84.3**	**124.7**	**0.0**

Source ADF&G Division of Subsistence household surveys, 2013.

residents harvested the majority of their birds in the fall and winter months, in particular ptarmigan and spruce grouse, but a good number of birds were harvested in the summer and only a few were reportedly harvested in the spring months (Table 3-18).

In 2012, Gakona households searched for and harvested upland game birds along the Richardson Highway from Gakona to Paxson, as well as south of Glennallen along the Klutina River, and also east of Gakona along the Copper River near Tulsona Creek. Harvest and search areas along the highway and in the larger Gakona area were accessed either with highway vehicles, ATVs, or on foot. Migratory waterfowl search and harvest areas were less extensive than upland game bird areas. Residents searched for and harvested ducks

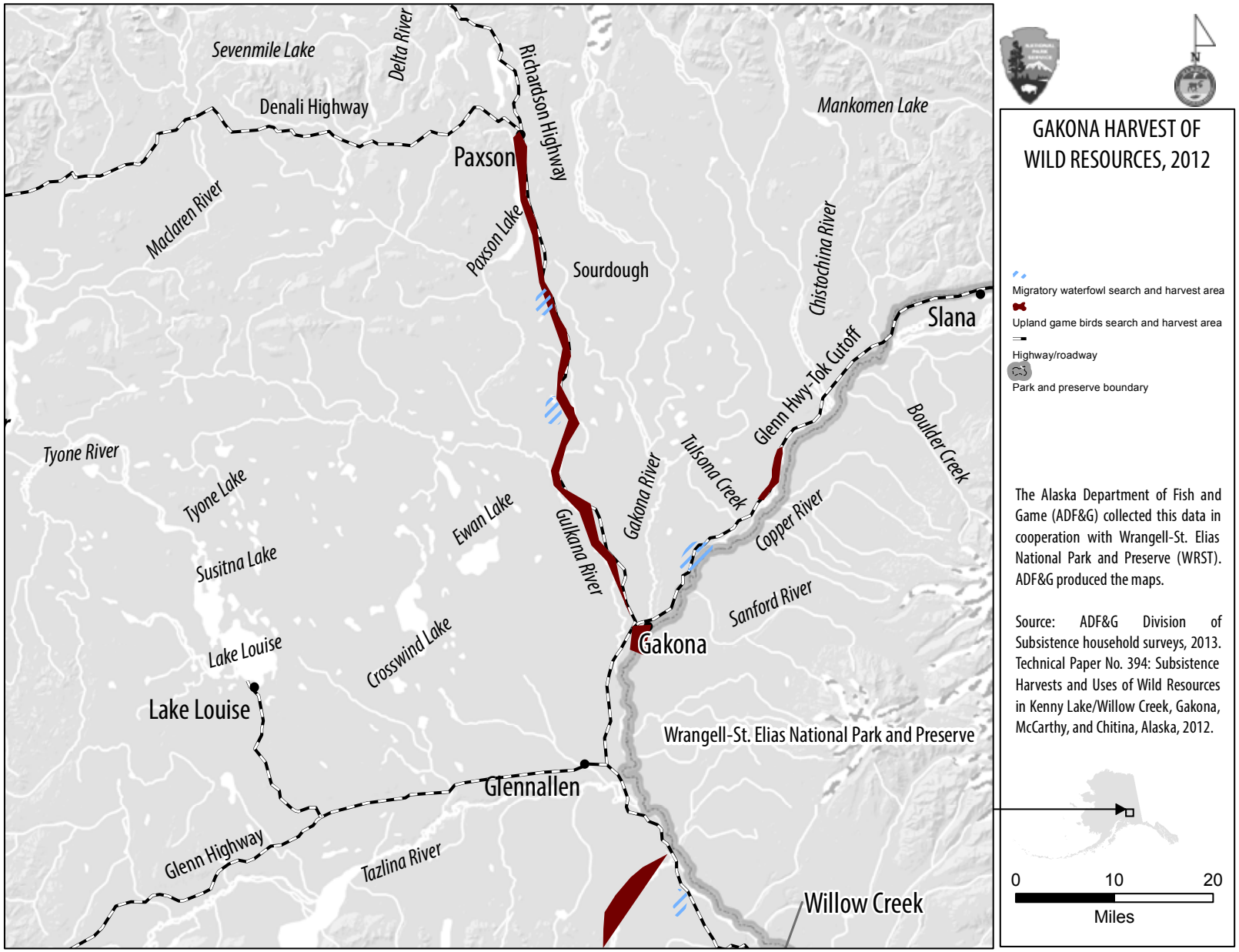


Figure 3-24.–Hunting and harvest locations of migratory waterfowl and upland game birds, Gakona, 2012.

and geese along Richardson Highway between Sourdough and Gakona as well as along Glenn Highway–Tok Cutoff about 5 mi east of Gakona (Figure 3-24).

Marine Invertebrates

According to survey results, the harvest of marine invertebrates made up 1% of Gakona households' wild resources harvest totaling 235 lb, or 1 lb per capita (Figure 3-7; Table 3-12). In terms of pounds usable weight, the majority of the harvest was shrimp (approximately 227 lb, or 1 lb per capita) (Table 3-12). The remaining harvest was composed of razor clams (8 lb, or less than 1 lb per capita). Only a small number (approximately 7%) of Gakona households attempted to harvest and harvested marine invertebrates in 2012. An estimated 26% of Gakona households used some marine invertebrates, particularly shrimp. Twelve percent of Gakona households gave away any marine invertebrates and approximately 24% of community households received some, which indicates that much of these resources came into Gakona from other Alaska communities. It is important to note that these received resources could have been harvested during 2012, or they may have been caught prior to the study year 2012 and shared sometime in 2012.

To search and harvest for marine invertebrates, Gakona residents need to travel a considerable distance to a marine environment. In 2012, Gakona households searched for and harvested marine invertebrates near the Valdez port. Valdez is reachable via the Richardson Highway with a highway vehicle.

Vegetation

In study year 2012, vegetation made up 3% of the total wild food harvest in Gakona; 93% of Gakona households used some vegetation resources and 91% harvested some (Figure 3-7; Table 3-12). Gakona residents harvested an estimated a total of 1,048 lb, or 5 lb per capita, of vegetation in 2012, the majority of which was berries (910 lb) (Table 3-12; Figure 3-25). In terms of total pounds harvested, the majority of the berry harvest was composed of blueberries (469 lb, or 2 lb per capita) followed by lowbush cranberries (189 lb, or less than 1 lb per capita), raspberries (168 lb), and highbush cranberries (70 lb) (Table 3-12). Salmonberries, crowberries, and serviceberries were also harvested. In line with the fact that the harvest weight of blueberries exceeded any other edible vegetation resource harvest, blueberries was the only edible vegetation type included in the list of top 10 ranked most harvested resources (Table 3-13). In comparison, the majority of the other plant harvest was unspecified mushrooms (74 lb, or less than 1 lb per capita) followed by wild rose hips (46 lb), other wild greens (9 lb), and Hudson's Bay (Labrador) tea (4 lb) (Table 3-12).

As discussed above, vegetation resources are widely harvested and used in Gakona. Household sharing and receiving data indicate that during study year 2012 berries were shared more than plants, greens, and mushrooms; 36% of community households gave away some berries while only 19% shared other vegetation resources (Table 3-12). Similarly, more Gakona households received some berries (38% of households received berries) than plants, greens, and mushrooms (12% of households received other edible vegetation

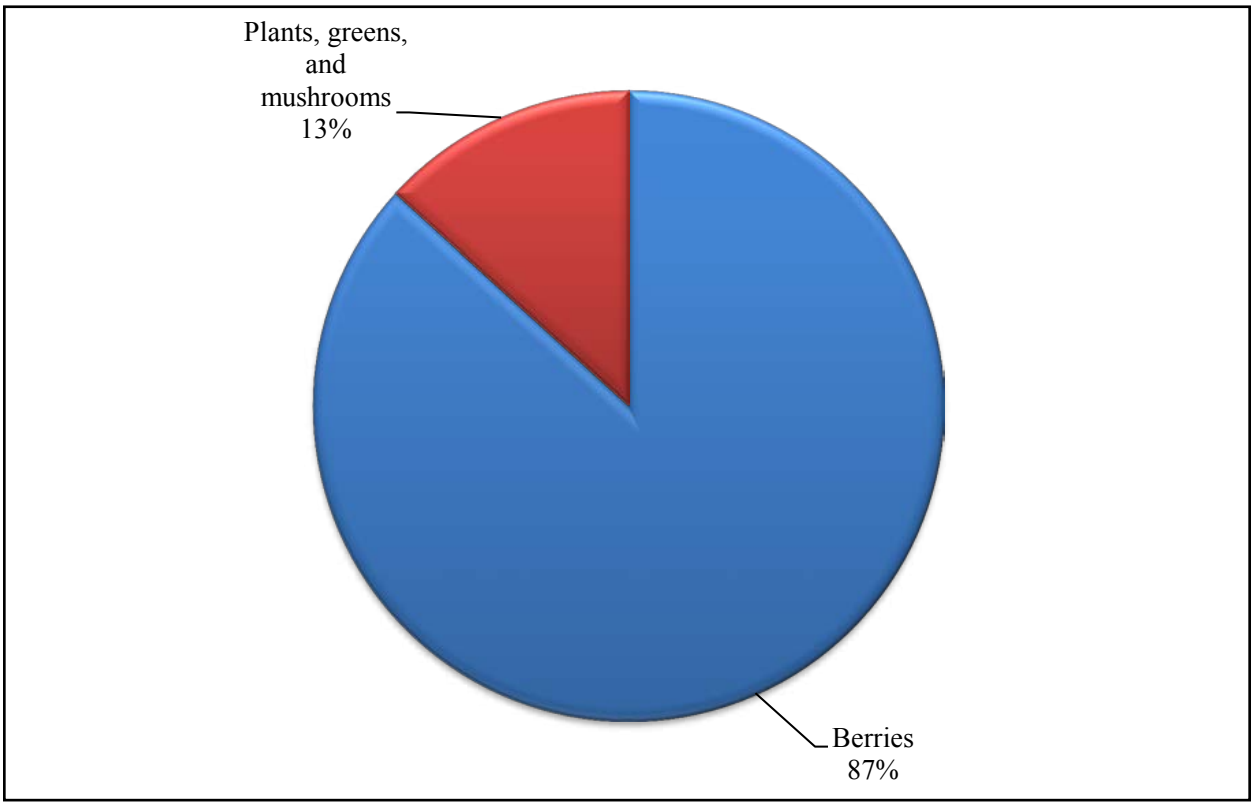


Figure 3-25.–Composition of vegetation harvest by type and pounds usable weight, Gakona, 2012.

resources). The most widely shared berry species was blueberries (29% of households gave some away) and was also the most received berry (29% of households received some). In comparison, unspecified mushrooms were the most shared and received resource among other edible vegetation resources with 12% of households giving some away and 7% of households receiving some. An interesting observation from survey results is that more Gakona households gave away plants than received plants.

While firewood is not a resource consumed as food and thus not included in the calculation of total pounds usable weight harvested during a study year, it is a very important resource for Gakona households as a source of home heat. In 2012, approximately 83% of Gakona households used firewood and 79% harvested firewood (Table 3-12). Sharing data indicate that a small number of community households shared or received firewood; approximately 26% of Gakona households gave some away and 21% received some.

Most of Gakona residents' plant search and harvest areas were near the community along the Glenn Highway (Figure 3-26). Mirroring large land mammal hunting activities, the majority of berry search and harvest areas were north of Gakona along the Glenn Highway and the Denali Highway near the community of Paxson. Berry harvests often occurred simultaneously with large land mammal hunting and much of the berry harvests were opportunistically collected as residents were searching for large land mammals in this area. Firewood was harvested in and around the highway in the general vicinity of Gakona. Residents used

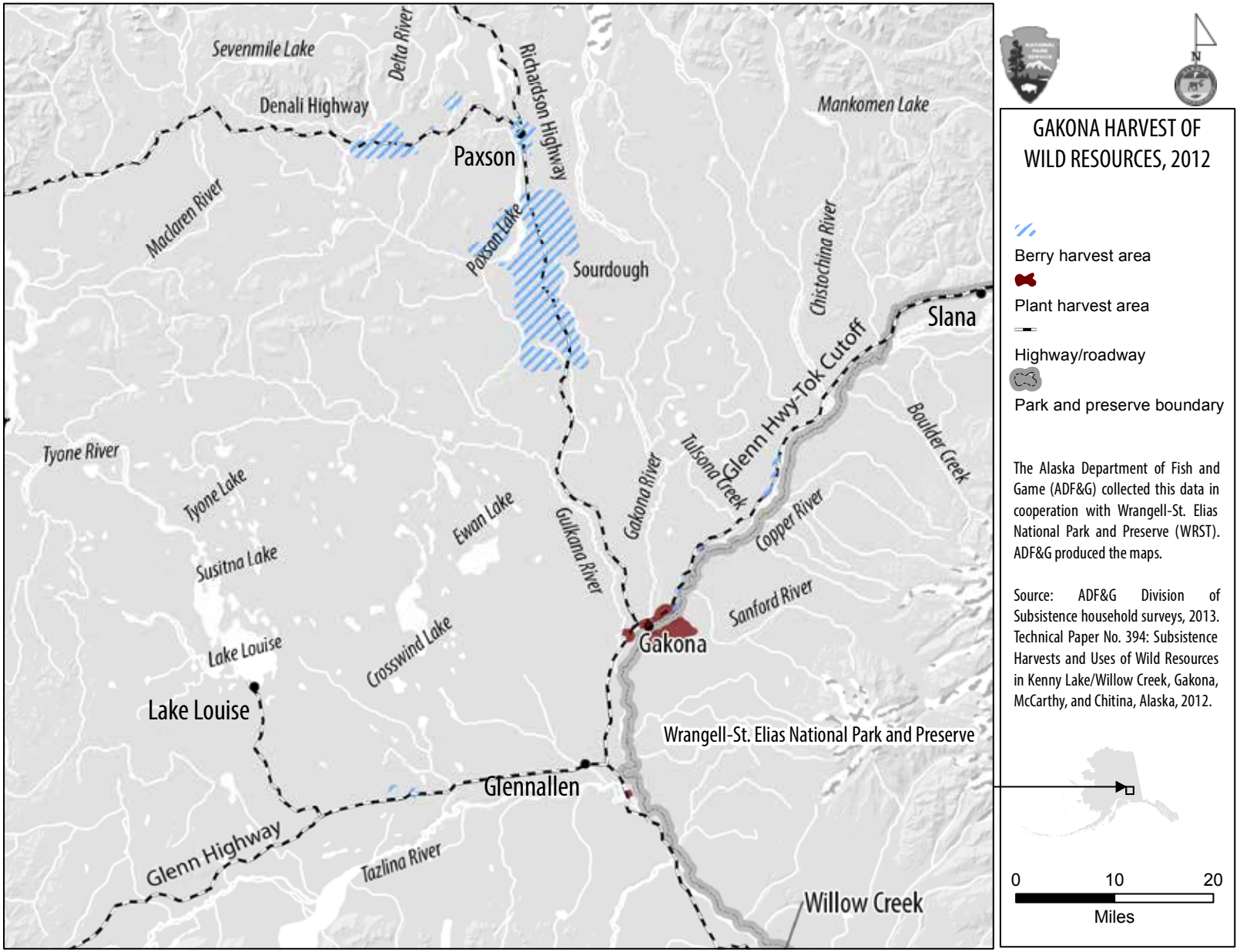


Figure 3-26.–Gathering and harvest locations of berries and plants, greens, and mushrooms, Gakona, 2012.

Table 3-19.–Changes in household uses of resources compared to recent years, Gakona, 2012.

Resource category	Sampled households	Valid responses[a]	Households reporting use[b]					
			Less		Same		More	
			Number	Percentage	Number	Percentage	Number	Percentage
Any resource[c]	42	41	29	71%	34	83%	19	46%
All resources	42	41	15	37%	17	41%	9	22%
Salmon	42	39	13	33%	22	56%	4	10%
Nonsalmon fish	42	32	14	44%	13	41%	5	16%
Large land mammals	42	36	13	36%	15	42%	8	22%
Small land mammals	42	15	8	53%	4	27%	3	20%
Migratory birds	42	4	2	50%	0	0%	2	50%
Other birds	42	17	10	59%	6	35%	1	6%
Bird eggs	42	0	0	0%	0	0%	0	0%
Marine invertebrates	42	11	2	18%	9	82%	0	0%
Vegetation	42	39	11	28%	20	51%	8	21%

Source ADF&G Division of Subsistence household surveys, 2013.
a. Valid responses do not include households that did not provide any response and households reporting never using resources from the category.
b. Percentages based on valid responses only.
c. The number of households that gave a valid response in at least 1 of the resource categories. Households are counted only once even though they may give more than 1 valid response.

the areas around the Glenn Highway and Glenn Highway–Tok Cutoff to search for dead and downed wood to harvest. Several residents harvested firewood several miles north of Glennallen along the Glenn Highway.

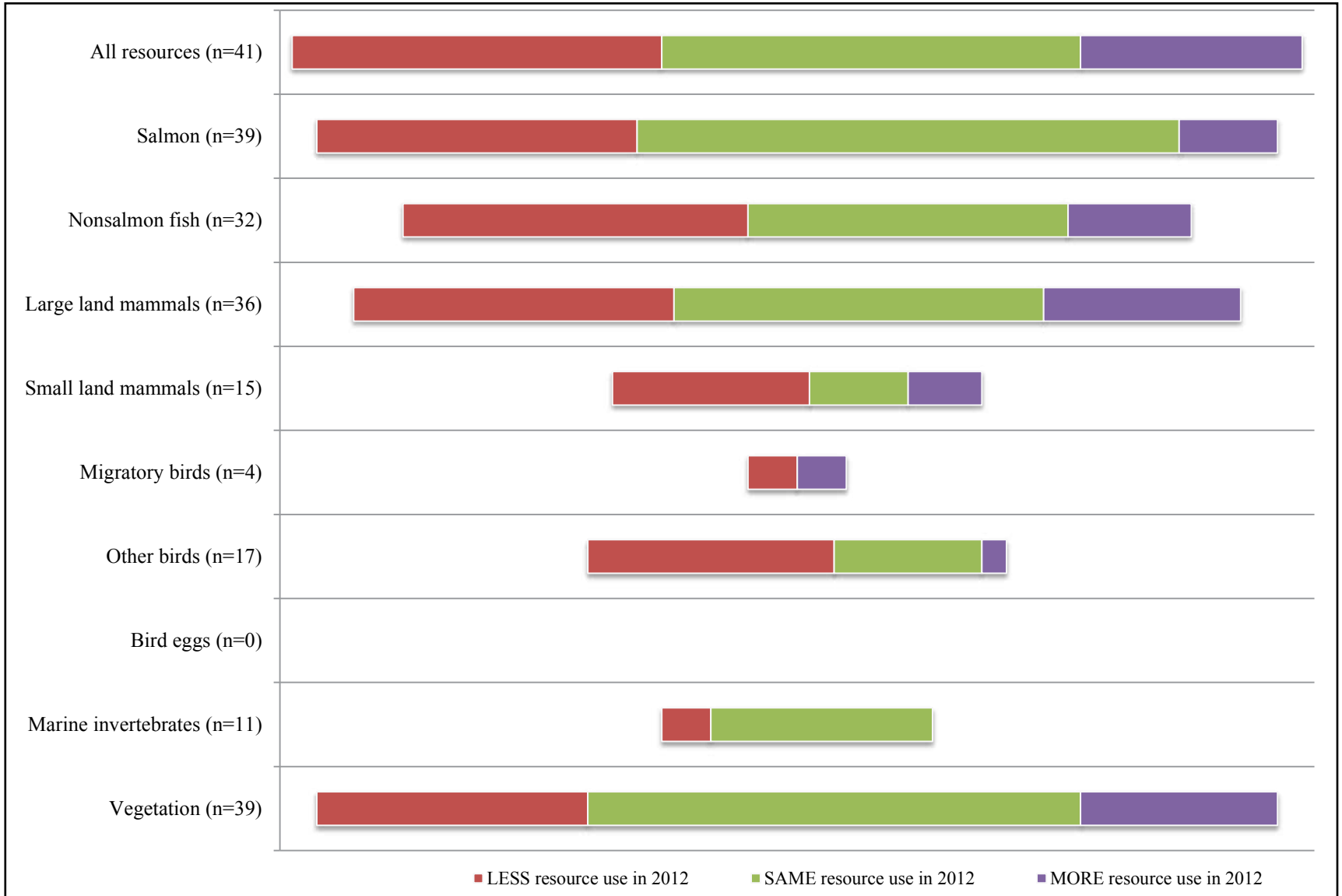
Comparing Harvests and Uses in 2012 with Previous Years

Harvest Assessments

For 10 resource categories and for all resources combined, survey respondents were asked to assess whether their uses and harvests in the 2012 study year were less, more, or about the same as other recent years. "Other recent years" was defined as about the last 5 years. Table 3-19 reports the number of valid responses for each category, the number of households that did not respond, and the number of households that did not use a resource category or all resources combined. In Table 3-19, response percentages are based on the number of valid responses for each category to contextualize these assessments within the set of community households that typically use each category.

Figure 3-27 depicts responses to the "less, same, more" assessment question. Households that said they did not ordinarily "use" something are not included within the results. This results in fewer responses for less commonly used categories such as migratory birds or bird eggs, and manifests in the chart as a very short bar (or no bar) compared to categories such as salmon and large land mammals, which are ordinarily used by most households. Some households did not respond to the question.

Taking all the resource categories into consideration, 37% of responding households said they used less subsistence resources in general over the previous 12 months compared to recent years (Table 3-19). A larger number, 41% of responding households, said they used about the same amount, and only 22% said they used more.



Note The value for *n* is the total number of households reporting use of resources in the indicated resource category.

Figure 3-27.–Changes in household uses of resources compared to recent years, Gakona, 2012.

Table 3-20 reports the reasons why, according to their assessments, Gakona households' use of wild resources was less in 2012; correspondingly Table 3-21 reports the reasons why Gakona households' use of resources was more. This was an open-ended question and respondents could provide more than one reason for each resource category. Project staff grouped the responses into categories, such as regulations hindering residents from harvesting resources, sharing of harvests, effects of weather on animals and subsistence activities, changes in the animal populations, personal reasons such as work and health, and other outside effects on residents' opportunities to engage in hunting, fishing, and gathering activities.

Looking at all resources combined, of the 15 households that reported less use, 67% cited less sharing and 47% cited work interference as the main reasons for using less wild resources in 2012 (Table 3-20). In comparison, more sharing was the main reason most Gakona households that responded to this question cited for their increased use of all wild resources during 2012 (78% of a total of 9 households reporting increased use) (Table 3-21). Looking at Gakona households' answers to the same questions regarding any resource, the main reasons named for their increased use of any wild resource in 2012 were more sharing (58% of the 19 households reporting more use) and economic (32% of the 19 households) (Table 3-21). Similarly, 29 Gakona households reporting decreased use cited less sharing (62%), work interference (41%), and fewer resources available (35%) (Table 3-20).

In responding to the individual resource categories, approximately 59% of responding Gakona households reported using less other birds and 53% used less small land mammals during 2012 (Table 3-19). However, the majority of Gakona households reported their use of remaining resource categories in 2012 was the same as previous years (Figure 3-27); this is the case particularly for marine invertebrates (82%), salmon (56%), and vegetation (51%). Migratory birds was the only category where no responding households reported use was the same; 50% of households reported less use and 50% reported more use. Looking at the reasons cited by responding Gakona households for using less other birds and small land mammals, less sharing was the reason given by most households (Table 3-20). More sharing was the primary reason cited by households for increased use of nonsalmon fish, salmon, large land mammals, and migratory birds (Table 3-21).

Harvest Data

Changes in the harvest of resources by Gakona residents can also be discerned through comparisons with findings from other study years. Comprehensive subsistence harvest surveys were conducted in Gakona for study years 1982 and 1987 by the Division of Subsistence. Figure 3-28 shows the historical per capita harvests for all 3 study years (1982, 1987, and 2012); Figure 3-29 highlights the harvests in pounds usable weight by resource category for all 3 study years. In 1982 the estimated total Gakona harvest of wild resources in pounds usable weight was 23,864 lb, or 221 lb per capita. In 1987, the estimated total harvest decreased slightly to 20,874 lb but the per capita harvest declined significantly to 100 lb. In 2012 the estimated total harvest of wild resources in pounds usable weight increased to 34,570 lb and the per capita harvest increased to 171 lb (an overall 50 lb per capita decrease from 1982).

Table 3-20.–Reasons for less household uses of resources compared to recent years, Gakona, 2012.

		Households reporting less use										
			No reason reported		Fewer resources available		Poor weather		Work interfered		Competition	
Resource category	Households using[a]	Total households	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource[b]	41	29	0	0.0%	10	34.5%	4	13.8%	12	41.4%	1	3.4%
All resources	41	15	0	0.0%	1	6.7%	0	0.0%	7	46.7%	0	0.0%
Salmon	39	13	0	0.0%	1	7.7%	0	0.0%	4	30.8%	0	0.0%
Nonsalmon fish	32	14	0	0.0%	0	0.0%	2	14.3%	4	28.6%	0	0.0%
Large land mammals	36	13	0	0.0%	0	0.0%	0	0.0%	3	23.1%	0	0.0%
Small land mammals	15	8	0	0.0%	5	62.5%	0	0.0%	0	0.0%	1	12.5%
Migratory birds	17	2	0	0.0%	1	50.0%	0	0.0%	0	0.0%	0	0.0%
Other birds	0	10	0	0.0%	3	30.0%	0	0.0%	2	20.0%	0	0.0%
Marine invertebrates	11	2	0	0.0%	2	100.0%	0	0.0%	0	0.0%	0	0.0%
Vegetation	39	11	0	0.0%	1	9.1%	2	18.2%	3	27.3%	0	0.0%

Table 3-20.–Continued.

		Households reporting less use								
			Regulations		Less sharing		Other personal reasons		Fuel or equipment too expensive	
Resource category	Households using[a]	Total households	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource[b]	41	29	2	6.9%	18	62.1%	1	3.4%	8	27.6%
All resources	41	15	0	0.0%	10	66.7%	1	6.7%	0	0.0%
Salmon	39	13	0	0.0%	5	38.5%	0	0.0%	1	7.7%
Nonsalmon fish	32	14	0	0.0%	5	35.7%	0	0.0%	3	21.4%
Large land mammals	36	13	2	15.4%	6	46.2%	0	0.0%	1	7.7%
Small land mammals	15	8	0	0.0%	4	50.0%	0	0.0%	0	0.0%
Migratory birds	17	2	0	0.0%	1	50.0%	0	0.0%	0	0.0%
Other birds	0	10	0	0.0%	5	50.0%	0	0.0%	2	20.0%
Marine invertebrates	11	2	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Vegetation	39	11	0	0.0%	6	54.5%	0	0.0%	2	18.2%

Source ADF&G Division of Subsistence household surveys, 2013.

Note Percentages are calculated using the number of households reporting less use as a base.

Note The category "bird eggs" is not included in this table because no (zero) households in Gakona reported using resources from this category.

a. "Households using" data include only households that used a resource and responded to the question about use.

b. The number of households that gave a valid response in at least 1 of the resource categories. Households are counted only once even though they may give more than 1 valid response.

Table 3-21.–Reasons for more household uses of resources compared to recent years, Gakona, 2012.

		Households reporting more use										
			No reason reported		More resources available		Better weather		Work related		Less competition	
Resource category	Households using[a]	Total households	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource[b]	41	19	0	0.0%	4	21.1%	2	10.5%	0	0.0%	0	0.0%
All resources	41	9	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Salmon	39	4	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Nonsalmon fish	32	5	0	0.0%	1	20.0%	0	0.0%	0	0.0%	0	0.0%
Large land mammals	36	8	0	0.0%	1	12.5%	0	0.0%	0	0.0%	0	0.0%
Small land mammals	15	3	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Migratory birds	4	2	0	0.0%	1	50.0%	0	0.0%	0	0.0%	0	0.0%
Other birds	17	1	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%
Marine invertebrates	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Vegetation	39	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%

Table 3-21.–Continued.

		Households reporting more use								
			Better regulations		More sharing		Other personal reasons		Economic	
Resource category	Households using[a]	Total households	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource[b]	41	19	0	0.0%	11	57.9%	1	5.3%	6	31.6%
All resources	41	9	0	0.0%	7	77.8%	1	11.1%	1	11.1%
Salmon	39	4	0	0.0%	2	50.0%	1	25.0%	1	25.0%
Nonsalmon fish	32	5	0	0.0%	3	60.0%	0	0.0%	1	20.0%
Large land mammals	36	8	0	0.0%	4	50.0%	1	12.5%	0	0.0%
Small land mammals	15	3	0	0.0%	0	0.0%	0	0.0%	2	66.7%
Migratory birds	4	2	0	0.0%	1	50.0%	0	0.0%	1	50.0%
Other birds	17	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Marine invertebrates	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Vegetation	39	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%

Source ADF&G Division of Subsistence household surveys, 2013.
Note Percentages are calculated using the number of households reporting more use as a base.
Note The category "bird eggs" is not included in this table because no (zero) households in Gakona reported using resources from this category.
a. "Households using" data include only households that used a resource and responded to the question about use.
b. The number of households that gave a valid response in at least 1 of the resource categories. Households are counted only once even though they may give more than 1 valid response.

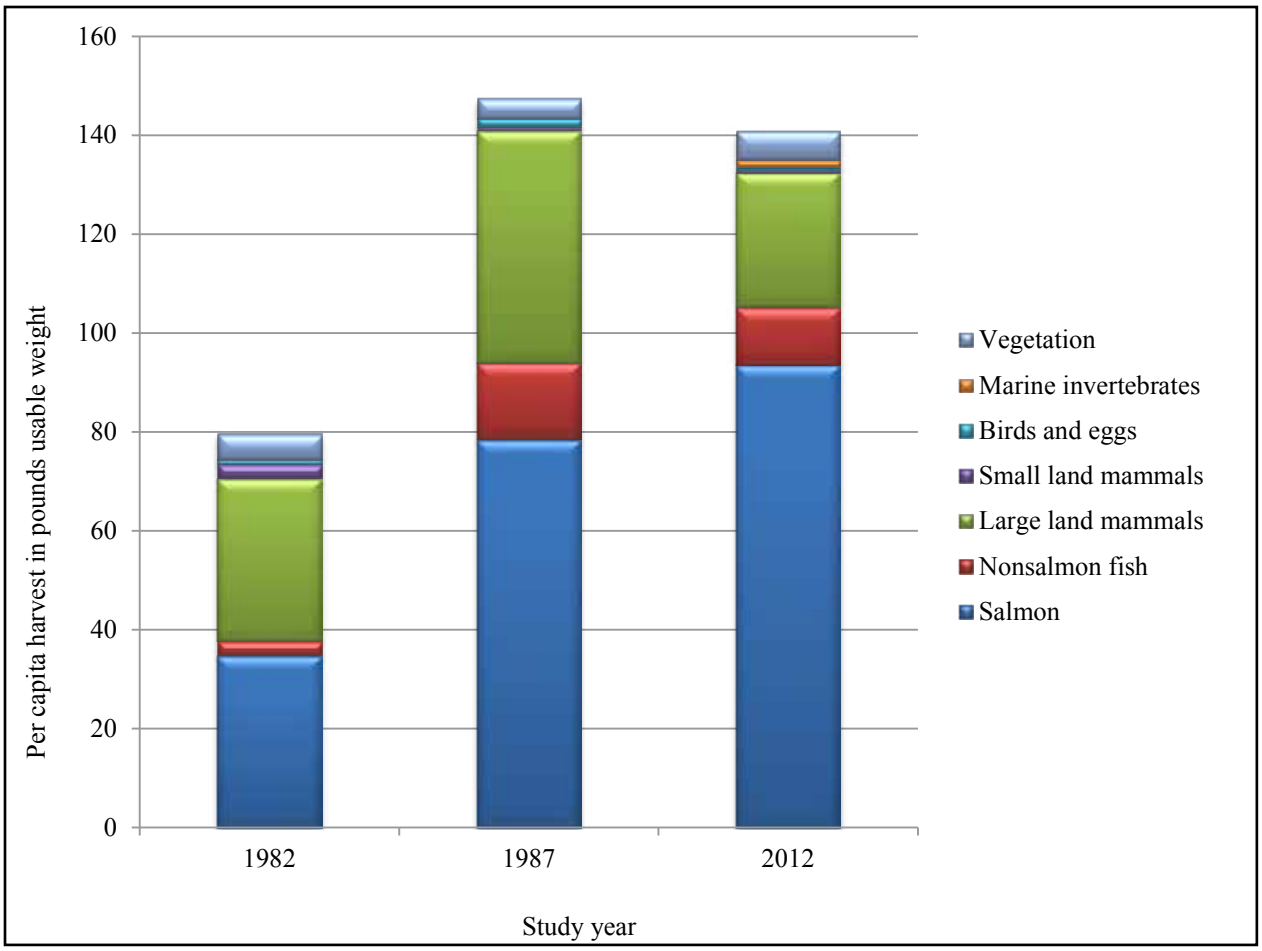


Figure 3-28.–Estimated harvests by pounds per capita and by resource category, Gakona, 1982, 1987, and 2012.

With regard to individual resource categories, the most standout developments in the composition of Gakona residents' wild resource harvests are the variations in the per capita harvests of salmon (Figure 3-28). In 1982, the per capita harvest of salmon was 136 lb and in the 2012 the per capita salmon harvest was 96 lb; the 1987 per capita harvest of salmon was much lower at 34 lb. It can only be speculated why the 1987 study year had a significantly different salmon harvest level. One speculation is that the shortage of salmon could be due to a problem with harvest opportunity, such as the community fish wheel not being installed or a big community event occupying people for that specific year.

In comparison, large land mammal per capita harvests were similar from 1982 to 1987, and declined only slightly in the 2012 survey (Figure 3-28). The per capita harvest of large land mammals was approximately 46 lb and 48 lb per capita in 1982 and 1987 then declined to 41 lb per capita in the 2012 survey; these harvests exhibit a steady per capita harvest level in contrast to the fluctuation of harvests in other categories. The per capita harvests of small land mammals also increased in the 2012 study year; in the first survey, the per capita harvest was 6 lb but in 1987 it declined to less than 1 lb per capita, and in 2012 the harvest was

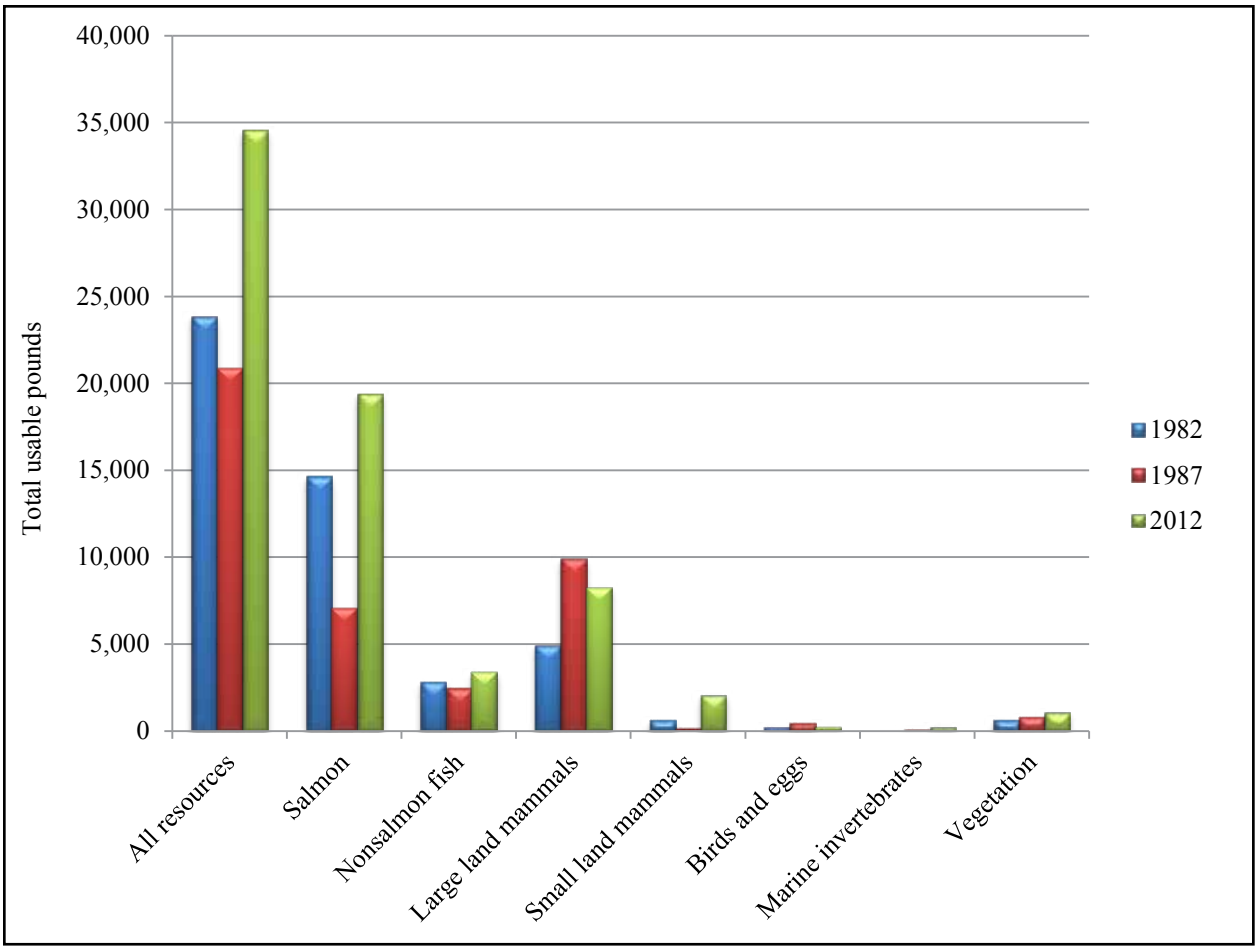


Figure 3-29.–Estimated harvests by total usable pounds and by resource category, Gakona, 1982, 1987, and 2012.

approximately 10 lb. A harvest decline is noticeable in the per capita harvest of birds (from 2.3 lb per capita in 1982 to about 1 lb per capita in 2012). Nonsalmon fish harvests were approximately 26 lb per capita in the 1982 study, decreased to 12 lb per capita in 1987, and increased to 17 lb per capita in 2012. The 1982 study did not record the harvest of marine invertebrates but it has remained relatively low, less than 1 lb per capita in 1987 and about 1 lb per capita in 2012.

Current and Historical Harvest Areas

During the 1983 and 1984 fieldwork seasons, ADF&G researchers conducted interviews with more than 200 hunters and fishers in 20 communities in or near the Copper River Basin to map areas where hunting, fishing, trapping, and gathering of wild resources occurred between 1964 and 1984 (Stratton and Georgette 1985). This effort produced 2 separate publications by 2 different ADF&G divisions; the Division of Habitat published the maps and the Division of Subsistence published a description of the project and mapping methods. The maps depicting the harvest and use areas used by study community residents during this 20-year

span are published in *Alaska Habitat Management Guide Southcentral Region: Reference Maps—Volume 3. Community Use of Fish, Wildlife, and Plants* (Alaska Department of Fish and Game Division of Habitat 1985).[4] Information about the mapping project is available in *Copper Basin Resource Use Map Index and Methodology* (Stratton and Georgette 1985). A total of 8 maps were produced at the 1:250,000 scale that depict where Gakona residents identified they fished, hunted, and gathered resources during a 20-year span. The maps show harvest and use (referred to in this report as "search") areas for moose, caribou and waterfowl, sheep and plants, nonsalmon fish and salmon, and also trapping areas; there are no maps depicting harvest and use areas for brown or black bears or upland game birds. It is important to keep in mind that only limited comparisons can be made between the historical maps capturing multiple decades of activity and the mapping data recorded for only the 2012 study year.

While there are some similarities between the historical and the most recent harvest and use/search area mapping results, there are also many noticeable differences. The most significant difference is the overall reduced size and concentration of Gakona residents' search and harvest areas along the road system in the maps for study year 2012. In the historical maps, Gakona residents' wild resource harvest and use areas covered large areas in the Copper River watershed that followed along a number of tributaries to the Copper River. According to the historical maps, Gakona residents harvested and used some resources from all major resource categories along and west of the Richardson Highway and as well as along the Glenn Highway. Areas north of Gakona and north of the Glenn Highway extending as far north as the West Fork Chistochina River were also used to search and harvest a variety of wild resources—including large and small land mammals, nonsalmon fish, and vegetation. Historically, some caribou, moose, and vegetation harvests and uses also took place along the Nabesna Road. In addition, lands south and southeast of Gakona that are now part of WRST were used to harvest both large and small land mammals, some nonsalmon fish, and vegetation. It is also important to note that the historical maps portray several individual Dall sheep harvest and use areas that are substantial distances from the community and only accessible with small airplanes.

In the map data recorded for the 2012 study year, Gakona residents' wild resource harvest and search areas are largely concentrated on harvest locations reasonably close to Gakona where community residents have relatively easy access for attempting to harvest and harvesting key resources such as the different species of salmon. With regard to land mammal harvest areas, the Denali Highway continued to be an important caribou search and harvest area for Gakona residents in 2012 but there was no moose hunting along Nabesna Road or McCarthy Road as has occurred in the past. The historical maps did not record any deer harvest and use areas for Gakona residents, which appear in the 2012 maps; these areas were located in the Gulf of Alaska and accessed with a small plane. In comparison, the 2012 survey did not record any Dall sheep search and harvest areas, of which there are many around the Copper River Basin in the historical maps.

With regard to changes in fish harvesting locations, the 2012 maps show new nonsalmon fish search and

4. A complete index of documents published in 1985 and 1986 as part of *Alaska Habitat Management Guide* is available online: http://www.arlis.org/docs/vol1/C/AHMG/index.html.

harvest locations in Copper and Tanada lakes located southwest of Nabesna Road. Other newly recorded harvest locations are areas located in Prince William Sound as well as in the Gulf of Alaska where Gakona households searched for and harvested a few marine fish species. While more limited in scope, other non-salmon fish search and harvest areas appear similar to previously recorded areas. Looking at salmon search and harvest areas, the 2012 maps show salmon search and harvest locations were more focused along the Copper River rather than along the Gulkana River as they largely appeared to be in the historical maps.

According to the 2012 study, Gakona residents continue to harvest vegetation resources locally around Gakona and along the Glenn Highway–Tok Cutoff as well as along the Richardson Highway. While largely similar, the main difference between the 2012 maps and the historical maps is that there was no harvest of vegetation along Nabesna Road or McCarthy Road in 2012. During the household survey, Gakona residents commented that often they harvest vegetation, particularly berries, when hunting for large game in the early fall. Because there was no large land mammal hunting along Nabesna Road or McCarthy Road in the 2012 study, this could be one explanation for no recorded vegetation search and harvest areas along these 2 roads in 2012. While the historical maps did not record Gakona residents' upland game bird harvest and use areas, the documented waterfowl search and harvest areas for 2012 are smaller but largely very similar to previously recorded areas.

Local Comments and Concerns

Following is a summary of local observations of wild resource populations and trends that were recorded during the surveys. Some households did not offer any additional information during the survey interviews, so not all households are represented in the summary. In addition, respondents expressed their concerns about wild resources during the community meeting to review preliminary data. These concerns have been included in the summary.

Large Land Mammals

Large land mammals were the second most harvested resource category for the community of Gakona. Residents reported that they had to search for longer periods of time and go farther to harvest moose and caribou in 2012. According to local residents, large land mammal resources have been declining over the past 20 years. Community members expressed concern that the moose decline will continue. Several residents of Gakona felt that the former Tier II[5] permitting system was flawed, expressing concern that some people abused the system and received permits under false pretenses. The last Tier II hunts in GMU 13 took place in 2010.

5. State Tier II hunts are held when there is not enough of a game population with a positive customary and traditional use finding to provide a reasonable opportunity for subsistence uses. Hunters must answer questions on an application concerning their dependence on the game for their livelihood and availability of alternative resources. Applications are scored based on responses to the questionnaire and permits are issued to those with the highest scores.

Small Land Mammals/Furbearers

Trapping is an important activity for a portion of Gakona residents. In the study year, 26% of Gakona households trapped small land mammals and furbearers. It was noted by several households during the survey that 2012 was a low year for the harvest of small land mammals. In particular residents remarked that the hare population was on a low cycle in 2012 and some avoided harvesting hares because of low population numbers. According to local trappers, the lynx and marten populations in the area were also down. One trapper expressed deep concern about the future of trapping in the area due to the lack of animals to trap.

Birds and Eggs

Similar to small land mammals, community residents noted that upland birds were also on a low cycle in 2012. Some residents avoided harvesting both spruce grouse and ptarmigan due to low population numbers.

Vegetation

As the results of this study demonstrate, firewood is important for Gakona residents as a source of household heat. A majority of households in Gakona rely on at least some firewood to heat their home; therefore Gakona residents were primarily concerned about access to firewood harvest areas. Many residents expressed concern that less dead wood was available. It was expressed that current harvest areas are dwindling due to increased pressure on firewood resources as a result of the rising costs of heating fuel. Residents also commented that the summer of 2012 was rather wet, resulting in a less abundant berry season. Residents had to spend more time and travel farther to harvest firewood and gather berries during the study year.

Living Expenses

Several respondents mentioned the rise in the price of gas, heating oil, and electricity in the Copper River Basin over the past 10 years. One respondent commented that if the prices of energy in rural Alaska continue to rise, he will have to relocate to an urban area. Another respondent mentioned a need for subsidized electricity rates in Copper River Basin communities.

Acknowledgements

The Division of Subsistence would like to thank our local research assistants Ann Biddle, Laura Scott Roselyn Neeley, and Robert Sequak in Gakona for their knowledge, assistance, and excellence in getting the household surveys completed during the fieldwork session which took place in March 2013. We could not have collected the data without their local guidance, so we cannot thank them enough for their contributions. In addition, we would like to thank Mike Jenkins and the rest of the Gakona Fire Volunteer Department for letting the Division of Subsistence use the fire hall to hold meetings for the project; the research team would not have been able to host the community meeting without the hall.

4. McCARTHY

Malla Kukkonen

Community Background

The community of McCarthy is located in the eastern Copper River Basin 61 mi east of the community of Chitina. Situated in the heart of Wrangell-Saint Elias National Park and Preserve (WRST), 12 mi northeast of the junction of the Nizina and Chitina rivers, the town of McCarthy is located alongside the Kennicott River at its confluence with McCarthy Creek.[1] McCarthy is surrounded by the Chugach, Wrangell, and St. Elias mountain ranges and a number of rivers and creeks, which expand or shrink in size and water volume depending on the time of the year, and a multitude of glaciers. The community extends on both sides of the Kennicott River and substantially beyond into surrounding areas; further discussion of the surveyed community boundary is provided in the section "Demography." The 60-mi-long McCarthy Road, the only land access to the community, travels through the Chitina River valley, which in the lower elevation areas is covered in vegetation ranging from dense white spruce and balsam poplar forest to small lakes and wetlands. In higher elevations, these tree species, along with a mixture of birch, aspen, and willows, and various shrubs typical of alpine tundra, cover the slopes. In the highest elevation areas, only barren rocks, sand, or ice are present. The community is located in the continental climate zone and the temperature extremes in the area range from -58 ˚F to 91 ˚F. The annual snowfall average is 52 in and the total precipitation 12 in.[2]

The Community of McCarthy—A Town That Copper Built and Left Behind in the Rugged Alaska Wilderness

The current McCarthy area, including the entire span of McCarthy Road, lies within an area traditionally inhabited by the Lower Ahtna. In Alaska, the Ahtna, who are related to the larger group of Athabascan-speaking Indians, were broken into 4 groups—Lower, Middle, Upper, and Western Ahtna. These groups relate to the 4 spoken Ahtna language dialects and the 4 geographic subregions within the traditional Ahtna territory in Alaska. Within each of the 4 groups, additional different Ahtna groups were further identified based on regional and local bands that were based on kinship relations, local dialects, and occupied territories (de Laguna and McClellan 1981:653; Langdon 1989rev.:48–57; Simeone and Kari 2004:5).

The Chitina River basin, particularly the areas around the lower Nizina River, was known to be a good source of minerals such as copper and gold by the Ahtna for centuries. In fact, copper from the Lower Ahtna

1. Alaska Department of Commerce, Community, and Economic Development (ADCCED) Division of Community and Regional Affairs, Juneau. n.d. "Alaska Community Database Online: Community Information." Accessed June 2014. http://commerce.state.ak.us/cra/DCRAExternal/community/Details/f59d9a30-01ca-4a12-941c-ad822f747fd0
2. Alaska Department of Commerce, Community, and Economic Development (ADCCED) Division of Community and Regional Affairs, Juneau. n.d. "Alaska Community Database Online: Community Information." Accessed June 2014. http://commerce.state.ak.us/cra/DCRAExternal/community/Details/f59d9a30-01ca-4a12-941c-ad822f747fd0

area was an important commodity in aboriginal trading long before initial European contact. In the summer of 1899, the first man to describe in writing the geographical formations and the mineralization of the McCarthy and Kennicott River area was Oscar Rohn who was sent to survey the region by Capt. William R. Abercrombie, the leader of the military effort organized to scout and build a safer route from Valdez to Interior Alaska (Orth 1971rep.; Abercrombie 1900). The initial trail was later expanded and became known as the Valdez Trail extending from Valdez to Eagle City.[3] In his report published in 1900, Rohn explicitly wrote about the slivers of copper ore called "copper floats" he had discovered in the gravel of McCarthy Creek (Rohn 1900; Kirchhoff 1993:19–20). The first promising mineral deposits, including the Nikolai mine off the Nizina River and the famous Bonanza Ridge copper deposit, were discovered later in the same year (Buzzell and McMahan 1995:13; Pratt 1998:90). As explained by several researchers such as Kirchhoff (1993), Pratt (1998), and Buzzell and McMahan (1995), the instrumental role Lower Ahtna played in locating mineral deposits should not be overlooked; Lower Ahtna assisted prospectors at a time when they were experiencing difficulty finding food due to increased competition for resources in the area, which caused them to seek opportunities to assist and guide many prospectors in exchange for food and supplies. In fact, many of the copper and gold deposits that were mined for decades in the region might not have been found at all without using knowledge shared by Ahtna people about these sources.

The history of the community of McCarthy is closely tied to the discovery of the rich Bonanza Ridge copper deposit in 1899 and the consequent development of this deposit as the Kennecott mine during the first part of the 20th century.[4] The first 296-acre homestead staked between the Kennicott Glacier and mouth of McCarthy Creek was claimed by John Barrett in 1906. The following year, the Copper River and Northwestern (CR&BW) Railway surveyor crew marked a part of Barrett's homestead as the desired location for a railway turnaround and station. The Kennecott town site was established the same year at the mouth of National Creek. Instead of selling his stake, Barrett offered a long-term lease for a portion of his land to the railroad company. With rapid and industrial development of the Kennecott mine occurring, news of the other rich discoveries of copper and gold in the area spread quickly. As a company town Kennecott was, however, closed to everyone but company employees, which meant that the leased section of Barrett's homestead became a magnet for merchants and prospectors alike (Buzzell and McMahan 1995:23–24; Kirchhoff 1993:28–31). By 1908, the camp site on Barrett's land had developed into a small community; however, it was not until

3. See also: Geoffrey Bleakley. 2014. "History of the Valdez Trail." Wrangell-St. Elias National Park & Preserve: History & Culture. Accessed December 10, 2014. http://www.nps.gov/wrst/historyculture/history-of-the-valdez-trail.htm

4. There are many stories about the history of the spelling of Kennecott; the mining company was called the Kennecott Copper Corporation yet the natural features, which were named prior to the discovery of the ore and the establishment of the company town are called the Kennicott Glacier and the Kennicott River. According to Friends of Kennicott* newer references to the "Kennecott Mines" landmark favor spelling Kennecott with an "e" when referring to historical, man-made structures. In comparison, when referring to natural features, such as the Kennicott Glacier, the preference in newer references is to spell Kennicott with an "i." Regardless, many general references to "Kennicott" continue to exist, for example in older maps and in the name of the organization "Friends of Kennicott." This publication follows the preference set out in newer references; when referring to man-made structures, Kennecott is spelled with an "e" and when referring to natural features, Kennicott is spelled with an "i." This is also the case in maps presented in this report. In case of a reference to a company using the aforementioned name, the exact spelling chosen by the company is used.

* Friends of Kennicott, "Kennicott vs. Kennecott." Accessed August 2014. http://friendsofkennicott.org/spelling.php

the completion of the 196-mi-long CR&NW Railway's railroad from Cordova to Kennecott mine in 1911 that the area experienced substantial growth in settlement (Buzzell and McMahan 1995:14; Hunt 1991:171).

In 1912, Barrett officially established the town site of McCarthy on his homestead just south of the railroad depot. The following year he started leasing lots to miners and merchants. With the increasing railroad facilities and services developing at McCarthy, the town grew into the new supply and service hub for miners, prospectors, and merchants in the region. By 1913, McCarthy had a railroad depot, a post office, and an increasing variety of services, which provided supplies to the new wave of prospectors and miners coming to the upper Chitina River drainage after the Chisana gold rush in 1913. In 1915 a school opened in McCarthy. By that time, the community also had several stores, 3 barber shops, a steam bath, a steel metal shop, several hotels and restaurants, a number of saloons, a red light district, and a resident attorney (Buzzell and McMahan 1995:22–24; Hunt 1991:171; Kirchhoff 1993:30–38, 47–65).

World War I caused copper prices to substantially inflate and the Kennecott mining company enjoyed its greatest prosperity during that time. This was also when both the towns of Kennecott, located approximately 5 mi north of McCarthy, and McCarthy experienced their peak. The prosperity of McCarthy was directly tied to the success of the Kennecott mines although life in the 2 communities was strikingly different; historical sources describe life in Kennecott, the company town, as tightly controlled while nearly everything was available in McCarthy for the right price. While McCarthy's reputation as a boom town and a recreational center for hundreds of Kennecott miners carried on until the early 1920s its population peaked at 300 people in 1917. Copper prices slumped in 1919 and while Kennecott kept producing copper, the high-grade ore had already been mined away and the company's profits declined. This led to seasonal shutdowns and an overall smaller workforce being employed at Kennecott. In addition to the financial troubles brought on by fewer customers residing in the area, McCarthy experienced a series of destructive fires in the early 1920s, which significantly damaged the town's businesses (Buzzell and McMahan 1995:24; Kirchhoff 1993:47–58).

In an attempt to revive and expand the scope of the local economy, some McCarthy residents tried their hand at tourism in the late 1910s. The CR&NW Railway railroad brought tourists to McCarthy every summer and a variety of supportive services for these individuals were provided in the community. Some McCarthy residents also were self-employed for part of the year as freighters and hunting guides (Kirchhoff 1993:58–65). Neither tourism nor guiding businesses, however, enjoyed success on a large scale in the McCarthy area during the early decades of the 20th century.

In addition to the settlement and business development on the east side of the Kennicott River, several homesteads were staked on the west side of the river in the late 1910s. By the early 1920s, the homesteaders had obtained title to their homesteads and were cultivating the land. A total of 15 farms, most of which were situated on the east side of the Kennicott River, grew grain, vegetables, and hay and also produced dairy products, which they sold to the local market at McCarthy and Kennecott. Most of the farmers fell on hard

times in the early 1920s and 1930s after the mining industry in the region declined (Buzzell and McMahan 1995:26; Buzzell 2007:7–9; Kirchhoff 1993:60).

The Great Depression of the early 1930s brought even leaner times to McCarthy; copper prices plummeted and the Kennecott mine operations were closed except for basic maintenance in 1933 and 1934. The mines went into operation again in 1935 but by 1938 depressed copper prices, the exhaustion of a high-quality ore supply, and the high cost of transportation made copper mining in the Bonanza Ridge unprofitable. The Kennecott Copper Corporation permanently closed the mines and the mill in Kennecott in late 1938; the last CR&NW Railway train from McCarthy reached Cordova on November 11, 1938. While some area residents decided to stay, the company gave those who were leaving only a few hours to clear out if they wanted to catch the last train from McCarthy and Kennecott. At the time of the railroad closure in 1938, the estimated population of McCarthy was 75. Within a year it had declined to 49 (Buzzell and McMahan 1995:28–30; Buzzell 2005:42; Buzzell 2007:9–10; Kirchhoff 1993:82–89).

The Chitina-McCarthy Bridge washed out in the spring flood in 1939 and suddenly McCarthy residents were isolated. The remaining residents pleaded with the state for a new bridge unsuccessfully. From then on they had to cross the Copper River in skiffs and barges, or catch a flight with an airline from Cordova that began serving the community after the train traffic stopped. The McCarthy post office closed in 1943, and when the bridge across the Kennicott River went out in a flood in the same year, McCarthy became a ghost town of just 3–4 permanent residents. Settlers along the rail line were impacted as well; those who stayed continued to use the abandoned rail line for transporting supplies by a variety of means such as gasoline-powered speeders and small carts pulled by humans or dogs. Some walked on it on foot. During the 1950s the rail bed and tracks deteriorated to the point that it became unsafe to travel. Improvements in air travel during the early 1950s prompted entrepreneurs to develop tourism in the McCarthy region again. The Kennecott Copper Corporation did not, however, appreciate tourists exploring its facilities and finally placed "No Trespassing" signs around its property in Kennecott to discourage any tourism to the area. In 1957, the company finally officially closed the town of Kennecott and hired Mr. Ray Trocheteau to tear down the town. Trocheteau, however, never completely fulfilled his responsibilities to the Kennecott Copper Corporation and the demolition stopped in the early 1960s (Buzzell and McMahan 1995:28–33; Buzzell 2005:42–48; Buzzell 2007:9–10; Hunt 1991:175; Kirchhoff 1993:82–97).

The first efforts to convert the old rail bed between Chitina and McCarthy into a road were undertaken in the mid-1950s. A private contractor started pulling up the rails along the CR&NW Railway line starting in McCarthy and made his way toward Long Lake. In the early 1960s, another contractor working for the State of Alaska pulled up the rails between Long Lake and Chitina. After the rails had been removed, summertime travel between Chitina and McCarthy on the pioneer road was done on foot or by driving an old Jeep on the former rail bed. In the wintertime, transportation was by dog team and later by snowmachine. In the beginning of the 1960s, the State of Alaska held 2 land auctions and some new settlement followed on

the west side of the Kennicott River along the pioneer road (Buzzell 2005:47–48; Buzzell 2007:10–13). In the mid-1960s, Barrett's son donated a portion of his father's homestead to the State of Alaska for construction of the current McCarthy airstrip. This made community access and supply delivery to McCarthy much easier and the community began to attract new residents (Kirchhoff 1993:94–95).

The population of McCarthy remained low through the 1960s; in 1970 McCarthy had 15 year-round residents. In the late 1960s, Alaska Department of Highways (ADOH) crews had begun reconstruction work on the pioneer road built earlier in the decade. The steel and concrete bridge over the Copper River near Chitina, and a bridge across the Lakina River, were completed in 1971 by ADOH. For the first time, it was possible to drive from Chitina to the west bank of the Kennicott River. In 1973, another contractor working for the State of Alaska built new bridges across both channels of the Kennicott River. This opened McCarthy, and the 30 mi of road that led north to Kennecott and south to the Nizina mining district, to vehicle access in 1974. Within a year, high water damaged the bridges crossing the Kennicott River, and in August 1975 the State of Alaska closed them to vehicle traffic. Pedestrians continued to use both bridges for a few years after that but eventually they deteriorated beyond repair and washed away (Buzzell 2005:49; Buzzell 2007:14).

The passing of the Alaska National Interest Lands Conservation Act (ANILCA) in 1980 created the WRST, which became the largest national park in the United States. The act also began the process of the final settlement of remaining federal lands allowing for land selections by Alaska Native corporations under Alaska Native Claims Settlement Act (ANCSA) and by the State of Alaska under the Statehood Act. Over the next 2 decades, land ownership along McCarthy Road gradually evolved into a checkerboard pattern consisting mostly of private, Alaska Native-owned, and state-owned lands (Buzzell 2005:50). The new park staff began to implement the same complex and nationally applied National Park Service (NPS) mandate and jurisdiction-based regulations that govern the activities that may take place in a national park in the WRST area. These included limiting hunting and vehicle access in the WRST area, which caused the beginning of a rise in conflict between local residents and park staff (Ringer 1993:42–46).

Despite the poor condition of the unpaved roadbed, traffic on McCarthy Road increased during the 1980s. In the wintertime, access to McCarthy was limited to air travel in a small airplane or trekking along the snow- and ice-covered roadbed for hours on a snowmachine or with a dog team. The lack of bridges across the Kennicott River continued to limit access to McCarthy. In 1982, residents of the McCarthy area received a grant from the State of Alaska to build a hand-pulled tram across the 2 channels of the Kennicott River. The locally built and maintained trams provided pedestrian access to McCarthy and Kennecott for years (Buzzell 2005:50). In the summertime, the trams were the only means for area residents to get supplies across the Kennicott River; in the wintertime they would haul supplies across the frozen river in sleds and using snowmachines.

According to McCarthy area residents, the condition of the McCarthy Road has continued to improve since the 1980s. While winter travel on the road can still be slow at times due to extensive snowfall or fro-

zen overflow ice, the road is passable nearly all the time. After consultation with McCarthy residents, the Alaska Department of Transportation and Public Facilities built a pedestrian bridge across the 2 Kennicott River channels in 1997 and the 2 hand-operated trams were removed (Buzzell 2005:51). A vehicle bridge across the Kennicott River was built by a McCarthy resident in 2004. To cover the maintenance costs, local residents were asked to purchase an annual vehicle bridge pass for $300. In 2012, during the summertime visitors wanting to drive their vehicles into McCarthy or Kennecott had to pay $200 for a onetime visit bridge pass. An alternative summertime mode of transportation for visitors and local residents alike is a shuttle service that runs from the footbridge to McCarthy and Kennecott. To make their way around the 2 communities, area residents also walk, ride bicycles, or drive ATVs. In the wintertime, snowmachines are the predominantly used method of transportation.

The majority of current larger McCarthy area residents live in the community seasonally; according to 1 long-term year-round resident, there are approximately 40 people living in the community year-round. Another seasonal resident estimated the number of year-round residents to be as high as 70 people. A small, seasonal grocery store in McCarthy serves area residents from May to September. At other times, year-round residents need to travel 86 mi to Kenny Lake, 127 mi to Glennallen, or 306 mi to Anchorage for their groceries and other supplies, including gasoline. There is no school, health care facility, or grid-based electricity available in the community. Many residents use their own generators and solar panels to power appliances. The few children living in the community are home schooled. A mail plane delivers mail to McCarthy twice a week. A large number of McCarthy residents continue to live in homes without running water and either haul in their drinking water from outside the community, or use water from a shared drinking water spring located in McCarthy. Gardening is widely practiced in the community and a few residents raise livestock for their meat and milk. Landline telephone service has been available since 1995. Cell phone service is also currently available but only in a limited range.

The annual number of visitors to the WRST, and the historical communities of McCarthy and Kennecott grew steadily until the mid-1990s.[5] While the annual number of visitors to WRST, McCarthy, and Kennecott has fluctuated since, the number of visitors has continued to be high throughout the first decade of the 21st century. In 2012, which was the study year for this survey, approximately 87,000 people visited WRST.[6] Although not all of the WRST visitors in 2012 actually travelled to McCarthy and Kennecott, the large visitor number indicates how important the tourism sector is as a source of seasonal employment for McCarthy-area residents.

5. U.S. Department of the Interior, National Park Service, Washington, D.C. n.d. "Park Reports—Wrangell-St. Elias NP & PRES: Annual Park Recreation Visitation (1904 – Last Calendar Year)." Accessed May 12, 2014. https://irma.nps.gov/Stats/SSRSReports/Park%20Specific%20Reports/Annual%20Park%20Recreation%20Visitation%20(1904%20-%20Last%20Calendar%20Year)?Park=WRST

6. U.S. Department of the Interior, National Park Service, Washington, D.C. n.d. "Park Reports—Wrangell-St. Elias NP & PRES: Annual Park Recreation Visitation (1904 – Last Calendar Year)." Accessed May 12, 2014. https://irma.nps.gov/Stats/SSRSReports/Park%20Specific%20Reports/Annual%20Park%20Recreation%20Visitation%20(1904%20-%20Last%20Calendar%20Year)?Park=WRST

Table 4-1.–Population estimates, McCarthy, 2010 and 2012.

	Census year 2010[a]				Study findings for 2012[b]			
	Total population		Alaska Native population		Total population		Alaska Native population	
Community	Households	Population	People	Percentage of total	Households	Population	People	Percentage of total
McCarthy	20	28	1	3.6%	58	103	1	1.4%

Source ADF&G Division of Subsistence household surveys, 2013.

a. Population estimates include households located within the federal McCarthy census designated place (CDP).

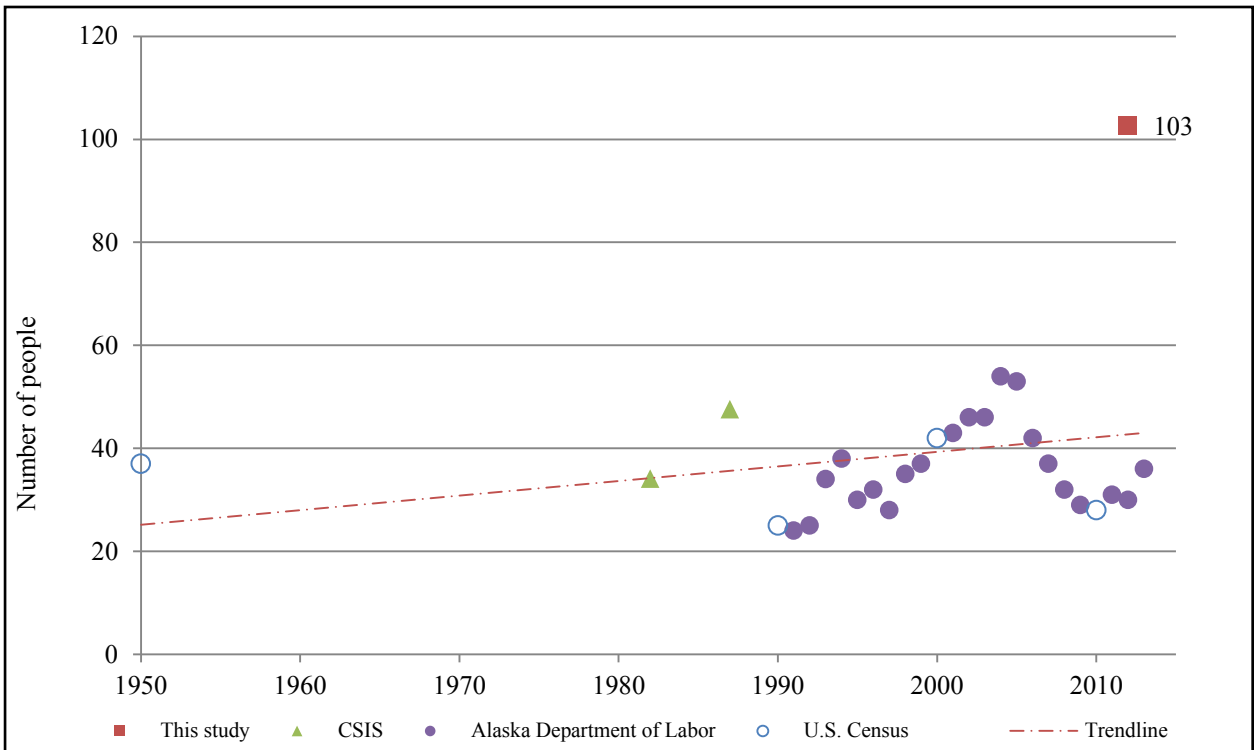
b. Population estimates include households located within the federal McCarthy CDP and also surrounding areas, including along McCarthy Road; please see this chapter's description of the survey area for study year 2012.

Demography

McCarthy area residents are spread over a large geographical area in the Chitina River valley; for the purposes of this study the survey area included more households than those included in the McCarthy census designated place (CDP) that was surveyed by the U.S. Census Bureau for 2010. The westernmost surveyed households were located approximately at milepost 42 of McCarthy Road, the northernmost households were in Kennecott on the east side of the Kennicott River, and the southeasternmost households were along the Nizina River and Dan Creek (south of McCarthy). According to the U.S. Census Bureau, McCarthy CDP had 28 residents in 20 households in 2010 (Table 4-1). In preparation for conducting the survey, Division of Subsistence researchers, in consultation with knowledgeable community residents, learned that the 2010 federal census population estimate for McCarthy CDP excluded a substantial number of households and individuals residing in the wider McCarthy area. Table 4-1 shows that this study found a much larger population in the McCarthy area in 2012: an estimated total of 103 people in 58 households occupied year-round. The substantial difference between the 2 estimates is mostly explained by the considerably larger geographic area included in this study's survey area. In addition, knowledgeable area residents commented that the last U.S. census missed several community residents who resided farther away from area roads and were harder to reach. Many community residents considered to be year-round, permanent occupants also work seasonally outside the community and thus would potentially not have been included in the last U.S. Census Bureau survey, which occurred in spring 2010.

Figure 4-1 portrays the historical population of McCarthy since 1950. The 2012 estimated McCarthy population from this study is much higher than previous population estimates produced by the U.S. Census Bureau, Alaska Department of Labor and Workforce Development (ADLWD), or similar baseline studies conducted by the ADF&G Division of Subsistence in the McCarthy area for study years 1982 (spanning June 1982 through May 1983) and 1987 (spanning June 1987 through May 1988). As noted above, the differences in the population estimates produced by the U.S. Census Bureau and the various State of Alaska agencies are explained by the differing geographical areas included in the individual studies.

The division study for 1982 surveyed households residing year-round along McCarthy Road separately from and in addition to an area called Southern Wrangell Mountains, which in the 1982 study year included households residing in the communities of McCarthy and Kennecott, as well as households in the communities



Note Population estimates by the U.S. Census Bureau and Alaska Department of Labor include only households located within the boundaries of the federal McCarthy census designated place (CDP).
Note Population estimates collected during previous Division of Subsistence projects for study years 1982 and 1987 are available in the CSIS and include only the communities identified during those projects as South Wrangell Mountains (1982) and South Park (1987); both of those survey areas were larger than the McCarthy CDP but were smaller than the area surveyed for study year 2012.
Note The survey area for study year 2012 differs from all other survey areas used to determine population estimates available in this figure.

Figure 4-1.–Historical population estimates, McCarthy, 1950–2012.

Dan Creek and May Creek (Stratton and Georgette 1984:123). The 1982 study estimated that a population of 52 people in 18 households lived along McCarthy Road and a population of 32 people in 16 households were in the Southern Wrangell Mountains survey area (Stratton and Georgette 1984:118, 129). The ADF&G Division of Subsistence study for 1987 followed the earlier study's method and separately surveyed year-round households along the McCarthy Road and households residing in an area called South Park; this survey unit included households residing in the same geographic area as the Southern Wrangell Mountains area in the 1982 study (McMillan and Cuccarese 1988:117–121, 163–167). For the 1987 study year, an estimated 38 year-round residents resided in 19 households along McCarthy Road; the South Park survey area had an estimated population of 48 residents in 23 households (McMillan and Cuccarese 1988:117, 163).

The number of Alaska Natives residing in the McCarthy area during the 1980s was very small; according to Stratton and Georgette (1984:118, 129), for the 1982 study year only approximately 8% of the total population of 52 people residing along McCarthy Road were Alaska Native; the study did not find any Alaska Natives residing in the South Wrangell Mountains survey area. The survey for study year 1987 indicates the number of Alaska Natives residing along McCarthy Road had declined to approximately 6% of the total estimated

Table 4-2.–Sample achievement, McCarthy, 2012.

	McCarthy
Households in community	58
Interview goal	100%
Households interviewed	39
Households failed to contact	16
Households declined to be interviewed	3
Total households attempted to interview	58
Refusal rate	7.1%
Percentage of total households interviewed	67.2%
Interview weighting factor	1.5
Sampled population	69
Estimated population	102.6

Source ADF&G Division of Subsistence household surveys, 2013.
Note This table represents a simplified accounting of the sample size. As a result, components of the sample may not correctly sum to the number of households in the community.

population of 38 people; there were no Alaska Natives living in the South Park study area (McMillan and Cuccarese 1988:118, 163). According to the ADF&G Division of Subsistence 2013 household survey for study year 2012, only 1 Alaska Native resided in McCarthy (Table 4-1).

While full comparison of McCarthy's population change over time is not possible because of the geographically different sample units in the different studies and population estimates produced by the ADF&G Division of Subsistence, ADLWD, and the U.S. Census Bureau, it appears that population growth in the larger McCarthy area has been moderate over the past 25 years (Figure 4-1). New subdivision development on land previously owned by the University of Alaska has taken place closer to the Nizina River on the west side of the Kennicott River and a few new households have built homes there. Another change is that there are very few households residing along McCarthy Road anymore. Local residents commented that there has been an increase in the construction of seasonal residences in the larger McCarthy area and that a number of individuals have moved in and out of the community within the past 5 years. With the exception of a handful of long-time households, some of whom resided in the community year-round prior to the establishment of WRST, continuous small-scale change in the community's population appears to have become a characteristic of the community in the course of the past 5–10 years.

Table 4-2 describes the sample achievement of this survey; survey staff were able to interview 39 of the 58 households making the total sampled McCarthy population 69 people. Staff were unable to contact 16 households and 3 households declined to be interviewed. The total percentage of surveyed McCarthy households in this study was approximately 67%. The following data are expanded to cover the remaining households not surveyed from the original 58.

Table 4-3 describes the demographic and sample characteristics for McCarthy in 2012. According to the

Table 4-3.–Sample and demographic characteristics, McCarthy, 2012.

Characteristics	Community McCarthy
Sample achievement	
Sampled households	39
Eligible households	58
Percentage sampled	67.2%
Household size	
Mean	1.8
Minimum	1
Maximum	6
Age	
Mean	43.1
Minimum[a]	2
Maximum	73
Length of residency	
Total population	
Mean	16.1
Minimum	1
Maximum	40
Heads of household	
Mean	17.7
Minimum	1
Maximum	40
Sex	
Estimated male	
Number	68.4
Percentage	66.7%
Estimated female	
Number	34.2
Percentage	33.3%
Alaska Native	
Estimated households[b]	
Number	1.5
Percentage	2.6%
Estimated population	
Number	1.5
Percentage	1.4%

Source ADF&G Division of Subsistence household surveys, 2013.
a. A minimum age of 0 (zero) is used for infants that are less than 1 year of age.
b. The estimated number of households in which at least 1 head of household is Alaska Native.

Table 4-4.–Population profile, McCarthy, 2012.

	Male			Female			Total		
Age	Number	Percentage	Cumulative percentage	Number	Percentage	Cumulative percentage	Number	Percentage	Cumulative percentage
0–4	3.0	4.3%	4.3%	3.0	8.7%	8.7%	5.9	5.8%	5.8%
5–9	3.0	4.3%	8.7%	0.0	0.0%	8.7%	3.0	2.9%	8.7%
10–14	1.5	2.2%	10.9%	1.5	4.3%	13.0%	3.0	2.9%	11.6%
15–19	4.5	6.5%	17.4%	1.5	4.3%	17.4%	5.9	5.8%	17.4%
20–24	0.0	0.0%	17.4%	0.0	0.0%	17.4%	0.0	0.0%	17.4%
25–29	1.5	2.2%	19.6%	1.5	4.3%	21.7%	3.0	2.9%	20.3%
30–34	7.4	10.9%	30.4%	4.5	13.0%	34.8%	11.9	11.6%	31.9%
35–39	4.5	6.5%	37.0%	1.5	4.3%	39.1%	5.9	5.8%	37.7%
40–44	4.5	6.5%	43.5%	5.9	17.4%	56.5%	10.4	10.1%	47.8%
45–49	1.5	2.2%	45.7%	1.5	4.3%	60.9%	3.0	2.9%	50.7%
50–54	5.9	8.7%	54.3%	1.5	4.3%	65.2%	7.4	7.2%	58.0%
55–59	5.9	8.7%	63.0%	4.5	13.0%	78.3%	10.4	10.1%	68.1%
60–64	13.4	19.6%	82.6%	5.9	17.4%	95.7%	19.3	18.8%	87.0%
65–69	7.4	10.9%	93.5%	1.5	4.3%	100.0%	8.9	8.7%	95.7%
70–74	3.0	4.3%	97.8%	0.0	0.0%	100.0%	3.0	2.9%	98.6%
75–79	0.0	0.0%	97.8%	0.0	0.0%	100.0%	0.0	0.0%	98.6%
80–84	0.0	0.0%	97.8%	0.0	0.0%	100.0%	0.0	0.0%	98.6%
85–89	0.0	0.0%	97.8%	0.0	0.0%	100.0%	0.0	0.0%	98.6%
90–94	0.0	0.0%	97.8%	0.0	0.0%	100.0%	0.0	0.0%	98.6%
95–99	0.0	0.0%	97.8%	0.0	0.0%	100.0%	0.0	0.0%	98.6%
100–104	0.0	0.0%	97.8%	0.0	0.0%	100.0%	0.0	0.0%	98.6%
Missing	1.5	2.2%	100.0%	0.0	0.0%	100.0%	1.5	1.4%	100.0%
Total	**68.4**	**100.0%**	**100.0%**	**34.2**	**100.0%**	**100.0%**	**102.6**	**100.0%**	**100.0%**

Source ADF&G Division of Subsistence household surveys, 2013.

survey results, 67% of McCarthy's population was male and 33% female. The mean age for the McCarthy population was 43 years, and the mean household size was 2 people. For the total McCarthy population, the mean length of residency in McCarthy was 16 years; for heads of households the mean length of residency was slightly longer at 18 years.

Table 4-4 and Figure 4-2 portray the population profile for the community in 2012. For the male population, the largest age cohort was 60–64 years of age (20% of the male population) followed by age cohorts 30–34 years of age and 65–69 years of age, which shared the second largest portion (11% each) of the community's male population (Table 4-4). The remaining male population was relatively evenly spread out between age cohorts 0–4 years of age and 70–74 years of age (Figure 4-2). For the female population, the largest age cohorts were 40–44 years of age and 60–64 years of age, which each made up 17% of the community's female population (Table 4-4). Age cohorts 30–34 years of age and 55–59 years of age were the second-largest age cohorts; each made up 13% of McCarthy's female population. Similarly to the male population, the remaining female population was relatively evenly spread out between age cohorts 0–4 years of age and 65–69 years of age (Figure 4-2). It should be mentioned that the survey did not find any males or females between ages 20–24, or older than 75 years of age present in the community in 2012. The largest age cohort was males between ages of 60–64 years of age (Table 4-4).

The majority (84%) of the McCarthy household heads interviewed were born outside Alaska in other U.S.

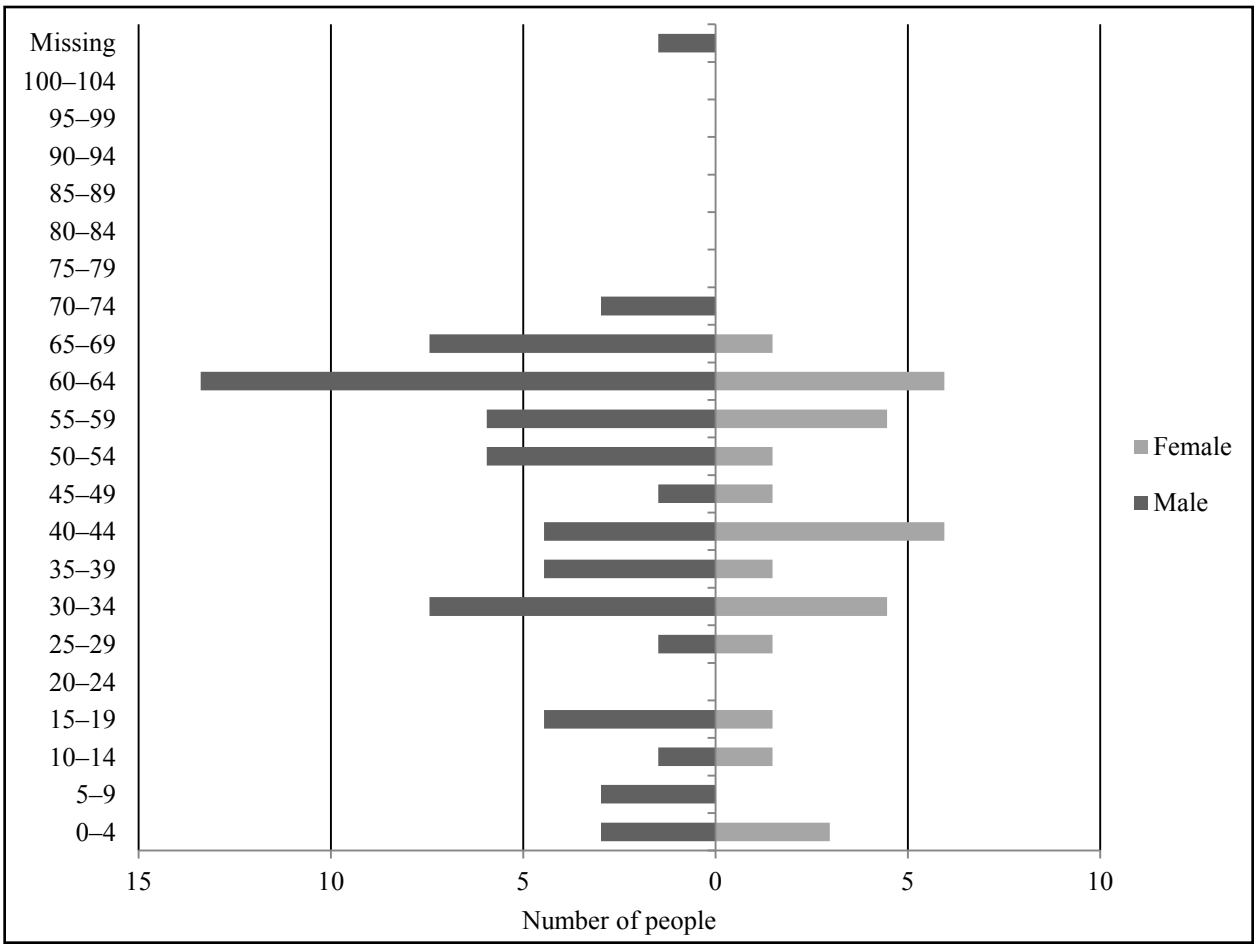


Figure 4-2.–Population profile, McCarthy, 2012.

Table 4-5.–Birthplaces of household heads, McCarthy, 2012.

Birthplace	Percentage
Anchorage	1.8%
Chitina	1.8%
Fairbanks	1.8%
Palmer	3.5%
Other U.S.	84.2%
Foreign	5.3%
Unknown	1.8%
Total	**100.0%**

Source ADF&G Division of Subsistence household surveys, 2013.
Note "Birthplace" means the residence of the parents of the individual when the individual was born.

locations (Table 4-5). Approximately 5% of McCarthy household heads were born outside the United States. The remaining household heads were born in Palmer (4%), Anchorage (2%), Chitina (2%), and Fairbanks (2%). The birthplace of 2% of McCarthy household heads was reported as unknown. Of the aforementioned communities, only Chitina is within a short driving distance from McCarthy.

Cash Employment and Monetary Income

The isolated location of McCarthy at the heart of the Wrangell and St. Elias mountain ranges limits local employment opportunities and many year-round residents annually search for seasonal employment outside the community. As discussed in the community background section earlier, the creation of the WRST in 1980 has increased the number of visitors to the historical communities of McCarthy and Kennecott, and more seasonal summertime employment opportunities, provided mainly by the NPS, have developed in the local tourism sector.

Seasonal employment for the NPS starts in late April and ends in early September. In addition, there are several guiding businesses (rafting, climbing, and glacier hiking) operating in the area during the summer season that provide seasonal employment for local residents. Furthermore, at least 2 companies operate charter flights between Chitina and McCarthy as well as take people on flightseeing tours around the area. As hunting seasons open, a few residents work as seasonal hunting guides. McCarthy-area residents reported that while the growing number of visitors to the communities of McCarthy and Kennecott has brought many valuable seasonal employment opportunities to them, the continuous development of the tourism sector poses a threat to their solitary and largely self-sufficient way of life and the unique, historical character of their resident communities. However, they also realize that benefits exist due to the increased availability of seasonal local employment opportunities, which have enabled community residents to earn income during the summer months instead of being forced to leave the community at other times of the year for work, or alternatively to rely on other income such as unemployment, Social Security, or pension.

For study year 2012, the estimated mean earned annual income for McCarthy households was $39,015 (Table 4-6). Most of the earned income (24%) coming into McCarthy households came from employment with the federal government. In comparison, the mean income from other sources per McCarthy household was $602 and came mostly from pension or retirement, Social Security, or Alaska Permanent Fund dividends. The estimated total mean annual income for a McCarthy household during the study year was $39,617. In comparison to the other 3 study communities surveyed for study year 2012, McCarthy's estimated total annual household income was the second highest (Table 6-1). The estimated per capita earned income was $22,052 (Table 6-1).

In 2012, most of the earned income (24%) in McCarthy came from service, technological, and construction or mining occupations with the federal government (Table 4-7). A comparable percentage of McCarthy households' earned income came from occupations in the construction industry and the services sector (22% and 21%, respectively). In addition, occupations in the transportation, communication, and utilities industry provided a substantial amount (15%) of earned income to McCarthy residents in 2012.

Table 4-8 describes the employment characteristics of McCarthy for study year 2012. The survey found an estimated 88 adults over the age of 16 in McCarthy; the mean length of employment for these working-

Table 4-6.–Estimated earned and other income, McCarthy, 2012.

Income source	Number of people	Number of households	Total for community	Mean per household[a]	Percentage of total[b]
Earned income					
Federal government	24.6	20.8	$539,982	$9,310	20.0%
State government	1.5	1.5	$9,349	$161	0.3%
Local government, including tribal	4.6	4.5	$55,478	$957	2.1%
Agriculture, forestry, and fishing	9.2	8.9	$110,792	$1,910	4.1%
Mining	3.1	3.0	$130,217	$2,245	4.8%
Construction	26.2	19.3	$495,780	$8,548	18.4%
Manufacturing	6.2	4.5	$38,465	$663	1.4%
Transportation, communication, and utilities	15.4	10.4	$337,517	$5,819	12.5%
Retail trade	4.6	3.0	$78,673	$1,356	2.9%
Services	24.6	20.8	$466,637	$8,045	17.3%
Earned income subtotal	**77.0**	**50.6**	**$2,262,889**	**$39,015**	**83.8%**
Other income					
Pension or retirement			$228,158	$3,934	8.5%
Social Security			$78,821	$1,359	2.9%
Alaska Permanent Fund dividend			$75,733	$1,306	2.8%
Unemployment			$52,435	$904	1.9%
Energy assistance			$1,636	$28	0.1%
Adult public assistance			$0	$0	0.0%
Supplemental Security income			$0	$0	0.0%
Food stamps			$0	$0	0.0%
Longevity bonus			$0	$0	0.0%
Workers' compensation or insurance			$0	$0	0.0%
Native corporation dividends			$0	$0	0.0%
Child support			$0	$0	0.0%
Other			$0	$0	0.0%
Foster care			$0	$0	0.0%
Other income subtotal			**$436,782**	**$7,531**	**16.2%**
Community income total			**$2,699,671**	**$46,546**	**100.0%**

Source ADF&G Division of Subsistence household surveys, 2013.

a. The mean is calculated using the total number of households in the community, not the number of households for this income category.

b. Income by category is calculated as a percentage of the total community income from all sources (wage-based income and non-wage-based income).

Table 4-7.–Employment by industry, McCarthy, 2012.

Industry	Jobs	Households	Individuals	Percentage of wage earnings
Estimated total number	**137.0**	**50.6**	**77.0**	**100.0%**
Federal government (total)	**18.0%**	**41.2%**	**32.0%**	**23.9%**
Social scientists, social workers, religious workers, and lawyers	2.2%	5.9%	4.0%	1.9%
Technologists and technicians, except health	4.5%	8.8%	8.0%	3.6%
Service occupations	4.5%	11.8%	8.0%	6.6%
Agricultural, forestry, and fishing occupations	1.1%	2.9%	2.0%	0.1%
Construction and extractive occupations	3.4%	8.8%	6.0%	8.7%
Handlers, equipment cleaners, helpers, and laborers	2.2%	5.9%	4.0%	3.0%
State government (total)	**1.1%**	**2.9%**	**2.0%**	**0.4%**
Service occupations	1.1%	2.9%	2.0%	0.4%
Local and tribal governments (total)	**4.5%**	**8.8%**	**6.0%**	**2.5%**
Teachers, librarians, and counselors	2.2%	5.9%	4.0%	2.3%
Administrative support occupations, including clerical	1.1%	2.9%	2.0%	0.1%
Service occupations	1.1%	2.9%	2.0%	0.1%
Agriculture, forestry, and fishing (total)	**7.9%**	**17.6%**	**12.0%**	**4.9%**
Agricultural, forestry, and fishing occupations	7.9%	17.6%	12.0%	4.9%
Mining (total)	**2.2%**	**5.9%**	**4.0%**	**5.8%**
Construction and extractive occupations	1.1%	2.9%	2.0%	4.3%
Handlers, equipment cleaners, helpers, and laborers	1.1%	2.9%	2.0%	1.5%
Construction (total)	**24.7%**	**38.2%**	**34.0%**	**21.9%**
Service occupations	1.1%	2.9%	2.0%	1.2%
Construction and extractive occupations	22.5%	35.3%	32.0%	20.2%
Handlers, equipment cleaners, helpers, and laborers	1.1%	2.9%	2.0%	0.5%
Manufacturing (total)	**4.5%**	**8.8%**	**8.0%**	**1.7%**
Writers, artists, entertainers, and athletes	2.2%	2.9%	4.0%	1.3%
Construction and extractive occupations	1.1%	2.9%	2.0%	0.4%
Production working occupations	1.1%	2.9%	2.0%	0.0%
Transportation, communication, and utilities (total)	**11.2%**	**20.6%**	**20.0%**	**14.9%**
Executive, administrative, and managerial	3.4%	5.9%	6.0%	5.6%
Mechanics and repairers	1.1%	2.9%	2.0%	0.0%
Transportation and material moving occupations	5.6%	11.8%	10.0%	7.7%
Handlers, equipment cleaners, helpers, and laborers	1.1%	2.9%	2.0%	1.6%
Retail trade (total)	**3.4%**	**5.9%**	**6.0%**	**3.5%**
Executive, administrative, and managerial	1.1%	2.9%	2.0%	2.4%
Marketing and sales occupations	2.2%	2.9%	4.0%	1.1%
Services (total)	**22.5%**	**41.2%**	**32.0%**	**20.6%**
Executive, administrative, and managerial	7.9%	17.6%	14.0%	11.9%
Writers, artists, entertainers, and athletes	2.2%	5.9%	4.0%	0.7%
Health technologists and technicians	2.2%	2.9%	4.0%	1.7%
Technologists and technicians, except health	1.1%	2.9%	2.0%	1.2%
Administrative support occupations, including clerical	1.1%	2.9%	2.0%	1.2%

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Table 4-7.–Page 2 of 2.

Industry	Jobs	Households	Individuals	Percentage of wage earnings
Services (total), continued				
Service occupations	5.6%	11.8%	8.0%	2.2%
Handlers, equipment cleaners, helpers, and laborers	2.2%	5.9%	4.0%	1.7%

Source ADF&G Division of Subsistence household surveys, 2013.

Table 4-8.–Employment characteristics, McCarthy, 2012.

Characteristic	Community McCarthy
All adults	
Number	87.7
Mean weeks employed	28.6
Employed adults	
Number	77.0
Percentage	87.7%
Jobs	
Number	137.0
Mean	1.8
Minimum	1
Maximum	4
Months employed	
Mean	7.5
Minimum	1
Maximum	12
Percentage employed year-round	23.2%
Mean weeks employed	32.7
Households	
Number	58.0
Employed	
Number	50.6
Percentage	87.2%
Jobs per employed household	
Mean	2.4
Minimum	1
Maximum	12
Employed adults	
Mean	
Employed households	1.5
Total households	1.3
Minimum	
Employed households	1
Maximum	
Employed households	2
Mean person-weeks of employment	43.0

Source ADF&G Division of Subsistence household surveys, 2013.

age adults was approximately 29 weeks, or a little over 7 months. In comparison, an estimated 77 of the 88 adults were employed in 2012; for the 77 employed adults, the mean length of employment was nearly the same at 8 months. The minimum time of employment for the 77 employed adults was 1 month and the maximum 12 months. Most jobs were seasonal; approximately 23% of the employed McCarthy adults worked year-round. Based on discussions with community members, jobs in the construction, services, and fishing industries typically offered seasonal work outside the community. At the household level, approximately 87% (51 households) of the total 58 households had an employed household member. The mean number of jobs for employed McCarthy households was about 2.4.

Levels of Individual Participation in the Harvesting and Processing of Wild Resources

Table 4-9 reports the expanded levels of individual participation in the harvest and processing of wild resources by all McCarthy residents in 2012. Nearly all (99%) McCarthy residents attempted to harvest some wild resources in 2012. With reference to specific resource categories, 99% of all residents gathered plants (including berries), 57% fished, 30% hunted for large land mammals, 29% hunted for birds, and 26% hunted or trapped for small land mammals. Similar to the very high percentage of McCarthy residents engaging in subsistence harvesting activities, almost all (97%) McCarthy residents participated in processing some wild resources. Most residents (96%) participated in processing plants followed by 57% of the population participating in processing fish. Fewer individuals (39%) participated in processing large land mammals, and even fewer (33%) participated in processing birds. The least number (23%) of individuals participated in processing small land mammals. For the most part, McCarthy residents' individual participation in harvesting and processing of wild resource was evenly distributed; a few more individuals participated in processing large land mammals and birds than hunted for them.

The survey included questions about participation in craft activities relating to subsistence efforts or using subsistence resources. In 2012, a small number (4%) of McCarthy residents built or repaired fish wheels or helped to place or remove a fish wheel. More community members (15%) sewed skins or cloth and nearly all (94%) of McCarthy residents cooked wild foods.

Table 4-9.–Individual participation in subsistence harvesting, processing, and craft activities, McCarthy, 2012.

			McCarthy
Estimated population			**102.6**
Fish			
	Fish		
		Number	58.0
		Percentage	56.5%
	Process		
		Number	58.0
		Percentage	56.5%
Large land mammals			
	Hunt		
		Number	31.2
		Percentage	30.4%
	Process		
		Number	40
		Percentage	39.1%
Small land mammals or furbearers			
	Hunt or trap		
		Number	26.8
		Percentage	26.1%
	Process		
		Number	23.8
		Percentage	23.2%
Birds and eggs			
	Hunt		
		Number	29.7
		Percentage	29.0%
	Process		
		Number	34.2
		Percentage	33.3%
Berries, plants, or wood			
	Gather		
		Number	101.1
		Percentage	98.6%
	Process		
		Number	98.2
		Percentage	95.7%

-continued-

Table 4-9.–Page 2 of 2.

		McCarthy
Any resource		
	Attempt	
	Number	101.1
	Percentage	98.6%
	Process	
	Number	99.6
	Percentage	97.1%
Build, maintain, or place fish wheels		
	Number	4.5
	Percentage	4.3%
Sew skins or cloth		
	Number	14.9
	Percentage	14.5%
Cook wild foods		
	Number	96.7
	Percentage	94.2%

Source ADF&G Division of Subsistence household surveys, 2013.

Household Resource Harvest and Use Patterns and Sharing of Wild Resources

Table 4-10 summarizes resource harvest and use characteristics for McCarthy in 2012 at the household level. All households used and attempted to harvest wild resources in 2012, while 97% actually harvested resources. The average harvest was 154 lb usable weight per household, or 87 lb per capita. During the study year, the 39 sampled households harvested an average of 8 kinds of resources and used and average of 12 kinds of resources. The maximum number of resources used by any household was 28. In addition, households gave away an average of 2 kinds of resources and 67% of households reported sharing resources with other households.

Previous studies by the Division of Subsistence (Wolfe 1987; Wolfe et al. 2010) have shown that in most rural Alaska communities, a relatively small portion of households produces most of the community's fish and wildlife harvests, which they share with other households. A recent study of 3,265 households in 66 rural Alaska communities found that about 33% of the households accounted for 76% of subsistence harvests (Wolfe et al. 2010). Although overall the set of very productive households was diverse, factors that were associated with higher levels of subsistence harvests included larger households with a pool of adult male labor, higher wage income, involvement in commercial fishing, and community location.

As shown in Figure 4-3, in the 2012 study year in McCarthy, about 69% of the harvested wild resources, as estimated in usable pounds, was harvested by 21% of the community's households. Further analysis of

Table 4-10.–Resource harvest and use characteristics, McCarthy, 2012.

Characteristic	Community McCarthy
Number of resources used per household	
Mean	12.0
Minimum	2
Maximum	28
95% confidence limit (±)	10.5%
Median	16
Number of resources attempted per household	
Mean	10.4
Minimum	1
Maximum	29
95% confidence limit (±)	12.6%
Median	11.5
Number of resources harvested per household	
Mean	8.3
Minimum	0
Maximum	23
95% confidence limit (±)	12.7%
Median	9
Number of resources received per household	
Mean	4.8
Minimum	1
Maximum	11
95% confidence limit (±)	11.4%
Median	7
Number of resources given away per household	
Mean	1.9
Minimum	0
Maximum	7
95% confidence limit (±)	21.2%
Median	2
Household harvest (pounds)	
Mean	153.5
Minimum	0
Maximum	742
95% confidence limit (±)	26.2%
Median	95.1
Total estimated harvest weight (pounds)	8,903.8
Community per capita estimated harvest (pounds)	86.8
Percentage of households using any resource	100.0%
Percentage of households attempting to harvest any resource	100.0%
Percentage of households harvesting any resource	97.4%
Percentage of households receiving any resource	100.0%
Percentage of households giving away any resource	66.7%
Number of households in sample	39
Number of resources available	114

Source ADF&G Division of Subsistence household surveys, 2013.

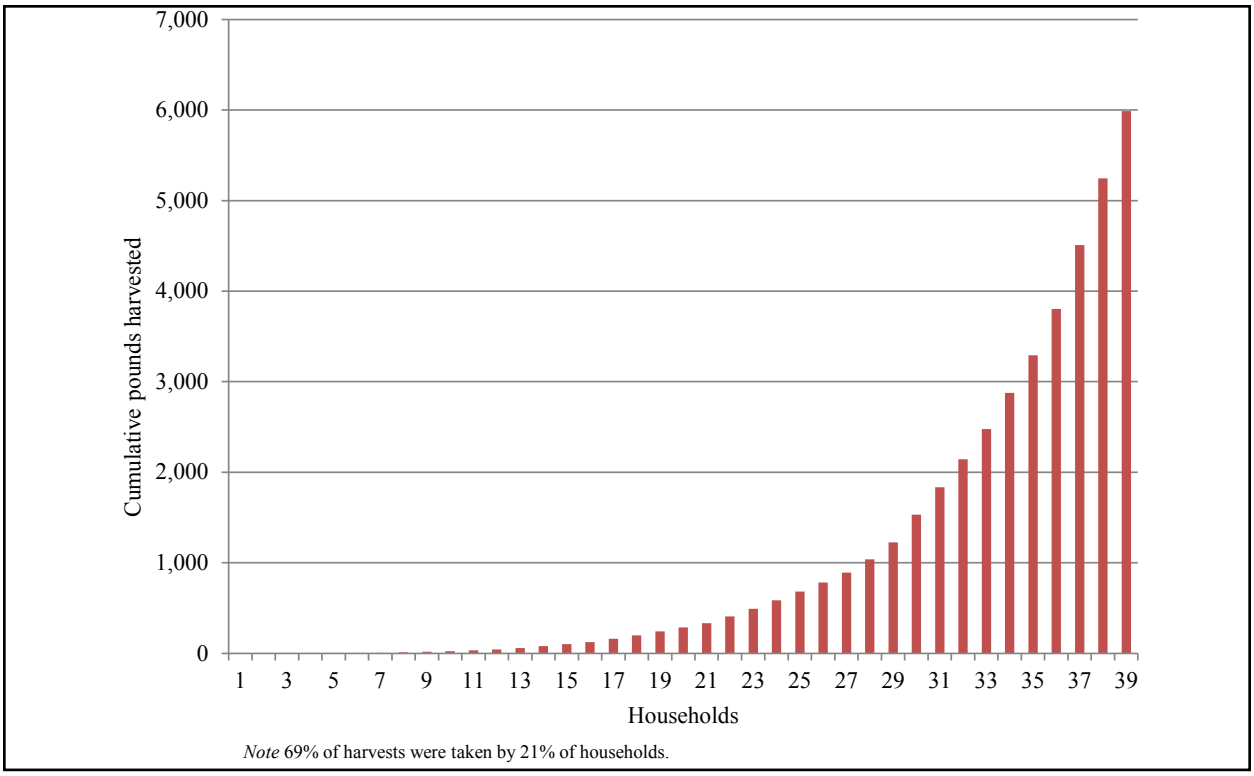

Figure 4-3.–Household specialization, McCarthy, 2012.

the study findings, beyond the scope of this report, might identify characteristics of the highly productive households in McCarthy and the other study communities.

The survey included questions about McCarthy residents' use of alternative modes of transportation to access wild resource harvest areas. Figure 4-4 shows the percentage of households that used alternate means of transportation (in addition to or aside from using cars, trucks, or traveling on foot) when accessing areas to attempt to harvest and harvest wild resources in 2012. The figure also shows whether the equipment used was chartered, leased, borrowed, or an owned piece of personal property. The most commonly used means of surface transportation was a snowmachine, which 50% of McCarthy households reported using for harvesting and attempting to harvest wild resources. The use of a snowmachine was followed by the use of an ATV (39%), a boat (32%), and an aircraft (11%). A very small number (2%) of McCarthy households reported using dogsleds for accessing wild resource harvest and use areas.

Figure 4-4 also portrays that nearly all of the McCarthy households that reported using a snowmachine for harvesting and attempting to harvest wild resources during the year 2012 owned the snowmachine (47% of all households used snowmachines that they owned). Similarly, of the 39% of McCarthy households that used an ATV nearly all (36%) owned the ATV used, and 9% of McCarthy households owned the aircraft that they reported using. In comparison, 14% of McCarthy households reported owning and 14% reported borrowing the boat they used for harvesting and attempting to harvest wild resources in 2012. Furthermore,

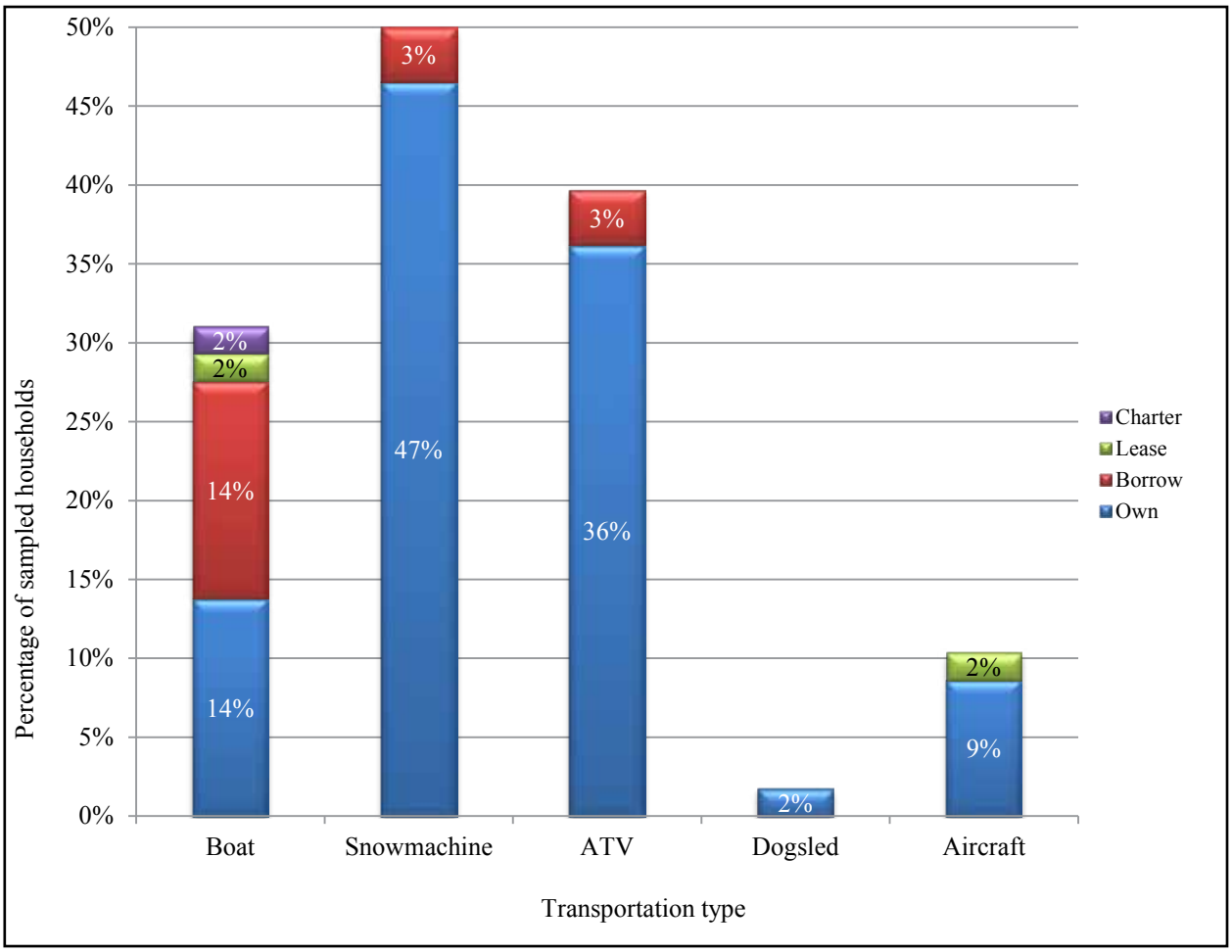

Figure 4-4.–Alternative modes of transportation used by sampled households to access wild resources, McCarthy, 2012.

2% of McCarthy households leased a boat and 2% chartered a boat for resource harvesting purposes. Two percent of McCarthy households said they owned and used a dogsled when harvesting wild resources.

The survey also asked about McCarthy household members' use of portable or motorized equipment while harvesting or attempting to harvest wild resources during the study year. Figure 4-5 shows that a chain saw was the most commonly used motorized equipment having been operated by 64% of McCarthy households for harvesting purposes. In addition, 17% of community households reported using an ice auger, and 16% a winch while harvesting wild resources. Furthermore, 14% of McCarthy households reported using another type of portable or motorized equipment for harvesting purposes. Finally, only 7% of community households reported using a generator while harvesting wild resources.

Another survey question focused on documenting study community households' use of natural materials for handicrafts. Figure 4-6 shows that overall in 2012, only a very small percentage of McCarthy households reported making handicrafts from natural materials; 5% said they had used either bark or horns for

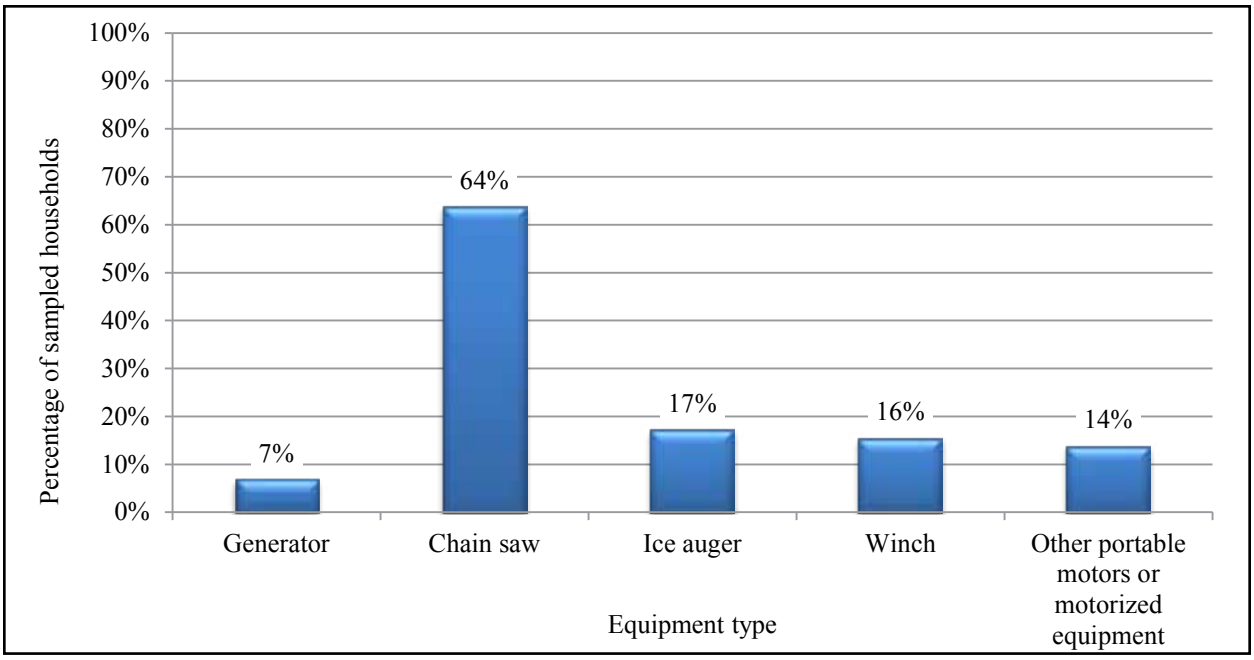

Figure 4-5.–Portable motorized equipment used by sampled households while searching for and harvesting wild resources, McCarthy, 2012.

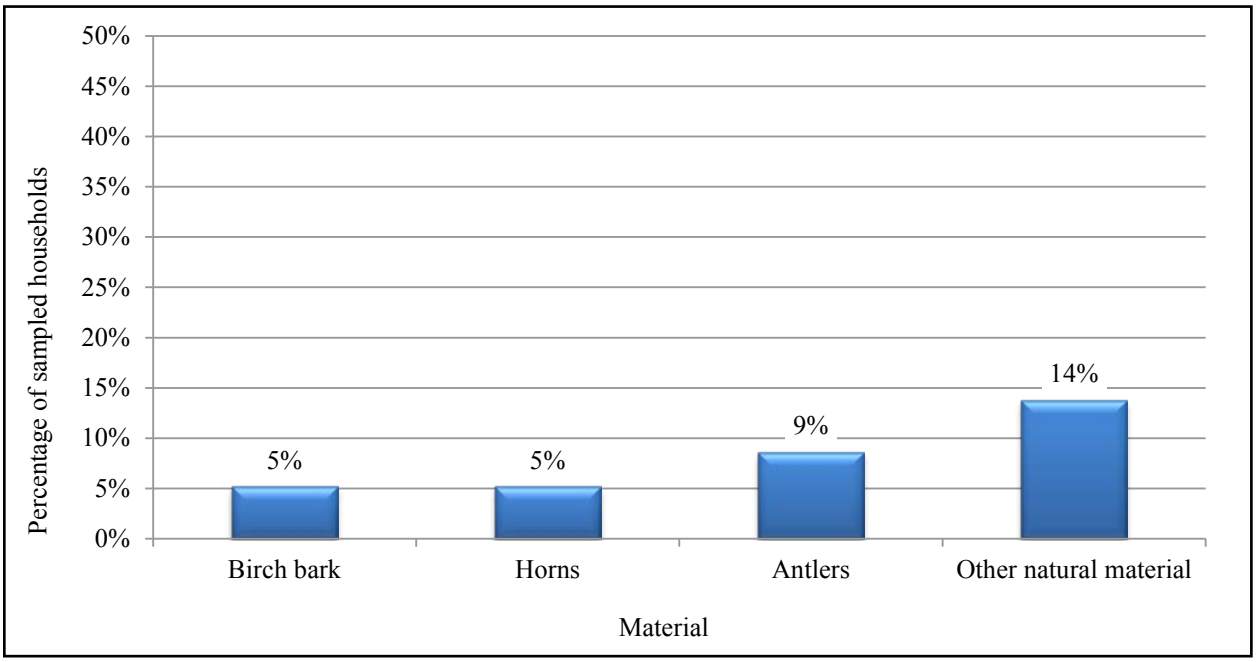

Figure 4-6.–Natural materials used by sampled households for making handicrafts, McCarthy, 2012.

handicrafts, and 9% reported using antlers. More households (14%) said they had used some other natural materials, such as diamond willow, for making handicrafts during the study year.

Firewood is very important for McCarthy residents as a source of household heat. Many households rely entirely on firewood as a source of home heat; some combine firewood with heating oil to stay warm during the coldest times of the year. According to the survey results, 67% of McCarthy households heat their homes only with firewood (Table 4-11). In addition, 15% of households reported relying mostly on firewood (76%–99% of their home heat) as a source of home heat. Only 8% of households said they do not use any firewood as a source of their home heating. (Table 4-11). Compared to the other study communities, McCarthy has the highest percentage of households relying on firewood as the single source of home heat (Table 6-4). The survey also asked McCarthy residents about the annual cost of their home heating. Based on survey results, the average annual cost of home heating in McCarthy in 2012 was $756. This is substantially less than the average annual home heating cost in the other 3 study communities (Table 6-4). Aside from the high percentage of households in McCarthy that do not purchase heating oil because they rely entirely on firewood for home heating, another explanation for the low average home heating cost in McCarthy is that many residents leave the community for the coldest winter months and may leave homes unheated.

Harvest Quantities and Composition

Table 4-12 reports estimated wild resource harvests and uses by McCarthy residents in 2012 and is organized first by general category and then by species. All edible resources are reported in pounds usable weight (see Appendix B for conversion factors[7]). The harvest category includes resources harvested by any member of the surveyed household during the study year. The use category includes all resources taken, given away, or used by a household, and resources acquired from other harvesters, either as gifts, by barter or trade, through hunting partnerships, or as meat given by hunting guides and non-local hunters. Purchased foods are not included but resources such as firewood are included because they are an important part of the subsistence way of life. Differences between harvest and use percentages reflect sharing among households, which results in a wider distribution of wild foods.

According to the survey results, McCarthy residents harvested an estimated total of 8,904 lb of wild resources in 2012 (Table 4-12). At the household level, the average harvest was 154 lb and at the individual level the per capita harvest was 87 lb (Table 4-12). Salmon made up most (53%) of the 2012 harvest totaling 4,698 lb or 46 lb per capita (Figure 4-7). Large land mammals was the second most harvested resource category composing 27% of the total estimated wild resource harvest in 2012 (2,400 lb or 23 lb per capita) (Table 4-12) (Figure 4-7). The third most harvested resource category was vegetation making up 11% of the harvest and totaling 1,028 lb or 10 lb per capita (Table 4-12). Nonsalmon fish composed 4% of the harvest and small land mammals composed 3% of overall harvest. The remaining resource categories—birds and

7. Resources that are not eaten, such as firewood and some furbearers, are included in the table but are given a conversion factor of zero.

Table 4-11.–Use of firewood for home heating in sampled households, McCarthy, 2012.

Community	Average annual cost of home heating	Household use of wood for home heating as a percentage of total fuel for heating											
		0%		1%–25%		26%–50%		51%–75%		76%–99%		100%	
		Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
McCarthy	$756	3	7.7%	0	0.0%	2	5.1%	2	5.1%	6	15.4%	26	66.7%

Source ADF&G Division of Subsistence household surveys, 2013.

Table 4-12.–Estimated harvests and uses of fish, game, and vegetation resources, McCarthy, 2012.

Resource	Percentage of households					Harvest weight (lb)			Harvest quantity[a]			95% confidence limit (±) harvest
	Use	Attempt	Harvest	Receive	Give	Total	Mean per household	Per capita	Total	Unit	Mean per household	
All resources	**100.0%**	**100.0%**	**97.4%**	**100.0%**	**66.7%**	**8,903.8**	**153.5**	**86.8**	**2,277**		**39.3**	**26.2%**
Fish	**94.9%**	**66.7%**	**61.5%**	**89.7%**	**48.7%**	**5,099.0**	**87.9**	**49.7**	**1,299**		**22.4**	**27.1%**
Salmon	**94.9%**	**59.0%**	**53.8%**	**74.4%**	**35.9%**	**4,697.7**	**81.0**	**45.8**	**934**		**16.1**	**28.6%**
Chum salmon	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Coho salmon	35.9%	30.8%	23.1%	20.5%	12.8%	685.1	11.8	6.7	112	ind	1.9	43.5%
Chinook salmon	35.9%	23.1%	12.8%	28.2%	7.7%	162.9	2.8	1.6	11	ind	0.2	69.1%
Pink salmon	2.6%	2.6%	2.6%	0.0%	0.0%	8.7	0.1	0.1	3	ind	0.1	115.9%
Sockeye salmon	84.6%	48.7%	41.0%	69.2%	33.3%	3,823.1	65.9	37.3	791	ind	13.6	30.4%
Landlocked salmon	7.7%	5.1%	5.1%	2.6%	2.6%	17.8	0.3	0.2	18	ind	0.3	98.0%
Salmon (unspecified)	10.3%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Nonsalmon fish	**61.5%**	**46.2%**	**38.5%**	**46.2%**	**15.4%**	**401.3**	**6.9**	**3.9**	**365**		**6.3**	**32.3%**
Pacific herring	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	gal	0.0	0.0%
Pacific herring roe	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Pacific herring sac roe	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	gal	0.0	0.0%
Pacific herring spawn on kelp	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	gal	0.0	0.0%
Smelt	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	gal	0.0	0.0%
Cod	7.7%	0.0%	0.0%	7.7%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Pacific (gray) cod	5.1%	0.0%	0.0%	5.1%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Pacific tomcod	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Walleye pollock (whiting)	2.6%	0.0%	0.0%	2.6%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Flounder	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Starry flounder	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Greenling	5.1%	0.0%	0.0%	5.1%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Lingcod	5.1%	0.0%	0.0%	5.1%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Pacific halibut	46.2%	5.1%	2.6%	43.6%	5.1%	44.6	0.8	0.4	45	lb	0.8	115.9%
Arctic lamprey	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Rockfish	17.9%	2.6%	0.0%	17.9%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Rockfish (unspecified)	17.9%	2.6%	0.0%	17.9%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Sablefish (black cod)	2.6%	0.0%	0.0%	2.6%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Sculpin	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Burbot	2.6%	5.1%	2.6%	0.0%	0.0%	17.8	0.3	0.2	7	ind	0.1	115.9%
Char	30.8%	33.3%	28.2%	10.3%	5.1%	152.7	2.6	1.5	136		2.3	41.2%
Dolly Varden	23.1%	25.6%	20.5%	5.1%	5.1%	97.7	1.7	1.0	109	ind	1.9	48.4%

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Table 4-12.–Page 2 of 5.

Resource	Percentage of households					Harvest weight (lb)			Harvest quantity[a]			95% confidence limit (±) harvest
	Use	Attempt	Harvest	Receive	Give	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Nonsalmon fish, continued												
Lake trout	7.7%	10.3%	7.7%	5.1%	0.0%	54.9	0.9	0.5	27	ind	0.5	83.3%
Arctic grayling	20.5%	20.5%	20.5%	0.0%	2.6%	69.7	1.2	0.7	100	ind	1.7	44.3%
Northern pike	2.6%	5.1%	2.6%	0.0%	0.0%	8.3	0.1	0.1	3	ind	0.1	115.9%
Longnose sucker	2.6%	2.6%	2.6%	0.0%	2.6%	1.0	0.0	0.0	1	ind	0.0	115.9%
Trout	28.2%	33.3%	25.6%	5.1%	5.1%	104.4	1.8	1.0	72		1.2	40.6%
Cutthroat trout	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Rainbow trout	25.6%	30.8%	23.1%	5.1%	2.6%	94.0	1.6	0.9	67	ind	1.2	44.1%
Steelhead	2.6%	2.6%	2.6%	0.0%	0.0%	6.2	0.1	0.1	1	ind	0.0	115.9%
Trout (unspecified)	2.6%	2.6%	2.6%	0.0%	2.6%	4.2	0.1	0.0	3	ind	0.1	115.9%
Whitefishes	2.6%	2.6%	2.6%	0.0%	0.0%	2.6	0.0	0.0	1		0.0	115.9%
Broad whitefish	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Cisco	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Least cisco	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Humpback whitefish	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Round whitefish	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Whitefishes (unspecified)	2.6%	2.6%	2.6%	0.0%	0.0%	2.6	0.0	0.0	1	ind	0.0	115.9%
Land mammals	**76.9%**	**56.4%**	**25.6%**	**64.1%**	**25.6%**	**2,627.1**	**45.3**	**25.6**	**134**		**2.3**	**59.7%**
Large land mammals	**71.8%**	**41.0%**	**10.3%**	**64.1%**	**20.5%**	**2,400.3**	**41.4**	**23.4**	**16**		**0.3**	**63.3%**
Bison	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Black bear	25.6%	17.9%	7.7%	17.9%	5.1%	258.8	4.5	2.5	4	ind	0.1	65.1%
Brown bear	0.0%	5.1%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Caribou	23.1%	7.7%	2.6%	20.5%	7.7%	580.0	10.0	5.7	4	ind	0.1	115.9%
Deer	12.8%	5.1%	5.1%	7.7%	2.6%	126.4	2.2	1.2	3	ind	0.1	80.8%
Mountain goat	10.3%	2.6%	0.0%	10.3%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Moose	61.5%	38.5%	5.1%	46.2%	15.4%	1,338.5	23.1	13.0	3	ind	0.1	80.8%
Dall sheep	28.2%	5.1%	2.6%	25.6%	0.0%	96.7	1.7	0.9	1	ind	0.0	115.9%
Small land mammals	**25.6%**	**38.5%**	**23.1%**	**5.1%**	**5.1%**	**226.8**	**3.9**	**2.2**	**117**		**2.0**	**57.6%**
Beaver	7.7%	7.7%	5.1%	2.6%	0.0%	89.2	1.5	0.9	12	ind	0.2	115.9%
Coyote	0.0%	7.7%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Fox	7.7%	10.3%	7.7%	0.0%	0.0%	0.0	0.0	0.0	6		0.1	69.4%
Red fox	7.7%	10.3%	7.7%	0.0%	0.0%	0.0	0.0	0.0	6		0.1	69.4%
Red fox–cross phase	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%

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Table 4-12.–Page 3 of 5.

Resource	Percentage of households					Harvest weight (lb)			Harvest quantity[a]			95% confidence limit (±) harvest
	Use	Attempt	Harvest	Receive	Give	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Small land mammals, continued												
Red fox–red phase	7.7%	10.3%	7.7%	0.0%	0.0%	0.0	0.0	0.0	6	ind	0.1	69.4%
Hare	2.6%	7.7%	2.6%	0.0%	0.0%	11.9	0.2	0.1	6		0.1	115.9%
Snowshoe hare	2.6%	7.7%	2.6%	0.0%	0.0%	11.9	0.2	0.1	6	ind	0.1	115.9%
North American river (land) otter	0.0%	2.6%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Lynx	17.9%	28.2%	17.9%	2.6%	2.6%	119.0	2.1	1.2	43	ind	0.7	67.9%
Marmot	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Marten	5.1%	12.8%	5.1%	0.0%	0.0%	0.0	0.0	0.0	4	ind	0.1	85.4%
Mink	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Muskrat	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Porcupine	2.6%	2.6%	2.6%	0.0%	0.0%	6.7	0.1	0.1	1	ind	0.0	115.9%
Squirrel	2.6%	5.1%	2.6%	0.0%	2.6%	0.0	0.0	0.0	37		0.6	115.9%
Arctic ground (parka) squirrel	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Red (tree) squirrel	2.6%	5.1%	2.6%	0.0%	2.6%	0.0	0.0	0.0	37	ind	0.6	115.9%
Weasel	0.0%	2.6%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Gray wolf	2.6%	15.4%	2.6%	0.0%	0.0%	0.0	0.0	0.0	3	ind	0.1	115.9%
Wolverine	7.7%	17.9%	7.7%	0.0%	0.0%	0.0	0.0	0.0	4	ind	0.1	65.1%
Birds and eggs	**38.5%**	**43.6%**	**35.9%**	**2.6%**	**0.0%**	**99.5**	**1.7**	**1.0**	**140**		**2.4**	**31.8%**
Migratory birds	**5.1%**	**2.6%**	**2.6%**	**2.6%**	**0.0%**	**18.1**	**0.3**	**0.2**	**19**		**0.3**	**115.9%**
Ducks	5.1%	2.6%	2.6%	2.6%	0.0%	14.6	0.3	0.1	16		0.3	115.9%
Canvasback	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Eider	0.0%	0.0%	0.0%	0.0%	0.0%	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	0.0	0.0	0	ind	0.0	0.0%
Goldeneye	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Mallard	5.1%	2.6%	2.6%	2.6%	0.0%	8.9	0.2	0.1	9		0.2	115.9%
Northern pintail	2.6%	2.6%	2.6%	0.0%	0.0%	3.6	0.1	0.0	4		0.1	115.9%
Scoter	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Black scoter	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Teal	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Green-winged teal	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Wigeon	2.6%	2.6%	2.6%	0.0%	0.0%	2.1	0.0	0.0	3		0.1	115.9%
Duck (unspecified)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Geese	2.6%	2.6%	2.6%	0.0%	0.0%	3.6	0.1	0.0	3		0.1	115.9%

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Table 4-12.–Page 4 of 5.

Resource	Percentage of households					Harvest weight (lb)			Harvest quantity[a]			95% confidence limit (±) harvest
	Use	Attempt	Harvest	Receive	Give	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Migratory birds, continued												
Brant	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Canada/cackling goose	2.6%	2.6%	2.6%	0.0%	0.0%	3.6	0.1	0.0	3		0.1	115.9%
Cackling goose	2.6%	2.6%	2.6%	0.0%	0.0%	3.6	0.1	0.0	3	ind	0.1	115.9%
Canada goose	0.0%	2.6%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Canada/cackling goose	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Emperor goose	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Snow goose	0.0%	2.6%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
White-fronted goose	0.0%	2.6%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Goose (unspecified)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Swan	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Tundra (whistling) swan	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Crane	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Sandhill crane	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Other birds	**33.3%**	**41.0%**	**33.3%**	**0.0%**	**0.0%**	**81.3**	**1.4**	**0.8**	**120**		**2.1**	**31.6%**
Upland game birds	33.3%	41.0%	33.3%	0.0%	0.0%	81.3	1.4	0.8	120		2.1	31.6%
Grouse	33.3%	38.5%	33.3%	0.0%	0.0%	73.9	1.3	0.7	106		1.8	31.4%
Spruce grouse	33.3%	38.5%	33.3%	0.0%	0.0%	73.9	1.3	0.7	106	ind	1.8	31.4%
Ptarmigan	2.6%	10.3%	2.6%	0.0%	0.0%	7.4	0.1	0.1	15		0.3	115.9%
Bird eggs	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0**	**0.0**	**0.0**	**0**		**0.0**	**0.0%**
Duck eggs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Goose eggs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Seabird and loon eggs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Gull eggs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Eggs (unspecified)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Marine invertebrates	**25.6%**	**10.3%**	**10.3%**	**20.5%**	**0.0%**	**50.6**	**0.9**	**0.5**	**45**		**0.8**	**77.8%**
Clams	5.1%	2.6%	2.6%	2.6%	0.0%	8.9	0.2	0.1	3		0.1	115.9%
Freshwater clams	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	gal	0.0	0.0%
Razor clams	5.1%	2.6%	2.6%	2.6%	0.0%	8.9	0.2	0.1	3	gal	0.1	115.9%
Crabs	7.7%	2.6%	2.6%	5.1%	0.0%	29.7	0.5	0.3	30		0.5	115.9%
Dungeness crab	2.6%	0.0%	0.0%	2.6%	0.0%	0.0	0.0	0.0	0	lb	0.0	0.0%
King crab	5.1%	2.6%	2.6%	2.6%	0.0%	14.9	0.3	0.1	15	lb	0.3	115.9%
Tanner crab	2.6%	2.6%	2.6%	0.0%	0.0%	14.9	0.3	0.1	15	lb	0.3	115.9%

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Table 4-12.–Page 5 of 5.

Resource	Percentage of households					Harvest weight (lb)			Harvest quantity[a]			95% confidence limit (±) harvest
	Use	Attempt	Harvest	Receive	Give	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Marine invertebrates, continued												
Octopus	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Shrimp	20.5%	7.7%	7.7%	17.9%	0.0%	11.9	0.2	0.1	12	lb	0.2	66.2%
Squid	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	gal	0.0	0.0%
Vegetation	**100.0%**	**97.4%**	**97.4%**	**53.8%**	**33.3%**	**1,027.6**	**17.7**	**10.0**	**659**		**11.4**	**25.0%**
Berries	**87.2%**	**87.2%**	**87.2%**	**33.3%**	**20.5%**	**830.4**	**14.3**	**8.1**	**208**		**3.6**	**24.9%**
Blueberry	46.2%	46.2%	46.2%	12.8%	2.6%	111.2	1.9	1.1	28	gal	0.5	38.7%
Lowbush cranberry	51.3%	51.3%	46.2%	17.9%	7.7%	114.5	2.0	1.1	29	gal	0.5	44.3%
Highbush cranberry	53.8%	48.7%	48.7%	10.3%	15.4%	277.4	4.8	2.7	69	gal	1.2	39.7%
Crowberry	5.1%	5.1%	5.1%	0.0%	0.0%	5.9	0.1	0.1	1	gal	0.0	90.9%
Currants	38.5%	38.5%	38.5%	7.7%	7.7%	119.5	2.1	1.2	30	gal	0.5	47.0%
Nagoonberry	7.7%	7.7%	7.7%	0.0%	2.6%	19.7	0.3	0.2	5	gal	0.1	105.0%
Raspberry	74.4%	74.4%	74.4%	10.3%	5.1%	177.0	3.1	1.7	44	gal	0.8	30.2%
Soapberry	2.6%	2.6%	2.6%	0.0%	0.0%	1.5	0.0	0.0	0	gal	0.0	115.9%
Serviceberry	2.6%	2.6%	2.6%	0.0%	0.0%	0.7	0.0	0.0	0	gal	0.0	115.9%
Other wild berry	2.6%	2.6%	2.6%	0.0%	0.0%	3.0	0.1	0.0	1	gal	0.0	115.9%
Plants, greens, and mushrooms	**71.8%**	**61.5%**	**61.5%**	**23.1%**	**10.3%**	**197.2**	**3.4**	**1.9**	**132**		**2.3**	**35.7%**
Hudson's Bay (Labrador) tea	10.3%	7.7%	7.7%	2.6%	0.0%	1.3	0.0	0.0	1	gal	0.0	74.5%
Spruce tips	2.6%	2.6%	2.6%	0.0%	0.0%	0.4	0.0	0.0	0	gal	0.0	115.9%
Wild rose hips	33.3%	33.3%	33.3%	0.0%	2.6%	87.4	1.5	0.9	22	gal	0.4	52.0%
Yarrow	2.6%	2.6%	2.6%	0.0%	0.0%	0.4	0.0	0.0	0	gal	0.0	115.9%
Other wild greens	20.5%	20.5%	20.5%	0.0%	2.6%	25.1	0.4	0.2	25	gal	0.4	102.9%
Mushrooms (unspecified)	53.8%	43.6%	41.0%	23.1%	7.7%	79.0	1.4	0.8	79	gal	1.4	56.3%
Fireweed	10.3%	10.3%	10.3%	0.0%	0.0%	3.3	0.1	0.0	3	gal	0.1	62.4%
Greens from land (unspecified)	2.6%	2.6%	2.6%	0.0%	0.0%	0.4	0.0	0.0	0	gal	0.0	115.9%
Wood	**94.9%**	**92.3%**	**92.3%**	**17.9%**	**17.9%**	**0.0**	**0.0**	**0.0**	**320**		**5.5**	**14.2%**
Wood (unspecified)	35.9%	35.9%	33.3%	5.1%	10.3%	0.0	0.0	0.0	72	cord	1.2	46.2%
Firewood	94.9%	92.3%	92.3%	12.8%	10.3%	0.0	0.0	0.0	248	cord	4.3	12.3%

Source ADF&G Division of Subsistence household surveys, 2013.

Note For small land mammals, species that are not typically eaten show a non-zero harvest quantity with a zero harvest weight. Harvest weight is not calculated for species harvested but not eaten.

a. Summary rows that include incompatible units of measure have been left blank.

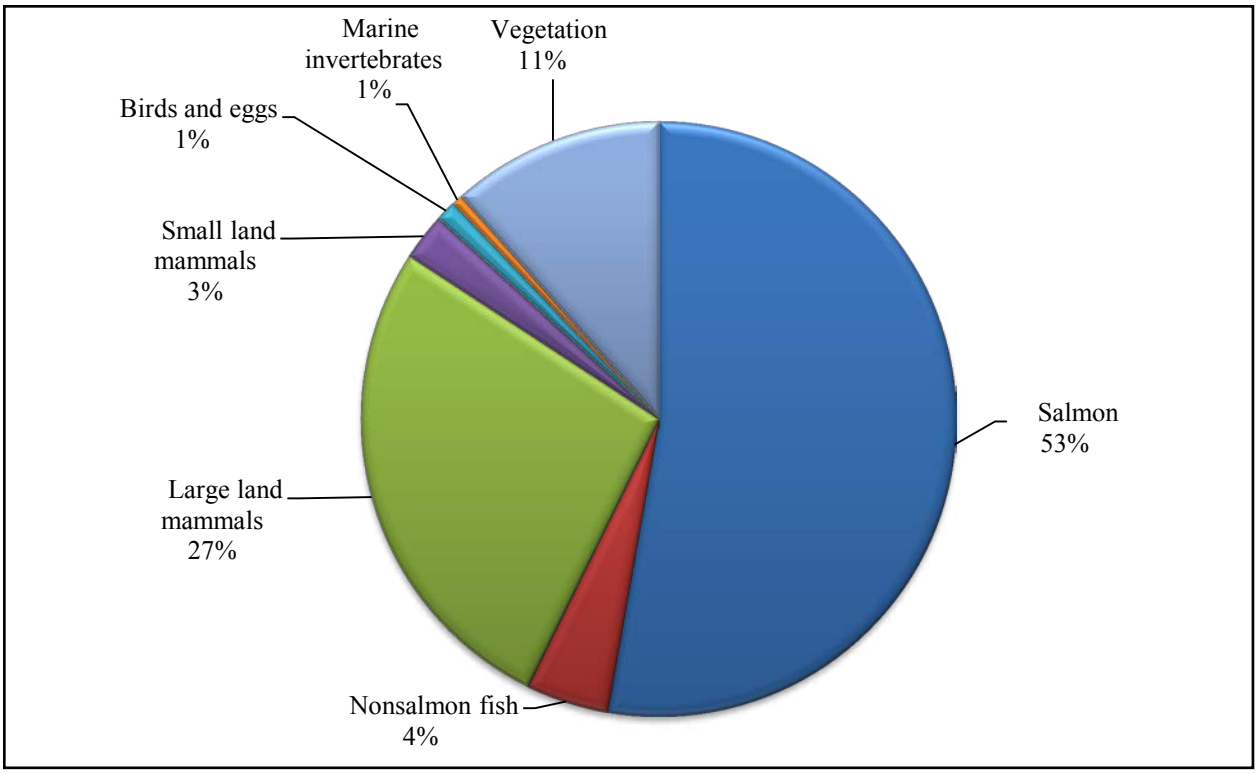

Figure 4-7.–Composition of harvest by resource category in pounds usable weight, McCarthy, 2012.

marine invertebrates—each contributed to the overall harvest substantially less than the categories listed above. The total community harvest of birds was approximately 100 lb, or 1 lb per capita. The harvest of marine invertebrates was even less; approximately 51 lb, or less than 1 lb per person.

Seasonal Round

McCarthy residents harvest a number of wild resources throughout the year and like residents of most rural Alaska communities, they target specific species at certain seasons of the year following a cyclical harvest pattern. This seasonal harvest pattern is in part defined by seasonal resource availability, and in part by laws, regulations, and land access. A small number of McCarthy residents have access to a small airplane and use the airplane to travel to more distant wild resource search and harvest areas (e.g., to Prince William Sound). However, the majority of McCarthy residents' resource search and harvest activities take place very close to their residence, or in the larger McCarthy area—including lands along McCarthy Road, and around the community of Chitina, which is approximately 60 mi west of McCarthy (Figure 4-8). Common modes of transportation—including highway vehicles, ATVs, boats, and snowmachines, and sometimes airplanes—are used by McCarthy residents to travel to and access resource search and harvest locations. It should be noted that some McCarthy residents also walk to their harvesting areas because they may be only a short distance from their home, or might not be legally accessible by other means.

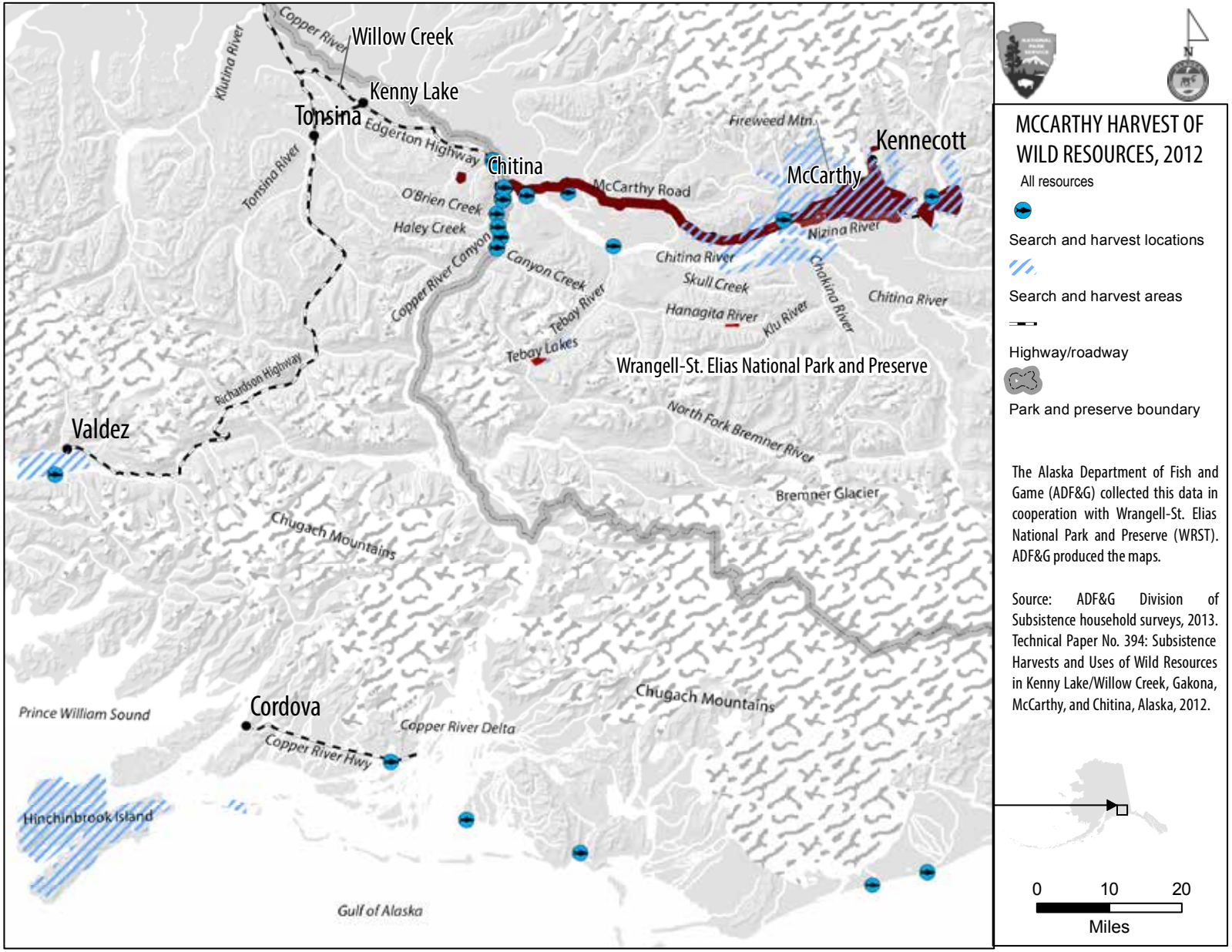

Figure 4-8.–Wild resources search and harvest areas, McCarthy, 2012.

According to key respondent interviews conducted with knowledgeable long-term residents of McCarthy, the first harvesting activities, which usually take place in late May after the snow on lower elevations has fully melted, include the harvest of fresh vegetation such as fireweed shoots and spring mushrooms such as morels. Although only a few McCarthy residents harvest locally-available spring vegetation and mushrooms in large quantities, salmon, which is the most important wild resource for McCarthy residents, are targeted and harvested by most community members. The first larger runs of Chinook and sockeye salmon start making their way up the Copper River in early May and usually reach Chitina by the beginning of June. According to ADF&G data, smaller numbers of sockeye salmon swim up the Chitina River and its tributaries (Mark Somerville, ADF&G sport fish biologist, Glennallen, Dec. 11, 2014, personal communication). In addition, in terms of seasons and harvest limits, there are fewer subsistence harvest opportunities available to McCarthy residents close to the community. Due to these reasons Chitina and the Copper River Canyon located just south of Chitina are the preferred salmon harvesting locations for McCarthy residents. Depending on the timing of the salmon runs and fishing regulations, the harvest of Chinook, sockeye, and coho salmon continues throughout the summer months. McCarthy residents consume some of the harvested salmon fresh but more is processed (e.g., canned or smoked) to be consumed later.

Wild berries, including raspberries, black and red currants, and blueberries, began to ripen in late July. Wild berries and plants are harvested locally by many McCarthy households during the first part of August. Large land mammal hunting, which is subject to different hunting regulations on state and federal lands in the larger McCarthy area, generally begins in late August and continues into September. Depending on the year, the harvest of wild mushrooms, such as orange delicious and coral mushrooms, takes place throughout the summer and stretching into early fall. Hunting for both migratory and upland game birds is also tied to regulated seasons that differ in length of legal harvest period. In the McCarthy area, migratory waterfowl are harvested during late fall and early winter months while upland game birds, such as the different species of ptarmigan and grouse, are locally harvested from early fall through the winter months. After snowfall, most McCarthy households are busy harvesting firewood to replenish their wood piles in preparation for the cold winter months. Often the harvest of firewood continues throughout the winter months, especially if the weather stays cold. Many returning migratory waterfowl are harvested in the spring; harvests may take place in the larger McCarthy area but often residents also travel (e.g., to Prince William Sound) to harvest these resources. Many McCarthy households have a garden for homegrown food and preparations for the summer growing season begin early in the spring after the coldest winter months have passed and sunlight begins to increase again. Resources harvested from domestic gardens complement the harvest of wild resources for many McCarthy households and the time needed to maintain and later on harvest these resources is substantial. It needs to be noted that the harvest of domestic produce is not included in the total wild resources harvest estimates presented in this study.

Use and Harvest Characteristics by Resource Category

Table 4-12 helps identify the roles sharing and receiving play in the use of resources harvested in 2012. According to the survey results, all McCarthy households attempted to harvest, received, and used some wild resources in 2012. Virtually all (97%) community households actually harvested some resources, yet a much smaller portion (67%) of McCarthy households shared some wild resources with other households in the community, or with households located outside the community.

According to the survey results, the most shared and received resource categories in McCarthy were fish and land mammals. Nearly 90% of McCarthy households received some fish resources and 64% received land mammals (mostly large land mammals). In comparison, approximately 49% of community households gave away fish and 26% gave away land mammals (21% of households gave large land mammals) during 2012. At the same time, 95% of McCarthy households used fish, particularly salmon, while only 62% of households successfully harvested fish. With land mammals, the comparative percentages are 77% of households used and only 26% harvested land mammals; large land mammals were used by 72% of households and only 10% harvested large mammals.

Berries were also widely shared with 33% of the households giving away some of these resources and 54% receiving some. There was no sharing of birds among McCarthy households; only approximately 3% reported receiving some migratory birds from outside the community. Similarly, there was no sharing of marine invertebrates among McCarthy households yet 21% received some during the study period. Resources from these categories are not easily attainable in the larger McCarthy area and substantial travel is required from community residents to attempt to harvest some. Therefore it is likely that these resources were received from outside the community in 2012.

Table 4-13 lists the top 10 ranked resources harvested, in terms of pounds per capita, and the most used resources by McCarthy households during the 2012 study year. Highlighting the importance of salmon to McCarthy residents, sockeye salmon was the most harvested resource as well as the second most widely used resource with 85% of McCarthy households using some. Moose, coho salmon, caribou, and highbush cranberries followed sockeye salmon as the most harvested resources. In comparison, raspberries, moose, mushrooms, and highbush and lowbush cranberries were the most widely used resources in McCarthy after firewood and sockeye salmon with more than 50% of McCarthy households using each resource.

Comparing the individual resources on the 2 lists shows that McCarthy households harvested and used a variety of wild resources that are relatively available close to their residence, or in the larger McCarthy area. Of all the individual resources included on the 2 lists, caribou, deer, and Pacific halibut are the 3 resources that require substantial travel by community members to attempt to harvest. Table 4-12 shows that only a very small percentage of McCarthy households harvested any of these 3 resources; 3% harvested caribou, 3% harvested Pacific halibut, and 5% harvested deer. Furthermore, of these 3 resources, Pacific halibut was

Table 4-13.–Top ranked resources harvested and used by households, McCarthy, 2012.

Harvested			Used		
Rank[a]	Resource	Pounds per capita	Rank[a]	Resource	Percentage of households
1.	Sockeye salmon	37.3	1.	Firewood	94.9%
2.	Moose	13.0	2.	Sockeye salmon	84.6%
3.	Coho salmon	6.7	3.	Raspberry	74.4%
4.	Caribou	5.7	4.	Moose	61.5%
5.	Highbush cranberry	2.7	5.	Unknown mushrooms	53.8%
6.	Black bear	2.5	5.	Highbush cranberry	53.8%
7.	Raspberry	1.7	7.	Lowbush cranberry	51.3%
8.	Chinook salmon	1.6	8.	Pacific halibut	46.2%
9.	Deer	1.2	8.	Blueberry	46.2%
10.	Currants	1.2	10.	Currants	38.5%

Source ADF&G Division of Subsistence household surveys, 2013.
Note "Unknown" means "unspecified" (i.e., respondents may have known the specific species, but that information was not collected during the survey).
a. Resources used by the same percentage of households share the lowest rank value instead of having sequential rank values.

the most widely used resource with 46% of McCarthy households using; Pacific halibut shared eighth place with blueberry on the list of top 10 ranked resources used by McCarthy households in 2012 (Table 4-13). In comparison, both caribou (in fourth place) and deer (in ninth place) appeared on the list of top harvested resources but were not among the most used resources in McCarthy. Table 4-12 shows that 23% of McCarthy households used caribou but only 13% used deer. In comparison, more households received caribou (21%) than deer (8%). This indicates that only a small number of McCarthy households successfully harvested these resources and that while some sharing took place within the community, and some from outside the community, deer and caribou were not readily available to the community at large during 2012.

Salmon

For the community of McCarthy, salmon composed 53% of the estimated wild resource harvest in pounds usable weight for 2012 totaling 4,698 lb, or 46 lb per capita (Figure 4-7; Table 4-12). According to survey results, 59% of community households attempted to harvest some salmon and 54% of households successfully harvested salmon (Table 4-12). Sockeye salmon was the primary salmon species targeted by McCarthy households; approximately 81% (or 3,823 lb) of the total salmon harvest was sockeye (Figure 4-9; Table 4-12). Coho salmon made up 15% (685 lb) and Chinook salmon 4% (or 163 lb) of the total salmon harvest. In addition, a very small amount of landlocked salmon (18 lb) and pink salmon (9 lb) was harvested by a few households (Table 4-12).

During the 2012 study year, McCarthy households harvested the majority of their salmon (46% of the total harvest in pounds) with fish wheels; the remaining harvest was taken mostly with dip nets (30% of

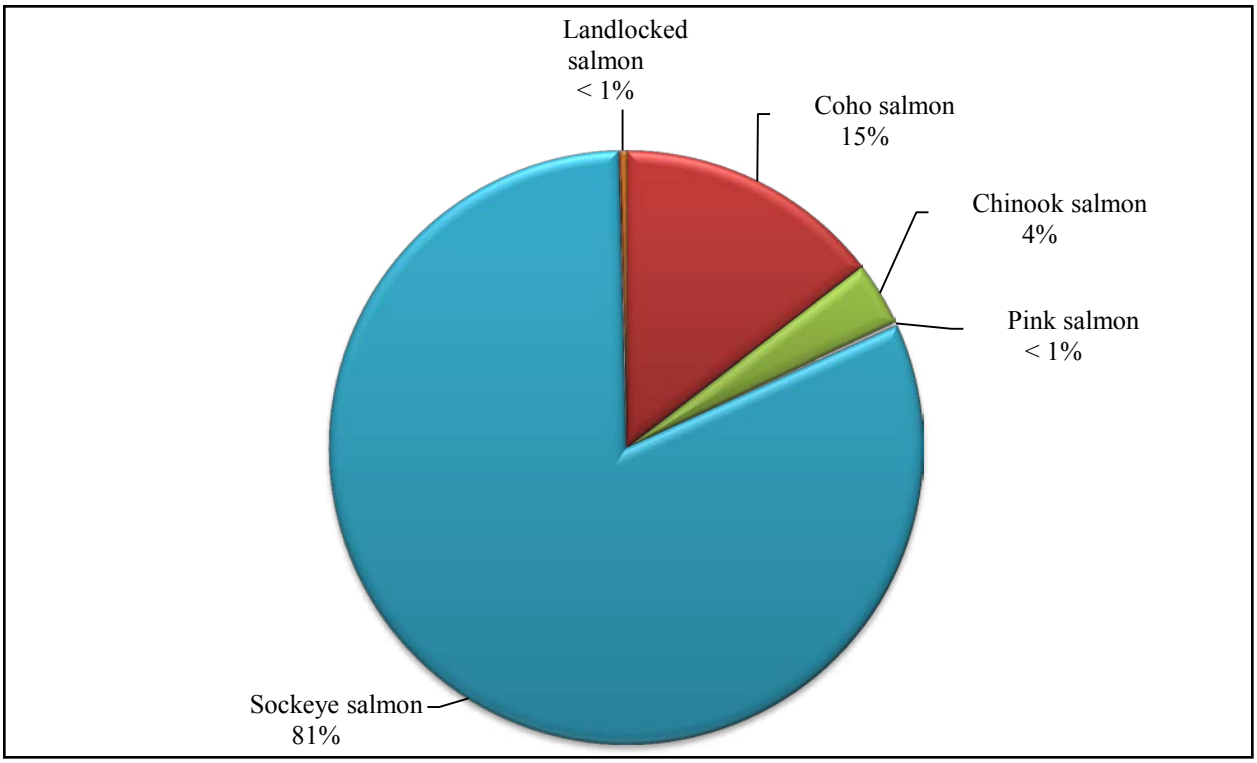

Figure 4-9.–Composition of salmon harvest in pounds usable weight, McCarthy, 2012.

total pounds) (Table 4-14). Some Chinook salmon (14% of the total Chinook salmon harvest in pounds) and sockeye salmon (17% of total sockeye salmon harvest in pounds) were removed from commercial catches from marine waters away from McCarthy for home use. Other gear used to harvest salmon, particularly coho and landlocked salmon, was rod and reel gear, which was used to take approximately 9% of the total pounds of salmon harvested.

Survey results demonstrate that salmon is a profoundly important resource for McCarthy residents; 95% of McCarthy households used some salmon during study year 2012 (Table 4-12). Three salmon species (sockeye, coho, and Chinook salmon) also are included among the top 10 most harvested resources in McCarthy for study year 2012 (Table 4-13).

Regarding sharing and receiving, survey results indicate that sockeye salmon was the most widely shared salmon species with 33% of McCarthy households giving some sockeye salmon away. In comparison, 13% of community households gave away some coho salmon, and only 8% gave away Chinook salmon. Overall, 36% of households gave away salmon; however, a much larger percentage (74%) of community households received some salmon. At the species level, most of the received salmon was sockeye salmon (69% of households) followed by Chinook salmon (28% of households) and coho salmon (21% of households).

The most widely used salmon species in McCarthy during 2012 was sockeye salmon with 85% of house-

Table 4-14.–Estimated percentages of salmon harvested by gear type, resource, and total salmon harvest, McCarthy, 2012.

				Subsistence methods											
	Percentage	Removed from commercial catch		Fish wheel		Dip net		Other		Subsistence gear, any method		Rod and reel		Any method	
Resource	base	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Salmon	**Gear type**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
	Resource	**14.5%**	**14.3%**	**46.0%**	**46.3%**	**29.8%**	**29.7%**	**0.6%**	**0.8%**	**76.4%**	**76.8%**	**9.1%**	**9.0%**	**100.0%**	**100.0%**
	Total	**14.5%**	**14.3%**	**46.0%**	**46.3%**	**29.8%**	**29.7%**	**0.6%**	**0.8%**	**76.4%**	**76.8%**	**9.1%**	**9.0%**	**100.0%**	**100.0%**
Chum salmon	Gear type	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%
	Resource	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	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%
Coho salmon	Gear type	0.0%	0.0%	0.0%	0.0%	16.0%	19.6%	100.0%	100.0%	7.1%	8.6%	71.9%	88.9%	11.9%	14.6%
	Resource	0.0%	0.0%	0.0%	0.0%	40.0%	40.0%	5.3%	5.3%	45.3%	45.3%	54.7%	54.7%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	4.8%	5.8%	0.6%	0.8%	5.4%	6.6%	6.5%	8.0%	11.9%	14.6%
Chinook salmon	Gear type	1.1%	3.4%	2.1%	6.4%	0.0%	0.0%	0.0%	0.0%	1.3%	3.9%	0.0%	0.0%	1.1%	3.5%
	Resource	14.0%	14.0%	86.0%	86.0%	0.0%	0.0%	0.0%	0.0%	86.0%	86.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.2%	0.5%	1.0%	3.0%	0.0%	0.0%	0.0%	0.0%	1.0%	3.0%	0.0%	0.0%	1.1%	3.5%
Pink salmon	Gear type	0.0%	0.0%	0.0%	0.0%	1.1%	0.6%	0.0%	0.0%	0.4%	0.2%	0.0%	0.0%	0.3%	0.2%
	Resource	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.3%	0.2%	0.0%	0.0%	0.3%	0.2%	0.0%	0.0%	0.3%	0.2%
Sockeye salmon	Gear type	98.9%	96.6%	97.9%	93.6%	82.9%	79.8%	0.0%	0.0%	91.2%	87.3%	7.0%	6.8%	84.7%	81.4%
	Resource	16.9%	16.9%	53.2%	53.2%	29.1%	29.1%	0.0%	0.0%	82.3%	82.3%	0.8%	0.8%	100.0%	100.0%
	Total	14.3%	13.8%	45.1%	43.3%	24.7%	23.7%	0.0%	0.0%	69.7%	67.0%	0.6%	0.6%	84.7%	81.4%
Landlocked salmon	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	21.1%	4.2%	1.9%	0.4%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	0.4%	1.9%	0.4%
Salmon (unspecified)	Gear type	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%
	Resource	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	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 survey, 2013.

hold using the resource. Regardless of a smaller number of households harvesting Chinook salmon than coho salmon both species were evenly used in McCarthy households (36% of households using each species).

McCarthy residents harvested their sockeye and Chinook salmon from fish wheels and dip nets located along the Copper River in the vicinity of Chitina, approximately 60 mi west of McCarthy (Figure 4-10; Figure 4-11). In comparison, there was more variety in the coho salmon harvest locations; most harvest locations were around Chitina but some coho salmon were also harvested along the Chitina and Nizina rivers (Figure 4-12).

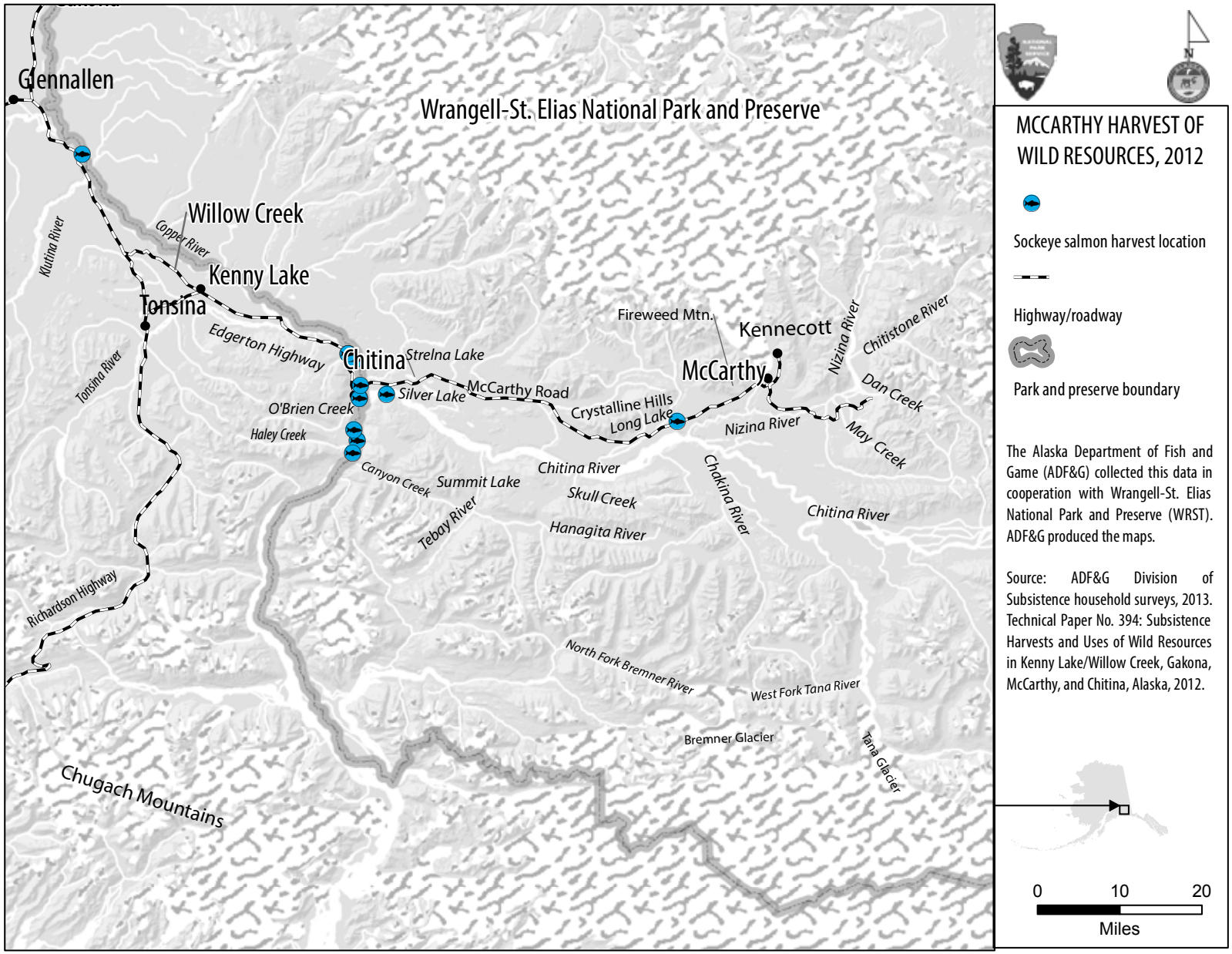

Figure 4-10.–Fishing and harvest locations of sockeye salmon, McCarthy, 2012.

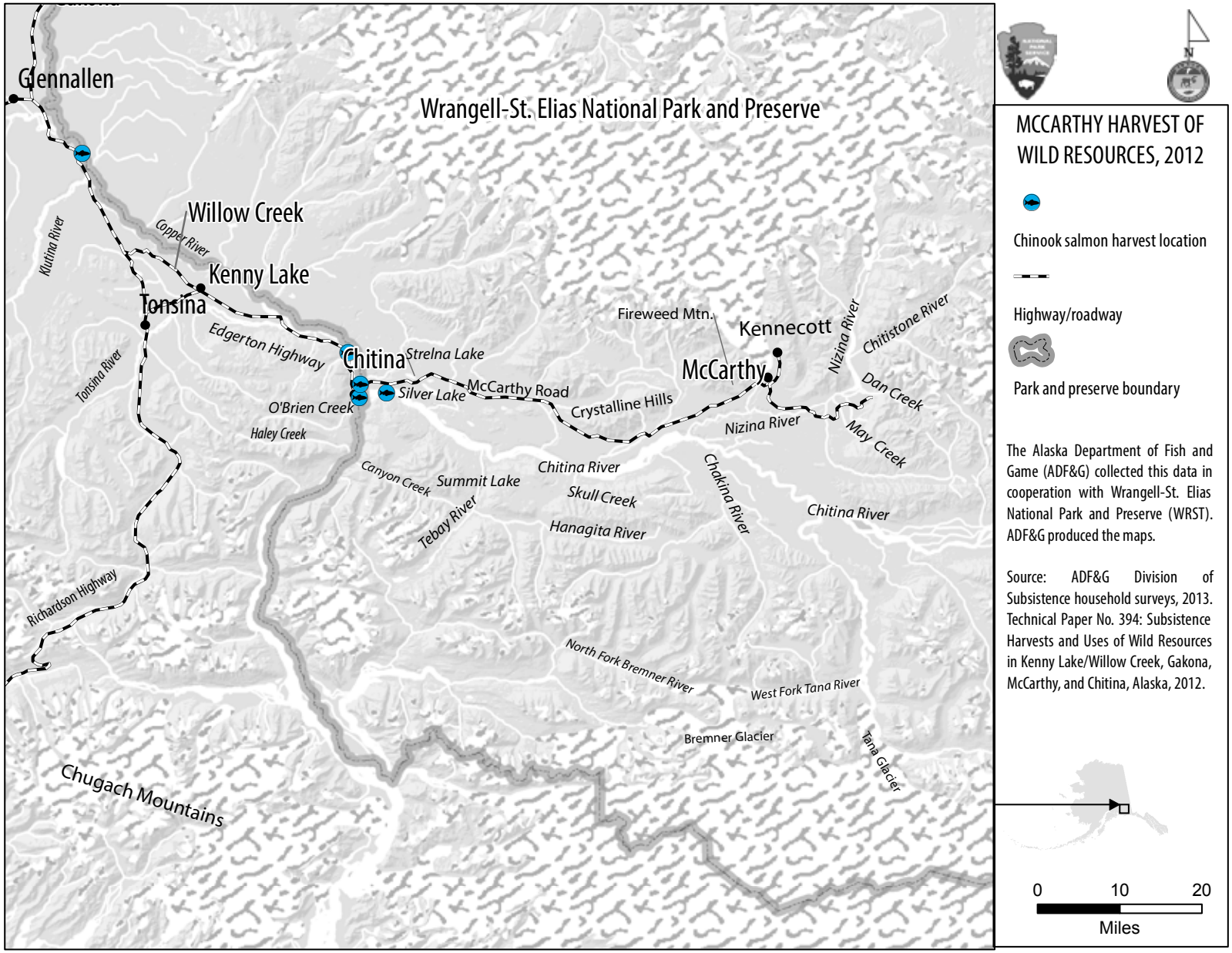

Figure 4-11.–Fishing and harvest locations of Chinook salmon, McCarthy, 2012.

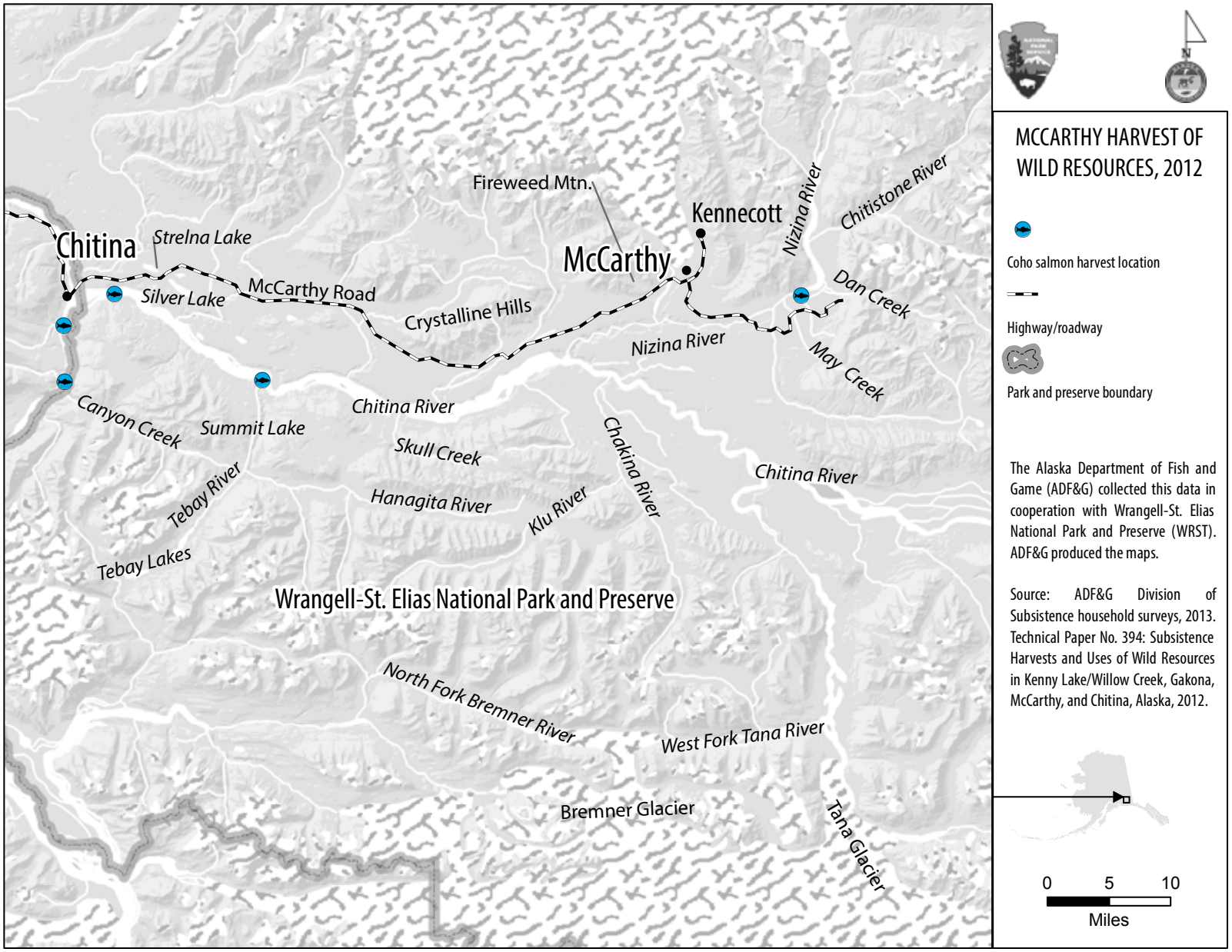

Figure 4-12.–Fishing and harvest locations of coho salmon, McCarthy, 2012.

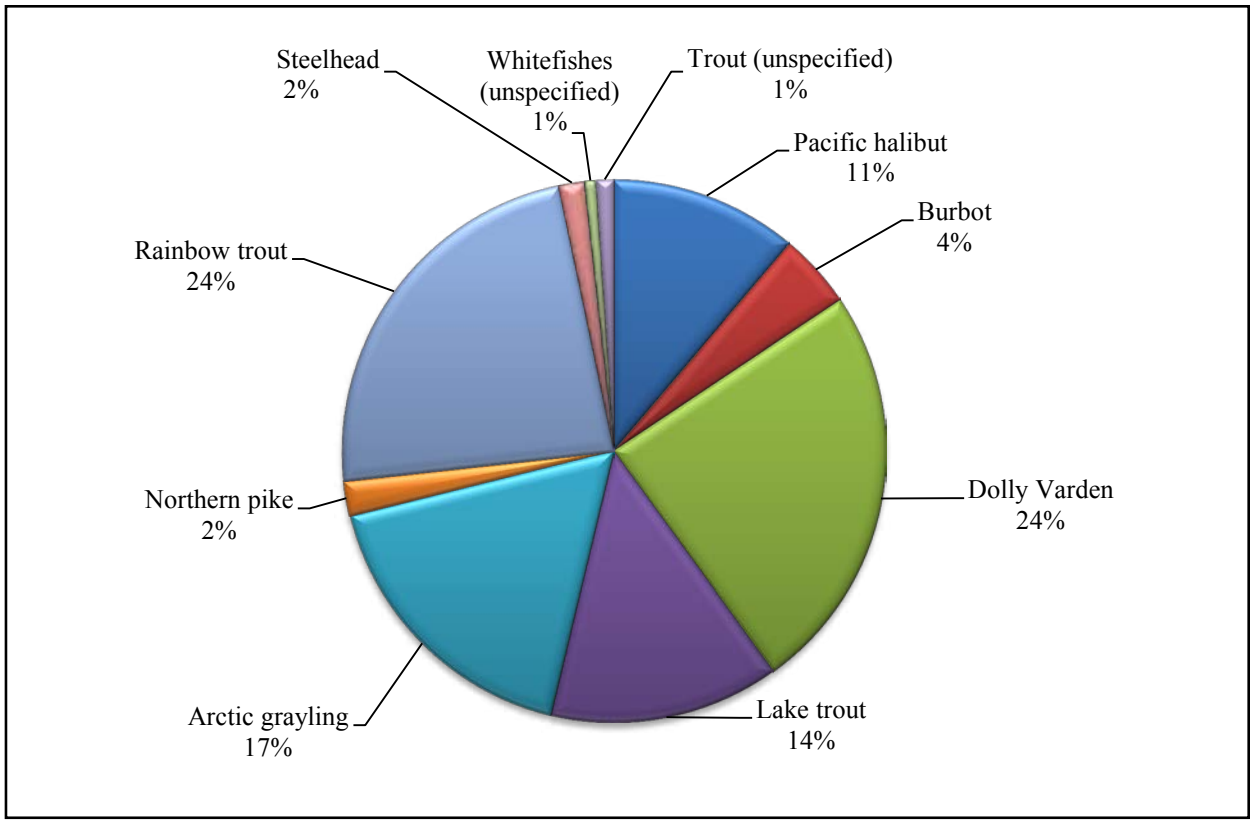

Figure 4-13.–Composition of nonsalmon fish harvest in pounds usable weight, McCarthy, 2012.

Nonsalmon Fish

McCarthy residents harvested an estimated total of 401 lb, or 4 lb per capita, of nonsalmon fish in 2012 (Table 4-12). In pounds usable weight, the nonsalmon fish harvest from both marine and freshwater environments made up 4% of the community's total wild resource harvest (Figure 4-7). According to survey data, 46% of community households attempted to harvest some nonsalmon fish and 39% of households successfully harvested nonsalmon fish (Table 4-12). In terms of percentages and pounds, the largest portion of the nonsalmon fish harvest was Dolly Varden (24%, or 98 lb), rainbow trout (24%, or 94 lb), Arctic grayling (17%, or 70 lb), lake trout (14%, or 55 lb), and Pacific halibut (11%, or 45 lb) (Figure 4-13; Table 4-12).

During the 2012 study year, McCarthy households harvested the majority of their nonsalmon fish (77% of the total harvest in pounds) with rod and reel. Other significant gear types used include ice fishing or jigging gear (21% of the total harvest in pounds) and other unspecified subsistence gear types (2% of harvest) (Table 4-15). At the species level, all Pacific halibut, which is a marine species, was harvested with rod and reel as well as were the majority of Dolly Varden, rainbow trout, and Arctic grayling. In comparison, the majority of lake trout and some Dolly Varden were harvested while ice fishing or jigging through the ice.

Regarding sharing and receiving, survey results indicate that Pacific halibut and Dolly Varden were the most widely shared nonsalmon fish species with 5% of McCarthy households giving some Pacific halibut

or Dolly Varden away (Table 4-12). In comparison, Pacific halibut was the single most received nonsalmon resource in McCarthy with 44% of community households receiving some. Furthermore, Pacific halibut shared eighth place with blueberry on the list of most used resources in McCarthy in 2012; it was also the only nonsalmon fish species that was included on the lists of top 10 ranked used and harvested resources in the community during the study year (Table 4-13).

In 2012, McCarthy residents harvested the majority of their freshwater nonsalmon fish in the Chitina River valley. Some rainbow trout, Dolly Varden, and Arctic grayling were harvested from water bodies very close to McCarthy Road (such as Silver Lake and Long Lake); these locations are easily reachable with highway vehicles (Figure 4-14; Figure 4-15). Additional rainbow and lake trout harvest locations included Tebay Lakes and Tebay River, which are farther away from McCarthy and McCarthy Road and require substantial travel by small plane, or by snowmachine, depending on the time of the year (Figure 4-14; additional maps in Appendix C). Some fishing for Arctic grayling and lake trout also took place on Hanagita River, which is located southwest from McCarthy and requires considerable travel from community members with season-appropriate motorized equipment. Furthermore, some fishing for Dolly Varden took place in the Copper River Delta, which required substantial travel by airplane (Figure 4-15).

Large Land Mammals

In 2012, large land mammals made up 27% of McCarthy residents' overall wild resource harvest (Figure 4-7). In pounds usable weight, the estimated total harvest was 2,400 lb, or approximately 23 lb per capita. The largest portion of the harvest was moose (1,339 lb, or 13 lb per capita), which made up 56% of the large land mammal harvest, followed by caribou (580 lb, or 6 lb per capita), black bear (259 lb, or 3 lb per capita), deer (126 lb, or 1 lb per capita), and Dall sheep (97 lb, or less than 1 lb per capita) (Figure 4-16; Table 4-12). In terms of most harvested and used resources in McCarthy for study year 2012, moose ranked second, caribou ranked fourth, black bears ranked sixth, and deer ranked ninth on the list of top 10 most harvested resources (Table 4-13). In comparison, moose, which ranked fourth on the list of most used resources in McCarthy in 2012, was the only large land mammal resource that placed among the top 10 most used resources in the community.

According to survey results, 39% of McCarthy households hunted moose, 18% hunted black bear, and 8% hunted caribou; in addition a smaller percentage (approximately 5%) of community households attempted to harvest brown bear, deer, or Dall sheep (Table 4-12). In comparison, only 5% of McCarthy households were successful at harvesting moose, 8% harvested black bear, and 3% harvested caribou. Moreover, approximately 5% of McCarthy households harvested deer, and 3% harvested Dall sheep. Most of the successful large land mammal hunting took place between August and October; only some black bears were harvested in spring during the month of May (Table 4-16). All harvested moose and caribou were males that were taken in September and October. Table 4-16 also shows that the estimated total number of large land

Table 4-15.–Estimated percentages of nonsalmon fish harvested by gear type, resource, and total nonsalmon fish harvest, McCarthy, 2012.

				Subsistence methods									
		Removed from commercial catch		Ice fishing or jigging through the ice		Other		Subsistence gear, any method		Rod and reel[a]		Any method	
Resource	Percentage base	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Nonsalmon fish	**Gear type**	**0.0%**	**0.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
	Resource	**0.0%**	**0.0%**	**15.6%**	**21.0%**	**0.8%**	**2.2%**	**16.4%**	**23.2%**	**83.6%**	**76.8%**	**100.0%**	**100.0%**
	Total	**0.0%**	**0.0%**	**15.6%**	**21.0%**	**0.8%**	**2.2%**	**16.4%**	**23.2%**	**83.6%**	**76.8%**	**100.0%**	**100.0%**
Pacific herring	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pacific herring sac roe	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pacific herring spawn on kelp	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Smelt	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pacific (gray) cod	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pacific tomcod	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Walleye pollock	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Starry flounder	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Lingcod	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

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Table 4-15.–Page 2 of 3.

				Subsistence methods									
		Removed from commercial catch		Ice fishing or jigging through the ice		Other		Subsistence gear, any method		Rod and reel[a]		Any method	
Resource	Percentage base	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Pacific halibut	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.6%	14.5%	12.2%	11.1%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.2%	11.1%	12.2%	11.1%
Arctic lamprey	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Rockfish (unspecified)	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Sablefish (black cod)	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Sculpin	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Burbot	Gear type	0.0%	0.0%	13.1%	21.1%	0.0%	0.0%	12.4%	19.1%	0.0%	0.0%	2.0%	4.4%
	Resource	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	2.0%	4.4%	0.0%	0.0%	2.0%	4.4%	0.0%	0.0%	2.0%	4.4%
Dolly Varden	Gear type	0.0%	0.0%	41.8%	25.4%	0.0%	0.0%	39.7%	23.0%	27.8%	24.8%	29.7%	24.3%
	Resource	0.0%	0.0%	21.9%	21.9%	0.0%	0.0%	21.9%	21.9%	78.1%	78.1%	100.0%	100.0%
	Total	0.0%	0.0%	6.5%	5.3%	0.0%	0.0%	6.5%	5.3%	23.2%	19.0%	29.7%	24.3%
Lake trout	Gear type	0.0%	0.0%	26.8%	36.2%	0.0%	0.0%	25.5%	32.7%	4.0%	7.9%	7.5%	13.7%
	Resource	0.0%	0.0%	55.6%	55.6%	0.0%	0.0%	55.6%	55.6%	44.4%	44.4%	100.0%	100.0%
	Total	0.0%	0.0%	4.2%	7.6%	0.0%	0.0%	4.2%	7.6%	3.3%	6.1%	7.5%	13.7%
Arctic grayling	Gear type	0.0%	0.0%	10.4%	4.9%	0.0%	0.0%	9.9%	4.5%	30.7%	21.3%	27.3%	17.4%
	Resource	0.0%	0.0%	6.0%	6.0%	0.0%	0.0%	6.0%	6.0%	94.0%	94.0%	100.0%	100.0%
	Total	0.0%	0.0%	1.6%	1.0%	0.0%	0.0%	1.6%	1.0%	25.6%	16.3%	27.3%	17.4%
Northern pike	Gear type	0.0%	0.0%	5.2%	9.9%	0.0%	0.0%	5.0%	8.9%	0.0%	0.0%	0.8%	2.1%
	Resource	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.8%	2.1%	0.0%	0.0%	0.8%	2.1%	0.0%	0.0%	0.8%	2.1%
Longnose sucker	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.3%	0.4%	0.3%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.3%	0.4%	0.3%

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Table 4-15.–Page 3 of 3.

				Subsistence methods									
		Removed from commercial catch		Ice fishing or jigging through the ice		Other		Subsistence gear, any method		Rod and reel[a]		Any method	
Resource	Percentage base	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Cutthroat trout	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Rainbow trout	Gear type	0.0%	0.0%	2.7%	2.5%	0.0%	0.0%	2.5%	2.3%	21.5%	29.8%	18.4%	23.4%
	Resource	0.0%	0.0%	2.3%	2.3%	0.0%	0.0%	2.3%	2.3%	97.7%	97.7%	100.0%	100.0%
	Total	0.0%	0.0%	0.4%	0.5%	0.0%	0.0%	0.4%	0.5%	18.0%	22.9%	18.4%	23.4%
Steelhead	Gear type	0.0%	0.0%	0.0%	0.0%	50.0%	70.6%	2.5%	6.7%	0.0%	0.0%	0.4%	1.6%
	Resource	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.4%	1.6%	0.4%	1.6%	0.0%	0.0%	0.4%	1.6%
Trout (unspecified)	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	1.4%	0.8%	1.0%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	1.0%	0.8%	1.0%
Broad whitefish	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Least cisco	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Humpback whitefish	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Round whitefish	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Whitefishes (unspecified)	Gear type	0.0%	0.0%	0.0%	0.0%	50.0%	29.4%	2.5%	2.8%	0.0%	0.0%	0.4%	0.6%
	Resource	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.4%	0.6%	0.4%	0.6%	0.0%	0.0%	0.4%	0.6%

Source ADF&G Division of Subsistence household surveys, 2013.

a. Federal regulations recognize rod and reel as subsistence gear. Under state regulations, rod and reel fishing is governed under sport fishing regulations.

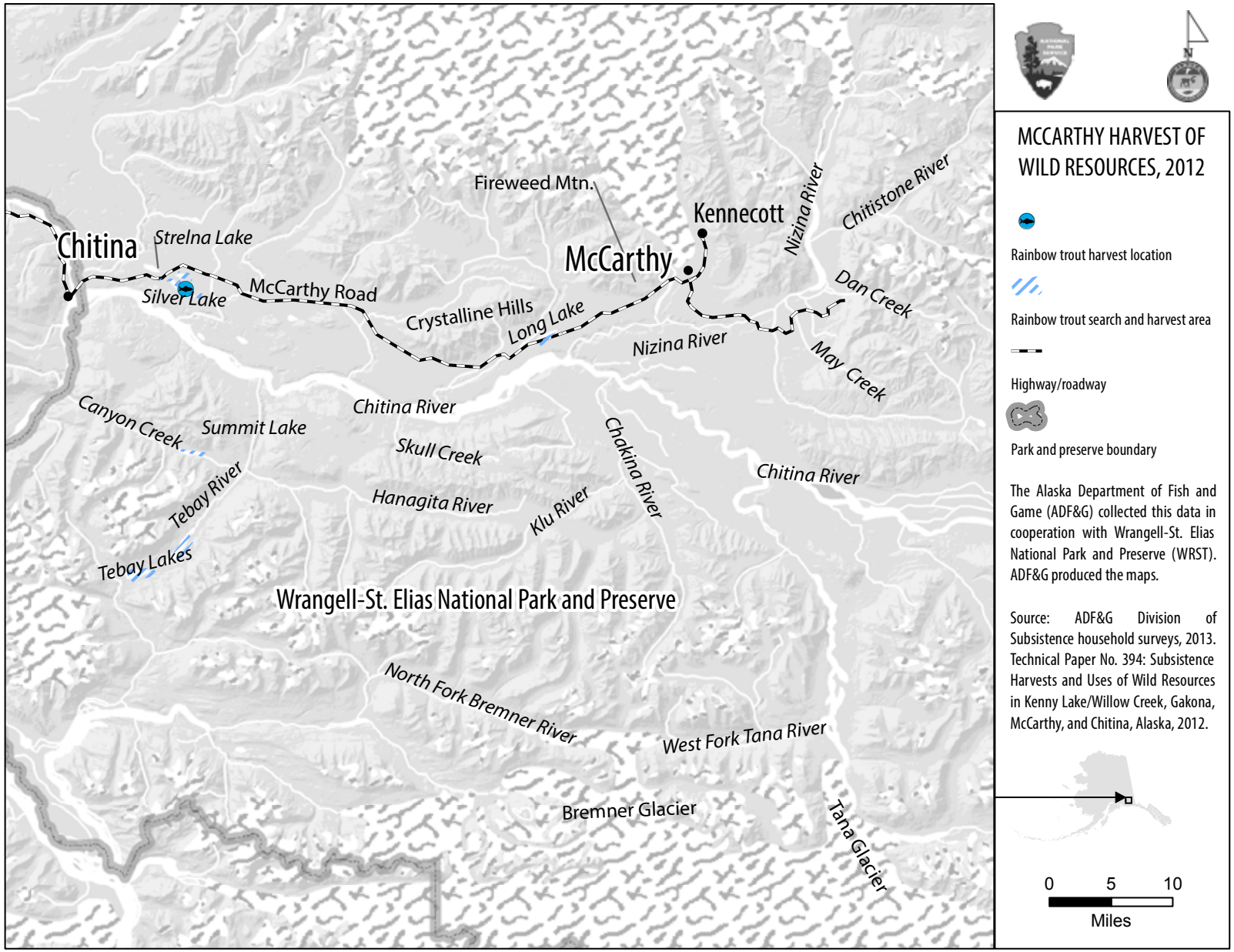


Figure 4-14.–Fishing and harvest locations of rainbow trout, McCarthy, 2012.

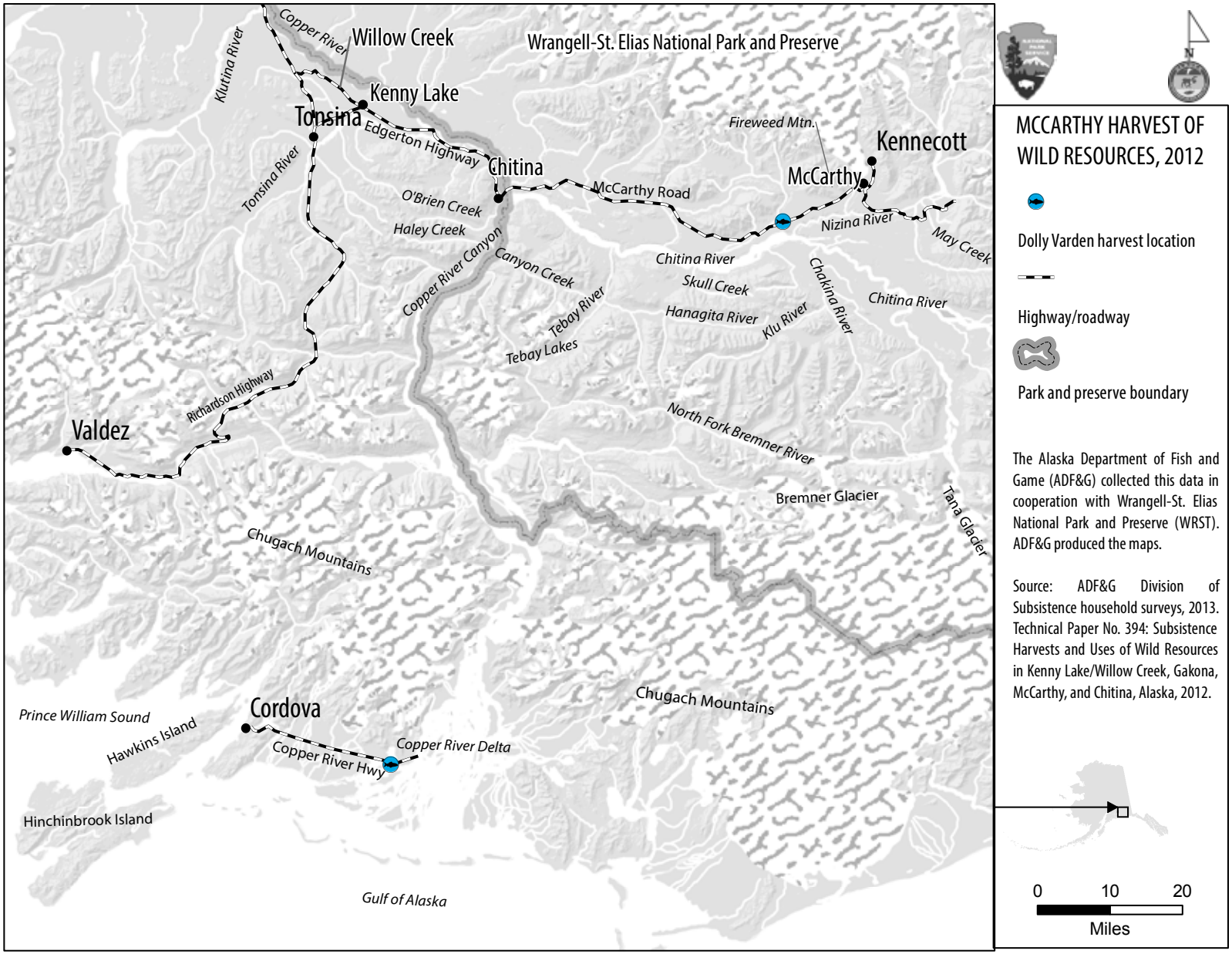


Figure 4-15.–Fishing and harvest locations of Dolly Varden, McCarthy, 2012.

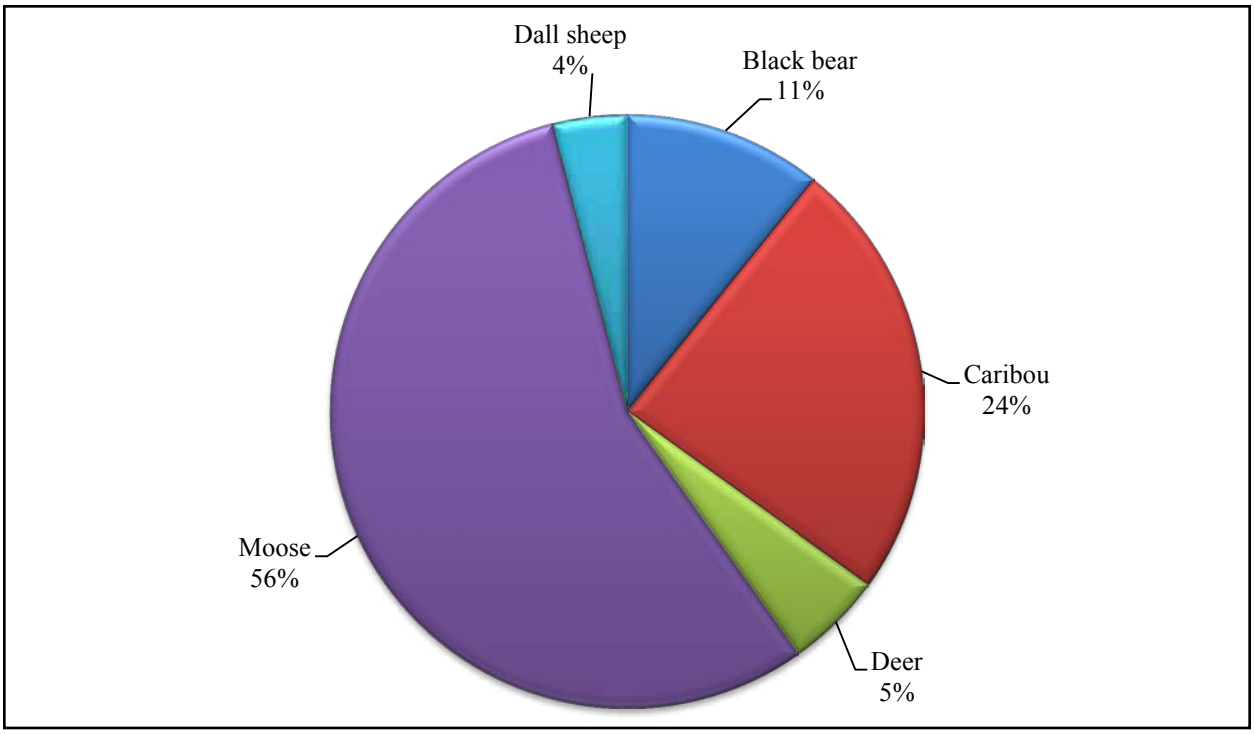


Figure 4-16.–Composition of large land mammal harvest in pounds usable weight, McCarthy, 2012.

mammals harvested was small—totaling approximately 16 animals. At the species level most of the harvest was made up of black bears and caribou with an estimated 4 animals of each species harvested during 2012.

Although a small number of McCarthy households successfully harvested the 3 most targeted large land mammal species (moose, black bear, and caribou), many more community households used these resources after receiving some either from other households in McCarthy or from other Alaska communities. According to the survey, 46% of McCarthy households received some moose and 62% used moose during study year 2012 (Table 4-12). In comparison, 21% of community households received some caribou and 23% used some. Interestingly, fewer McCarthy households (18%) received black bear some time during 2012 but more (26%) used some. One explanation for the larger number of McCarthy households using black bear could be that a number of households had some left over from the previous year; according to community members, the larger Chitina River valley area supports healthy black and brown bear populations, and at times residents are forced to kill a bear in defense of life or property. Bear meat harvested this way is often shared among community members and enjoyed, for example, as bear meat stew or bear meat sausage. Another interesting observation from the estimated harvest data is that while only a small percentage (3%) of McCarthy households harvested Dall sheep, and no community households gave any away, 26% of McCarthy households received some, including from outside the community, and 28% of households used some Dall sheep. One explanation for the considerable number of McCarthy households receiving Dall sheep could be that there are a few residents employed as hunting guides in the community who often receive some meat from their clients after a successful hunt.

Table 4-16.–Estimated large land mammal harvests by month and sex, McCarthy, 2012.

	Black	Brown	Dall		Caribou			Moose		
Harvest month	bear	bear	sheep	Deer	Total	Male	Female	Total	Male	Female
January	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
February	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
March	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
April	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
May	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
June	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
July	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
August	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0
September	0.0	0.0	1.5	0.0	1.5	1.5	0.0	3.0	3.0	0.0
October	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0
November	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
December	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unknown month	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total harvest	**4.5**	**0.0**	**1.5**	**3.0**	**4.5**	**4.5**	**0.0**	**3.0**	**3.0**	**0.0**

Source ADF&G Division of Subsistence household surveys, 2013.

In 2012, McCarthy residents used areas close to the community for hunting and harvesting large land mammals. The westernmost moose search areas extended from the south side of Crystalline Hills along McCarthy Road from approximately milepost 40 to the easternmost areas near Dan Creek located close to the Nizina River (Figure 4-17). Another large moose search area stretched south of the community of McCarthy all the way to the Nizina River. Both black and brown bear hunting areas were more focused on the immediate area around the community; as mentioned above, the bear population in the larger McCarthy area is dense and McCarthy residents are used to regularly encountering bears close to their homes. Another species hunted by a few community residents close to McCarthy was mountain goat. While caribou hunting took place farther away from the community along the Denali Highway, the furthest search and harvest areas for large land mammals were located in the Gulf of Alaska on Hinchinbrook Island where some McCarthy residents hunted for deer. It should be noted that, per the request of McCarthy residents to protect their privacy, this report does not include a map portraying community households' caribou search and harvest areas for study year 2012.

As discussed earlier in this chapter, due to NPS regulations, using an airplane to access subsistence hunting areas in the national park part of WRST is not allowed; McCarthy residents are thus required to access these areas by other allowable means of motorized transportation, on foot, or with alternative transportation, such as horses, which, keeping in mind the challenges posed by the terrain and the time of the year, is not always possible. The use of airplanes for accessing subsistence hunting areas is allowed in the preserve part of WRST and some McCarthy residents use airplanes to access these areas and areas that are even farther away from the community. In search and harvest areas close to the Nizina River and McCarthy Road (see, for example, Figure 4-17), McCarthy residents use ATVs, highway vehicles, or walk to access and travel around these subsistence hunting areas.

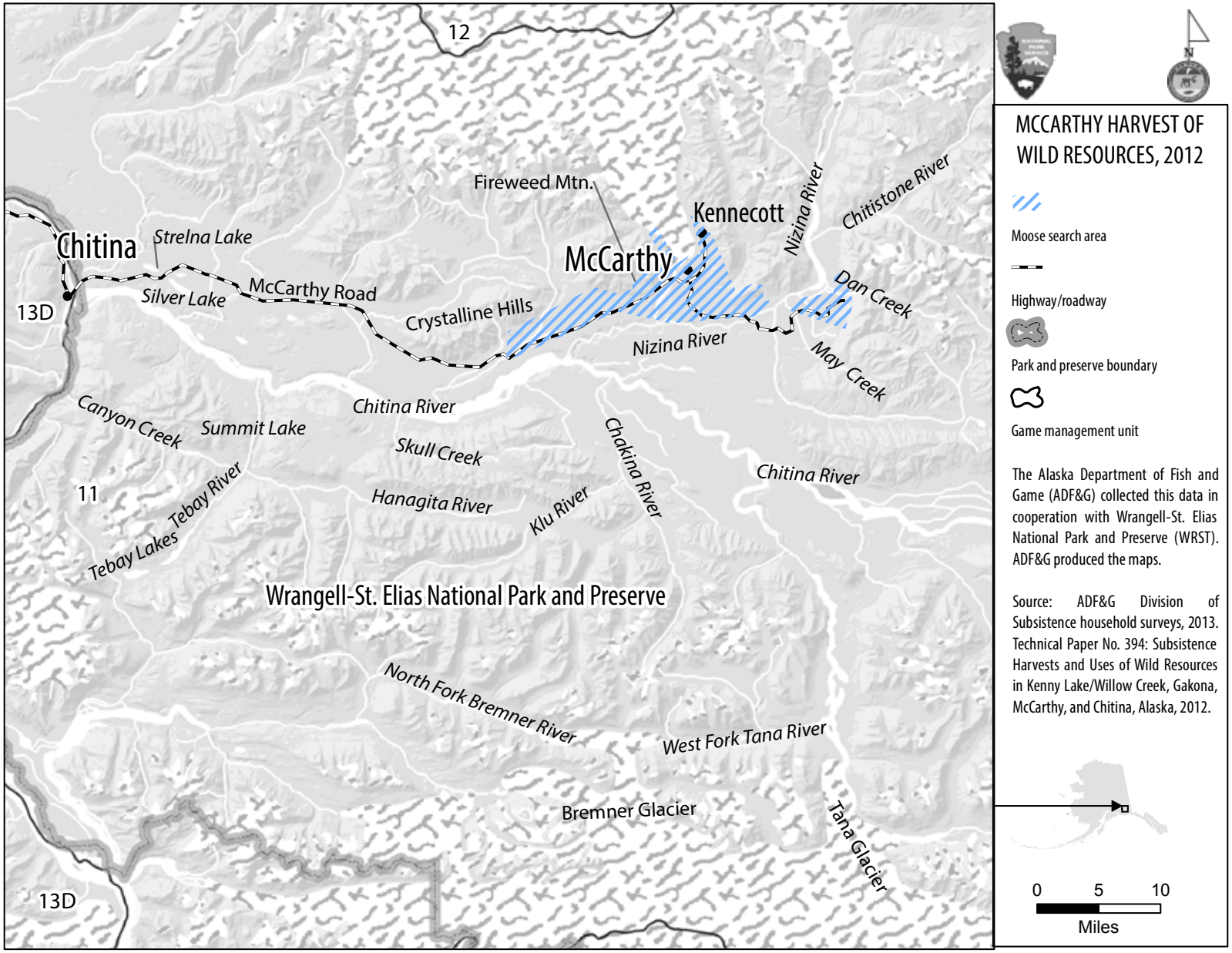


Figure 4-17.–Hunting locations of moose, McCarthy, 2012.

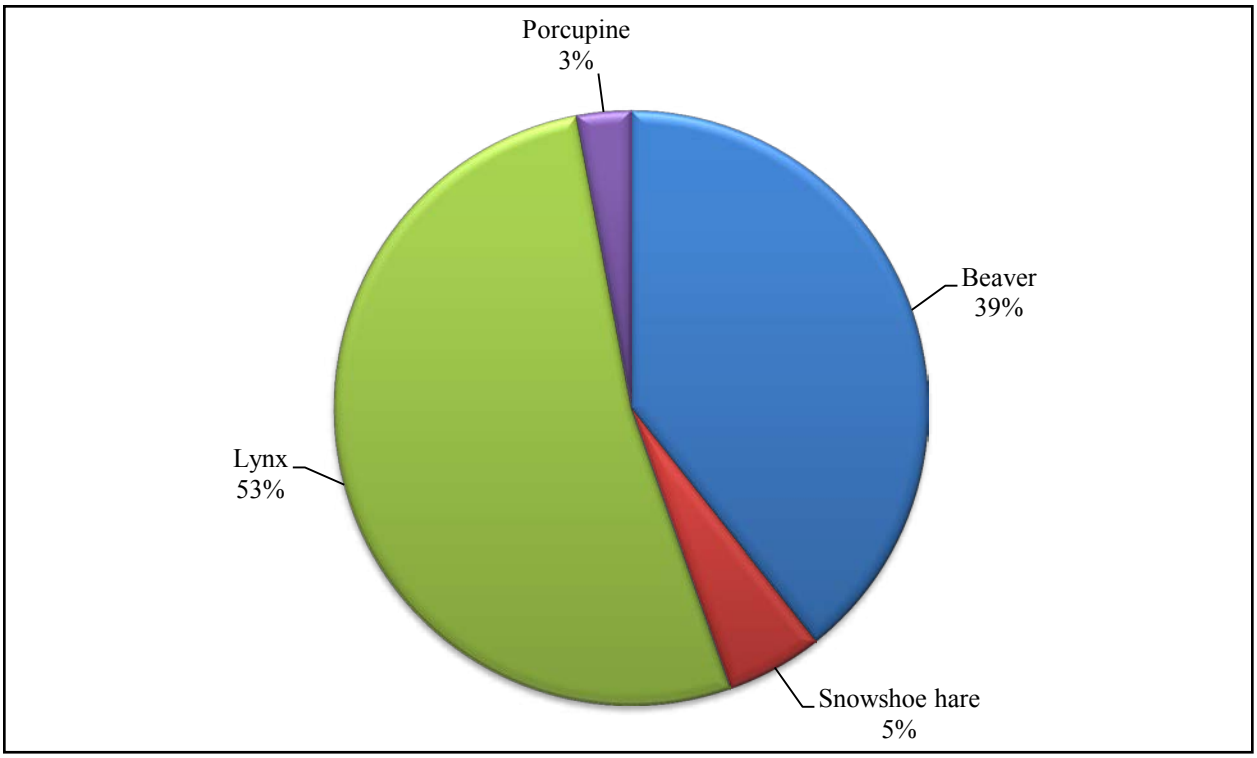


Figure 4-18.–Composition of small land mammal/furbearer harvest by pounds usable weight, McCarthy, 2012.

Small Land Mammals/Furbearers

As listed in Table 4-12, the total usable harvest of small land mammals by McCarthy residents in 2012 was 227 lb, or 2 lb per capita, composing approximately 3% of the total community wild resource harvest (Figure 4-7). In terms of total pounds usable (edible) weight harvested, the majority of the harvest was lynx (119 lb, or approximately 1 lb per capita), which composed 53% of the edible small land mammal harvest, followed by beaver (89 lb, or less than 1 lb per capita), snowshoe hare (12 lb), and porcupine (7 lb) (Table 4-12; Figure 4-18). Other furbearers in the small land mammal category were trapped for their fur and did not contribute to the community's total edible wild resource harvest. During 2012, species harvested for fur only included red fox, marten, red squirrel, gray wolf, and wolverine (Figure 4-19).

While the number of McCarthy households involved in trapping has declined during the past decade, a small number of community households continue to trap furs for personal use as well as to earn additional income. In 2012, approximately 39% of McCarthy households attempted to harvest some small land mammals but only 23% of community households were successful harvesters (Table 4-12). Approximately 26% of McCarthy households used some small land mammals; at the species level lynx was the most widely used small land mammal species with 18% of McCarthy households using some. Regarding sharing, small land mammals were not widely shared in the community in 2012; approximately 3% of McCarthy households gave away and received some lynx, and only 3% received some beaver. In addition, approximately 3% of McCarthy households gave away some red squirrels.

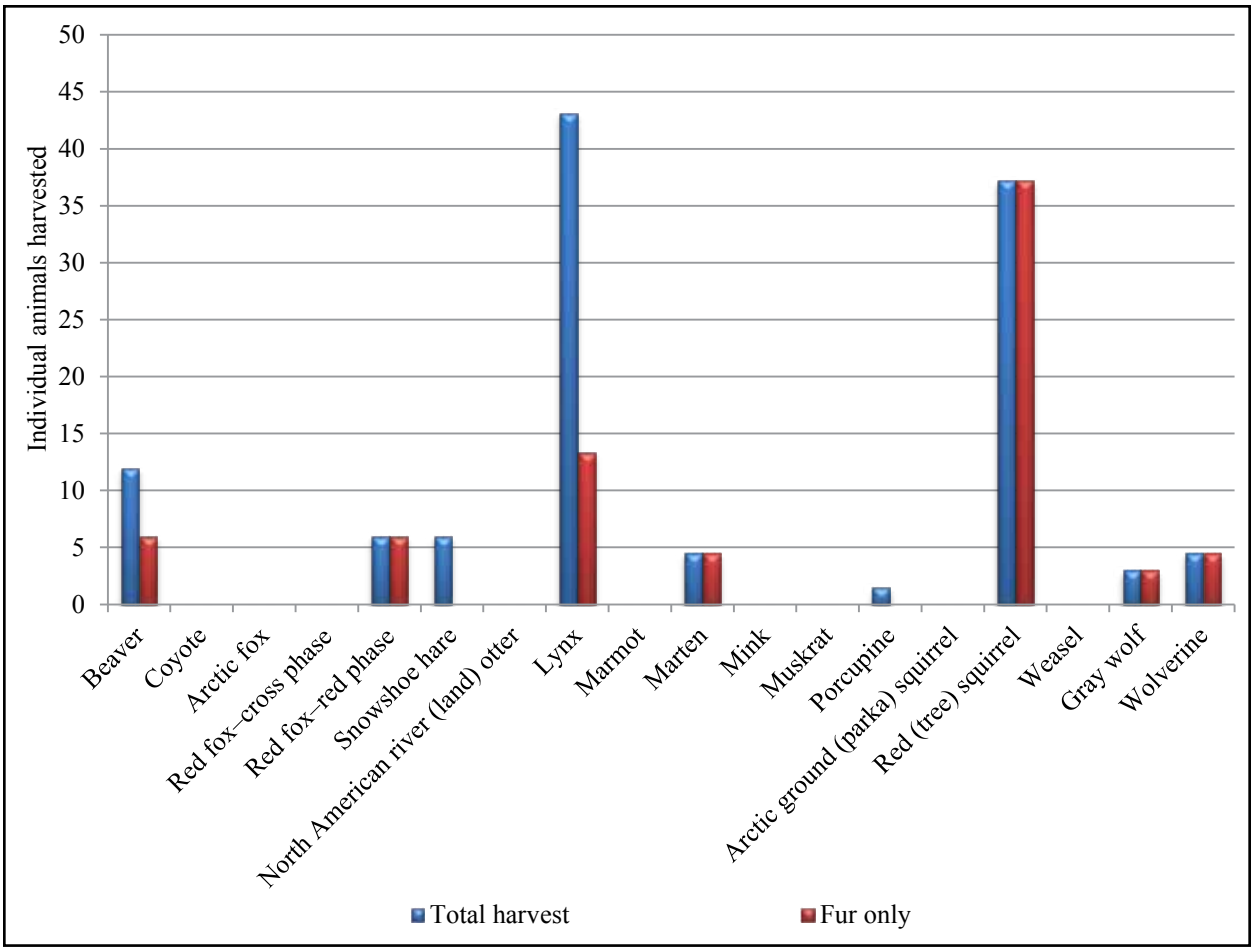


Figure 4-19.–Estimated small land mammal/furbearer harvests for fur and food only, McCarthy, 2012.

In 2012, McCarthy residents harvested most of their furbearers during trapping season; only red squirrels were harvested during spring, summer, and fall months (Table 4-17). The majority of small land mammals, specifically lynx, were harvested during December and January. Beavers were harvested in January and October, and snowshoe hares during March and April. McCarthy residents commented that they had seen very few snowshoe hares in 2012 and thought that the species was going through a low population cycle in the larger McCarthy area.

McCarthy residents' small land mammals and furbearers search and harvest areas in 2012 were focused on 2 large areas; 1 extended from the lower elevation areas along both sides of the Chitina River south of McCarthy Road to Long Lake and north from there past the easternmost sections of Crystalline Hills (Figure 4-20). Another larger search and harvest area was located east of McCarthy, mostly on the south side of the Nizina River and covered terrain from May Creek to Dan Creek and to the mouth of the Chitistone River. In addition, a smaller search and harvest area was located at the confluence of the Nizina and Kennicott rivers southwest of McCarthy. Overall, McCarthy residents accessed their small land mammal and furbearer search and harvest areas with snowmachines.

Table 4-17.–Estimated small land mammal/furbearer harvests by month, McCarthy, 2012.

Species	January	February	March	April	May	June	July	August	September	October	November	December	Unknown	**Total**
Small land mammals	**17.8**	**3.0**	**3.0**	**3.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**5.9**	**5.9**	**41.6**	**0.0**	**117.5**
Beaver	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9	0.0	0.0	0.0	**11.9**
Coyote	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	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	3.0	0.0	**5.9**
Snowshoe hare	0.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**5.9**
North American river (land) otter	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**
Lynx	8.9	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	31.2	0.0	**43.1**
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	1.5	3.0	0.0	**4.5**
Mink	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	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Porcupine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	**1.5**
Arctic ground (parka) 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**
Red (tree) squirrel	0.0	0.0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	1.5	0.0	0.0	**37.2**
Weasel	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**
Gray wolf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	**3.0**
Wolverine	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	**4.5**

Source ADF&G Division of Subsistence household surveys, 2013.

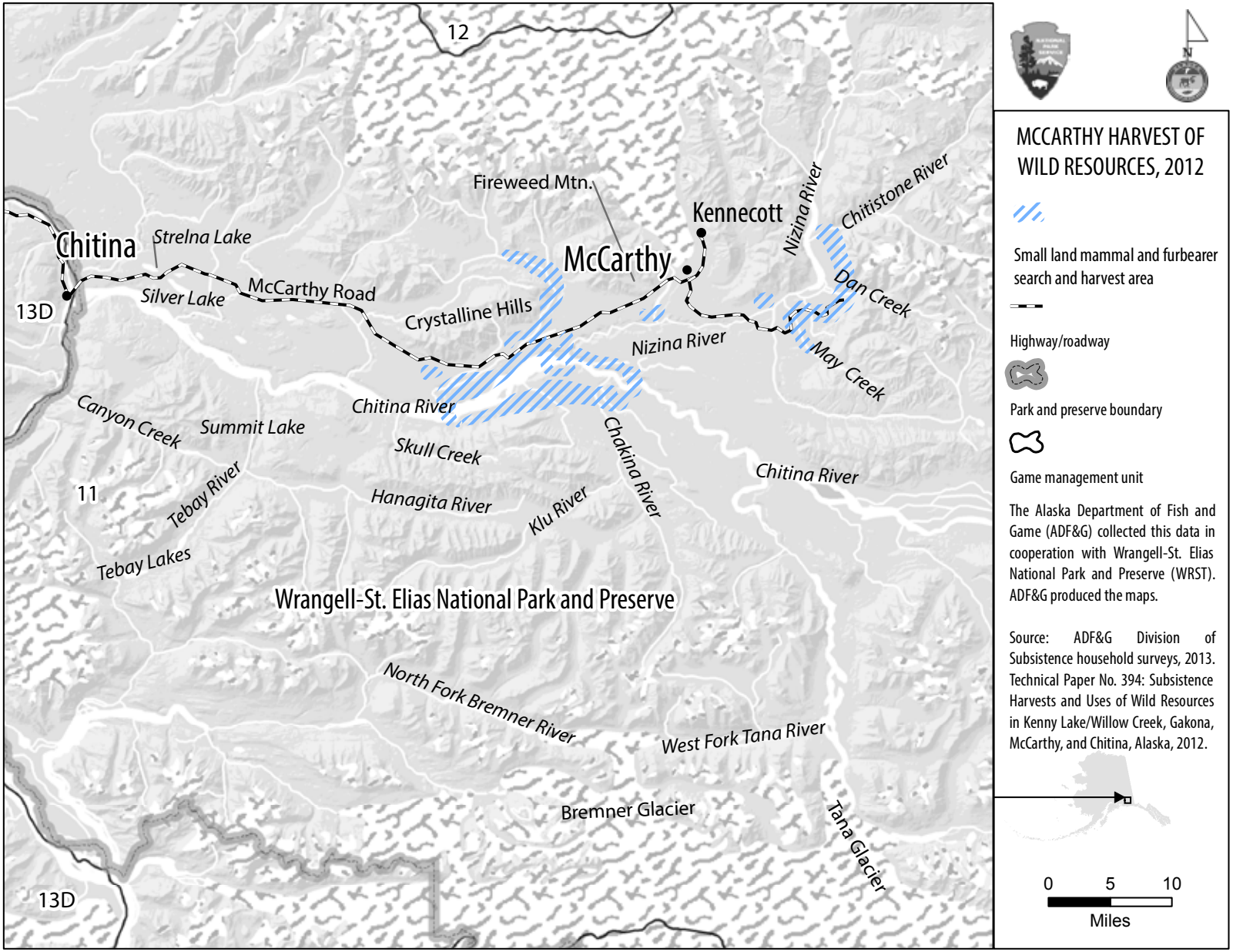


Figure 4-20.–Hunting locations of small land mammals/furbearers, McCarthy, 2012.

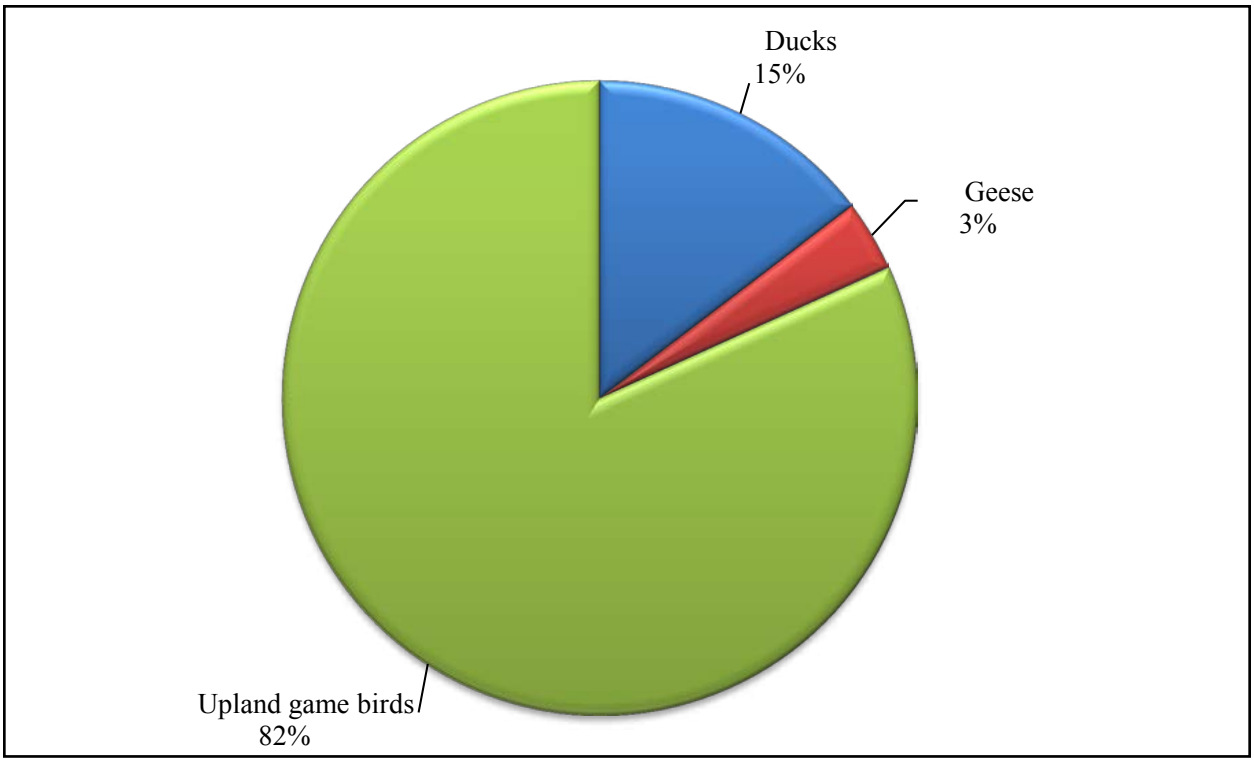


Figure 4-21.–Composition of bird harvests by type and individual bird harvest amount, McCarthy, 2012.

Birds and Eggs

For study year 2012, the harvest of birds totaled approximately 100 lb, or 1 lb per capita, and made up approximately 1% of McCarthy households' total wild resource harvest (Table 4-12; Figure 4-7). In terms of pounds usable weight, the majority (82%) of the harvest (81 lb) was upland game birds, specifically spruce grouse and ptarmigan (Figure 4-21; Table 4-12). The remaining harvest (18 lb) was composed of migratory birds, particularly ducks such as mallards, northern pintails, and wigeons, and also geese, specifically cackling geese. The majority of the local upland game birds were harvested during summer months while the migratory waterfowl species were harvested in the fall (Table 4-18). No bird eggs were harvested during 2012 (Table 4-12).

Approximately 44% of McCarthy households hunted birds in 2012 and 36% of community households harvested birds (Table 4-12). An estimated 39% of McCarthy households used some birds; more households (33%) used upland game birds than migratory waterfowl (only 5%). At the species level, spruce grouse was the most widely used upland game species with 33% of McCarthy households using the resource; in comparison mallard was the most widely used migratory waterfowl species with approximately 5% of community households using some during 2012. Regarding sharing, survey results indicate that only a very small number (approximately 3%) of McCarthy households received some birds from other Alaska communities.

In 2012, McCarthy households harvested their upland game birds locally and close to their homes but

Table 4-18.–Estimated bird harvests by season, McCarthy, 2012.

	Estimated harvest by season				
Resource	Winter	Spring	Summer	Fall	Season unknown
Canvasback	0.0	0.0	0.0	0.0	0.0
Spectacled eider	0.0	0.0	0.0	0.0	0.0
Goldeneye	0.0	0.0	0.0	0.0	0.0
Mallard	0.0	0.0	0.0	8.9	0.0
Northern pintail	0.0	0.0	0.0	4.5	0.0
Black scoter	0.0	0.0	0.0	0.0	0.0
Green-winged teal	0.0	0.0	0.0	0.0	0.0
Wigeon	0.0	0.0	0.0	3.0	0.0
Unknown ducks	0.0	0.0	0.0	0.0	0.0
Brant	0.0	0.0	0.0	0.0	0.0
Cackling goose	0.0	0.0	0.0	3.0	0.0
Canada goose	0.0	0.0	0.0	0.0	0.0
Unknown Canada/cackling goose	0.0	0.0	0.0	0.0	0.0
Emperor goose	0.0	0.0	0.0	0.0	0.0
Snow goose	0.0	0.0	0.0	0.0	0.0
White-fronted goose	0.0	0.0	0.0	0.0	0.0
Unknown geese	0.0	0.0	0.0	0.0	0.0
Tundra (whistling) swan	0.0	0.0	0.0	0.0	0.0
Sandhill crane	0.0	0.0	0.0	0.0	0.0
Spruce grouse	0.0	0.0	98.2	7.4	0.0
Ptarmigan	0.0	0.0	0.0	14.9	0.0
Duck eggs	0.0	0.0	0.0	0.0	0.0
Goose eggs	0.0	0.0	0.0	0.0	0.0
Gull eggs	0.0	0.0	0.0	0.0	0.0
Unknown eggs	0.0	0.0	0.0	0.0	0.0
Total harvest	**0.0**	**0.0**	**98.2**	**41.6**	**0.0**

Source ADF&G Division of Subsistence household surveys, 2013.

also in the larger McCarthy area; 1 of the harvest areas extended from Chitina to McCarthy and Kennecott (Figure 4-22). Another large search and harvest area was located east of McCarthy around Dan Creek. Harvest and search areas along McCarthy Road and in the larger McCarthy area were accessed either with highway vehicles, ATVs, or on foot. In comparison, the single migratory waterfowl search and harvest area was located on a group of small islands in the Gulf of Alaska a substantial distance from the community; these areas were accessed with an airplane.

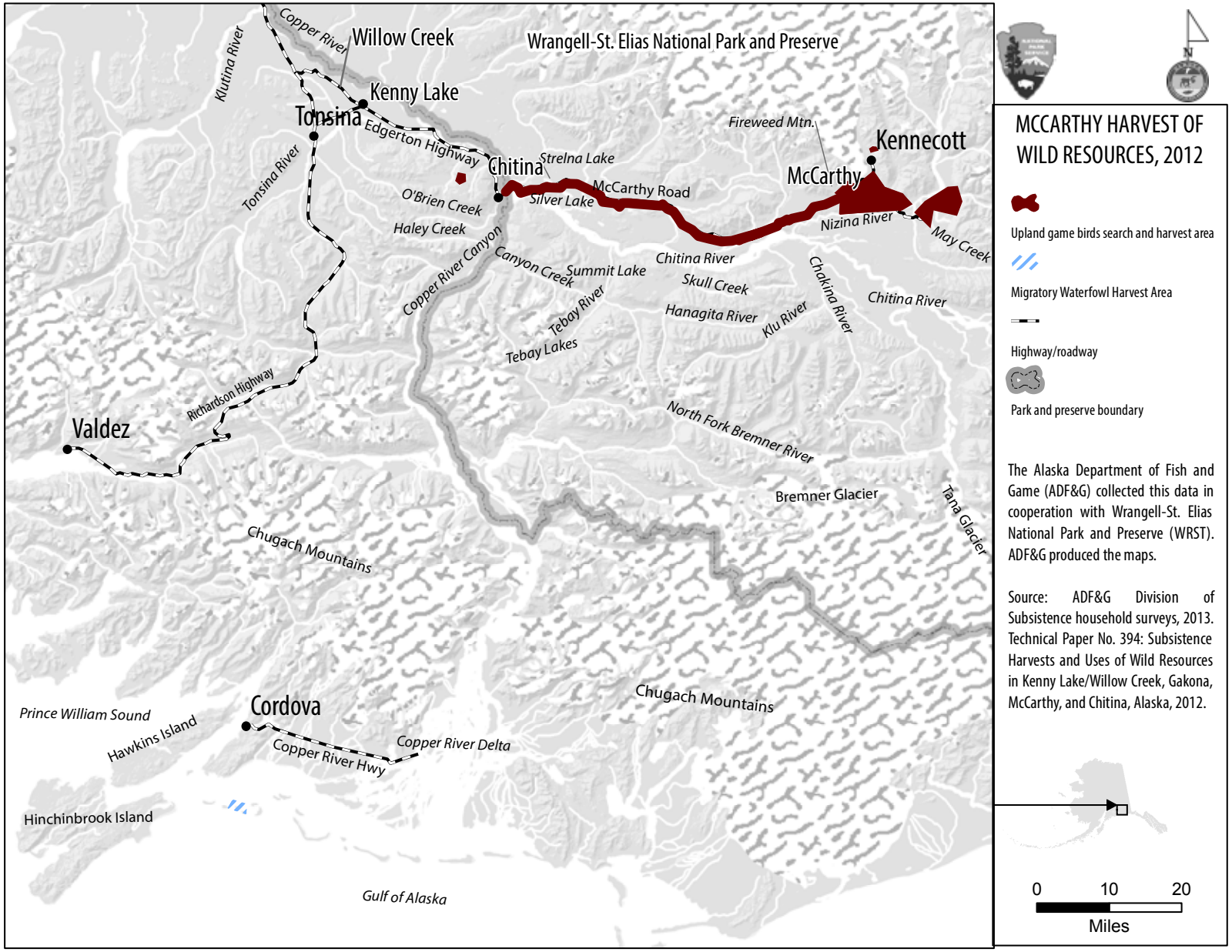


Figure 4-22.–Hunting and harvest locations of migratory waterfowl and upland game birds, McCarthy, 2012.

Marine Invertebrates

According to survey results, marine invertebrates made up 1% of McCarthy households' wild resources harvest totaling 51 lb, or less than 1 lb per capita (Figure 4-7; Table 4-12). In terms of pounds usable weight, the majority of the harvest was crabs (approximately 30 lb), specifically king and Tanner crab (Table 4-12). The remaining harvest was composed of shrimp (12 lb) and clams, particularly razor clams (9 lb). Only a small number (approximately 10%) of McCarthy households attempted to harvest and harvested marine invertebrates in 2012. An estimated 26% of McCarthy households used some marine invertebrates; in particular, shrimp were used the most (21% of households). Similar to birds, no McCarthy household gave any marine invertebrates away though approximately 21% of community households received some; in 2012 all of the received marine invertebrates came into McCarthy from other Alaska communities.

To search and harvest for marine invertebrates, McCarthy residents need to travel a considerable distance to a marine environment. In 2012, McCarthy households searched for and harvested marine invertebrates near Valdez and farther away near Unalaska in the Aleutian Islands (Figure 4-23). While Valdez is reachable via the Richardson Highway with a highway vehicle, Unalaska is only accessible via airplane, a boat, or the state-operated ferry. Survey data indicate that some marine invertebrates were removed for home use from a commercial marine invertebrates catch. Furthermore, survey data also indicate that while some McCarthy households commercially fished for marine invertebrates, they also took the opportunity to fish for marine invertebrates under subsistence and sport regulations. While not impossible, it is highly unlikely that any McCarthy household would have travelled the considerable distance to Unalaska solely to search and attempt to harvest marine invertebrates from the Pacific Ocean. Based on survey data, it is more likely that some McCarthy households, or members of a few households, went fishing for marine invertebrates on their personal time while staying in the vicinity of Unalaska for commercial fishing purposes.

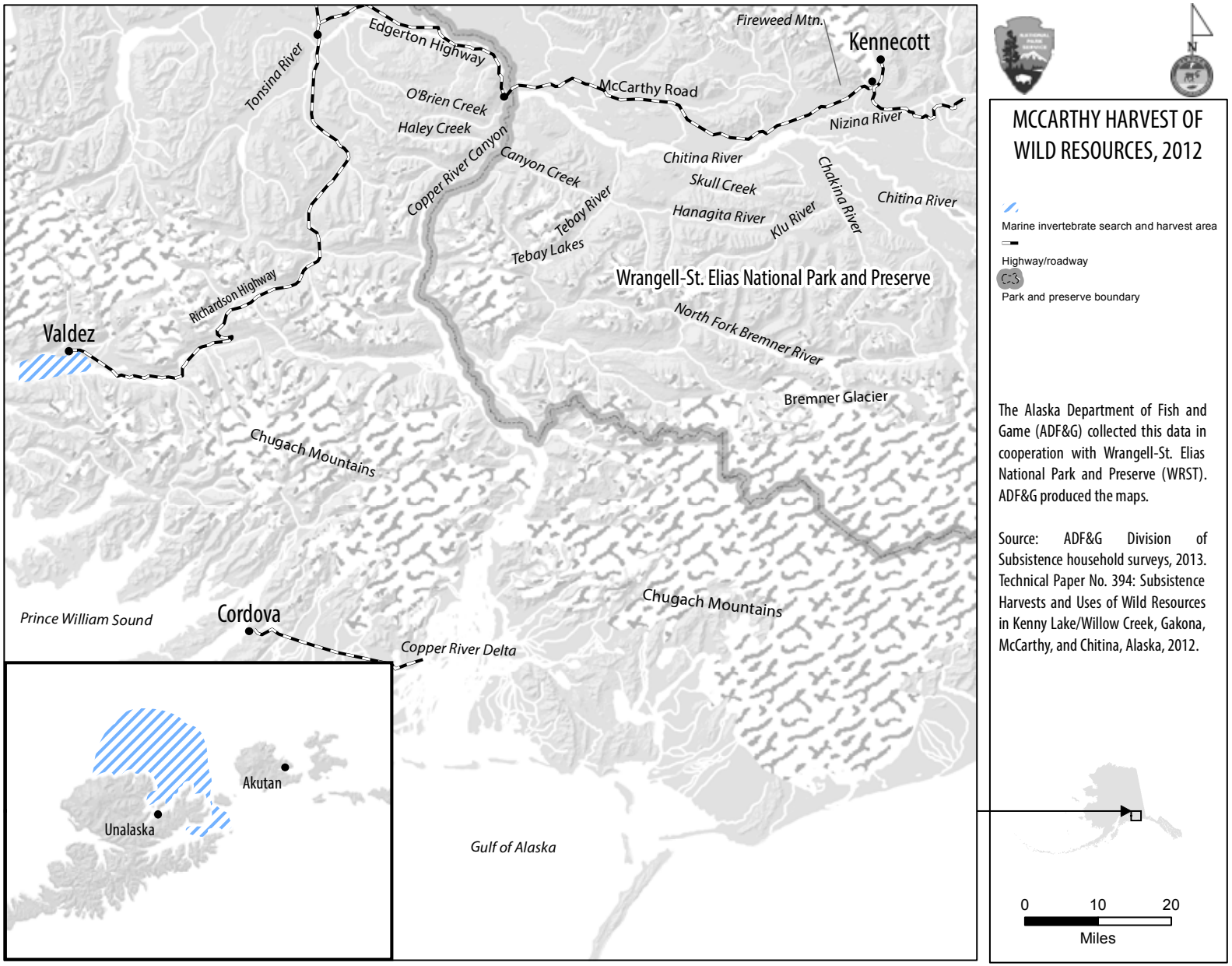


Figure 4-23.–Fishing and harvest locations of marine invertebrates, McCarthy, 2012.

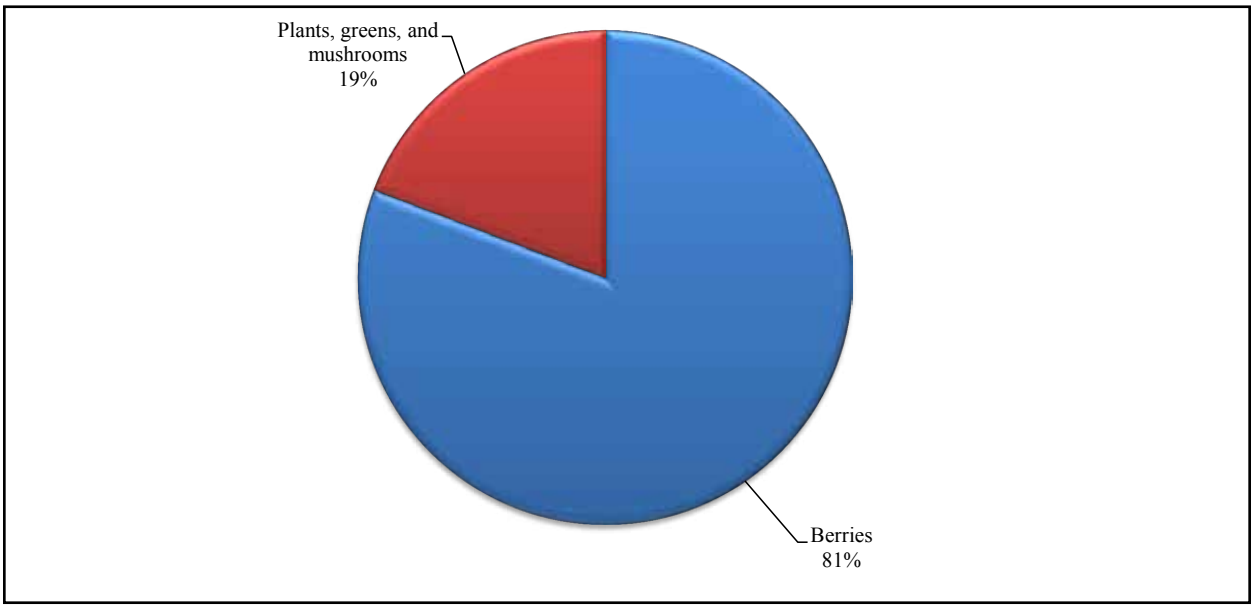


Figure 4-24.–Composition of vegetation harvest by type and pounds usable weight, McCarthy, 2012.

Vegetation

In study year 2012, vegetation made up 11% of the total wild food harvest in McCarthy; all community households used some vegetation resources and 97% harvested some (Figure 4-7; Table 4-12). The overall harvest of vegetation totaled 1,028 lb, or approximately 10 lb per capita, and consisted mostly of berries (830 lb) (Table 4-12; Figure 4-24). In terms of total pounds harvested, the majority of the berry harvest was composed of highbush cranberries (277 lb, or 3 lb per capita) followed by raspberries (177 lb, or 2 lb per capita), currants (120 lb, or 1 lb per capita), and lowbush cranberries (115 lb, or 1 lb per capita) (Table 4-12). Highbush cranberries ranked fifth, raspberries ranked seventh, and currants ranked tenth on the list of top 10 most harvested resources in McCarthy in 2012 (Table 4-13). Berries were also widely used in McCarthy; raspberries ranked third, highbush cranberries tied for fifth place, lowbush cranberries ranked seventh, blueberries tied for eighth place, and currants ranked tenth on the list of top used resources in the community in 2012. In comparison, the harvest of plant resources totaled 197 lb, or 2 lb per capita (Table 4-12). The majority of the plant harvest was wild rose hips (87 lb, or less than 1 lb per capita) followed by mushrooms (79 lb total), other wild greens (25 lb). Furthermore, mushrooms tied for fifth place on the top 10 list of resources used in McCarthy in 2012 (Table 4-13).

According to survey results, 87% of McCarthy households attempted to harvest and harvested berries, and 62% of households searched for and harvested plants, greens, and mushrooms (Table 4-12). At the species level, raspberries were the most harvested berry type (74% of households harvesting) followed by highbush cranberries (49% of households harvesting), and lowbush cranberries and blueberries (46% of households harvesting each species). In comparison, mushrooms were the most harvested type of plants, greens, and

mushrooms resource with 41% of McCarthy households harvesting some mushrooms. Furthermore, 33% of McCarthy households harvested wild rose hips, and 10% of households harvested fireweed.

As discussed above, vegetation resources are widely harvested and used in McCarthy. Sharing and receiving data indicate that during study year 2012 berries were shared more than plants, greens, and mushrooms; 21% of community households gave away some berries while only 10% shared other vegetation resources (Table 4-12). Similarly, more McCarthy households received some berries (33% of households received berries) than plants, greens, and mushrooms (23% of households received other vegetation resources). Highbush cranberries were the most widely shared berry species (15% of households giving some away) and lowbush cranberries were the most received berry (18% of households receiving some). In comparison, mushrooms were the most shared and received resource among other vegetation resources. An interesting observation from survey results is that more McCarthy households gave away highbush cranberries than received some; this indicates that some McCarthy households gave away either freshly or previously harvested highbush cranberries to other communities. Another possibility is that some McCarthy households received highbush cranberries from more than 1 household in the community. However, overall survey results indicate that more McCarthy households received some vegetation resources than gave away any (33% of households gave some away but 54% received some).

While firewood is not a resource consumed as food and thus not included in the calculation of total pounds usable weight harvested during a study year, it is a very important resource for McCarthy households as a source of home heat. In 2012, approximately 95% of McCarthy households used firewood and 92% harvested some (Table 4-12). Sharing data indicate that only a small number of community households shared or received firewood; approximately 10% of McCarthy households gave some away and 13% received some. Based on the difference in the percentages, some McCarthy households could have received firewood from other Alaska communities, or a few McCarthy households may have shared their firewood with more than 1 household in the community. In addition to firewood, 36% of McCarthy households used wood for other uses, and 33% harvested some. In 2012, other uses of wood in McCarthy included smoking fish and making crafts (for example—willow baskets).

During study year 2012, McCarthy residents harvested their vegetation resources locally and close to their residence, or from the larger McCarthy area (Figure 4-25). The main berry and plant search and harvest areas encompassed lower elevation terrain along McCarthy Road closest to the community and both sides of the Nizina River. Additional harvest and search areas extended into areas in higher elevations; for example, along the south face of Fireweed Mountain, and on the gradually sloping terrain south of the community of Kennecott. A separate berry harvest area east of McCarthy was located around Dan and May creeks. Additionally, smaller berry and plant harvest locations were around Long Lake on both sides of McCarthy Road. McCarthy households' firewood harvest areas in 2012 largely overlapped with their vegetation harvest areas; some firewood was harvested farther west along McCarthy Road and an additional harvest area was located on the lower elevations around Bonanza Ridge east of McCarthy and Kennecott.

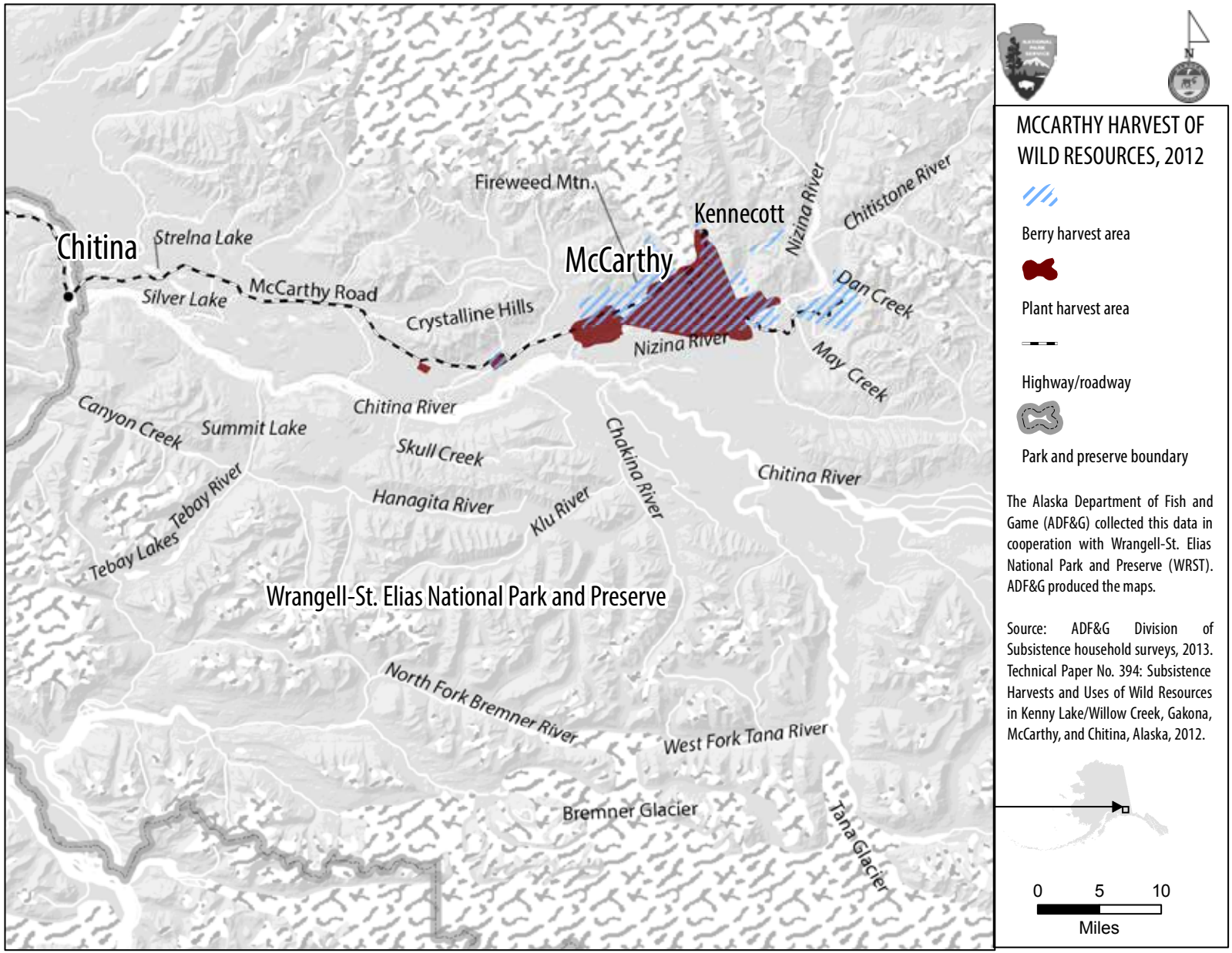


Figure 4-25.–Gathering and harvest locations of berries and plants, greens, and mushrooms, McCarthy, 2012.

Table 4-19.–Changes in household uses of resources compared to recent years, McCarthy, 2012.

Resource category	Sampled households	Valid responses[a]	Households reporting use[b]					
			Less		Same		More	
			Number	Percentage	Number	Percentage	Number	Percentage
Any resource[c]	39	39	31	79%	36	92%	18	46%
All resources	39	39	15	38%	18	46%	6	15%
Salmon	39	35	11	31%	21	60%	3	9%
Nonsalmon fish	39	27	9	33%	14	52%	4	15%
Large land mammals	39	29	13	45%	14	48%	2	7%
Small land mammals	39	14	7	50%	6	43%	1	7%
Migratory birds	39	3	1	33%	1	33%	1	33%
Other birds	39	21	14	67%	7	33%	0	0%
Bird eggs	39	0	0	0%	0	0%	0	0%
Marine invertebrates	39	11	1	9%	5	45%	5	45%
Vegetation	39	39	8	21%	26	67%	5	13%

Source ADF&G Division of Subsistence household surveys, 2013.
a. Valid responses do not include households that did not provide any response and households reporting never using resources from the category.
b. Percentages based on valid responses only.
c. The number of households that gave a valid response in at least 1 of the resource categories. Households are counted only once even though they may give more than 1 valid response.

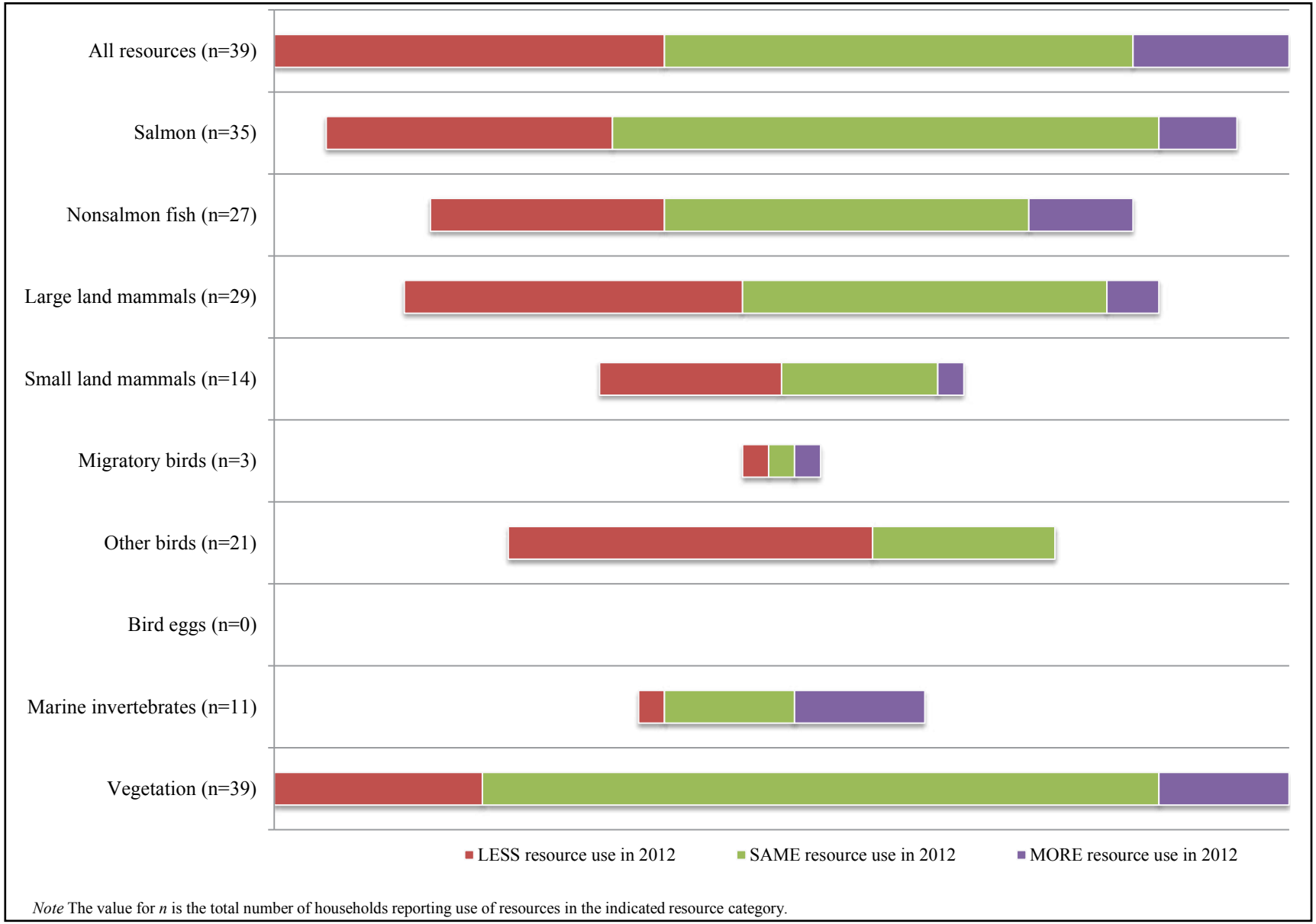
Comparing Harvests and Uses in 2012 with Previous Years

Harvest Assessments

For 9 resource categories and for all resources combined, survey respondents were asked to assess whether their uses and harvests in the 2012 study year were less, more, or about the same as other recent years. "Other recent years" was defined as about the last 5 years. Table 4-19 reports the number of valid responses for each category, the number of households that did not respond, and the number of households that did not use a resource category or all resources combined. In Table 4-19, response percentages are based on the number of valid responses for each category to contextualize these assessments within the set of community households that typically use each category.

Figure 4-26 depicts responses to the "less, same, more" assessment question. Households that said they did not ordinarily "use" something are not included within the results. This results in fewer responses for less commonly used categories such as marine invertebrates or bird eggs, and manifests in the chart as a very short bar (or no bar at all in the case of bird eggs) compared to categories such as salmon, large land mammals, or vegetation, which are ordinarily used by most households. Some households did not respond to the question.

Taking all the resource categories into consideration, most households, 46%, said they used the same amount of subsistence resources in general over the previous 12 months compared to recent years (Table 4-19). A smaller number, 38% of all households, said they used less wild resources, and 15% said they used more. Table 4-20 reports the reasons why McCarthy households' use of wild resources was less in 2012;



Note The value for *n* is the total number of households reporting use of resources in the indicated resource category.

Figure 4-26.–Changes in household uses of resources compared to recent years, McCarthy, 2012.

correspondingly Table 4-21 reports the reasons why McCarthy households use of resources was more. A total of 15 households cited reasons for less use of all resources combined; the majority of those households cited work interference (9 households, or 60%) and less sharing (5 households, or 33%) (Table 4-20). In comparison, 6 McCarthy households said they used more wild resources during 2012, and most of them cited more sharing as the reason (4 households, or 67%) (Table 4-21).

Looking at McCarthy households' answers to questions about why use of any resources was less or more, the main reasons identified for their increased use of any wild resource in 2012 were more sharing (67% of a total of 18 households answering the question) and economic reasons (28% of 18 responding households) (Table 4-21). Similarly, the main reasons stated by 31 McCarthy households that reported using less of any resource were less sharing (55%), fewer resources available (52%), and work interfered (45%) (Table 4-20).

In considering individual resource categories, approximately 67% of responding McCarthy households reported using less other birds, 50% used less small land mammals, and 45% used less large mammals during 2012—these three species categories each having the greatest percentage of responding households assessing less use (Table 4-19). However, of all resource categories listed in Table 4-19, the majority of McCarthy households reported their use in 2012 was the same as previous years—particularly for vegetation (67%), salmon (60%), nonsalmon fish (52%), and large land mammals (48%). Interestingly, responding McCarthy households reported their use of migratory birds in 2012 as being evenly split between less, same, and more with 33% of responding households included in each category (Table 4-19; Figure 4-26). McCarthy households were also split in their assessment of use of marine invertebrates; 45% of responding households that used the resource reported using the same amount of these resources and 45% used more (Table 4-19). Looking at the 3 categories that had the highest percentage of responding households reporting less use—other birds, small land mammals, and large land mammals—fewer resources available was cited by most responding McCarthy households. Specifically, 93% of 14 households reported their use of birds was less because of fewer resources, and 57% of 7 households that gave reasons for less use of small land mammals also cited fewer resources as the reason. In comparison, less sharing was reported as the main reason for less use of large land mammals by 54% of 13 households that provided information on their declined use of these resources (Table 4-20).

Table 4-20.–Reasons for less household uses of resources compared to recent years, McCarthy, 2012.

		Households reporting less use										
			No reason reported		Fewer resources available		Poor weather		Work interfered		Competition	
Resource category	Households using[a]	Total households	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource[b]	39	31	0	0.0%	16	51.6%	1	3.2%	14	45.2%	3	9.7%
All resources	39	15	0	0.0%	2	13.3%	0	0.0%	9	60.0%	0	0.0%
Salmon	35	11	0	0.0%	0	0.0%	0	0.0%	4	36.4%	0	0.0%
Nonsalmon fish	27	9	0	0.0%	1	11.1%	0	0.0%	4	44.4%	0	0.0%
Large land mammals	29	13	0	0.0%	1	7.7%	0	0.0%	2	15.4%	0	0.0%
Small land mammals	14	7	0	0.0%	4	57.1%	1	14.3%	1	14.3%	0	0.0%
Migratory birds	3	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Other birds	21	14	0	0.0%	13	92.9%	0	0.0%	1	7.1%	3	21.4%
Marine invertebrates	11	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Vegetation	39	8	0	0.0%	3	37.5%	0	0.0%	2	25.0%	0	0.0%

Table 4-20.–Continued.

		Households reporting less use								
			Regulations		Less sharing		Other personal reasons		Fuel or equipment too expensive	
Resource category	Households using[a]	Total households	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource[b]	39	31	3	9.7%	17	54.8%	0	0.0%	7	22.6%
All resources	39	15	0	0.0%	5	33.3%	0	0.0%	1	6.7%
Salmon	35	11	1	9.1%	4	36.4%	0	0.0%	1	9.1%
Nonsalmon fish	27	9	0	0.0%	2	22.2%	0	0.0%	3	33.3%
Large land mammals	29	13	0	0.0%	7	53.8%	0	0.0%	2	15.4%
Small land mammals	14	7	1	14.3%	1	14.3%	0	0.0%	1	14.3%
Migratory birds	3	1	0	0.0%	1	100.0%	0	0.0%	0	0.0%
Other birds	21	14	0	0.0%	0	0.0%	0	0.0%	1	7.1%
Marine invertebrates	11	1	0	0.0%	1	100.0%	0	0.0%	0	0.0%
Vegetation	39	8	1	12.5%	3	37.5%	0	0.0%	0	0.0%

Source ADF&G Division of Subsistence household surveys, 2013.

Note Percentages are calculated using the number of households reporting less use as a base.

Note The category "bird eggs" is not included in this table because no (zero) households in McCarthy reported using resources from this category.

a. "Households using" data include only households that used a resource and responded to the question about use.

b. The number of households that gave a valid response in at least 1 of the resource categories. Households are counted only once even though they may give more than 1 valid response.

Table 4-21.–Reasons for more household uses of resources compared to recent years, McCarthy, 2012.

		Households reporting more use										
			No reason reported		More resources available		Better weather		Work related		Less competition	
Resource category	Households using[a]	Total households	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource[b]	39	18	0	0.0%	2	11.1%	1	5.6%	0	0.0%	0	0.0%
All resources	39	6	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Salmon	35	3	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Nonsalmon fish	27	4	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Large land mammals	29	2	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Small land mammals	14	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Migratory birds	3	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Other birds	21	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Marine invertebrates	11	5	0	0.0%	1	20.0%	0	0.0%	0	0.0%	0	0.0%
Vegetation	39	5	0	0.0%	1	20.0%	0	0.0%	0	0.0%	0	0.0%

Table 4-21.–Continued.

		Households reporting more use								
			Better regulations		More sharing		Other personal reasons		Economic	
Resource category	Households using[a]	Total households	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource[b]	39	18	0	0.0%	12	66.7%	0	0.0%	5	27.8%
All resources	39	6	0	0.0%	4	66.7%	0	0.0%	2	33.3%
Salmon	35	3	0	0.0%	2	66.7%	0	0.0%	0	0.0%
Nonsalmon fish	27	4	0	0.0%	3	75.0%	0	0.0%	1	25.0%
Large land mammals	29	2	0	0.0%	2	100.0%	0	0.0%	0	0.0%
Small land mammals	14	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Migratory birds	3	1	0	0.0%	1	100.0%	0	0.0%	0	0.0%
Other birds	21	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Marine invertebrates	11	5	0	0.0%	4	80.0%	0	0.0%	1	20.0%
Vegetation	39	5	0	0.0%	4	80.0%	0	0.0%	1	20.0%

Source ADF&G Division of Subsistence household surveys, 2013.
Note Percentages are calculated using the number of households reporting more use as a base.
Note The category "bird eggs" is not included in this table because no (zero) households in McCarthy reported using resources from this category.
a. "Households using" data include only households that used a resource and responded to the question about use.
b. The number of households that gave a valid response in at least 1 of the resource categories. Households are counted only once even though they may give more than 1 valid response.

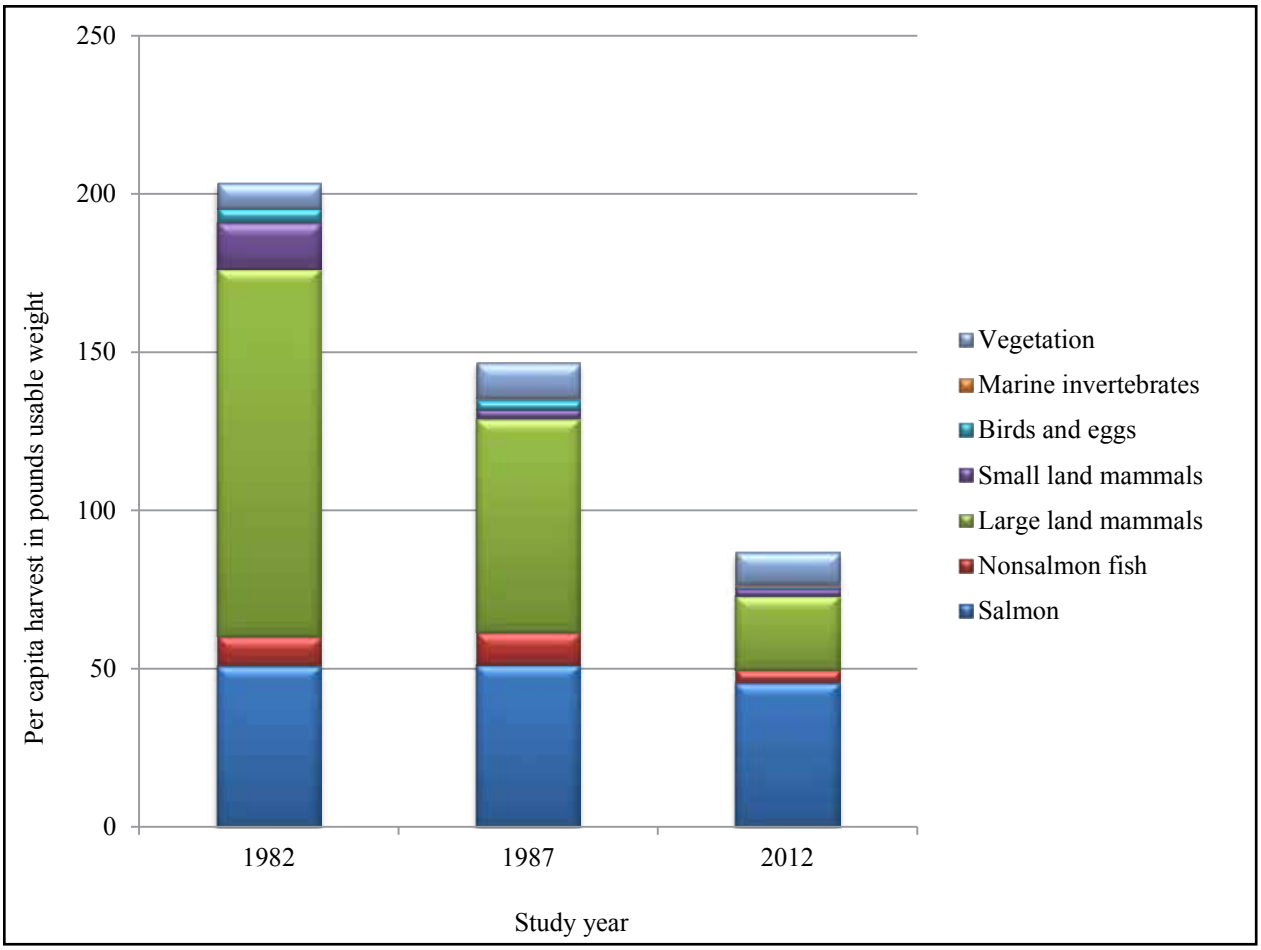


Figure 4-27.–Estimated harvests by pounds per capita and by resource category, McCarthy, 1982, 1987, and 2012.

Harvest Data

Changes in the harvest of resources by McCarthy residents can also be discerned through comparisons with findings from other study years. Comprehensive subsistence harvest surveys were conducted in McCarthy for study years 1982 and 1987 by the Division of Subsistence. As discussed in the section "Demography" of this chapter, both the 1982 and 1987 studies separately surveyed households residing year-round along McCarthy Road and in the communities of McCarthy, Kennecott, and Dan Creek and May Creek. For details on study community boundaries see Stratton and Georgette (1984), and McMillan and Cuccarese (1988). In the following comparisons, data for 1982 are derived from the sample area titled "South Wrangell Mountains," which included the communities of McCarthy, Kennecott, and Dan Creek and May Creek. Data for 1987 are derived from the sample area titled "South Park," which included the same aforementioned communities as in the 1982 study. These data were selected for the comparison because they best correspond to the sample area used in the 2012 household survey.

Figure 4-27 shows the historical per capita harvests for all 3 study years (1982, 1987, and 2012); Figure

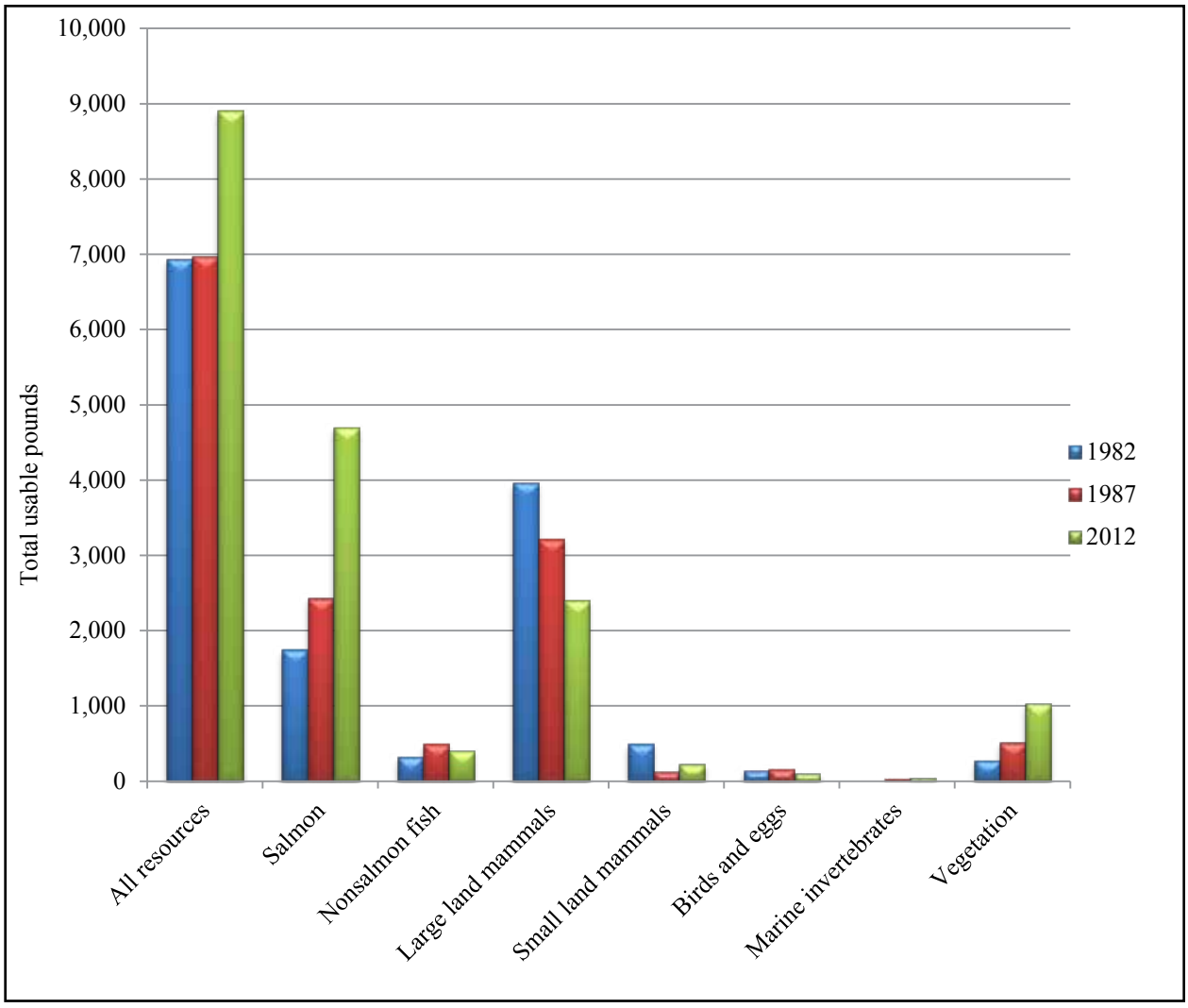


Figure 4-28.–Estimated harvests by total usable pounds and by resource category, McCarthy, 1982, 1987, and 2012.

4-28 highlights the total harvests in pounds by resource category and for all resources combined. In 1982 the estimated total McCarthy harvest of wild resources in pounds usable weight was 6,936 lb, or 203 lb per capita (Figure 4-28; Figure 4-27). In 1987, the estimated total harvest increased slightly to 6,984 lb but the per capita harvest declined to 147 lb. In 2012 the estimated total harvest of wild resources in pounds usable weight had increased to 8,904 lb but the per capita harvest had further declined to 87 lb. The combination of increased total harvests combined with a steady decline of per capita harvests can best be understood by looking at the population trends over the course of the study years (Figure 4-1). Community harvests increased as the population grew, but while the population tripled from 1982 (32 people in the Southern Wrangell Mountains survey area) to 2012 (103 people), the community harvest increased only by a small percentage (28% increase in total pounds harvested).

With regard to individual resource categories, McCarthy residents' total harvest of salmon has decreased

only a few pounds since the first survey in 1982; the per capita harvest of salmon was steady during the household surveys conducted in the 1980s (approximately 51 lb for both survey years). In 2012 the per capita harvest of salmon was approximately 46 lb, which is only about 5 lb less than the harvest levels recorded in the previous studies (Figure 4-27). At the same time, the total harvest of large land mammals has continued to decline more substantially; in 1982 the per capita harvest of large land mammals was approximately 116 lb, in 1987 it had declined to 68 lb per capita, and for the 2012 study year, it was only 23 lb per capita. The per capita harvests of small land mammals have also declined considerably since 1982; in the first survey, the per capita harvest was 15 lb but in the 1987 survey it had declined to 3 lb per capita, and in 2012 the harvest was approximately 2 lb per capita. Nonsalmon fish per capita harvests remained steady between 1982 and 1987 (approximately 10 lb in both study years), but declined by approximately 6 lb to a total of 4 lb per capita harvested during the 2012 study year. A smaller decline is also noticeable in the per capita harvest of birds, which has been low throughout all the 3 study years. In comparison, the harvests of vegetation in study years 1987 and 2012 were more than the total and per capita harvest levels of vegetation recorded in the 1982 study. It needs to be noted that firewood, which is included in the vegetation category, is not included in the per capita harvest estimates because it is not a resource that is consumed as food. Regardless, firewood has been and continues to be very important to McCarthy households and many continue to heat their homes solely with firewood. Regarding the harvest of marine invertebrates, the 1982 study did not record the harvest of marine invertebrates but it has remained steadily low (less than 1 lb per capita) in the 2 studies conducted since.

It is interesting to note that while the per capita harvest of wild resources by McCarthy residents has continued to decline since the first survey in 1982 McCarthy residents now concentrate their harvest efforts on a select set of key resources. According to community members, as well as the household survey, these resources are salmon, large land mammals, and vegetation (particularly berries). Looking at the historical harvest information, the most outstanding developments in the composition of McCarthy residents' wild resource harvests are the decline in the per capita harvests of large and small land mammals, and nonsalmon fish (Figure 4-27; Figure 4-28). While large land mammals continue to be very important for McCarthy residents, the decline in the per capita harvests of these resources reflects a change in the community's reliance on these resources; it also echoes community members' comments about the continuing decline and availability of large land mammal populations in the area. Community members also commented that while many continue to practice subsistence fishing, hunting, and gathering, the increased seasonal employment opportunities in the larger McCarthy area have altered the way a number of community households now plan and carry out their annual harvesting activities.

Increased cash income has also enabled more community members to leave the community during the coldest months of the year and this could be reflected as reduced harvest levels of nonsalmon fish and small land mammals, which are more commonly harvested during winter months. Due to longer absences from

the community during the winter, McCarthy residents may also choose to carry out their harvest for certain other resources in a conservative fashion; they no longer live on wild foods or store their harvests for a full calendar year. In addition to increased opportunities for earning cash income from a number of new, locally available seasonal employment opportunities, McCarthy households now have better access to groceries in Kenny Lake, Glennallen, and beyond due to the year-round improved condition of McCarthy Road. These 3 factors combined could also have an effect on the reduced per capita harvests recorded in the 2012 household survey.

Current and Historical Harvest Areas

During the 1983 and 1984 fieldwork seasons, ADF&G researchers conducted interviews with more than 200 hunters and fishers in 20 communities in or near the Copper River Basin to map areas where hunting, fishing, trapping, and gathering of wild resources occurred between 1964 and 1984 (Stratton and Georgette 1985). This effort produced 2 separate publications by 2 different ADF&G divisions; the Division of Habitat published the maps and the Division of Subsistence published a description of the project and mapping methods. The maps depicting the harvest and use areas used by study community residents during this 20-year span are published in *Alaska Habitat Management Guide Southcentral Region: Reference Maps—Volume 3. Community Use of Fish, Wildlife, and Plants* (Alaska Department of Fish and Game Division of Habitat 1985).[8] Information about the mapping project is available in *Copper Basin Resource Use Map Index and Methodology* (Stratton and Georgette 1985).

As explained in Stratton and Georgette (1985), the mapping project used the community boundaries designated by the Division of Subsistence when conducting comprehensive harvest surveys for the 1982 study year; the differences between community boundaries for previous studies and this project have been explained earlier in this chapter. Not all communities that participated in the comprehensive harvest survey for study year 1982 participated in the mapping project; McCarthy and Kennecott declined to participate in providing mapping information (Stratton and Georgette 1985:8–9). However, households located along McCarthy Road did provide mapping data that is recorded on the historical harvest and use maps published in 1985. Lack of participation in mapping by McCarthy and Kennecott households in 1982 and inconsistent survey area boundaries used for each of the 3 study years makes comparisons of the historical harvest and use areas incomparable with the 2012 data.

Local Comments and Concerns

Following is a summary of local observations of wild resource populations and trends that were recorded during the surveys in McCarthy. Some households did not offer any additional information during the survey interviews, so not all households are represented in the summary. In addition, respondents expressed their

8. A complete index of documents published in 1985 and 1986 as part of *Alaska Habitat Management Guide* is available online: http://www.arlis.org/docs/vol1/C/AHMG/index.html.

concerns about wild resources during the community meeting to review the preliminary data. These concerns have been included in the summary.

Fish

Salmon are the most important resource for McCarthy residents and many harvest their salmon from the Copper River near Chitina. Residents commented that the number of people coming to fish for salmon in Chitina has continued to grow over the past few years and now both salmon fisheries (dipnetting and fish wheel use) are becoming crowded. Related to the fish wheel fishery, community residents expressed particular concern for continuous overall lack of oversight in the fishery; the fishery needs to be better monitored and regulated to accurately keep track of the true salmon harvest numbers. One household specifically emphasized that without accurate harvest numbers it is not possible to ensure the health and sustainability of the Copper River salmon stocks for future generations. In addition, a few McCarthy residents were especially concerned about the incidental harvest of Chinook salmon, which are declining in abundance, in the fish wheels; people should be required to keep a closer eye on their fish wheel so that Chinook salmon are not unnecessarily caught and killed in the wheels.

Large Land Mammals

According to several McCarthy households, large land mammal populations in the larger McCarthy area have been in decline for the past 5–10 years; a particular concern explicitly expressed by many was the Dall sheep population around Crystalline Hills, which has declined dramatically since the 1980s. Many think that Dall sheep hunting should be much more limited, or closed entirely, around Crystalline Hills to ensure that the sheep population will not entirely disappear. Community members said that the moose population in the McCarthy area has always been limited but they feel that even the small moose population is becoming scarcer and scarcer due to increasing hunting pressure from non-local resident hunters coming to the area to hunt for moose. In addition, community members commented that low moose calf survival rates during the past 4–5 years have posed additional challenges to the area moose population.

Another widely expressed concern regarding moose was the timing of the fall hunting season. Delaying the hunt, or alternatively offering a subsistence hunt to only local residents later in the fall or in the winter, would be much better for McCarthy residents and would allow them to hunt and store their potential harvest without unnecessary concerns over the possibility of spoiling valuable meat. In addition, a number of McCarthy households stated that allocation of moose hunting opportunities and their timing should be changed to better serve local residents; one household specifically suggested that allocating resources first to local residents could assist in keeping the area large game populations healthier in the future. Another suggestion was that moose hunting regulations should not allow hunting during mating season; alternatively regulations could limit the hunt of certain select bull moose considered to be in their “prime” to the minimum.

Birds

Many McCarthy households expressed concern about the decline in the area spruce grouse population during the past 4 years. Many households were of the opinion that the number of non-local resident hunters coming to hunt for spruce grouse along the McCarthy Road has increased and that these hunters have continuously killed too many birds, thus putting the sustainability of the area spruce grouse population at risk. Several households said that they decided not to hunt for spruce grouse in 2012 at all because of the low numbers of spruce grouse in the area.

Vegetation

Firewood is another essentially important wild resource for McCarthy households and many heat their homes entirely with firewood. Many households harvest their firewood from areas that were decimated by spruce beetles a few years back. A few households expressed concern for their future abilities to access park lands to harvest beetle-killed timber to be used as firewood.

Water

In the course of the household survey, a number of McCarthy households expressed concern that water was not included in the wild resource harvest survey. Community residents are very concerned about their water resources, including access to as well as the health of these resources, because most of them continue to haul in their water. Another widely shared water-related concern among McCarthy households was their ability to access area water bodies and travel on them with boats. Residents are specifically concerned that the NPS might further restrict access to navigable waterways; they feel that by and large the State of Alaska is doing a better job defending local residents' rights to continue accessing waterways and lands that fall under state control.

Access to Harvest and Use Areas and Use of Motorized Equipment in WRST Area

In addition, many McCarthy households at large expressed concern about their future abilities to access and harvest wild resources for subsistence uses in the WRST area. The shared worry is that NPS will attempt to further restrict community residents' access to wild resources in the WRST area. In 2012, a few households were particularly concerned that the NPS may limit the use of motorized equipment due to an audio disturbance regulation. McCarthy residents feel that they should be able to use all the tools that they need to travel and to harvest wild resources in the WRST area. One example given by local residents was that airboat use is not allowed on local rivers due to concerns about noise pollution, while airplanes, which are even louder, are permitted to travel the same routes several times a day.

Use of Results from the Household Survey

The relations between McCarthy area residents and park service staff have fluctuated over the years over specific issues and many current area residents continue to be concerned about their future ability to viably continue to access, hunt, and harvest wild resources according to their subsistence traditions in the WRST area under NPS management.

A small number of McCarthy households specifically said they had some concerns about how the information collected from the household survey would be used by the NPS. A few households talked especially about the importance of subsistence hunting and gathering opportunities for McCarthy residents, and that the increase in the community's population has greatly changed how they go about their wild resources harvest activities. Several households also commented that the availability of seasonal summertime employment in McCarthy and Kennicott after the development of WRST has changed the character of McCarthy substantially; instead of looking for employment opportunities outside the community during summer months and staying in the community through winter, a number of McCarthy residents now stay in McCarthy during summer months and earn income from seasonal employment and leave the community at least for a month during winter. This change in lifestyle has influenced some community residents' harvest patterns to an extent, but, as McCarthy residents underlined, it does not diminish the overall importance of community members' ability to continue accessing and harvesting wild resources in the WRST area without any additional access or equipment restrictions in the future.

Acknowledgements

The Division of Subsistence would like to thank our wonderful local research assistants Tamara Harper, Elizabeth Schafer, and Lynn Welty in McCarthy and Kennecott for their knowledge, assistance, and excellence in getting the household surveys completed during the short fieldwork session in March and April 2013. Researchers could not have collected the data without their indispensable input and guidance so we cannot thank them enough for their contributions. In addition, we would like to thank the McCarthy Area Council for its support for the project; the research team would not have been able to host the 3 community meetings in Tony Zak's in McCarthy without the council's backing and help with meeting facilitation. Finally, our thanks also go to Stephens Harper for his help and guidance in planning the fieldwork logistics; without his assistance, the research team would not have been able to safely travel around the larger McCarthy area with snowmachines to complete the household surveys.

5. CHITINA

Eric Schacht

Community Background

The town of Chitina is located on the west bank of the Copper River near its confluence with the Chitina River, which is at milepost 34 of the Edgerton Highway. It is 252 mi east of Anchorage by highway, and 65 mi south of Glennallen. Chitina lies outside the western boundary of America's largest national park, the 13-million acre Wrangell-St. Elias National Park and Preserve (WRST). The town area is bounded on the east by a high ridge that looks out over the Copper River and on the west by steep mountain slopes. Chitina also marks the end of the Edgerton Highway and the beginning of McCarthy Road, which travels east of town and provides access to WRST and the town of McCarthy. The climate of the Chitina area is continental, characterized by long, cold winters and relatively warm summers. Total annual precipitation averages 12 in, with an annual snowfall of 52 in. Temperature extremes range from a low of -58 ˚F to a high of 91 ˚F.

Like many communities in the Copper River Basin, Chitina's beginning was the result of mining activity (Stratton and Georgette 1984). However, it was not the 1898 Klondike gold rush that prompted settlement, but the development of the copper mines at Kennecott. The town of Chitina was established about 1908 at the northern terminus of the Copper River and Northwestern Railway, which by 1911 operated between Cordova and Kennecott (Janson 1975; Orth 1971rep.).

Being located about 3 mi north of Taral, a historically important Lower Ahtna Athabascan settlement, Chitina attracted many local indigenous residents thus exposing them to Euro-American culture (Orth 1971rep.; Reckord 1983). The discovery of copper in the area and the establishment of Chitina marked the start of sustained contact between Euro-Americans and Lower Ahtna Athabascans (de Laguna and McClellan 1981).

The Lower Ahtna is 1 of 4 Ahtna Athabascan groups related by kinship and dialect—the other groups being the Middle, Upper, and Western Ahtna. Typical of northern Athabascans, the traditional economy of the Ahtna was based on hunting small and large game, fishing, and gathering wild plants and berries. Copper was also important to the Lower Ahtna in terms of controlled access, use, and trade of the resource, especially to coastal Eyak and Tlingit.

As noted by Lt. Henry T. Allen during his 1885 expedition to the Copper, Tanana, and Koyukuk rivers, knowledge about the Copper River valley and the Ahtna people occupying the areas in the lower parts of the Copper River and its tributaries was limited to Russian records and Alaska Native reports (Allen 1985rev.). At the time of first contact with Euro-Americans, the Lower Ahtna followed a seasonal round moving to seasonal hunting and fishing camps and village sites along the Copper River and the Chitina River valleys. The most well-known village site from that time is Taral, which was a central trading point located between

Interior Alaska Athabascan people and coastal Eyak and Tlingit on the east side of the Copper River between the Chitina River and Wood Canyon (Buzzell and McMahan 1995:10; de Laguna and McClellan 1981:642; Pratt 1998:85–90; Reckord 1983:104–109). In addition, there are a number of other known Ahtna seasonal village sites in the Chitina River valley; for example, sites at Strelna, on Lakina River near the outlet of Long Lake, and by Tebay River and Tebay Lakes (Pratt 1998:88; Reckord 1983:108). Overall, the Lower Ahtna population inhabiting the Chitina River basin in the late 19th century likely did not exceed 125 people (de Laguna and McClellan 1981:644; Pratt 1998:85)

In the early 20th century, Chitina was one of the most important communities of the Copper Basin, serving as the main stop on the railroad and the principal supply point for the settlers along the Copper River. Chitina prospered for nearly 3 decades. Yet, at the end of 1938, the town's prosperity took a serious downward turn when the Kennecott Copper Corporation closed its copper mining operations in the upper Chitina River valley and shut down the Copper River and Northwestern Railway as described in the previous chapter (see Chapter 4: McCarthy for an in-depth discussion of the copper mine and railway).

Today the Chitina post office remains in operation and is located on the Edgerton Highway. Students are home-schooled or attend school at Kenny Lake, which is 28 mi away. There are overnight accommodations, a small store, a restaurant/bar, art gallery, a seasonal historic hotel, and there is a federally recognized tribal government with an office in Chitina. In 2012, fuel was no longer available locally. To obtain fuel, supplies, and other services, residents of Chitina traveled to Kenny Lake/Willow Creek, Glennallen, and Anchorage via the road system. In the summer months, thousands of visitors pass through town to sightsee, camp, dip net for salmon, or run fish wheels.

Demography

According to the federal census, Chitina census designated place (CDP) had 126 residents in 2010 (Table 5-1). The household survey conducted for 2012 found an estimated Chitina population of 131 residents, of which 42% (55 residents) were Alaska Native. This study's survey area slightly exceeded the boundary of the federal Chitina CDP, including extending approximately 15 mi along McCarthy Road to Strelna Creek. Figure 5-1 shows the population of the community over time based on U.S. Census Bureau data, Alaska Department of Labor and Workforce Development estimates, and data in the CSIS. The chart demonstrates an increase in population since 1990 with some recent fluctuations in population since 2000. The population increased to a high of 144 in 2002 and 2003 from its lowest point shown on the figure of 31 residents in 1960.

Table 5-1.–Population estimates, Chitina, 2010 and 2012.

	Census year 2010				Study findings for 2012			
	Total population		Alaska Native population		Total population		Alaska Native population	
Community	Households	Population	People	Percentage of total	Households	Population	People	Percentage of total
Chitina	52	126	45	35.7%	54	134	56	42.1%

Source ADF&G Division of Subsistence household surveys, 2013.

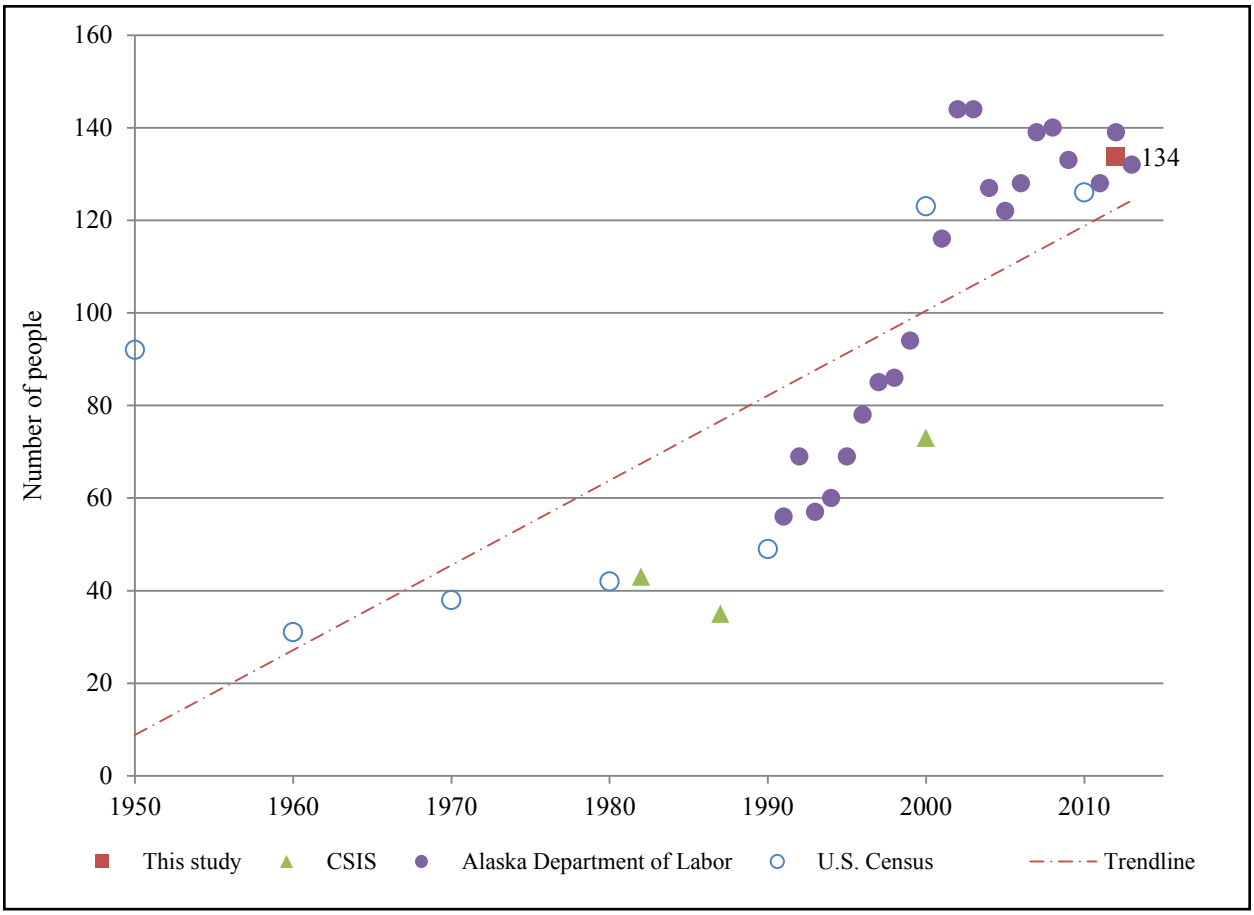


Figure 5-1.–Historical population estimates, Chitina, 1950–2012.

Table 5-2.–Sample achievement, Chitina, 2012.

	Chitina
Households in community	54
Interview goal	100%
Households interviewed	46
Households failed to contact	5
Households declined to be interviewed	3
Total households attempted to interview	54
Refusal rate	6.1%
Percentage of total households interviewed	85.2%
Interview weighting factor	1.2
Sampled population	114
Estimated population	133.8

Source ADF&G Division of Subsistence household surveys, 2013.
Note This table represents a simplified accounting of the sample size. As a result, components of the sample may not correctly sum to the number of households in the community.

Table 5-3.–Sample and demographic characteristics, Chitina, 2012.

Characteristics	Community Chitina
Sample achievement	
Sampled households	46
Eligible households	54
Percentage sampled	85.2%
Household size	
Mean	2.5
Minimum	1
Maximum	8
Age	
Mean	29.5
Minimum[a]	1
Maximum	77
Length of residency	
Total population	
Mean	14.7
Minimum	0
Maximum	65
Heads of household	
Mean	20.4
Minimum	1
Maximum	65
Sex	
Estimated male	
Number	70.4
Percentage	52.6%
Estimated female	
Number	63.4
Percentage	47.4%
Alaska Native	
Estimated households[b]	
Number	18.8
Percentage	34.8%
Estimated population	
Number	56.3
Percentage	42.1%

Source ADF&G Division of Subsistence household surveys, 2013.
a. A minimum age of 0 (zero) is used for infants that are less than 1 year of age.
b. The estimated number of households in which at least 1 head of household is Alaska Native.

Prior to the study, the Division of Subsistence researchers, in consultation with community officials and other knowledgeable respondents, estimated and confirmed 54 year-round households in Chitina in 2012 (Table 5-2). Of these, 46 households (85%) were interviewed. The following data are expanded to cover the remaining households not surveyed.

The mean number of years of residency in Chitina was 15, with the maximum length of residence at 65 years (Table 5-3). In general, 53% of the population was male, while the remaining 47% were female. The

Table 5-4.–Population profile, Chitina, 2012.

	Male			Female			Total		
Age	Number	Percentage	Cumulative percentage	Number	Percentage	Cumulative percentage	Number	Percentage	Cumulative percentage
0–4	8.2	11.7%	11.7%	5.9	9.3%	9.3%	14.1	10.5%	10.5%
5–9	4.7	6.7%	18.3%	7.0	11.1%	20.4%	11.7	8.8%	19.3%
10–14	9.4	13.3%	31.7%	8.2	13.0%	33.3%	17.6	13.2%	32.5%
15–19	1.2	1.7%	33.3%	7.0	11.1%	44.4%	8.2	6.1%	38.6%
20–24	3.5	5.0%	38.3%	1.2	1.9%	46.3%	4.7	3.5%	42.1%
25–29	7.0	10.0%	48.3%	9.4	14.8%	61.1%	16.4	12.3%	54.4%
30–34	3.5	5.0%	53.3%	5.9	9.3%	70.4%	9.4	7.0%	61.4%
35–39	3.5	5.0%	58.3%	4.7	7.4%	77.8%	8.2	6.1%	67.5%
40–44	2.3	3.3%	61.7%	2.3	3.7%	81.5%	4.7	3.5%	71.1%
45–49	3.5	5.0%	66.7%	0.0	0.0%	81.5%	3.5	2.6%	73.7%
50–54	3.5	5.0%	71.7%	2.3	3.7%	85.2%	5.9	4.4%	78.1%
55–59	5.9	8.3%	80.0%	5.9	9.3%	94.4%	11.7	8.8%	86.8%
60–64	5.9	8.3%	88.3%	2.3	3.7%	98.1%	8.2	6.1%	93.0%
65–69	4.7	6.7%	95.0%	1.2	1.9%	100.0%	5.9	4.4%	97.4%
70–74	0.0	0.0%	95.0%	0.0	0.0%	100.0%	0.0	0.0%	97.4%
75–79	1.2	1.7%	96.7%	0.0	0.0%	100.0%	1.2	0.9%	98.2%
80–84	0.0	0.0%	96.7%	0.0	0.0%	100.0%	0.0	0.0%	98.2%
85–89	0.0	0.0%	96.7%	0.0	0.0%	100.0%	0.0	0.0%	98.2%
90–94	0.0	0.0%	96.7%	0.0	0.0%	100.0%	0.0	0.0%	98.2%
95–99	0.0	0.0%	96.7%	0.0	0.0%	100.0%	0.0	0.0%	98.2%
100–104	0.0	0.0%	96.7%	0.0	0.0%	100.0%	0.0	0.0%	98.2%
Missing	2.3	3.3%	100.0%	0.0	0.0%	100.0%	2.3	1.8%	100.0%
Total	**70.4**	**100.0%**	**100.0%**	**63.4**	**100.0%**	**100.0%**	**133.8**	**100.0%**	**100.0%**

Source ADF&G Division of Subsistence household surveys, 2013.

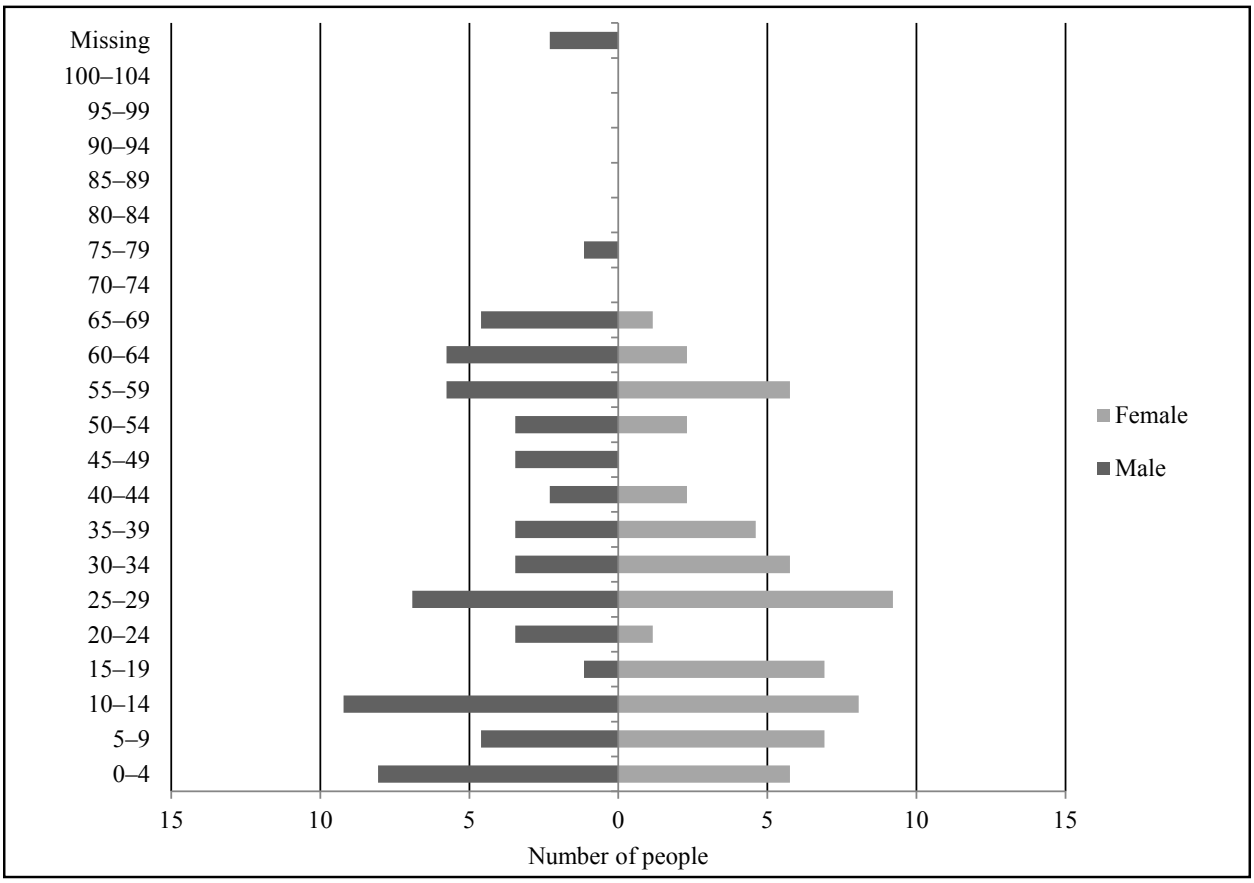


Figure 5-2.–Population profile, Chitina, 2012.

Table 5-5.–Birthplaces of household heads, Chitina, 2012.

Birthplace	Percentage
Anchorage	16.9%
Chitina	9.2%
Copper Center	1.5%
Fairbanks	1.5%
Glennallen	1.5%
Juneau	1.5%
Lower Tonsina	1.5%
Mentasta Lake	1.5%
Togiak	1.5%
McCarthy	1.5%
Other U.S.	55.4%
Foreign	1.5%
Unknown	4.6%
Total	**100.0%**

Source ADF&G Division of Subsistence household surveys, 2013.
Note "Birthplace" means the residence of the parents of the individual when the individual was born.

largest age cohorts of the entire population were females between the ages 25–29 and males between the ages of 10–14 (Table 5-4; Figure 5-2). There were no females represented in the 45–49 and older than 70 age ranges. There were no males represented in the 70–74, and older than 80 age ranges.

In the Chitina community, approximately 38% of the household heads were born in various communities across Alaska, with only 9% claiming Chitina as their place of birth (Table 5-5). Most household heads (approximately 55%) were born somewhere else in the United States. Approximately 5% of the household head birthplaces are unknown.

Cash Employment and Monetary Income

As noted above, Chitina is located approximately 65 mi from the nearest hub community—Glennallen—and about 252 mi from Anchorage. The community is a tourist destination for out-of-state visitors and Alaskans alike that is often used as a scenic hub that provides access to the largest national park in the United States (WRST), dip net fishing, and other recreational opportunities on the Chitina and Copper rivers. Seasonal employment in support of local tourism is provided by a variety of local lodges, multiple guiding businesses, and a few local shops and restaurants. Additionally, there are local, tribal, state, and federal agencies that provide consistent wage-earning opportunities.

Table 5-6 is a summary of the estimated earned income as well as other sources of income for residents of Chitina in 2012. This table shows that in 2012 earned income accounted for an average of $22,048 per household, or approximately 79% of the total community income, compared to other income sources that accounted for an average of $5,902 per household, or about 21% of the total community income. The greatest contributing earned income sectors were services (36% of total community income) and local and tribal government (15% of total community income). The largest sources of other income were the Alaska

Permanent Fund dividend and pension/retirement income, which each accounted for about 7% of the total community income in 2012. The estimated per capita earned income was $8,896 (Table 6-1).

In 2012, most (37%) of the jobs in Chitina were with the services sector (Table 5-7). Other important employment sectors during the study year were jobs for local (including the education system) and tribal governments (14%); retail trade (11%); construction (11%); state government (10%); and transportation, communication, and utilities (7%). The income generated by services jobs provided the most income by industry category (45% of wage earnings). The income generated by local and tribal governments in Chitina during 2012 was 19% of the wage income by industry. The remaining wage income by industry category was contributed by jobs for state government (9%); construction (8%); unknown industries (8%); federal government (4%); transportation, communication, and utilities (4%); and retail trade (3%). Another less than 1% of the wage income came from manufacturing and agriculture, forestry, and fishing jobs.

The study found 85 adults over the age of 16 in Chitina in 2012 and the average length of employment during the year was 28 weeks (or approximately 7 months) (Table 5-8). Of the 85 adults in Chitina, the study found an estimated 64, or 75%, were employed. For the employed adults, the mean length of employment was approximately 9 months; 53% of employed adults were employed year-round. On the household level, 45 households (84%) had an adult household member employed at some point during the study year. The average number of jobs during the study year per employed household was 1.7, and on average there were 1.4 employed adults per employed household.

Levels of Individual Participation in the Harvesting and Processing of Wild Resources

Table 5-9 reports the expanded levels of individual participation in the harvest and processing of wild resources by all Chitina residents in 2012. Approximately 96% of residents attempted to harvest resources in 2012. With reference to specific resource categories, 85% of all residents gathered vegetation, 66% fished, 40% hunted for large land mammals, 18% hunted for birds, and 14% hunted or trapped for small mammals/furbearers. Fewer residents participated in processing any resource (85%) than attempted to harvest any resource. More residents participated in gathering vegetation than the percentage of residents that processed plants (68%). For large land mammals, fish, birds, and small land mammals/furbearers, approximately the same percentage of people processed these resources as fished for or hunted them. Additionally, 34% of residents participated in building fish wheels or placing or removing fish wheels, while 12% sewed skins or cloth, and 68% cooked wild foods.

Table 5-6.–Estimated earned and other income, McCarthy, 2012.

Income source	Number of people	Number of households	Total for community	Mean per household[a]	Percentage of total[b]
Earned income					
Federal government	2.6	2.5	$49,948	$925	3.3%
State government	7.8	7.4	$108,058	$2,001	7.2%
Local government, including tribal	13.0	11.0	$225,756	$4,181	15.1%
Agriculture, forestry, and fishing	1.3	1.2	$1,135	$21	0.1%
Construction	10.4	8.6	$92,631	$1,715	6.2%
Manufacturing	2.6	2.5	$3,406	$63	0.2%
Transportation, communication, and utilities	6.5	6.1	$40,980	$759	2.7%
Retail trade	10.4	9.8	$36,813	$682	2.5%
Services	28.5	23.3	$536,651	$9,938	35.8%
Industry not indicated	2.6	1.2	$90,814	$1,682	6.1%
Earned income subtotal	**64.8**	**45.4**	**$1,186,192**	**$21,967**	**79.1%**
Other income					
Alaska Permanent Fund dividend			$99,138	$1,871	6.6%
Pension or retirement			$96,500	$1,821	6.4%
Unemployment			$36,063	$680	2.4%
Food stamps			$20,020	$378	1.3%
Social Security			$16,130	$304	1.1%
Native corporation dividends			$13,282	$251	0.9%
Child support			$11,522	$217	0.8%
Disability			$9,678	$183	0.6%
Workers' compensation or insurance			$4,148	$78	0.3%
Adult public assistance			$2,535	$48	0.2%
Energy assistance			$2,247	$42	0.1%
Supplemental Security income			$1,555	$29	0.1%
Longevity bonus			$0	$0	0.0%
Other			$0	$0	0.0%
Foster care			$0	$0	0.0%
Other income subtotal			**$312,818**	**$5,902**	**20.9%**
Community income total			**$1,499,010**	**$27,869**	**100.0%**

Source ADF&G Division of Subsistence household surveys, 2013.

a. The mean is calculated using the total number of households in the community, not the number of households for this income category.

b. Income by category is calculated as a percentage of the total community income from all sources (wage-based income and non-wage-based income).

Table 5-7.–Employment by industry, McCarthy, 2012.

Industry	Jobs	Households	Individuals	Percentage of wage earnings
Estimated total number	**92.1**	**45.4**	**64.8**	**100.0%**
Federal government (total)	**2.8%**	**5.4%**	**4.0%**	**4.2%**
Executive, administrative, and managerial	1.4%	2.7%	2.0%	3.4%
Service occupations	1.4%	2.7%	2.0%	0.8%
State government (total)	**9.9%**	**16.2%**	**12.0%**	**9.1%**
Teachers, librarians, and counselors	1.4%	2.7%	2.0%	0.2%
Service occupations	5.6%	10.8%	8.0%	5.1%
Transportation and material moving occupations	1.4%	2.7%	2.0%	1.4%
Handlers, equipment cleaners, helpers, and laborers	1.4%	2.7%	2.0%	2.4%
Local and tribal governments (total)	**14.1%**	**24.3%**	**20.0%**	**19.0%**
Executive, administrative, and managerial	2.8%	5.4%	4.0%	6.9%
Social scientists, social workers, religious workers, and lawyers	1.4%	2.7%	2.0%	1.7%
Administrative support occupations, including clerical	4.2%	8.1%	6.0%	6.3%
Service occupations	1.4%	2.7%	2.0%	0.8%
Transportation and material moving occupations	1.4%	2.7%	2.0%	0.3%
Handlers, equipment cleaners, helpers, and laborers	1.4%	2.7%	2.0%	0.7%
Occupation not indicated	1.4%	2.7%	2.0%	2.4%
Agriculture, forestry, and fishing (total)	**1.4%**	**2.7%**	**2.0%**	**0.1%**
Agricultural, forestry, and fishing occupations	1.4%	2.7%	2.0%	0.1%
Construction (total)	**11.3%**	**18.9%**	**16.0%**	**7.8%**
Agricultural, forestry, and fishing occupations	1.4%	2.7%	2.0%	0.1%
Construction and extractive occupations	4.2%	8.1%	6.0%	1.2%
Handlers, equipment cleaners, helpers, and laborers	5.6%	8.1%	8.0%	6.5%
Manufacturing (total)	**2.8%**	**5.4%**	**4.0%**	**0.3%**
Writers, artists, entertainers, and athletes	2.8%	5.4%	4.0%	0.3%
Transportation, communication, and utilities (total)	**7.0%**	**13.5%**	**10.0%**	**3.5%**
Agricultural, forestry, and fishing occupations	4.2%	8.1%	6.0%	0.9%
Precision production occupations	1.4%	2.7%	2.0%	1.9%
Handlers, equipment cleaners, helpers, and laborers	1.4%	2.7%	2.0%	0.7%
Retail trade (total)	**11.3%**	**21.6%**	**16.0%**	**3.1%**
Executive, administrative, and managerial	1.4%	2.7%	2.0%	0.2%
Marketing and sales occupations	5.6%	10.8%	8.0%	1.4%
Service occupations	4.2%	8.1%	6.0%	1.6%
Services (total)	**36.6%**	**51.4%**	**44.0%**	**45.2%**
Executive, administrative, and managerial	9.9%	13.5%	12.0%	18.2%
Engineers, surveyors, and architects	1.4%	2.7%	2.0%	11.5%
Health technologists and technicians	4.2%	8.1%	6.0%	4.9%
Marketing and sales occupations	1.4%	2.7%	2.0%	0.2%
Administrative support occupations, including clerical	1.4%	2.7%	2.0%	2.0%
Service occupations	9.9%	16.2%	14.0%	5.1%

-continued-

Table 5-7.–Page 2 of 2.

Industry	Jobs	Households	Individuals	Percentage of wage earnings
Services (total), continued				
Mechanics and repairers	1.4%	2.7%	2.0%	1.1%
Construction and extractive occupations	1.4%	2.7%	2.0%	1.0%
Production working occupations	2.8%	5.4%	4.0%	0.8%
Handlers, equipment cleaners, helpers, and laborers	2.8%	5.4%	4.0%	0.4%
Industry not indicated (total)	**2.8%**	**2.7%**	**4.0%**	**7.7%**
Engineers, surveyors, and architects	1.4%	2.7%	2.0%	5.3%
Administrative support occupations, including clerical	1.4%	2.7%	2.0%	2.4%

Source ADF&G Division of Subsistence household surveys, 2013.

Table 5-8.–Employment characteristics, McCarthy, 2012.

Characteristic	Community Chitina
All adults	
Number	86.9
Mean weeks employed	27.6
Employed adults	
Number	64.8
Percentage	74.6%
Jobs	
Number	92.1
Mean	1.4
Minimum	1
Maximum	3
Months employed	
Mean	8.5
Minimum	1
Maximum	12
Percentage employed year-round	52.5%
Mean weeks employed	37.0
Households	
Number	54.0
Employed	
Number	45.4
Percentage	84.1%
Jobs per employed household	
Mean	1.7
Minimum	1
Maximum	4
Employed adults	
Mean	
Employed households	1.4
Total households	1.2
Minimum	
Employed households	1
Maximum	
Employed households	2
Mean person-weeks of employment	43.0

Source ADF&G Division of Subsistence household surveys, 2013.

Table 5-9.–Individual participation in subsistence harvesting, processing, and craft activities, McCarthy, 2012.

			Chitina
Estimated population			**133.8**
Fish			
	Fish		
		Number	88.0
		Percentage	65.8%
	Process		
		Number	89.2
		Percentage	66.7%
Large land mammals			
	Hunt		
		Number	54.0
		Percentage	40.4%
	Process		
		Number	54.0
		Percentage	40.4%
Small land mammals or furbearers			
	Hunt or trap		
		Number	18.8
		Percentage	14.0%
	Process		
		Number	17.6
		Percentage	13.2%
Birds and eggs			
	Hunt		
		Number	24.7
		Percentage	18.4%
	Process		
		Number	25.8
		Percentage	19.3%
Berries, plants, or wood			
	Gather		
		Number	113.9
		Percentage	85.1%
	Process		
		Number	91.6
		Percentage	68.4%

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Table 5-9.–Page 2 of 2.

			Chitina
Any resource			
	Attempt		
		Number	128.0
		Percentage	95.6%
	Process		
		Number	113.9
		Percentage	85.1%
Build, maintain, or place fish wheels			
		Number	45.8
		Percentage	34.2%
Sew skins or cloth			
		Number	16.4
		Percentage	12.3%
Cook wild foods			
		Number	91.6
		Percentage	68.4%

Source ADF&G Division of Subsistence household surveys, 2013.

Household Resource Harvest and Use Patterns and Sharing of Wild Resources

Table 5-10 summarizes resource harvest and use characteristics for Chitina in 2012 at the household level. Approximately 98% of households used wild resources in 2012, while 98% also attempted to harvest wild resources and 96% reported harvesting wild resources. The average harvest was 609 lb usable weight per household, or 246 lb per capita. During the study year, 46 households harvested an average of 8 kinds of resources and used an average of 10 kinds of resources. The maximum number of resources used by any household was 33. In addition, households gave away an average of 4 kinds of resources and an estimated 74% of households reported sharing resources with other households.

Previous studies by the Division of Subsistence (Wolfe 1987; Wolfe et al. 2010) have shown that in most rural Alaska communities, a relatively small portion of households produces most of the community's fish and wildlife harvests, which they share with other households. A recent study of 3,265 households in 66 rural Alaska communities found that about 33% of the households accounted for 76% of subsistence harvests (Wolfe et al. 2010). Although overall the set of very productive households was diverse, factors that were associated with higher levels of subsistence harvests included larger households with a pool of adult male labor, higher wage income, involvement in commercial fishing, and community location.

As shown in Figure 5-3, in the 2012 study year in Chitina, about 68% of the harvests of wild resources as estimated in usable pounds was harvested by 20% of the community's households. Further analysis of

Table 5-10.–Resource harvest and use characteristics, Chitina, 2012.

Characteristic	Community Chitina
Number of resources used per household	
Mean	10.4
Minimum	0
Maximum	33
95% confidence limit (±)	7.5%
Median	13.5
Number of resources attempted per household	
Mean	9.1
Minimum	0
Maximum	33
95% confidence limit (±)	9.0%
Median	11.5
Number of resources harvested per household	
Mean	7.9
Minimum	0
Maximum	31
95% confidence limit (±)	9.9%
Median	7
Number of resources received per household	
Mean	4.0
Minimum	0
Maximum	14
95% confidence limit (±)	10.0%
Median	5.5
Number of resources given away per household	
Mean	3.6
Minimum	0
Maximum	18
95% confidence limit (±)	13.2%
Median	4
Household harvest (pounds)	
Mean	609.3
Minimum	0
Maximum	4,744
95% confidence limit (±)	18.3%
Median	250.9
Total estimated harvest weight (pounds)	32,899.9
Community per capita estimated harvest (pounds)	245.8
Percentage of households using any resource	97.8%
Percentage of households attempting to harvest any resource	97.8%
Percentage of households harvesting any resource	95.7%
Percentage of households receiving any resource	87.0%
Percentage of households giving away any resource	73.9%
Number of households in sample	46
Number of resources available	108

Source ADF&G Division of Subsistence household surveys, 2013.

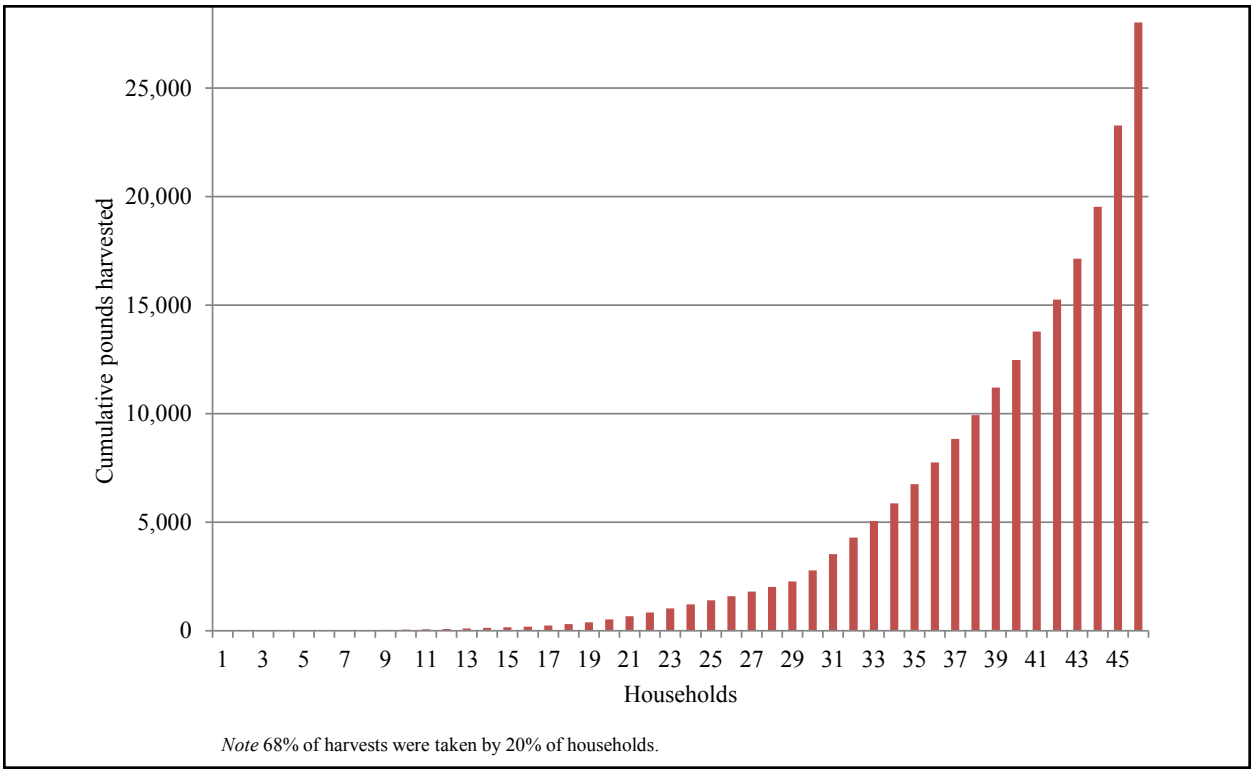

Figure 5-3.–Household specialization, Chitina, 2012.

the study findings, beyond the scope of this report, might identify characteristics of the highly productive households in Chitina and the other study communities.

This survey included questions about Chitina residents' use of alternative and motorized modes of transportation to access wild resource harvest areas. Figure 5-4 depicts the percentage of community households that used alternate means of transportation (in addition to or aside from using cars, trucks, or traveling on foot). The figure also shows whether the used equipment was chartered, leased, borrowed, or an owned piece of personal property. Approximately 9% of households both owned and borrowed boats, whereas only 2% chartered boats while attempting to harvest wild foods. More households owned snowmachines (25%); only 2% borrowed them to harvest wild foods. The most often owned transportation machine was the ATV, which was owned by 26% and borrowed by 6% of households when harvesting or attempting to harvest wild foods. The least often owned transportation machine was aircraft, which was both owned and borrowed by 2% of households for attempting to harvest wild foods in 2012.

This survey also included questions about the use of portable motors when harvesting wild resources in 2012 and using natural materials for making handicrafts. The percentage of households that used portable motorized equipment when attempting to harvest wild foods in Chitina included 26% using generators, 70% using chain saws, 30% using ice augers, 19% using winches, and 15% using other equipment (Figure 5-5). As shown in Figure 5-6, households participated in making handicrafts using natural materials such

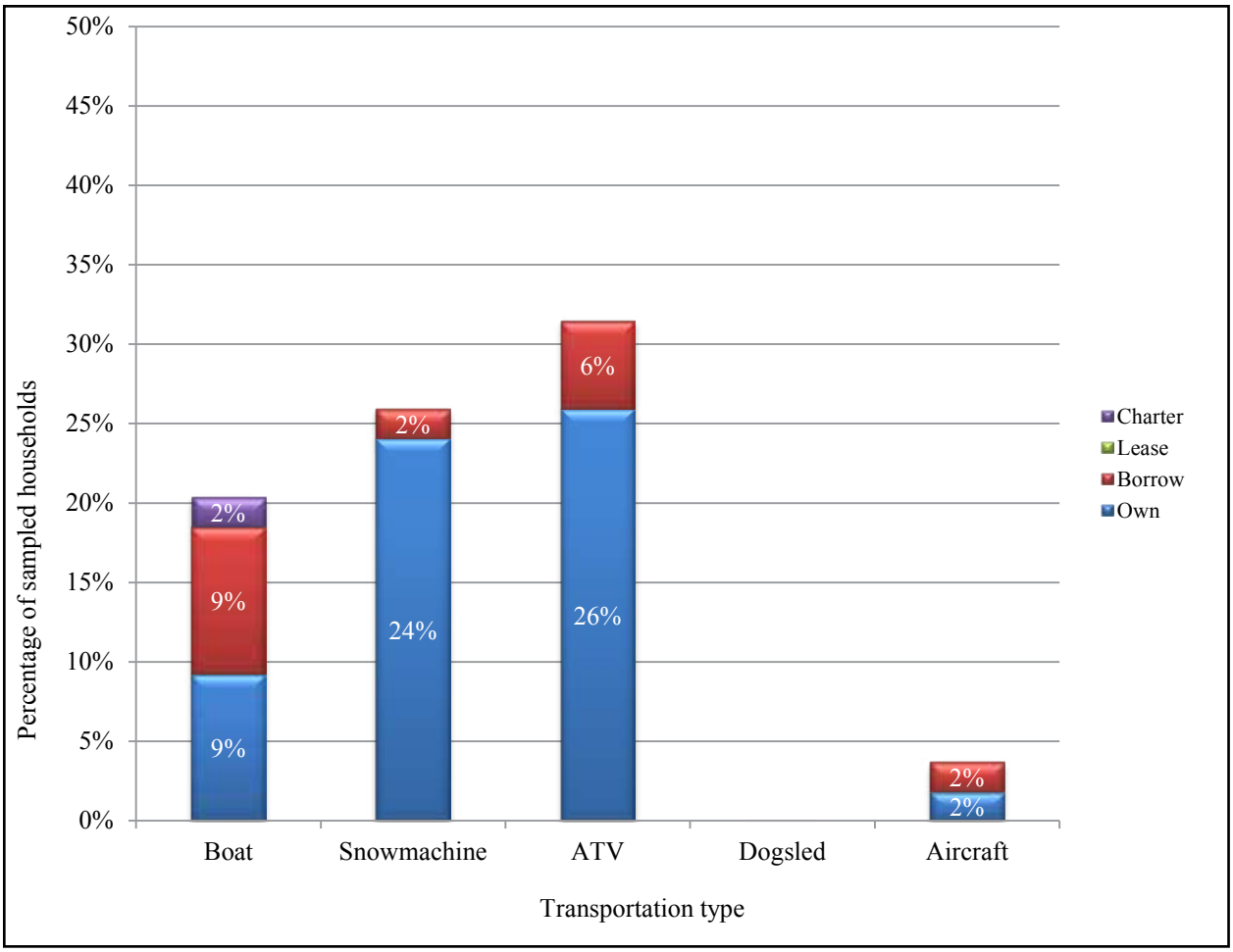

Figure 5-4.–Alternative modes of transportation used by sampled households to access wild resources, Chitina, 2012.

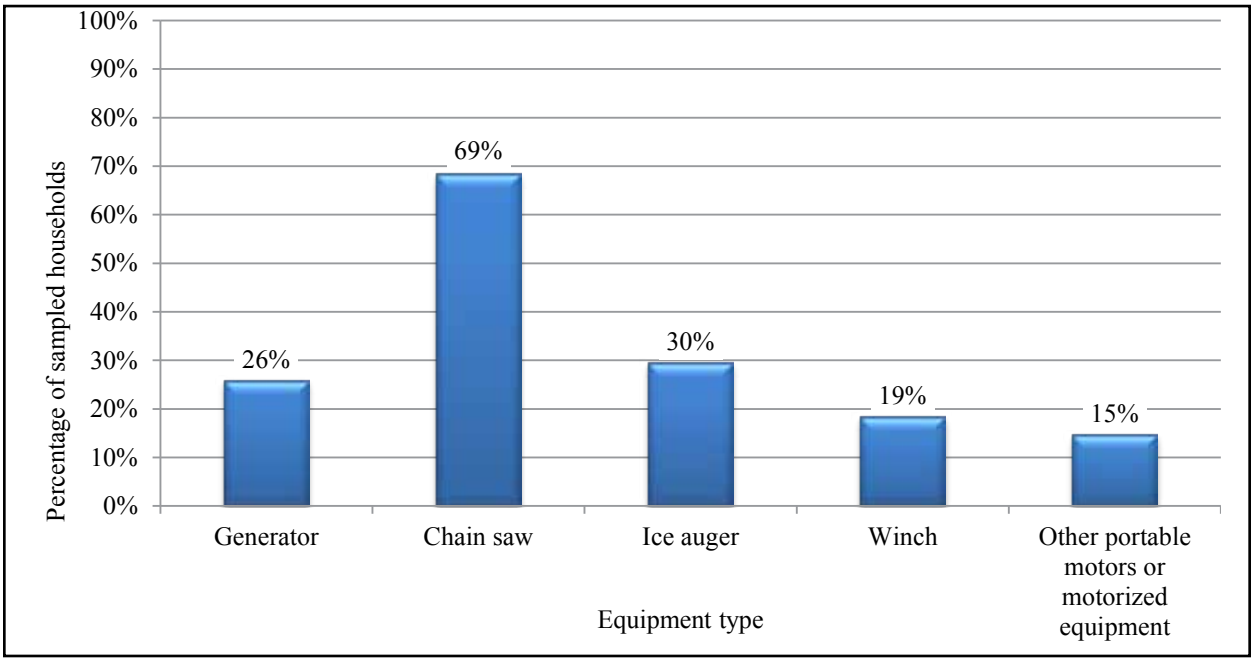

Figure 5-5.–Portable motorized equipment used by sampled households while searching for and harvesting wild resources, Chitina, 2012.

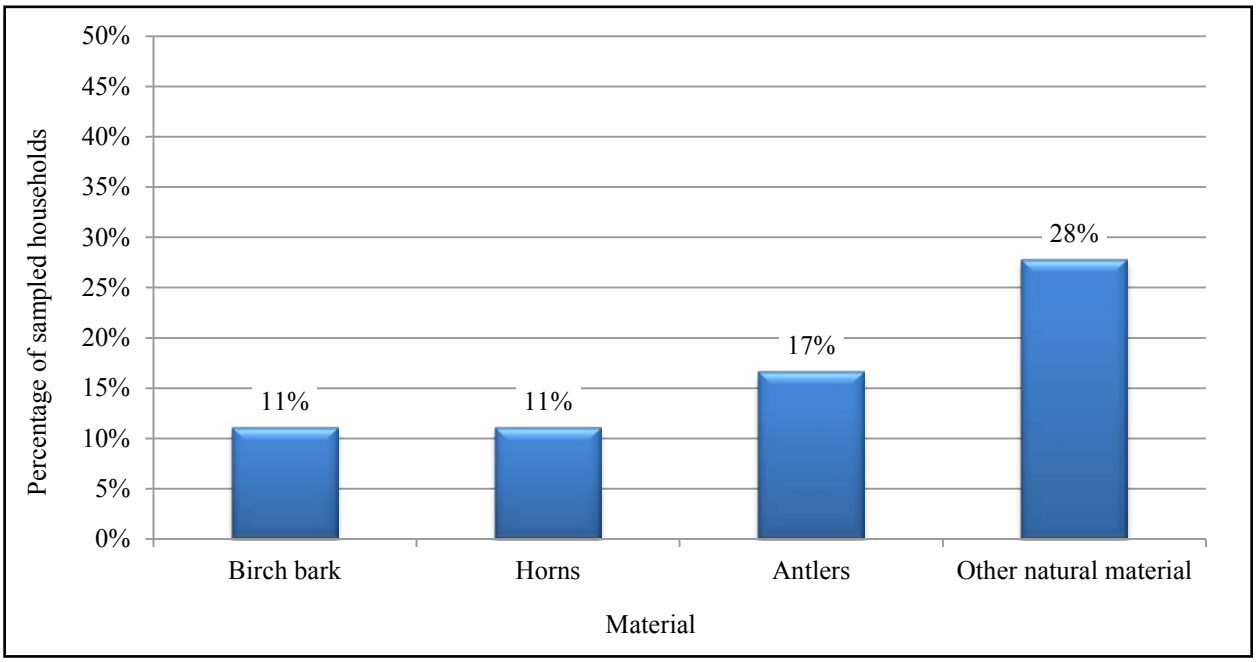

Figure 5-6.–Natural materials used by sampled households for making handicrafts, Chitina, 2012.

as bark (11% of households), horns (11% of households), antlers (17% of households), and other material (28% of households).

In Chitina, approximately 67% of the sampled households used some wood for heating homes (26%–100% of home heating source) and the average annual cost of home heating in the 2012 study year was $1,581 (Table 5-11). The 33% of households reporting no use of firewood to heat their homes were primarily in village apartments that had heat provided.

Harvest Quantities and Composition

Table 5-12 reports estimated wild resource harvests and uses by Chitina residents in 2012 and is organized first by general category and then by species. All edible resources are reported in pounds usable weight (see Appendix B for conversion factors[1]). The harvest category includes resources harvested by any member of the surveyed household during the study year. The use category includes all resources taken, given away, or used by a household, and resources acquired from other harvesters, either as gifts, by barter or trade, through hunting partnerships, or as meat given by hunting guides and non-local hunters. Purchased foods are not included but resources such as firewood are included because they are an important part of the subsistence way of life. Differences between harvest and use percentages reflect sharing among households, which results in a wider distribution of wild foods.

The total estimated edible harvest for all fish, wildlife, and wild plant resources during 2012 for Chitina was 32,900 lb, or 246 lb per capita (Table 5-12). Fish provided the majority (83%) (27,143 lb, or 203 lb per capita) of the total pounds of harvested wild resources with salmon providing the overwhelming majority of fish harvested (78% of total community harvest) (25,639 lb, or 192 lb per capita) (Figure 5-7; Table 5-12). Land mammals provided 13% of the total harvest (4,271 lb, or 32 lb per capita). Vegetation provided 4% (1,235 lb, or 9 lb per capita) of the total harvest. The remaining resource categories (marine invertebrates and birds and eggs) each contributed approximately less than 1% of the total usable harvest weight.

Seasonal Round

Residents of Chitina harvest a wide variety of species throughout the year and like most rural Alaska communities they often target specific species during certain seasons of the year, following a cyclical harvest pattern that is defined in part by seasonal availability, and in part by laws, regulations, and land access. Many Chitina subsistence harvest activities occur in the middle Copper River drainage where most of the critical resources can be found, but residents also travel up the Richardson Highway to the Denali Highway in pursuit of moose, caribou, plants and berries, and birds (Figure 5-8). Residents will travel even farther for deep-sea fishing opportunities occurring primarily out of Valdez.

While harvest activities are ongoing throughout the year, we will begin our discussion with the most

1. Resources that are not eaten, such as firewood and some furbearers, are included in the table but are given a conversion factor of zero.

Table 5-11.–Use of firewood for home heating in sampled households, Chitina, 2012.

Community	Average annual cost of home heating	Household use of wood for home heating as a percentage of total fuel for heating											
		0%		1%–25%		26%–50%		51%–75%		76%–99%		100%	
		Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Chitina	$1,581	15	32.6%	0	0.0%	1	2.2%	4	8.7%	6	13.0%	20	43.5%

Source ADF&G Division of Subsistence household surveys, 2013.

Table 5-12.–Estimated harvests and uses of fish, game, and vegetation resources, Chitina, 2012.

Resource	Percentage of households					Harvest weight (lb)			Harvest quantity[a]			95% confidence limit (±) harvest
	Use	Attempt	Harvest	Receive	Give	Total	Mean per household	Per capita	Total	Unit	Mean per household	
All resources	**97.8%**	**97.8%**	**95.7%**	**87.0%**	**73.9%**	**32,899.9**	**609.3**	**245.8**	**6,777**		**125.5**	**18.3%**
Fish	**95.7%**	**73.9%**	**69.6%**	**69.6%**	**63.0%**	**27,143.4**	**502.7**	**202.8**	**5,337**		**98.8**	**20.3%**
Salmon	**93.5%**	**65.2%**	**63.0%**	**58.7%**	**60.9%**	**25,639.1**	**474.8**	**191.6**	**4,151**		**76.9**	**21.1%**
Chum salmon	2.2%	0.0%	0.0%	2.2%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Coho salmon	21.7%	17.4%	17.4%	13.0%	15.2%	2,422.8	44.9	18.1	394	ind	7.3	47.5%
Chinook salmon	60.9%	47.8%	45.7%	32.6%	41.3%	7,834.6	145.1	58.5	512	ind	9.5	32.1%
Pink salmon	2.2%	2.2%	2.2%	2.2%	0.0%	341.9	6.3	2.6	117	ind	2.2	77.5%
Sockeye salmon	93.5%	65.2%	63.0%	58.7%	58.7%	15,021.0	278.2	112.2	3,109	ind	57.6	16.1%
Landlocked salmon	6.5%	4.3%	4.3%	2.2%	0.0%	18.8	0.3	0.1	19	ind	0.3	72.7%
Salmon (unspecified)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Nonsalmon fish	**73.9%**	**56.5%**	**52.2%**	**43.5%**	**19.6%**	**1,504.3**	**27.9**	**11.2**	**1,186**		**22.0**	**21.4%**
Pacific herring	0.0%	2.2%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	gal	0.0	0.0%
Pacific herring roe	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Pacific herring sac roe	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	gal	0.0	0.0%
Pacific herring spawn on kelp	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	gal	0.0	0.0%
Smelt	2.2%	0.0%	0.0%	2.2%	0.0%	0.0	0.0	0.0	0	gal	0.0	0.0%
Cod	2.2%	0.0%	0.0%	2.2%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Pacific (gray) cod	2.2%	0.0%	0.0%	2.2%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Pacific tomcod	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Flounder	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Starry flounder	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Greenling	2.2%	2.2%	2.2%	2.2%	2.2%	11.3	0.2	0.1	5		0.1	77.5%
Lingcod	2.2%	2.2%	2.2%	2.2%	2.2%	11.3	0.2	0.1	5	ind	0.1	77.5%
Pacific halibut	41.3%	10.9%	8.7%	39.1%	10.9%	303.9	5.6	2.3	304	lb	5.6	60.3%
Arctic lamprey	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Rockfish	4.3%	4.3%	4.3%	0.0%	2.2%	61.0	1.1	0.5	15		0.3	61.9%
Rockfish (unspecified)	4.3%	4.3%	4.3%	0.0%	2.2%	61.0	1.1	0.5	15	ind	0.3	61.9%
Sculpin	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Burbot	8.7%	8.7%	8.7%	0.0%	0.0%	28.2	0.5	0.2	12	ind	0.2	55.3%
Char	15.2%	17.4%	13.0%	4.3%	6.5%	93.0	1.7	0.7	90		1.7	46.3%
Dolly Varden	8.7%	10.9%	8.7%	2.2%	4.3%	71.8	1.3	0.5	80	ind	1.5	58.2%
Lake trout	6.5%	6.5%	4.3%	2.2%	2.2%	21.1	0.4	0.2	11	ind	0.2	57.3%

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Table 5-12.–Page 2 of 5.

Resource	Percentage of households					Harvest weight (lb)			Harvest quantity[a]			95% confidence limit (±) harvest
	Use	Attempt	Harvest	Receive	Give	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Nonsalmon fish, continued												
Arctic grayling	21.7%	15.2%	15.2%	6.5%	4.3%	70.7	1.3	0.5	101	ind	1.9	39.7%
Northern pike	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Longnose sucker	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Trout	54.3%	50.0%	47.8%	10.9%	8.7%	723.5	13.4	5.4	512		9.5	17.9%
Cutthroat trout	2.2%	0.0%	0.0%	2.2%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Rainbow trout	52.2%	50.0%	47.8%	8.7%	8.7%	713.6	13.2	5.3	510	ind	9.4	18.2%
Steelhead	2.2%	2.2%	2.2%	0.0%	0.0%	9.9	0.2	0.1	2	ind	0.0	77.5%
Trout (unspecified)	2.2%	0.0%	0.0%	2.2%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Whitefishes	4.3%	4.3%	4.3%	0.0%	2.2%	212.8	3.9	1.6	147		2.7	59.6%
Broad whitefish	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Cisco	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Least cisco	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Humpback whitefish	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Round whitefish	2.2%	2.2%	2.2%	0.0%	0.0%	58.7	1.1	0.4	59	ind	1.1	77.5%
Whitefishes (unspecified)	2.2%	2.2%	2.2%	0.0%	2.2%	154.1	2.9	1.2	88	ind	1.6	77.5%
Land mammals	**84.8%**	**65.2%**	**37.0%**	**65.2%**	**41.3%**	**4,270.5**	**79.1**	**31.9**	**364**		**6.7**	**29.6%**
Large land mammals	**76.1%**	**56.5%**	**21.7%**	**65.2%**	**41.3%**	**3,897.4**	**72.2**	**29.1**	**25**		**0.5**	**30.7%**
Bison	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Black bear	8.7%	6.5%	2.2%	6.5%	2.2%	68.1	1.3	0.5	1	ind	0.0	77.5%
Brown bear	6.5%	4.3%	4.3%	2.2%	4.3%	331.0	6.1	2.5	2	ind	0.0	54.2%
Caribou	50.0%	37.0%	15.2%	37.0%	23.9%	2,441.7	45.2	18.2	19	ind	0.3	30.4%
Deer	2.2%	0.0%	0.0%	2.2%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Mountain goat	2.2%	0.0%	0.0%	2.2%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Moose	67.4%	47.8%	4.3%	63.0%	21.7%	1,056.5	19.6	7.9	2	ind	0.0	54.2%
Dall sheep	4.3%	4.3%	0.0%	4.3%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Small land mammals	**28.3%**	**30.4%**	**28.3%**	**2.2%**	**4.3%**	**373.1**	**6.9**	**2.8**	**339**		**6.3**	**28.1%**
Beaver	8.7%	8.7%	8.7%	2.2%	4.3%	105.7	2.0	0.8	7	ind	0.1	39.7%
Coyote	8.7%	13.0%	8.7%	0.0%	0.0%	0.0	0.0	0.0	28	ind	0.5	44.7%
Fox	6.5%	8.7%	6.5%	0.0%	0.0%	0.0	0.0	0.0	13		0.2	48.5%
Red fox	6.5%	8.7%	6.5%	0.0%	0.0%	0.0	0.0	0.0	13		0.2	48.5%
Red fox–cross phase	4.3%	6.5%	4.3%	0.0%	0.0%	0.0	0.0	0.0	4	ind	0.1	57.3%
Red fox–red phase	6.5%	8.7%	6.5%	0.0%	0.0%	0.0	0.0	0.0	9	ind	0.2	46.6%

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Table 5-12.–Page 3 of 5.

Resource	Percentage of households					Harvest weight (lb)			Harvest quantity[a]			95% confidence limit (±)
	Use	Attempt	Harvest	Receive	Give	Total	Mean per household	Per capita	Total	Unit	Mean per household	harvest
Small land mammals, continued												
Hare	19.6%	19.6%	19.6%	0.0%	4.3%	133.8	2.5	1.0	67		1.2	28.9%
Snowshoe hare	19.6%	19.6%	19.6%	0.0%	4.3%	133.8	2.5	1.0	67	ind	1.2	28.9%
North American river (land) otter	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Lynx	10.9%	13.0%	10.9%	0.0%	0.0%	94.6	1.8	0.7	74	ind	1.4	38.5%
Marmot	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Marten	8.7%	10.9%	8.7%	0.0%	0.0%	0.0	0.0	0.0	59	ind	1.1	51.1%
Mink	4.3%	4.3%	4.3%	0.0%	0.0%	0.0	0.0	0.0	11	ind	0.2	57.3%
Muskrat	2.2%	2.2%	2.2%	0.0%	0.0%	2.1	0.0	0.0	1	ind	0.0	77.5%
Porcupine	10.9%	10.9%	10.9%	0.0%	2.2%	37.0	0.7	0.3	9	ind	0.2	47.4%
Squirrel	4.3%	4.3%	4.3%	0.0%	0.0%	0.0	0.0	0.0	26		0.5	71.3%
Arctic ground (parka) squirrel	2.2%	2.2%	2.2%	0.0%	0.0%	0.0	0.0	0.0	1	ind	0.0	0.0%
Red (tree) squirrel	4.3%	4.3%	4.3%	0.0%	0.0%	0.0	0.0	0.0	25	ind	0.5	74.6%
Weasel	8.7%	8.7%	8.7%	0.0%	2.2%	0.0	0.0	0.0	36	ind	0.7	52.6%
Gray wolf	2.2%	4.3%	2.2%	0.0%	0.0%	0.0	0.0	0.0	2	ind	0.0	77.5%
Wolverine	4.3%	4.3%	4.3%	0.0%	0.0%	0.0	0.0	0.0	6	ind	0.1	55.3%
Birds and eggs	**34.8%**	**34.8%**	**30.4%**	**10.9%**	**4.3%**	**112.0**	**2.1**	**0.8**	**162**		**3.0**	**23.3%**
Migratory birds	**6.5%**	**8.7%**	**6.5%**	**2.2%**	**2.2%**	**17.6**	**0.3**	**0.1**	**21**		**0.4**	**47.9%**
Ducks	6.5%	8.7%	6.5%	2.2%	2.2%	17.6	0.3	0.1	21		0.4	47.9%
Canvasback	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Eider	0.0%	0.0%	0.0%	0.0%	0.0%	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	0.0	0.0	0	ind	0.0	0.0%
Goldeneye	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Mallard	4.3%	6.5%	4.3%	0.0%	0.0%	9.4	0.2	0.1	9		0.2	60.9%
Northern pintail	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Scoter	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Black scoter	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Teal	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Green-winged teal	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Duck (unspecified)	2.2%	2.2%	2.2%	2.2%	2.2%	8.2	0.2	0.1	12		0.2	77.5%
Geese	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Brant	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Canada/cackling goose	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%

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Table 5-12.–Page 4 of 5.

Resource	Percentage of households					Harvest weight (lb)			Harvest quantity[a]			95% confidence limit (±)
	Use	Attempt	Harvest	Receive	Give	Total	Mean per household	Per capita	Total	Unit	Mean per household	harvest
Migratory birds, continued												
Cackling goose	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Canada goose	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Canada/cackling goose	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	0.0%
Emperor goose	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Swan	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Tundra (whistling) swan	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Crane	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Sandhill crane	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Other birds	**32.6%**	**32.6%**	**28.3%**	**10.9%**	**4.3%**	**94.4**	**1.7**	**0.7**	**141**		**2.6**	**0.0%**
Upland game birds	32.6%	32.6%	28.3%	10.9%	4.3%	94.4	1.7	0.7	141		2.6	0.0%
Grouse	32.6%	32.6%	28.3%	10.9%	2.2%	83.8	1.6	0.6	120		2.2	0.0%
Spruce grouse	32.6%	32.6%	28.3%	10.9%	2.2%	83.8	1.6	0.6	120	ind	2.2	21.9%
Ptarmigan	10.9%	13.0%	10.9%	0.0%	2.2%	10.6	0.2	0.1	21		0.4	21.9%
Bird eggs	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0**	**0.0**	**0.0**	**0**		**0.0**	**21.5%**
Duck eggs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	21.5%
Goose eggs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	40.6%
Seabird and loon eggs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Gull eggs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Eggs (unspecified)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Marine invertebrates	**10.9%**	**4.3%**	**4.3%**	**8.7%**	**2.2%**	**138.5**	**2.6**	**1.0**	**139**		**2.6**	**0.0%**
Clams	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0		0.0	0.0%
Freshwater clams	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	gal	0.0	0.0%
Razor clams	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	gal	0.0	66.5%
Crabs	4.3%	2.2%	2.2%	4.3%	2.2%	21.1	0.4	0.2	21		0.4	0.0%
Dungeness crab	4.3%	2.2%	2.2%	4.3%	2.2%	14.1	0.3	0.1	14	lb	0.3	0.0%
King crab	4.3%	2.2%	2.2%	4.3%	2.2%	7.0	0.1	0.1	7	lb	0.1	0.0%
Tanner crab	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	lb	0.0	77.5%
Octopus	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	ind	0.0	77.5%
Shrimp	6.5%	2.2%	2.2%	4.3%	0.0%	117.4	2.2	0.9	117	lb	2.2	77.5%
Squid	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	gal	0.0	0.0%
Vegetation	**93.5%**	**93.5%**	**91.3%**	**34.8%**	**52.2%**	**1,235.4**	**22.9**	**9.2**	**775**		**14.4**	**0.0%**
Berries	**84.8%**	**84.8%**	**82.6%**	**30.4%**	**41.3%**	**997.2**	**18.5**	**7.5**	**249**		**4.6**	**77.5%**

-continued-

Table 5-12.–Page 5 of 5.

Resource	Percentage of households					Harvest weight (lb)			Harvest quantity[a]			95% confidence limit (±) harvest
	Use	Attempt	Harvest	Receive	Give	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Berries, continued												
Blueberry	58.7%	56.5%	56.5%	17.4%	26.1%	421.4	7.8	3.1	105	gal	2.0	0.0%
Lowbush cranberry	32.6%	32.6%	32.6%	6.5%	8.7%	88.6	1.6	0.7	22	gal	0.4	14.0%
Highbush cranberry	43.5%	41.3%	41.3%	13.0%	13.0%	183.1	3.4	1.4	46	gal	0.8	13.4%
Currants	2.2%	2.2%	2.2%	0.0%	0.0%	2.3	0.0	0.0	1	gal	0.0	15.5%
Raspberry	60.9%	60.9%	58.7%	15.2%	23.9%	232.4	4.3	1.7	58	gal	1.1	18.9%
Salmonberry	2.2%	2.2%	2.2%	0.0%	0.0%	2.3	0.0	0.0	1	gal	0.0	77.5%
Other wild berry	10.9%	10.9%	10.9%	0.0%	6.5%	66.9	1.2	0.5	17	gal	0.3	46.6%
Plants, greens, and mushrooms	**45.7%**	**45.7%**	**43.5%**	**8.7%**	**19.6%**	**233.5**	**4.3**	**1.7**	**212**		**3.9**	**31.1%**
Hudson's Bay (Labrador) tea	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0	gal	0.0	0.0%
Wild rose hips	13.0%	13.0%	13.0%	0.0%	2.2%	28.2	0.5	0.2	7	gal	0.1	33.9%
Yarrow	2.2%	2.2%	2.2%	0.0%	0.0%	1.2	0.0	0.0	1	gal	0.0	77.5%
Other wild greens	8.7%	8.7%	6.5%	0.0%	2.2%	82.8	1.5	0.6	83	gal	1.5	58.7%
Mushrooms (unspecified)	39.1%	39.1%	37.0%	8.7%	17.4%	119.0	2.2	0.9	119	gal	2.2	34.3%
Plantain	2.2%	2.2%	2.2%	0.0%	0.0%	1.2	0.0	0.0	1	gal	0.0	77.5%
Stinkweed	2.2%	2.2%	2.2%	0.0%	0.0%	1.2	0.0	0.0	1	gal	0.0	77.5%
Seaweed/kelp	**2.2%**	**2.2%**	**2.2%**	**0.0%**	**0.0%**	**4.7**	**0.1**	**0.0**	**1**		**0.0**	**77.5%**
Bladder wrack	2.2%	2.2%	2.2%	0.0%	0.0%	4.7	0.1	0.0	1	gal	0.0	77.5%
Wood	**78.3%**	**78.3%**	**78.3%**	**8.7%**	**26.1%**	**0.0**	**0.0**	**0.0**	**313**		**5.8**	**11.6%**
Wood (unspecified)	21.7%	21.7%	21.7%	0.0%	6.5%	0.0	0.0	0.0	30	cord	0.6	42.2%
Firewood	76.1%	76.1%	76.1%	8.7%	21.7%	0.0	0.0	0.0	282	cord	5.2	12.2%

Source ADF&G Division of Subsistence household surveys, 2013.

Note For small land mammals, species that are not typically eaten show a non-zero harvest quantity with a zero harvest weight. Harvest weight is not calculated for species harvested but not eaten.

a. Summary rows that include incompatible units of measure have been left blank.

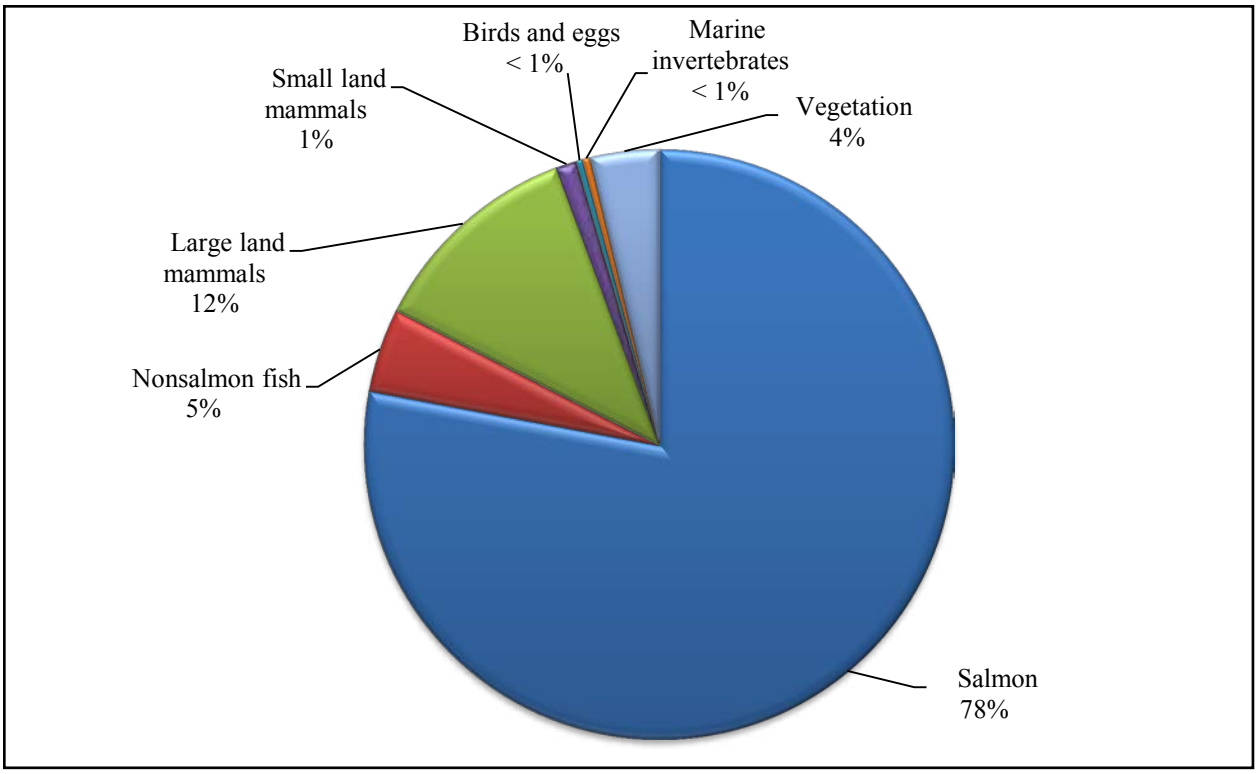

Figure 5-7.–Composition of harvest by resource category in pounds usable weight, Chitina, 2012.

harvested resource in the community—salmon. In mid-May, Chinook salmon are the first salmon to arrive in the Copper River watershed, followed quickly by sockeye salmon. Salmon fishing starts in earnest by the beginning of June and continues through the coho run lasting into September. Most residents harvest their salmon by fish wheel or, less often, by rod and reel or dip net. Some residents may travel to Valdez for rod and reel fishing for coho and pink salmon later in the season.

Nonsalmon freshwater fish are harvested throughout the year and across a large area extending east of Chitina and as far north as the Chistochina area along Glenn Highway–Tok Cutoff. For some families, freshwater fish precedes salmon as the first resource harvested for the summer season. Once the ice clears from local lakes and streams, residents may target freshwater fish as early as May using rod and reel. Harvest locations for this type of fishing include Strelna, Silver, and Van lakes. Many kinds of nonsalmon fish are also harvested during the fall, winter, and spring months by jigging through the ice.

Large land mammal hunting is an important fall activity that starts in August; depending on the resource and regulations, hunting effort can stretch through November with some opportunities existing for a spring harvest. During the study year most of the harvests took place between August and October with much of the effort taking place along the McCarthy Road, and Richardson, Edgerton, and Denali highways.

The majority of small land mammals are trapped for their fur during the winter months when snow is on

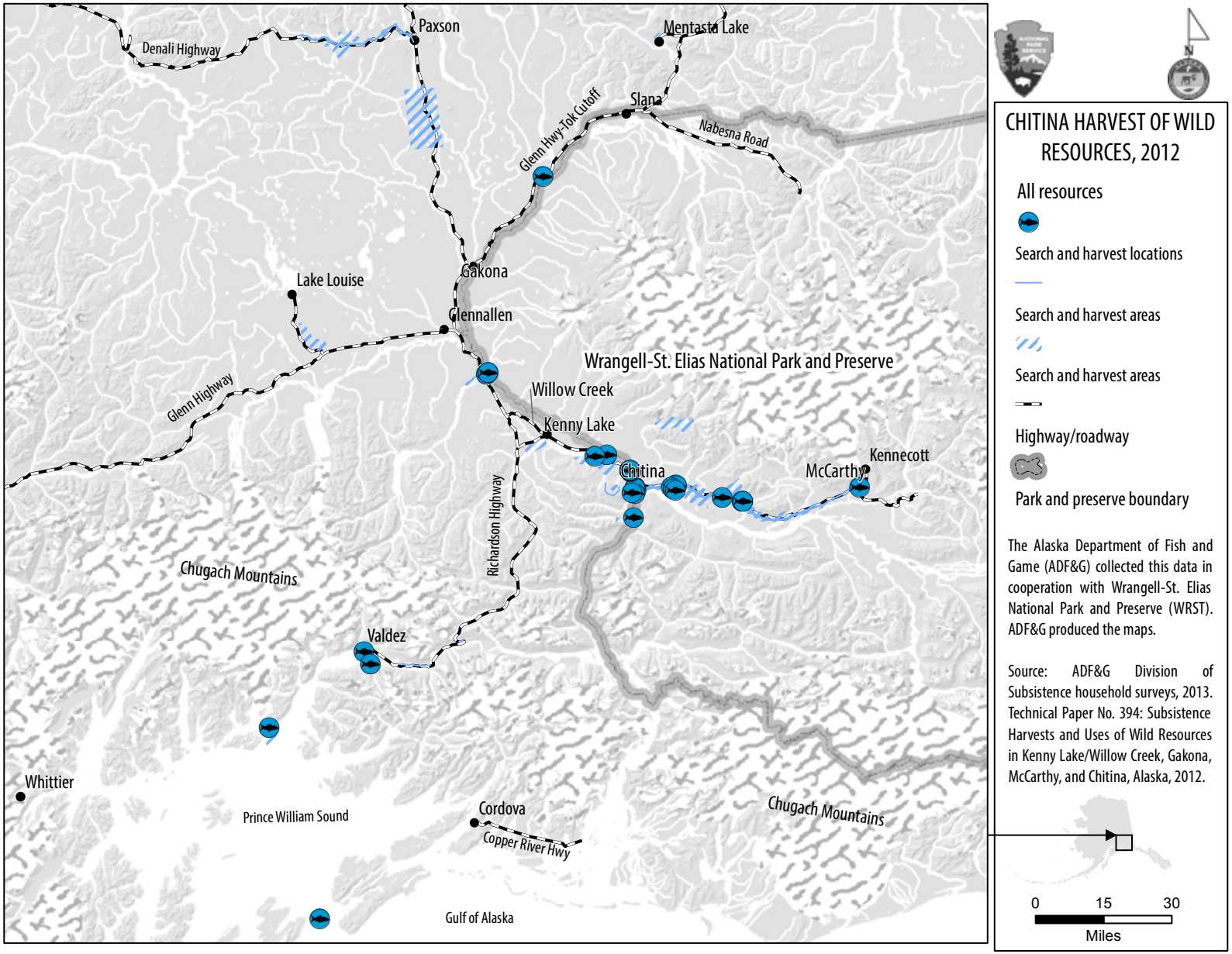

Figure 5-8.–Wild resources search and harvest areas, Chitina, 2012.

Table 5-13.–Top ranked resources harvested and used by households, Chitina, 2012.

Harvested			Used		
Rank[a]	Resource	Pounds per capita	Rank[a]	Resource	Percentage of households using
1.	Sockeye salmon	112.2	1.	Sockeye salmon	93.5%
2.	Chinook salmon	58.5	2.	Firewood	76.1%
3.	Caribou	18.2	3.	Moose	67.4%
4.	Coho salmon	18.1	4.	Chinook salmon	60.9%
5.	Moose	7.9	4.	Raspberry	60.9%
6.	Rainbow trout	5.3	6.	Blueberry	58.7%
7.	Blueberry	3.1	7.	Rainbow trout	52.2%
8.	Pink salmon	2.6	8.	Caribou	50.0%
9.	Brown bear	2.5	9.	Highbush cranberry	43.5%
10.	Pacific halibut	2.3	10.	Pacific halibut	41.3%

Source ADF&G Division of Subsistence household surveys, 2013.
a. Resources used by the same percentage of households share the lowest rank value instead of having sequential rank values.

the ground but others are harvested for their meat as well as their fur throughout the year. An average trapping season most commonly extends from November through February depending on the snow conditions and the quality of the fur the trappers are harvesting.

Migratory birds and upland game birds are both harvested at different times throughout the year. Waterfowl are hunted in the spring but are most often harvested in the summer, while upland game birds are harvested opportunistically throughout the year while hunting for other resources.

Chitina residents harvest plants, mushrooms, and berries during spring, summer, and fall. For example, stinkweed or wormwood is sought during the spring; mushrooms, rose hips, and yarrow are sought during the summer; blueberries, raspberries, currants, and salmonberries are gathered during late summer; and highbush and lowbush cranberries are gathered during fall. Harvesting firewood for home heating is an important year-round activity for Chitina residents.

Use and Harvest Characteristics by Resource Category

Estimates of sharing indicate that 87% of Chitina households received wild resources from other households and 74% of households gave resources away (Table 5-12). Fish, large land mammals, and vegetation were the most commonly shared resources. Fish were used by 96% of households, were given away by 63% of households, and received by 70% of households. Large land mammals were used by 76% of households, were given away by 41%, and received by 65% of households. Vegetation was used by 94%, was given away by 52% of households, and received by 35% of households.

Table 5-13 lists the top 10 ranked resources harvested, in terms of pounds per capita, and the 10 ranked

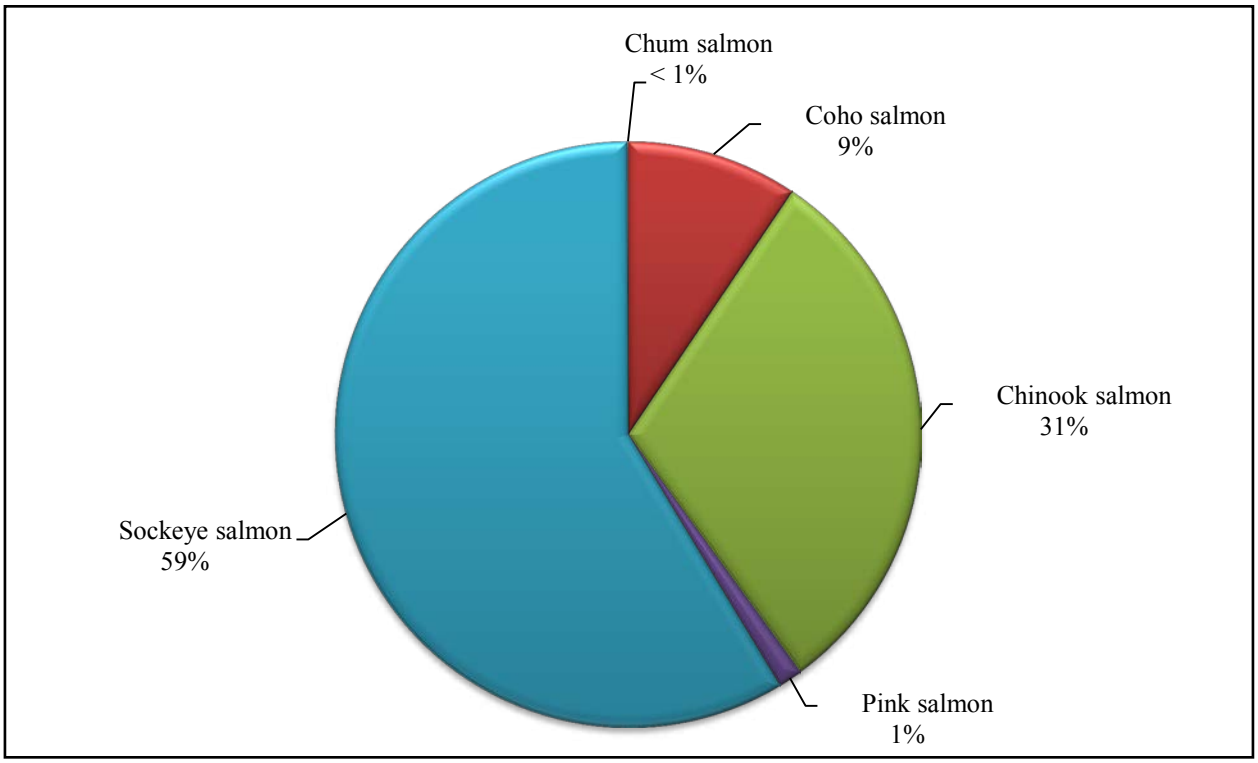

Figure 5-9.–Composition of salmon harvest in pounds usable weight, Chitina, 2012.

most used resources by Chitina households during the 2012 study year. Sockeye salmon made the largest contribution to Chitina's 2012 wild resource harvest (112 lb per capita) followed by Chinook salmon (59 lb per capita), and caribou and coho salmon (both at 18 lb per capita). Of all the available resources, sockeye salmon was the most used by Chitina residents (used by 94% of households) followed by firewood (76%), moose (67%), Chinook salmon (61%), raspberries (61%), and blueberries (59%). Of note, fish species were 6 of the ranked top 10 most harvested resources (sockeye salmon, Chinook salmon, coho salmon, rainbow trout, pink salmon, and Pacific halibut), but only 4 of the ranked most used resources (sockeye salmon, Chinook salmon, rainbow trout, and Pacific halibut). Pacific halibut, while contributing less (2 lb per capita) to the community harvest than coho salmon (18 lb per capita), was used in more households (42%) than coho salmon, which did not make the list of most used resources. This is due in large part to a greater network of sharing and preference for Pacific halibut.

Salmon

For Chitina residents, salmon composed 78% of the wild resource harvest in pounds usable weight in 2012 (Figure 5-7). The composition of the salmon harvest was a follows: 59% sockeye salmon (15,021 lb, or 112 lb per capita); 31% Chinook salmon (7,835 lb, or 59 lb per capita); 9% coho salmon (2,423 lb, or 18 lb per capita); and 1% pink salmon (342 lb, or 3 lb per capita) (Figure 5-9; Table 5-12).

In 2012, fish wheels were used to harvest an estimated 91% of the salmon harvest in pounds, dip nets were used to harvest about 6% of the salmon harvest, and rod and reel were used to harvest 2% of the total salmon harvest weight (Table 5-14). Of all the salmon taken by dip net, 58% (of the harvest in pounds) was Chinook salmon.

During 2012, 94% of Chitina households used salmon, 63% harvested salmon, 61% shared salmon, and 59% received salmon (Table 5-12). Sockeye salmon, Chinook salmon, and coho salmon were the primary salmon species used by Chitina residents. During 2012, 94% of households used sockeye salmon, 61% of households used Chinook salmon, and 22% of households used coho salmon. While the pink salmon harvest (336 lb) was more than for landlocked salmon (18 lb), more households used landlocked salmon, indicating that the pink salmon were harvested and used by a single household.

During the 2012 study year, Chitina residents reported harvesting sockeye salmon in the Copper River near Chitina Airport and near the mouths of the Klutina River, Chitina River, and Haley Creek (Figure 5-10). Chinook salmon were harvested in the Copper River near Chitina Airport and close to the mouths of the Klutina and Chitina rivers. Coho salmon were harvested in the Copper River near Chitina Airport, close to the mouth of the Chitina River, and by rod and reel in the Valdez inlet area. Additionally, pink salmon were harvested by rod and reel in the Valdez inlet area.

Nonsalmon Fish

In 2012, Chitina residents harvested an estimated total of 1,504 lb, or 11 lb per capita, of nonsalmon fish (Table 5-12). Nonsalmon fish composed 5% of the wild resource harvest in pounds usable weight in 2012 (Figure 5-7). In terms of total pounds and percentages harvested, most of the harvest was rainbow trout (714 lb, or 5 lb per capita), Pacific halibut (304 lb, or 2 lb per capita), whitefishes (213 lb, or 2 lb per capita), Dolly Varden (72 lb, or less than 1 lb per capita), and Arctic grayling (71 lb, or less than 1 lb per capita); combined these species composed 91% of the nonsalmon fish harvest (Table 5-12; Figure 5-11). Chitina residents also harvested burbot, lake trout, lingcod, unspecified rockfish species, and steelhead.

Table 5-14.–Estimated percentages of salmon harvested by gear type, resource, and total salmon harvest, Chitina, 2012.

				Subsistence methods											
	Percentage	Removed from commercial catch		Fish wheel		Dip net		Other		Subsistence gear, any method		Rod and reel		Any method	
Resource	base	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Salmon	**Gear type**	**0.0%**	**0.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
	Resource	**0.0%**	**0.0%**	**90.7%**	**91.3%**	**4.7%**	**6.1%**	**0.1%**	**0.1%**	**95.5%**	**97.6%**	**4.5%**	**2.4%**	**100.0%**	**100.0%**
	Total	**0.0%**	**0.0%**	**90.7%**	**91.3%**	**4.7%**	**6.1%**	**0.1%**	**0.1%**	**95.5%**	**97.6%**	**4.5%**	**2.4%**	**100.0%**	**100.0%**
Chum salmon	Gear type	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%
	Resource	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	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%
Coho salmon	Gear type	0.0%	0.0%	10.1%	10.0%	0.0%	0.0%	100.0%	100.0%	9.8%	9.5%	3.8%	6.9%	9.5%	9.4%
	Resource	0.0%	0.0%	96.7%	96.7%	0.0%	0.0%	1.5%	1.5%	98.2%	98.2%	1.8%	1.8%	100.0%	100.0%
	Total	0.0%	0.0%	9.2%	9.1%	0.0%	0.0%	0.1%	0.1%	9.3%	9.3%	0.2%	0.2%	9.5%	9.4%
Chinook salmon	Gear type	0.0%	0.0%	12.0%	29.5%	30.7%	58.4%	0.0%	0.0%	12.9%	31.2%	0.6%	2.9%	12.3%	30.6%
	Resource	0.0%	0.0%	88.1%	88.1%	11.7%	11.7%	0.0%	0.0%	99.8%	99.8%	0.2%	0.2%	100.0%	100.0%
	Total	0.0%	0.0%	10.9%	26.9%	1.4%	3.6%	0.0%	0.0%	12.3%	30.5%	0.0%	0.1%	12.3%	30.6%
Pink salmon	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	63.3%	54.7%	2.8%	1.3%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.8%	1.3%	2.8%	1.3%
Sockeye salmon	Gear type	0.0%	0.0%	77.9%	60.5%	69.3%	41.6%	0.0%	0.0%	77.3%	59.2%	22.8%	32.7%	74.9%	58.6%
	Resource	0.0%	0.0%	94.3%	94.3%	4.3%	4.3%	0.0%	0.0%	98.6%	98.6%	1.4%	1.4%	100.0%	100.0%
	Total	0.0%	0.0%	70.6%	55.2%	3.3%	2.5%	0.0%	0.0%	73.9%	57.8%	1.0%	0.8%	74.9%	58.6%
Landlocked salmon	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.5%	2.8%	0.5%	0.1%
	Resource	0.0%	0.0%	6.3%	6.3%	0.0%	0.0%	0.0%	0.0%	6.3%	6.3%	93.8%	93.8%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.1%	0.5%	0.1%
Salmon (unspecified)	Gear type	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%
	Resource	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	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, 2013.

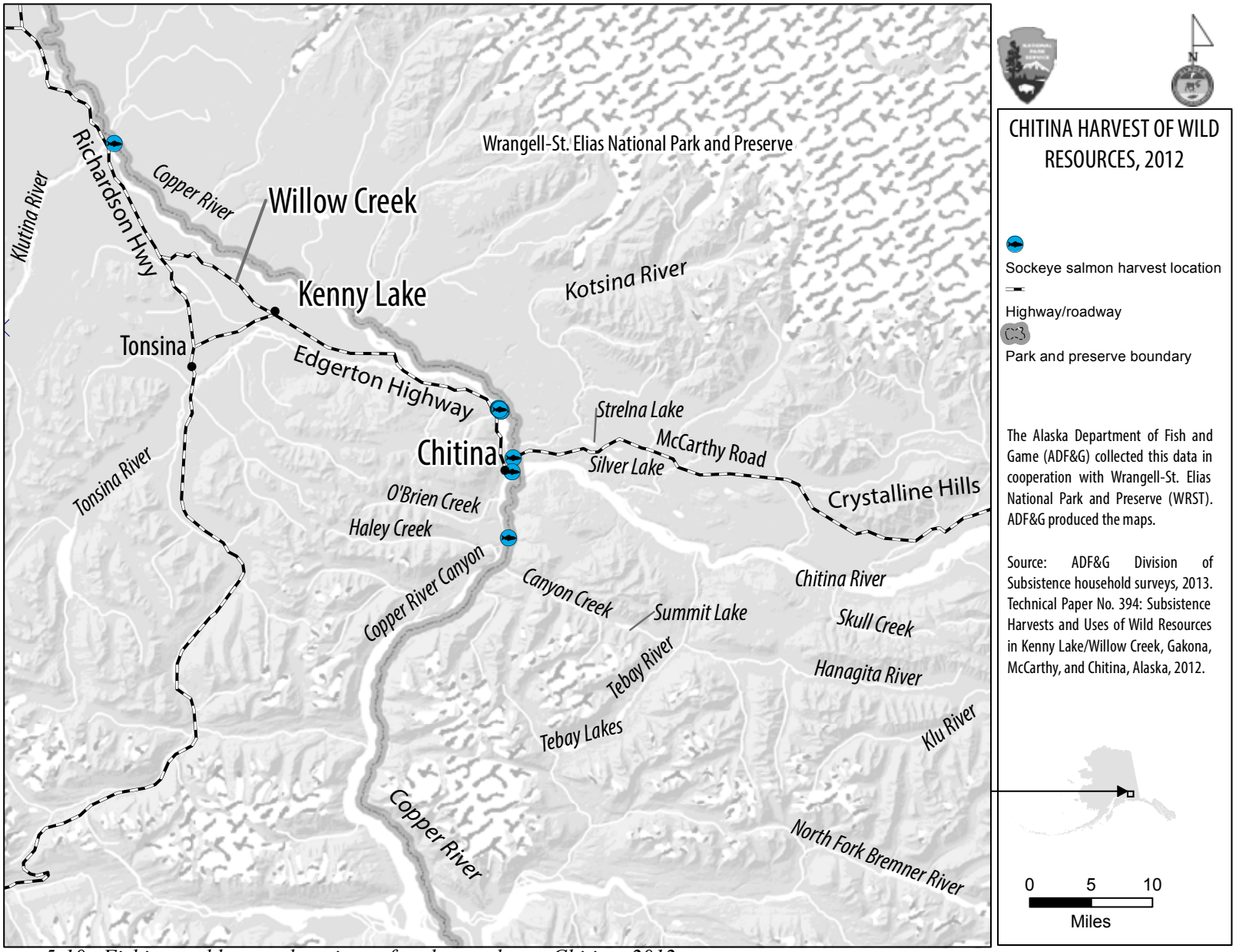

Figure 5-10.–Fishing and harvest locations of sockeye salmon, Chitina, 2012.

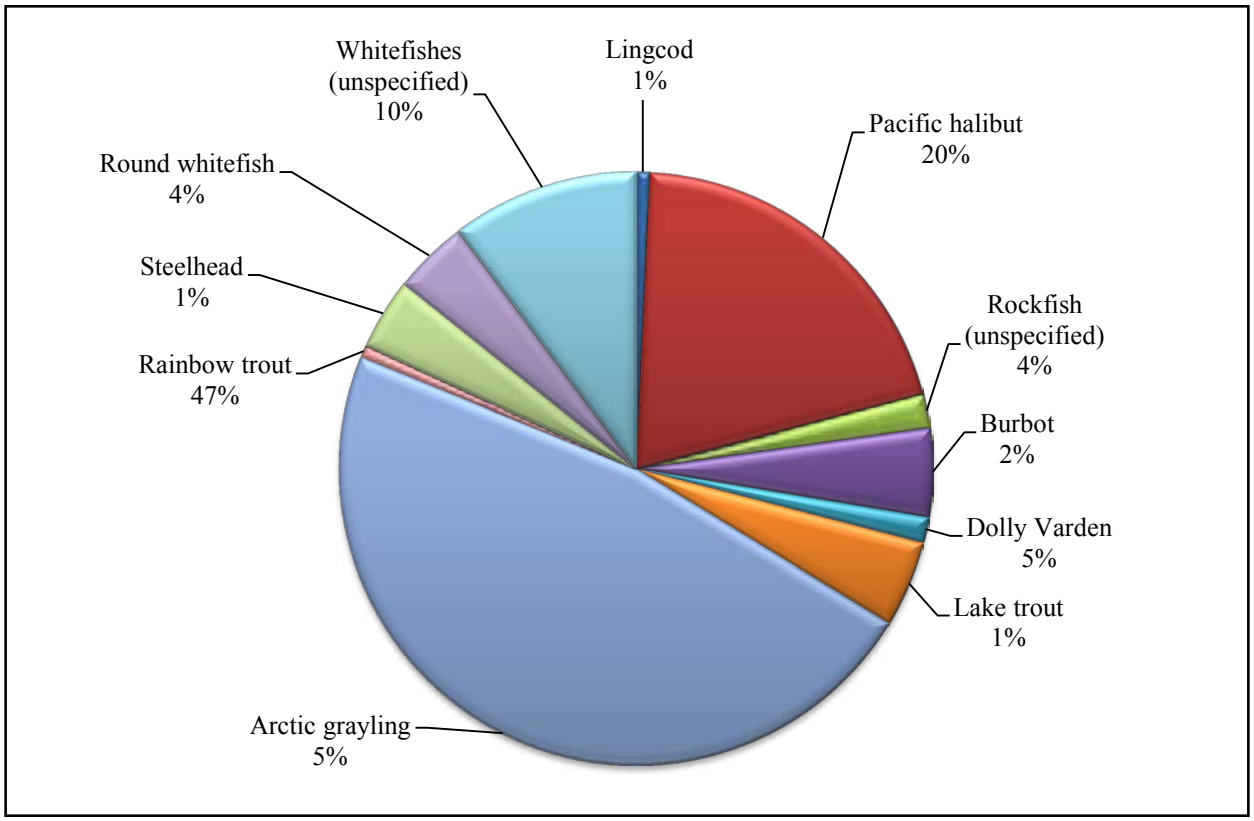

Figure 5-11.–Composition of nonsalmon fish harvest in pounds usable weight, Chitina, 2012.

Table 5-15 lists the number and pounds of each nonsalmon fish species harvested by Chitina residents in 2012 in percentages by gear type. Chitina residents harvested most of their nonsalmon fish (74% of fish) with rod and reel. Some of the harvests were accomplished by jigging through the ice, using baited setlines, and with using fish spears for species such as Arctic grayling, burbot, Dolly Varden, unspecified species of whitefishes, and rainbow trout.

During 2012, 74% of Chitina households used nonsalmon fish, 52% harvested nonsalmon fish, 20% shared nonsalmon fish, and 44% received nonsalmon fish (Table 5-12). Pacific halibut, harvested non-locally, was the primary nonsalmon fish shared with 39% of Chitina households having received halibut from other households.

During the 2012 study year, Chitina respondents reported harvesting rainbow trout in Silver Lake (Figure 5-12). Lake trout were reportedly harvested in Strelna and Silver lakes. Chitina residents traveled to Valdez to harvest Pacific halibut and unspecified rockfish species in Prince William Sound.

Table 5-15.–Estimated percentages of nonsalmon fish harvested by gear type, resource, and total nonsalmon fish harvest, Chitina, 2012

				Subsistence methods									
		Removed from commercial catch		Ice fishing or jigging through the ice		Other		Subsistence gear, any method		Rod and reel[a]		Any method	
Resource	Percentage base	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Nonsalmon fish	**Gear type**	**0.0%**	**0.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
	Resource	**0.0%**	**0.0%**	**24.8%**	**29.1%**	**0.9%**	**0.7%**	**25.7%**	**29.8%**	**74.3%**	**70.2%**	**100.0%**	**100.0%**
	Total	**0.0%**	**0.0%**	**24.8%**	**29.1%**	**0.9%**	**0.7%**	**25.7%**	**29.8%**	**74.3%**	**70.2%**	**100.0%**	**100.0%**
Pacific herring	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Smelt	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pacific (gray) cod	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pacific tomcod	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Starry flounder	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Lingcod	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	1.1%	0.4%	0.7%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.7%	0.4%	0.7%
Pacific halibut	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	34.5%	28.8%	25.6%	20.2%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	25.6%	20.2%	25.6%	20.2%
Arctic lamprey	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Rockfish (unspecified)	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.7%	5.8%	1.3%	4.1%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	4.1%	1.3%	4.1%

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Table 5-15.–Page 2 of 3.

				Subsistence methods									
		Removed from commercial catch		Ice fishing or jigging through the ice		Other		Subsistence gear, any method		Rod and reel[a]		Any method	
Resource	Percentage base	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Burbot	Gear type	0.0%	0.0%	2.8%	4.5%	11.1%	25.0%	3.1%	5.0%	0.3%	0.5%	1.0%	1.9%
	Resource	0.0%	0.0%	70.0%	70.0%	10.0%	10.0%	80.0%	80.0%	20.0%	20.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.7%	1.3%	0.1%	0.2%	0.8%	1.5%	0.2%	0.4%	1.0%	1.9%
Dolly Varden	Gear type	0.0%	0.0%	4.0%	2.4%	88.9%	75.0%	6.9%	4.2%	6.7%	5.0%	6.7%	4.8%
	Resource	0.0%	0.0%	14.7%	14.7%	11.8%	11.8%	26.5%	26.5%	73.5%	73.5%	100.0%	100.0%
	Total	0.0%	0.0%	1.0%	0.7%	0.8%	0.6%	1.8%	1.3%	5.0%	3.5%	6.7%	4.8%
Lake trout	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.2%	2.0%	0.9%	1.4%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	1.4%	0.9%	1.4%
Arctic grayling	Gear type	0.0%	0.0%	4.0%	1.9%	0.0%	0.0%	3.8%	1.8%	10.1%	5.9%	8.5%	4.7%
	Resource	0.0%	0.0%	11.6%	11.6%	0.0%	0.0%	11.6%	11.6%	88.4%	88.4%	100.0%	100.0%
	Total	0.0%	0.0%	1.0%	0.5%	0.0%	0.0%	1.0%	0.5%	7.5%	4.2%	8.5%	4.7%
Northern pike	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Longnose sucker	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cutthroat trout	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Rainbow trout	Gear type	0.0%	0.0%	59.4%	56.0%	0.0%	0.0%	57.3%	54.6%	38.0%	44.4%	43.0%	47.4%
	Resource	0.0%	0.0%	34.3%	34.3%	0.0%	0.0%	34.3%	34.3%	65.7%	65.7%	100.0%	100.0%
	Total	0.0%	0.0%	14.8%	16.3%	0.0%	0.0%	14.8%	16.3%	28.2%	31.2%	43.0%	47.4%
Steelhead	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.9%	0.2%	0.7%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.7%	0.2%	0.7%
Trout (unspecified)	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Broad whitefish	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

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Table 5-15.–Page 3 of 3.

				Subsistence methods									
		Removed from commercial catch		Ice fishing or jigging through the ice		Other		Subsistence gear, any method		Rod and reel[a]		Any method	
Resource	Percentage base	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Least cisco	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Humpback whitefish	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Round whitefish	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.7%	5.6%	5.0%	3.9%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%	3.9%	5.0%	3.9%
Whitefishes (unspecified)	Gear type	0.0%	0.0%	29.9%	35.2%	0.0%	0.0%	28.8%	34.3%	0.0%	0.0%	7.4%	10.2%
	Resource	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	7.4%	10.2%	0.0%	0.0%	7.4%	10.2%	0.0%	0.0%	7.4%	10.2%

Source ADF&G Division of Subsistence household surveys, 2013.

a. Federal regulations recognize rod and reel as subsistence gear. Under state regulations, rod and reel fishing is governed under sport fishing regulations.

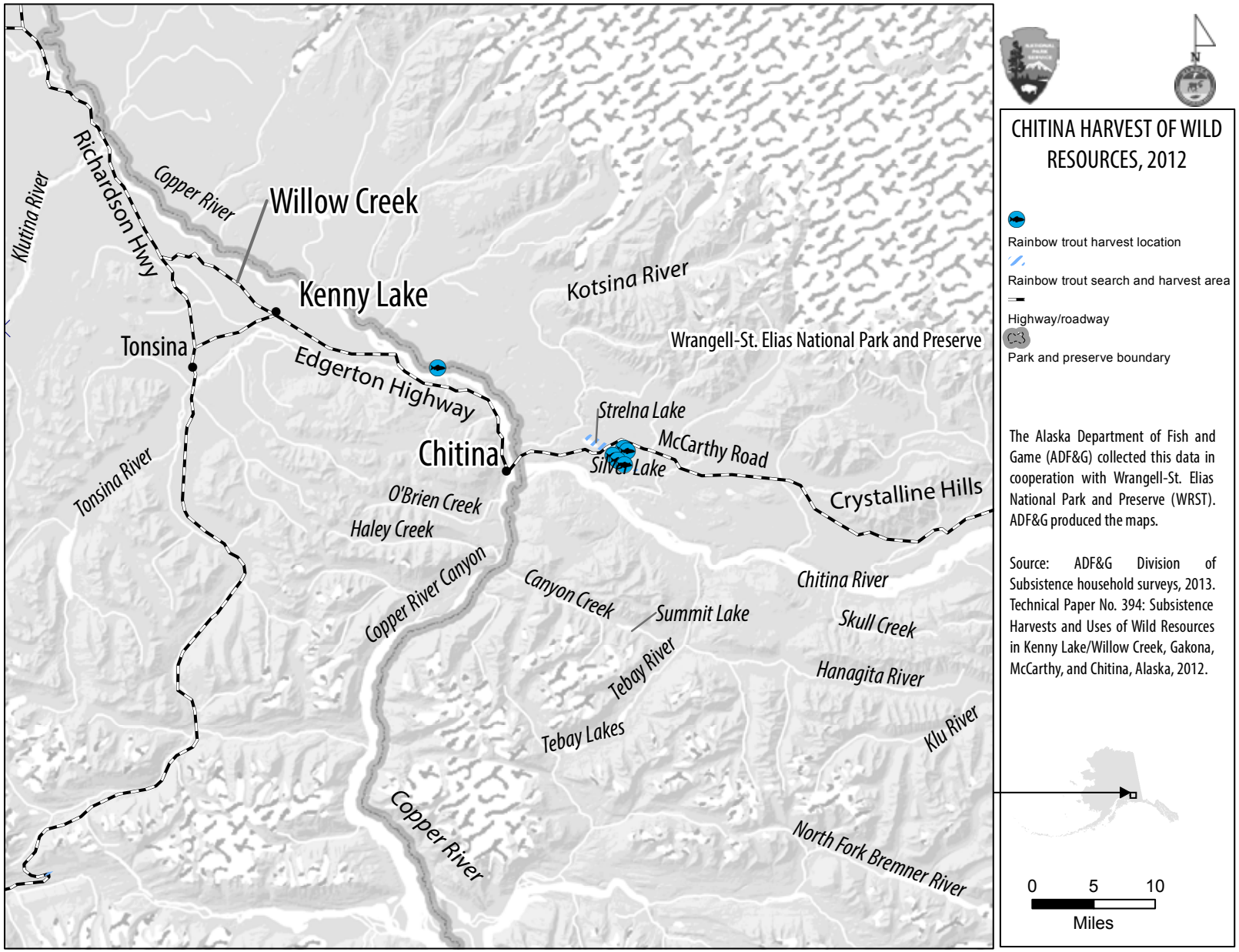


Figure 5-12.–Fishing and harvest locations of rainbow trout, Chitina, 2012.

Large Land Mammals

In 2012, large land mammals, predominately caribou, made up 12% of the total Chitina wild resource harvest by weight (Figure 5-7). Caribou, moose, brown bears, and black bears made up the composition of the large land mammal harvest for the community (Figure 5-13). Caribou provided 63% (2,442 lb) of the usable pounds of large land mammals harvested by Chitina households. Caribou was used by 50% of Chitina households (37% hunted caribou and 15% of community households were successful harvesters) (Table 5-12). According to the study, most of the successful caribou hunting took place during September and October. In September 2012, 3 caribou were harvested and in October 2012, 15 caribou were harvested (Table 5-16). Caribou was shared among Chitina households (37% received caribou from other households and 24% gave caribou away) (Table 5-12).

In 2012, Chitina households harvested an estimated 2 moose, which made up 27% (1,057 lb) of the usable harvest of large land mammals (Table 5-12; Figure 5-13). Both of the moose were harvested by Chitina households in September (Table 5-16). Moose were shared almost twice as much compared to caribou amongst Chitina households (63% of households received moose from other households and 22% of households gave moose away). This may point to the fact that moose are larger animals and it is common for hunters to team up and share the harvest among their family and community members.

In 2012, Chitina residents harvested an estimated 1 black bear and 2 brown bears (Table 5-16). Black bears were used by 9% of households and the brown bears used by 7% of households (Table 5-12). The single black bear harvest was in August; 1 brown bear was harvested in August and the other was harvested in October (Table 5-16). Brown bears made up 8% and black bears made up 2% of the usable pounds of large land mammals harvested by Chitina households (Figure 5-13).

During the 2012 study year, Chitina households reported searching for caribou along McCarthy Road and Edgerton Highway (Figure 5-14). Residents of Chitina also traveled in search of caribou along the Denali Highway and the Richardson Highway near Sourdough. Moose were hunted on McCarthy Road from just outside of Chitina to the Chokosna area and along the Denali and Richardson highways. Moose were also hunted within the drainages of the Kotsina River and Haley Creek. Black bears were hunted along McCarthy Road near Strelna and Silver lakes.

Small Land Mammals/Furbearers

The harvest and use of small land mammals is a traditional activity for Chitina residents, both for food and fur. There are a handful of active trappers among Chitina residents today and some households actively pursue small land mammals primarily for food, particularly snowshoe hares and beavers.

As listed in Table 5-12, the total harvest of small land mammals by Chitina residents in 2012 for food was 366 lb (3 lb per capita). The harvest of small land mammals composed approximately 1% of Chitina's

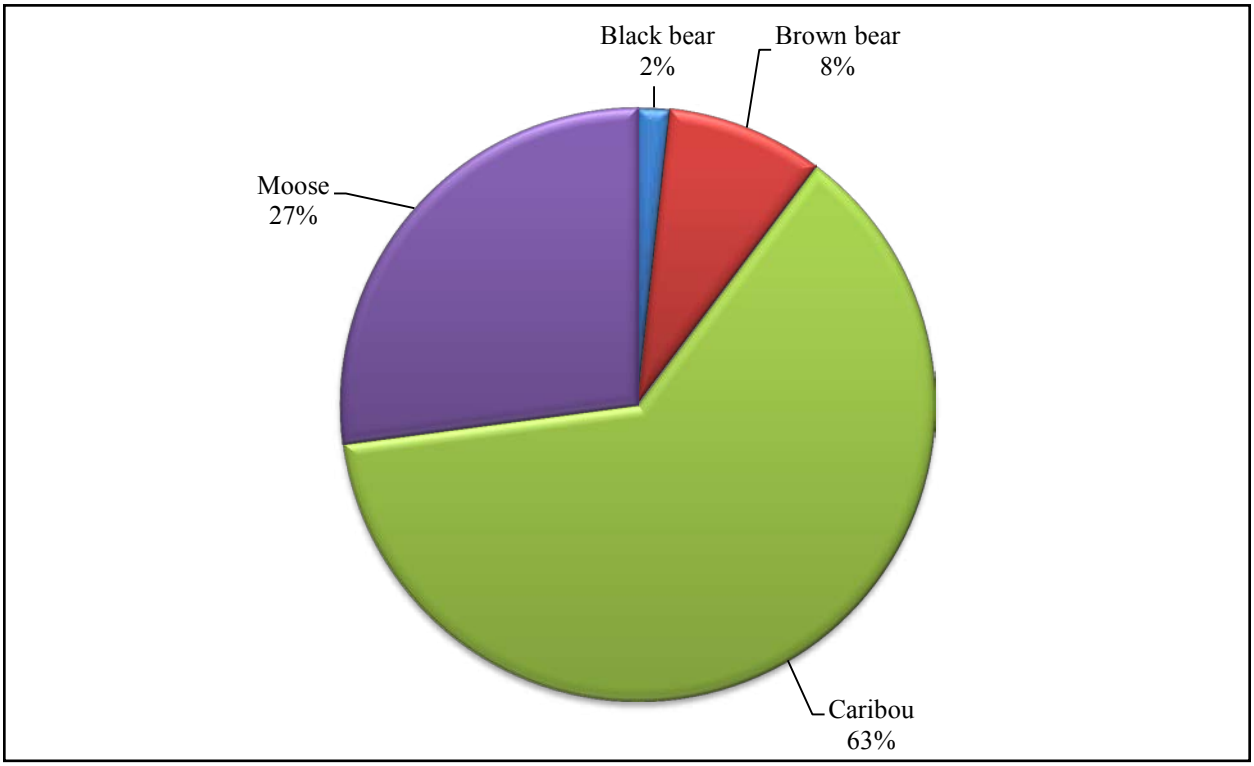


Figure 5-13.–Composition of large land mammal harvest in pounds usable weight, Chitina, 2012.

Table 5-16.–Estimated large land mammal harvests by month and sex, Chitina, 2012.

	Black	Brown	Dall	Caribou			Moose		
Harvest month	bear	bear	sheep	Total	Male	Female	Total	Male	Female
January	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
February	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
March	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
April	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
June	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
July	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
August	1.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
September	0.0	0.0	0.0	3.5	3.5	0.0	2.3	2.3	0.0
October	0.0	1.2	0.0	15.3	5.9	9.4	0.0	0.0	0.0
November	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
December	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unknown month	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total harvest	**1.2**	**2.3**	**0.0**	**18.8**	**9.4**	**9.4**	**2.3**	**2.3**	**0.0**

Source ADF&G Division of Subsistence household surveys, 2013.

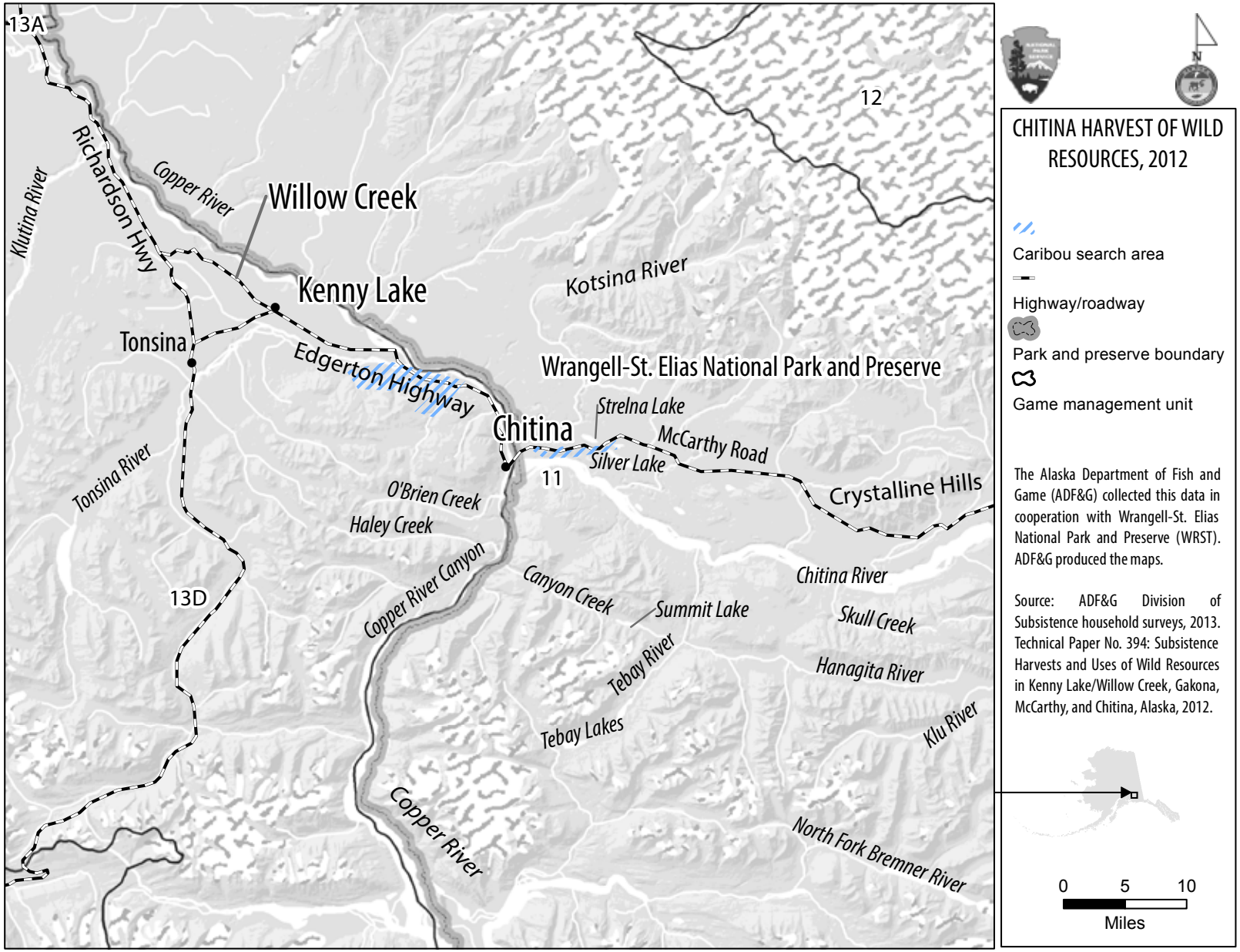


Figure 5-14.–Hunting locations of caribou, Chitina, 2012.

Table 5-17.–Estimated small land mammal/furbearer harvests by month, Chitina, 2012.

Species	January	February	March	April	May	June	July	August	September	October	November	December	Unknown	**Total**
Small land mammals	**91.6**	**63.4**	**16.4**	**1.2**	**1.2**	**8.2**	**2.3**	**5.9**	**16.4**	**12.9**	**29.3**	**88.0**	**1.2**	**339.3**
Beaver	0.0	0.0	1.2	0.0	0.0	1.2	0.0	0.0	0.0	3.5	1.2	0.0	0.0	**7.0**
Coyote	9.4	8.2	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	0.0	**28.2**
Red fox	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	3.5	0.0	**12.9**
Snowshoe hare	4.7	9.4	1.2	1.2	0.0	4.7	0.0	1.2	12.9	5.9	12.9	12.9	0.0	**66.9**
North American river (land) otter	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**
Lynx	25.8	17.6	2.3	0.0	0.0	0.0	0.0	0.0	3.5	2.3	2.3	20.0	0.0	**74.0**
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	17.6	17.6	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.6	0.0	**58.7**
Mink	3.5	2.3	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.0	**10.6**
Muskrat	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	**1.2**
Porcupine	0.0	0.0	0.0	0.0	1.2	2.3	2.3	3.5	0.0	0.0	0.0	0.0	0.0	**9.4**
Arctic ground (parka) 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	1.2	**1.2**
Red (tree) squirrel	11.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.7	1.2	**24.7**
Weasel	9.4	7.0	1.2	0.0	0.0	0.0	0.0	1.2	0.0	0.0	8.2	9.4	0.0	**36.4**
Gray wolf	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	**2.3**
Wolverine	3.5	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	**5.9**

Source ADF&G Division of Subsistence household surveys, 2013.

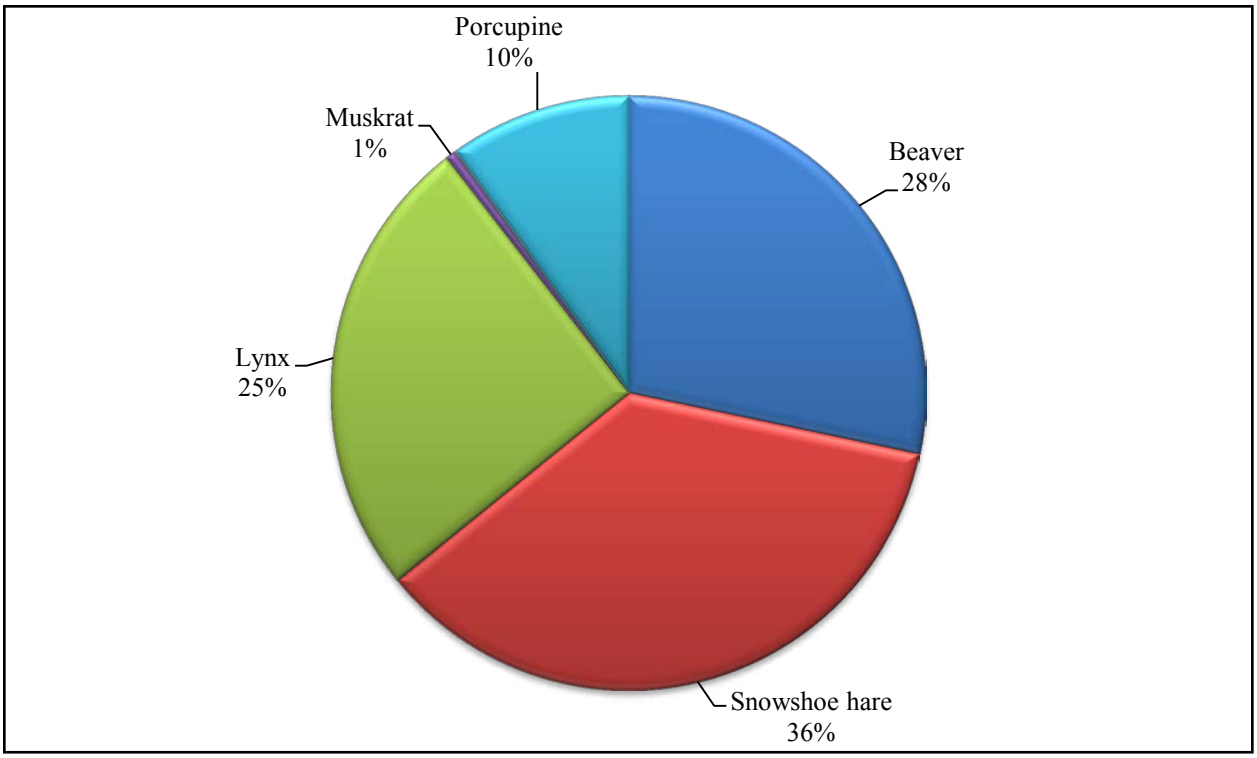


Figure 5-15.–Composition of small land mammal/furbearer harvest by pounds usable weight, Chitina, 2012.

total harvest of wild food resources in 2012 (Figure 5-7). The majority of Chitina's small land mammal food harvest came from snowshoe hares (131 lb), beavers (104 lb), and lynx (93 lb) (Table 5-12); these species were harvested mostly in the colder months, including January through March and September through December (Table 5-17). The species that contributed to wild food harvests were snowshoe hare (made up 36% of the total small mammal harvest), beaver (28%), lynx (25%), porcupine (10%), and muskrat (1%) (Figure 5-15). Furbearers such as coyotes, foxes, lynx, minks, martens, squirrels, weasels, gray wolves, and wolverines were also harvested—mostly for sale in the fur market (Figure 5-16).

The search and harvest areas for furbearers in 2012 included areas along the Edgerton Highway and McCarthy Road; west of Chitina in the Fivemile Creek drainage; northwest of Chitina near the confluence of the Tonsina and Copper rivers, south of McCarthy Road to Silver Lake; north side of Strelna Lake: and in the Chokosna River drainage (Figure 5-17).

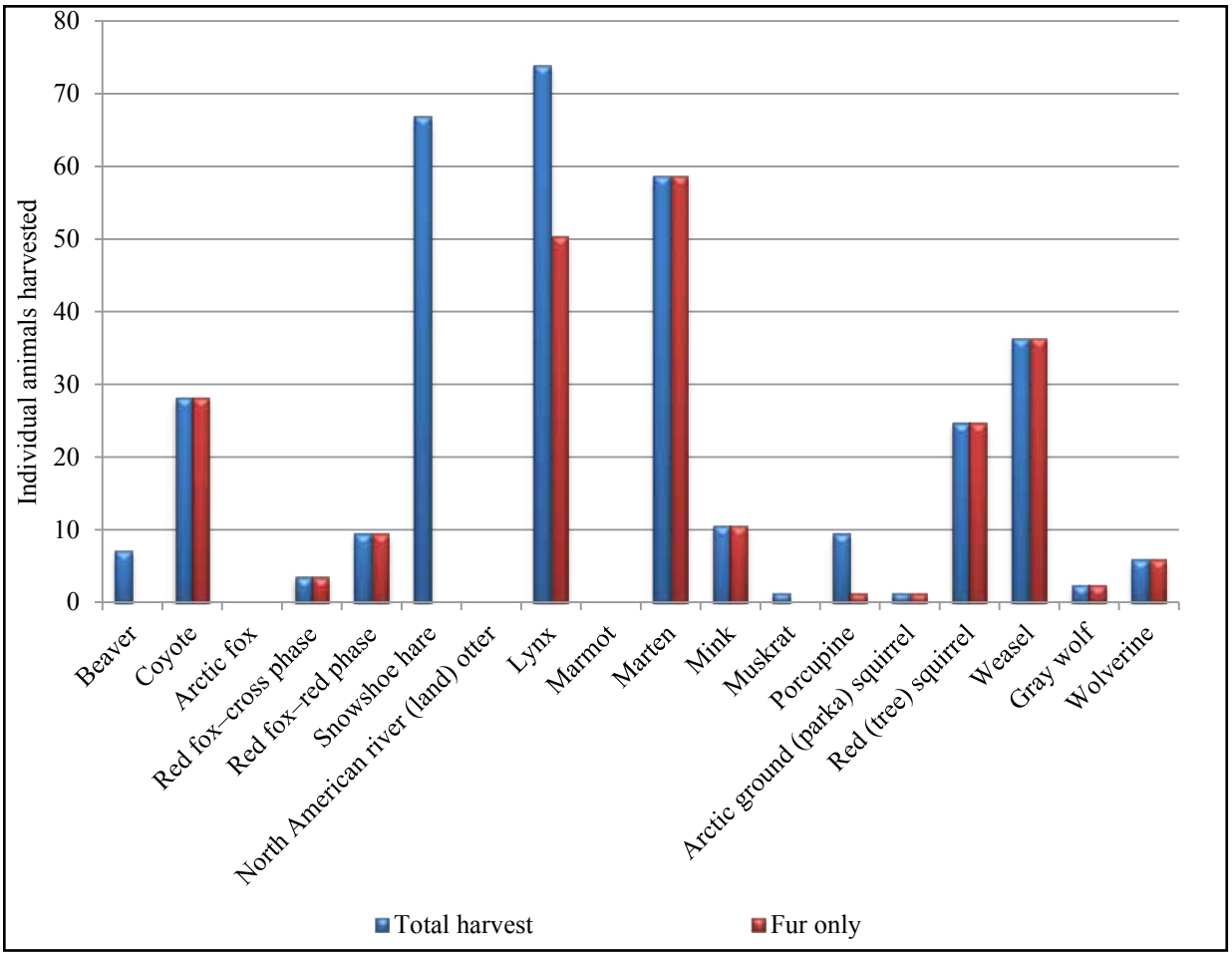


Figure 5-16.–Estimated small land mammal/furbearer harvests for fur and food only, Chitina, 2012.

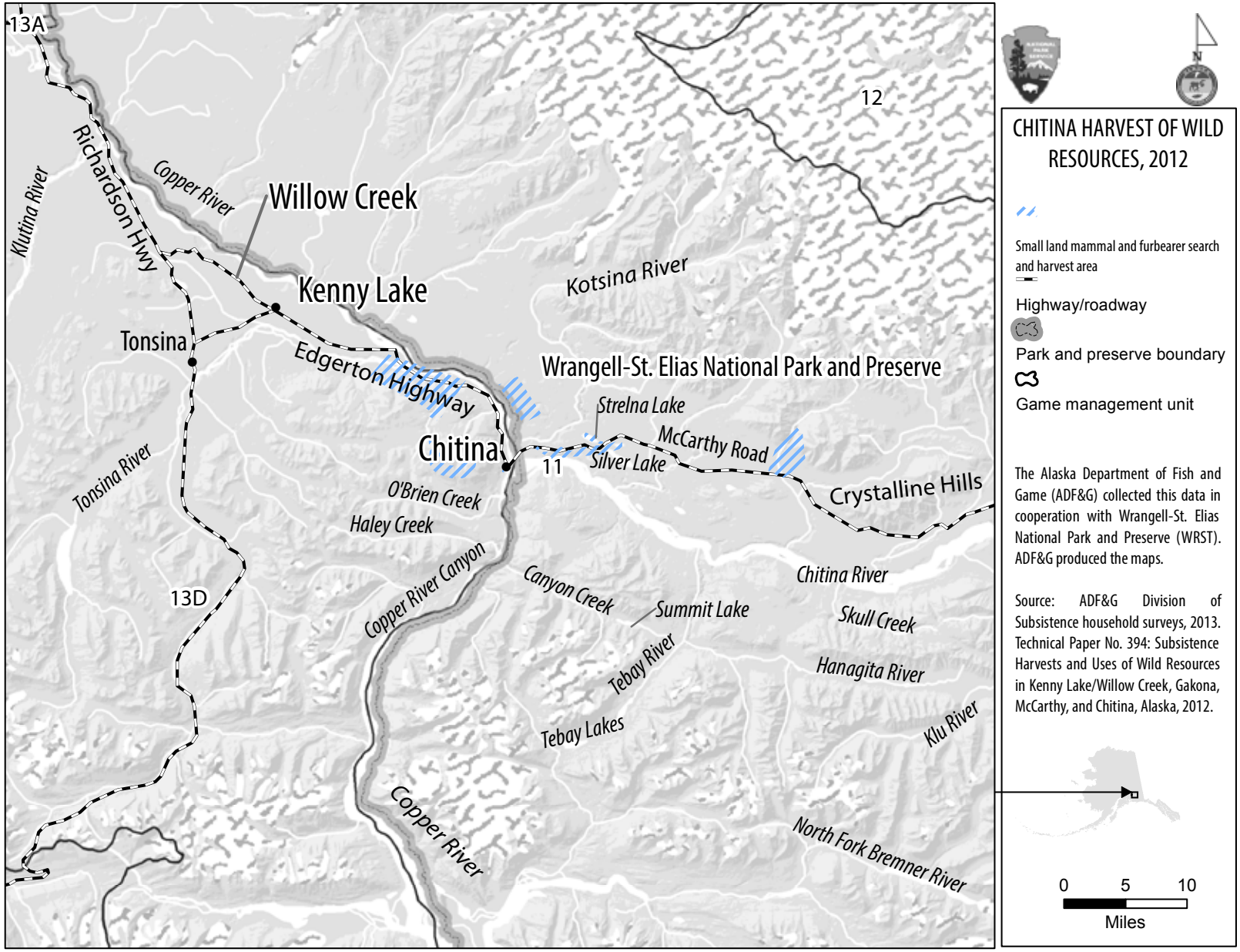


Figure 5-17.–Hunting locations of small land mammals/furbearers, Chitina, 2012.

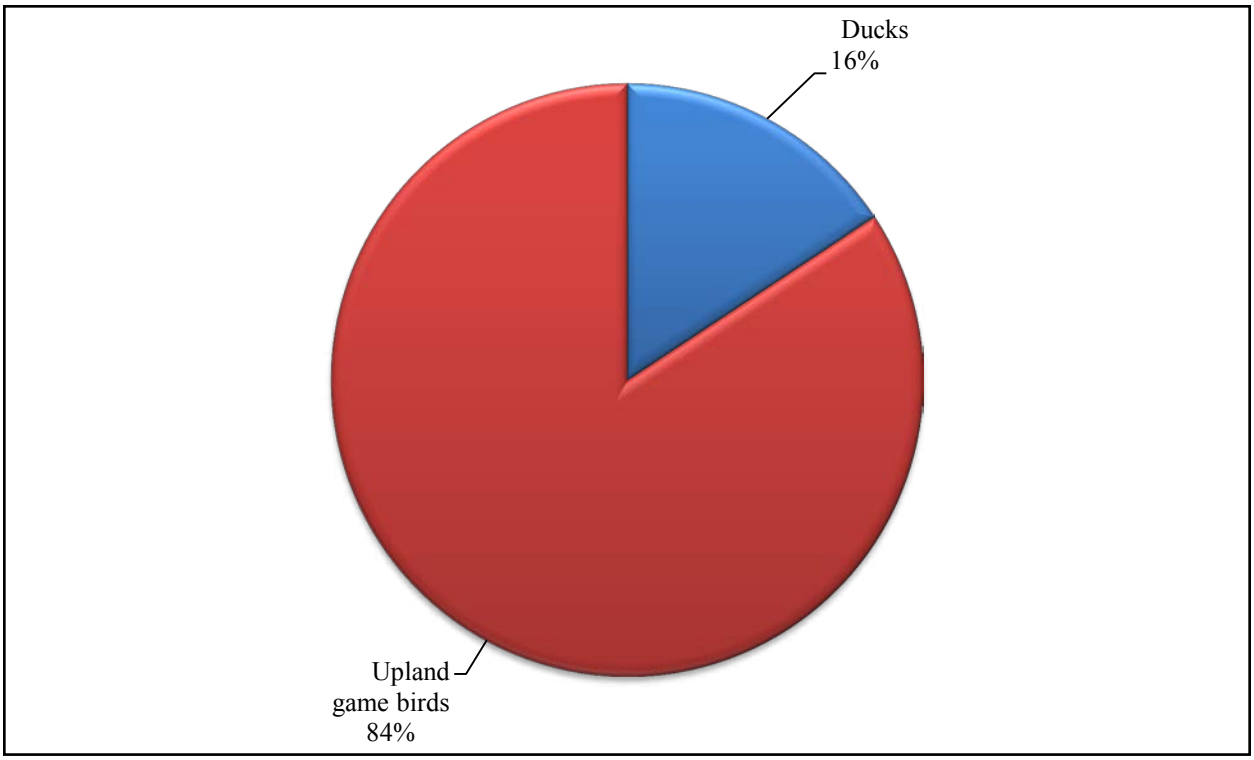


Figure 5-18.–Composition of bird harvests by type and individual bird harvest amount, Chitina, 2012.

Birds and Eggs

Birds were harvested and used by 35% of Chitina households (Table 5-12). The total harvest of upland game birds, which includes grouses and ptarmigan, was 93 lb, or a little less than 1 lb per capita. Upland game birds composed 84% of the total bird harvest (Figure 5-18). The total estimated harvest of migratory birds—all of which were ducks—was 17 lb (Table 5-12).

Spruce grouse accounted for most of the bird harvest by the community (82 lb), followed by ptarmigan (10 lb), mallards (9 lb), and unknown ducks (8 lb). These birds were harvested primarily in the summer months (Table 5-18).

In 2012, Chitina residents harvested upland game birds along the Denali Highway and McCarthy Road (Figure 5-19). Additionally, upland game birds were hunted for at the headwaters and in the drainage of Fivemile Creek. Migratory birds were hunted south of Chitina around the confluence of O'Brien Creek and the Copper River.

Marine Invertebrates

As listed in Table 5-12, the total harvest of marine invertebrates by Chitina residents in 2012 was made up of shrimp (115 lb, or about 1 lb per capita), Dungeness crab (14 lb), and king crab (7 lb). Marine invertebrates were used by 11% of households and were harvested in the Prince William Sound area.

Table 5-18.–Estimated bird harvests by season, Gakona, 2012.

	Estimated harvest by season				
Resource	Winter	Spring	Summer	Fall	Season unknown
Canvasback	0.0	0.0	0.0	0.0	0.0
Spectacled eider	0.0	0.0	0.0	0.0	0.0
Goldeneye	0.0	0.0	0.0	0.0	0.0
Mallard	0.0	0.0	9.4	0.0	0.0
Northern pintail	0.0	0.0	0.0	0.0	0.0
Black scoter	0.0	0.0	0.0	0.0	0.0
Green-winged teal	0.0	0.0	0.0	0.0	0.0
Unknown ducks	0.0	0.0	11.7	0.0	0.0
Brant	0.0	0.0	0.0	0.0	0.0
Cackling goose	0.0	0.0	0.0	0.0	0.0
Canada goose	0.0	0.0	0.0	0.0	0.0
Unknown Canada/cackling goose	0.0	0.0	0.0	0.0	0.0
Emperor goose	0.0	0.0	0.0	0.0	0.0
Snow goose	0.0	0.0	0.0	0.0	0.0
White-fronted goose	0.0	0.0	0.0	0.0	0.0
Unknown geese	0.0	0.0	0.0	0.0	0.0
Tundra (whistling) swan	0.0	0.0	0.0	0.0	0.0
Sandhill crane	0.0	0.0	0.0	0.0	0.0
Spruce grouse	29.3	2.3	65.7	22.3	0.0
Ptarmigan	1.2	0.0	14.1	5.9	0.0
Duck eggs	0.0	0.0	0.0	0.0	0.0
Goose eggs	0.0	0.0	0.0	0.0	0.0
Gull eggs	0.0	0.0	0.0	0.0	0.0
Unknown eggs	0.0	0.0	0.0	0.0	0.0
Total harvest	**30.5**	**2.3**	**101.0**	**28.2**	**0.0**

Source ADF&G Division of Subsistence household surveys, 2013.

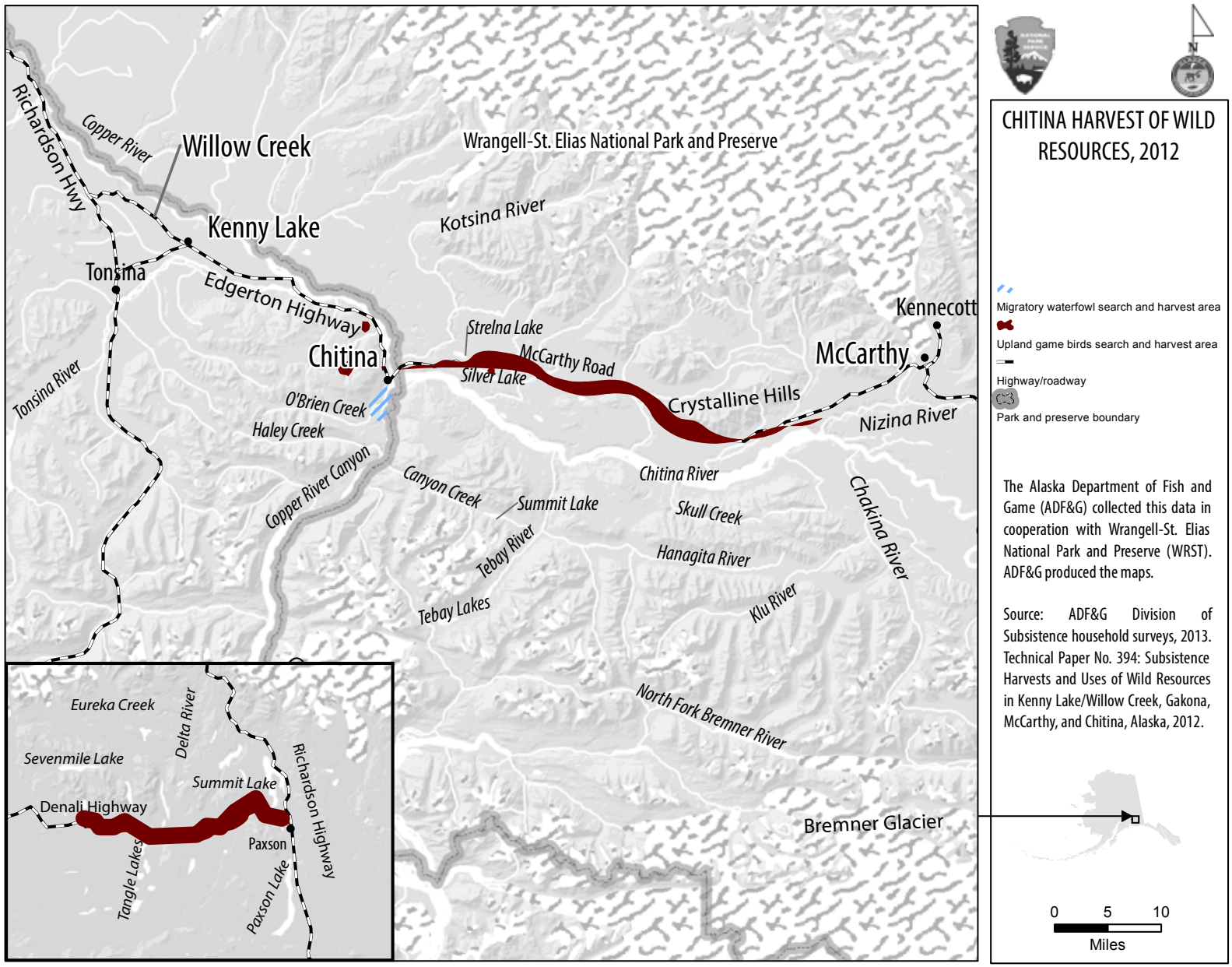


Figure 5-19.–Hunting and harvest locations of migratory waterfowl and upland game birds, Chitina, 2012.

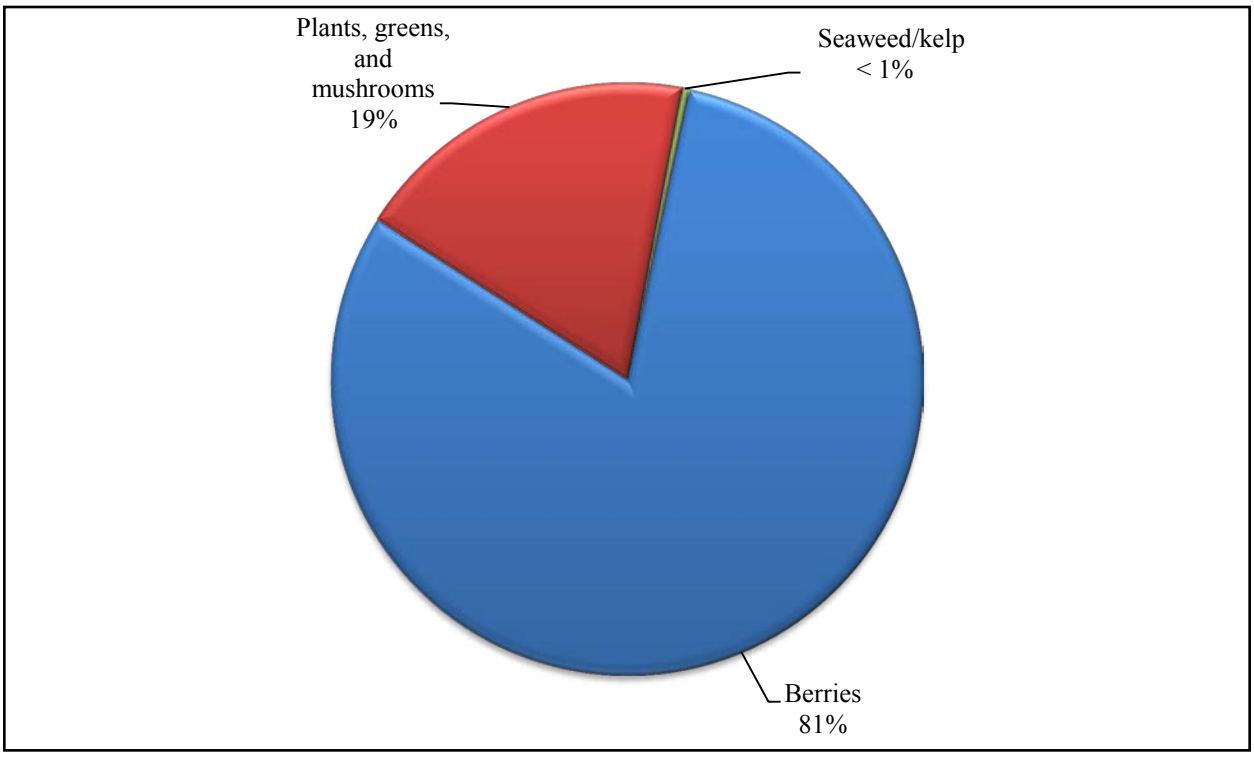


Figure 5-20.–Composition of vegetation harvest by type and pounds usable weight, Chitina, 2012.

Vegetation

The majority (94%) of households in Chitina used vegetation during the 2012 study year (Table 5-12). Firewood was harvested and used by 76% households to heat homes and 44% of the sampled households relied on firewood for all of their heat (Table 5-12; Table 5-11).

In 2012, Chitina residents harvested 1,213 lb, or 9 lb per capita, of edible vegetation (Table 5-12). Harvested edible vegetation consisted of: a total of 979 lb, or 8 lb per capita, of berries; a total of 229 lb, or 2 lb per capita of plants, greens, and mushrooms; and a total of 5 lb of seaweed/kelp (Table 5-12; Figure 5-20). Berries were used by 85% of households and harvested by 83% of households with the largest portion of the harvest coming from blueberries (414 lb), raspberries (228 lb), and highbush cranberries (180 lb). Plants, greens, and mushrooms were used by 46% percent of households and were harvested by 44% of households with the largest portion of the harvest coming from unspecified mushrooms (117 lb), other wild greens (81 lb), and wild rose hips (28 lb).

Berries were harvested in Chitina proper, south of town toward O'Brien Creek, and east of town along McCarthy Road (Figure 5-21). Along McCarthy Road households harvested plants and berries on the south side of the road between Copper River and Silver Lake, and along the Chokosna River north of the road. Berries were also harvested along the Denali Highway. Firewood was harvested along McCarthy Road between Chitina and the confluence for the Nizina and Chitina rivers (Figure 5-22). Firewood was also harvested on

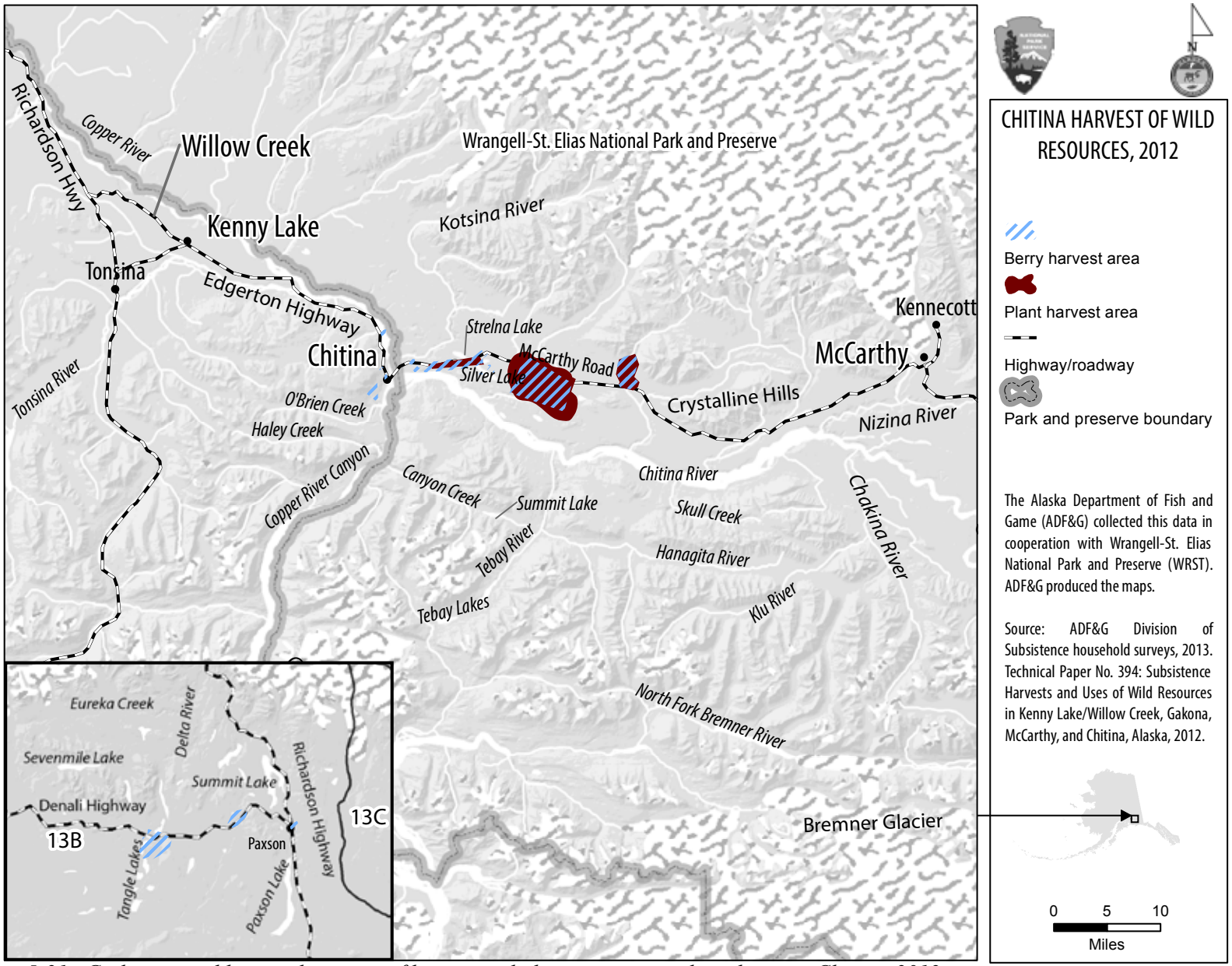


Figure 5-21.–Gathering and harvest locations of berries and plants, greens, and mushrooms, Chitina, 2012.

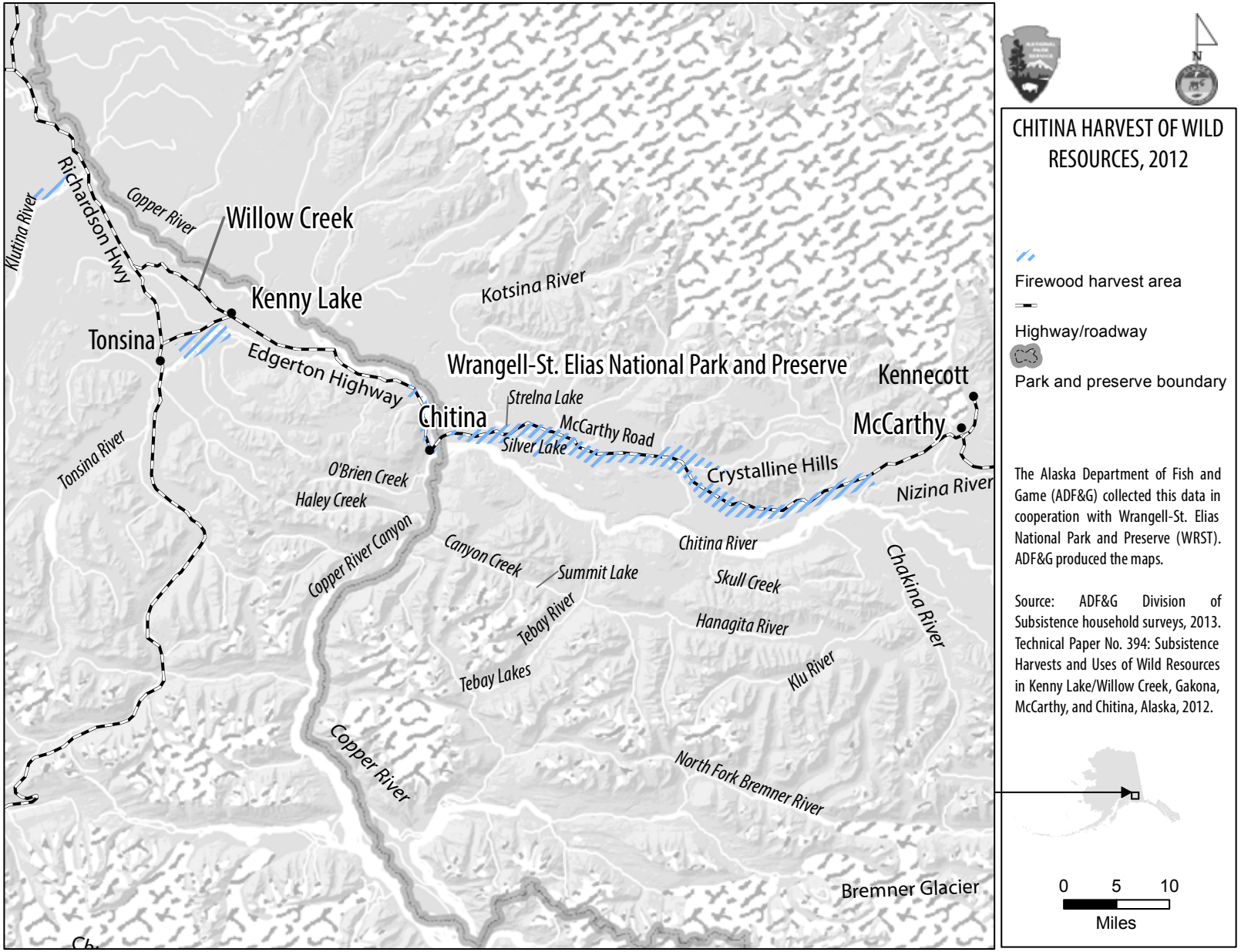


Figure 5-22.–Gathering and harvest locations of firewood, Chitina, 2012.

Table 5-19.–Changes in household uses of resources compared to recent years, Chitina, 2012.

Resource category	Sampled households	Valid responses[a]	Households reporting use[b]					
			Less		Same		More	
			Number	Percentage	Number	Percentage	Number	Percentage
Any resource[c]	46	45	34	76%	37	82%	21	47%
All resources	46	44	15	34%	19	43%	10	23%
Salmon	46	43	11	26%	22	51%	10	23%
Nonsalmon fish	46	33	6	18%	19	58%	8	24%
Large land mammals	46	37	18	49%	15	41%	4	11%
Small land mammals	46	14	8	57%	6	43%	0	0%
Migratory birds	46	4	1	25%	2	50%	1	25%
Other birds	46	17	9	53%	6	35%	2	12%
Bird eggs	46	0	0	0%	0	0%	0	0%
Marine invertebrates	46	6	2	33%	2	33%	2	33%
Vegetation	46	43	16	37%	18	42%	9	21%

Source ADF&G Division of Subsistence household surveys, 2013.
a. Valid responses do not include households that did not provide any response and households reporting never using resources from the category.
b. Percentages based on valid responses only.
c. The number of households that gave a valid response in at least 1 of the resource categories. Households are counted only once even though they may give more than 1 valid response.

the north side of the Klutina River near Copper Center and south of the Edgerton Highway between Kenny Lake and the junction of the Edgerton and Richardson highways.

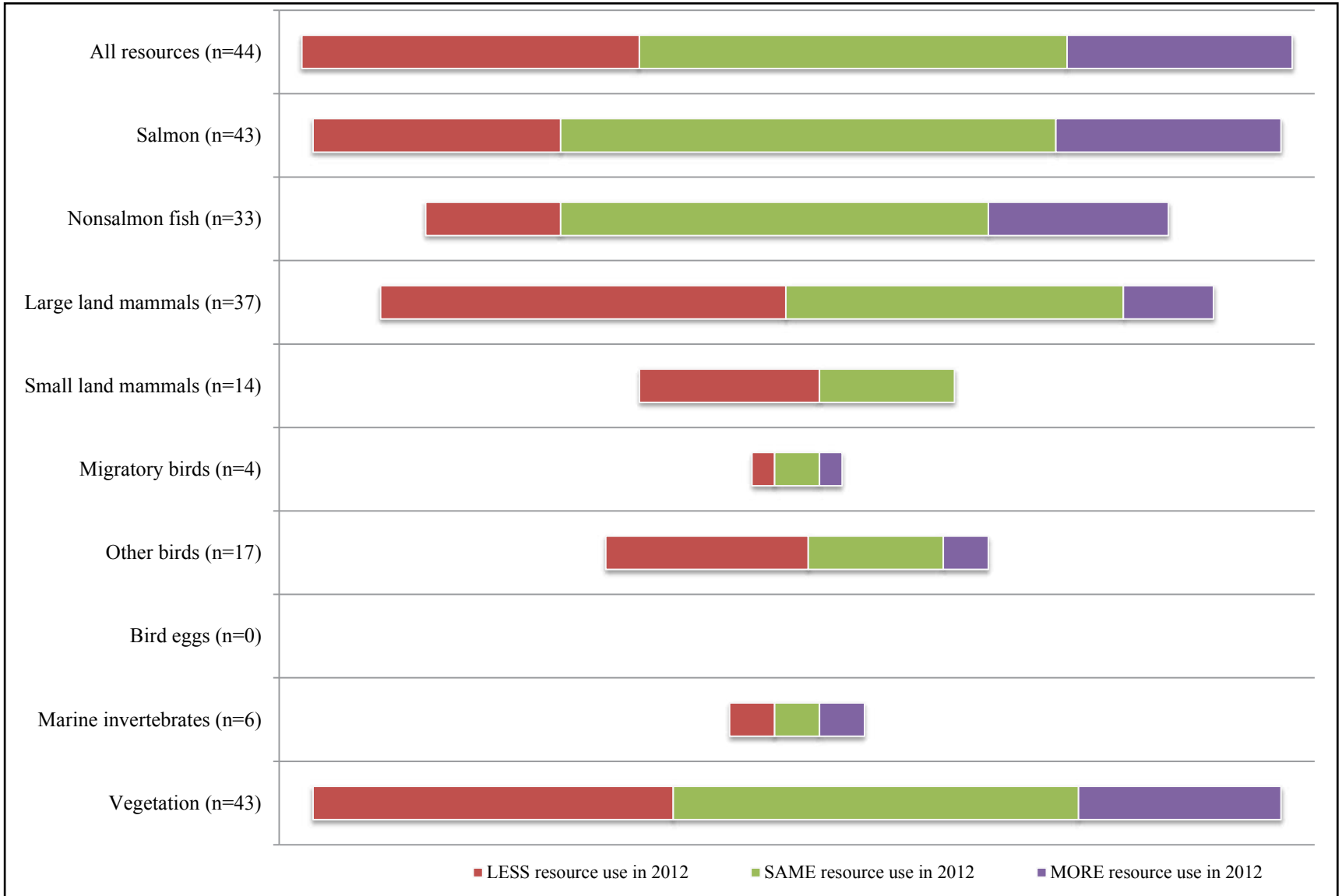
Comparing Harvests and Uses in 2012 with Previous Years

Harvest Assessments

For 10 resource categories and for all resources combined, survey respondents were asked to assess whether their uses and harvests in the 2012 study year were less, more, or about the same as other recent years. "Other recent years" was defined as about the last 5 years. Table 5-19 reports the number of valid responses for each category, the number of households that did not respond, and the number of households that did not use a resource category or all resources combined. In Table 5-19, response percentages are based on the number of valid responses for each category to contextualize these assessments within the set of community households that typically use each category.

Figure 5-23 depicts responses to the "less, same, more" assessment question. Households that said they did not ordinarily "use" something are not included within the results. This results in fewer responses for less commonly used categories such as marine invertebrates, and manifests in the chart as a very short bar compared to categories such as salmon and vegetation which are ordinarily used by most households. Some households did not respond to the question.

All sampled households (46) were asked to take their entire year's harvest into consideration and assess whether their use of all resources was less, same, or more than in recent years. Of the 44 households that



Note The value for *n* is the total number of households reporting use of resources in the indicated resource category.

Figure 5-23.–Changes in household uses of resources compared to recent years, Chitina, 2012.

responded, 15 (or 34%) said they used less amounts of wild resources in general over the previous 12 months compared to recent years (Table 5-19). A greater number, 43% of responding households, said they used about the same amount, and 23% said they used more. For salmon use, 43 valid responses were provided and a majority of those responses (22 households, or 51%) reported the same level of use of salmon in the study year as compared to recent years. Of the valid responses provided by respondents regarding level of use of nonsalmon fish, migratory birds, and vegetation, most used those resources at the same level compared to recent years. For the remainder of the resource categories, the majority of the valid responses reported less use during the study year as compared to recent years, with the exception of the marine invertebrates category, which had equal replies for less, same, and more use. There was no resource category for which a majority of valid responses indicated the level of use was more during the study year as compared to recent years.

Table 5-20 and Table 5-21 depict, by resource category, the reasons Chitina respondents gave for less or more use. This was an open-ended question and respondents could provide more than 1 reason for each resource category. Project staff grouped the responses into categories, such as regulations hindering residents from harvesting resources, sharing of harvests, effects of weather on animals and subsistence activities, changes in the animal populations, personal reasons such as work and health, and other outside effects on residents' opportunities to engage in hunting, fishing, and gathering activities.

Of the surveyed households that provided assessments for the 2012 study year, the reasons most cited for less use of any wild resource were fewer resources available (59%), less sharing (41%), work interference (38%), and fuel or equipment were too expensive (18%) (Table 5-20). Less sharing was the main reason cited for less use of salmon (46% of responding households), nonsalmon fish (33% of responding households), and large land mammals (22% of responding households). Of those households that reported their use of all resources was more during the study year as compared to recent years (10 households of the 44), 70% cited more sharing and 40% cited economic factors as the main reasons for more use of all resources (Table 5-21).

Harvest Data

Changes in the harvest of resources by Chitina residents can also be discerned through comparisons with findings from other study years. The Division of Subsistence conducted comprehensive subsistence harvest surveys in Chitina for the 1982 study year (spanning June 1982 through May 1983) and 1987 study year (spanning June 1987 through May 1988) (McMillan and Cuccarese 1988; Stratton and Georgette 1984). Figure 5-24 highlights the per capita harvests of resource categories for all 3 study years (1982, 1987, and 2012).

Chitina experienced the most notable fluctuation in per capita harvests between study years 1982 and 1987. In 1982, the per capita harvest of wild resources by Chitina households was 211 lb (Figure 5-24). In 1987, the harvest increased by 170 lb to a high of 381 lb per capita. In 2012, the per capita harvest of wild resources decreased by 135 lb to 246 lb per capita (Figure 5-24). The majority of the change from study year

Table 5-20.–Reasons for less household uses of resources compared to recent years, Chitina, 2012.

		Households reporting less use											
			No reason reported		Fewer resources available		Poor weather		Work interfered		Competition		
Resource category	Households using[a]	Total households	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	
Any resource[b]	45	34	0	0.0%	20	58.8%	1	2.9%	13	38.2%	3	8.8%	
All resources	44	15	0	0.0%	3	20.0%	1	6.7%	6	40.0%	0	0.0%	
Salmon	43	11	0	0.0%	2	18.2%	0	0.0%	2	18.2%	0	0.0%	
Nonsalmon fish	33	6	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	
Large land mammals	37	18	0	0.0%	2	11.1%	0	0.0%	1	5.6%	0	0.0%	
Small land mammals	14	8	0	0.0%	6	75.0%	0	0.0%	2	25.0%	0	0.0%	
Migratory birds	17	1	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%	
Other birds	0	9	0	0.0%	8	88.9%	0	0.0%	0	0.0%	3	33.3%	
Marine invertebrates	6	2	0	0.0%	0	0.0%	0	0.0%	1	50.0%	0	0.0%	
Vegetation	43	16	0	0.0%	3	18.8%	1	6.3%	10	62.5%	0	0.0%	

Table 5-20.–Continued.

		Households reporting less use								
			Regulations		Less sharing		Other personal reasons		Fuel or equipment too expensive	
Resource category	Households using[a]	Total households	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource[b]	45	34	3	8.8%	14	41.2%	1	2.9%	6	17.6%
All resources	44	15	2	13.3%	5	33.3%	0	0.0%	0	0.0%
Salmon	43	11	0	0.0%	5	45.5%	0	0.0%	1	9.1%
Nonsalmon fish	33	6	0	0.0%	2	33.3%	1	16.7%	1	16.7%
Large land mammals	37	18	2	11.1%	4	22.2%	0	0.0%	1	5.6%
Small land mammals	14	8	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Migratory birds	17	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Other birds	0	9	0	0.0%	0	0.0%	0	0.0%	1	11.1%
Marine invertebrates	6	2	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Vegetation	43	16	0	0.0%	4	25.0%	0	0.0%	2	12.5%

Source ADF&G Division of Subsistence household surveys, 2013.
Note Percentages are calculated using the number of households reporting less use as a base.
Note The category "bird eggs" is not included in this table because no (zero) households in Chitina reported using resources from this category.
a. "Households using" data include only households that used a resource and responded to the question about use.
b. The number of households that gave a valid response in at least 1 of the resource categories. Households are counted only once even though they may give more than 1 valid response.

Table 5-21.–Reasons for more household uses of resources compared to recent years, Chitina, 2012.

		Households reporting more use										
			No reason reported		More resources available		Better weather		Work related		Less competition	
Resource category	Households using[a]	Total households	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource[b]	45	21	0	0.0%	3	14.3%	3	14.3%	1	4.8%	0	0.0%
All resources	44	10	0	0.0%	1	10.0%	0	0.0%	0	0.0%	0	0.0%
Salmon	43	10	0	0.0%	1	10.0%	0	0.0%	0	0.0%	0	0.0%
Nonsalmon fish	33	8	0	0.0%	1	12.5%	0	0.0%	0	0.0%	0	0.0%
Large land mammals	37	4	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Small land mammals	14	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Migratory birds	4	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Other birds	17	2	0	0.0%	1	50.0%	0	0.0%	0	0.0%	0	0.0%
Marine invertebrates	0	2	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Vegetation	43	2	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%

Table 5-21.–Continued.

		Households reporting more use								
			Better regulations		More sharing		Other personal reasons		Economic	
Resource category	Households using[a]	Total households	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource[b]	45	21	0	0.0%	13	61.9%	0	0.0%	6	28.6%
All resources	44	10	0	0.0%	7	70.0%	0	0.0%	4	40.0%
Salmon	43	10	0	0.0%	8	80.0%	0	0.0%	1	10.0%
Nonsalmon fish	33	8	0	0.0%	4	50.0%	0	0.0%	2	25.0%
Large land mammals	37	4	0	0.0%	4	100.0%	0	0.0%	0	0.0%
Small land mammals	14	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Migratory birds	4	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Other birds	17	2	0	0.0%	0	0.0%	0	0.0%	1	50.0%
Marine invertebrates	0	2	0	0.0%	2	100.0%	0	0.0%	0	0.0%
Vegetation	43	2	0	0.0%	2	100.0%	0	0.0%	0	0.0%

Source ADF&G Division of Subsistence household surveys, 2013.
Note Percentages are calculated using the number of households reporting more use as a base.
Note The category "bird eggs" is not included in this table because no (zero) households in Chitina reported using resources from this category.
a. "Households using" data include only households that used a resource and responded to the question about use.
b. The number of households that gave a valid response in at least 1 of the resource categories. Households are counted only once even though they may give more than 1 valid response.

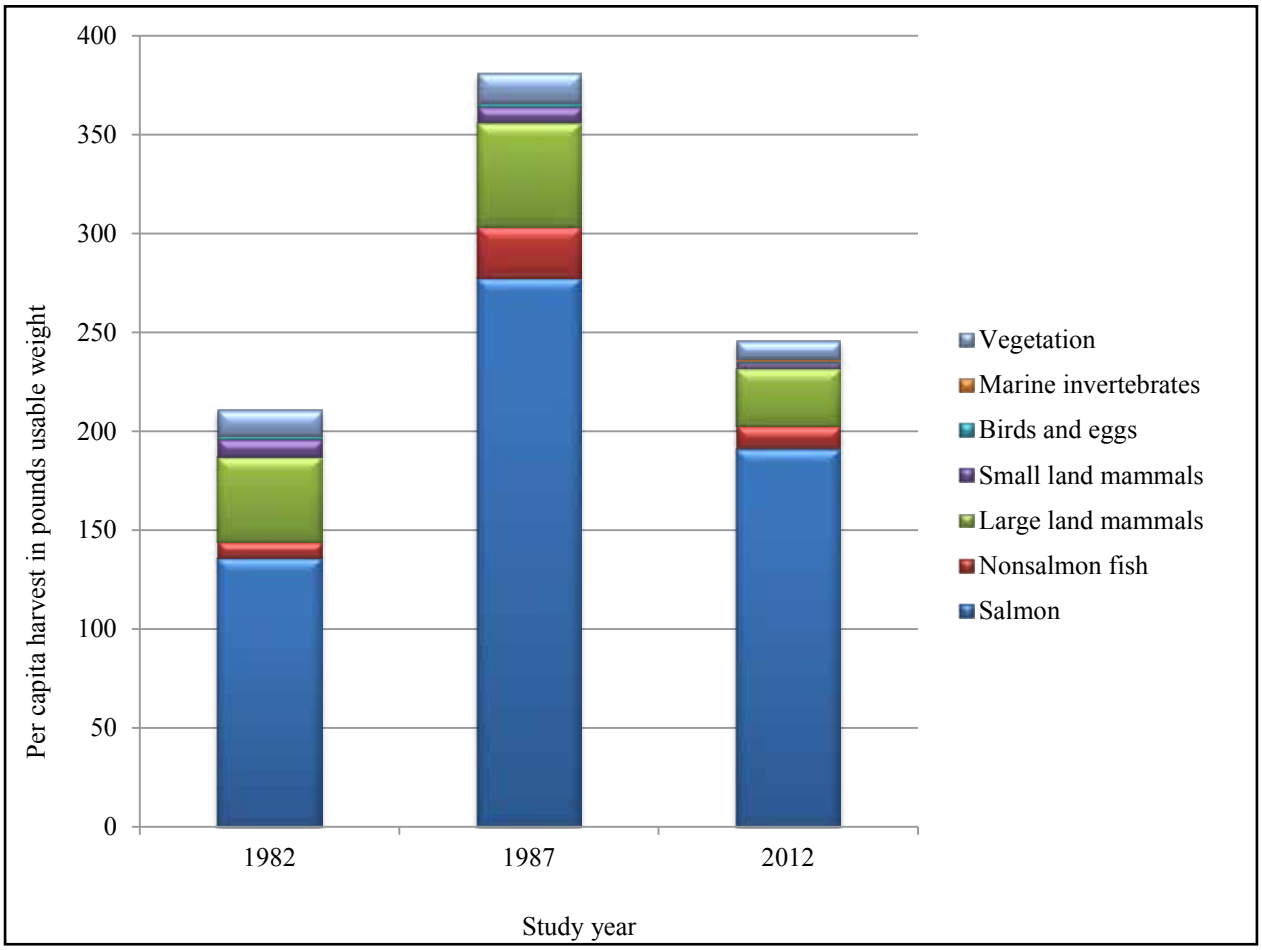


Figure 5-24.–Estimated harvests by pounds per capita and by resource category, Chitina, 1982, 1987, and 2012.

to study year can be tracked through the changes in per capita salmon harvests, but harvest trends for other resources contributed to the overall per capita fluctuation as well, which is discussed in the next paragraph.

Salmon per capita harvests increased most significantly between 1982 and 1987 (136 lb per capita to 278 lb per capita; more than doubling the previous study year's amount) then decreased again between 1987 and 2012 to 192 lb per capita (an 86 lb per capita decline). Between 1982 and 1987 there was a 10 lb increase in the per capita harvest of large land mammals (from 43 lb to 53 lb per capita) then a 24 lb decline between 1987 and 2012 to 29 lb per capita. Nonsalmon fish harvests followed a similar trajectory as salmon per capita harvests—the 2012 per capita value was more than the 1982 per capita value. The nonsalmon fish per capita harvest increased from 1982 to 1987 from 8 lb to 26 lb per capita then decreased in 2012 to 11 lb per capita; this value was still approximately 2 lb more than the 1982 per capita harvest. Small land mammals, birds and eggs, and vegetation per capita harvests all declined for the 2012 study year in comparison to the 1982 study year; the small land mammal per capita harvest decreased the most having changed from 9 lb per capita in 1982 to 3 lb per capita in 2012.

Current and Historical Harvest Areas

During the 1983 and 1984 fieldwork seasons, ADF&G researchers conducted interviews with more than 200 hunters and fishers in 20 communities in or near the Copper River Basin to map areas where hunting, fishing, trapping, and gathering of wild resources occurred between 1964 and 1984 (Stratton and Georgette 1985). This effort produced 2 separate publications by 2 different ADF&G divisions; the Division of Habitat published the maps and the Division of Subsistence published a description of the project and mapping methods. The maps depicting the harvest and use areas used by study community residents during this 20-year span are published in *Alaska Habitat Management Guide Southcentral Region: Reference Maps—Volume 3. Community Use of Fish, Wildlife, and Plants* (Alaska Department of Fish and Game Division of Habitat 1985).[2] Information about the mapping project is available in *Copper Basin Resource Use Map Index and Methodology* (Stratton and Georgette 1985). A total of 10 harvest and use (referred to in this report as "search") maps were produced that show activities for Chitina residents for 1964–1984. These maps cover harvest and use areas for select large land mammal species (moose, caribou, and Dall sheep), waterfowl, furbearers (small land mammals), fish (salmon and freshwater fish), and vegetation. Absent from these maps are harvest and use areas for upland game birds, and black and brown bears. Changes in the resource harvest and use/search areas by Chitina area residents can be discerned through limited comparisons of the maps published in 1985, which depict harvest and use areas for 20 years, and the maps produced from this study, which only reflect search and harvest areas for the study year 2012.

While there are some similarities between the harvest and use/search areas in the historical and the 2012 maps, there also are noticeable differences. In the historical maps, the harvest and use areas cover a wide expanse of land in the immediate Copper and Chitina river watersheds, but also follow along a number of tributaries to the Copper River on both the north and south sides of McCarthy Road, and along the Glenn Highway–Tok Cutoff, Edgerton Highway, and Nabesna Road. During the study year 2012, the harvest and search areas were more concentrated along the eastern portion of the Denali Highway and reached farther south—as far as Valdez—in comparison to the historical maps. At the same time, the Denali Highway was an important harvest and search area for a variety of resources for Chitina households in 2012, which was not the apparent trend shown in the historical harvest and use maps.

With regard to specific species, the most noticeable differences between the harvest and use/search areas shown in the 2 map sets were visible with moose, caribou, Dall sheep, and small land mammals/furbearers. The first noticeable difference is that the historical maps depict caribou harvest and use areas along the Glenn Highway–Tok Cutoff and Nabesna Road; in 2012, nonsalmon fish were the only resource Chitina residents reported to have searched for and harvested in those areas. In the historical maps, the harvest and use areas for moose extended substantially farther north and south along the extent of McCarthy Road, appeared south of Tonsina on the Richardson Highway, south of Chitina amongst the tributaries of the Copper

2. A complete index of documents published in 1985 and 1986 as part of *Alaska Habitat Management Guide* is available online: http://www.arlis.org/docs/vol1/C/AHMG/index.html.

River, and east and west along the Edgerton Highway. Another important observation is that the historical maps, which demonstrated harvest patterns prior to the formation of WRST in 1980, illustrate harvest and use areas for moose extending deeper into the area of the park than those of this study; the 2012 maps show only a few, small harvest and search areas in the park and preserve area in the vicinity of Chitina and along the road from Chitina to McCarthy. Similar development has taken place with Dall sheep harvest and use/search areas; in the historical maps Chitina residents reported using 9 remote areas off of the road system in the area of WRST and in the mountains west of Chitina. In the 2012 map there is only 1 Dall sheep harvest and search area within the park and preserve. As for small land mammals/furbearers, there are several large harvest and use areas off the road system in the vicinity of Chitina and McCarthy Road but also significant distances northeast, east, south, and southeast of the community in the historical maps. In 2012, the harvest and search areas for small land mammal harvests were reduced primarily to the road system; these areas included along the Edgerton Highway and McCarthy Road with a couple search and harvest areas extending off of these roads.

As shown in the historical maps, Chitina residents reported harvest and use areas that were substantially more concentrated in the vicinity of Chitina. Harvest and use locations included areas just north of the Chitina-McCarthy Bridge, east of Chitina Airport, and near the confluence of Horse Creek and the Copper River. In 2012, the harvest and search areas for salmon were the same as depicted in the historical maps with additional locations, which included areas south of Chitina on the Copper River, at the confluence of the Klutina and the Copper rivers, and in the Valdez Port/Prince William Sound area.

The 2012 study found Chitina residents' nonsalmon fish harvest and search areas were similar to those depicted in the historical maps. For both sets of harvest and use/search area maps, Chitina residents reported fishing east of town in Strelna, Silver, and Van lakes; north of town in several small lakes; and north of town near the confluences of Liberty Creek and Tonsina River with the Copper River. In the historical maps, Chitina residents reported traveling off the road system in search of nonsalmon fish. Residents visited Klutina and Tebay lakes to harvest nonsalmon fish. Residents also fished along the Richardson Highway south of Tonsina along Tiekel and Little Tonsina rivers.

According to the 2012 study, Chitina residents harvested vegetation in areas east of town along McCarthy Road and also along the Denali Highway. The harvest and search areas were largely along the road system; in some areas along the Denali Highway they extend off the highway. Both the historical and 2012 maps show vegetation harvest and use/search areas very close to the community, along McCarthy Road, and near the intersection of the Richardson and Denali highways. In addition, both map sets depict harvest and use/search area patterns that show that Chitina residents likely harvest vegetation resources while looking for other wild resources such as large land mammals or nonsalmon fish.

Local Comments and Concerns

Following is a summary of local observations of wild resource populations and trends that were recorded during the surveys in Chitina. Some households did not offer any additional information during the survey interviews, so not all households are represented in the summary. In addition, respondents expressed their concerns about wild resources during the community meeting to review preliminary data. These concerns have been included in the summary.

Large Land Mammals

Many Chitina respondents cited 2012 as a poor year for the harvest of moose, caribou, and Dall sheep. Reasons that it was a poor year include low large land mammal numbers, warm weather during the open hunting seasons, increased hunting pressure, competition from non-local residents, and construction on McCarthy Road. A number of individuals commented about hunting regulations and land tenure having an effect on their hunting. Additionally, one respondent suggested that there should be a November moose hunt because the current regulatory seasons are too warm, which impacts moose availability and processing.

Fish

Numerous respondents expressed concern about the impact of non-local guides, dipnetters, and fish wheel operators. Non-local residents dip net downstream of resident fish wheels and harvest salmon that might end up in fish wheels. There was also some concern of non-local residents trespassing on Ahtna and other private lands to access dip net sites. Another concern was the impact of guided fishing activity and how using transportation vehicles to access remote areas makes them no longer feel remote, which led to local community-based fishing spots being overrun, thus affecting local residents' experience and harvest ability.

Small Land Mammals/Furbearers

A number of households commented that trapping has declined due to land access issues. They also commented about decline in furbearer populations. Additionally, a couple of residents expressed concern about traplines being set close to town.

Birds

Many households expressed the opinion that non-local residents were over-harvesting upland game birds in the area. Residents complained this has led to low populations of upland game birds.

Vegetation

Many households reported that firewood is hard to find in the areas available to them; they said that most of the productive woodlots are now on Ahtna, Inc., land and not freely accessible to local non-Native residents.

Other Comments

A number of residents made comments about the increased competition for resources and the resulting stresses. Non-local hunters and fishers travel to the Copper River Basin by the thousands and increase traffic both on the roads and on the rivers. Wild resources are becoming scarcer along the roads and other major access areas. Some local residents in Chitina felt constraints to their activities included limited access to area lands belonging to Ahtna, Inc., and burdensome and confusing regulations.

Many participating households expressed concern about the mapping process and requests for specific locations and were reluctant to share harvest area details. This was partly because community hunting and fishing areas are accessible via the road system and many state residents living in the non-subsistence areas of Fairbanks or the Anchorage and Matanuska–Susitna Valley communities come to recreate, fish, and hunt in the Copper River Basin. Some local respondents see this situation as placing a greater burden on the local resources and increasing competition for harvest. Some Chitina residents feared that mapped resource use areas would serve as a guide to productive hunting and fishing spots in the region.

Acknowledgements

ADF&G Division of Subsistence would like to thank local research assistants (Mike Winter, Andrea Hand, and Carla Somerville) for their valuable help in facilitating the Chitina portion of this research. Local knowledge and relationships help to guide researchers through communities and provide context and insight to the survey process.

6. DISCUSSION AND CONCLUSIONS

Robbin La Vine and Bronwyn Jones

Overview of Findings for the Study Communities, 2012

This report documents the harvests and uses of wild resources by 4 communities in the Copper River watershed and is part of a multi-year effort to update a harvest assessment for all Copper River Basin communities. All communities surveyed are on the road system; Gakona is on the Glenn Highway–Tok Cutoff, Kenny Lake/Willow Creek is on the intersection of the Richardson and Edgerton highways, Chitina is on the Edgerton Highway, and the McCarthy households are located on the upper extents of McCarthy Road. All communities made extensive use of local resources but also traveled widely across the state in an effort to harvest the wild foods they value.

Table 6-1 summarizes selected finding regarding demography, cash economy, and wild resource harvests and uses in 2012 by study communities Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina. Kenny Lake and Willow Creek combined represent the largest population for this study, approximately 417 people, followed by Gakona (202), Chitina (131), and McCarthy (103). Chitina had the highest percentage of Alaska Native residents (42%) as well as the highest percentage of household heads born in Alaska (39%); McCarthy had the smallest population of Alaska Native residents (1%) and smallest percentage of household heads born in Alaska (9%).

Of all 4 study communities, Gakona is situated closest to the Copper River Basin's largest hub community, Glennallen, where many of the region's employment opportunities exist. For McCarthy residents, seasonal tourism-based jobs (especially during summer months) are prevalent in the larger McCarthy–Kennecott area. Proximity to those employment opportunities is evident with regard to the cash economy of the study communities. The average number of months employed were comparable for Chitina, Gakona, and Kenny Lake/Willow Creek at just under 9 months for all 3 study communities. McCarthy, a town characterized by a seasonal economy focused on tourism, had a lower average number of months when adults were employed and a lower percentage of adults working year-round (23%), but McCarthy had one of the higher average household incomes ($39,015). Gakona had the highest average household income with approximately $45,500 in 2012.

As estimated in pounds usable weight, Chitina had the highest per capita harvest in 2012 (246 lb) and McCarthy the lowest per capita harvest (87 lb). Kenny Lake/Willow Creek residents harvested approximately 141 lb per capita while Gakona residents harvested 171 lb per capita. Households in each community used a wide range of individual resources with the number averaging between 10 and 12 types of resources used per household. The average number of species a household attempted to harvest was between 8 and 10 per

Table 6-1.–Selected study findings, study communities, 2012.

Category	Community			
	Chitina	Gakona	Kenny Lake/ Willow Creek	McCarthy
Demography				
Population	133.8	201.7	417.2	102.6
Percentage of Alaska Native population	42.1%	21.1%	12.2%	1.4%
Percentage of household heads born in Alaska	38.5%	18.1%	17.0%	8.8%
Average length of residency, household heads (year)	20.4	22.1	20.0	17.7
Cash economy				
Average number of months employed	8.5	8.7	8.7	7.5
Percentage of employed adults working year-round	52.5%	54.1%	41.2%	23.2%
Average household income	$21,967	$45,501	$25,938	$39,015
Per capita earned income	$8,864	$17,373	$10,819	$22,052
Resource harvests and uses				
Per capita harvest (pounds usable weight)	245.8	171.4	140.8	86.8
Average household harvest (pounds usable weight)	609.3	449.0	337.6	153.5
Average number of resources used per household	10.4	11.0	10.3	12.0
Average number of resources attempted to be harvested per household	9.1	9.0	8.1	10.4
Average number of resources harvested per household	7.9	7.7	6.7	8.3
Average number of resources received per household	4.0	4.9	4.8	4.8
Average number of resources given away per household	3.6	3.8	2.5	1.9

Source ADF&G Division of Subsistence household surveys, 2013.

community and the average number of resources harvested per household fluctuated between 7 (Kenny Lake/Willow Creek) and 8 (McCarthy, Chitina, and Gakona). Households in all 4 communities received approximately 4 to 5 kinds of resources each, while households in each study community shared an average of 2 (McCarthy) to 4 (Gakona) resources with others.

Table 6-2 reports the expanded levels of individual participation in the harvest and processing of wild resources by all residents in each study community for 2012. The community of McCarthy had the highest rate of individual participation in both the harvest (99%) and processing (97%) of any resource in 2012; Kenny Lake/Willow Creek had the lowest rate of individual participation in harvesting any resource (86%) and Chitina the lowest for processing (85%). It should be noted that such results (where the most populated community exhibits lowest participation) can often be the difference between a large and small sample population or the age range of the individuals sampled (see more detailed discussion of sample size and population profile in individual chapters). Gakona had the highest level of individual participation in the harvesting and processing of fish (71% and 74%, respectively) and the harvesting and processing of large land mammals (43% and 49%). Participation by individuals in all communities was highest for gathering and processing plants, berries, or wood and lowest for hunting and processing small land mammals/furbearers

Table 6-2.–Individual participation in subsistence harvesting and processing activities, study communities, 2012.

	Chitina	Gakona	Kenny Lake/ Willow Creek	McCarthy
Estimated population	**133.8**	**201.7**	**417.2**	**102.6**
Fish				
Fish				
Number	88.0	143.0	236.4	58.0
Percentage	65.8%	70.9%	56.7%	56.5%
Process				
Number	89.2	148.5	288.2	58.0
Percentage	66.7%	73.6%	69.1%	56.5%
Large land mammals				
Hunt				
Number	54.0	86.2	112.0	31.2
Percentage	40.4%	42.7%	26.9%	30.4%
Process				
Number	54.0	99.0	119.8	40.2
Percentage	40.4%	49.1%	28.7%	39.1%
Small land mammals or furbearers				
Hunt or trap				
Number	18.8	49.5	54.9	26.8
Percentage	14.0%	24.5%	13.2%	26.1%
Process				
Number	17.6	53.2	62.6	23.8
Percentage	13.2%	26.4%	15.0%	23.2%
Birds and eggs				
Hunt				
Number	24.7	55.0	43.9	29.7
Percentage	18.4%	27.3%	10.5%	29.0%
Process				
Number	25.8	47.7	40.7	34.2
Percentage	19.3%	23.6%	9.8%	33.3%
Berries, plants, or wood				
Gather				
Number	113.9	172.3	325.3	101.1
Percentage	85.1%	85.5%	78.0%	98.6%
Process				
Number	91.6	172.3	341.5	98.2
Percentage	68.4%	85.5%	81.9%	95.7%

-continued-

Table 6-2.–Page 2 of 2.

	Chitina	Gakona	Kenny Lake/ Willow Creek	McCarthy
Any resource				
Attempt				
Number	128.0	176.0	358.0	101.1
Percentage	95.6%	87.3%	85.8%	98.6%
Process				
Number	113.9	185.2	373.9	99.6
Percentage	85.1%	91.8%	89.6%	97.1%
Build fish wheels				
Number	45.8	44.0	41.1	4.5
Percentage	34.2%	21.8%	9.8%	4.3%
Sew skins or cloth				
Number	16.4	33.0	74.1	14.9
Percentage	12.3%	16.4%	17.8%	14.5%
Cook wild foods				
Number	91.6	166.8	308.9	96.7
Percentage	68.4%	82.7%	74.0%	94.2%

Source ADF&G Division of Subsistence household surveys, 2013.

or birds and eggs—depending on the community. Chitina had the highest level of individual participation in building or maintaining fish wheels (34%), Kenny Lake/Willow Creek had the highest level of individual participation in sewing skins or cloth (18%), and McCarthy, the community with the highest level of individual participation for both harvesting and processing, also had the highest level of individual participation in the cooking of wild foods (94%).

Figure 6-1 demonstrates participation at the household level in using resources, attempting to harvest resources, harvesting resources, and sharing resources for each study community. During the 2012 study year all communities had a high percentage of households using wild resources; almost 98% of the households in Chitina, Gakona, and Kenny Lake/Willow Creek, and 100% of the households in McCarthy used wild resources. McCarthy also had 100% household participation in attempting to harvest and receiving wild foods. Gakona had the highest percentage of households that shared any resource (79%).

Harvest Composition and Uses in 2012

Figure 6-2 represents the harvest composition of each community in per capita usable weight and figures 2-7, 3-7, 4-7, and 5-7 represent the harvest composition for each community as a percentage of usable (edible) weight. At a glance, the community with the highest per capita harvest is Chitina (246 lb), the community with the lowest per capita harvest is McCarthy (87 lb). The category contributing most to 2012 harvests for all communities is salmon. Salmon made up 192 lb of Chitina's 246 lb per capita harvest (78%), and salmon

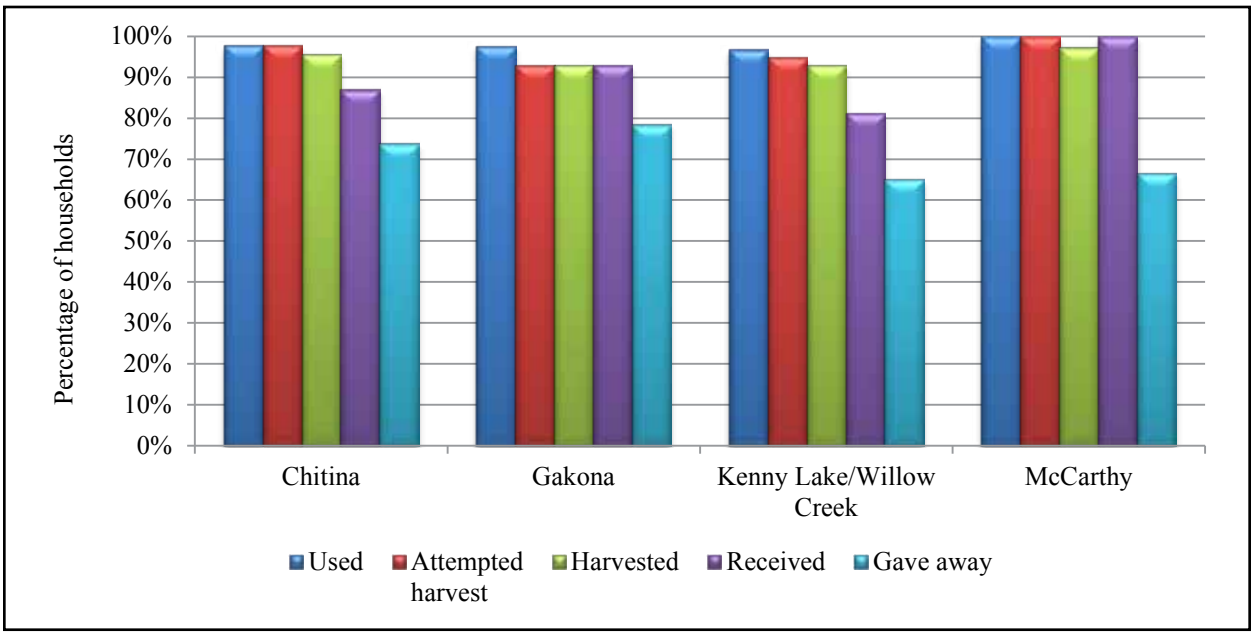


Figure 6-1.–Harvests and uses of wild resources, study communities, 2012.

composed the majority of the harvest for the remaining communities; Gakona (56%), Kenny Lake/Willow Creek (67%), and McCarthy (53%).

Without salmon, however, the total per capita harvest of the remaining resources looks a little different; Gakona would have the highest per capita harvest of 75 lb per capita, Chitina would be second with 54 lb per capita, Kenny Lake/Willow Creek third at 47 lb per capita, and McCarthy still ranked last with 41 lb per capita. While only the top 2 communities in per capita harvest changed places, the difference between the highest harvesting community and lowest harvesting community is not so significant when salmon are subtracted from the per capita harvest; a 34 lb difference between Gakona and McCarthy without salmon, and a 159 lb difference between Chitina and McCarthy with salmon.

While still significant for all communities, large land mammals contributed considerably less than salmon to the overall harvest composition in 2012; 27% of the harvest in McCarthy, 24% of the harvest in Gakona, 19% of the harvest in Kenny Lake/Willow Creek, and 12% of the harvest in Chitina. Subtracting large land mammals from the overall harvest would not change the community order from highest per capita harvest to the lowest and the difference between the highest and the lowest is almost the same as with the large land mammal harvest; 154 lb per capita difference between Chitina and McCarthy without the large land mammal harvest.

Table 6-3 presents the top 10 ranked most used resources in each study community. For the purposes of this report "most used" refers to those resources used in each household, whether harvested or received, and regardless of usable weight. For this reason firewood ranks first on the lists of top used resources in Kenny Lake/Willow Creek (used by 83% of households) and McCarthy (95% of households) and is the second

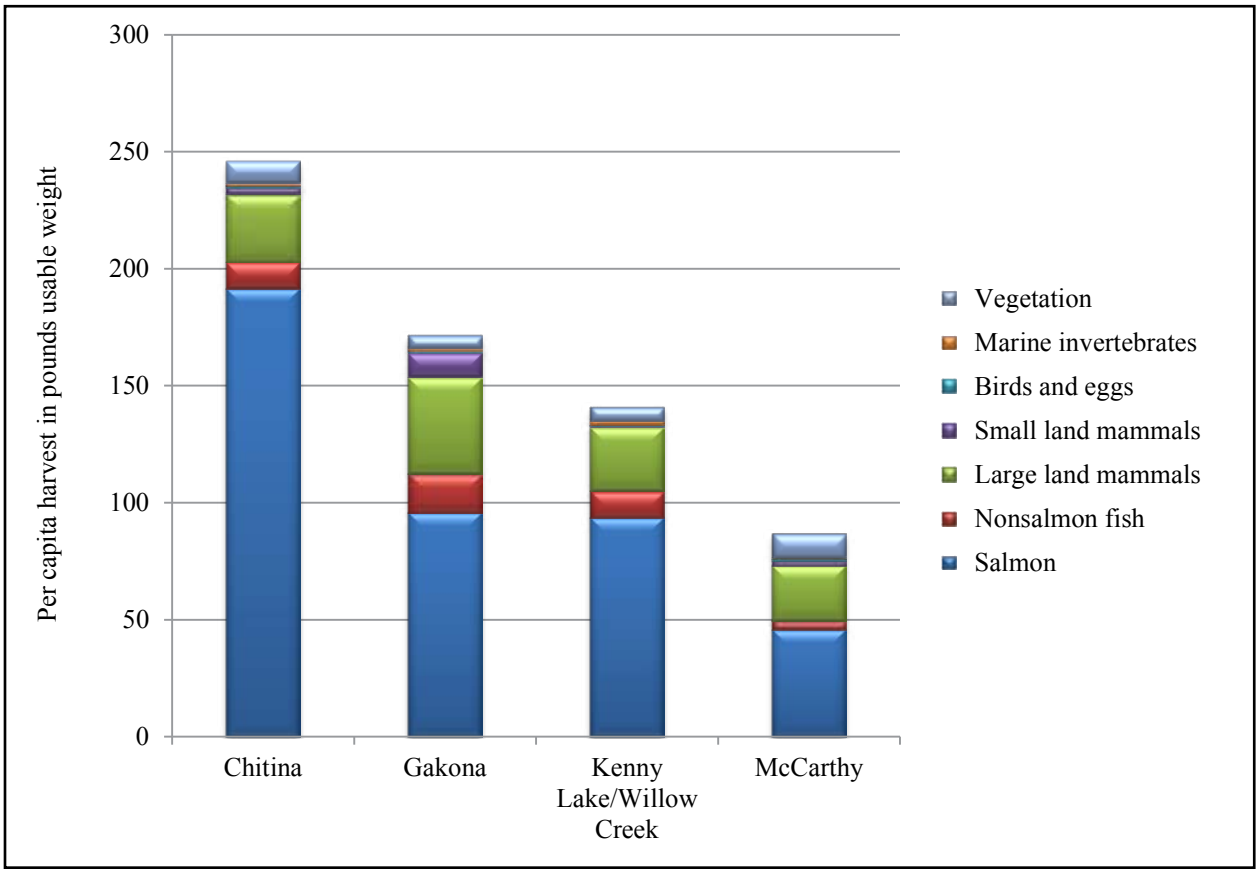


Figure 6-2.–Estimated harvests by pounds per capita and by resource category, study communities, 2012.

most used resource in Chitina (used by 76% of households) and Gakona (83% of households). Sockeye salmon is similarly ubiquitous, appearing as the top used resource in Chitina and Gakona (94% and 93%, respectively), and tying with firewood as the top used resource in Kenny Lake/Willow Creek (83%) and the second most used resource in McCarthy (85%). Of interest, 7 of the top 10 ranked resources used in McCarthy are vegetation (mostly berries), 5 of the top resources were vegetation in Gakona, and 4 top ranked resources for each Chitina and Kenny Lake/Willow Creek were vegetation.

The significance of firewood for all study communities cannot be overstated. Table 6-4 demonstrates the use of firewood for home heating in all communities for the 2012 study year. It should be noted that a large majority of the sampled households in Kenny Lake/Willow Creek (51%), Chitina (57%), and McCarthy (82%) use wood for 76% to 100% of their home heating source. Chitina, however, had the highest percentage of sampled households reporting no use of firewood to heat their homes; 33% used no wood at all, due

Table 6-3.–Top ranked resources used by households, study communities, 2012.

Chitina			Gakona		
Rank[a]	Resource	Percentage of households using	Rank[a]	Resource	Percentage of households using
1.	Sockeye salmon	93.5%	1.	Sockeye salmon	92.9%
2.	Firewood	76.1%	2.	Firewood	83.3%
3.	Moose	67.4%	3.	Moose	81.0%
4.	Chinook salmon	60.9%	4.	Blueberry	73.8%
4.	Raspberry	60.9%	5.	Pacific halibut	52.4%
6.	Blueberry	58.7%	6.	Caribou	50.0%
7.	Rainbow trout	52.2%	6.	Raspberry	50.0%
8.	Caribou	50.0%	8.	Chinook salmon	47.6%
9.	Highbush cranberry	43.5%	8.	Lowbush cranberry	47.6%
10.	Pacific halibut	41.3%	10.	Unknown mushrooms	31.0%

Kenny Lake/Willow Creek			McCarthy		
Rank[a]	Resource	Percentage of households using	Rank[a]	Resource	Percentage of households using
1.	Firewood	83.2%	1.	Firewood	94.9%
1.	Sockeye salmon	83.2%	2.	Sockeye salmon	84.6%
3.	Caribou	62.7%	3.	Raspberry	74.4%
4.	Moose	59.8%	4.	Moose	61.5%
5.	Blueberry	57.3%	5.	Unknown mushrooms	53.8%
6.	Chinook salmon	52.9%	5.	Highbush cranberry	53.8%
7.	Lowbush cranberry	43.3%	7.	Lowbush cranberry	51.3%
8.	Pacific halibut	42.2%	8.	Pacific halibut	46.2%
9.	Raspberry	40.5%	8.	Blueberry	46.2%
10.	Coho salmon	31.0%	10.	Currants	38.5%

Source ADF&G Division of Subsistence household surveys, 2013.

a. Resources used by the same percentage of households share the lowest rank value instead of having sequential rank values.

Table 6-4.–Use of firewood for home heating in sampled households, study communities, 2012.

Community	Average annual cost of home heating	Household use of wood for home heating as a percentage of sampled households											
		0%		1%–25%		26%–50%		51%–75%		76%–99%		100%	
		Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Chitina	$1,581	15	32.6%	0	0.0%	1	2.2%	4	8.7%	6	13.0%	20	43.5%
Gakona	$4,333	9	21.4%	2	4.8%	1	2.4%	10	23.8%	15	35.7%	5	11.9%
Kenny Lake/ Willow Creek	$2,761	20	11.6%	13	7.6%	34	19.5%	18	10.2%	48	27.6%	41	23.5%
McCarthy	$756	3	7.7%	0	0.0%	2	5.1%	2	5.1%	6	15.4%	26	66.7%

Source ADF&G Division of Subsistence household surveys, 2013.

in part to the subsidized heat included in village housing units. The average annual cost of home heating was lowest in McCarthy where the use of wood was highest ($756 in 2012) and highest in Gakona ($4,333).

Transportation and Portable Motors

This survey included questions about the use of motorized equipment in accessing resources. Figure 6-3 demonstrates the percentage of sampled households using a boat, snowmachine, ATV, dogsled, or aircraft in their harvest efforts and whether households owned, borrowed, leased, or chartered those vehicles. The ATV was the most commonly used vehicle in Chitina (32% of sampled households reporting use) as well as in Gakona (30% of sampled households reporting use). Boats were used by 39% of sampled households in Kenny Lake/Willow Creek but only 16% of those households reported owning one; the remaining sampled households used boats that were borrowed (16%), chartered (5%), or leased (2%). Snowmachine was the most used vehicle in McCarthy with 50% of the sampled households reporting use (47% of sampled households owned the snowmachine used).

Figure 6-4 and Table 6-5 present the percentage of sampled households reporting the use of portable motors when harvesting or attempting to harvest wild resources. Chain saws were the most used equipment item in all 4 communities; the highest level of use was reported by Kenny Lake/Willow Creek households (78% of sampled households), and use of chain saws remained high for Chitina (70% of sampled households) and McCarthy (64% of sampled households) while 44% of sampled Gakona households used chain saws. Ice augers and generators were used most in Chitina (30% and 26%, respectively), and winches were used most in Kenny Lake/Willow Creek (23%).

Harvest Trends

Figure 6-5 demonstrates the per capita harvest composition for all communities over the course of 3 studies and Table 6-6 compares harvests by percent usable weight and per capita harvests also over all study years (the 1982 study year, the 1987 study year, and the current study year of 2012).

At a glance, Kenny Lake/Willow Creek and Chitina per capita harvests have increased from 1982 to 2012 and Gakona and McCarthy's per capita harvests have decreased over the same time frame. In addition, with the exception of Gakona, per capita harvests have declined (just slightly in Kenny Lake/Willow Creek) from 1987 to 2012. When looking at the harvest composition for all study years it is important to note that the greatest percentage of change over time, whether an increase or a decrease in per capita harvest, is largely due to fluctuation in the estimated salmon harvest (with the notable exception of McCarthy where salmon harvests remained relatively consistent and significant change can be attributed to large land mammal harvests). And for most communities in this study, while salmon harvests comprise a greater percentage of the harvest composition over time, large land mammal harvests decreased in general both in per capita harvests and harvest composition in all study communities—with the exception of Gakona, where the per capita harvest of large land mammals decreased only minimally.

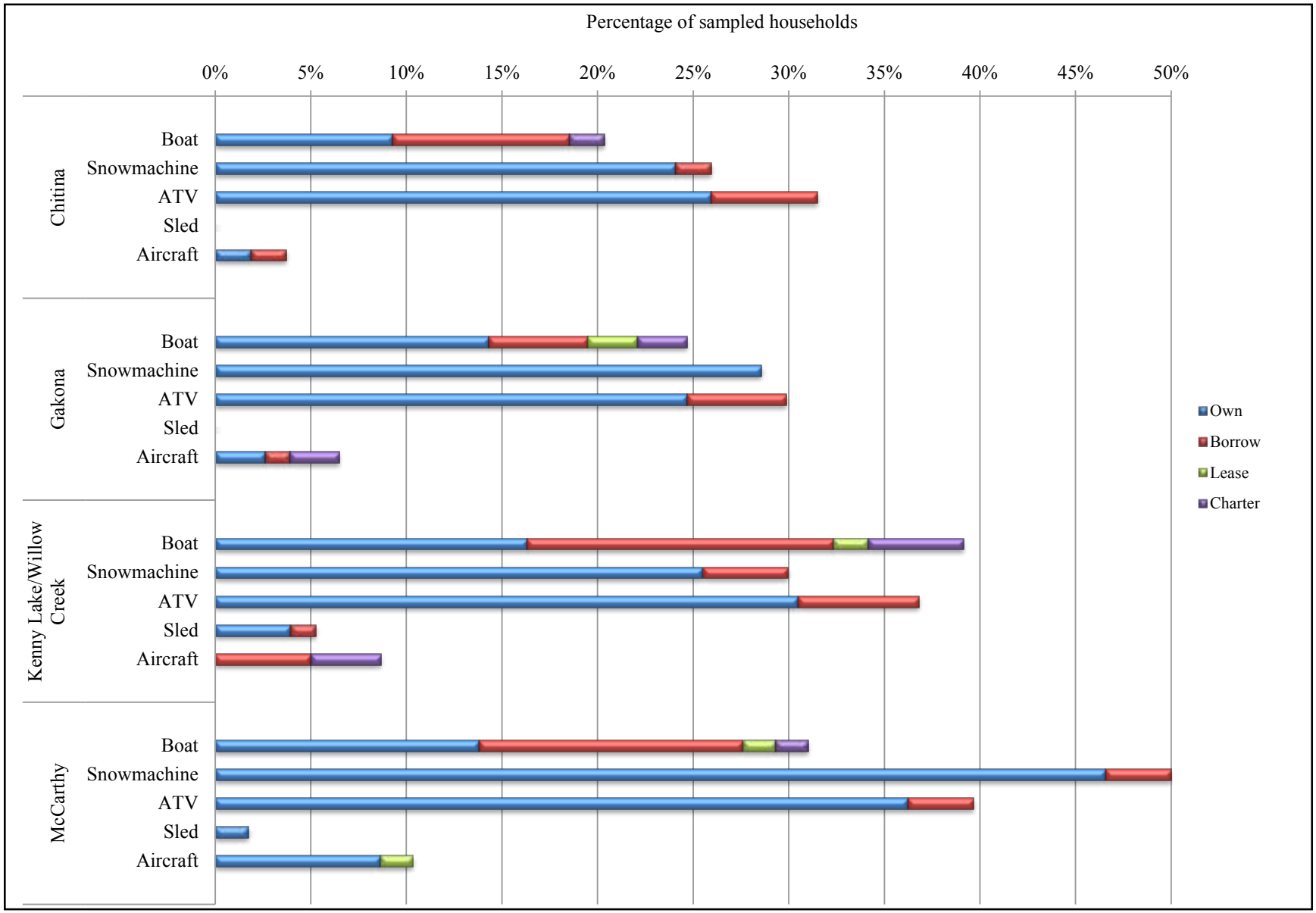


Figure 6-3.–Alternative modes of transportation used by sampled households to access wild resources, study communities, 2012.

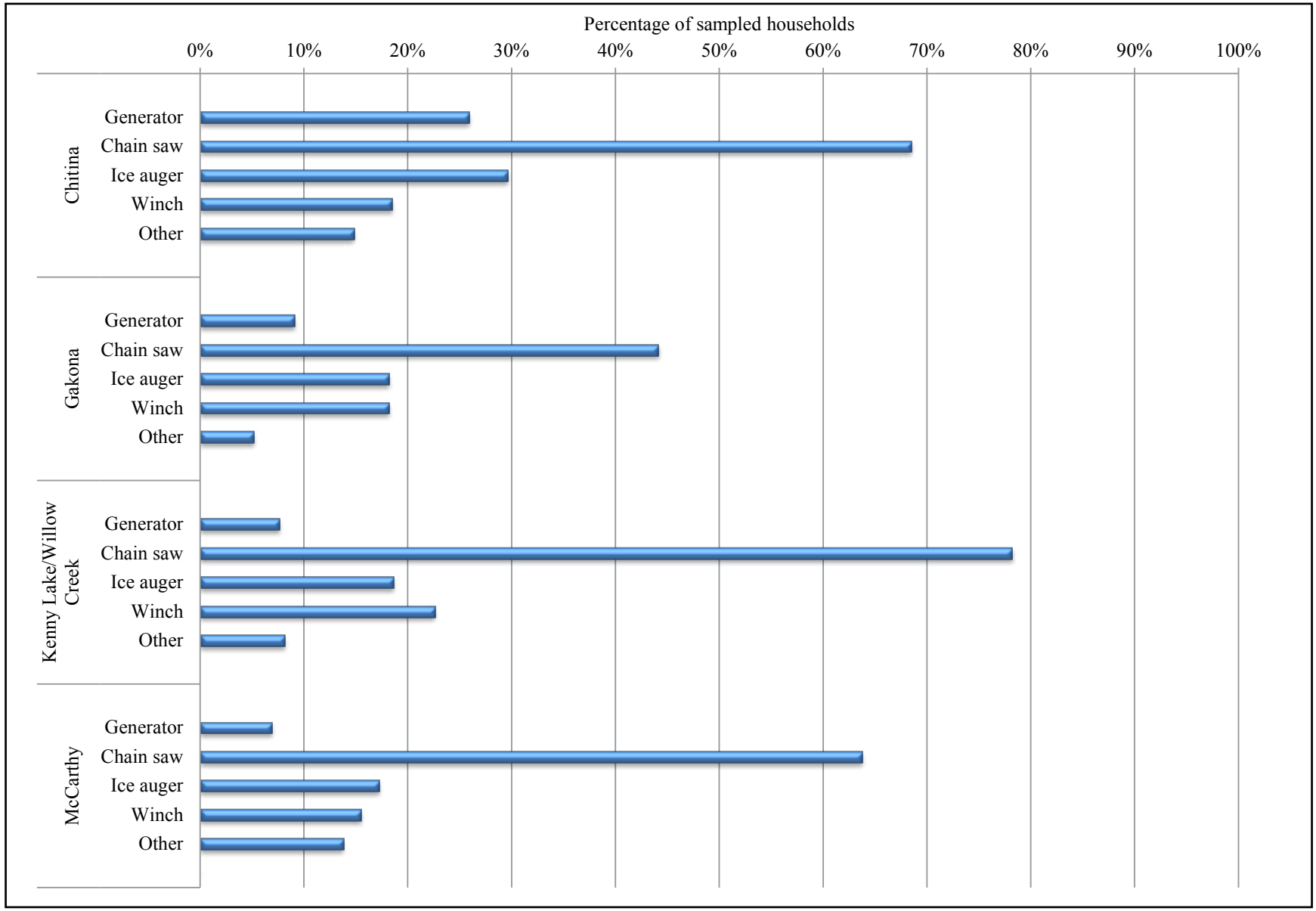


Figure 6-4.–Portable motorized equipment used by sampled households while searching for and harvesting wild resources, study communities, 2012.

Table 6-5.–Portable motorized equipment used by sampled households while searching for and harvesting wild resources, study communities, 2012.

	Generator		Chain saw		Ice auger		Winch		ble motors or motorize	
Community	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Chitina	14	25.9%	37	68.5%	16	29.6%	10	18.5%	8	14.8%
Gakona	7	9.1%	34	44.2%	14	18.2%	14	18.2%	4	5.2%
Kenny Lake/ Willow Creek	13	7.6%	136	78.2%	32	18.6%	39	22.6%	14	8.2%
McCarthy	4	6.9%	37	63.8%	10	17.2%	9	15.5%	8	13.8%

Source ADF&G Division of Subsistence household surveys, 2013.

Another pattern to note regarding large land mammal harvests is that, with the exception of McCarthy, 1987 was the highest per capita harvest of large land mammals for all study years. The per capita harvest decline is explained by many local residents as the result of a combination of increased user pressure from Copper River Basin residents and non-local hunters that live in other areas of the state. Another reason for declined large mammal harvests is that the regulatory cycle worked in favor of area residents for a short period of time in the late 1980s, which is reflected in the higher harvest of 1987; the subsistence registration hunt for caribou and any bull moose (1 per household) was in effect from 1986 through 1989. While an "any bull" designation required conversion factor adjustments because of the greater likelihood that a smaller animal was harvested, it also increased opportunity.

Despite fluctuations in harvests over time, residents felt the wild resource use levels from 2012 were mostly representative of recent trends. When asked whether households used all wild resources less, the same, or more than compared to the last 5 years, the largest percentage of responding households from study communities said their general use level was the same (Figure 3-27; Figure 4-26; Figure 5-23). Kenny Lake/Willow Creek households were an exception; the largest percentage (48%) of households using wild resources estimated that the overall use of wild resources was less in 2012 than in the previous 5 years; 34% felt their harvest was the same (Table 2-19).

Conclusions

The harvest and use of wild resources—whether for food, fur, or home heating—remains vitally important to the residents of Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina. This study documented the harvests of 2012 and then compared results with those from study years 1982 and 1987. In most 2012 study communities the per capita harvest remained high (with the exception of McCarthy). Additionally, use was high for all communities in 2012, with 98% or more of community households reporting at least some use of wild resources (either harvested or received). At the top of the list of most used resources for all 4 communities were sockeye salmon and firewood. While firewood does not contribute to the overall per capita harvest of edible resources, it was used by most households to augment, or as the sole source of, home heating. Salmon's significance to all study communities is made evident by the demonstrated harvest composition increase in each community from the 1982 study to the 2012 study. However, while the over-

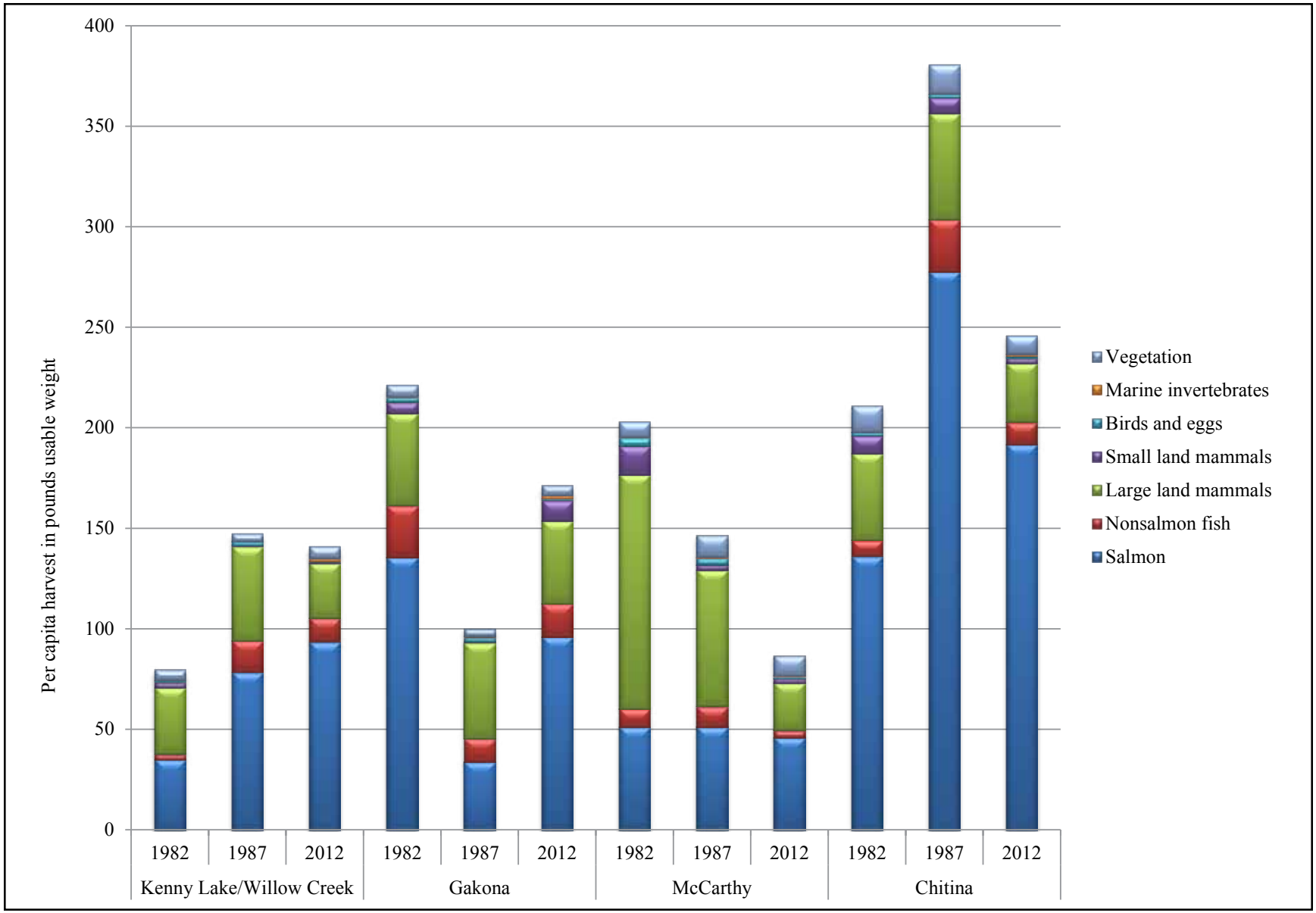


Figure 6-5.–Estimated harvests by pounds per capita and by resource category, study communities, 1982, 1987, and 2012.

Table 6-6.–Historical harvests by composition percentage and per capita weight, study communities, 2012.

Chitina							
Harvests by percent usable weight				**Per capita harvests by pounds usable weight**			
	1982	1987	2012		1982	1987	2012
All resources	100.0%	100.0%	100.0%	All resources	211.0	380.7	245.8
Salmon	64.5%	72.9%	77.9%	Salmon	136.1	277.7	191.6
Nonsalmon fish	3.9%	6.8%	4.6%	Nonsalmon fish	8.2	25.9	11.2
Large land mammals	20.3%	13.9%	11.8%	Large land mammals	42.9	52.7	29.1
Small land mammals	4.2%	2.1%	1.1%	Small land mammals	8.8	8.0	2.8
Birds and eggs	0.8%	0.5%	0.3%	Birds and eggs	1.7	1.8	0.8
Marine invertebrates	0.0%	0.0%	0.4%	Marine invertebrates	0.0	0.0	1.0
Vegetation	6.3%	3.8%	3.8%	Vegetation	13.2	14.6	9.2

Sources CSIS for 1982 and 1987; for 2012, ADF&G Division of Subsistence household surveys, 2013.

Gakona							
Harvests by percent usable weight				**Per capita harvests by pounds usable weight**			
	1982	1987	2012		1982	1987	2012
All resources	100.0%	100.0%	100.0%	All resources	221.1	99.9	171.4
Salmon	61.4%	33.7%	56.0%	Salmon	135.7	33.7	95.9
Nonsalmon fish	11.7%	11.9%	9.7%	Nonsalmon fish	25.8	11.9	16.7
Large land mammals	20.7%	47.6%	23.9%	Large land mammals	45.7	47.6	41.0
Small land mammals	2.6%	0.7%	6.0%	Small land mammals	5.8	0.7	10.4
Birds and eggs	1.0%	2.0%	0.6%	Birds and eggs	2.3	2.0	1.0
Marine invertebrates	0.0%	0.5%	0.7%	Marine invertebrates	0.0	0.5	1.2
Vegetation	2.7%	3.7%	3.0%	Vegetation	5.9	3.7	5.2

Sources CSIS for 1982 and 1987; for 2012, ADF&G Division of Subsistence household surveys, 2013.

-continued-

Table 6-6.–Page 2 of 2.

Kenny Lake/Willow Creek							
Harvests by percent usable weight				**Per capita harvests by pounds usable weight**			
	1982	1987	2012		1982	1987	2012
All resources	100.0%	100.0%	100.0%	All resources	79.7	147.4	140.8
Salmon	43.8%	53.3%	66.5%	Salmon	34.9	78.5	93.6
Nonsalmon fish	3.6%	10.6%	8.3%	Nonsalmon fish	2.9	15.6	11.7
Large land mammals	41.4%	31.9%	19.3%	Large land mammals	33.0	47.0	27.2
Small land mammals	3.6%	0.4%	0.5%	Small land mammals	2.9	0.6	0.7
Birds and eggs	1.1%	1.2%	0.3%	Birds and eggs	0.9	1.7	0.4
Marine invertebrates	0.0%	0.0%	1.0%	Marine invertebrates	0.0	0.0	1.5
Vegetation	6.6%	2.7%	4.1%	Vegetation	5.3	4.0	5.8

Sources CSIS for 1982 and 1987; for 2012, ADF&G Division of Subsistence household surveys, 2013.

McCarthy							
Harvests by percent usable weight				**Per capita harvests by pounds usable weight**			
	1982	1987	2012		1982	1987	2012
All resources	100.0%	100.0%	100.0%	All resources	203.2	146.6	86.8
Salmon	25.2%	34.9%	52.8%	Salmon	51.1	51.2	45.8
Nonsalmon fish	4.5%	7.0%	4.5%	Nonsalmon fish	9.2	10.3	3.9
Large land mammals	57.2%	46.1%	27.0%	Large land mammals	116.2	67.6	23.4
Small land mammals	7.1%	1.9%	2.5%	Small land mammals	14.5	2.8	2.2
Birds and eggs	2.1%	2.3%	1.1%	Birds and eggs	4.3	3.3	1.0
Marine invertebrates	0.0%	0.4%	0.6%	Marine invertebrates	0.0	0.6	0.5
Vegetation	3.9%	7.4%	11.5%	Vegetation	7.9	10.9	10.0

Sources CSIS for 1982 and 1987; for 2012, ADF&G Division of Subsistence household surveys, 2013.

all salmon harvest increased in the study communities, the harvest of large land mammals like moose and caribou has declined. This decline does not represent a decrease in significance for area residents; rather it demonstrates a change in harvest factors such as regulations, competition, uncooperative weather patterns, and decline in availability. Few households reported getting enough large land mammals.

This report represents year 3 of a multi-year study effort to update the subsistence harvest data of all communities in the Copper River Basin and a completion of the ADF&G contractual partnership with the Wrangell–St. Elias National Park and Preserve. The Copper River Basin communities remaining for update were surveyed in the spring of 2014 and a technical paper displaying harvest survey results and analysis is forthcoming.

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For the 2012 study year, the Division of Subsistence would like to thank our local research assistants from each community. In Kenny Lake and Willow Creek we would like to thank Terri Kaiser, Kim Morse, Erin Nicholson, and Craig Tostenson; in Gakona we would like to thank Ann Biddle, Laura Scott, Roselyn Neeley, and Robert Sequak; in McCarthy we would like to thank Tamara Harper, Elizabeth Schafer, and Lynn Welty; and in Chitina we would like to thank Andrea Hand, Carla Somerville, and Mike Winter. All were exceptional partners in our research effort due to their local knowledge and excellent guidance through their communities and many provided invaluable assistance on the front-end of each survey effort, helping research staff with the mapping and development of household lists.

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Appendix A–Survey

Survey Form for McCarthy

COMPREHENSIVE SUBSISTENCE SURVEY

MCCARTHY, ALASKA

January to December, 2012

OMB# 1024-0262(NPS# 10-001)
Expiration date: April 30, 2015

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 the community 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:	MCCARTHY	431
RESPONDENT ID:		
INTERVIEWER:		
INTERVIEW DATE:		
START TIME:		
STOP TIME:		
DATA CODED BY:		
DATA ENTERED BY:		
SUPERVISOR:		

COOPERATING ORGANIZATIONS

WRANGELL-ST. ELIAS
NATIONAL PARK AND PRESERVE
P.O. BOX 439
COPPER CENTER, AK 99573-0439

907-822-5234

DIVISION OF SUBSISTENCE
ALASKA DEPT OF FISH & GAME
333 RASPBERRY ROAD
ANCHORAGE, AK 99518

907-267-2353

HOUSEHOLD MEMBERS

HOUSEHOLD ID

Between JANUARY and DECEMBER, 2012…
…who lived in your household?

ID#	IS THIS PERSON ANSWERING QUESTIONS *ON THIS SURVEY?* (circle)	MALE OR FEMALE? (circle)	ALASKA NATIVE? (circle)	IN WHAT YEAR WAS THIS PERSON BORN? (year)	WHERE WERE PARENTS LIVING WHEN THIS PERSON WAS BORN? (ak city or state)	HOW IS THIS PERSON RELATED TO HOUSEHOLD HEAD 1? (relation)	HOW MANY YEARS HAS THIS PERSON LIVED IN MCCARTHY? (number)
HEAD 1	Y N	M F	Y N				YRS
01							
Enter spouse or partner next. If household has a SINGLE HEAD, leave HEAD 2 blank.							
HEAD 2	Y N	M F	Y N				YRS
02							
Enter children (oldest to youngest), grandchildren, grandparents, brothers, sisters, or anyone else living full-time in this household.							
03	Y N	M F	Y N				YRS
04	Y N	M F	Y N				YRS
05	Y N	M F	Y N				YRS
06	Y N	M F	Y N				YRS
07	Y N	M F	Y N				YRS
08	Y N	M F	Y N				YRS
09	Y N	M F	Y N				YRS
10	Y N	M F	Y N				YRS
11	Y N	M F	Y N				YRS
12	Y N	M F	Y N				YRS
13	Y N	M F	Y N				YRS
14	Y N	M F	Y N				YRS
15	Y N	M F	Y N				YRS

PERMANENT HH MEMBERS: 01 **MCCARTHY: 431**

HOUSEHOLD MEMBER PARTICIPATION

HOUSEHOLD ID

Between JANUARY and DECEMBER, 2012…
…did this person...

PERSON	Fish		Large Land Mammals		Small Land Mammals Furbearers		Birds & Eggs		Plants/Berries/Wood	
ID# FROM	Process	Fish For	Process	Hunt	Process	Hunt/Trap	Process	Hunt/Gather	Process	Gather
Page 2	*(circle)*	*(circle)*	*(circle)*	*(circle)*	*(circle)*	*(circle)*	*(circle)*	*(circle)*	*(circle)*	*(circle)*
Head 1	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
Head 2	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
03	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
04	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
05	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
06	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
07	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
08	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
09	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
10	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
11	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
12	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
13	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
14	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
15	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N

PERMANENT HH MEMBERS: 01 **MCCARTHY: 431**

HOUSEHOLD MEMBER PARTICIPATION

HOUSEHOLD ID

Between JANUARY and DECEMBER, 2012…
…did this person...

PERSON ID# FROM Page 2	Build Fish Wheels (circle)	Sew Skins/Cloth (circle)	Cook Wild Foods (circle)
Head 1	Y N	Y N	Y N
Head 2	Y N	Y N	Y N
03	Y N	Y N	Y N
04	Y N	Y N	Y N
05	Y N	Y N	Y N
06	Y N	Y N	Y N
07	Y N	Y N	Y N
08	Y N	Y N	Y N
09	Y N	Y N	Y N
10	Y N	Y N	Y N
11	Y N	Y N	Y N
12	Y N	Y N	Y N
13	Y N	Y N	Y N
14	Y N	Y N	Y N
15	Y N	Y N	Y N

PERMANENT HH MEMBERS: 01 **MCCARTHY: 431**

HARVESTS: COMMERCIAL SALMON FISHING

HOUSEHOLD ID

Do members of your household USUALLY participate in COMMERCIAL SALMON FISHING ?..... Y N

Between JANUARY and DECEMBER, 2012…
…Did members of your household participate in commercial salmon fishing?..... Y N

IF NO, go to the next harvest page.
If YES, continue on this page…

Please estimate the number of salmon ALL MEMBERS OF YOUR HOUSEHOLD REMOVED FROM COMMERCIAL HARVEST FOR PERSONAL USE OR SHARING in 2012. INCLUDE the fish you gave away, ate fresh, fed to dogs, lost to spoilage, caught as incidental catch while fishing for another species, or got by helping others. If harvested with others, report ONLY YOUR SHARE of the catch.

	IN 2012 DID MEMBERS OF YOUR HH…		IN 2012, HOW MANY _____ WERE REMOVED FOR YOUR OWN USE?	IN 2012, HOW MANY _____ DID YOU REMOVE FROM THE CATCH & GIVE AWAY TO CREW OR OTHERS?		ID NUMBER FROM PAGE 2	
	COMMERCIAL FISH FOR _____?	CATCH AS INCIDENTAL CATCH _____?		CREW	OTHERS	PERMIT HOLDER	CREW
	(circle)	*(circle)*	*(number)*	*(number)*		*(number)*	*(number)*
CHINOOK (KING) SALMON	Y N	Y N	IND	IND	IND		
113000000							
SOCKEYE (RED) SALMON	Y N	Y N	IND	IND	IND		
115000000							
COHO (SILVER) SALMON	Y N	Y N	IND	IND	IND		
112000000							
CHUM (DOG) SALMON	Y N	Y N	IND	IND	IND		
111000000							
PINK (HUMPIES) SALMON	Y N	Y N	IND	IND	IND		
114000000							
UNKNOWN SALMON	Y N	Y N	IND	IND	IND		
119000000							

COMMERCIAL SALMON FISHING: 03 **MCCARTHY: 431**

HARVESTS: COMMERCIAL NON-SALMON FISHING

HOUSEHOLD ID

Do members of your household USUALLY participate in COMMERCIAL NON-SALMON FISHING ?..... Y N

Between JANUARY and DECEMBER, 2012…
…Did members of your household participate in commercial non-salmon fishing?..... Y N

IF NO, go to the next harvest page.
If YES, continue on this page…

Please estimate the number of commercially harvested non-salmon fish ALL MEMBERS OF YOUR HOUSEHOLD REMOVED FROM COMMERCIAL HARVEST FOR PERSONAL USE OR SHARING in 2012. INCLUDE the fish you gave away, ate fresh, fed to dogs, lost to spoilage, caught as incidental catch while fishing for another species, or got by helping others. If harvested with others, report ONLY YOUR SHARE of the

	IN 2012 DID MEMBERS OF YOUR HH…		IN 2012, HOW MANY _____ WERE REMOVED FOR YOUR OWN USE?	IN 2012, HOW MANY _____ DID YOU REMOVE FROM THE CATCH & GIVE AWAY TO CREW OR OTHERS?		ID NUMBER FROM PAGE 2	
	COMMERCIAL FISH FOR _____?	CATCH AS INCIDENTAL CATCH _____?		CREW	OTHERS	PERMIT HOLDER	CREW
	(circle)	*(circle)*	*(number)*	*(number)*		*(number)*	*(number)*
HALIBUT	Y N	Y N	LBS	LBS	LBS		
121800000							
HERRING	Y N	Y N	GAL	GAL	GAL		
120200000							
HERRING SPAWN ON KELP	Y N	Y N	GAL	GAL	GAL		
120306000							
HERRING SAC ROE	Y N	Y N	GAL	GAL	GAL		
120304000							
PACIFIC COD (GRAY)	Y N	Y N	IND	IND	IND		
121004000							
PACIFIC TOM COD	Y N	Y N	IND	IND	IND		
121008000							
SCULPIN	Y N	Y N	IND	IND	IND		
123000000							
STARRY FLOUNDER	Y N	Y N	IND	IND	IND		
121406000							
SMELT	Y N	Y N	GAL	GAL	GAL		
120400000							
ROCKFISH	Y N	Y N	IND	IND	IND		
122600000							
LAMPREY	Y N	Y N	IND	IND	IND		
122000000							
LINGCOD	Y N	Y N	IND	IND	IND		
121606000							

COMMERCIAL NON-SALMON FISHING: 03 **MCCARTHY: 431**

HARVESTS: COMMERCIAL MARINE INVERTEBRATE HARVEST

HOUSEHOLD ID

Do members of your household USUALLY participate in COMMERCIAL MARINE INVERTEBRATE HARVEST ?..... Y N

Between JANUARY and DECEMBER, 2012…
…Did members of your household participate in commercial marine invertebrate harvest?..... Y N

IF NO, go to the next harvest page.
If YES, continue on this page…

Please estimate the commercially harvested marine invertebrates ALL MEMBERS OF YOUR HOUSEHOLD REMOVED FROM COMMERCIAL HARVEST in 2012. INCLUDE the marine invertebrates you gave away, ate fresh, fed to dogs, lost to spoilage, caught as incidental catch while fishing for another species, or got by helping others. If harvested with others, report ONLY YOUR SHARE of the catch.

	IN 2012 DID MEMBERS OF YOUR HH…		IN 2012, HOW MANY _____ WERE REMOVED FOR YOUR OWN USE?	IN 2012, HOW MANY _____ DID YOU REMOVE FROM THE CATCH & GIVE AWAY TO CREW OR OTHERS?		ID NUMBER FROM PAGE 2	
	COMMERCIAL FISH FOR _____?	CATCH AS INCIDENTAL CATCH _____?		CREW	OTHERS	PERMIT HOLDER	CREW
	(circle)	*(circle)*	*(number)*	*(number)*		*(number)*	*(number)*
TANNER CRAB	Y N	Y N	LBS	LBS	LBS		
501012000							
DUNGENESS CRAB	Y N	Y N	LBS	LBS	LBS		
501004000							
SHRIMP	Y N	Y N	GAL	GAL	GAL		
503400000							
SQUID	Y N	Y N	GAL	GAL	GAL		
503800000							
OCTOPUS	Y N	Y N	IND	IND	IND		
502200000							
	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					

COMMERCIAL MARINE INVERTEBRATE HARVEST: 03 **MCCARTHY: 431**

HARVESTS: SALMON (NON-COMMERCIAL)

HOUSEHOLD ID

Do members of your household USUALLY harvest SALMON ?.....Y N

Between JANUARY and DECEMBER, 2012…
…Did members of your household USE or TRY TO HARVEST salmon?.....Y N

IF NO, go to the next harvest page.
If YES, continue on this page…

Please estimate how many salmon ALL MEMBERS OF YOUR HOUSEHOLD HARVESTED in 2012, including with a rod and reel. INCLUDE salmon you gave away, ate fresh, fed to dogs, lost to spoilage, or got by helping others. If fishing with others, report ONLY YOUR SHARE of the catch. Do not include fish caught and released.

	IN 2012 DID MEMBERS OF YOUR HH…				IN 2012, HOW MANY _____ DID YOUR HOUSEHOLD…				
	USE?	TRY TO HARVEST?	RECEIVE?	GIVE AWAY?	…CATCH WITH A FISH WHEEL?	…CATCH WITH A DIPNET?	…CATCH WITH ROD AND REEL?	…CATCH WITH OTHER GEAR?	UNITS
	(circle)				*(number taken by each gear type)*				*(ind, lbs)*
CHINOOK (KING) SALMON	Y N	Y N	Y N	Y N					IND
113000000									
SOCKEYE (RED) SALMON	Y N	Y N	Y N	Y N					IND
115000000									
COHO (SILVER) SALMON	Y N	Y N	Y N	Y N					IND
112000000									
CHUM (DOG) SALMON	Y N	Y N	Y N	Y N					IND
111000000									
PINK (HUMPIES) SALMON	Y N	Y N	Y N	Y N					IND
114000000									
LANDLOCKED SALMON *Kokanee*	Y N	Y N	Y N	Y N					IND
116000000									
UNKNOWN SALMON	Y N	Y N	Y N	Y N					IND
119000000									

These columns should include all the harvests: salmon HARVESTED by members of this household in 2012.

SALMON

Between JANUARY and DECEMBER, 2012…
…Did your household use LESS, SAME, or MORE salmon than in recent years?..... X L S M
X = DO NOT USE

If SAME or DO NOT USE, skip the next question.

If different (LESS or MORE), how and why was your use different? _____

Between JANUARY and DECEMBER, 2012…
…WHERE did members of your household HARVEST salmon? *On MAP, mark all harvest locations for page subject.*

SALMON : 04 **MCCARTHY: 431**

HARVESTS: OTHER FISH (NON-COMMERCIAL)

HOUSEHOLD ID

Do members of your household USUALLY harvest OTHER FISH ?.....Y N

Between JANUARY and DECEMBER, 2012…
…Did members of your household USE or TRY TO HARVEST other fish?.....Y N

IF NO, go to the next harvest page.
If YES, continue on this page…

Please estimate how many other fish ALL MEMBERS OF YOUR HOUSEHOLD HARVESTED in 2012, including with a rod and reel. INCLUDE other fish you gave away, ate fresh, fed to dogs, lost to spoilage, or got by helping others. If fishing with others, report ONLY YOUR SHARE of the catch. Do not include fish caught and released

	IN 2012 DID MEMBERS OF YOUR HH…				IN 2012, HOW MANY _____ DID YOUR HOUSEHOLD…			
	USE?	TRY TO HARVEST?	RECEIVE?	GIVE AWAY?	…CATCH WITH ICE FISHING OR JIGGING?	…CATCH WITH ROD AND REEL?	…CATCH WITH OTHER GEAR?	UNITS
	(circle)				*(number taken by each gear type)*			*(ind, lbs)*
RAINBOW TROUT 126204000	Y N	Y N	Y N	Y N				IND
LAKE TROUT 125010000	Y N	Y N	Y N	Y N				IND
CUTTHROAT TROUT 126202000	Y N	Y N	Y N	Y N				IND
TROUT *Unknown* 126200000	Y N	Y N	Y N	Y N				IND
DOLLY VARDEN 125006000	Y N	Y N	Y N	Y N				IND
GRAYLING 125200000	Y N	Y N	Y N	Y N				IND
PIKE 125400000	Y N	Y N	Y N	Y N				IND
BURBOT *Ling Cod* 124800000	Y N	Y N	Y N	Y N				IND
ROUND WHITEFISH 126412000	Y N	Y N	Y N	Y N				IND
HUMPBACK WHITEFISH 126408000	Y N	Y N	Y N	Y N				IND
BROAD WHITEFISH 126404000	Y N	Y N	Y N	Y N				IND
LEAST CISCO 126406060	Y N	Y N	Y N	Y N				IND
UNKNOWN WHITEFISH 126400000	Y N	Y N	Y N	Y N				IND
SUCKER 126000000	Y N	Y N	Y N	Y N				IND

Continue on next page

These columns should include all the harvests: other fish HARVESTED by members of this household in 2012.

OTHER FISH: 06 **MCCARTHY: 431**

HARVESTS: OTHER FISH (NON-COMMERCIAL)

HOUSEHOLD ID

…continued

Please estimate how many other fish ALL MEMBERS OF YOUR HOUSEHOLD HARVESTED in 2012 , including with a rod and reel. INCLUDE other fish you gave away, ate fresh, fed to dogs, lost to spoilage, or got by helping others. If fishing with others, report ONLY YOUR SHARE of the catch. Do not include fish caught and released.

	IN 2012 DID MEMBERS OF YOUR HH…				IN 2012, HOW MANY _____ DID YOUR HOUSEHOLD…			
	USE?	TRY TO HARVEST?	RECEIVE?	GIVE AWAY?	…CATCH WITH ICE FISHING OR JIGGING?	…CATCH WITH ROD AND REEL?	…CATCH WITH OTHER GEAR?	UNITS
	(circle)				(number taken by each gear type)			(ind, lbs)
HALIBUT 121800000	Y N	Y N	Y N	Y N				LBS
HERRING 120200000	Y N	Y N	Y N	Y N				GAL
PACIFIC COD (GRAY) 121004000	Y N	Y N	Y N	Y N				IND
PACIFIC TOM COD 121008000	Y N	Y N	Y N	Y N				IND
STARRY FLOUNDER 121406000	Y N	Y N	Y N	Y N				IND
SMELT 120400000	Y N	Y N	Y N	Y N				GAL
ROCKFISH 122600000	Y N	Y N	Y N	Y N				IND
LAMPREY 122000000	Y N	Y N	Y N	Y N				IND
LINGCOD 121606000	Y N	Y N	Y N	Y N				IND
	Y N	Y N	Y N	Y N				

These columns should include all the harvests: other fish HARVESTED by members of this household in 2012.

OTHER FISH

Between JANUARY and DECEMBER, 2012…

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

X = DO NOT USE

If the SAME or DO NOT USE, skip the next question.

If different (LESS or MORE), how and why was your use different? _____

Between JANUARY and DECEMBER, 2012…

…WHERE did members of your household HARVEST other fish? *On MAP, mark all harvest locations for page subject.*

OTHER FISH: 06 **MCCARTHY: 431**

HARVESTS: MARINE INVERTEBRATES/SHELLFISH

HOUSEHOLD ID

Do members of your household USUALLY harvest MARINE INVERTEBRATES/SHELLFISH ?.....Y N

Between JANUARY and DECEMBER, 2012…
…Did members of your household USE or TRY TO HARVEST marine invertebrates/shellfish ?.....Y N

IF NO, go to the next harvest page.

If YES, continue on this page…

Please estimate how many marine invertebrates/shellfish ALL MEMBERS OF YOUR HOUSEHOLD HARVESTED in 2012. INCLUDE marine invertebrates/shellfish you gave away, ate fresh, fed to dogs, lost to spoilage, or got by helping others. If fishing with others, report ONLY YOUR SHARE of the catch.

	IN 2012 DID MEMBERS OF YOUR HH… USE?	TRY TO HARVEST?	RECEIVE?	GIVE AWAY?	IN 2012, HOW MANY _____ DID YOUR HOUSEHOLD HARVEST?	UNITS
	(circle)				(number taken)	(ind, lbs,gal)
DUNGENESS CRAB 501004000	Y N	Y N	Y N	Y N		LBS
KING CRAB 501008000	Y N	Y N	Y N	Y N		LBS
TANNER CRAB 501012000	Y N	Y N	Y N	Y N		LBS
RAZOR CLAMS 500612000	Y N	Y N	Y N	Y N		GAL
FRESHWATER CLAMS 500604000	Y N	Y N	Y N	Y N		GAL
	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		

These columns should include all the harvests: marine invertebrates/shellfish HARVESTED by members of this household in 2012.

MARINE INVERTEBRATES/SHELLFISH

Between JANUARY and DECEMBER, 2012…
…Did your household use LESS, SAME, or MORE marine invertebrates/shellfish than in recent years?..... X L S M

X = DO NOT USE

If the SAME or DO NOT USE, skip the next question.

If different (LESS or MORE), how and why was your use different?

Between JANUARY and DECEMBER, 2012…
…WHERE did members of your household HARVEST marine invertebrates/shellfish?

On MAP, mark all harvest locations for page subject.

MARINE INVERTEBRATES/SHELLFISH: 08 **MCCARTHY: 431**

HARVESTS: LARGE LAND MAMMALS

HOUSEHOLD ID

Do members of your household USUALLY hunt for LARGE LAND MAMMALS?.....Y N

Between JANUARY and DECEMBER, 2012…
…Did members of your household USE or TRY TO HARVEST large land mammals?.....Y N

IF NO, go to the next harvest page.
If YES, continue on this page…

Please estimate how many large land mammals ALL MEMBERS OF YOUR HOUSEHOLD HARVESTED in 2012. INCLUDE large land mammals you gave away, ate fresh, fed to dogs, lost to spoilage, or got by helping others. If hunting with others, report ONLY YOUR SHARE of the catch.

	IN 2012 DID MEMBERS OF YOUR HH…					IN 2012, HOW MANY _____ DID MEMBERS OF YOUR HOUSEHOLD HARVEST?													
	USE?	TRY TO HARVEST?	RECEIVE?	GIVE AWAY?	SEX	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	UNKNOWN	UNITS
	(circle)					(enter number by sex and month of take)													(ind)
MOOSE	Y N	Y N	Y N	Y N	M														IND
211800000					F														
					?														
211800001					M														
211800002					F														
211800009					?														
CARIBOU	Y N	Y N	Y N	Y N	M														IND
211000000					F														
					?														
211000001					M														
211000002					F														
211000009					?														
BLACK BEAR	Y N	Y N	Y N	Y N															IND
210600000																			
BROWN BEAR	Y N	Y N	Y N	Y N															IND
210800000																			
DALL SHEEP	Y N	Y N	Y N	Y N															IND
212200000																			
GOAT	Y N	Y N	Y N	Y N															IND
211600000																			
DEER	Y N	Y N	Y N	Y N															IND
211200000																			
BISON	Y N	Y N	Y N	Y N															IND
210400000																			

LARGE LAND MAMMALS

Between JANUARY and DECEMBER, 2012…
…Did your household use LESS, SAME, or MORE large land mammals than in recent years?..... X L S M

X = DO NOT USE

If the SAME or DO NOT USE, skip the next question.

If different (LESS or MORE), how and why was your use different? _____

Between JANUARY and DECEMBER, 2012…
…WHERE did members of your household HUNT FOR large land mammals? *On MAP, mark all harvest locations for page subject.*
…WHERE did members of your household HARVEST large land mammals? *Circle all search areas on MAP*

LARGE LAND MAMMALS: 10 **MCCARTHY: 431**

HARVESTS: SMALL LAND MAMMALS OR FURBEARERS

HOUSEHOLD ID

Do members of your household USUALLY hunt or trap for SMALL LAND MAMMALS OR FURBEARERS for subsistence?... Y N

Between JANUARY and DECEMBER, 2012…
…Did members of your household USE or TRY TO HARVEST small land mammals or furbearers?..... Y N

IF NO, go to the next harvest page.
If YES, continue on this page…

Please estimate how many small land mammals or furbearers ALL MEMBERS OF YOUR HOUSEHOLD HARVESTED in 2012. INCLUDE small land mammals or furbearers you gave away, ate fresh, fed to dogs, lost to spoilage, or got by helping others. If hunting or trapping with others, report ONLY YOUR SHARE of the catch.

	IN 2012 DID MEMBERS OF YOUR HH…					IN 2012, HOW MANY _____ DID MEMBERS OF YOUR HOUSEHOLD HARVEST?													HOW MANY _____ WERE USED FOR FUR ONLY?	UNITS
	USE?	TRY TO HARVEST?	RECEIVE?	GIVE AWAY?	SEX	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	UNKNOWN		
	(circle)					(enter number by month of take)														(ind)
BEAVER 220200000	Y N	Y N	Y N	Y N																IND
PORCUPINE 222600000	Y N	Y N	Y N	Y N																IND
SNOWSHOE HARE 221004000	Y N	Y N	Y N	Y N																IND
RED FOX 220804000	Y N	Y N	Y N	Y N																IND
CROSS FOX 220804020	Y N	Y N	Y N	Y N																IND
WOLF 223200000	Y N	Y N	Y N	Y N																IND
WOLVERINE 223400000	Y N	Y N	Y N	Y N																IND
LAND OTTER 221200000	Y N	Y N	Y N	Y N																IND
MUSKRAT 222400000	Y N	Y N	Y N	Y N																IND
	Y N	Y N	Y N	Y N																IND

Continue on next page

SMALL LAND MAMMALS: 14 **MCCARTHY: 431**

HARVESTS: SMALL LAND MAMMALS OR FURBEARERS

HOUSEHOLD ID

....continued

Please estimate how many small land mammals or furbearers ALL MEMBERS OF YOUR HOUSEHOLD HARVESTED in 2012. INCLUDE small land mammals or furbearers you gave away, ate fresh, fed to dogs, lost to spoilage, or got by helping others. If hunting or trapping with others, report ONLY YOUR SHARE of the catch.

	IN 2012 DID MEMBERS OF YOUR HH…					IN 2012, HOW MANY _____ DID MEMBERS OF YOUR HOUSEHOLD HARVEST?													HOW MANY _____ WERE USED FOR FUR ONLY?	UNITS
	USE?	TRY TO HARVEST?	RECEIVE?	GIVE AWAY?	SEX	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	UNKNOWN		
	(circle)					*(enter number by month of take)*														*(ind)*
WEASEL 223000000	Y N	Y N	Y N	Y N																IND
LYNX 221600000	Y N	Y N	Y N	Y N																IND
MARTEN 222000000	Y N	Y N	Y N	Y N																IND
COYOTE 220400000	Y N	Y N	Y N	Y N																IND
MINK 222200000	Y N	Y N	Y N	Y N																IND
MARMOT 221800000	Y N	Y N	Y N	Y N																IND
GROUND SQUIRREL 222800000	Y N	Y N	Y N	Y N																IND
TREE SQUIRREL 222804000	Y N	Y N	Y N	Y N																IND
	Y N	Y N	Y N	Y N																IND

SMALL LAND MAMMALS OR FURBEARERS

Between JANUARY and DECEMBER, 2012…

…Did your household use LESS, SAME, or MORE small land mammals or furbearers than in recent years?..... X L S M

X = DO NOT USE

If the SAME or DO NOT USE, skip the next question.

If different (LESS or MORE), how and why was your use different? _____

Between JANUARY and DECEMBER, 2012…

…WHERE did members of your household HUNT OR TRAP FOR small land mammals or furbearers?

…WHERE did members of your household HARVEST small land mammals or furbearers?

On MAP, mark all harvest locations for page subject.
Circle all search areas on MAP

SMALL LAND MAMMALS: 14 **MCCARTHY: 431**

HARVESTS: MIGRATORY WATERFOWL

HOUSEHOLD ID

Do members of your household USUALLY hunt for MIGRATORY WATERFOWL?.....Y N

Between JANUARY and DECEMBER, 2012…
…Did members of your household USE or TRY TO HARVEST migratory waterfowl?.....Y N

IF NO, go to the next harvest page.
If YES, continue on this page…

Please estimate how many migratory waterfowl ALL MEMBERS OF YOUR HOUSEHOLD HARVESTED in 2012. INCLUDE migratory waterfowl you gave away, ate fresh, lost to spoilage, or got by helping others. If hunting with others, report ONLY YOUR SHARE of the catch.

	IN 2012 DID MEMBERS OF YOUR HH…				IN 2012, HOW MANY _____ DID MEMBERS OF YOUR HOUSEHOLD HARVEST?												
	USE?	TRY TO HARVEST?	RECEIVE?	GIVE AWAY?	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	UNKNOWN
	(circle)																
CANADA GEESE (CACKLERS)	Y N	Y N	Y N	Y N													
410404040																	
CANADA GEESE (BIG LESSER)	Y N	Y N	Y N	Y N													
410404080																	
CANADA GEESE (UNKNOWN)	Y N	Y N	Y N	Y N													
410404000																	
WHITE-FRONTED GEESE *Specklebelly*	Y N	Y N	Y N	Y N													
410410000																	
SPECTACLED EIDER	Y N	Y N	Y N	Y N													
410206060																	
BRANT (SEA GEESE)	Y N	Y N	Y N	Y N													
410402000																	
EMPEROR GEESE	Y N	Y N	Y N	Y N													
410406000																	
SNOW GEESE	Y N	Y N	Y N	Y N													
410408000																	
GEESE (UNKNOWN)	Y N	Y N	Y N	Y N													
410400000																	
TUNDRA SWAN (WHISTLING)	Y N	Y N	Y N	Y N													
410604000																	
SANDHILL CRANE	Y N	Y N	Y N	Y N													
410802000																	
MALLARD	Y N	Y N	Y N	Y N													
410214000																	
NORTHERN PINTAIL	Y N	Y N	Y N	Y N													
410220000																	

Continue on next page.

HARVESTS: MIGRATORY WATERFOWL

HOUSEHOLD ID

...continued

	IN 2012 DID MEMBERS OF YOUR HH…				IN 2012, HOW MANY _____ DID MEMBERS OF YOUR HOUSEHOLD HARVEST?												
	USE?	TRY TO HARVEST?	RECEIVE?	GIVE AWAY?	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	UNKNOWN
	(circle)																
GOLDENEYE 410210000	Y N	Y N	Y N	Y N													
GREEN WINGED TEAL 410232060	Y N	Y N	Y N	Y N													
CANVASBACK 410204000	Y N	Y N	Y N	Y N													
BLACK SCOTER (BLACK DUCK) 410228020	Y N	Y N	Y N	Y N													
DUCKS (UNKNOWN) 410200000	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													

MIGRATORY WATERFOWL

Between JANUARY and DECEMBER, 2012…

…Did your household use LESS, SAME, or MORE migratory waterfowl than in recent years?..... X L S M

X = DO NOT USE

If the SAME or DO NOT USE go on to next page.

If different (LESS or MORE), how and why was your use different? _____

Between JANUARY and DECEMBER, 2012…

…WHERE did members of your household HARVEST migratory waterfowl? *On MAP, mark all harvest locations for migratory waterfowl.*

…WHERE did members of your household HUNT FOR migratory waterfowl? *Circle all search areas on MAP*

MIGRATORY WATERFOWL: 15 **MCCARTHY: 431**

HARVESTS: OTHER BIRDS

HOUSEHOLD ID

Do members of your household USUALLY hunt for OTHER BIRDS?.....Y N

Between JANUARY and DECEMBER, 2012…
…Did members of your household USE or TRY TO HARVEST other birds?.....Y N

IF NO, go to the next harvest page.
If YES, continue on this page…

Please estimate how many other birds ALL MEMBERS OF YOUR HOUSEHOLD HARVESTED in 2012. INCLUDE other birds you gave away, ate fresh, lost to spoilage, or got by helping others. If hunting with others, report ONLY YOUR SHARE of the catch.

	IN 2012 DID MEMBERS OF YOUR HH…				IN 2012, HOW MANY _____ DID MEMBERS OF YOUR HOUSEHOLD HARVEST?											
	USE?	TRY TO HARVEST?	RECEIVE?	GIVE AWAY?	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	UNKNOWN
	(circle)																
PTARMIGAN 421804000	Y N	Y N	Y N	Y N													
SPRUCE GROUSE 421802020	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													

OTHER BIRDS

Between JANUARY and DECEMBER, 2012…
…Did your household use LESS, SAME, or MORE other birds than in recent years?..... X L S M
X = DO NOT USE

If the SAME or DO NOT USE go on to next page.

If different (LESS or MORE), how and why was your use different? _____

Between JANUARY and DECEMBER, 2012…
…WHERE did members of your household HUNT FOR other birds? *On MAP, mark all harvest locations for other birds.*
…WHERE did members of your household HARVEST other birds? *Circle all search areas on MAP*

OTHER BIRDS: 15 **MCCARTHY: 431**

HARVESTS: BIRD EGGS

HOUSEHOLD ID

Do members of your household USUALLY look for BIRD EGGS?.....Y N

Between JANUARY and DECEMBER, 2012…
…Did members of your household USE or TRY TO GATHER bird eggs?.....Y N

IF NO, go to the next harvest page.

If YES, continue on this page…

Please estimate how many bird eggs ALL MEMBERS OF YOUR HOUSEHOLD GATHERED in 2012. INCLUDE bird eggs you gave away, ate fresh, lost to spoilage, or got by helping others. If looking with others, report ONLY YOUR SHARE of the eggs.

	IN 2012 DID MEMBERS OF YOUR HH…				IN 2012, HOW MANY _____ DID MEMBERS OF YOUR HOUSEHOLD GATHER?											
	USE?	TRY TO HARVEST?	RECEIVE?	GIVE AWAY?	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	UNKNOWN
	(circle)																
GULL EGGS	Y N	Y N	Y N	Y N													
431212000																	
GEESE EGGS	Y N	Y N	Y N	Y N													
430400000																	
DUCK EGGS	Y N	Y N	Y N	Y N													
430200000																	
EGGS (UNKNOWN)	Y N	Y N	Y N	Y N													
430000000																	
	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													

EGGS

Between JANUARY and DECEMBER, 2012…
…Did your household use LESS, SAME, or MORE eggs than in recent years?..... X L S M

X = DO NOT USE

If the SAME or DO NOT USE go on to next page.

If different (LESS or MORE), how and why was your use different? _____

Between JANUARY and DECEMBER, 2012…
…WHERE did members of your household GATHER bird eggs? *On MAP, mark all harvest locations for bird eggs.*
…WHERE did members of your household LOOK FOR bird eggs? *Circle all search areas on MAP*

BIRD EGGS: 15 **MCCARTHY: 431**

HARVESTS: PLANTS AND BERRIES INCLUDING WOOD

HOUSEHOLD ID

Do members of your household USUALLY harvest PLANTS AND BERRIES INCLUDING WOOD?..... Y N

Between JANUARY and DECEMBER, 2012…
…Did members of your household USE or TRY TO HARVEST plants and berries including wood?..... Y N

IF NO, go to the next harvest page.
If YES, continue on this page…

Please estimate how many plants and berries including wood ALL MEMBERS OF YOUR HOUSEHOLD HARVESTING in 2012. INCLUDE plants and berries including wood you gave away, ate fresh, lost to spoilage, or got by helping others. If harvesting with others, report ONLY YOUR SHARE of the harvest.

	IN 2012 DID MEMBERS OF YOUR HH…				IN 2012, HOW MANY _____ DID MEMBERS OF YOUR HOUSEHOLD HARVEST?	UNITS/NOTES
	USE?	TRY TO HARVEST?	RECEIVE?	GIVE AWAY?		
	(circle)				(number)	(each, gallons, buckets, etc.)
BLUEBERRY 601002000	Y N	Y N	Y N	Y N		
LOW BUSH CRANBERRY 601004000	Y N	Y N	Y N	Y N		
HIGH BUSH CRANBERRY 601006000	Y N	Y N	Y N	Y N		
RASPBERRY 601020000	Y N	Y N	Y N	Y N		
OTHER BERRIES *(List)* 601000000	Y N	Y N	Y N	Y N		
HUDSON BAY TEA *Labrador Tea* 602018000	Y N	Y N	Y N	Y N		
MUSHROOMS 602040000	Y N	Y N	Y N	Y N		
OTHER PLANTS *(List)* 602000002	Y N	Y N	Y N	Y N		
WOOD *Firewood* 604000000	Y N	Y N	Y N	Y N		
WOOD *(Specify Use)* 604000002	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		

PLANTS AND BERRIES

Between JANUARY and DECEMBER, 2012…
…Did your household use LESS, SAME, or MORE plants and berries than in recent years?..... X L S M
X = DO NOT USE

If the SAME or DO NOT USE go on to next page.

If different (LESS or MORE), how and why was your use different? _____

Between JANUARY and DECEMBER, 2012…
…WHERE did members of your household harvest plants and berries including wood? *On MAP, mark all harvest areas for page subject.*

PLANTS AND BERRIES: 17 **MCCARTHY: 431**

ASSESSMENTS

HOUSEHOLD ID

WILD RESOURCES

Between JANUARY and DECEMBER, 2012…

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

Last year…

…did your household use LESS, SAME, or MORE wild 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 GET ENOUGH wild resources?..... Y N

If NO…

What KIND of wild resources did you need?..... _____

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

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

IF YES…

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

_____ 2

HEALTH IMPACT ASSESSMENTS

Now I am going to ask you some questions about the foods your family normally eats. The purpose of these questions is to identify the most commonly eaten subsistence foods and the foods you most commonly eat if you are not eating subsistence foods. We do not care if you harvest the foods, receive them from others or purchase them at the store, just what you most commonly eat.

In a normal week, how many times a day on average are subsistence foods such as salmon, non-salmon fish, moose, caribou, birds, etc. served in your household?

- None - don't use
- less than 1 time per day
- 1-2 times per day
- 2-3 times per day
- more than 3 times a day

Please list the top five subsistence foods you eat in your household on a regular basis. Think about those foods that may not be important now but are important at other times of the year as well.

_____

_____

_____

_____

_____

If you cannot get subsistence foods, what do you eat instead?

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

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 **MCCARTHY: 431**

ADDITIONAL ASSESSMENTS — HOUSEHOLD ID

Resource Health

During 2012, were there any resources that your household avoided harvesting due to poor resource health? If YES, which resources did you avoid and why?

Transportation and Motorized Equipment

During 2012, did members of your household use the following when harvesting or attempting to harvest wild foods?

	circle
boat	Y N
snowmachine	Y N
4-wheeler/ORV	Y N
airplane	Y N
dogsled	Y N

Does your household own, borrow, lease, or charter this equipment?

Circle only responses that the respondent answered yes to above.

	Own	Borrow	Lease	Charter
boat	Y N	Y N	Y N	Y N
snowmachine	Y N	Y N	Y N	Y N
4-wheeler/ORV	Y N	Y N	Y N	Y N
airplane	Y N	Y N	Y N	Y N
dogsled	Y N	Y N	Y N	Y N

Comments:

During 2012, did members of your household use the following portable motors or motorized equipment when harvesting or attempting to harvest wild foods?

	circle
chainsaw	Y N
ice auger	Y N
winch	Y N
generator	Y N
Other	Y N

Heating

What proportion of your household's heating comes from firewood?

	circle
0%	
1-25%	
26-50%	
51-75%	
76-99%	
100%	

In the past 5 years has your harvest area for firewood changed? circle Y N

If yes, please explain why?

How much do you spend annually to heat your home? $

Handicrafts

During 2012, did members of your household participate in the making of handicrafts using the following materials?

	circle
birchbark	Y N
horns	Y N
antlers	Y N
other natural material (specify)	Y N

JOBS — FOR EACH PERSON IN THE HOUSEHOLD, 16 YEARS OLD AND OLDER — HOUSEHOLD ID

Between JANUARY and DECEMBER, 2012…
…Did any members of your household earn money from a JOB or from SELF EMPLOYMENT?..... Y N

For each member of this household born before 1997, please list EACH JOB held between JANUARY and DECEMBER, 2012.
For household members who did not have a job, write: "RETIRED," "UNEMPLOYED," "STUDENT," "HOMEMAKER," etc.
There should be at least ONE ROW for each member of this household born BEFORE 1997.

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. If one person has more than one job, list each job on a separate line. (One person may have several lines.)

REMEMBER COMMERCIAL FISHING & TRAPPING IF APPLICABLE.

	WHO HAD THIS JOB? *person*	WHAT KIND OF WORK DID HE/SHE DO IN THIS JOB? *job title*	FOR WHOM DID HE/SHE WORK IN THIS JOB? *employer, SIC*	JOB LOCATION? *community*	IN 2012, WHAT MONTHS DID HE OR SHE WORK IN THIS JOB? *circle each month worked*	WORK SCHEDULE… FULL TIME / PART TIME / SHIFT - FULL TIME / ON-CALL, VARIES / SHIFT - PART TIME *circle one*	IN 2012, HOW MUCH DID HE/SHE EARN IN THIS JOB? *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		SOC				SCHEDULE	
2ND JOB					J F M A M J J A S O N D	FT PT SF OC SP	$ / YR
2 6 910100000		SOC				SCHEDULE	
3RD JOB					J F M A M J J A S O N D	FT PT SF OC SP	$ / YR
3 6 910100000		SOC				SCHEDULE	
4TH JOB					J F M A M J J A S O N D	FT PT SF OC SP	$ / YR
4 6 910100000		SOC				SCHEDULE	
5TH JOB					J F M A M J J A S O N D	FT PT SF OC SP	$ / YR
5 6 910100000		SOC				SCHEDULE	
6TH JOB					J F M A M J J A S O N D	FT PT SF OC SP	$ / YR
6 6 910100000		SOC				SCHEDULE	
7TH JOB					J F M A M J J A S O N D	FT PT SF OC SP	$ / YR
7 6 910100000		SOC				SCHEDULE	
8TH JOB					J F M A M J J A S O N D	FT PT SF OC SP	$ / YR
8 6 910100000		SOC				SCHEDULE	
9TH JOB					J F M A M J J A S O N D	FT PT SF OC SP	$ / YR
9 6 910100000		SOC				SCHEDULE	
10TH JOB					J F M A M J J A S O N D	FT PT SF OC SP	$ / YR
10 6 910100000		SOC				SCHEDULE	
11TH JOB					J F M A M J J A S O N D	FT PT SF OC SP	$ / YR
11 6 910100000		SOC				SCHEDULE	
12TH JOB					J F M A M J J A S O N D	FT PT SF OC SP	$ / YR
12 6 910100000		SOC				SCHEDULE	

If a person is SELF-EMPLOYED (selling carvings, crafts, bread, etc), list that as a separate job. Enter "sewer," "carver," "baker," etc. as JOB TITLE. Work schedule usually will be "ON CALL." For gross income from self employment ("profit"), enter revenue MINUS expenses.

If a person is UNEMPLOYED, specify retired, unemployed, disabled, student, or homemaker as the JOB TITLE.

TRAPPING for barter or sale IS a job. COMMERCIAL FISHING is recorded as "ON-CALL, VARIES" for work schedule.

WORK SCHEDULE
1 - Fulltime (35+ hours/week)
2 - Parttime (<35 hours/week)
3 - Shift (2 wks on/2 off, etc.)

GROSS INCOME is the same as TAXABLE INCOME on a W-2 form.

EMPLOYMENT: 23 **MCCARTHY: 431**

OTHER INCOME

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

Between JANUARY and DECEMBER, 2012…
…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 HH RECEIVE INCOME FROM _____ IN 2012? (circle one)	TOTAL AMOUNT ALL MEMBERS OF YOUR HH RECEIVED IN 2012? (dollars)
DIVIDENDS	ALASKA PERMANENT FUND DIVIDEND	Y N	$ /YR
	32		
DIVIDENDS	NATIVE CORPORATION DIVIDENDS	Y N	$ /YR
	13		

ALASKA PFD IN 2012
1 PFD = $878
2 PFDs = $1,756
3 PFDs = $2,634
4 PFDs = $3,512
5 PFDs = $4,390
6 PFDs = $5,268
7 PFDs = $6,146
8 PFDs = $7,024
9 PFDs = $7,902
10 PFDs = $8,780
11 PFDs = $9,658

AHTNA INC. DIVIDENDS IN 2012					
SHARES			*ELDER DIVIDEND*		
1	*share=*	*$3.53*	*1*	*divd=*	*$300*
100	*shrs=*	*$353*	*2*	*divd=*	*$600*
150	*shrs=*	*$530*	*3*	*divd=*	*$900*
200	*shrs=*	*$706*	*4*	*divd=*	*$1,200*
			5	*divd=*	*$1,500*

Between JANUARY and DECEMBER, 2012…
…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 IN 2012? (circle one)	TOTAL AMOUNT IN 2012? (dollars)	*scratch paper for calculations*
JOB BENEFITS	UNEMPLOYMENT	Y N	$ /YR	$_____ per week for _____ weeks = $_____ per month for _____ months =
	12			
JOB BENEFITS	WORKERS' COMPENSATION	Y N	$ /YR	$_____ per week for _____ weeks = $_____ per month for _____ months =
	8			
ASSISTANCE	FOOD STAMPS (QUEST CARD)	Y N	$ /YR	$_____ per week for _____ weeks = $_____ per month for _____ months =
	11			
ASSISTANCE	ADULT PUBLIC ASSISTANCE	Y N	$ /YR	$_____ per week for _____ weeks = $_____ per month for _____ months =
	3			
ELDER BENEFITS	ALASKA SENIOR BENEFITS (LONGEVITY)	Y N	$ /YR	Depends on Income: $125 per month for 12 months = $1,500 per elder $175 per month for 12 months = $2,100 per elder $250 per month for 12 months = $3,000 per elder
	6			
ELDER BENEFITS	PENSION & RETIREMENT	Y N	$ /YR	$_____ per week for _____ weeks = $_____ per month for _____ months =
	5			
ELDER BENEFITS	SOCIAL SECURITY	Y N	$ /YR	$_____ per week for _____ weeks = $_____ per month for _____ months =
	7			
CHILD BENEFITS	SUPPLEMENTAL SECURITY	Y N	$ /YR	$_____ per week for _____ weeks = $_____ per month for _____ months =
	10			
CHILD BENEFITS	FOSTER CARE	Y N	$ /YR	$_____ per week for _____ weeks = $_____ per month for _____ months =
	41			
CHILD BENEFITS	CHILD SUPPORT	Y N	$ /YR	$_____ per week for _____ weeks = $_____ per month for _____ months =
	15			
OTHER	ENERGY ASSISTANCE	Y N	$ /YR	
	9			
OTHER	OTHER *(describe)*	Y N	$ /YR	

OTHER INCOME: 24 **MCCARTHY: 431**

COMMENTS

HOUSEHOLD ID

DO YOU HAVE ANY QUESTIONS, COMMENTS, OR CONCERNS?

INTERVIEW SUMMARY:

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

COMMENTS: 30 **MCCARTHY: 431**

Appendix B–Conversion Factors

Appendix B.–Pound conversion factors for selected Copper River Basin area communities, Alaska, 2012.

Resource	Initial units	Conversion to pounds
Chum salmon	Individual	4.94
Coho salmon	Individual	6.14
Chinook salmon	Individual	15.31
Pink salmon	Individual	2.91
Sockeye salmon	Individual	4.83
Sockeye salmon	Pounds	1.00
Landlocked salmon	Individual	1.00
Salmon (unspecified)	Individual	5.56
Pacific herring	Gallons	6.00
Pacific herring	Quarts	1.50
Pacific herring sac roe	Gallons	7.00
Pacific herring spawn on kelp	Gallons	7.00
Eulachon (hooligan, candlefish)	Pounds	1.00
Eulachon (hooligan, candlefish)	Gallons	3.25
Smelt (unspecified)	Gallons	3.25
Pacific (gray) cod	Individual	4.00
Pacific tomcod	Individual	0.50
Walleye pollock (whiting)	Individual	1.40
Starry flounder	Individual	3.00
Lingcod	Individual	2.40
Lingcod	Pounds	1.00
Pacific halibut	Individual	18.90
Pacific halibut	Pounds	1.00
Arctic lamprey	Individual	0.60
Black rockfish	Individual	1.50
Yelloweye rockfish	Individual	2.64
Rockfish (unspecified)	Individual	4.00
Rockfish (unspecified)	Pounds	1.00
Sablefish (black cod)	Individual	3.10
Sculpin	Individual	0.50
Burbot	Individual	2.40
Arctic char	Individual	0.70
Dolly Varden	Individual	0.90
Lake trout	Individual	2.00
Arctic grayling	Individual	0.70
Northern pike	Individual	2.80
Northern pike	Individual	2.80
Longnose sucker	Individual	0.70
Cutthroat trout	Individual	1.40
Rainbow trout	Individual	1.40
Steelhead	Individual	4.20
Trout (unspecified)	Individual	1.40
Broad whitefish	Individual	4.00
Least cisco	Individual	0.40
Humpback whitefish	Individual	1.75
Humpback whitefish	5-gallon buckets	1.75

-continued-

Resource	Initial units	Conversion to pounds
Round whitefish	Individual	1.00
Whitefishes (unspecified)	Individual	1.75
Bison	Individual	450.00
Black bear	Individual	58.00
Brown bear	Individual	141.00
Caribou	Individual	130.00
Deer	Individual	42.50
Mountain goat	Individual	72.50
Moose	Individual	450.00
Dall sheep	Individual	65.00
Beaver	Individual	15.00
Coyote	Individual	0.00
Arctic fox	Individual	0.00
Red fox–cross phase	Individual	0.00
Red fox–red phase	Individual	0.00
Snowshoe hare	Individual	2.00
North American river (land) otter	Individual	0.00
Lynx	Individual	4.00
Marmot	Individual	0.00
Marten	Individual	0.00
Mink	Individual	0.00
Muskrat	Individual	1.80
Porcupine	Individual	4.50
Arctic ground (parka) squirrel	Individual	0.50
Red (tree) squirrel	Individual	0.50
Squirrel (unspecified)	Individual	0.50
Weasel	Individual	0.00
Gray wolf	Individual	0.00
Wolverine	Individual	0.00
Bufflehead	Individual	0.40
Canvasback	Individual	1.10
Spectacled eider	Individual	2.43
Gadwall	Individual	0.80
Goldeneye	Individual	0.80
Mallard	Individual	1.00
Merganser	Individual	0.90
Long-tailed duck	Individual	0.80
Northern pintail	Individual	0.80
Black scoter	Individual	0.90
Surf scoter	Individual	0.90
White-winged scoter	Individual	0.90
Northern shoveler	Individual	0.60
Green-winged teal	Individual	0.30
Wigeon	Individual	0.70
Ducks (unspecified)	Individual	0.70
Brant	Individual	1.20
Cackling goose	Individual	1.20
Canada goose	Individual	1.20

-continued-

Resource	Initial units	Conversion to pounds
Canada/cackling goose (unspecified)	Individual	1.20
Emperor goose	Individual	2.50
Snow goose	Individual	3.00
White-fronted goose	Individual	2.40
Geese (unspecified)	Individual	5.00
Tundra (whistling) swan	Individual	6.00
Sandhill crane	Individual	8.40
Murre	Individual	1.65
Spruce grouse	Individual	0.70
Sharp-tailed grouse	Individual	0.70
Ruffed grouse	Individual	0.70
Ptarmigan	Individual	0.50
Duck eggs	Individual	0.15
Goose eggs	Individual	0.25
Gull eggs	Individual	0.30
Eggs (unspecified)	Individual	0.22
Butter clams	Gallons	3.00
Freshwater clams	Gallons	3.00
Razor clams	Gallons	3.00
Razor clams	Quarts	0.75
Clams (unspecified)	Gallons	3.00
Cockles	Individual	0.13
Cockles	Gallons	3.00
Dungeness crab	Individual	0.70
Dungeness crab	Pounds	1.00
King crab	Individual	2.30
King crab	Pounds	1.00
Tanner crab	Individual	1.60
Tanner crab	Pounds	1.00
Crab (unspecified)	Individual	2.30
Octopus	Individual	4.00
Shrimp	Individual	0.01
Shrimp	Pounds	1.00
Shrimp	Gallons	2.00
Squid	Gallons	8.00
Blueberry	Pounds	1.00
Blueberry	5-gallon buckets	20.00
Blueberry	Gallons	4.00
Blueberry	Quarts	1.00
Blueberry	Pints	0.50
Blueberry	Cup (1/2 pint)	0.25
Lowbush cranberry	Pounds	1.00
Lowbush cranberry	5-gallon buckets	20.00
Lowbush cranberry	Gallons	4.00
Lowbush cranberry	Quarts	1.00
Lowbush cranberry	Pints	0.50
Lowbush cranberry	Cup (1/2 pint)	0.25
Highbush cranberry	Pounds	1.00

-continued-

Resource	Initial units	Conversion to pounds
Highbush cranberry	5-gallon buckets	20.00
Highbush cranberry	Gallons	4.00
Highbush cranberry	Quarts	1.00
Highbush cranberry	Pints	0.50
Highbush cranberry	Cup (1/2 pint)	0.25
Crowberry	Gallons	4.00
Crowberry	Quarts	1.00
Crowberry	Pints	0.50
Crowberry	Cup (1/2 pint)	0.25
Currants	Gallons	4.00
Currants	Quarts	1.00
Currants	Cup (1/2 pint)	0.25
Cloudberry	Gallons	4.00
Nagoonberry	Gallons	4.00
Nagoonberry	Quarts	1.00
Nagoonberry	Cup (1/2 pint)	0.25
Raspberry	Pounds	1.00
Raspberry	5-gallon buckets	20.00
Raspberry	Gallons	4.00
Raspberry	Quarts	1.00
Raspberry	Pints	0.50
Raspberry	Cup (1/2 pint)	0.25
Salmonberry	Gallons	4.00
Salmonberry	Quarts	1.00
Salmonberry	Pints	0.50
Salmonberry	Cup (1/2 pint)	0.25
Soapberry	Quarts	1.00
Strawberry	Gallons	4.00
Strawberry	Cup (1/2 pint)	0.25
Blackberry	Gallons	4.00
Serviceberry	Cup (1/2 pint)	0.25
Other wild berry	Gallons	4.00
Other wild berry	5-gallon buckets	20.00
Other wild berry	Quarts	1.00
Other wild berry	Pints	0.50
Other wild berry	Cup (1/2 pint)	0.25
Wild rhubarb	Gallons	1.00
Eskimo potato	Gallons	4.00
Eskimo potato	Quarts	1.00
Fiddlehead ferns	Gallons	1.00
Hudson's Bay (Labrador) tea	Gallons	1.00
Hudson's Bay (Labrador) tea	Quarts	0.25
Hudson's Bay (Labrador) tea	Plastic Bag	1.00
Hudson's Bay (Labrador) tea	Pints	0.13
Hudson's Bay (Labrador) tea	Cup (1/2 pint)	0.06
Mint	Quarts	0.25
Spruce tips	Quarts	0.25
Wild rose hips	Individual	0.01

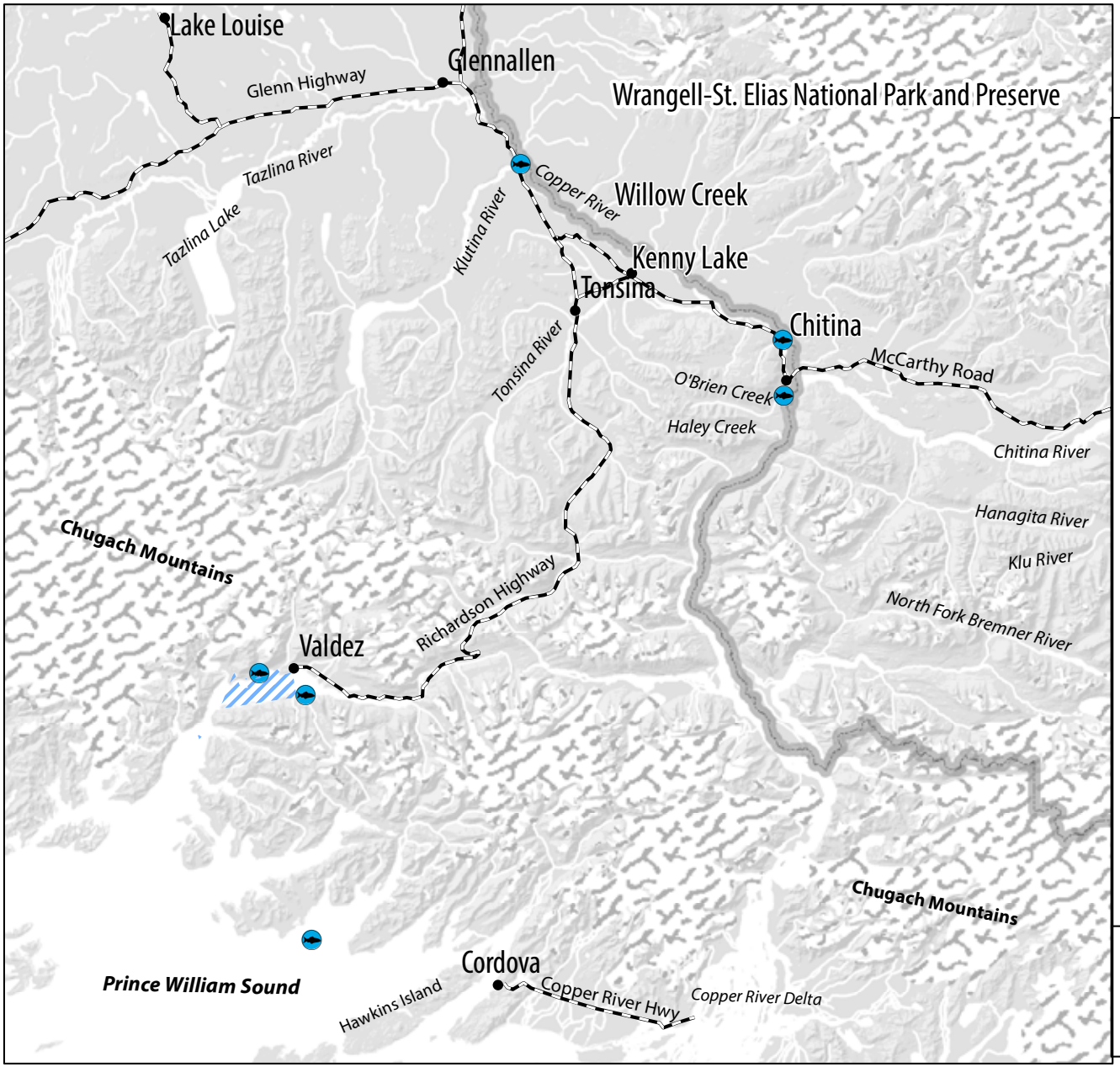
-continued-

Page 5 of 5.

Resource	Initial units	Conversion to pounds
Wild rose hips	Gallons	4.00
Wild rose hips	Quarts	1.00
Wild rose hips	Pints	0.50
Wild rose hips	Cup (1/2 pint)	0.25
Yarrow	Gallons	1.00
Yarrow	Quarts	0.25
Other wild greens	Pounds	1.00
Other wild greens	Gallons	1.00
Other wild greens	Quarts	0.25
Other wild greens	Pints	0.13
Other wild greens	Cup (1/2 pint)	0.06
Mushrooms (unspecified)	Individual	0.05
Mushrooms (unspecified)	Pounds	1.00
Mushrooms (unspecified)	Gallons	1.00
Mushrooms (unspecified)	Quarts	0.25
Mushrooms (unspecified)	Pints	0.13
Mushrooms (unspecified)	Cup (1/2 pint)	0.06
Fireweed	Pounds	1.00
Fireweed	Gallons	1.00
Fireweed	Quarts	0.25
Fireweed	Cords	0.00
Fireweed	Pints	0.13
Fireweed	Cup (1/2 pint)	0.06
Plantain	Gallons	1.00
Stinkweed	Pounds	1.00
Stinkweed	Gallons	1.00
Stinkweed	Plastic bag	2.50
Greens from land (unspecified)	Gallons	1.00
Greens from land (unspecified)	Quarts	0.25
Bladder wrack	Gallons	4.00
Roots	Quarts	0.00
Firewood	Cords	0.00

Source ADF&G Division of Subsistence household surveys, 2013.

Appendix C–Harvest Use Area Maps by Community



KENNY LAKE/WILLOW CREEK HARVEST OF WILD RESOURCES, 2012

Coho salmon harvest location

Coho salmon search and harvest area

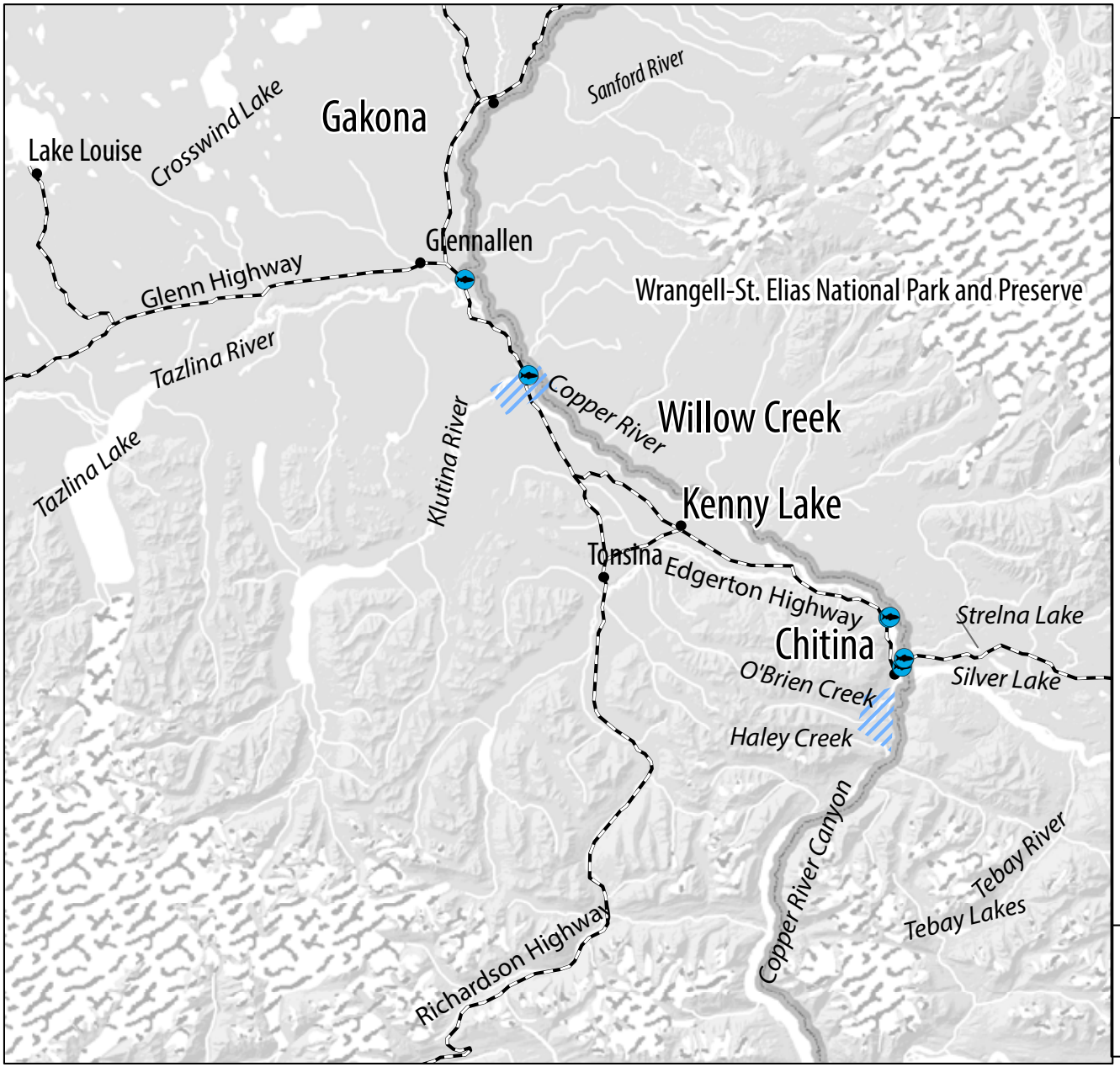
Highway/roadway

Park and preserve boundary

The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.

0 10 20
Miles



KENNY LAKE/WILLOW CREEK HARVEST OF WILD RESOURCES, 2012

Chinook salmon harvest location

Chinook salmon search and harvest area

Highway/roadway

Park and preserve boundary

The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.

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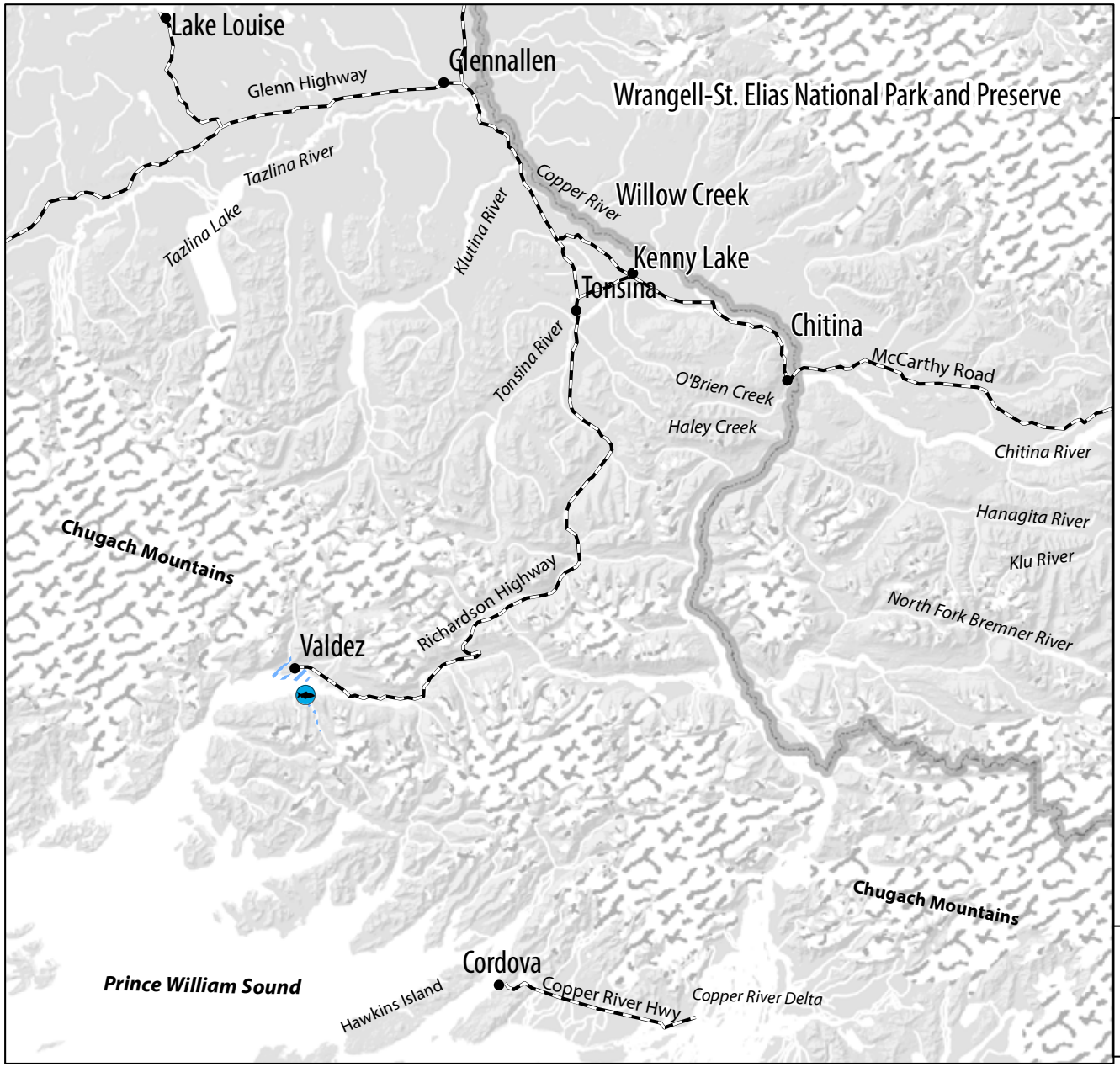
Miles



KENNY LAKE/WILLOW CREEK HARVEST OF WILD RESOURCES, 2012

Pink salmon harvest location

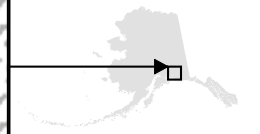
Pink salmon search and harvest area

Highway/roadway

Park and preserve boundary

The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.



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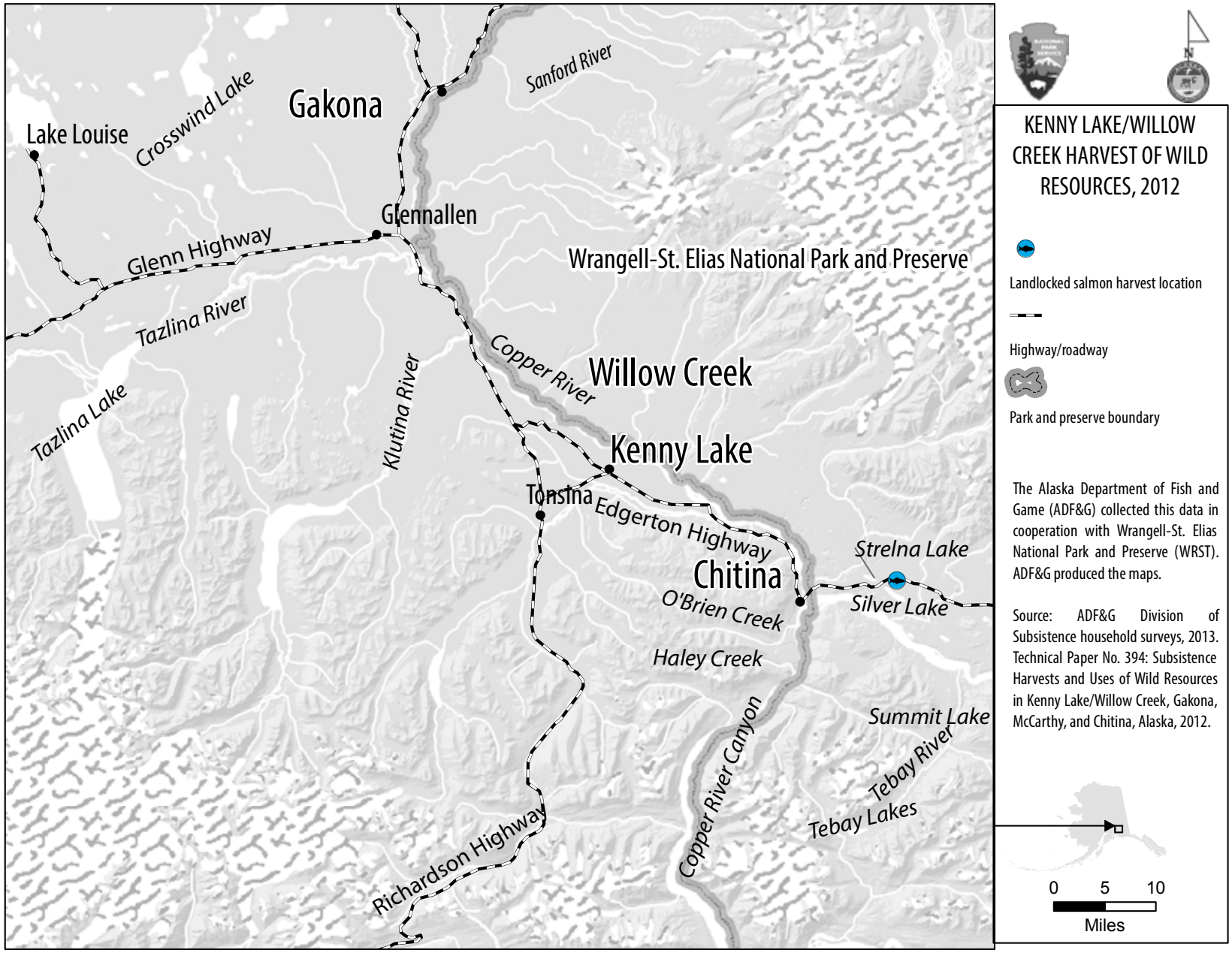
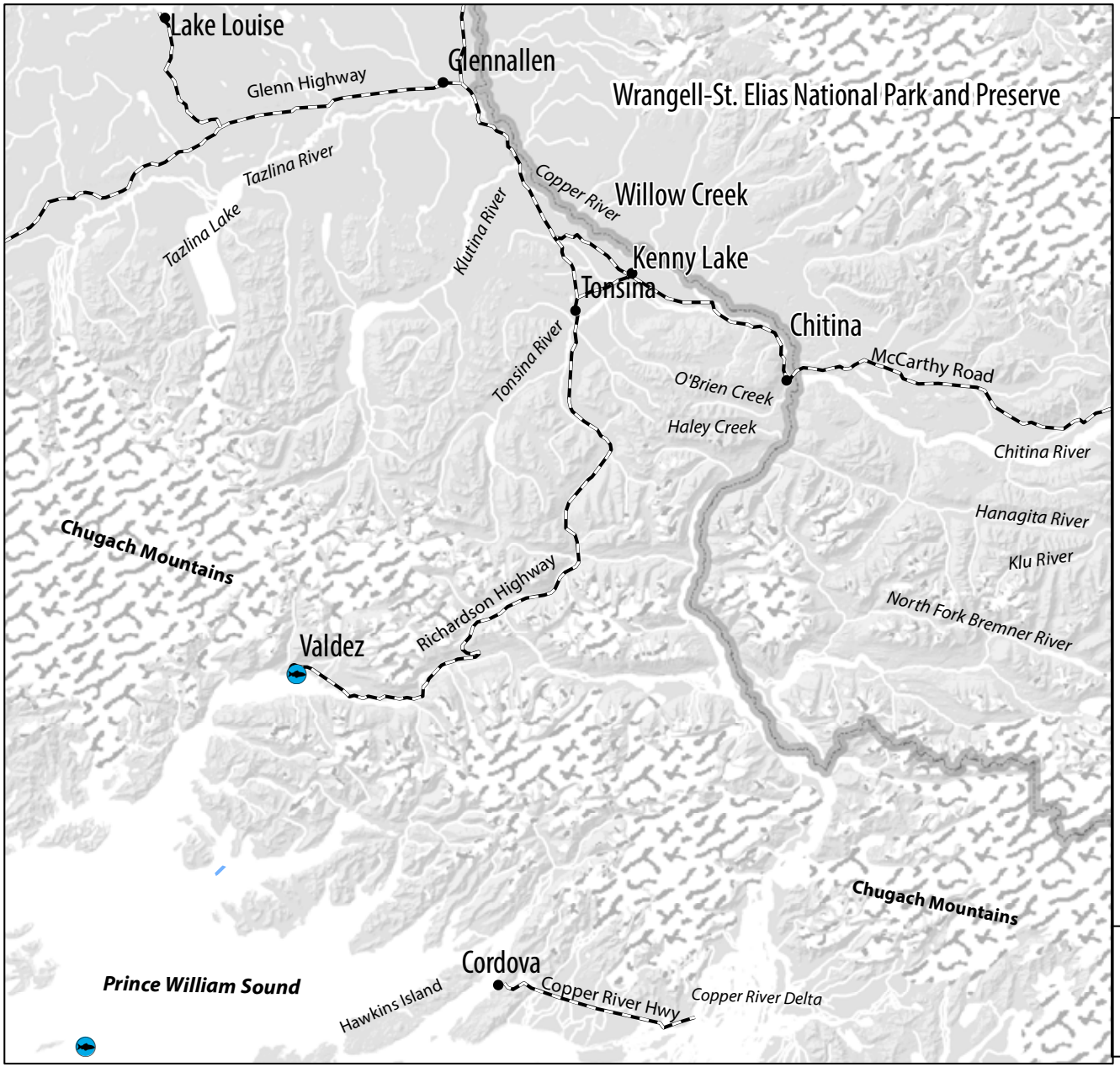
Miles


KENNY LAKE/WILLOW CREEK HARVEST OF WILD RESOURCES, 2012
Landlocked salmon harvest location
Highway/roadway
Park and preserve boundary
The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.
Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.
0 5 10
Miles
Gakona
Lake Louise
Crosswind Lake
Sanford River
Glennallen
Glenn Highway
Wrangell-St. Elias National Park and Preserve
Tazlina River
Tazlina Lake
Klutina River
Copper River
Willow Creek
Kenny Lake
Tonsina
Edgerton Highway
Chitina
Strelna Lake
Silver Lake
O'Brien Creek
Haley Creek
Summit Lake
Copper River Canyon
Tebay River
Tebay Lakes
Richardson Highway



KENNY LAKE/WILLOW CREEK HARVEST OF WILD RESOURCES, 2012

Pacific cod harvest location

Pacific cod search and harvest area

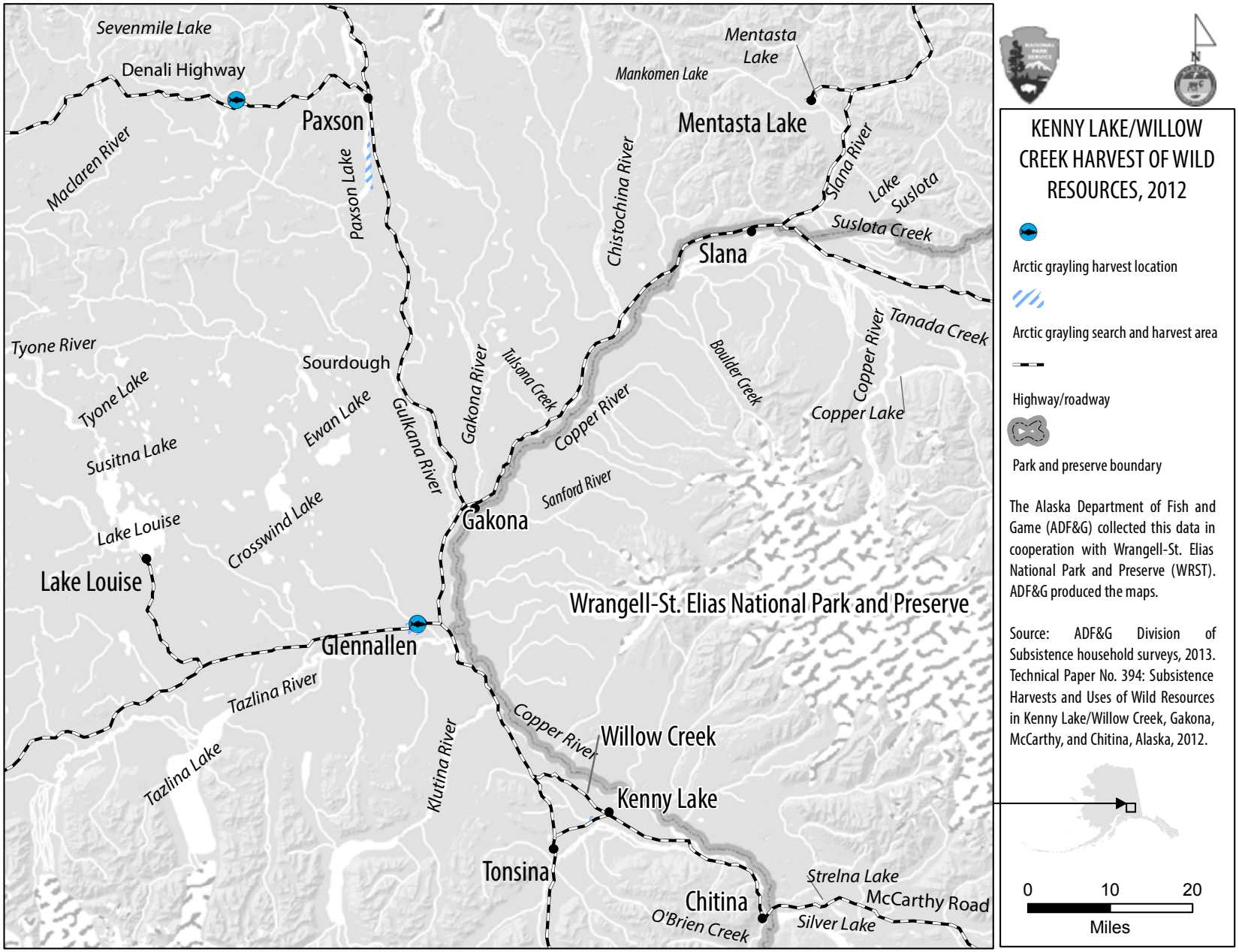
Highway/roadway

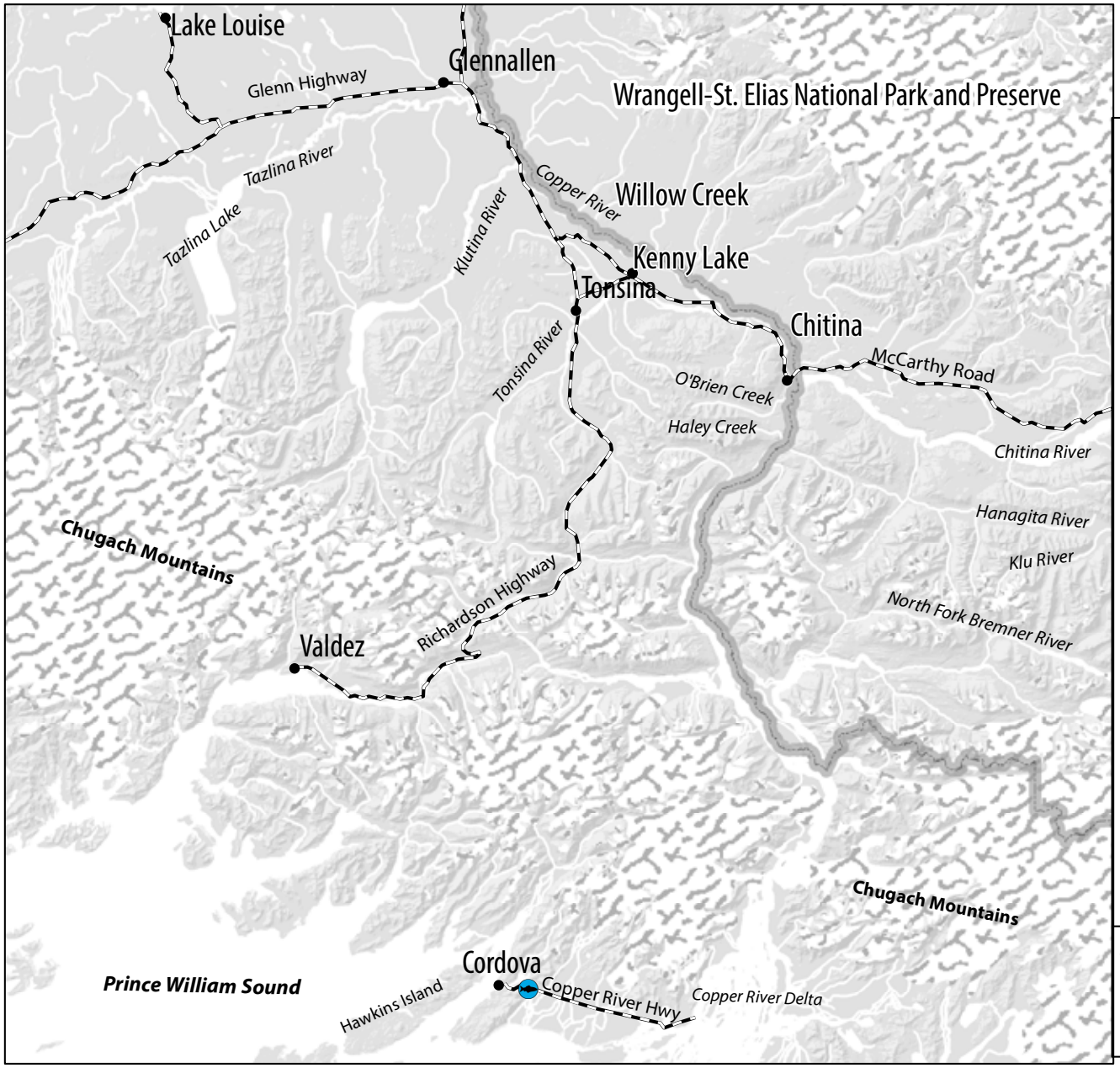
Park and preserve boundary

The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.

0 10 20
Miles


KENNY LAKE/WILLOW CREEK HARVEST OF WILD RESOURCES, 2012
Arctic grayling harvest location
Arctic grayling search and harvest area
Highway/roadway
Park and preserve boundary
The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.
Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.
0
10
20
Miles
Sevenmile Lake
Denali Highway
Paxson
Paxson Lake
Maclaren River
Mankomen Lake
Mentasta Lake
Mentasta Lake
Chistochina River
Slana River
Lake Suslota
Suslota Creek
Slana
Tanada Creek
Copper River
Copper Lake
Boulder Creek
Tyone River
Tyone Lake
Susitna Lake
Sourdough
Ewan Lake
Gulkana River
Gakona River
Tulsona Creek
Copper River
Sanford River
Gakona
Crosswind Lake
Lake Louise
Lake Louise
Wrangell-St. Elias National Park and Preserve
Glennallen
Tazlina River
Tazlina Lake
Klutina River
Copper River
Willow Creek
Kenny Lake
Tonsina
Chitina
O'Brien Creek
Strelna Lake
McCarthy Road
Silver Lake



KENNY LAKE/WILLOW CREEK HARVEST OF WILD RESOURCES, 2012

Cutthroat trout harvest location

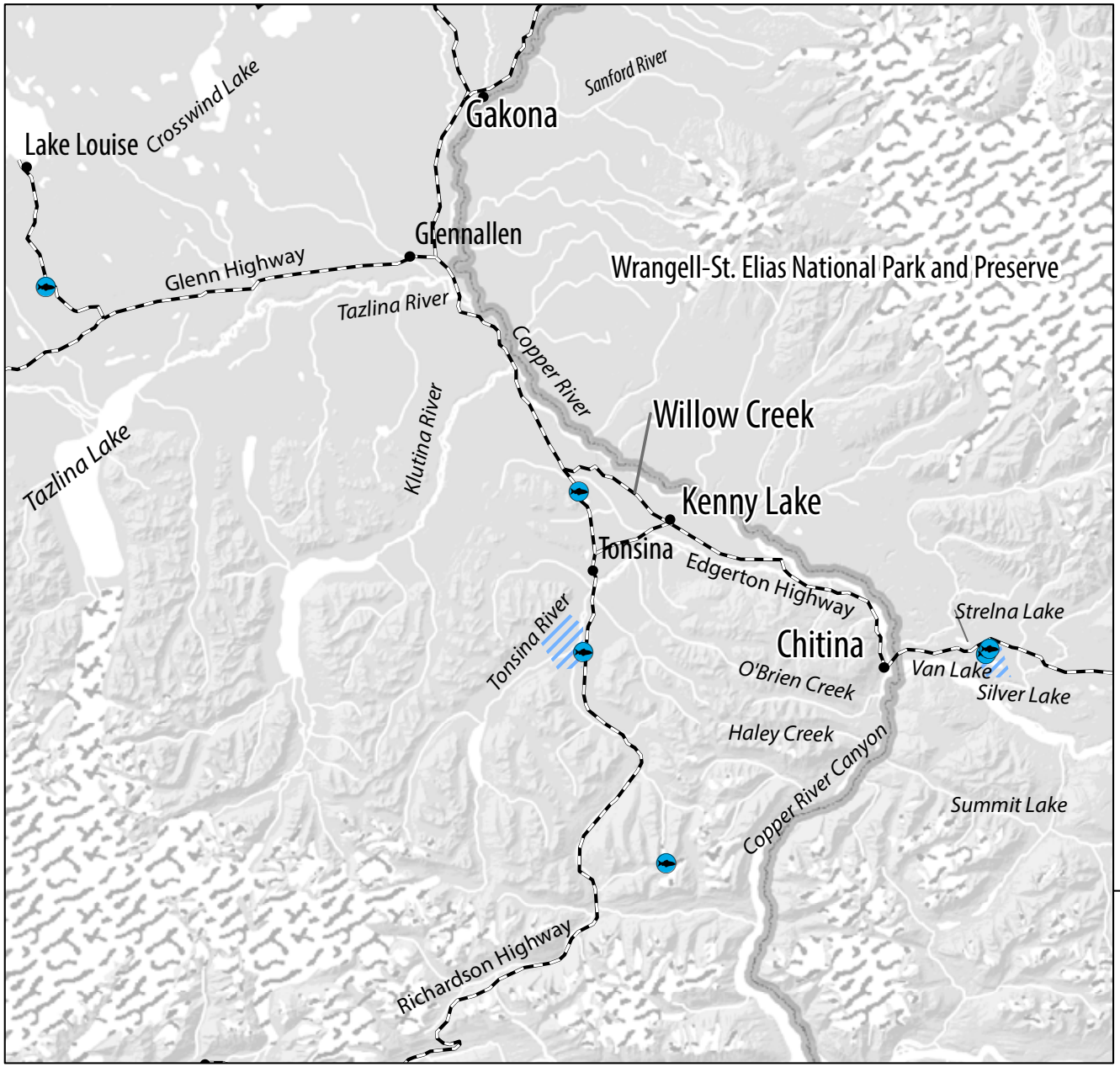
Highway/roadway

Park and preserve boundary

The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.

0 10 20
Miles



KENNY LAKE/WILLOW CREEK HARVEST OF WILD RESOURCES, 2012

Rainbow trout harvest location

Rainbow trout search and harvest area

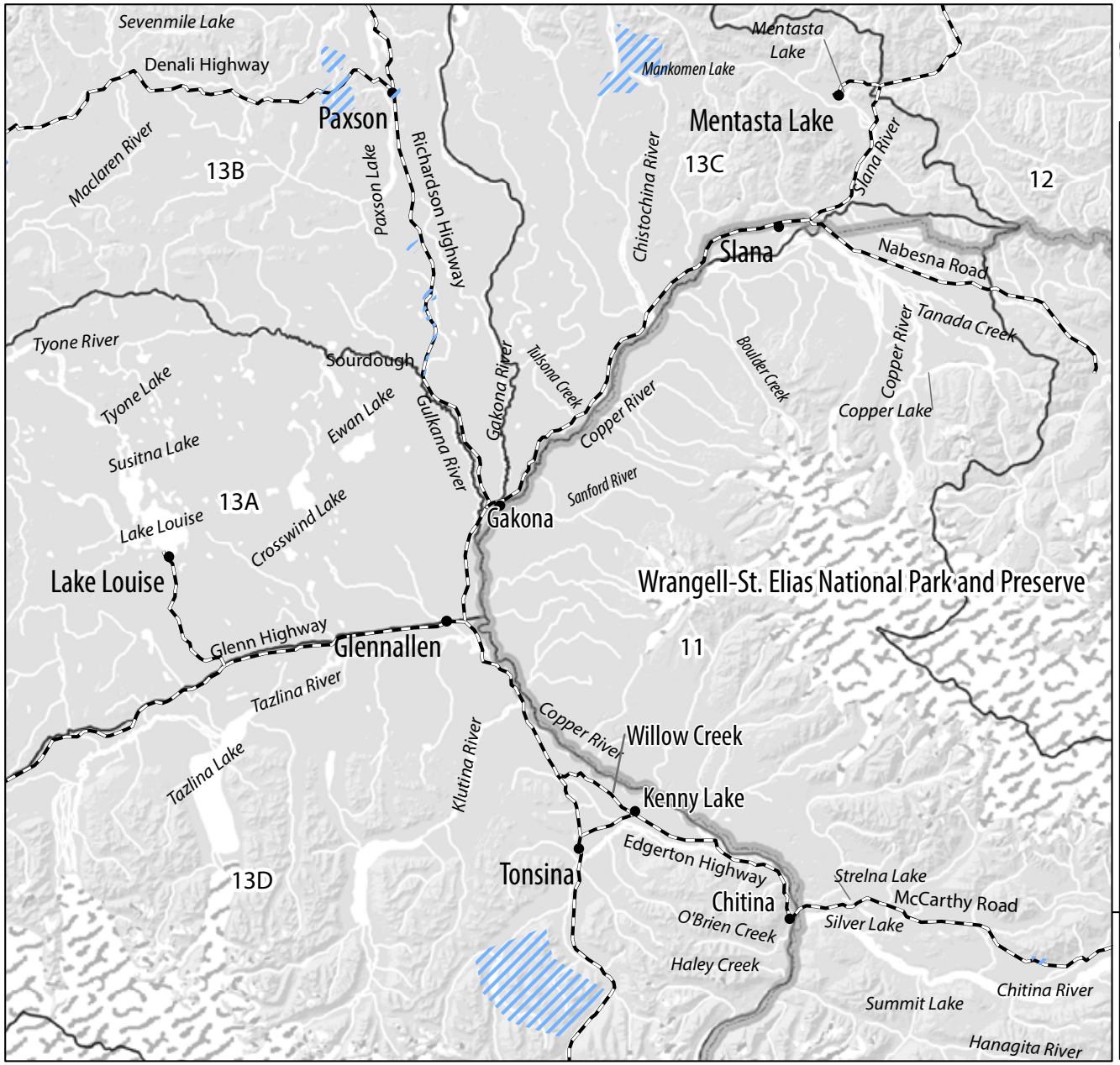
Highway/roadway

Park and preserve boundary

The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.

0 5 10
Miles



KENNY LAKE/WILLOW CREEK HARVEST OF WILD RESOURCES, 2012

Caribou search area

Highway/roadway

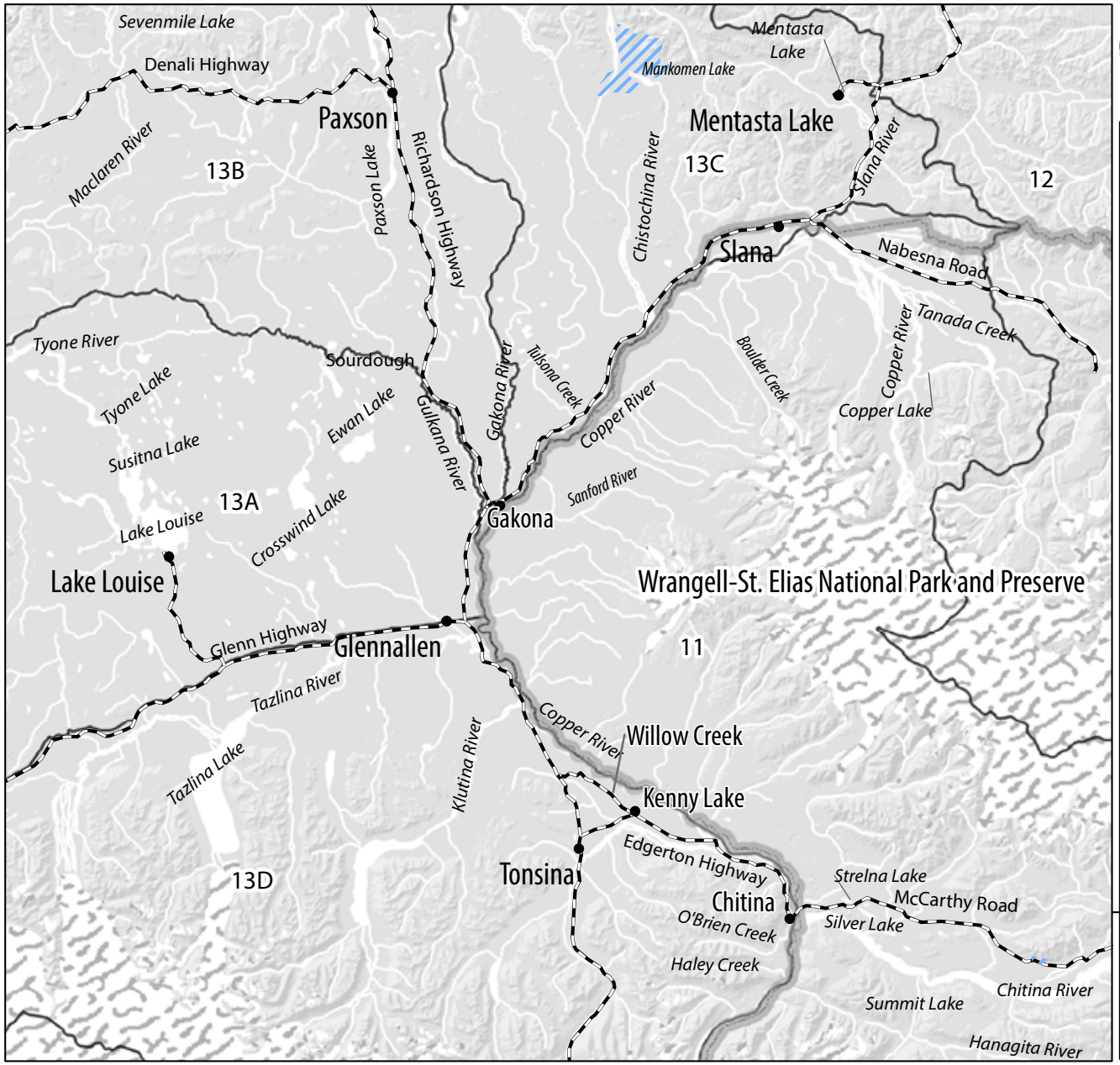
Park and preserve boundary

Game management unit

The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.

0 10 20
Miles



KENNY LAKE/WILLOW CREEK HARVEST OF WILD RESOURCES, 2012

Dall sheep search area

Highway/roadway

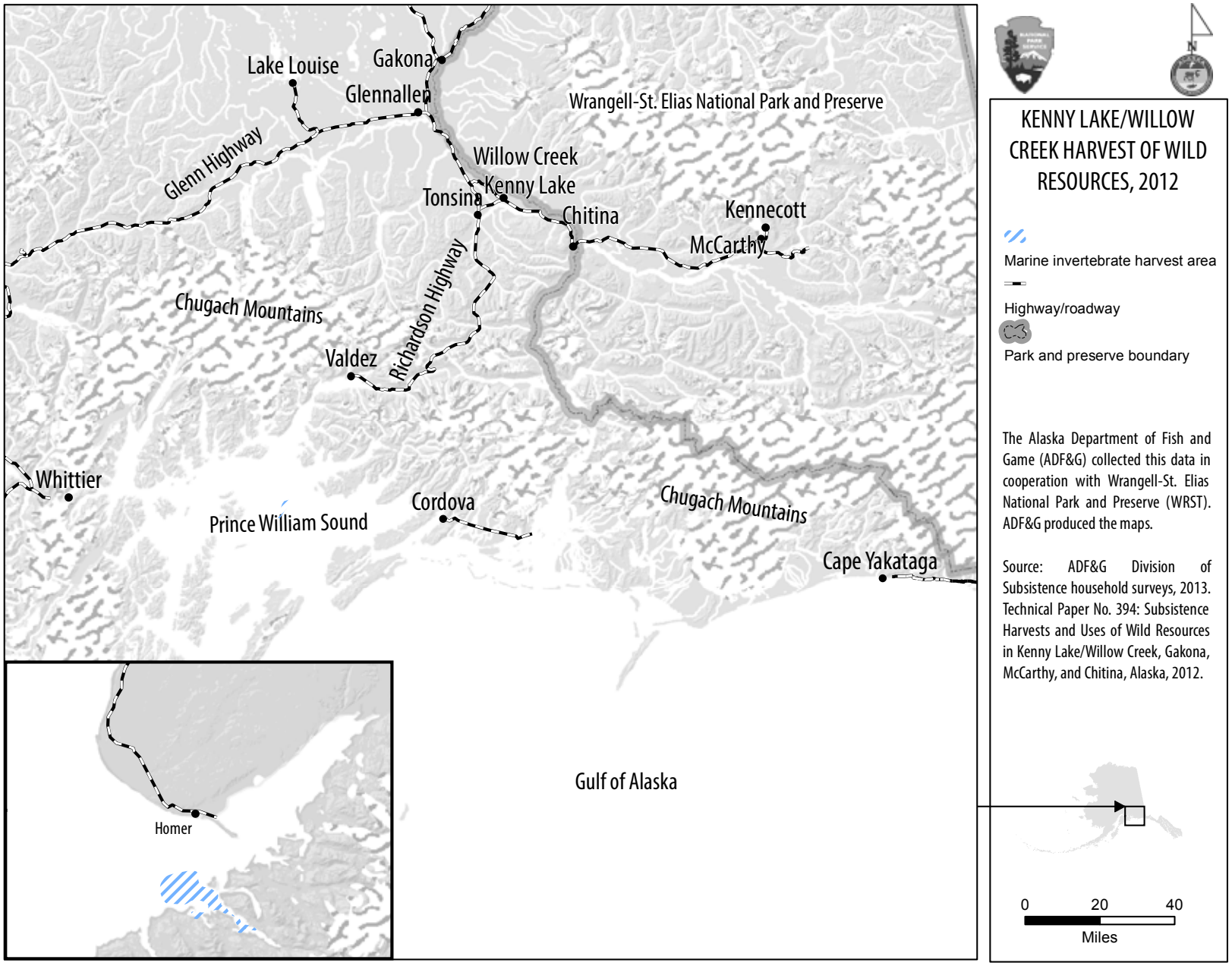
Park and preserve boundary

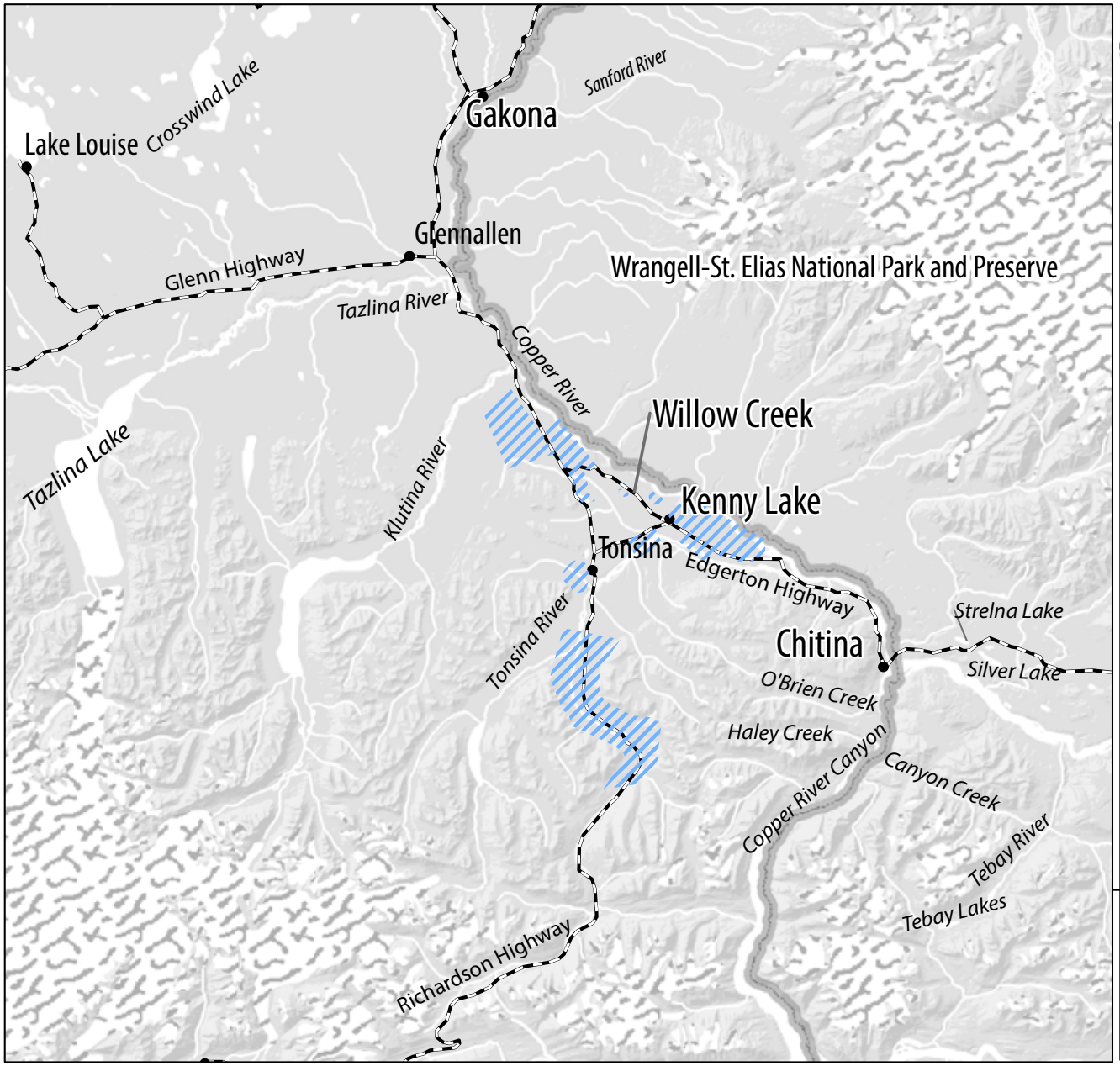
Game management unit

The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.

0 10 20
Miles


KENNY LAKE/WILLOW CREEK HARVEST OF WILD RESOURCES, 2012
Marine invertebrate harvest area
Highway/roadway
Park and preserve boundary
The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.
Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.
0
20
40
Miles
Lake Louise
Gakona
Glennallen
Wrangell-St. Elias National Park and Preserve
Glenn Highway
Willow Creek
Kenny Lake
Tonsina
Chitina
Kennecott
McCarthy
Richardson Highway
Chugach Mountains
Valdez
Whittier
Prince William Sound
Cordova
Chugach Mountains
Cape Yakataga
Gulf of Alaska
Homer



KENNY LAKE/WILLOW CREEK HARVEST OF WILD RESOURCES, 2012

Firewood harvest area

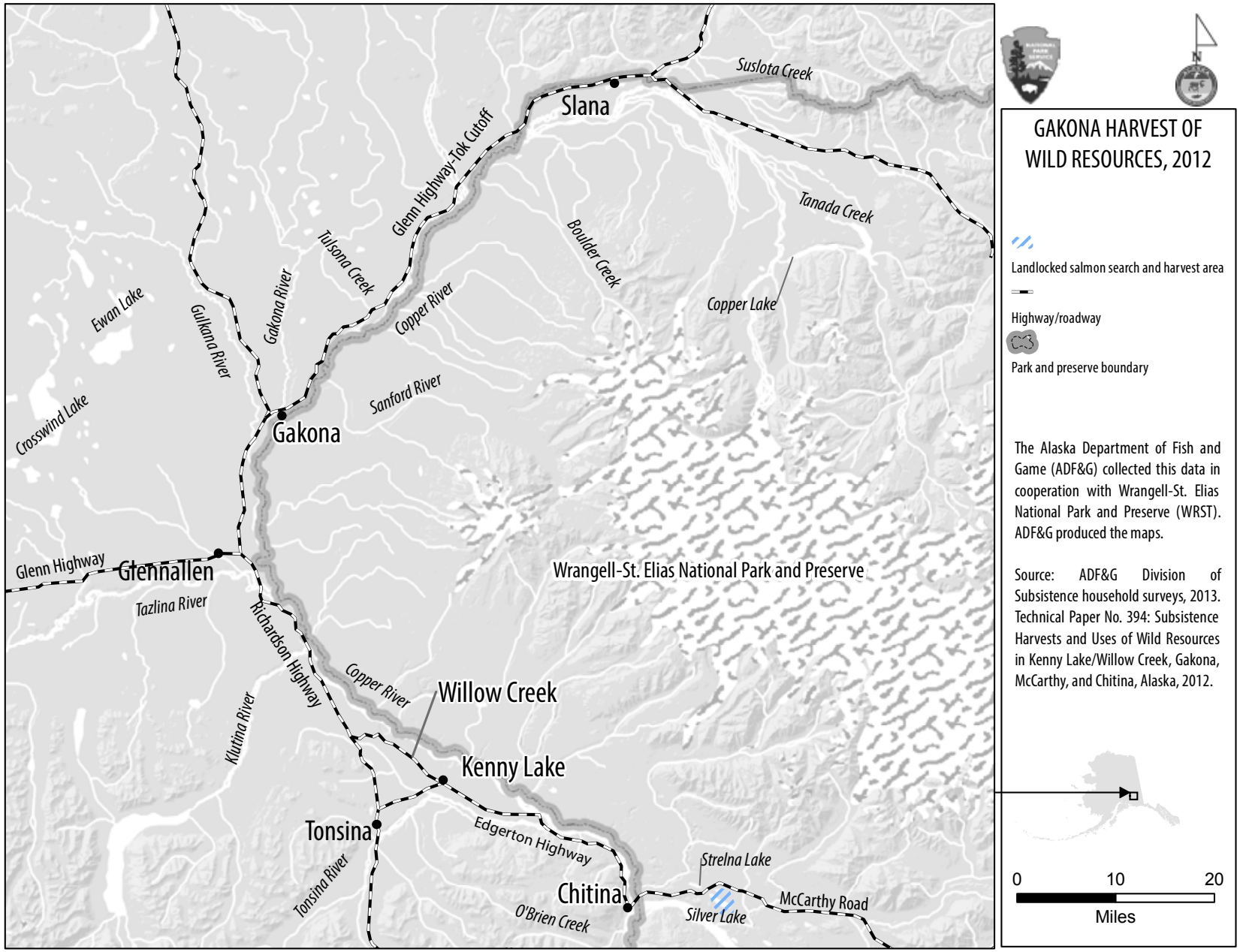
Highway/roadway

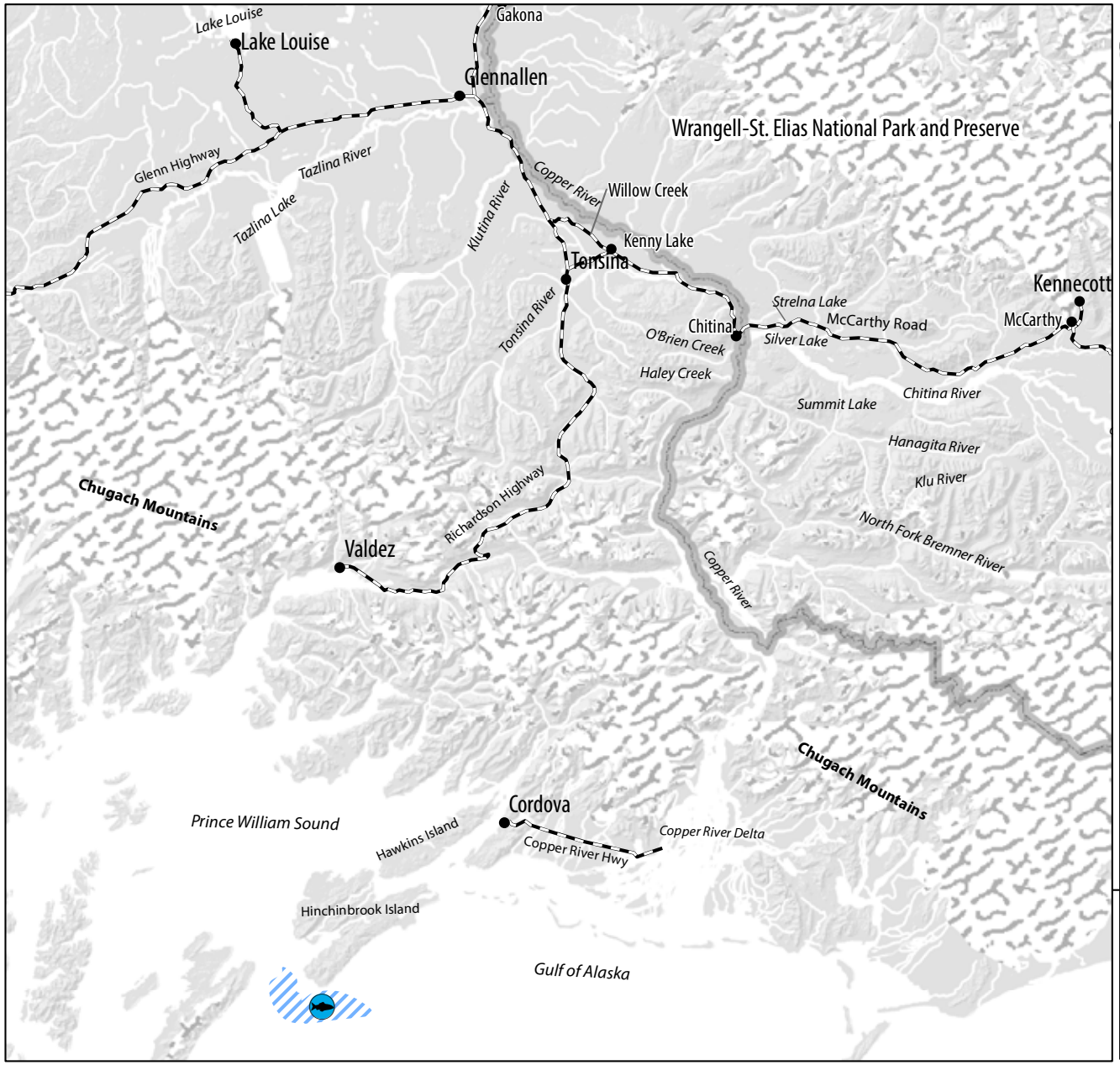
Park and preserve boundary

The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.

0 5 10
Miles


GAKONA HARVEST OF WILD RESOURCES, 2012
Landlocked salmon search and harvest area
Highway/roadway
Park and preserve boundary
The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.
Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.
0
10
20
Miles
Slana
Suslota Creek
Glenn Highway-Tok Cutoff
Tanada Creek
Boulder Creek
Copper Lake
Tulsona Creek
Gakona River
Copper River
Ewan Lake
Gulkana River
Sanford River
Crosswind Lake
Gakona
Glenn Highway
Glennallen
Wrangell-St. Elias National Park and Preserve
Tazlina River
Richardson Highway
Copper River
Willow Creek
Klutina River
Kenny Lake
Tonsina
Edgerton Highway
Strelna Lake
Tonsina River
Chitina
McCarthy Road
O'Brien Creek
Silver Lake



GAKONA HARVEST OF WILD RESOURCES, 2012

Rockfish harvest location

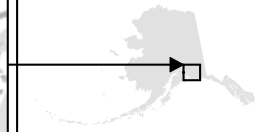
Rockfish search and harvest area

Highway/roadway

Park and preserve boundary

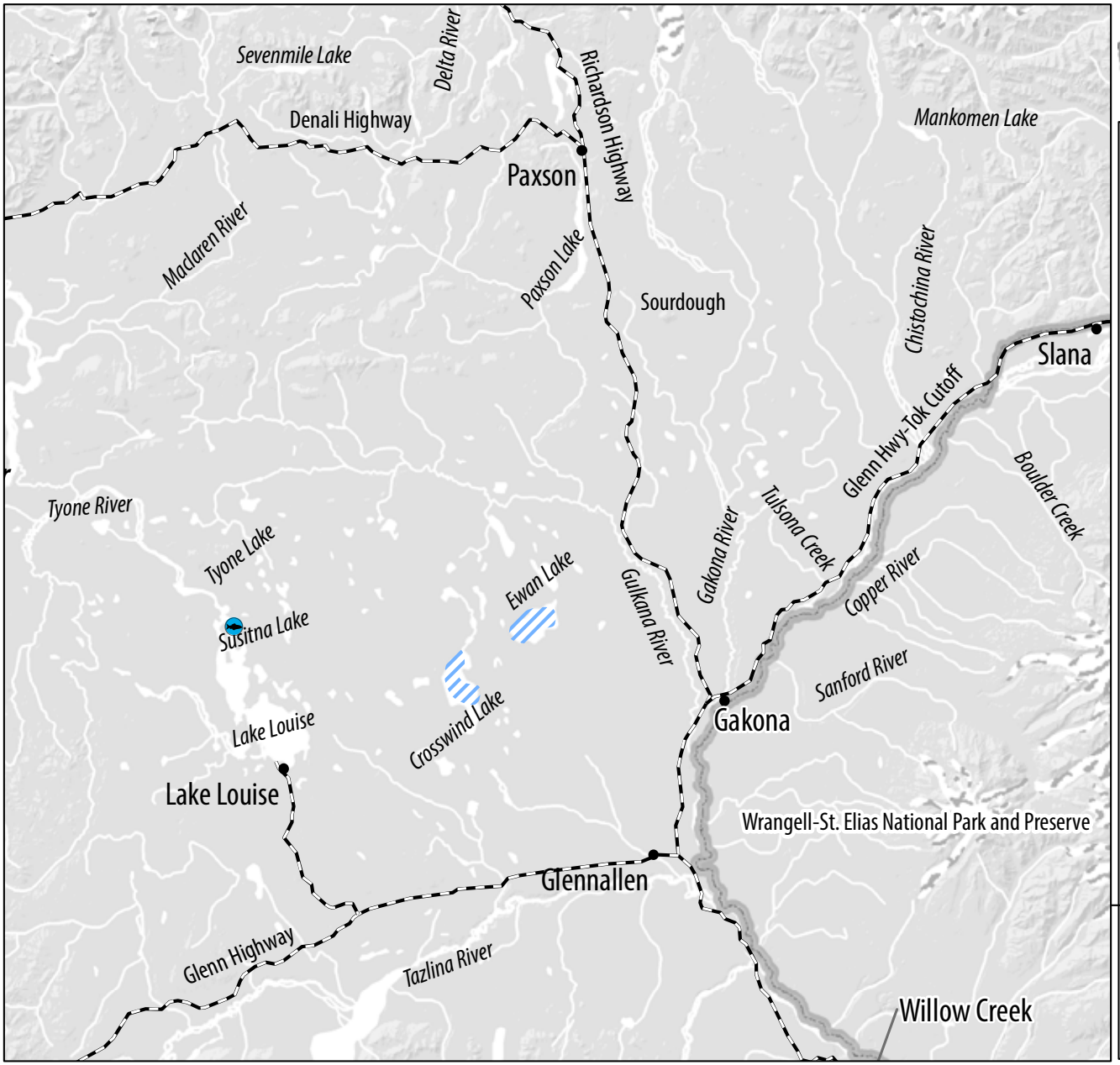
The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.



0 15 30

Miles



GAKONA HARVEST OF WILD RESOURCES, 2012

Burbot harvest location

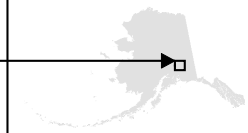
Burbot search and harvest area

Highway/roadway

Park and preserve boundary

The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.



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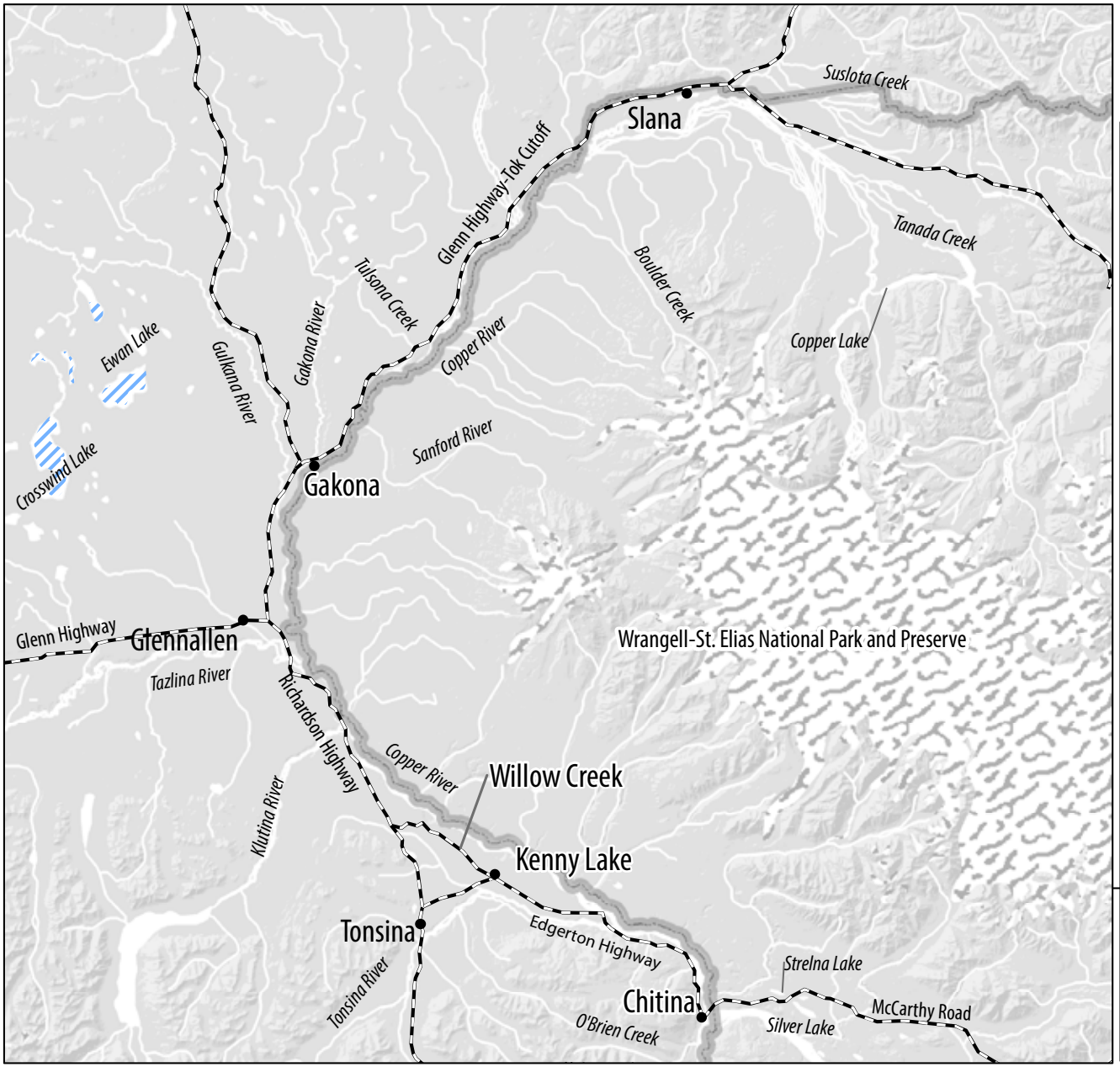
Miles



GAKONA HARVEST OF WILD RESOURCES, 2012

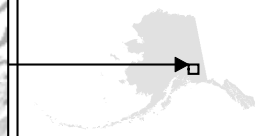
Northern pike search and harvest area

Highway/roadway

Park and preserve boundary

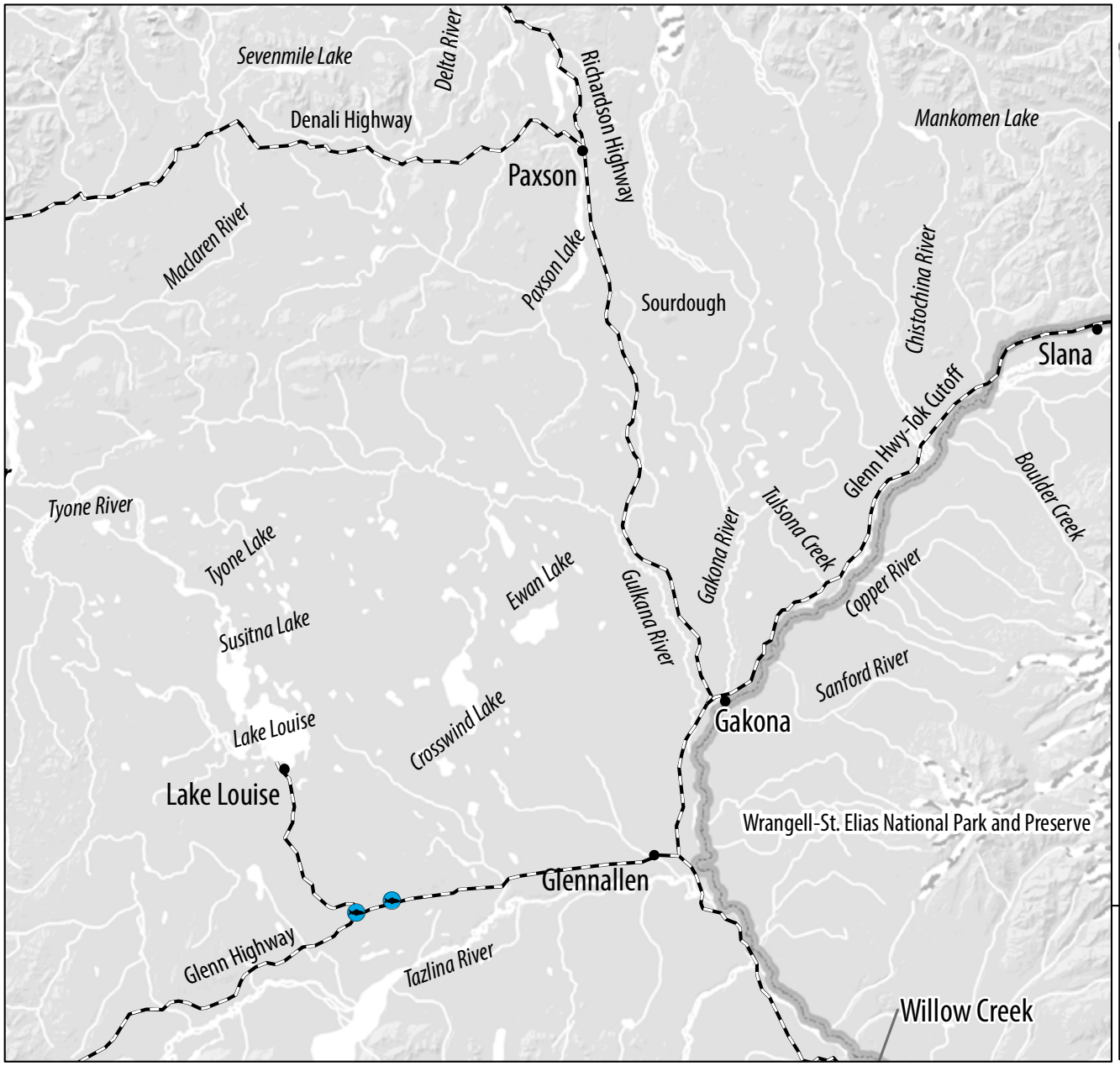
The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.



0 10 20

Miles



GAKONA HARVEST OF WILD RESOURCES, 2012

Rainbow trout harvest location

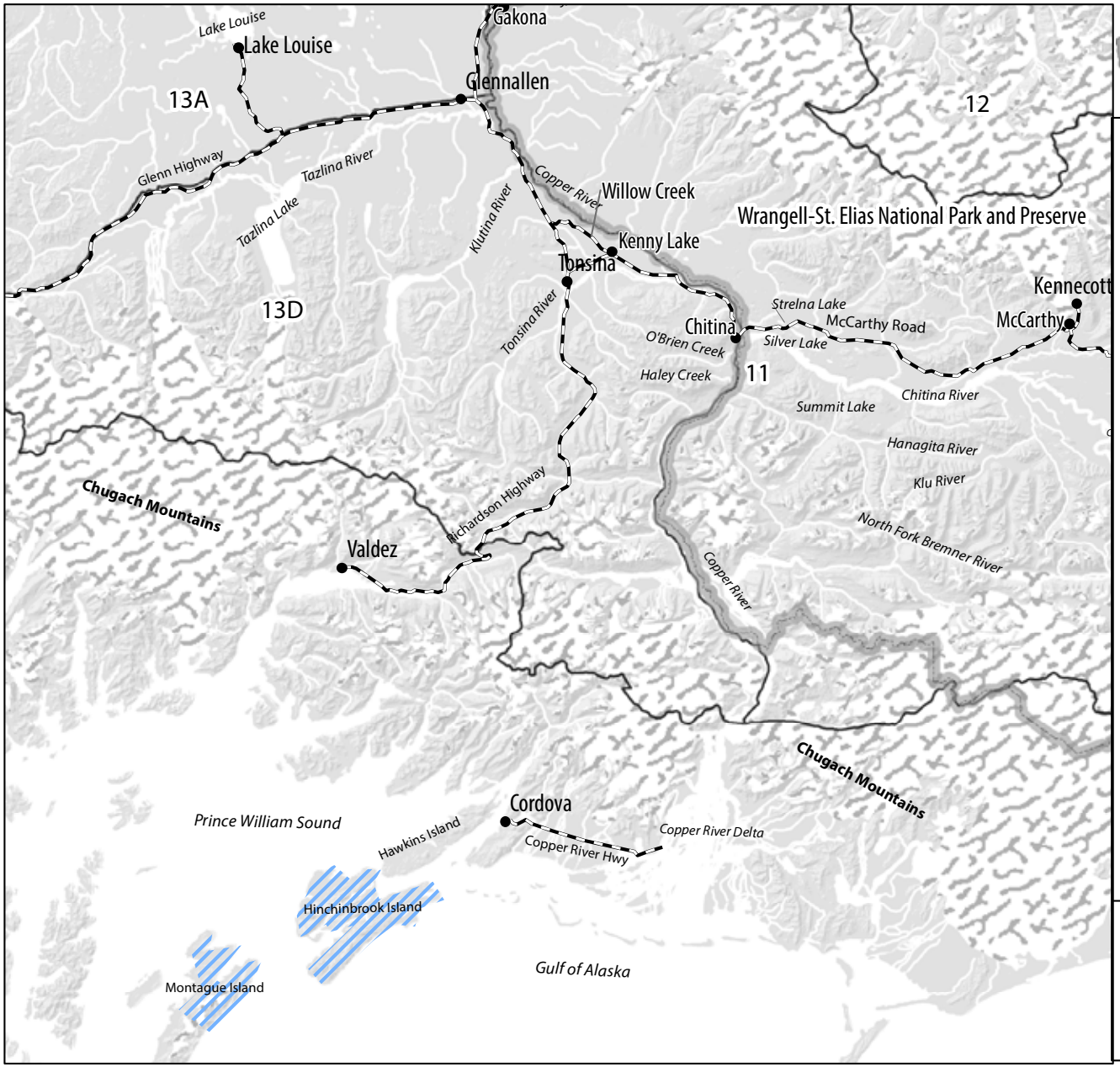
Highway/roadway

Park and preserve boundary

The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.

0 10 20
Miles



MCCARTHY HARVEST OF WILD RESOURCES, 2012

Stika black-tailed deer search area

Highway/roadway

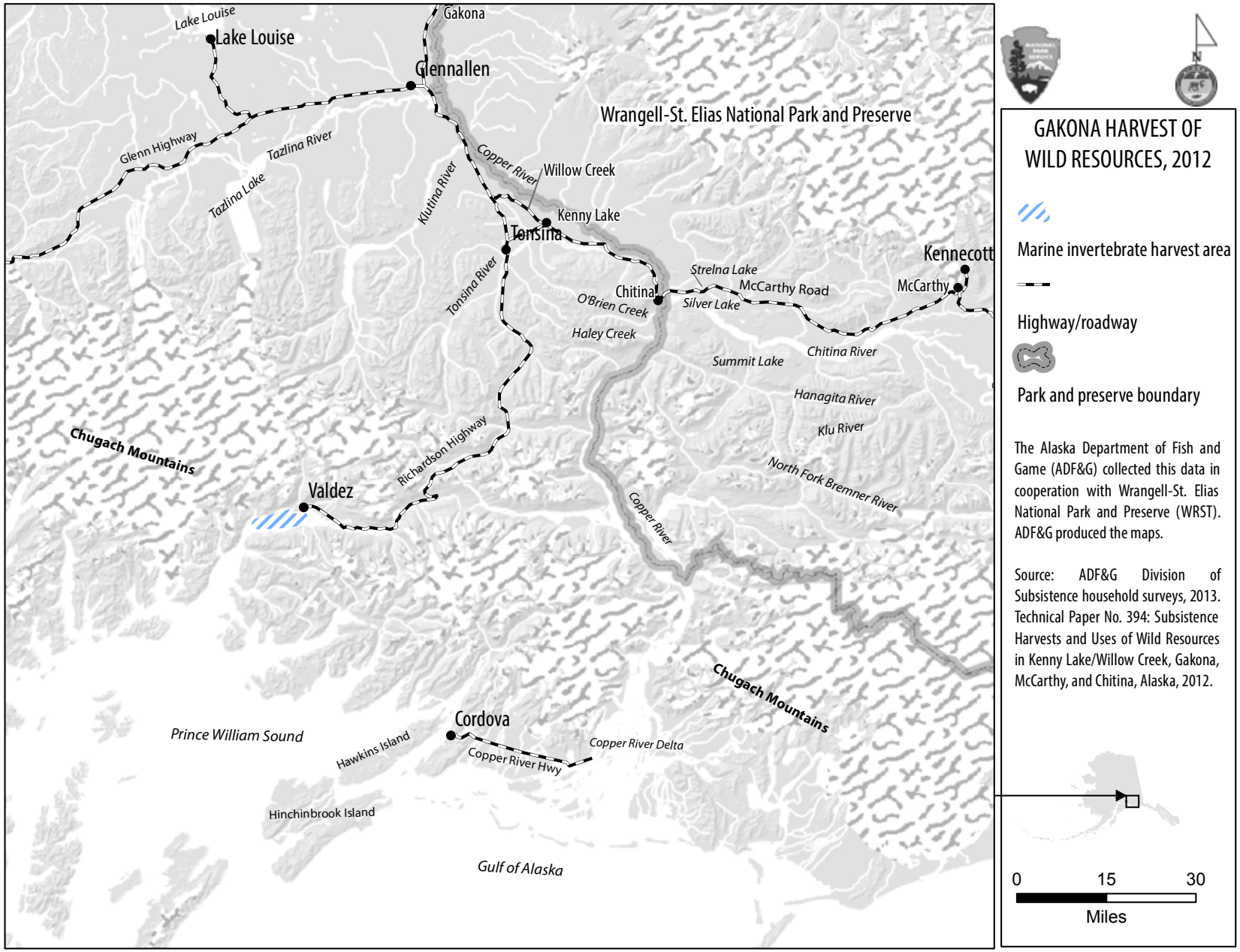
Park and preserve boundary

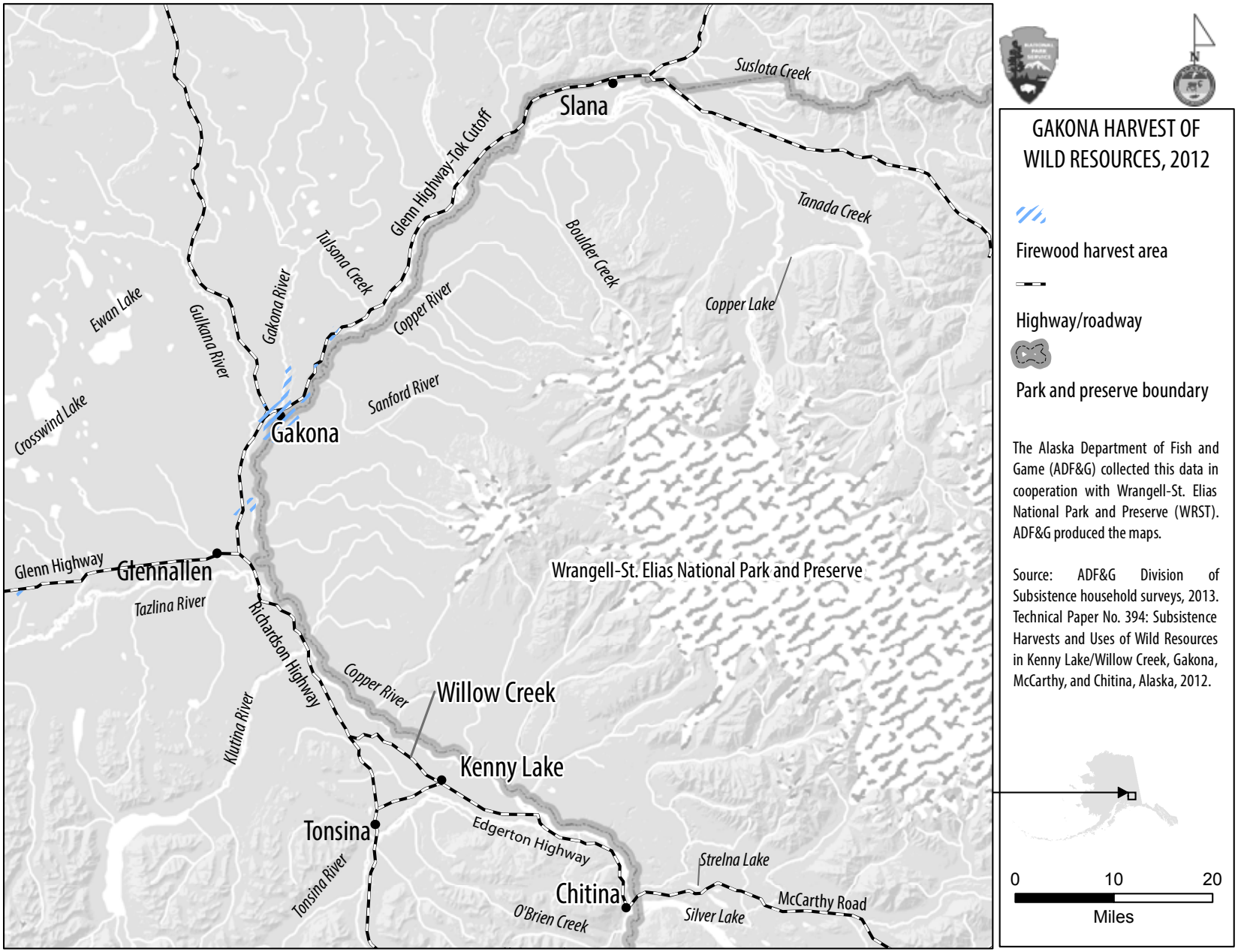
Game management unit

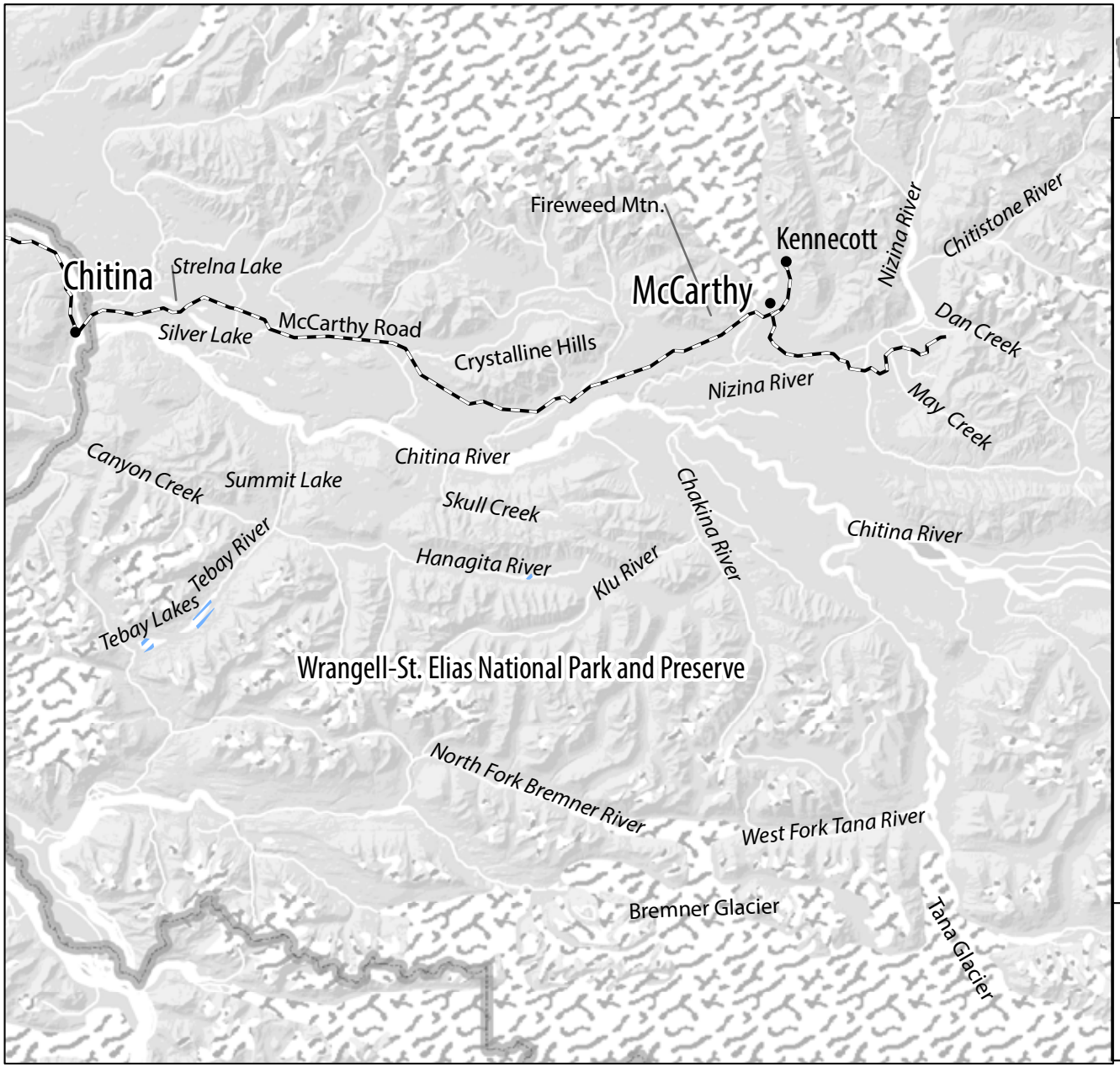
The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.

0 15 30
Miles


GAKONA HARVEST OF WILD RESOURCES, 2012
Marine invertebrate harvest area
Highway/roadway
Park and preserve boundary
The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.
Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.
0
15
30
Miles
Wrangell-St. Elias National Park and Preserve
Lake Louise
Gakona
Glennallen
Glenn Highway
Tazlina River
Tazlina Lake
Klutina River
Copper River
Willow Creek
Kenny Lake
Tonsina
Tonsina River
Chitina
O'Brien Creek
Haley Creek
Strelna Lake
Silver Lake
McCarthy Road
Kennecott
McCarthy
Chitina River
Summit Lake
Hanagita River
Klu River
North Fork Bremner River
Richardson Highway
Valdez
Chugach Mountains
Cordova
Copper River Hwy
Copper River Delta
Hawkins Island
Hinchinbrook Island
Prince William Sound
Gulf of Alaska


GAKONA HARVEST OF WILD RESOURCES, 2012
Firewood harvest area
Highway/roadway
Park and preserve boundary
The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.
Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.
0
10
20
Miles
Slana
Suslota Creek
Glenn Highway-Tok Cutoff
Tanada Creek
Boulder Creek
Copper Lake
Tulsona Creek
Gakona River
Copper River
Ewan Lake
Gulkana River
Sanford River
Crosswind Lake
Gakona
Glenn Highway
Glennallen
Wrangell-St. Elias National Park and Preserve
Tazlina River
Richardson Highway
Copper River
Willow Creek
Klutina River
Kenny Lake
Tonsina
Edgerton Highway
Strelna Lake
Tonsina River
Chitina
O'Brien Creek
Silver Lake
McCarthy Road



MCCARTHY HARVEST OF WILD RESOURCES, 2012

Lake trout search and harvest area

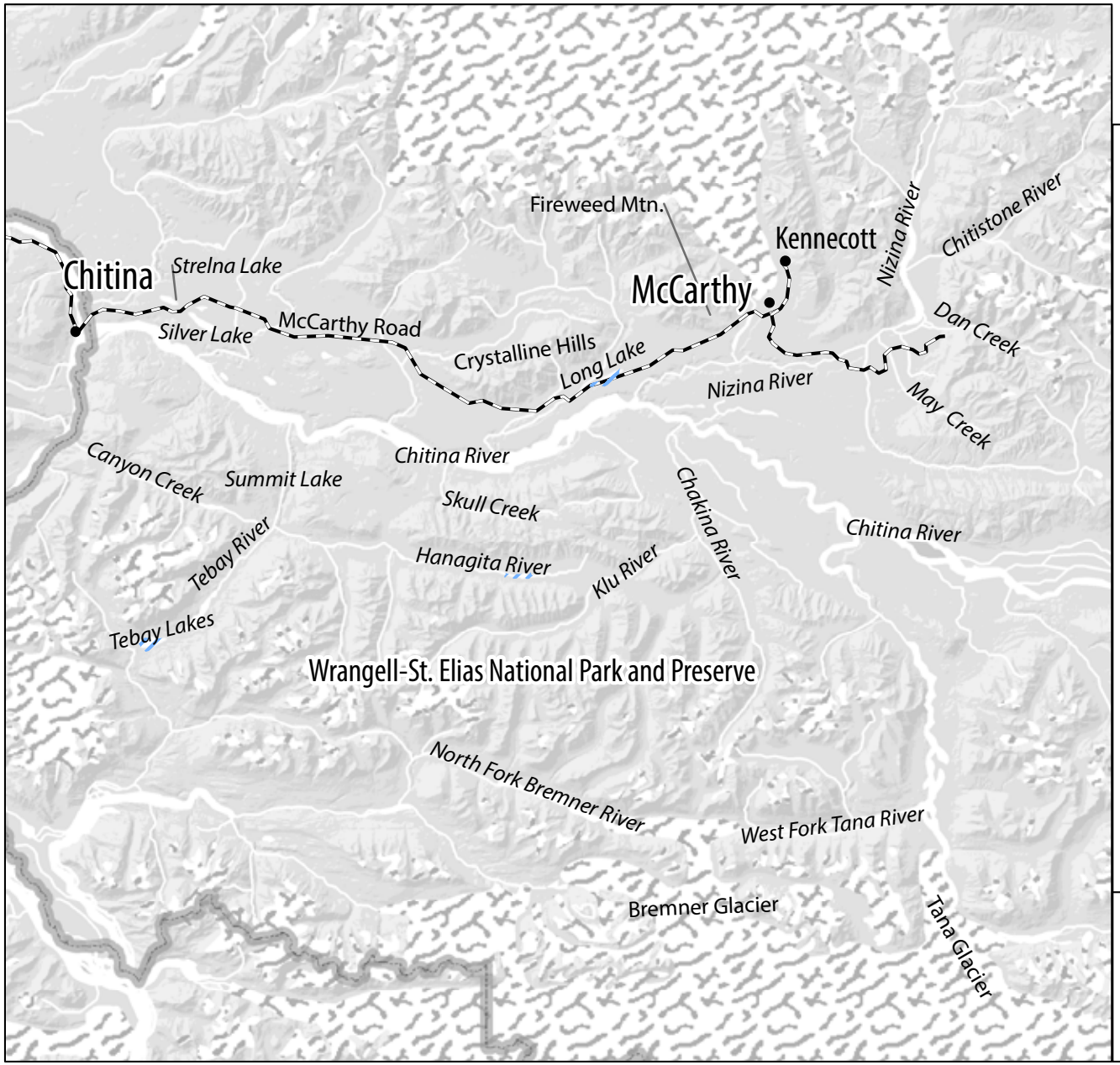
Highway/roadway

Park and preserve boundary

The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.

0 5 10
Miles



MCCARTHY HARVEST OF WILD RESOURCES, 2012

Arctic grayling search and harvest area

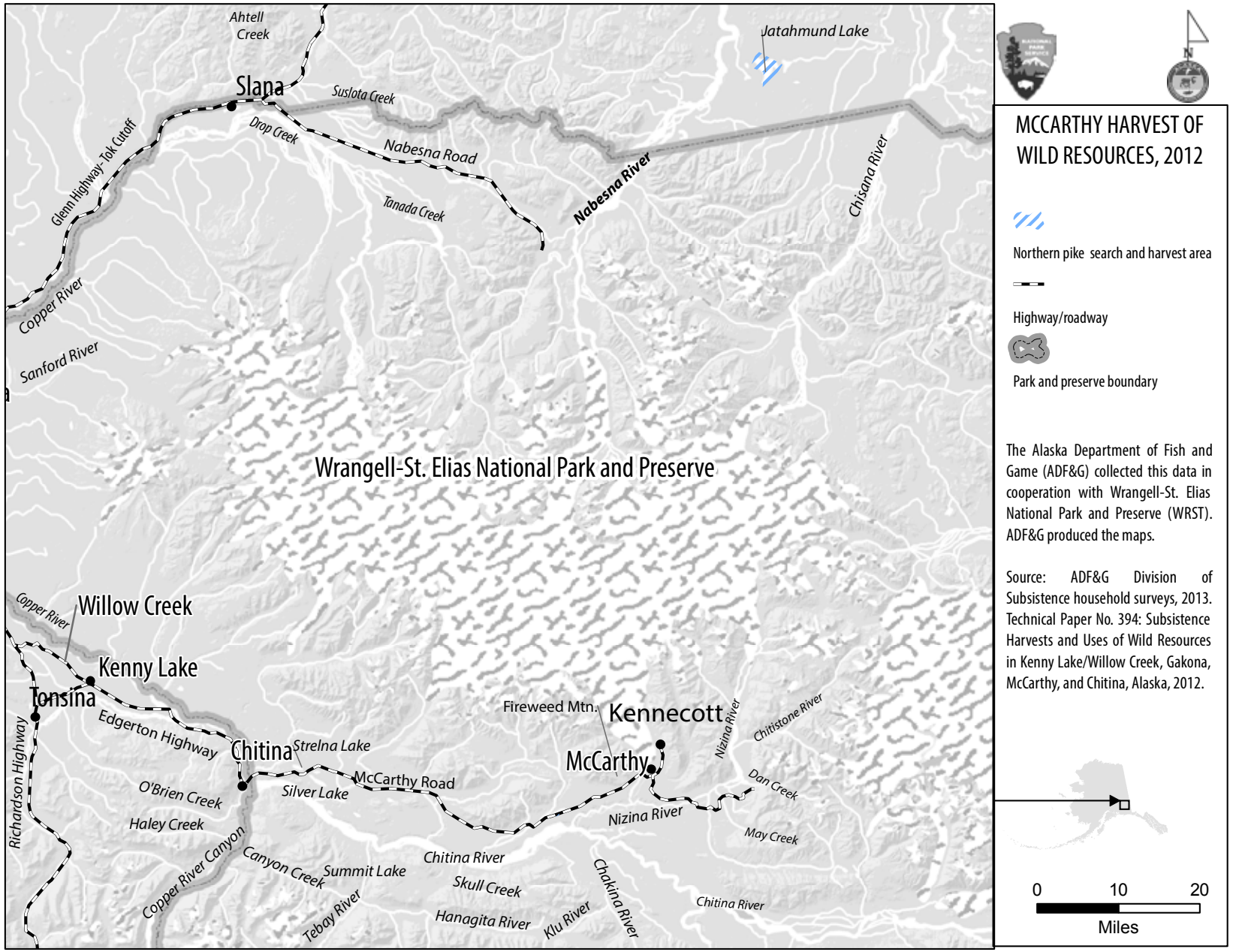
Highway/roadway

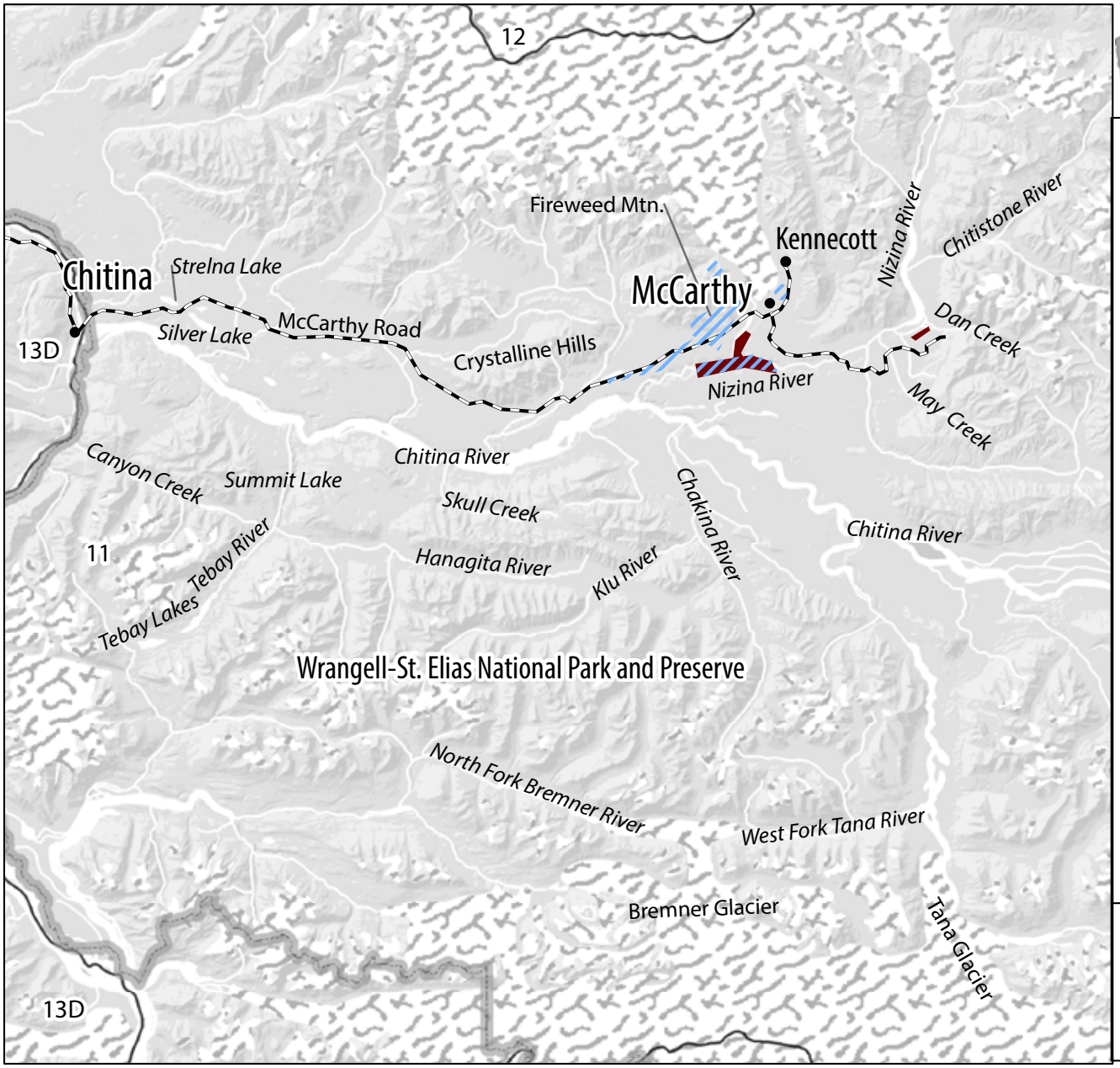
Park and preserve boundary

The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.

0 5 10
Miles


MCCARTHY HARVEST OF WILD RESOURCES, 2012
Northern pike search and harvest area
Highway/roadway
Park and preserve boundary
The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.
Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.
0
10
20
Miles
Wrangell-St. Elias National Park and Preserve
Slana
Ahtell Creek
Jatahmund Lake
Suslota Creek
Drop Creek
Nabesna Road
Nabesna River
Tanada Creek
Chisana River
Glenn Highway- Tok Cutoff
Copper River
Sanford River
Willow Creek
Kenny Lake
Tonsina
Richardson Highway
Edgerton Highway
Chitina
Strelna Lake
Silver Lake
McCarthy Road
O'Brien Creek
Haley Creek
Copper River Canyon
Canyon Creek
Summit Lake
Tebay River
Chitina River
Skull Creek
Hanagita River
Klu River
Chakina River
Fireweed Mtn.
Kennecott
McCarthy
Nizina River
Chititstone River
Dan Creek
May Creek
Chitina River



MCCARTHY HARVEST OF WILD RESOURCES, 2012

Black bear search area

Brown bear search area

Highway/roadway

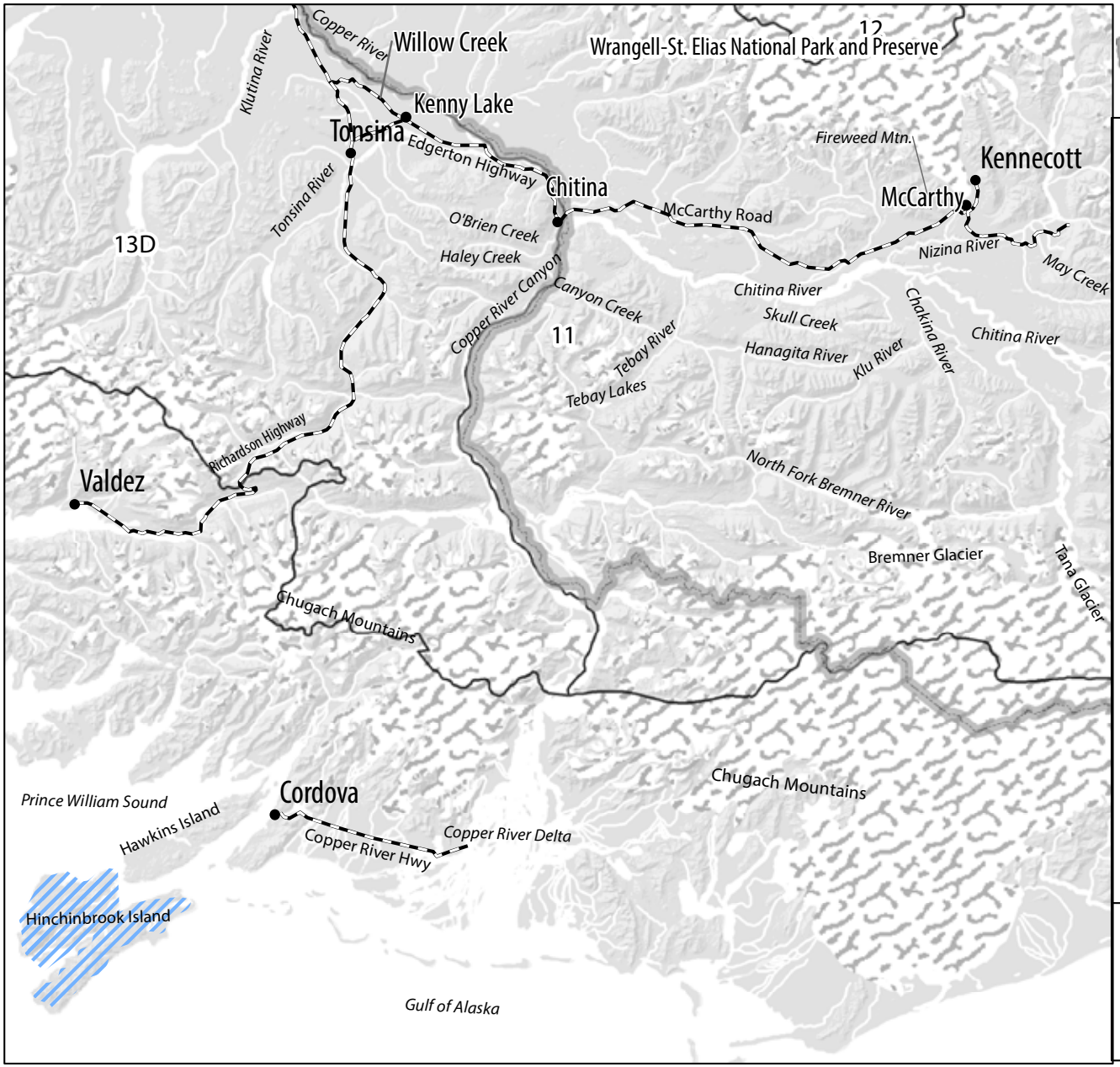
Park and preserve boundary

Game management unit

The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.

0 5 10
Miles



MCCARTHY HARVEST OF WILD RESOURCES, 2012

Sitka black-tailed deer search area

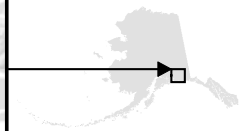
Highway/roadway

Park and preserve boundary

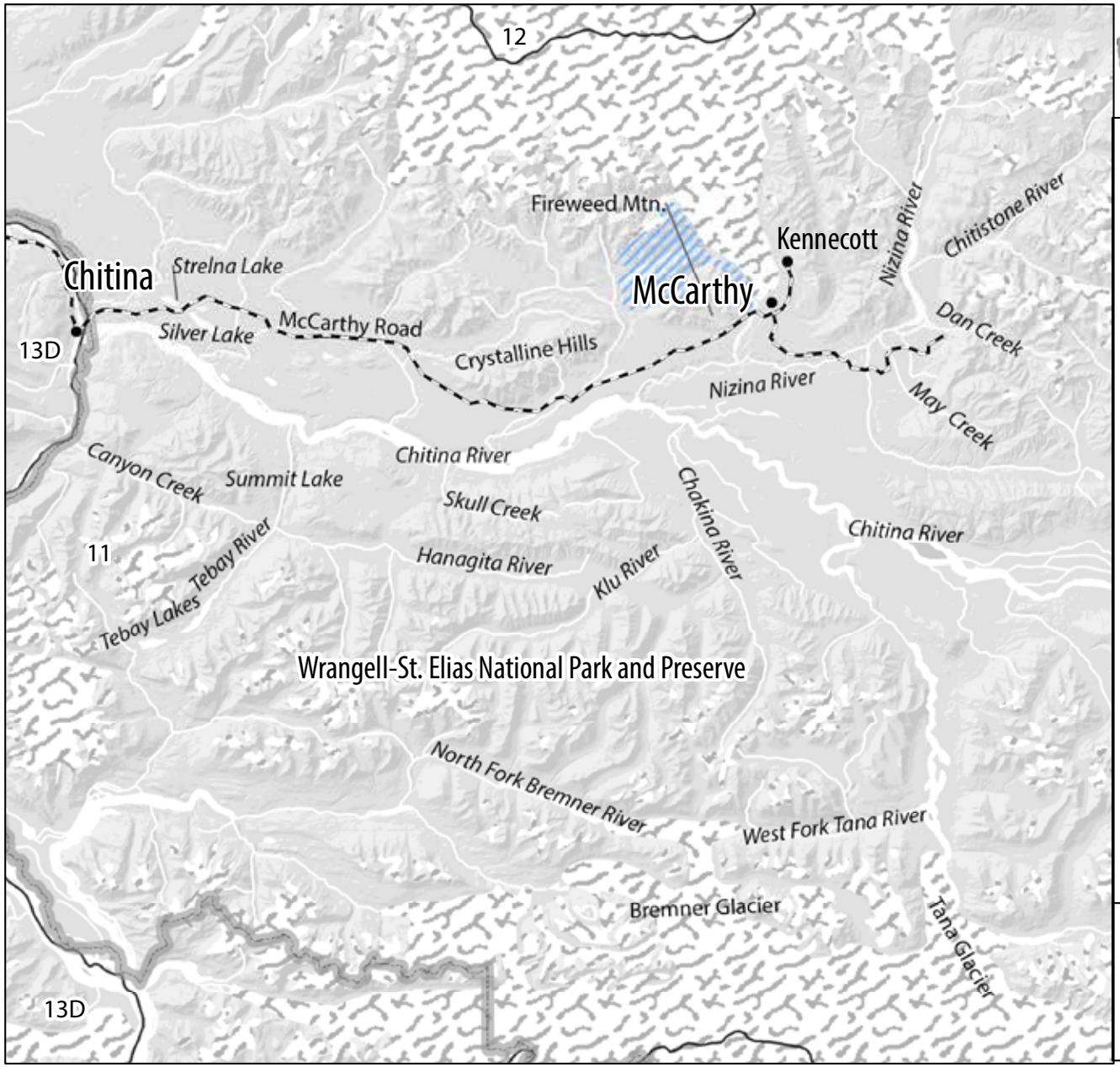
Game management unit

The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.



0 10 20
Miles



MCCARTHY HARVEST OF WILD RESOURCES, 2012

Goat search area

Highway/roadway

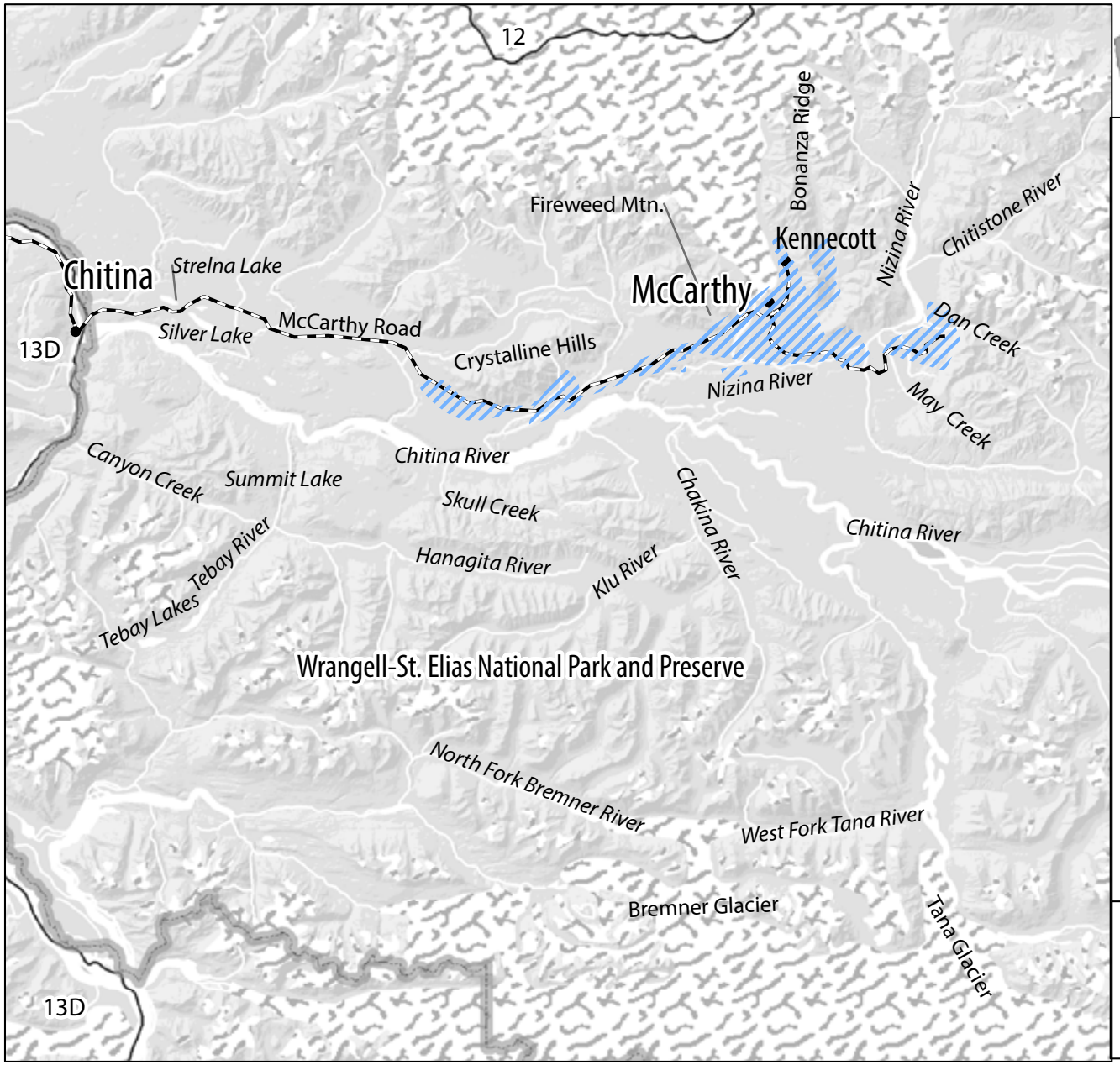
Park and preserve boundary

Game management unit

The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.

0 5 10
Miles



MCCARTHY HARVEST OF WILD RESOURCES, 2012

Firewood search and harvest area

Highway/roadway

Park and preserve boundary

The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.

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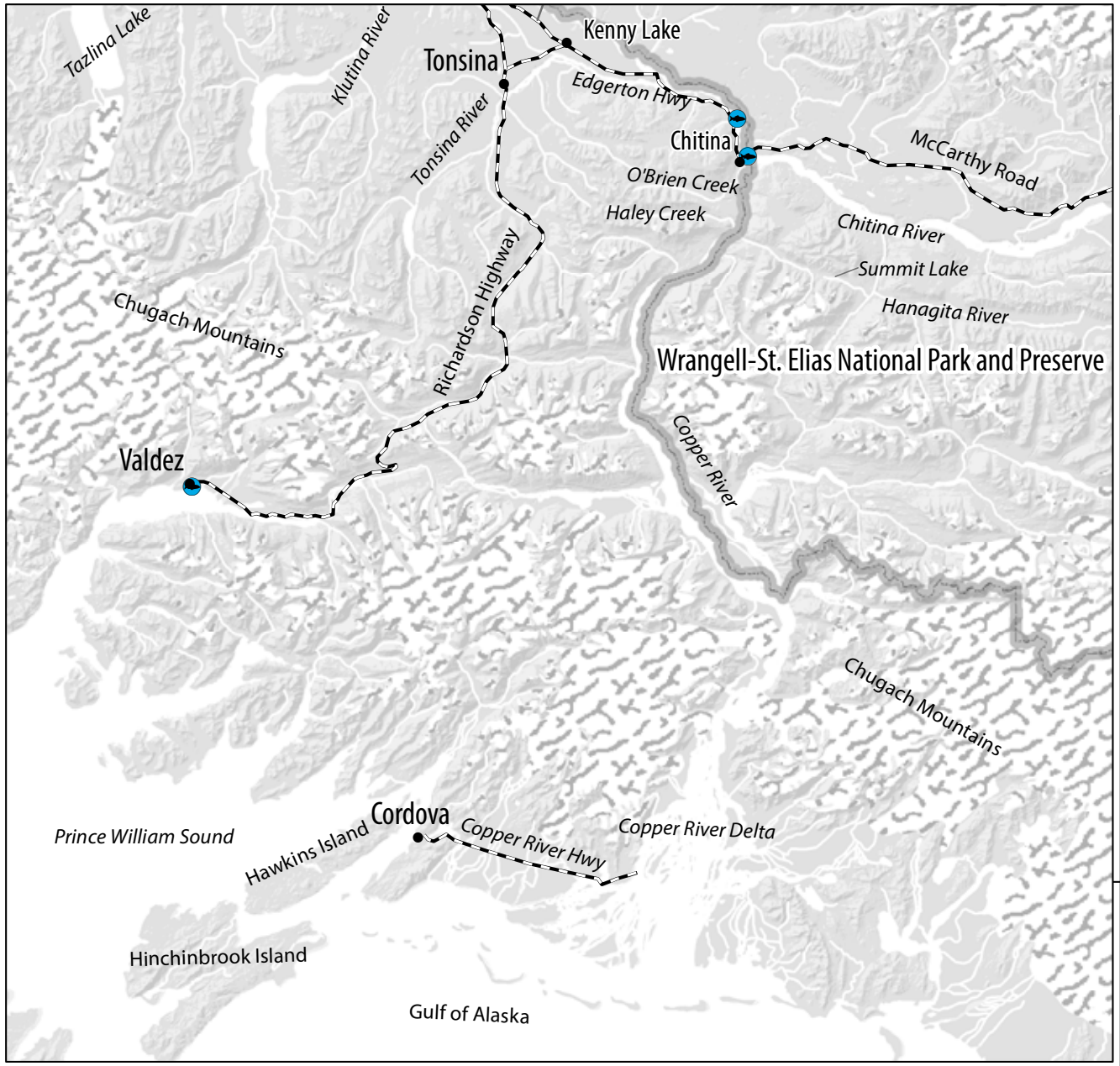


CHITINA HARVEST OF WILD RESOURCES, 2012

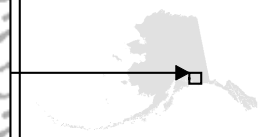
Coho salmon harvest location

Highway/roadway

Park and preserve boundary

The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.



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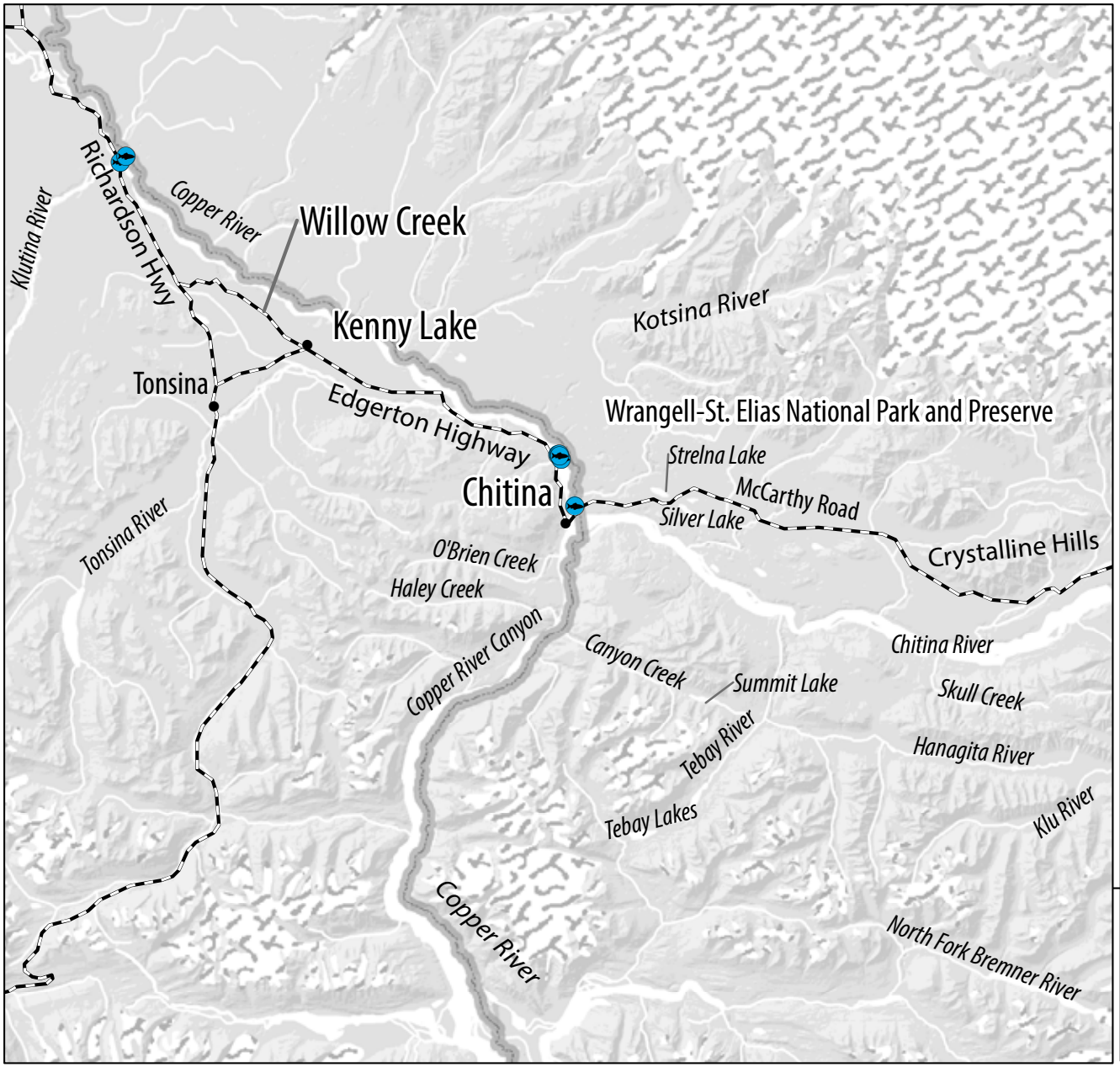


CHITINA HARVEST OF WILD RESOURCES, 2012

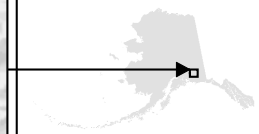
Chinook salmon harvest location

Highway/roadway

Park and preserve boundary

The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.



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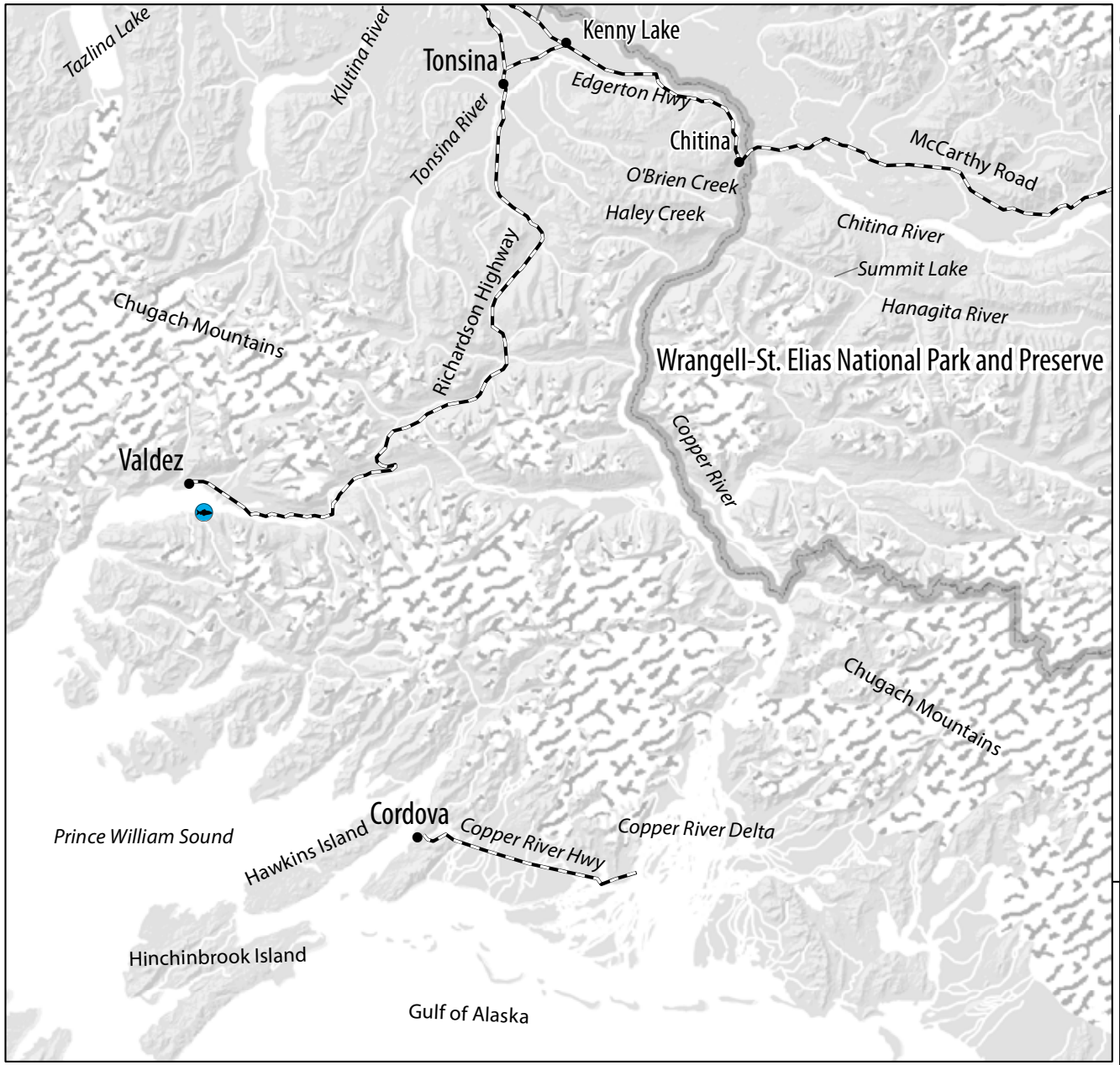


CHITINA HARVEST OF WILD RESOURCES, 2012

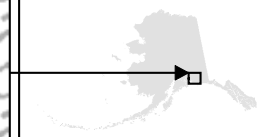
Pink salmon harvest location

Highway/roadway

Park and preserve boundary

The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.



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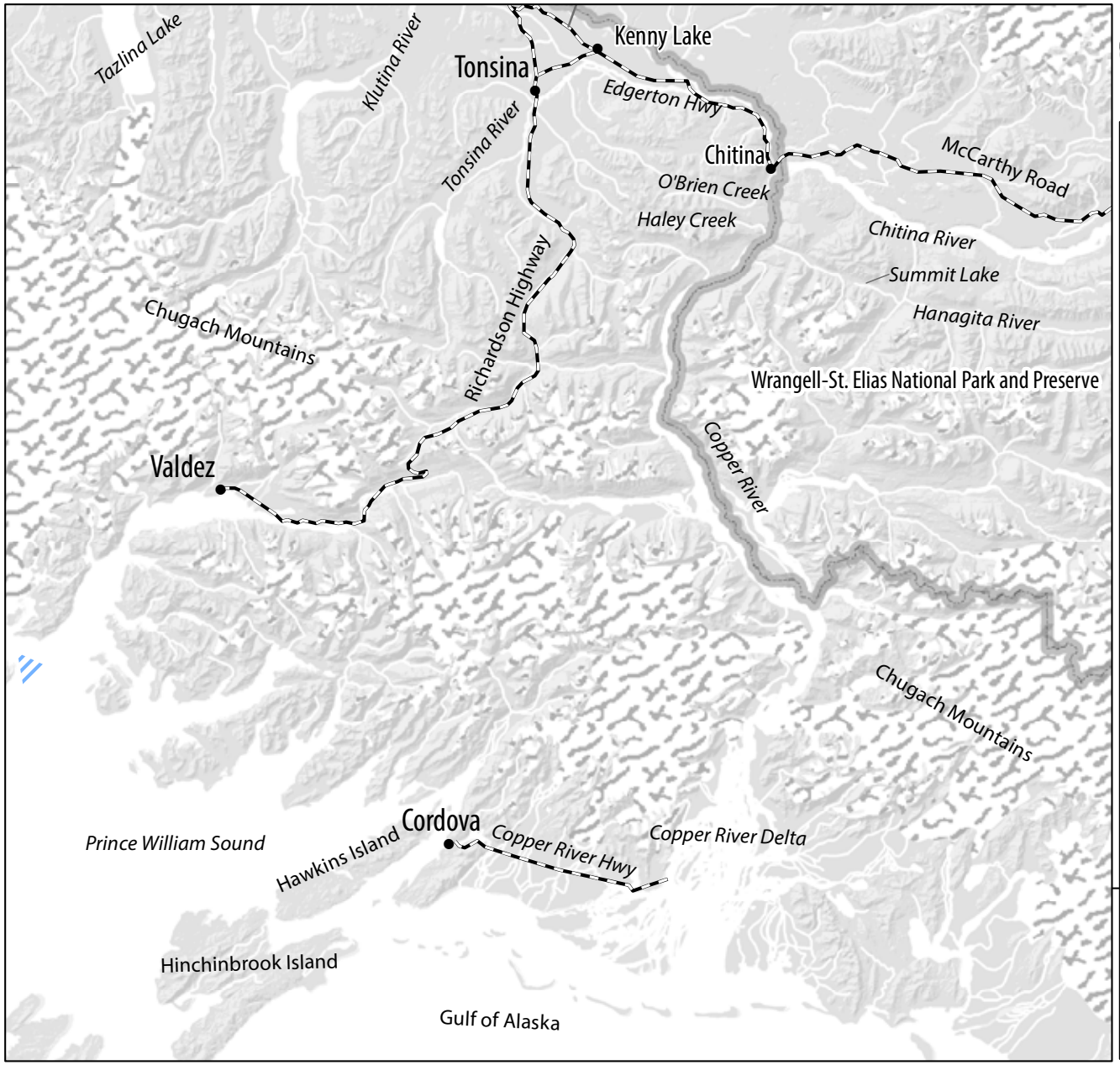

CHITINA HARVEST OF WILD RESOURCES, 2012

Lingcod search and harvest area

Highway/roadway

Park and preserve boundary

The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.

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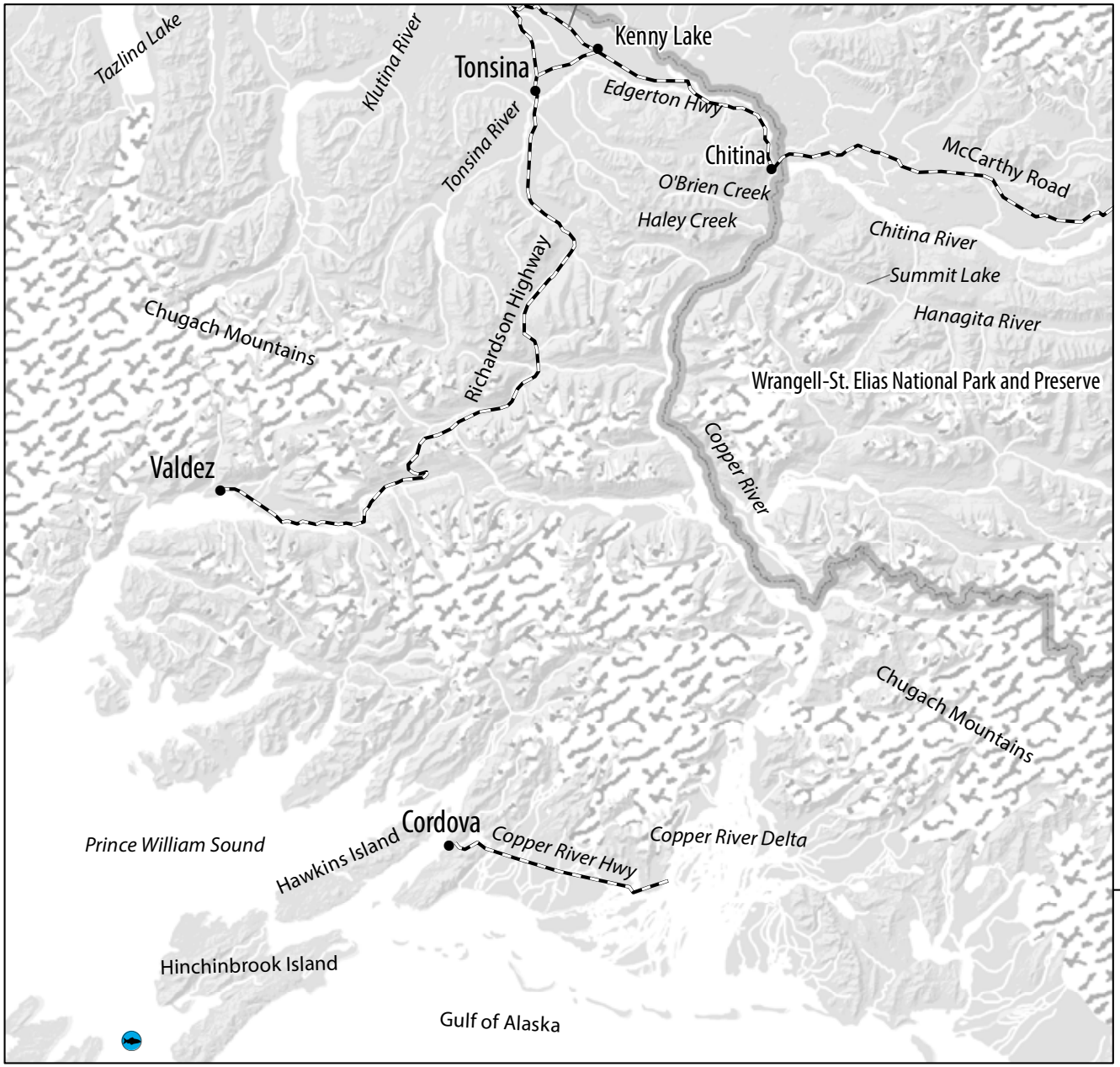

CHITINA HARVEST OF WILD RESOURCES, 2012

Pacific halibut harvest location

Highway/roadway

Park and preserve boundary

The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.

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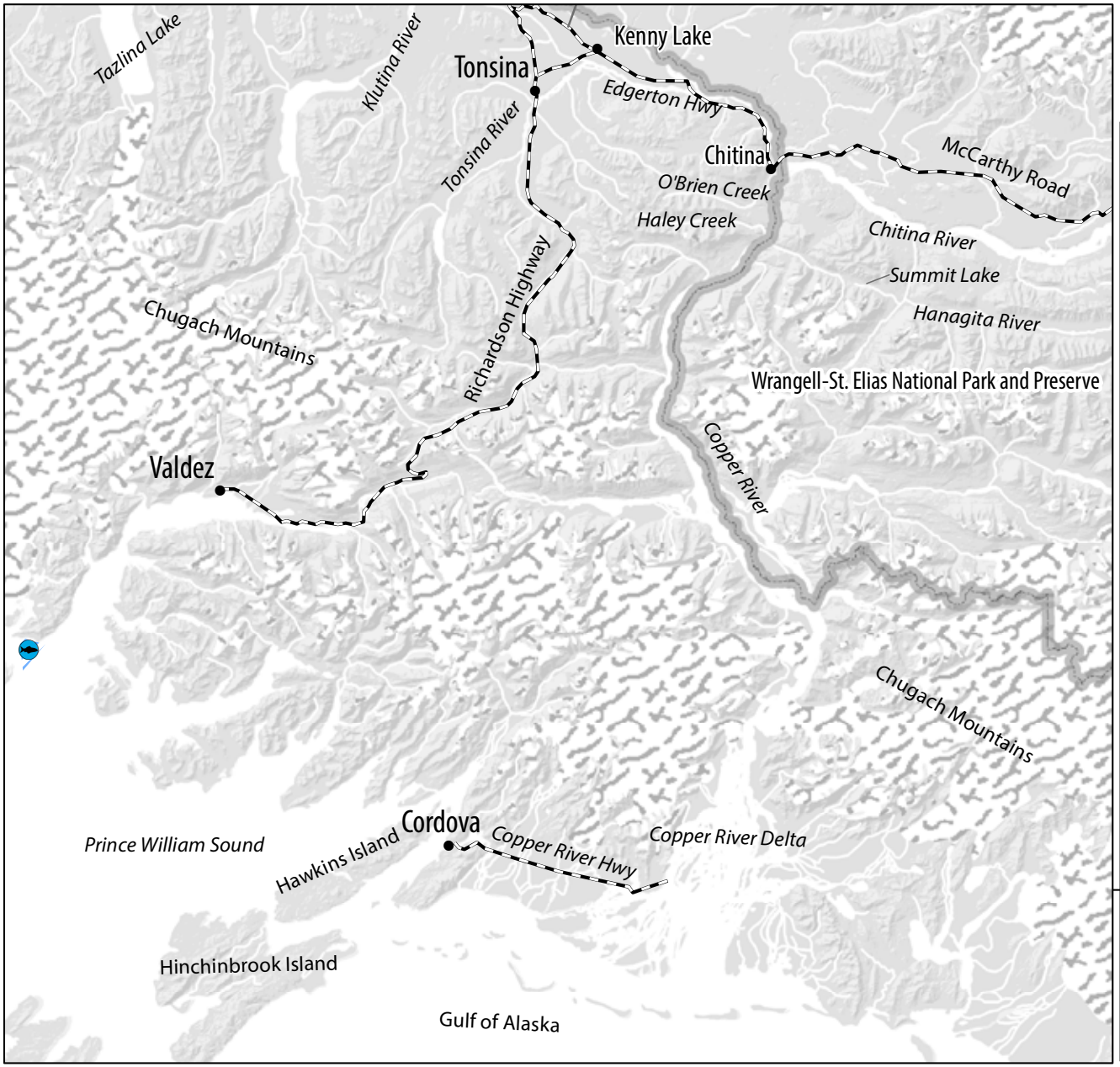

CHITINA HARVEST OF WILD RESOURCES, 2012

Rockfish harvest location

Rockfish search and harvest area

Highway/roadway

Park and preserve boundary

The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.

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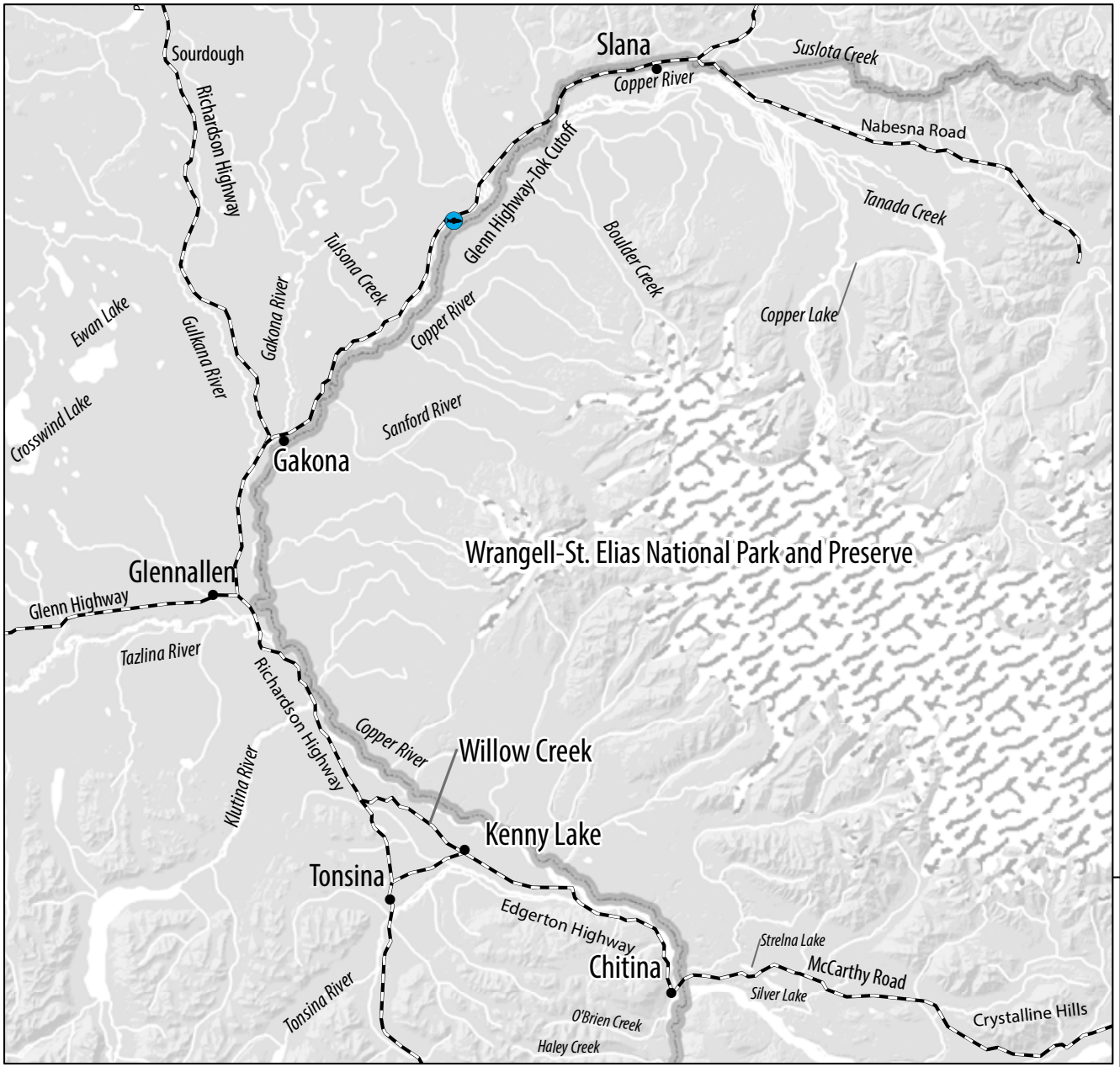


CHITINA HARVEST OF WILD RESOURCES, 2012

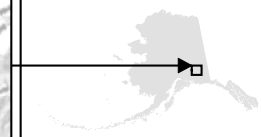
Burbot search and harvest area

Highway/roadway

Park and preserve boundary

The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.



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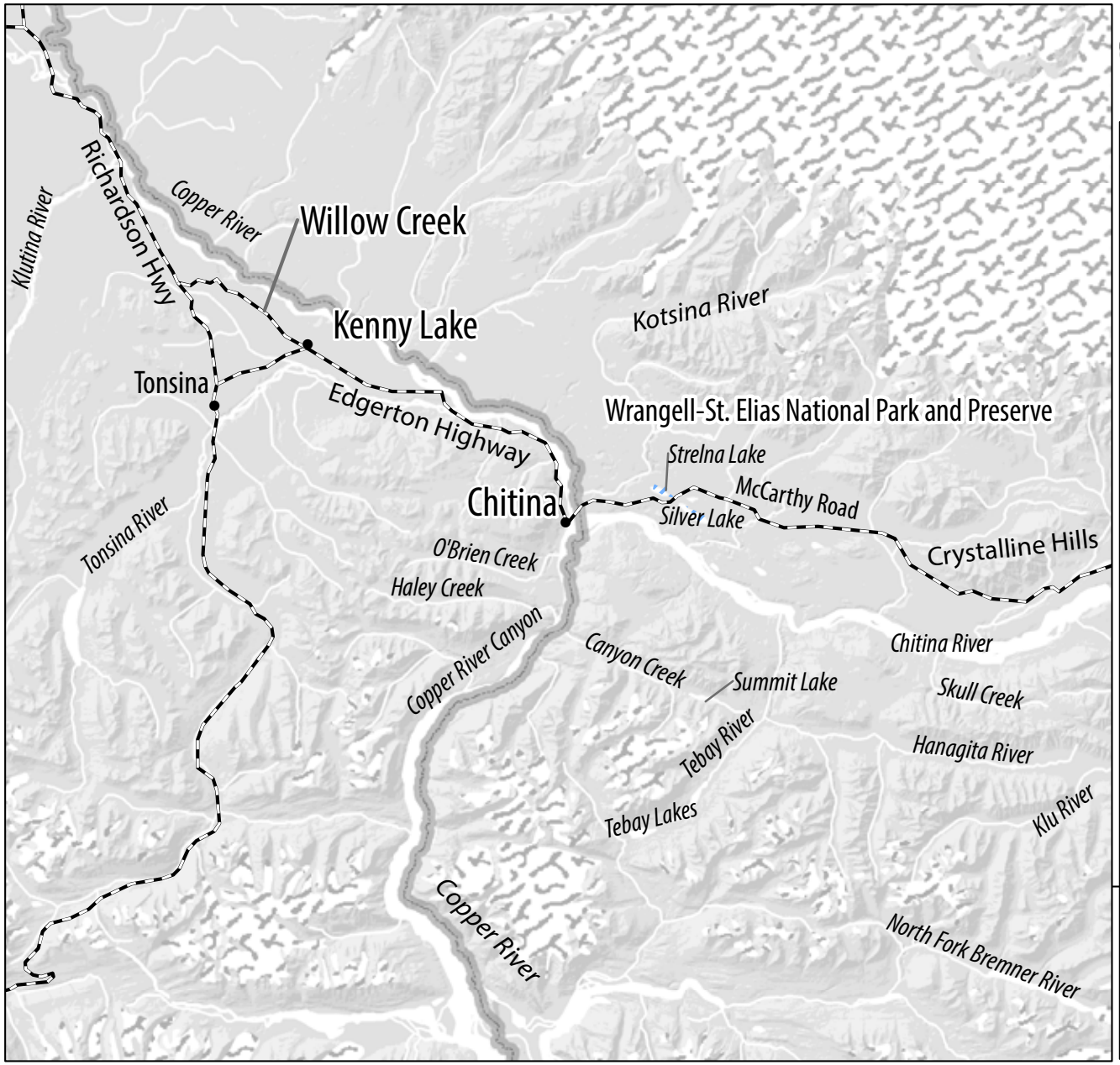


CHITINA HARVEST OF WILD RESOURCES, 2012

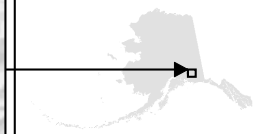
Lake trout search and harvest area

Highway/roadway

Park and preserve boundary

The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.



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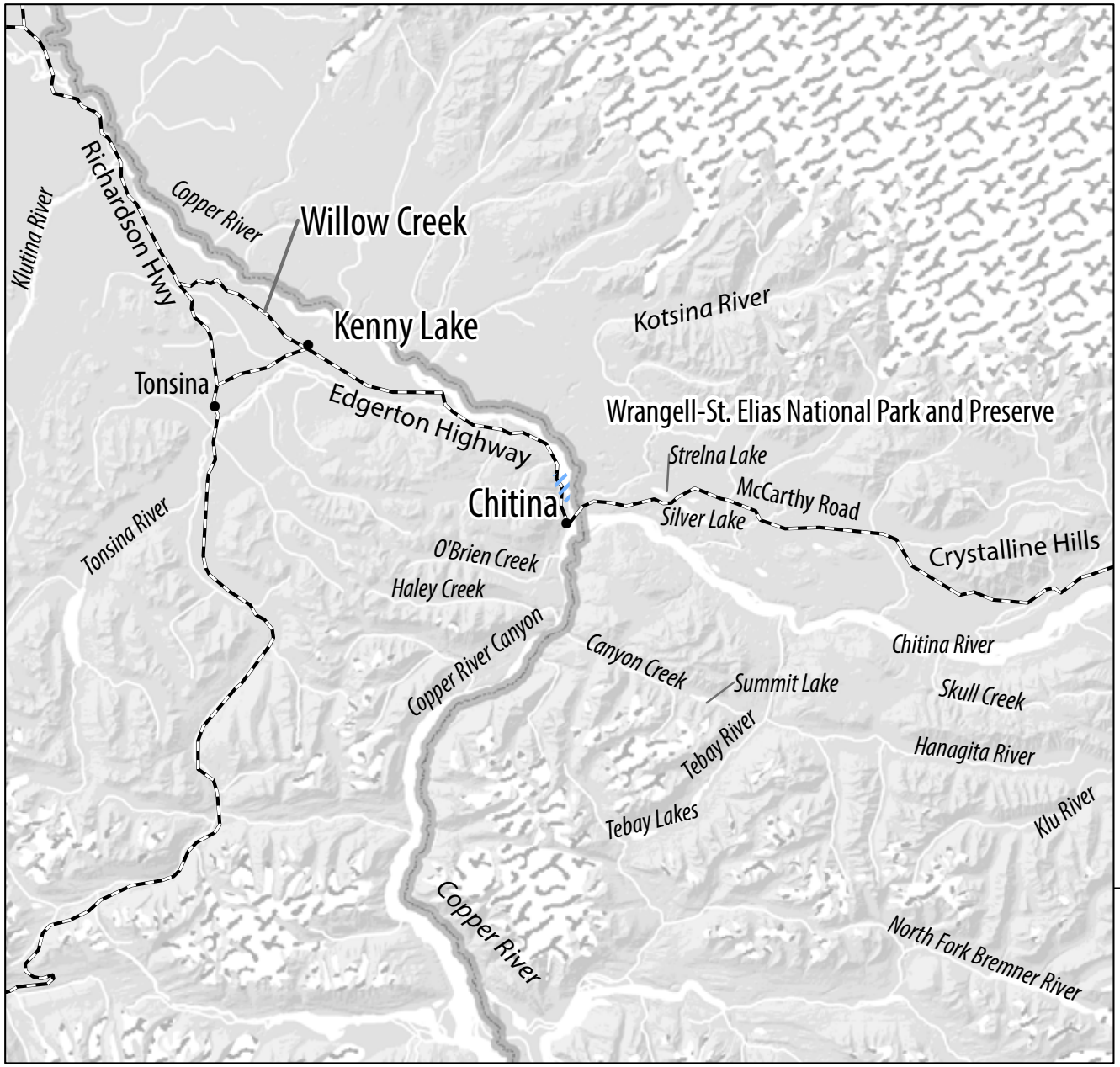


CHITINA HARVEST OF WILD RESOURCES, 2012

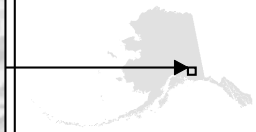
Arctic grayling search and harvest area

Highway/roadway

Park and preserve boundary

The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.



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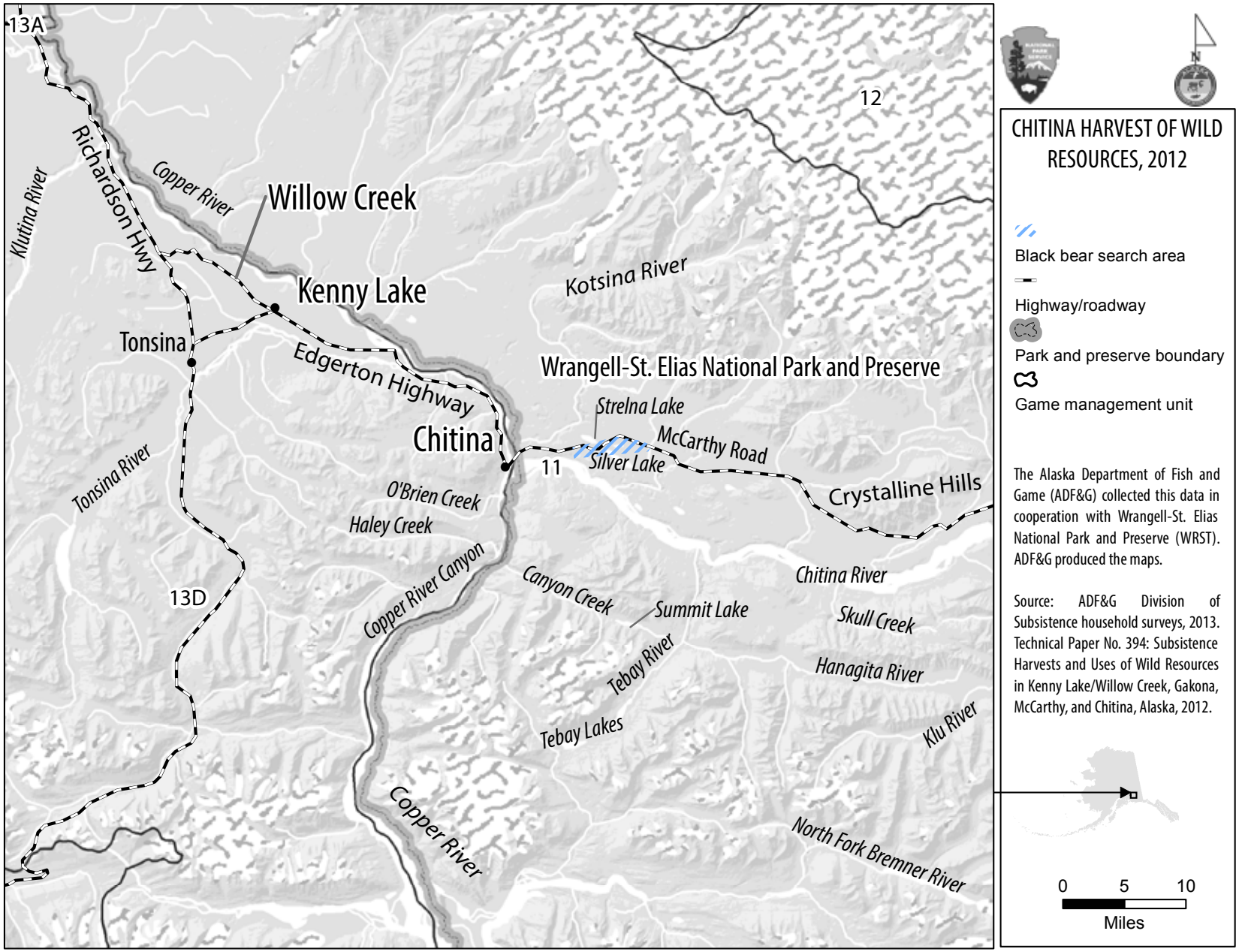
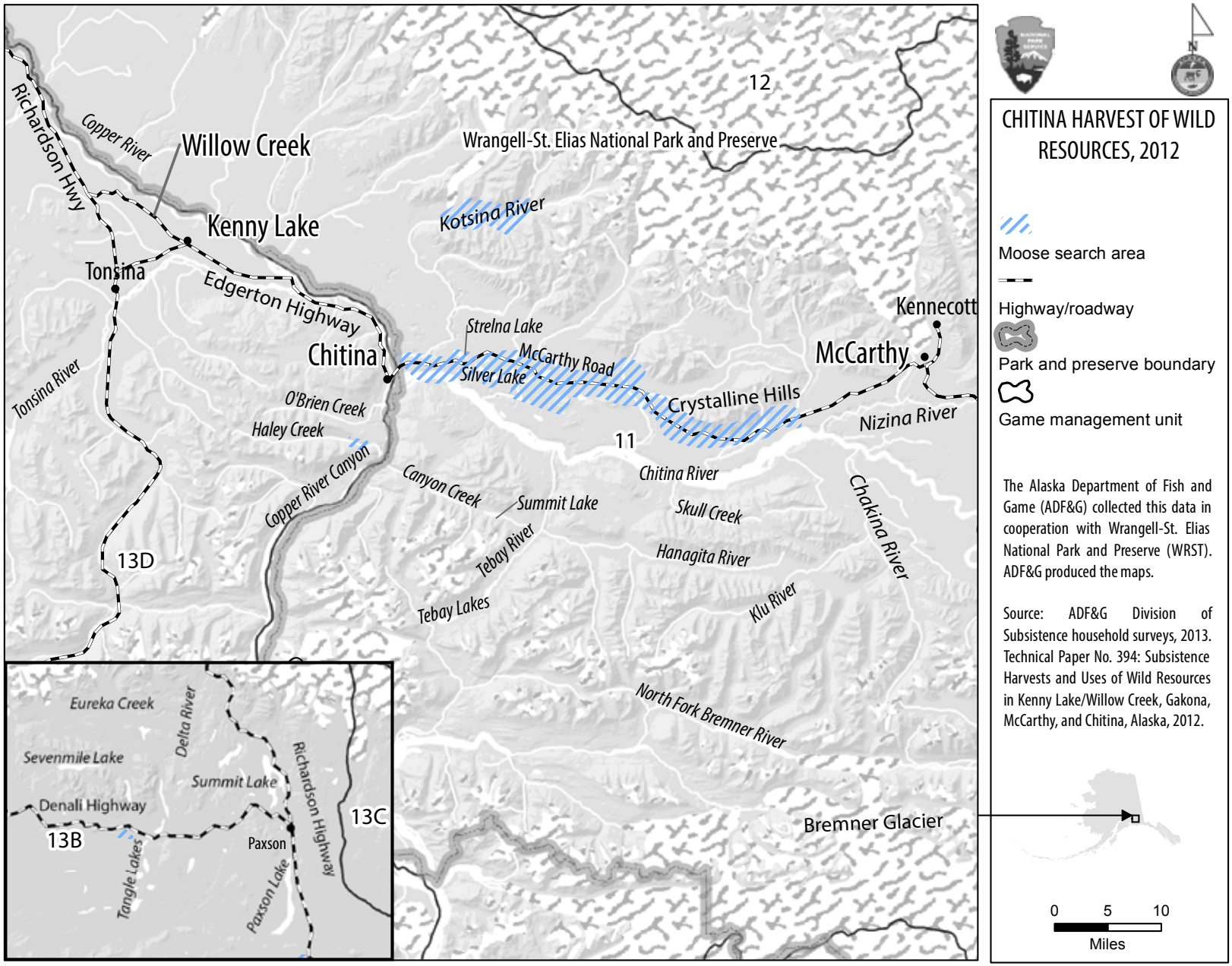
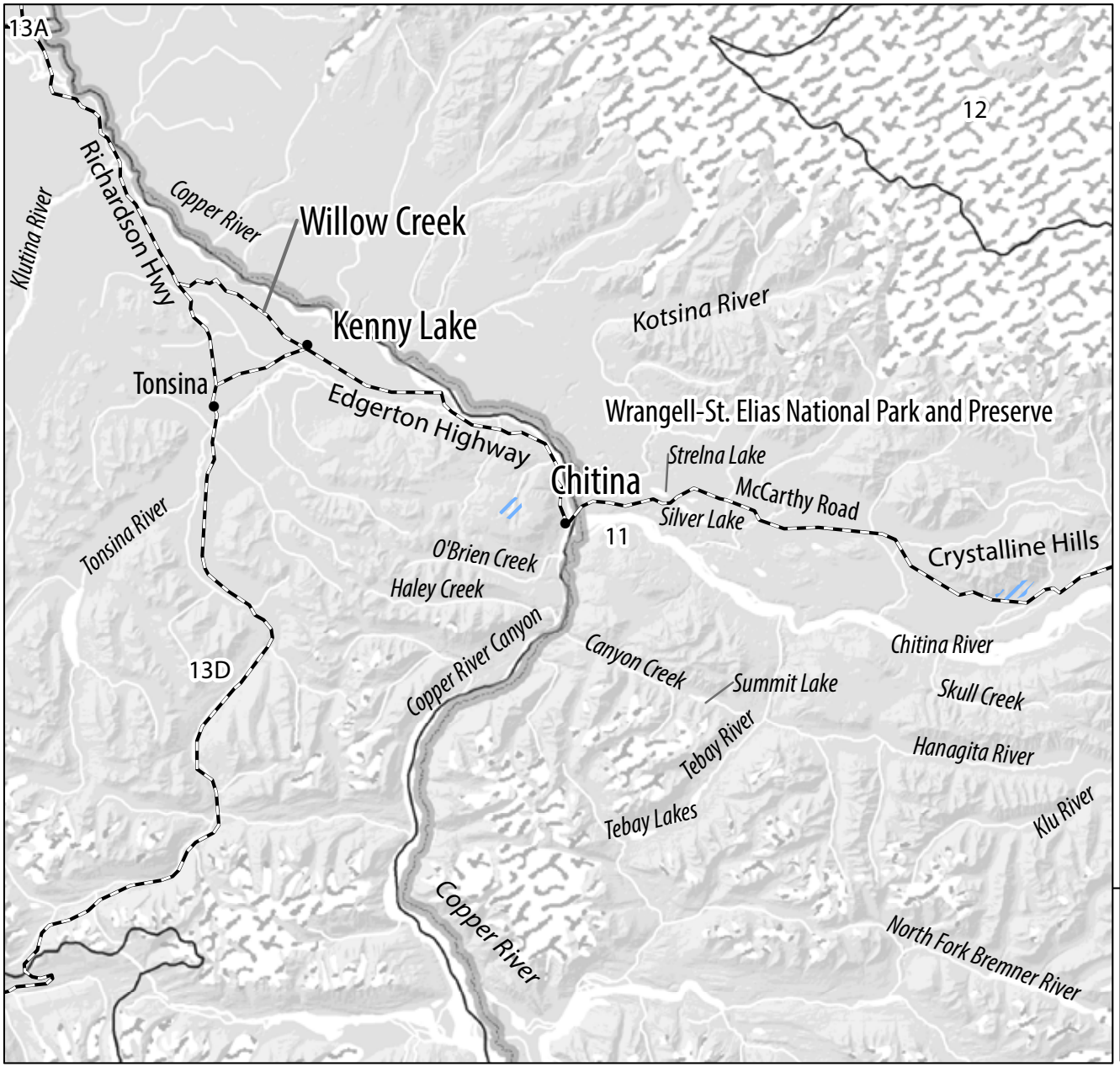

CHITINA HARVEST OF WILD RESOURCES, 2012
Black bear search area
Highway/roadway
Park and preserve boundary
Game management unit
The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.
Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.
0 5 10
Miles
13A
12
11
13D
Willow Creek
Kenny Lake
Tonsina
Chitina
Richardson Hwy
Klutina River
Copper River
Edgerton Highway
Kotsina River
Wrangell-St. Elias National Park and Preserve
Strelna Lake
McCarthy Road
Silver Lake
Crystalline Hills
Tonsina River
O'Brien Creek
Haley Creek
Copper River Canyon
Canyon Creek
Summit Lake
Chitina River
Skull Creek
Tebay River
Hanagita River
Tebay Lakes
Klu River
Copper River
North Fork Bremner River


CHITINA HARVEST OF WILD RESOURCES, 2012
Moose search area
Highway/roadway
Park and preserve boundary
Game management unit
The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.
Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.
0 5 10
Miles
12
11
13D
13C
13B
Wrangell-St. Elias National Park and Preserve
Richardson Hwy
Copper River
Willow Creek
Kenny Lake
Tonsina
Edgerton Highway
Chitina
Tonsina River
Kotsina River
Strelna Lake
McCarthy Road
Silver Lake
Crystalline Hills
McCarthy
Kennecott
Nizina River
O'Brien Creek
Haley Creek
Copper River Canyon
Canyon Creek
Summit Lake
Chitina River
Skull Creek
Chakina River
Tebay River
Hanagita River
Tebay Lakes
Klu River
North Fork Bremner River
Bremner Glacier
Eureka Creek
Delta River
Sevenmile Lake
Summit Lake
Richardson Highway
Denali Highway
Paxson
Tangle Lakes
Paxson Lake



CHITINA HARVEST OF WILD RESOURCES, 2012

Dall sheep search area

Highway/roadway

Park and preserve boundary

Game management unit

The Alaska Department of Fish and Game (ADF&G) collected this data in cooperation with Wrangell-St. Elias National Park and Preserve (WRST). ADF&G produced the maps.

Source: ADF&G Division of Subsistence household surveys, 2013. Technical Paper No. 394: Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012.

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Miles

Appendix D–Summary of Findings

Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012

An Overview of Study Findings

Background

The following is a brief overview of research conducted by the Division of Subsistence of the Alaska Department of Fish and Game (ADF&G) in partnership with the National Park Service, Wrangell-St. Elias National Park and Preserve, to provide baseline information about the role of subsistence uses of fish, wildlife, and wild plant resources in the communities of Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska. The study period for this report covered January 1 to December 31, 2012. Funding was provided to ADF&G through a cooperative agreement with the National Park Service (NPS), Alaska Regional Natural Resource Projects funds, NPS Ethnography Program, NPS Alaska Subsistence Research Projects, and Wrangell-St. Elias National Park and Preserve base funding to conduct a multi-year, multi-community harvest update project. This report is project year 3. In 2010, research was conducted in Chistochina for the 2009 study year, or project year 1 (Kukkonen and Zimpelman 2012). In 2011, research was conducted in Copper Center, Slana and the Nabesna Road, Mentasta Lake, and Mentasta Pass for the 2010 study year, or project year 2 (La Vine et al. 2013).

Methods

The primary data gathering method was systematic household surveys using a modified version of the ADF&G Division of Subsistence standard data gathering instrument. The surveys were conducted face-to-face with community residents. The study team interviewed a total of 194 households in the 4 study communities: 67% of the households in McCarthy (39 households), 85% in Chitina (46 households), 39% in Kenny Lake/Willow Creek (67 households), and 55% in Gakona (42 households). With the help of community research assistants, household interviews were conducted to collect harvest and use information for all wild resources. Each household had accompanying mapping conducted for each resource, including use area and/or harvest location, amount of harvest, and month of harvest. Participation was voluntary, and individual-level as well as household-level data are confidential, as are mapped harvest locations. In addition, subsistence users were asked to discuss their observations about resource use and abundance and their concerns relating to subsistence resources and their continuing opportunities to harvest subsistence resources.

Findings

Project data describe high participation in harvesting, a diverse harvest of, and continued reliance on wild resources for all study communities. During 2012, residents of all communities participated in subsistence hunting, fishing, and gathering for nutrition and to support their way of life. A vast majority of households used wild resources in 2012; an estimated 97% or more of each study community's households exhibited at least some use of wild resources. Ninety-three percent or more of the households in all 4 communities engaged in fishing, hunting, trapping, and gathering activities; in 2 communities 98% or more households attempted to harvest wild resources. Sharing of resources played a significant role in the distribution of wild foods; households in McCarthy (100% of households), Gakona (93% of households), Chitina (87% of households), and Kenny Lake/Willow Creek (81% of households) received wild foods from other households (Figure 1).

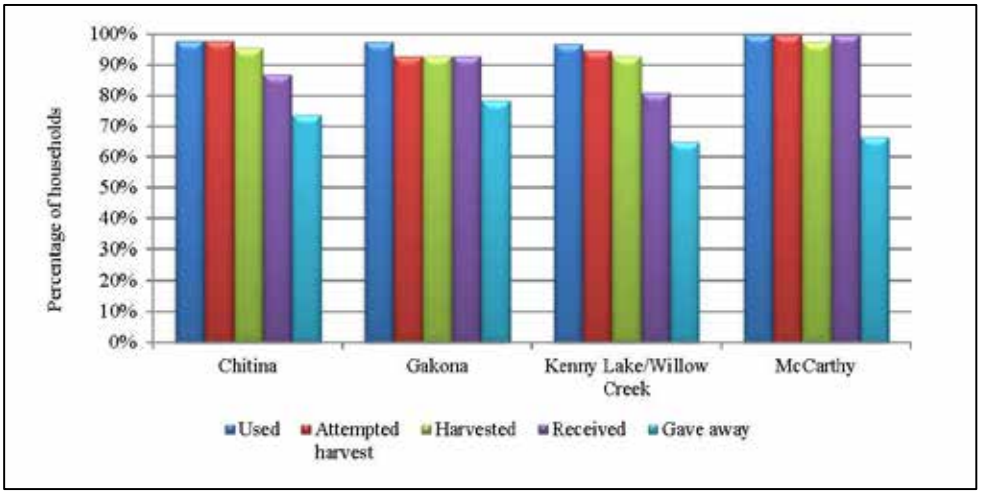

Figure 1.–Harvests and uses of wild resources, study communities, 2012.

Figure 2 represents the composition of each study community's harvest by resource category. While harvest composition varied from community to community, salmon (specifically sockeye salmon) and large land mammals (mostly moose) composed the bulk of each community harvest. Fish (both salmon and nonsalmon fish) composed the bulk of the harvest for Chitina (83%) and Kenny Lake/Willow Creek (75%), but made smaller contributions to the harvests in Gakona (66%) and McCarthy (57%). Large land mammal harvests composed 27% of the harvest in McCarthy, 24% of the harvest in Gakona, 19% in Kenny Lake/Willow Creek, and 12% of the harvest in Chitina.

Vegetation, almost all of which was berries, made important contributions to all community harvests, perhaps not by weight but as one of the most used resource categories in all 4 communities. The remaining categories of small land mammals, marine invertebrates, and birds and eggs made smaller contributions to overall community harvests in terms of usable pounds harvested. Many households also harvested and used wood and trapped animals for fur, but firewood and some furbearers are typically not eaten and are thus excluded from the estimated harvest weight in usable pounds.

Table 1 represents the top 10 ranked most used resources in each study community, whether that resource was harvested by the responding household or shared with the household by other harvesters. Firewood made the ranking list in all communities, as did sockeye salmon, moose, and multiple species of berries.

Figure 3 shows the estimated per capita harvests over the course of 3 studies starting in 1982 to the present study for 2012. Overall, with the exception of McCarthy, in most 2012 study communities the per capita harvest remained high over time. As estimated in pounds usable weight, harvests of wild foods in 2012 was 246 lb per person in Chitina, 171 lb per person in Gakona, 141 lb per person in Kenny Lake/Willow Creek, and 87 lb per person in McCarthy.

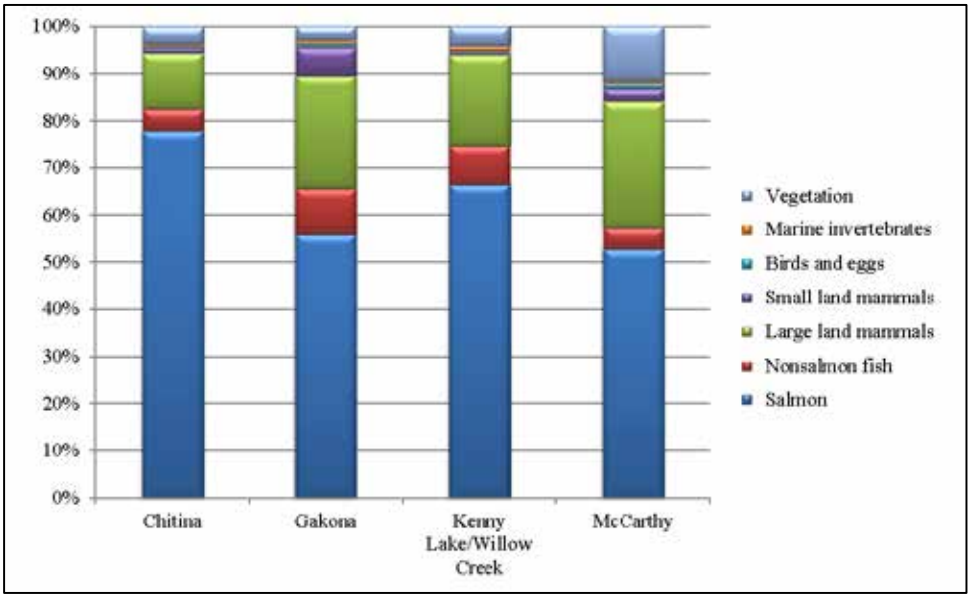

Figure 2.–Composition of harvest as a percentage of the total harvest by resource category, study communities, 2012.

Table 1.–Top 10 ranked resources used by households, study communities, 2012.

Chitina			Gakona		
Rank[a]	Resource	Percentage of households using	Rank[a]	Resource	Percentage of households using
1.	Sockeye salmon	93.5%	1.	Sockeye salmon	92.9%
2.	Firewood	76.1%	2.	Firewood	83.3%
3.	Moose	67.4%	3.	Moose	81.0%
4.	Chinook salmon	60.9%	4.	Blueberry	73.8%
4.	Raspberry	60.9%	5.	Pacific halibut	52.4%
6.	Blueberry	58.7%	6.	Caribou	50.0%
7.	Rainbow trout	52.2%	6.	Raspberry	50.0%
8.	Caribou	50.0%	8.	Chinook salmon	47.6%
9.	Highbush cranberry	43.5%	8.	Lowbush cranberry	47.6%
10.	Pacific halibut	41.3%	10.	Unknown mushrooms	31.0%

Kenny Lake/Willow Creek			McCarthy		
Rank[a]	Resource	Percentage of households using	Rank[a]	Resource	Percentage of households using
1.	Firewood	83.2%	1.	Firewood	94.9%
1.	Sockeye salmon	83.2%	2.	Sockeye salmon	84.6%
3.	Caribou	62.7%	3.	Raspberry	74.4%
4.	Moose	59.8%	4.	Moose	61.5%
5.	Blueberry	57.3%	5.	Unknown mushrooms	53.8%
6.	Chinook salmon	52.9%	5.	Highbush cranberry	53.8%
7.	Lowbush cranberry	43.3%	7.	Lowbush cranberry	51.3%
8.	Pacific halibut	42.2%	8.	Pacific halibut	46.2%
9.	Raspberry	40.5%	8.	Blueberry	46.2%
10.	Coho salmon	31.0%	10.	Currants	38.5%

Source ADF&G Division of Subsistence household surveys, 2013.

a. Resources used by the same percentage of households share the lowest rank value instead of having sequential rank values.

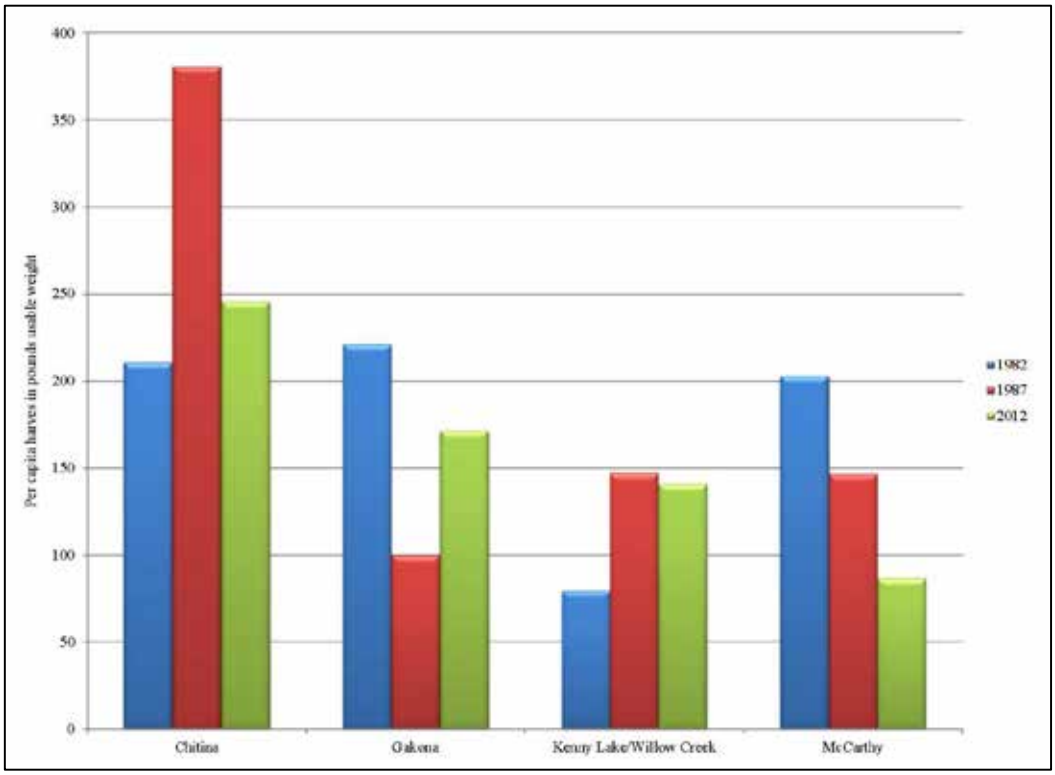

Figure 3.–Estimated harvests by pounds per capita, study communities, 1982, 1987, and 2012.

For More Information

Complete results for this project appear in: *La Vine, R. and G. Zimpelman, editors. 2014. Subsistence Harvests and Uses of Wild Resources in Kenny Lake/Willow Creek, Gakona, McCarthy, and Chitina, Alaska, 2012. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 394, Anchorage.*

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