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Lake Clark National Park and Preserve: Harvest and Use of Wild Resources in Nondalton and Port Alsworth, 2021

by
Lauren A. Sill,
Chance Wilcox,
Bronwyn Jones,
and
Margaret Cunningham

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Alaska Department of Fish and Game

Division of Subsistence

Symbols and Abbreviations

The following symbols and abbreviations, and others approved for the Système International d'Unités (SI), are used without definition in the reports by the Division of Subsistence. All others, including deviations from definitions listed below, are noted in the text at first mention, as well as in the titles or footnotes of tables, and in figure or figure captions.

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	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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by

Lauren A. Sill
Alaska Department of Fish and Game Division of Subsistence, Douglas

and

Chance Wilcox, Bronwyn Jones, and Margaret Cunningham
Alaska Department of Fish and Game Division of Subsistence, Anchorage

Alaska Department of Fish and Game
Division of Subsistence
PO Box 110024
Juneau, AK 99811

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Lauren A. Sill
Alaska Department of Fish and Game Division of Subsistence
PO Box 110024, Juneau, AK 99811-0024 USA

and
Chance Wilcox, Bronwyn Jones, and Margaret Cunningham
333 Raspberry Road, Anchorage, AK 99518-1565 USA

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ABSTRACT

This report provides updated information about the harvests and uses of wild resources by the communities of Nondalton and Port Alsworth, which are located within (Port Alsworth) or near (Nondalton) Lake Clark National Park and Preserve (LACL) in Southwest Alaska. This study was funded by the National Park Service (NPS) and was carried out in cooperation with NPS staff and the study communities. Both Nondalton and Port Alsworth are federally recognized rural communities whose residents are eligible to participate in federal subsistence harvest opportunities on federal public lands (36 CFR 242). The NPS identified that the populations of some communities proximal to LACL, particularly Port Alsworth, have changed since 2004, the most recent year for which comprehensive survey results are available. As such, household surveys were administered for the 2021 study year to estimate harvest amounts and locations; participation rates; demographic, economic, and food security characteristics; and assessments of changes to resource use, which could help identify whether subsistence patterns are changing along with the size of the study communities. As in the past, during the 2021 study year, many residents of these study communities relied on subsistence resources for nutrition and to support their way of life. In Nondalton, based on household surveys, an estimated 93% of households harvested at least one type of wild resource but all households used a wild resource during the study year. Participation was nearly as high in Port Alsworth, where an estimated 97% of households used at least one type of wild resource during the study year, and nearly as many (94%) harvested at least one wild resource. In Nondalton, overall, 30,925 lb (299 lb per capita) of wild resources were harvested during the study year; the harvest was smaller in Port Alsworth: 15,410 lb total, or 116 lb per capita. However, the harvest composition was very similar. In Nondalton and Port Alsworth, salmon composed more than one-half (62% and 68%, respectively) of the total harvest weight and large land mammals composed 18%.

Key words: subsistence, Bristol Bay, Nondalton, Port Alsworth, Lake Clark National Park and Preserve, wild resources

1. INTRODUCTION

This report summarizes the results of a harvest survey that documented the subsistence harvests and uses of wild resources by the communities of Nondalton and Port Alsworth for study year 2021. Both communities are located near Lake Clark National Park and Preserve (LACL) in Southwest Alaska (Figure 1-1). Tables 1-1 and 1-2 list the wild resources used by Nondalton and Port Alsworth households.

Project Background

In 2022, the Alaska Department of Fish and Game (ADF&G) Division of Subsistence administered a comprehensive household survey to provide updated information on the 2021 harvests and uses of all wild resources in the communities of Nondalton and Port Alsworth. Wild resources are important to and highly valued by community residents for subsistence uses. Residents from both study communities are eligible for state and federal subsistence harvest opportunities, but a comprehensive estimate of harvest amounts for all wild resources and survey of subsistence use areas, including on federal public lands inside LACL, have not occurred since 2004. Since then, the populations of the study communities have changed, particularly in Port Alsworth. Under state statute (AS 16.05.258) and federal law (see Alaska National Interest Lands Conservation Act, or ANILCA), a priority is afforded to subsistence uses of wild resources. The harvest information and related socioeconomic data gathered through household surveys are important for effectively managing wild resources on state and federal lands and for fully providing for a subsistence priority. The National Park Service (NPS) awarded funding for this project in April 2020.

Lake Clark National Park and Preserve

Lake Clark is the sixth largest lake in Alaska, stretching 42 miles in length and up to 4 miles wide in some sections (Plate 1-1). The lake covers approximately 110 square miles and reaches a depth of 860 feet (Alaska Geographic Society 1986). The lake and its watershed provide spawning and rearing habitats for sockeye salmon that return annually from Bristol Bay. The rolling foothills, boreal forests, alpine lakes, rivers, glaciers, active volcanoes, expansive coastline, and miles of tundra found throughout the Lake Clark

Plate 1-1.–Aerial view of Lake Clark.

Figure 1-1.–Map of study communities, 2021.

Table 1-1.–Resources used by households, Nondalton, 2021.

Resource	Scientific name
Coho salmon	*Oncorhynchus kisutch*
Chinook salmon	*Oncorhynchus tshawytscha*
Sockeye salmon	*Oncorhynchus nerka*
Spawning sockeye salmon	*Oncorhynchus nerka*
Unspecified smelts	
Burbot	*Lota lota*
Lake trout	*Salvelinus namaycush*
Arctic grayling	*Thymallus arcticus*
Northern pike	*Esox lucius*
Rainbow trout	*Oncorhynchus mykiss*
Unspecified trouts	
Humpback whitefish	*Coregonus pidschian*
Black bear	*Ursus americanus*
Brown bear	*Ursus arctos*
Caribou	*Rangifer tarandus*
Mountain goat	*Oreamnos americanus*
Moose	*Alces alces*
Dall sheep	*Ovis dalli*
Beaver	*Castor canadensis*
Coyote	*Canis latrans*
Red fox	*Vulpes vulpes*
Snowshoe hare	*Lepus americanus*
River otter	*Lontra canadensis*
Lynx	*Lynx canadensis*
Martens	*Martes spp.*
Muskrat	*Ondatra zibethicus*
Porcupine	*Erethizon dorsatum*
Arctic ground squirrel	*Spermophilus parryii*
Red squirrel	*Tamiasciurus hudsonicus*
Gray wolf	*Canis lupus*
Wolverine	*Gulo gulo*
Unspecified goldeneyes	*Bucephala spp.*
Mallard	*Anas platyrhynchos*
Northern pintail	*Anas acuta*
Unspecified scaups	*Aythya spp.*
Unspecified teals	*Anas spp.*
Unspecified ducks	
Brant	*Branta bernicla*
Unspecified Canada/ cackling geese	*Branta spp.*
Snow goose	*Anser caerulescens*
Greater white-fronted goose	*Anser albifrons*
Unspecified geese	
Sandhill crane	*Grus canadensis*
Unspecified grouses	
Unspecified ptarmigans	*Lagopus spp.*
Mallard eggs	*Anas platyrhynchos*
Large gull eggs	
Unspecified clams	
Blueberry	*Vaccinium uliginosum alpinum*
Lowbush cranberry	*Vaccinum vitis-idaea minus*
Highbush cranberry	*Viburnum edule*
Crowberry	*Empetrum nigrum*
Cloudberry	*Rubus chamaemorus*
Juniper berry	*Communis L.*
Wild rhubarb	*Polygonum alaskanum*
Wild potato	*Hedysarum alpinum*
Fiddlehead ferns	
Hudson's Bay (Labrador) tea	*Ledum palustre*
Sourdock	*Rumex fenestratus*
Spruce tips	*Picea spp.*
Wild celery	*Angelica lucida*
Wild parsley	*Pastinaca sativa*
Yarrows	*Achillea spp.*
Other wild greens	
Unspecified mushrooms	
Fireweed	*Epilobium angustifolium*
Wild chive	*Allium schoenoprasum*
Cottonwoods	*Populus spp.*
Firewood	
Other wood	

Source ADF&G Division of Subsistence household surveys, 2022.

-continued-

Table 1-2.–Resources used by households, Port Alsworth, 2021.

Resource	Scientific name
Coho salmon	*Oncorhynchus kisutch*
Chinook salmon	*Oncorhynchus tshawytscha*
Sockeye salmon	*Oncorhynchus nerka*
Unspecified salmon	*Oncorhynchus spp.*
Eulachon (hooligan, candlefish)	*Thaleichthys pacificus*
Pacific (gray) cod	*Gadus macrocephalus*
Unspecified cods	
Lingcod	*Ophiodon elongatus*
Pacific halibut	*Hippoglossus stenolepis*
Unspecified rockfishes	
Burbot	*Lota lota*
Dolly Varden, unknown type	*Salvelinus malma*
Lake trout	*Salvelinus namaycush*
Arctic grayling	*Thymallus arcticus*
Northern pike	*Esox lucius*
Rainbow trout	*Oncorhynchus mykiss*
Unspecified trouts	
Humpback whitefish	*Coregonus pidschian*
Round whitefish	*Prosopium cylindraceum*
Unspecified whitefishes	
Bison	*Bison bison*
Black bear	*Ursus americanus*
Brown bear	*Ursus arctos*
Caribou	*Rangifer tarandus*
Moose	*Alces alces*
Beaver	*Castor canadensis*
Red fox	*Vulpes vulpes*
Lynx	*Lynx canadensis*
Martens	*Martes spp.*
Weasels	*Mustela spp.*
Gray wolf	*Canis lupus*
Wolverine	*Gulo gulo*
Unspecified mergansers	*Mergus spp.*
Unspecified geese	
Unspecified grouses	
Unspecified ptarmigans	*Lagopus spp.*
Butter clam	*Saxidomus gigantea*
Razor clam	*Siliqua patula*
Blueberry	*Vaccinium uliginosum alpinum*
Lowbush cranberry	*Vaccinum vitis-idaea minus*
Highbush cranberry	*Viburnum edule*
Crowberry	*Empetrum nigrum*
Currants	*Ribes spp.*
Cloudberry	*Rubus chamaemorus*
Raspberry	*Rubus idaeus*
Twisted stalk berry (watermelon berry)	*Streptopus amplexifolius*
Wild rhubarb	*Polygonum alaskanum*
Fiddlehead ferns	
Hudson's Bay (Labrador) tea	*Ledum palustre*
Wild celery	*Angelica lucida*
Wild rose hips	*Rosa acicularis*
Yarrows	*Achillea spp.*
Sweet gale	*Myrica gale*
Unspecified mushrooms	
Fireweed	*Epilobium angustifolium*
Chaga	*Inonotus Iobliquus*
Birch sap	*Betula spp.*
Firewood	
Other wood	

Source ADF&G Division of Subsistence household surveys, 2022.

-continued-

Plate 1-2.–Boundary of Lake Clark National Park and Preserve federal lands at Tanalian Falls trail.

region provide habitats for a diverse array of plants and animals. The northern Athabascan people known as Dena'ina have lived in the area that is now LACL for thousands of years, subsisting off the abundant natural resources (Gaul 2007). Russian explorers and missionaries arrived in the Lake Clark region in the 18th century, followed by prospectors, trappers, and entrepreneurs looking to settle (Branson 2014).

In 1978, President Jimmy Carter designated approximately 2.5 million acres as Lake Clark National Monument.[1] With the passage of ANILCA on December 2, 1980, the monument was expanded into a national park and preserve comprising a total of 4,030,006 acres.[2] LACL boundaries extend from Cook Inlet westward across the Chigmit and Neacola mountains, the northern end of the Aleutian Range, into the southern portion of the Alaska Range, and southwest across Lake Clark (Figure 1-2). Title VIII of ANILCA provided for the continued use of park and preserve lands by Alaska Natives and other rural residents who had traditionally used them for subsistence purposes prior to the establishment of the park (Gaul 2007). Six resident zone communities are identified for LACL: Lime Village, Port Alsworth, Nondalton, Iliamna, Newhalen, and Pedro Bay.[3] Residents of communities around LACL have hunted, fished, and gathered berries and other materials from the land for many generations and continue to do so today, including inside the park or preserve under federal and state regulations (National Park Service 2016).

To reach LACL from outside of the region requires air transportation. Local communities can access LACL by boat, snowmachine, or all-terrain vehicles. Approximately 18,278 people visited LACL in 2021.[4] The park and preserve field headquarters are located within the park in the community of Port Alsworth.

1. Jimmy Carter, 1978, "Proclamation 4622—Lake Clark National Monument," The American Presidency Project, accessed July 2024, https://www.presidency.ucsb.edu/documents/proclamation-4622-lake-clark-national-monument
2. National Park Service, n.d., "Lake Clark National Park & Preserve: Alaska: Park Statistics," accessed February 2024, https://www.nps.gov/lacl/learn/management/statistics.htm
3. Resident zone communities are designated by the NPS and include the area within a national park or monument, and also communities and areas near a national park or monument in which persons who have customarily and traditionally engaged in subsistence uses within the national park or monument permanently reside.* * National Park Service, 2017, "Alaska Subsistence: Frequently Asked Questions (FAQ)," accessed July 2024, https://www.nps.gov/subjects/alaskasubsistence/faq.htm
4. National Park Service, 2024, "Lake Clark Visitation By Year," accessed February 2024, https://www.nationalparked.com/lake-clark/visitation-statistics

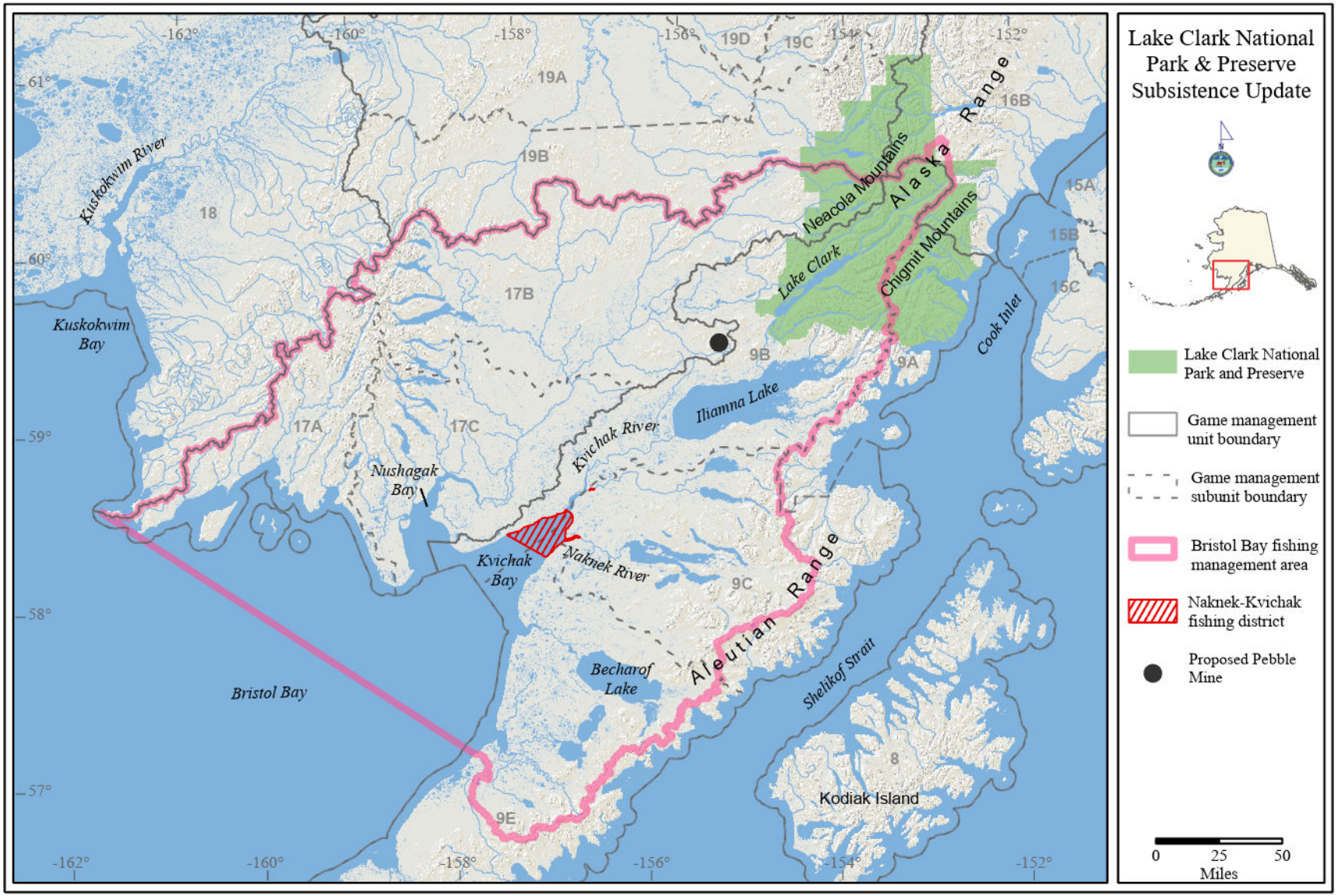


Figure 1-2.–Map of Lake Clark National Park and Preserve area.

Regulatory Context

Nondalton and Port Alsworth are both situated within Game Management Unit (GMU) 9B (Figure 1-2). Land in this GMU comprises state-owned lands, private lands—primarily Alaska Native allotments and village and regional corporation lands—and federal lands, including those designated as LACL (Plate 1-2). Game and fisheries management on state-owned and private lands is under the purview of the State of Alaska through the Alaska boards of Game and Fisheries. On the federal lands of GMU 9B, with the exception of the land comprising Lake Clark National Park, both state and federal hunting regulations apply. Hunting within the national park is regulated solely by the federal government through the NPS. Regulations about salmon and nonsalmon fish harvests are first summarized below, followed by information about hunting in GMU 9, to provide context about the dual-management system that provides harvest opportunities for the resources that contribute most to the wild resource harvests of the study communities.

Salmon

The Alaska Board of Fisheries (BOF) found that salmon of the Bristol Bay Area support customary and traditional (subsistence) uses (5 AAC 01.336). All 5 salmon species found in Alaska are available for subsistence harvest in the Bristol Bay Area, including pink and chum salmon, with the most sought-after being Chinook, sockeye, and coho salmon (Halas and Cunningham 2019). However, relevant for the communities of Nondalton and Port Alsworth, the majority of salmon that return to Sixmile Lake and Lake Clark are sockeye salmon (Young 2005).

In 1993, the BOF established a range of 157,000–172,171 salmon as the amount reasonably necessary for subsistence uses (ANS[5]) (5 AAC 01.336). Under state regulations, all Alaska state residents are eligible to participate in subsistence salmon fishing.[6] Permits are required to harvest salmon under subsistence regulations in the Bristol Bay Area and may be obtained online or from an ADF&G office. There are no seasonal or annual limits for salmon harvested in Bristol Bay. Within the Bristol Bay Area, salmon may be taken by gillnet, dip net, spear, and beach seine, depending upon the location of harvest (5 AAC 01.320). Of particular relevance to the study communities, salmon may be taken by spear in Lake Clark (5 AAC 01.320(b)(5)), and by gillnet and beach seine in Iliamna Lake, Sixmile Lake, and Lake Clark (5 AAC 01.320 (b)(6)).

Federal jurisdiction for subsistence management is widespread in the Bristol Bay Area due to the large areas of federally managed lands such as LACL. Federally qualified rural residents from the study communities may subsistence salmon fish under federal regulations in waters under the jurisdiction of the Federal Subsistence Board. The study communities are situated in the Lake Clark drainage located within the Naknek-Kvichak District of the federal Bristol Bay Area boundaries (Figure 1-2). There is no annual limit or fishing period restriction in the Naknek-Kvichak District for salmon harvests under federal subsistence regulations, but a state subsistence salmon permit is required. Allowable gear is limited to set gillnets no longer than 150 feet, with several exceptions. In Lake Clark, excluding its tributaries, salmon may be taken by beach seines not exceeding 150 feet in length. Salmon may also be taken without a permit in Sixmile Lake and its tributaries within and adjacent to the exterior boundaries of LACL, and in Lake Clark and its tributaries by snagging (by handline or rod and reel), using a spear, bow and arrow, rod and reel, or capturing by bare hand. Lastly, fish (except rainbow trout) may be taken with a fyke net and lead in tributaries of Lake Clark and the tributaries of Sixmile Lake within and adjacent to the exterior boundaries of LACL. A federal permit is required to operate a fyke net (Federal Subsistence Management Program 2021:41, 43–44).[7]

5. Under AS 16.05.258(a), the board is charged with identifying fish stocks, or portions of stocks, that "are customarily and traditionally taken or used for subsistence" (known as a C&T use finding). If a portion of these stocks having a positive C&T use finding can be harvested consistent with sustained yield principles, the board "shall determine the amount of the harvestable portion that is reasonably necessary for subsistence uses," which is known as the ANS (AS 16.05.258(b)).
6. For Bristol Bay Area finfish subsistence regulations, see 5 AAC 01.300–5 AAC 01.349.
7. For federal Bristol Bay Area subsistence fishing regulations, see 36 CFR 242.27 (e)(5).

Nonsalmon Fish

The BOF has found that all finfish in the Bristol Bay Area support customary and traditional uses. In addition, the BOF has determined an ANS of 250,000 usable pounds of finfish other than salmon in the Bristol Bay Area. For the most part, subsistence fishing for species other than salmon under state regulations is open year-round in the Bristol Bay Area using gear listed in 5 AAC 01.010(a). There are no seasonal limits established by regulation. The following regulations apply to subsistence fishing for species other than salmon in the Bristol Bay Area[8]:

- Rainbow trout taken incidentally in other subsistence net fisheries and through the ice are lawfully taken and may be retained for subsistence uses (5 AAC 01.310(g)).
- Subsistence fishing with a line attached to a rod or pole is prohibited except when fishing through the ice (5 AAC 01.320(l)).
- Waters within 300 feet of a stream mouth used by salmon are closed to the subsistence taking of fish (5 AAC 01.325(a)).

Federal subsistence fishing regulations include daily and possession limits for rainbow trout by season (Federal Subsistence Management Program 2021:41, 43). Similar to state subsistence fishing regulations, rainbow trout may be retained for subsistence if caught incidentally in other subsistence net fisheries or through the ice. Additionally, rainbow trout may be harvested by rod and reel or jigging gear.

Large Land Mammals

Large land mammals—including caribou, moose, black and brown bears, and sheep—are present and traditionally hunted in the Lake Clark region. The study communities are located in GMU 9B, and the Alaska Board of Game (BOG) has found that populations of caribou, moose, and brown bears in GMU 9B support customary and traditional uses (5 AAC 99.025(3–4, 8)). Resident and nonresident hunting opportunities are managed by ADF&G. Federal agencies, such as the NPS, have management responsibilities for ensuring subsistence hunting priorities on federal conservation units for federally qualified residents. Regulations—including methods and means of take, bag limits, and seasons—are prescribed by the BOG and the Federal Subsistence Board for state and federal hunts, respectively. All hunters hunting under state or federal regulations must possess an annual State of Alaska hunting license and obtain appropriate harvest tags and registration permits respective of the locations where and regulations under which they choose to hunt. Hunters are also required to report harvests in accordance with permit conditions or report after the close of the season when unable to harvest, which helps wildlife managers track both harvest amounts and hunter effort.

8. At a December 2003 meeting, the BOF eliminated a permit requirement for subsistence fishing for rainbow/steelhead trout and Arctic char/Dolly Varden in the Bristol Bay Area. ADF&G had not developed a program for issuing these permits. Summary meeting materials are available online: Alaska Department of Fish and Game, 2003, "Alaska Board of Fisheries, December 2003, Bristol Bay Finfish: Proposal 29," accessed June 2023, https://www.adfg.alaska.gov/static/regulations/regprocess/fisheriesboard/pdfs/2003_2004/fdec03pb.pdf
   Alaska Department of Fish and Game, 2003, "Summary of Actions, Alaska Board of Fisheries, Bristol Bay Finfish, December 9–16, 2003," accessed June 2023, https://www.adfg.alaska.gov/static/regulations/regprocess/fisheriesboard/pdfs/2003_2004/bb1203sum.pdf

During the 2021 study year, there was no open season for caribou[9] in GMU 9B under state regulations due to low caribou abundance of the Mulchatna herd.[10] The Mulchatna caribou herd of approximately 12,850 animals in 2021 ranges across 4 GMUs throughout Western Alaska. During the study year, the population estimate was below the population objective of 30,000–80,000 caribou, prompting hunting closures to conserve the herd.

In GMU 9B, under state regulations, Alaska residents may harvest moose during a fall or winter hunt by registration permit.[11] In 2021, the fall hunt allowed 1 bull from September 1–September 20, and the winter hunt allowed 1 antlered bull from December 15–January 15.[12] Federal regulations also allow for the harvest of 1 bull by state registration permit, except the season dates differ: September 1–September 20 and December 1–January 15 (36 CFR 242.26 (n)(9)).

Both black bear and brown bear hunting in GMU 9 are open to residents and nonresidents under state regulations and federally qualified residents under federal regulations. Under state and federal regulations, there is no closed season for black bear hunting and there is a harvest limit of 3 black bears per regulatory year. In GMU 9B, residents may harvest 1 brown bear every regulatory year under a state registration permit (RB525) or a state subsistence registration permit (RB502). There is no closed season for RB525 but RB502 is limited to September 1–May 31. Under federal regulations, federally qualified users may harvest 1 bear every regulatory year by federal registration permit (FB0911), with no closed season, or by state registration permit RB502.

More detailed State of Alaska regulations—including open seasons, permit requirements, and annual limits—for other large land mammal species relevant to the study communities can be found in the annually published hunting regulations; the current regulatory year information is available at ADF&G offices or online.[13] Federal regulations and other information about hunting on federal lands can be found in the biannual federal wildlife regulations booklet, which is also available online.[14]

Seasonal Round

The harvest and use of wild food resources by the communities of Nondalton and Port Alsworth occur throughout the year. Like many rural Bristol Bay region communities, certain species are targeted in different seasons, and this creates a cyclical harvest pattern. These patterns are defined by seasonal resource availability, regulations, other economic activities, and land access. The annual cycle of resource availability is relatively predictable and generally allows for reliably and sustainably providing wild foods for the community.

Many study community residents harvest wild foods in proximity to their community, while others have access to and use airplanes to travel farther distances in pursuit of wild foods. Port Alsworth and Nondalton residents use additional motorized vehicles—such as boats, highway vehicles, snowmachines, and all-terrain vehicles (ATVs)—to access their hunting, fishing, and gathering areas proximal to and farther from their home communities. As depicted in figures 1-3 and 1-4, resource search and harvest areas documented

9. The Alaska resident registration caribou permit allowed in GMU 9B is RC503.

10. Alaska Department of Fish and Game, 2021, "Emergency Order Number: 04-05-21, issued July 21, 2021," accessed June 2023, https://www.adfg.alaska.gov/static/applications/webintra/wcnews/2021/orders/04-05-21.pdf

11. The Alaska resident registration moose permit allowed in GMU 9B is RM272.

12. After the study year, the BOG approved a change to 5 AAC 85.045(a)(8) to lengthen the Unit 9B fall moose season (RM272) by 5 days.*

    * Alaska Department of Fish and Game, 2022, "Alaska Board of Game Meeting Information: Central and Southwest Region Meeting: January 21–29, 2022, Meeting Summary," accessed December 2024. https://www.adfg.alaska.gov/static/regulations/regprocess/gameboard/pdfs/2021-2022/csw/soa.pdf

13. Alaska Department of Fish and Game, n.d., "Alaska Hunting Regulations: Hunting Regulations Book," accessed June 19, 2023, http://www.adfg.alaska.gov/index.cfm?adfg=wildliferegulations.hunting

14. U.S. Department of the Interior, Federal Subsistence Management Program, n.d., "Wildlife," accessed June 19, 2023, https://www.doi.gov/subsistence/wildlife

during the 2021 study year were spread across the Lake Clark region and in several other areas of the state, though the majority of locations where Port Alsworth and Nondalton residents harvested wild foods were relatively close to the communities. Households from both study communities actively pursue resources within LACL, particularly within and around Lake Clark and the Chulitna River.

Summertime and the arrival of salmon kick off the height of harvesting activities in the Lake Clark region. Sockeye salmon migrate up the Kvichak River from Bristol Bay, through Iliamna Lake, up the Newhalen River, and north into Lake Clark, usually arriving in the vicinity of the study communities in early July. Residents mainly use set gillnets to harvest sockeye salmon during a 2- to 3-week period extending anywhere from early July to mid-August; however, several households use seines to catch salmon. Sockeye salmon are the only salmon widely harvested in Nondalton and Port Alsworth since they are the only locally available salmon species in the area. While households still maintain fish camps, they are less commonly used than in the past. Some households use their fish camp to harvest fish but bring the fish back to town to process and preserve. Other mid-summer activities include harvesting wild plants and using rod and reel to harvest nonsalmon fish species such as burbot, Dolly Varden, northern pike, and rainbow trout. According to residents, harvesting vegetation, particularly berries in the summer and early fall, is an important activity that many households look forward to participating in. One Port Alsworth interview respondent stated: "I am a huge berry picker, I would say that's my number one, I love picking berries. I think it's a great way to just interact with the area" (PTA03).

In the fall, large land mammal hunting begins in mid-August and extends into the winter. Caribou hunting has historically occurred throughout late fall and winter. However, in 2021, the caribou season was closed due to low abundance of the Mulchatna caribou herd. Residents also hunt for Dall sheep, moose, and black bears in the fall, though moose harvests were not a big part of the seasonal round in the past. As one interview respondent noted, "Moose was like a rare and lucky thing when I was a child, but that's what we have now …" (PTA01). Bear hunting occurs in both the fall and the spring; whether a fall black bear is kept for food or just fur often has to do with the timing of the harvest. One Nondalton resident illustrated how the bear's seasonal food source can affect the decision:

> And it's this time of the year when the berries are good, because their meat, it tastes just like what they're eating. So you get a black bear that's been eating blueberries and blackberries for three, four weeks, that is gonna be some nice, sweet meat. (NNL01)

Some community residents continue hunting moose into the winter season, depending on the ability to travel and snow/ice conditions. Grouse and ptarmigan hunting occurs through the fall and winter. In winters, when the ice forms thick enough on Lake Clark, residents travel to the north shore of Lake Clark to harvest firewood. Additionally, a few residents of the study communities trap small land mammals or fish through the ice for nonsalmon fish such as whitefishes, northern pike, and burbot. As residents prepare for the return of summer, some will continue to pursue large game such as bears and caribou, small game and furbearers, upland game birds and waterfowl, plus nonsalmon fish.

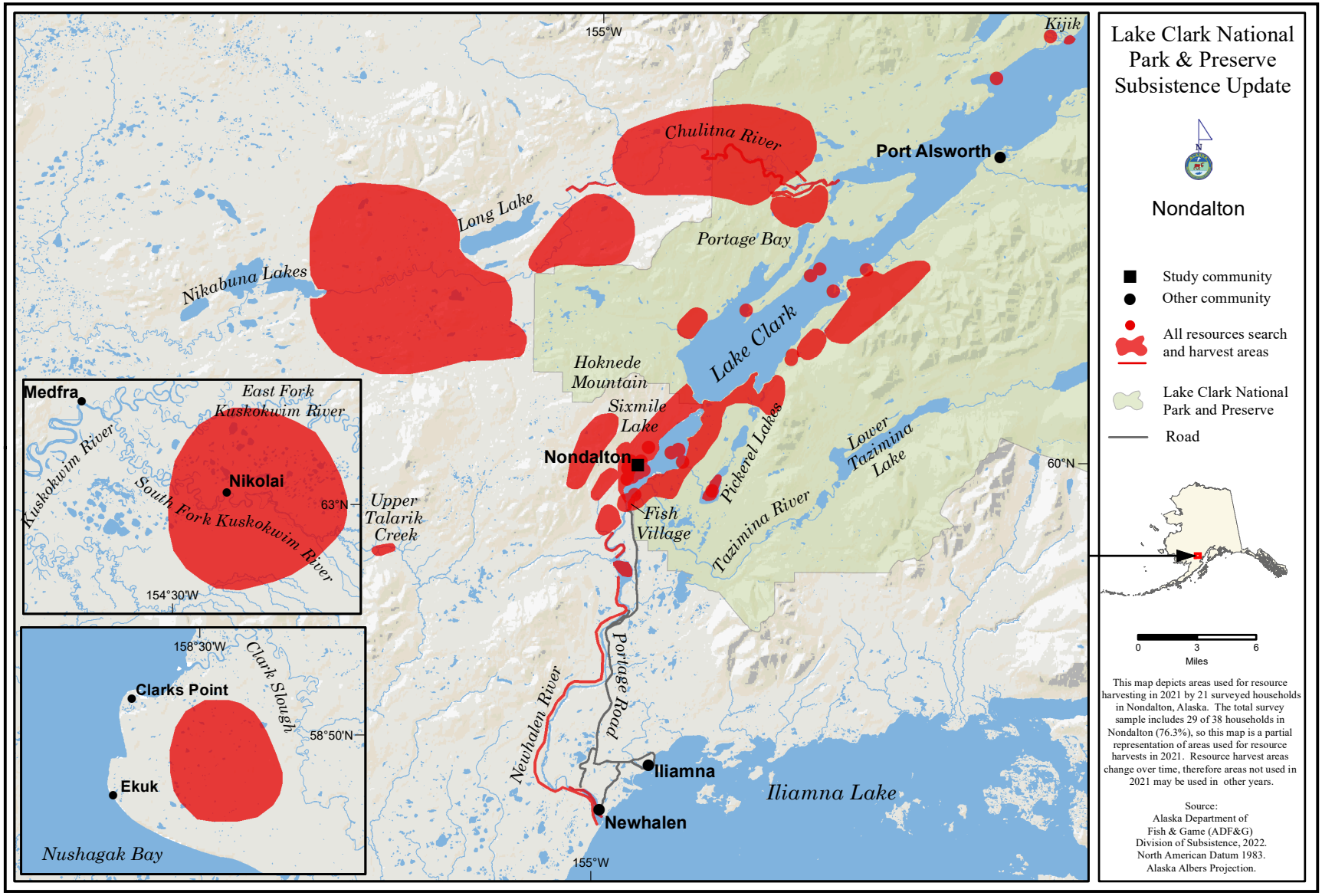


Figure 1-3.–Wild resources search and harvest areas, Nondalton, 2021.

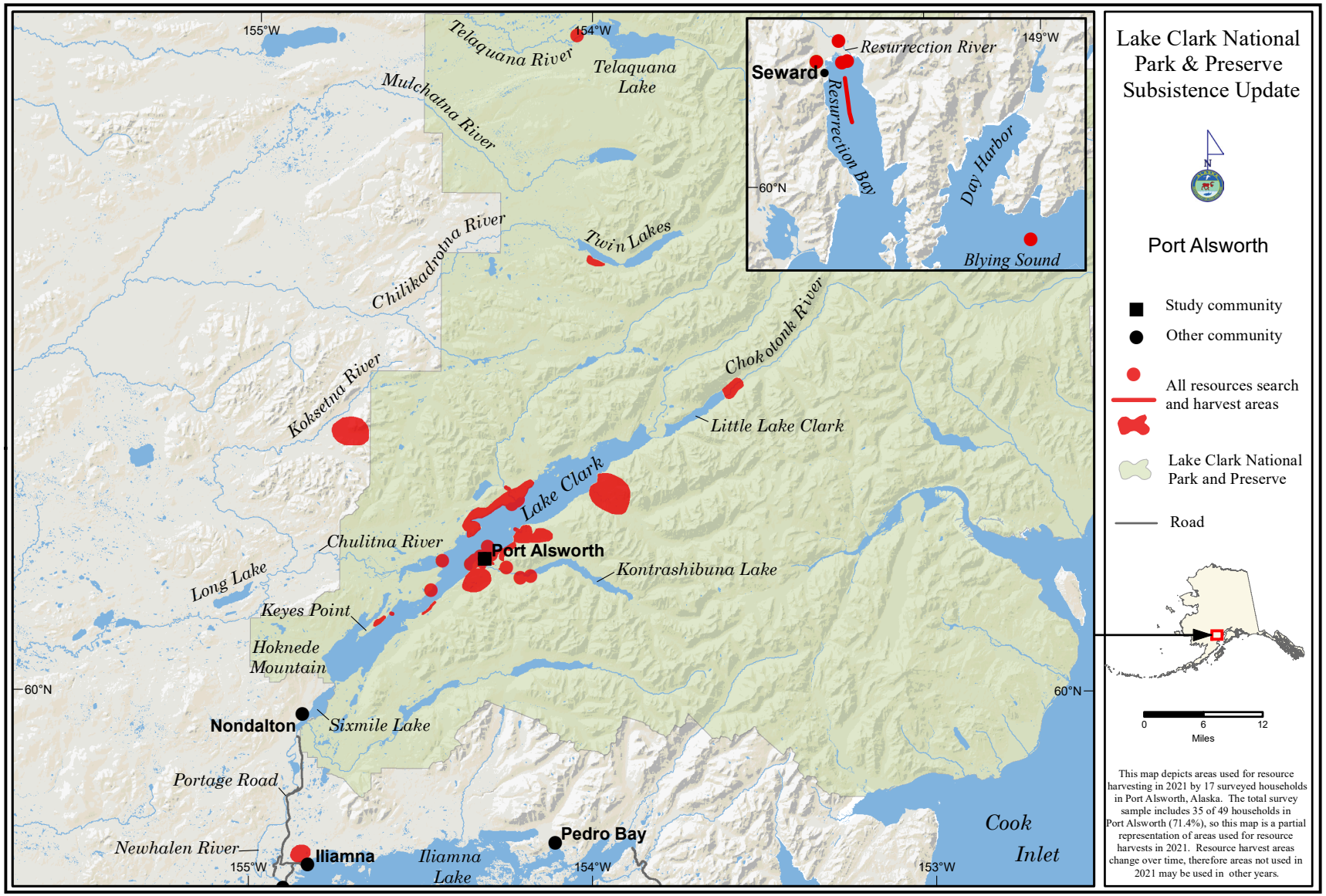


Figure 1-4.–Wild resources search and harvest areas, Port Alsworth, 2021.

Study Objectives

The purpose of the project was to collect, analyze, and report information about harvests and uses of wild resources in 2021 in a selection of communities associated with traditional subsistence practices in LACL. The project had the following objectives:

- Design a survey instrument to produce updated comprehensive information about hunting, fishing, gathering, and other topics, that is compatible with information collected in past household surveys for Nondalton and Port Alsworth.
- Conduct community scoping meetings.
- Train local research assistants (LRAs) to administer a systematic household survey.
- Conduct household surveys and ethnographic interviews to record the following information:
  - Demographic characteristics.
  - Involvement in use, harvest, and sharing of fish, wildlife, and wild plants in the study year.
  - Estimates of amounts of resources harvested in the study year.
  - Employment and cash income characteristics.
  - Assessments of changes in wild resource harvest and use patterns in the past 5 years.
  - Locations of fishing, hunting, and gathering activities in the study year.
- Review and interpret study findings.
- Communicate study findings to the communities.
- Produce a final report.

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*,[15] the *Principles for Conducting Research in the Arctic* by the U.S. Interagency Arctic Research Policy Committee,[16] and the *Ethical Principles for the Conduct of Research in the North* (ACUNS 2003), as well as the Alaska confidentiality statute (AS 16.05.815). These principles stress community approval of research designs, informed consent, anonymity or confidentiality of study participants, community review of draft study findings, and providing study findings to each study community upon completion of the research.

Project Planning and Approvals

This project was carried out as a partnership between the NPS and the ADF&G Division of Subsistence. Bronwyn Jones, Subsistence Resource Specialist 3 with the Division of Subsistence, was the Principal Investigator for this project (Table 1-3). The Division of Subsistence took the overall lead on managing the project, which included managing fieldwork logistics, designing and implementing the survey (Appendix A), analyzing data, writing the final report, and communicating with the funding agency. The NPS supported research efforts by providing staff to assist with survey administration and by providing lodging and vehicles for researchers to use while in Port Alsworth.

15. Alaska Federation of Natives, 1993, "Alaska Federation of Natives Guidelines for Research," Alaska Native Knowledge Network, accessed June 19, 2023, https://www.uaf.edu/ankn/indigenous-knowledge-syst/alaska-federation-of-nati/
16. U.S. Interagency Arctic Research Policy Committee (IARPC), 2018, "Principles for Conducting Research in the Arctic," National Science Foundation, Office of Polar Programs, accessed July 10, 2022, https://www.nsf.gov/geo/opp/arctic/conduct.jsp

Table 1-3.–Project staff.

Task	Name	Organization
Southern Regional Program Manager	Robin Dublin	ADF&G Division of Subsistence
Principal Investigator	Bronwyn Jones	ADF&G Division of Subsistence
Administrative support	Tamsen Coursey-Willis	ADF&G Division of Subsistence
Administrative support	Cheryl Park	ADF&G Division of Subsistence
Administrative support	Pamela Amundson	ADF&G Division of Subsistence
Administrative support	Stephanie Wilson	ADF&G Division of Subsistence
Data Management Lead	David Koster	ADF&G Division of Subsistence
Data Management Assistant	Margaret Cunningham	ADF&G Division of Subsistence
Programmer	Margaret Cunningham	ADF&G Division of Subsistence
Data entry	Devin Anderson	ADF&G Division of Subsistence
	Lavinia Harris	ADF&G Division of Subsistence
Data cleaning/validation	Margaret Cunningham	ADF&G Division of Subsistence
Data analysis	David Koster	ADF&G Division of Subsistence
	Margaret Cunningham	ADF&G Division of Subsistence
Cartography	Gayle Neufeld	ADF&G Division of Subsistence
Cartography	Margaret Cunningham	ADF&G Division of Subsistence
Editorial Review Lead	Mary Lamb	ADF&G Division of Subsistence
Field research staff	Bronwyn Jones	ADF&G Division of Subsistence
	Robin Dublin	ADF&G Division of Subsistence
	Lisa Hutchinson-Scarbrough	ADF&G Division of Subsistence
	Cassidy Somerville	ADF&G Division of Subsistence
	Chance Wilcox	ADF&G Division of Subsistence
	Dillon Patterson	National Park Service
Local research assistant	Fawn Silas	Nondalton
	Michelle Wilson	Nondalton
	Emily Taff	Port Alsworth

Table 1-4.–Estimated households and sample achievement, study communities, 2021.

Sample information	Community	
	Nondalton	Port Alsworth
Number of dwelling units	45	63
Survey goal	100.0%	100.0%
Households surveyed	29	35
Households failed to be contacted	7	12
Households declined to be surveyed	2	2
Households moved or occupied by nonresident	7	14
Total households attempted to be surveyed	38	49
Refusal rate	6.5%	5.4%
Final estimate of permanent households	38	49
Percentage of total households surveyed	76.3%	71.4%
Survey weighting factor	1.31	1.40
Sampled population	79	95
Estimated population	103.5	133.0

Source ADF&G Division of Subsistence household surveys, 2022.

Table 1-5.–Survey duration, study communities, 2021.

Community	Interview length (in minutes)		
	Average	Minimum	Maximum
Nondalton	38	10	105
Port Alsworth	31	8	63

Source ADF&G Division of Subsistence household surveys, 2022.

While developing this project, Jones presented an overview of the planned research to the Lake Clark National Park Subsistence Resource Commission at a virtual spring meeting on March 24, 2021. In December 2021, Jones traveled to Port Alsworth and Nondalton to introduce the study plan at public scoping meetings to provide community residents an opportunity to ask questions about or comment on the study design. The Port Alsworth Improvement Corporation (PAIC) provided ADF&G with a space to host the December 2, 2021, community scoping meeting, which 6 community members attended. A community scoping meeting was held in Nondalton on December 3, 2021, and 12 residents attended. A copy of the letter submitted by the Nondalton Tribal Council in support of this project is presented in Appendix B.

Systematic Household Surveys

The primary method for collecting subsistence harvest and use information in this project was a systematic household survey. Following receipt of comments at the scoping meetings, ADF&G finalized the survey instrument. A key goal was to structure the survey instrument to collect demographic, resource harvest and use, food security, and other economic data that are comparable with information collected in other household surveys in the study communities and with data in the Community Subsistence Information System (CSIS).[17] Additionally, the NPS requested questions be included on the survey regarding assessments about the health of resources, tools or equipment used for subsistence activities, natural resources used in making handicrafts, and firewood used for home heating. Appendix A is an example of the survey instrument used in this project.

For this study, the sampling goal was to survey all permanent households in each community. In order to complete a census survey, Division of Subsistence researchers worked with a combination of LRAs, knowledgeable community members, and administrators from Nondalton Village to develop each community household list. For Nondalton, these efforts established an estimate of 45 households to be surveyed. For Port Alsworth, these efforts established an estimate of 63 households to be surveyed (Table 1-4). During survey administration, researchers identified households that did not meet the survey residency criteria; after removing those households having insufficient occupancy, there were an estimated 38 and 49 eligible households in Nondalton and Port Alsworth, respectively. During survey administration, a sampling disposition of "surveyed," "declined to participate," or "no contact" was assigned to the eligible households. If researchers were initially unsuccessful at contacting a household, 2 more attempts to survey the household were made. After a reasonable effort was made to conduct the survey, if occupants still could not be reached, then a "no contact" sampling disposition was applied. Contacted households could also decline to participate in the survey. In both communities, approximately three-quarters of households were surveyed. The refusal rate in Nondalton (7%) was slightly higher than in Port Alsworth (5%). Overall, surveys lasted approximately 35 minutes in each community, which included the standard survey form and a mapping component, which is discussed below (Table 1-5).

Mapping Locations of Subsistence Hunting, Fishing, and Gathering Activities

During in-person household surveys, the researchers asked respondents to indicate the locations of their fishing, hunting, and gathering activities during the study year. Map data provide a visual depiction of general harvest and use locations from the harvest surveys. These data can aid in identifying important search areas, quantifying areas used, and also comparing changes in the search and harvest areas for wild food resources over time. Points were generally used to mark harvest locations and polygons were used to indicate harvest effort areas, such as areas searched while hunting moose. Points were also used to designate harvest effort locations, such as when fishing from a riverbank. Lines were drawn to depict when the harvesting activity did not occur at a specific point; for example, lines were used to depict courses taken while trolling.

17. ADF&G Community Subsistence Information System: http://www.adfg.alaska.gov/sb/CSIS/ (hereinafter cited as CSIS).

Harvest locations and fishing, hunting, and gathering areas were documented on iPads[18] using the Collector application (ESRI, or Environmental Systems Research Institute) customized for Division of Subsistence data collection needs. The feature—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 search and harvest activity locations wherever they occurred in the state of Alaska. Once a feature was accepted, the researcher added attributes that noted month(s) of use of the area, method of access to the resource, the species searched for or harvested, and amount harvested if successful. Once data collection was complete, the data were uploaded through ArcGIS Online to the ESRI cloud server for storage. Once the data were uploaded, researchers verified that the household data were successfully recorded on the server.

Ethnographic Interviews

Ethnographic interviews provided important qualitative context for the quantitative data and seasonal round information. Key respondents also conveyed community concerns presented in the next chapters of the report. ADFG staff conducted a total of 6 interviews during 2023 and 2024: 3 in Port Alsworth and 3 in Nondalton. Potential respondents were identified through recommendations by the Nondalton Village tribal council and NPS staff. Ethnographic interviews were semi-structured and focused on respondents' knowledge and observations of subsistence resources. The Principal Investigator adapted the interview protocol from previous division research projects (see Appendix C). Interviews were audio recorded with permission. Key respondents were offered compensation for their time and expertise and their input is anonymous in this report to protect their privacy. To demonstrate the breadth of individuals addressing single topics, quotes are attributed to respondents using a code that combines the community code (NNL or PTA) with a respondent number. In Nondalton, a husband and wife were interviewed together, which is indicated by 2 respondent numbers in the code.

Household Survey Implementation

Port Alsworth

ADF&G staff Jones, Lisa Hutchinson-Scarbrough, Cassidy Somerville, and NPS staff Dillon Patterson arrived in Port Alsworth on March 7, 2022 (Table 1-3). Using the conference room of the PAIC, Jones trained LRA Emily Taff in the afternoon of the same day. Researchers worked in teams to complete surveys, finishing survey attempts of the household list on March 12, 2022.

Nondalton

ADF&G staff Jones, Robin Dublin, Chance Wilcox, and NPS staff Patterson arrived in Nondalton on March 21, 2022 (Table 1-3). Jones worked with LRAs Michelle Wilson and Fawn Silas at the Nondalton Village tribal council office in the afternoon of the same day to establish the household list and contact households to set up survey times. The research team worked in teams of 2 to complete surveys through the week. Survey administration occurred until March 26, 2022.

Data Analysis and Review

Survey Data Entry and Analysis

Surveys were coded for data entry by select Division of Subsistence field research staff or Information Management staff and reviewed by the Principal Investigator for consistency. Responses were coded following standardized conventions used by the Division of Subsistence to facilitate data entry. Information Management (IM) staff within the Division of Subsistence set up database structures within Microsoft SQL Server 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 built in Microsoft Access were available on a secured internet network. Daily incremental backups of the

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

database occurred, and transaction logs were backed up hourly. Full backups of the database occurred twice weekly. This process 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 was compared in order to minimize data entry errors.

Once data were entered and confirmed, information was processed with the use of R statistical software (R core team, 2022), version 4.2.2 or higher, using the Tidyverse package (Wickham et al. 2019) and the rio package (Chan et al. 2023) for input and output. Initial processing included the performance of standardized logic checks of the data. Logic checks are often needed in complex datasets 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 D for conversion factors[19]).

Division of Subsistence staff also used R 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 evaluated to ensure these cases were sporadic, random, and uniformly distributed among all surveys and questions. No missing information was found to indicate response bias may be present and each instance was dealt with on a case-by-case basis according to standardized practices. For data elements where a non-zero mean could be derived, missing data were replaced with the mean of valid responses. In cases where mean values resolved to 0 (zero), but a non-zero amount was implied by a missing data code, then a minimal substitution was applied. Division researchers documented all adjustments in R code.

Harvest estimates and responses to all questions, except income and categorical responses, were calculated by using the principle that a sample mean can be used as an unbiased estimator of the population mean (Cochran 1977). For analysis, the sample mean was the arithmetic mean, or average, of households that agreed to participate and the population was the total number of occupied and eligible households present in the community during the study period. These calculations are standard methods for extrapolating sampled data. As an example, the formula for harvest expansion is:

$$\hat{X} = N\bar{y} \tag{1}$$

$$\bar{y} = \frac{\sum_{i=1}^{n} x_i}{n} \tag{2}$$

where:

N = total number of households in a community,

$\bar{y}$ = the mean harvest (amount of resources or pounds) of returned surveys,

n = the number of returned surveys,

x_i = the reported harvest (amount of resources or pounds) of household i, and

$\hat{X}$ = the total estimated harvest (amount of resources or pounds).

In addition to community estimates, 95% confidence intervals were calculated to evaluate the relative precision of the mean. The confidence interval is depicted either as a percentage or a range of values. Confidence intervals were calculated using raw, unexpanded data. This metric represents a confidence level of 95% that the true population mean falls within the calculated range (Goldsman and Goldsman 2021). A wide confidence interval implies less confidence in the estimate. For interpretation, a confidence interval range where the lower bound falls below the sum of reported values or below 0 (zero) implies

19. For an overview of statewide conversion factors and their sources, see "Resource Conversion Factors," ADF&G Division of Subsistence, CSIS, http://www.adfg.alaska.gov/sb/CSIS/index.cfm?ADFG=main.conversionFactorSelRes.

that no statistically significant difference exists between the reported and estimated values, thus the true population value may be represented by the sample. Because the sample was taken from a finite population of households, confidence intervals were calculated using finite population correction as formulated below (Cochran 1977):

$$\text{CI\%}(\pm) = \frac{t_{\frac{a}{2}} \times \frac{s}{\sqrt{n}} \times \sqrt{\frac{N-n}{N-1}}}{\bar{y}} \tag{3}$$

where:

$t_{\frac{a}{2},n-1}$ = student's two-tailed *t* critical value for a=0.95 and n–1 degrees of freedom,

s = sample standard deviation,

n = the number of returned surveys,

N = total number of households in the community, and

$\bar{y}$ = sample mean.

Estimates for jobs and income were calculated using a Monte Carlo method referred to as bootstrapping (Efron and Tibshirani 1993). This method was used to account for confounding features of the data stemming from the complexity of interrelated variables and random missing elements, as well as small amounts of data. Small populations result in many unique records where it is not possible to identify a mean or median for estimation, so similar records must be used instead. These "similar" records were derived through resampling with replacement. The assumption made was that the jobs and income present in the sample will be reasonably representative of the whole community and therefore uncontacted households will have similar makeup and characteristics.

The bootstrap method resamples surveyed households, with replacement 1,000 times. An estimate was developed for each separate resample using a set of rules regarding missing data. To begin, known annual income amounts were divided by the number of months. Missing income from a job was replaced with the median of jobs having the same standard occupational classification (SOC) code. If no estimate could be obtained, then a median from the same industry was applied. A similar approach was used for missing information about job schedules and months by using the mean rather than the median. Once missing value replacements were made, the mean income was calculated and applied to the community to develop an estimate. For individuals spanning the ages of 16 and 65 who did not provide an employment status, an additional expansion was calculated and applied using the proportion of valid responses for employed adults. Once the estimates were created for each resample, the average of all 1,000 resamples was used as the estimate. This approach was used to estimate the number of jobs, total income, number of employed people, and the number of employed households. Ninety-five percent confidence intervals for income estimates by source were computed by selecting appropriate quantiles from the 1,000 resamples, using an approach adapted from Efron and Tibshirani (1993):

$$l = \sum_{i=1}^{(\hat{\theta}_i - \theta) < 0} 1 \tag{4}$$

$$\bar{\theta} = \frac{\sum_{i=1}^{N} \hat{\theta}_i}{N} \tag{5}$$

$$\hat{z}_0 = \frac{l}{N} \tag{6}$$

$$t_2 = \sum_{i}^{N} (\hat{\theta}_i - \theta)^2 \tag{7}$$

$$t_3 = \sum_{i}^{N} (\hat{\theta}_i - \theta)^3 \tag{8}$$

$$\hat{\alpha} = \frac{t_3}{(6 \times t_2)^{1.5}} \tag{9}$$

$$\alpha_1 = NORMAL\left(\hat{z}_0 + \frac{\hat{z}_0 - 1.96}{(1 - \hat{\alpha} \times (\hat{z}_0 - 1.96)}\right) \tag{10}$$

$$\alpha_2 = NORMAL\left(\hat{z}_0 + \frac{\hat{z}_0 + 1.96}{(1 - \hat{\alpha} \times (\hat{z}_0 + 1.96)}\right) \tag{11}$$

$$CI(-) = \hat{\theta}_{N \times \alpha_1} \tag{12}$$

$$CI(+) = \hat{\theta}_{N \times \alpha_2} \tag{13}$$

where:

$\hat{\theta}_i$ = the ith resample estimate,

θ = the estimate of the income,

i = index of resamples ordered from smallest to largest estimate,

N = number of resamples taken (at least 1,000),

$CI(-) = \hat{\theta}_{N \times \alpha_1}$ = the estimate at $N \times \alpha_1$ in the sorted list of estimated resamples, and the lower bound of the 95% confidence interval,

$CI(+) = \hat{\theta}_{N \times \alpha_2}$ = the estimate at $N \times \alpha_2$ in the sorted list of estimated resamples, and the upper bound of the 95% confidence interval, and

NORMAL( ) = the normal cumulative distribution function (CDF), which returns a value corresponding to the position of the parameter within the normal distribution.

Corrected final data from the household survey are added to the Division of Subsistence CSIS. The CSIS is a publicly accessible database maintained by the Division of Subsistence and includes community-level study findings.

Population Estimates and Other Demographic Information

As noted above, a goal of the research was to collect demographic information for all permanent households in each study community. For this study, "permanent" was defined as being domiciled in the community when the surveys took place and for at least 9 months during the study year 2021. 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 permanent 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 generated from the division's surveys and other demographic data developed by the 2020 federal census and the U.S. Census Bureau's American Community Survey (U.S. Census Bureau 2021), or the Alaska Department of Labor and Workforce Development (ADLWD n.d.). Three possible types of reasons for the differences may relate to varying sample sizes, factors for expansion, and the time and season of data collection. Differing population estimates may also relate to the criteria that agencies used to determine "full-time" residency and eligibility in the particular survey. Population estimates are discussed in the section "Population Estimates and Demographic Information" in each chapter presenting community-specific results.

Map Data Entry and Analysis

As discussed above, maps were generated based on data collected using the ESRI Collector application on iPad. All data were entered on the iPad in the field during interviews. After all spatial data were uploaded to the ESRI cloud server, data were downloaded and stored on the ADF&G network. After verification that all data had been synced, the data were removed from the ESRI cloud server.

To create community-level maps, spatial data were sorted first by community and then by resource and examined for accuracy. For the purposes of presenting study results, household data were aggregated to the community level to protect confidentiality of individual households. Data were published only if a minimum of 3 households were represented. Too few households provided spatial data for small land mammals in each community and for birds in Port Alsworth and those results are not published separately in this report; also, no households provided spatial data for harvested marine invertebrates, bird eggs, mushrooms, and Chinook and unspecified salmon.[20] Commonly, the data are dissolved to the category level, as was done for salmon and nonsalmon fish. In this instance, the term "dissolved" refers to an analytical procedure of aggregating data (individual household search and use areas) into a single unit to represent a composite whole (a search and use area for a community). For birds, data were dissolved into 2 subcategories: 1) ducks and geese, and 2) ptarmigans and grouses. Similarly, for vegetation resources, data were dissolved into 3 subcategories: results for wild berries and other wild greens were depicted on 1 map, and results for firewood were on a separate map. For large land mammals, data were dissolved to the resource level: bears and moose.

ADF&G staff created search and harvest location maps for each resource category or subcategory, or for individual resources, in ArcGIS, version 10.8.1 or higher, using a standard template for reports. To ensure confidentiality, the maps produced for the report do not distinguish between overall search areas and specific harvest locations. Maps were reviewed at community review meetings to ensure accuracy and to identify any data the community would like to keep confidential. Community members did not identify any confidential data in the maps that required revisions to the presentation of data in this report; however, they did identify areas important to their communities that were not represented on the maps and provided minor corrections to some incorrectly drawn data points. Each of these changes is detailed in the relevant sections of the community chapter.

Food Security Analysis

A "food security" section of the survey used a modified version of a standard national questionnaire to assess whether or not a household had enough food to eat, whether from subsistence sources or from market sources. In the United States, the U.S. Department of Agriculture (USDA) has been estimating household food security annually since 1995, using responses from a household food security survey module administered to about 40,000 households each December as part of the U.S. Census Bureau's Community Population Survey (CPS). On average for 2019–2021, 98,794 U.S. households were interviewed, including 1,203 households in Alaska (Coleman-Jensen et al. 2022). From CPS data, the USDA prepares an annual report on food security in the United States.

Food security is defined as "access by all people at all times to enough food for an active, healthy life" (Bickel et al. 2000:6). Conversely, food insecurity—not having enough food—is "a complex, multidimensional phenomenon which varies through a continuum of successive stages" (Bickel et al. 2000:2). Researchers endeavored to develop a technical measure of whether members of a household had enough food to eat and—when aggregated to community, state, or nation—what proportion of households had enough food to eat. Jones et al. (2013) described the USDA's method as a "direct, experience-based" approach to estimating food security in which questionnaires "attempt to directly measure families' behaviors and lived experiences." The reliability of the direct, experience-based approach to estimating food security has been

20. No spatial data were collected for salmon removed from commercial catches and retained for home use. Note that all harvested Chinook salmon and unspecified salmon were retained from commercial harvests, as well as a portion of sockeye salmon in Nondalton.

verified by a number of researchers in a variety of settings (e.g., Coates [2004]; Derrickson et al. [2000]; Frongillo [1999]; Melgar-Quinonez et al. [2006]; Opsomer et al. [2003]; Webb et al. [2006]; Wunderlich and Norwood [2006]). Food security survey protocols have been used around the world, including in northern Burkina Faso (Frongillo and Nanama 2006), Bangladesh (Coates et al. 2006), Bolivia and the Philippines (Melgar-Quinonez et al. 2006), and Brazil (Pérez-Escamilla et al. 2004). Although there have been efforts to develop a universal food security measurement protocol (Swindale and Bilinsky 2006), researchers often modify the protocol slightly to respond to community social, cultural, and economic circumstances, as was done in the survey used for this project. The protocol used in this survey was a modified version of the 12-month food security scale questionnaire developed by the USDA.

For this study, the food security protocol was modified by the addition of several questions designed to determine whether food insecurities, if any, were related to subsistence foods or store-bought foods. Additionally, the wording of some questions was changed slightly. As in Brazil (Pérez-Escamilla et al. 2004), the USDA term "balanced meals" was difficult to interpret for Indigenous Alaska populations, and was replaced with the term "the kinds of food we wanted to eat" to reflect unique dietary and cultural circumstances in rural Alaska. Further, the questionnaire wording was modified to remove the assumption of access to money as a primary factor to experiencing food insecure conditions. In what may be the most rigorous and relevant test of the validity of a modified USDA tool for food security estimation among Arctic Indigenous populations, Egeland et al. (2011) assessed food security among 2,595 Iñuit respondents in 1,901 households in 36 northern Canadian communities using a modified USDA household food security survey module, food frequency questionnaires, and blood biomarkers. Egeland et al. (2011:5) concluded: "The results provide evidence of the validity of the USDA food security assessment tool for Indigenous peoples and highlights the importance of simultaneously assessing TF [traditional food] consumption, because it could be protective against the impact of food insecurity."

The Division of Subsistence began incorporating a modified food security questionnaire into surveys conducted in rural Alaska communities as early as study year 2007 (Magdanz et al. 2010). In 2013, ADF&G shared these early results with researchers at the USDA for reanalysis, who found ADF&G's results to be comparable to the national food security standard.[21] In 2015, Division of Subsistence added a filter question to reduce the number of questions asked to food secure households. Households agreeing with the statement "We had enough of the kinds of foods we wanted to eat" were considered food secure and were not asked about increasingly severe instances of food insecurity.

Ethnographic Analysis

ADF&G transcribed recorded interviews verbatim following the division's standard transcription protocol. Protocols include assigning a numeric code to each respondent for anonymity and checking transcripts for accuracy with a second researcher or technician listening to the interview audio recording while reading the transcript text. Transcripts and audio were sent back to respondents for review. After any discrepancies were reconciled, transcripts were stored on a secure server and uploaded to QSR International's NVivo 14 for analysis. ADF&G staff analyzed transcribed interviews through qualitative coding. Coding allowed researchers to assign a topic category to a section of text, which then generated a list of relevant excerpts to complement quantitative results presented in this report.

Community Review Meetings

ADF&G staff presented preliminary survey findings and associated search area and harvest maps at a meeting in each community. The purpose of these community review meetings was to provide an opportunity for community members to comment on the findings of the study and for researchers to capture concerns that were not documented during the survey that community members felt were important to have documented. The LRAs and tribal administrators were informed about the review meetings. These community members hung flyers and informed residents of the meetings. On September 28, 2024, ADF&G staff Christian

21. Marc Nord, Economic Research Service, USDA, personal communication to James S. Magdanz, ADF&G, January 14, 2003.

Table 1-6.–Previous study years, study communities, 2021.

Community	Number of households (2020)[a]	1973	1980	1981	1983	2001	2003	2004	2007	2008
Nondalton	48	ALL	ALL	LLM	ALL	LLM	NSF	ALL	SAL	SAL
Port Alsworth	49				ALL	LLM	NSF	ALL	SAL	SAL

Source ADF&G Division of Subsistence Community Subsistence Information System: http://www.adfg.alaska.gov/sb/CSIS/ (accessed July 2024).

Note The key for the table is:

ALL = comprehensive survey of all resources used for subsistence.

SAL = salmon survey.

LLM = large land mammals survey.

NSF= nonsalmon fish survey.

MM = marine mammals survey.

a. U.S. Census Bureau (n.d.) for 2020 decennial census data.

Woodard presented preliminary survey findings and associated search area and harvest maps at a meeting of the Lake Clark National Park and Preserve Subsistence Resource Commission (SRC) in Port Alsworth. Two SRC members and 2 members of the public from Port Alsworth and Nondalton attended along with NPS staff. For Nondalton, ADF&G staff Wilcox traveled to the community on May 10, 2024, and presented the study findings at a tribal council meeting. A total of 11 community members were in attendance.

Final Report Organization

This report summarizes the results of systematic household surveys conducted by staff from ADF&G, NPS, as well as LRAs, and the report also summarizes resident feedback provided at community review meetings. The findings are organized by study community. Each community chapter includes tables and figures that report findings on demographic characteristics, employment characteristics, individual participation in harvesting and processing of wild resources, and characteristics of resource harvests and uses—including the sharing of wild foods—and food security. Each community results chapter will also discuss harvest and use trends over time by comparing results from the 2021 survey against use and harvest estimates from previous studies (Table 1-6). The final chapter of the report provides a short, general overview of the harvests and uses of wild resources in the study communities and explores some of the factors that have influenced subsistence practices. Table 1-7 shows selected study findings for both study communities and will be referenced in later discussions of survey results.

ADF&G provided a draft report to the NPS (Region 11 office), Lake Clark National Park and Preserve's Cultural Resources Manager, Nondalton Village, and the Port Alsworth Improvement Corporation for review and comment. After receipt of comments, the report was finalized. ADF&G mailed a short (4-page) summary of the study findings to every household in both study communities (Appendix E).

Table 1-7.–Comparison of selected study findings, study communities, 2021.

Category	Community	
	Nondalton	Port Alsworth
Demography		
Population	103.5	133.0
Percentage of population that is Alaska Native	91.1%	12.6%
Percentage of household heads born in Alaska	87.0%	25.4%
Average length of residency of household heads (year)	38.3	14.4
Cash economy		
Average number of months employed for all adults	7.7	10.9
Percentage of employed adults working year-round	40.2%	56.1%
Percentage of income from sources other than employment	26.4%	8.2%
Average household income[a]	$70,896	$108,661
Per capita income[a]	$26,025	$40,033
Resource harvest and use		
Per capita harvest, pounds usable weight	298.3	115.9
Average household harvest, pounds usable weight	812.7	314.5
Number of resources used by 50% or more households	9.0	5.0
Average number of resources used per household	13.1	8.0
Average number of resources attempted to be harvested per household	10.7	6.6
Average number of resources harvested per household	10.3	6.1
Average number of resources received per household	5.2	2.9
Average number of resources given away per household	6.6	3.0
Percentage of total harvest taken by top 25% ranked households	56.2%	66.4%
Percentage of households that harvested 70% of harvest	34.5%	25.7%
Per capita harvest by lowest ranked 50% of households	92.6	26.8
Percentage of total harvest taken by lowest ranked 50% of harvesting households	11.8%	8.8%
Average number of resources used by lowest ranked 50% of households	8.4	5.5
Average number of resources used by top 25% ranked households	21.9	10.1

Source ADF&G Division of Subsistence household surveys, 2022.

a. Includes income from sources other than employment.

2. NONDALTON HARVEST SURVEY RESULTS

Community Background

Nondalton (Nundaltin, or Nuvendaltin) is located on the western shore of Sixmile Lake (Nundaltin Vena in the local Dena'ina dialect), and sits just beyond the boundary of Lake Clark National Park and Preserve (LACL) (Figure 1-1) (Plate 2-1) (Evanoff 2010; Gaul 2007). Residents of Nondalton benefit from the community's strategic location in proximity to multiple waterways, which, along with their associated valleys, provide a wide variety of habitats—lakes, rivers, spruce and birch forests, mountains, as well as open, dry tundra—that host a number of fish and wildlife populations (Behnke 1982).

The people of Nondalton are primarily Dena'ina, a northern Athabascan group. Traditionally, the Dena'ina spoke 4 distinct language dialects with boundaries that extend to the west, north, and east around the Cook Inlet Basin (Kari and Fall 2003). These language areas are designated the Inland, Upper Inlet, Outer Inland, and Iliamna dialect groups. The Dena'ina of Nondalton are part of the Inland grouping, along with the contemporary community of Lime Village, located 90 miles north of Nondalton.

Prior to Russian contact, Inland Dena'ina traded with Cook Inlet Dena'ina (Outer Inland and Upper Inlet Dena'ina) and other cultural groups such as the Ahtna Athabascans of the Copper River, and the Yup'ik and Sugpiaq of southwestern Alaska, Kodiak Island, and Prince William Sound (Ellanna and Balluta 1992; Kari and Fall 2003). In 1778, Captain James Cook was the first documented European to explore the inlet that was later officially named in his honor. During his visit, Cook observed that the coastal Dena'ina were already in possession of trade beads and iron (Ellanna and Balluta 1992). Through relations with coastal groups, Inland Dena'ina were aware of Russian trade goods and presumably interacted with Russian fur traders when Russian settlements were established on Cook Inlet by the Lebedev-Lastochkin Company in 1787. Soon after, the Lebedev-Lastochkin Company moved inland and traded with groups on the shores of Iliamna Lake. In the following decades, Russian explorers and company employees were guided by some Dena'ina to explore inland regions along Iliamna Lake and the Mulchatna River—areas north of Bristol Bay (Ellanna and Balluta 1992).

After the United States purchased Alaska from Russia, Euro-American contact in the area was minimal, although the Russian Orthodox church maintained a presence (Ellanna and Balluta 1992). The Precious and Life-Giving Cross chapel was constructed at Kijik in 1889 (Balluta 2008). In 1891, John W. Clark of the Alaska Commercial Company and A. B. Schanz, a reporter and enumerator for the U.S. Eleventh Census, visited the area to gather economic information and census data (Ellanna and Balluta 1992). Qizhjeh Vena, meaning "a place where people gathered lake" in Dena'ina, was renamed Lake Clark after John W. Clark by Schanz in the same year (Branson 2012). In 1900, Hans Severson built a trading post at the site of present-day Iliamna, which renewed a trade presence in the area (Ellanna and Balluta 1992).

Commercial salmon fishing interests moved into the Bristol Bay area in the 1880s. The industry caused shortages of salmon in drainages that fed into Bristol Bay in the early 1900s. At the same time, participation in employment at salmon canneries in the area provided Dena'ina access to cash and trade goods (Ellanna and Balluta 1992). Likewise, mining-related activities started to affect Inland Dena'ina in the late 1800s and the first gold mining claim on Lake Clark was issued in 1911. Mining, commercial fishing, and commercial trading opportunities brought many non-Natives, mostly men, into the area and resulted in Inland Dena'ina women marrying non-Native men as early as 1906 in Kijik (Ellanna and Balluta 1992).

Kijik was a Dena'ina community established in the late 1700s. It is located at the outlet of the Kijik River on the northwestern shore of Lake Clark approximately 31 miles northeast of the current location of Nondalton. Kijik was inhabited by the ancestors of Nondalton until shortly after the influenza epidemic of 1901–1902 when community members started to move to the site now referred to as Old Nondalton. By 1909, the last inhabitants had moved from Kijik (Ellanna and Balluta 1992). Old Nondalton was also located on the northwestern shore of Sixmile Lake, approximately 2 miles to the northeast of Nondalton. Due to the formation of a gravel bar at Old Nondalton that made landing boats at the site impossible (Branson 2014),

Plate 2-1.–View of Nondalton from Sixmile Lake.

and also depletion of firewood, the community was moved to present-day Nondalton. The current location of the community of Nondalton was established in the late 1930s (Ellanna and Balluta 1992). There is a graveyard at Old Nondalton and the remains of several log cabins. In recent years, culture camps put on by the Nondalton Tribal Council and National Park Service have been held at the original site of Kijik.

Today, the local government in Nondalton comprises 2 entities: municipal and tribal. Nondalton was incorporated as a city in 1971 under state law and has a 7-member city council and a mayor. Nondalton Village is a federally recognized tribe and is governed by the Nondalton Tribal Council (NTC). The municipal government is responsible for the physical operation of the city, such as sewer and water purification utilities, as well as the local fire department and the distribution of home heating fuel. NTC is primarily responsible for environmental and social programs, in addition to housing and roads.

The Kijik Corporation is the for-profit village corporation of which many Nondalton residents are shareholders. Many Nondalton residents are also shareholders of the regional Bristol Bay Native Corporation (BBNC). There are 2 lodges owned by non-Native local residents in the community. During the survey administration for this study in March 2022, a store selling groceries was open to serve residents. Local people rely on plane shipments for the majority of their groceries and supplies to complement subsistence harvests of fish, game, and vegetation. The community also has a medical clinic. Nondalton is located in the Lake and Peninsula Borough and its people are served by the Lake and Peninsula School District. The school in Nondalton educates schoolchildren from kindergarten through grade 12. Many of the residents have internet connections in their homes and additional service is available primarily at the school and in tribal council buildings.

Residents of Nondalton travel throughout the region (including around Lake Clark and Iliamna Lake) to fish and practice other subsistence harvest activities. Many residents of Nondalton share familial, cultural, and religious ties to other rural communities in the area. Cultural ties are strongest with other Athabascan communities such as Lime Village and Stony River. Religious ties between some Nondalton residents exist with neighboring community residents through practicing and sharing the Russian Orthodox faith.

The people of Nondalton are also connected to other communities through the regional transportation hub Iliamna. Residents use boats, planes, and other vehicles to travel to neighboring communities, depending on the season and conditions. A road was constructed to connect Nondalton to Iliamna; construction was halted through a legal order before a bridge over the Newhalen River was built (ABR, Inc.–Environmental & Research Services 2011). In the winter when the ice is good, vehicles and snowmachines can cross the river to Newhalen. During the summer, boats and barges cross the river to connect the communities.

Population Estimates and Demographic Information

Based on a survey of 29 of the 38 eligible households identified in Nondalton (76%), this study estimated a population of 104 people living in 38 households in Nondalton in 2021 (Table 2-1). These estimates were slightly lower than the 2020 U.S. Census Bureau count of 133 individuals and 48 households. Compared to the American Community Survey (ACS) 5-year (2017–2021) average estimate, this study estimated fewer households but double the population. Population estimates among these sources may differ due to different criteria used by the agencies to determine full-time residency. This study employed criteria of at least 9 months of occupancy in the community during the study year and self-identification as a full-time resident.

Nondalton is a primarily Alaska Native community. During this study, approximately 91% of Nondalton residents self-identified as Alaska Native, which was comparable with the 90% identified by the 2020 census and a little higher than the 80% estimated average by the ACS (Table 2-1; Figure 2-1).

The population of Nondalton grew steadily from the 1920s through the 1990s, followed by a steady decline (Figure 2-2). The current population is similar to the 1950s population. The growth and decline of the population likely were driven by economic factors. The population of this region of the state grew during the 20th century as prospectors, trappers, and traders explored the area, as well as when employment opportunities in commercial fishing and firefighting increased in Bristol Bay. As one respondent commented about contemporary Nondalton, “Not like it used to be. This whole place used to empty out. It’d be, that was the, two big money-makers in the summertime was firefighting and commercial fishing” (NNL02+03). More recently, people have migrated out of the area to other Bristol Bay communities or urban areas like Anchorage to pursue economic opportunities.

The population of Nondalton is relatively young. Residents on average were 36 years old and the median age of the population was 34 (Table 2-2). More than one-half of the population was younger than 35 (Table 2-3; Figure 2-3). Many residents have lived in Nondalton for much of their lives. The length of residency for the population overall was 30 years, and for heads of households specifically it was 38 years (Table 2-2). Among household heads, 65% had parents living in Nondalton at the time of their birth and 76% of the total population had parents living in Nondalton when they were born (Table 2-4; Table 2-5). The community is characterized by a slightly higher percentage of males than females; in 2021 there were 58 males and 46 females residing in Nondalton (Table 2-3; Figure 2-3). This shift toward more males was most pronounced among the middle-aged population (ages 40 to 69), while there were slightly more females than males in several of the younger cohorts. The average household size was 3 individuals, with a minimum of 1 individual and a maximum of 9 individuals (Table 2-2).

Table 2-1.–Population estimates, Nondalton, 2020 and 2021.

	Census (2020)	5-year American Community Survey (2017–2021)		This study (2021)	
		Estimate	Range[a]	Estimate	Range[b]
Total population					
Households	48	25.0	10 – 40	38.0	
Population	133	50.0	20 – 80	103.5	92 – 115
Alaska Native					
Population	119	40.0	14 – 66	94.3	82 – 106
Percentage	89.5%	80.0%	28.0% – 100.0%	91.1%	79.4% – 100.0%

Sources U.S. Census Bureau (n.d.) for 2020 decennial census data, and for American Community Survey (ACS) 5-year average estimate for 2021 (2017–2021); and ADF&G Division of Subsistence household surveys, 2022, for 2021 estimate.

Note Division of Subsistence household survey eligiblity requirements differ from those used by ACS.

a. ACS data range is the reported margin of error.

b. No range of households is estimated for division surveys.

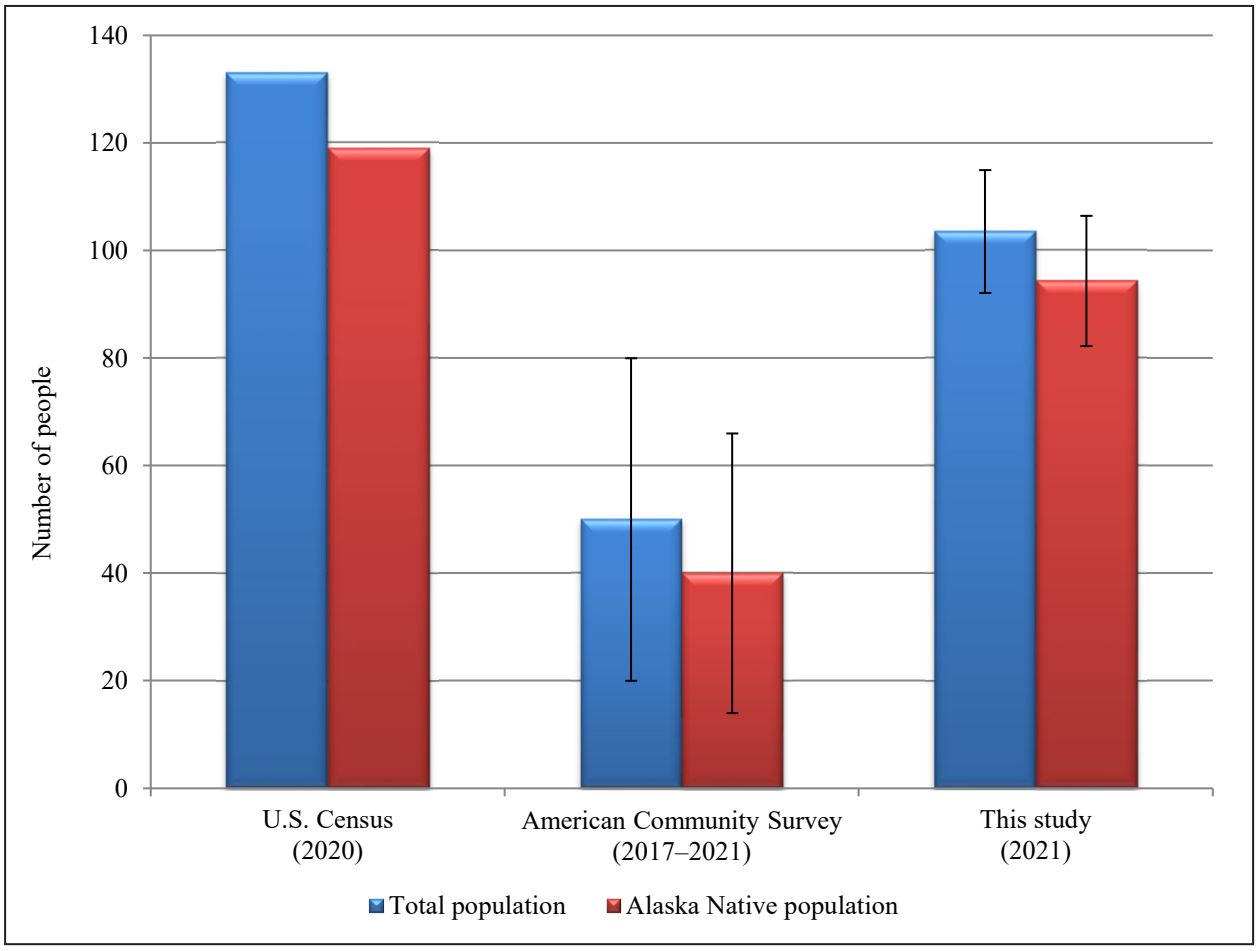


Figure 2-1.–Alaska Native and overall population estimates, Nondalton, 2020 and 2021.

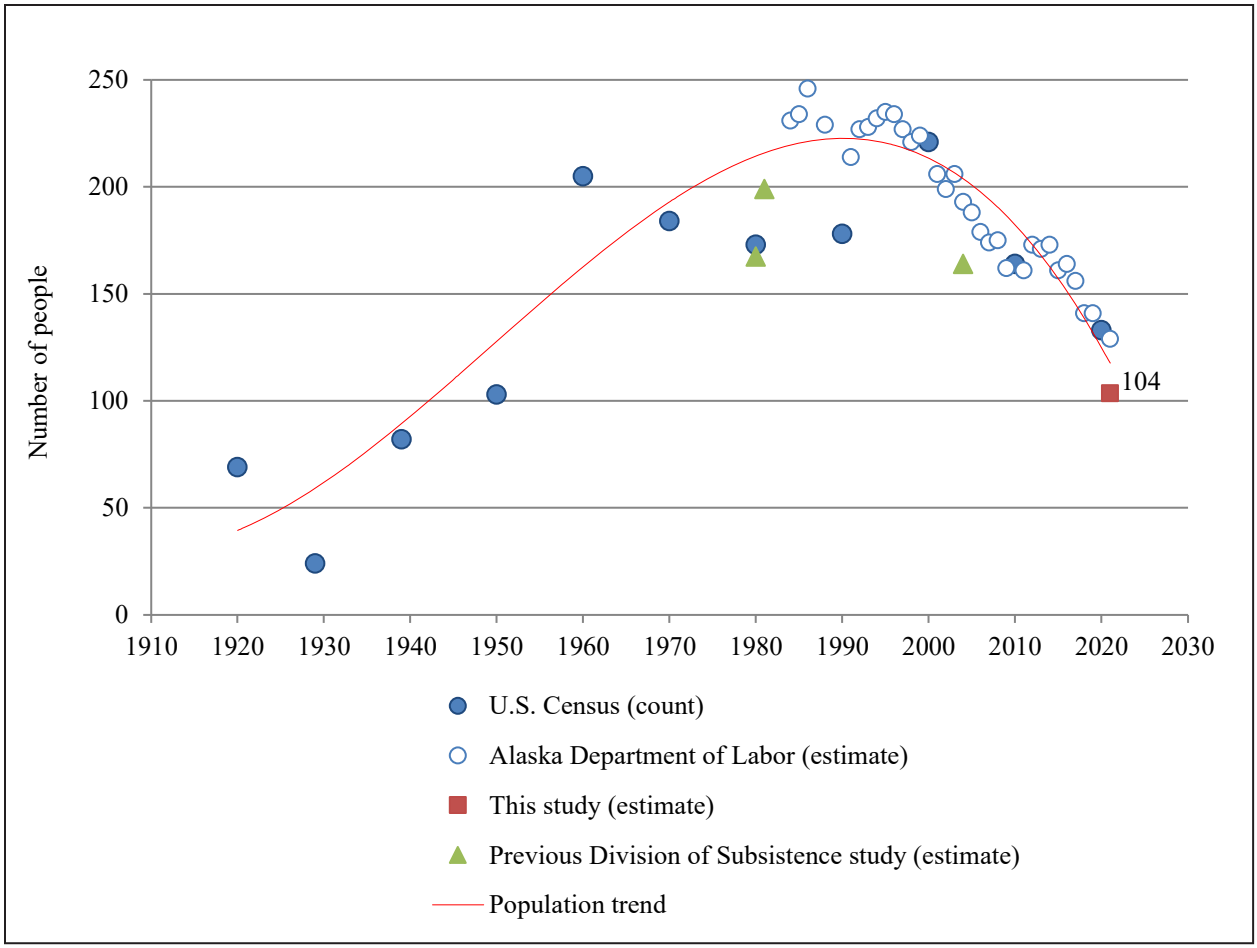


Figure 2-2.–Historical population estimates, Nondalton, 1920–2021.

Table 2-2.–Sample and demographic characteristics, Nondalton, 2021.

Characteristics	Community Nondalton
Sampled households	29
Eligible households	38
Percentage sampled	76.3%
Sampled population	79
Estimated community population	103.5
Household size	
Mean	2.7
Minimum	1
Maximum	9
Age	
Mean	36.3
Minimum[a]	0
Maximum	83
Median	34
Length of residency	
Total population	
Mean	29.8
Minimum[a]	1
Maximum	84
Heads of household	
Mean	38.3
Minimum[b]	3
Maximum	84
Alaska Native	
Estimated households[c]	
Number	32.8
Percentage	86.2%
Estimated population	
Number	94.3
Percentage	91.1%

Source ADF&G Division of Subsistence household surveys, 2022.

a. A minimum age or residency length of 0 (zero) is used for infants who are less than 1 year of age but eligible for the survey.

b. Residency length of 0 (zero) indicates residency of less than 1 year but eligible for the survey.

c. The estimated number of households in which at least 1 head of household is Alaska Native.

Table 2-3.–Population profile, Nondalton, 2021.

	Male			Female			Total		
Age	Number	Percentage	Cumulative percentage	Number	Percentage	Cumulative percentage	Number	Percentage	Cumulative percentage
0–4	7.9	13.6%	13.6%	0.0	0.0%	0.0%	7.9	7.6%	7.6%
5–9	3.9	6.8%	20.5%	2.6	5.7%	5.7%	6.6	6.3%	13.9%
10–14	1.3	2.3%	22.7%	3.9	8.6%	14.3%	5.2	5.1%	19.0%
15–19	2.6	4.5%	27.3%	6.6	14.3%	28.6%	9.2	8.9%	27.8%
20–24	2.6	4.5%	31.8%	3.9	8.6%	37.1%	6.6	6.3%	34.2%
25–29	2.6	4.5%	36.4%	2.6	5.7%	42.9%	5.2	5.1%	39.2%
30–34	6.6	11.4%	47.7%	6.6	14.3%	57.1%	13.1	12.7%	51.9%
35–39	3.9	6.8%	54.5%	3.9	8.6%	65.7%	7.9	7.6%	59.5%
40–44	5.2	9.1%	63.6%	2.6	5.7%	71.4%	7.9	7.6%	67.1%
45–49	0.0	0.0%	63.6%	1.3	2.9%	74.3%	1.3	1.3%	68.4%
50–54	2.6	4.5%	68.2%	1.3	2.9%	77.1%	3.9	3.8%	72.2%
55–59	3.9	6.8%	75.0%	2.6	5.7%	82.9%	6.6	6.3%	78.5%
60–64	7.9	13.6%	88.6%	0.0	0.0%	82.9%	7.9	7.6%	86.1%
65–69	5.2	9.1%	97.7%	1.3	2.9%	85.7%	6.6	6.3%	92.4%
70–74	0.0	0.0%	97.7%	5.2	11.4%	97.1%	5.2	5.1%	97.5%
75–79	1.3	2.3%	100.0%	0.0	0.0%	97.1%	1.3	1.3%	98.7%
80–84	0.0	0.0%	100.0%	1.3	2.9%	100.0%	1.3	1.3%	100.0%
85–89	0.0	0.0%	100.0%	0.0	0.0%	100.0%	0.0	0.0%	100.0%
90–94	0.0	0.0%	100.0%	0.0	0.0%	100.0%	0.0	0.0%	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	**57.7**	**100.0%**	**100.0%**	**45.9**	**100.0%**	**100.0%**	**103.5**	**100.0%**	**100.0%**

Source ADF&G Division of Subsistence household surveys, 2022.

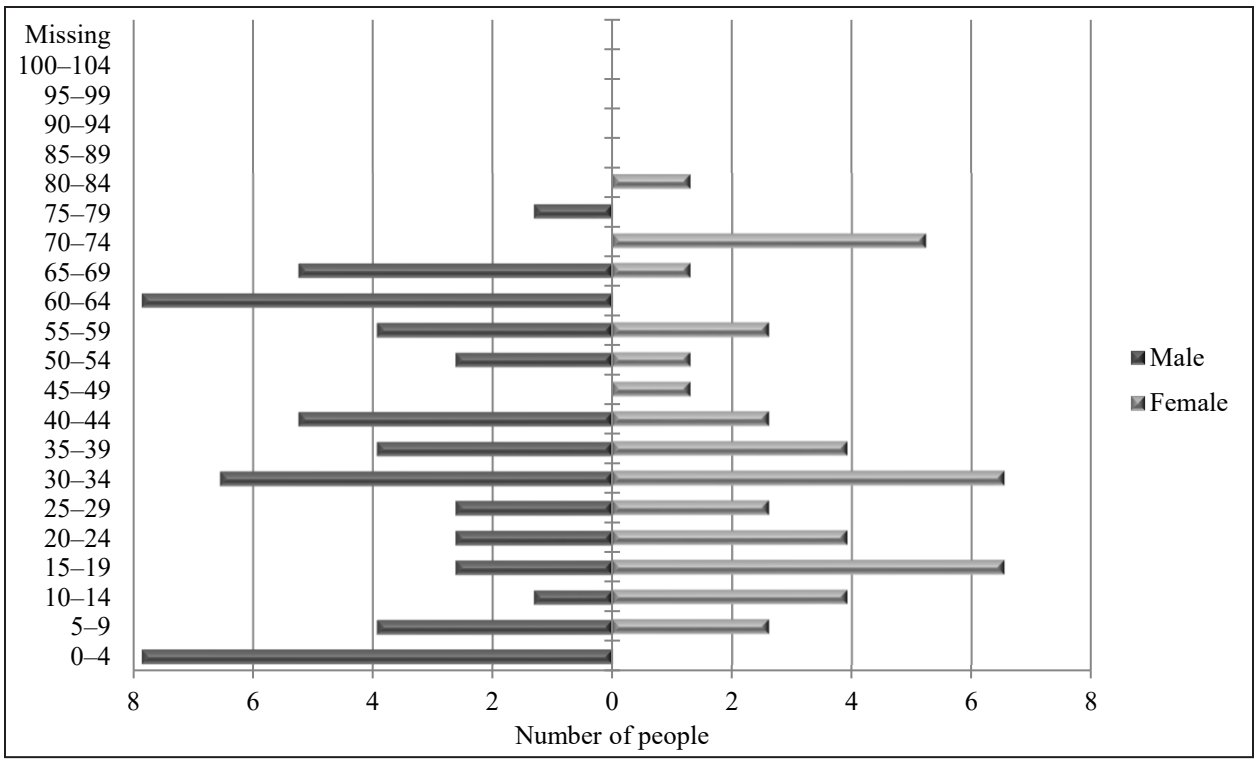


Figure 2-3.–Population profile, Nondalton, 2021.

Table 2-4.–Birthplaces of household heads, Nondalton, 2021.

Birthplace	Percentage
Anchorage	6.5%
Fairbanks	2.2%
Kokhanok	2.2%
Napakiak	2.2%
Nenana	2.2%
Nondalton	65.2%
Pedro Bay	2.2%
Point Hope	2.2%
Takotna	2.2%
Other U.S.	13.0%

Source ADF&G Division of Subsistence household surveys, 2022.

Note "Birthplace" means the place of residence of the parents of the individual when the individual was born.

Table 2-5.–Birthplaces of population, Nondalton, 2021.

Birthplace	Percentage
Anchorage	7.6%
Fairbanks	1.3%
Kokhanok	1.3%
Napakiak	1.3%
Nenana	1.3%
Nondalton	75.9%
Pedro Bay	1.3%
Point Hope	1.3%
Takotna	1.3%
Other U.S.	7.6%

Source ADF&G Division of Subsistence household surveys, 2022.

Note "Birthplace" means the place of residence of the parents of the individual when the individual was born.

Income and Cash Employment

Nondalton residents access a variety of sources for income. In 2021, the largest percentage of community income (32%) originated with wages from the local government sector, including tribal government (Table 2-6). This sector included all the services provided by the local governments, such as schools, environmental and social services, and utilities delivery. Income earned from commercial fishing and trapping contributed 11% to the total community income, and the services sector contributed 10%. No other source of income provided more than 10% of community income. The estimated total mean household income was $70,896; 74% of this was earned income and 26% came from other sources. Other income included retirement distributions, Alaska Permanent Fund dividends, energy assistance payments, and unemployment benefits, among others. Approximately 38 households received a form of other income, with the mean household other income being $18,750. The per capita income in 2021 in Nondalton was $26,025 (Table 1-7). This study estimated a median income for Nondalton households of $60,000, which is similar to the ACS 2017–2021 average median income estimate of $55,625 for Nondalton but is less than the 2017–2021 average median household income for the state of Alaska as a whole ($80,287) (Figure 2-4).

The composition of jobs in the community mirrors the composition of income sources. Local government contributed the largest percentage (48%) of jobs for the community and these jobs employed 62% of households in 2021 (Table 2-7). Within this category, teachers, librarians, and counselors represented the greatest percentage of wage earnings (14% of overall jobs in the community and these jobs employed 23% of households). Agriculture, forestry, and fishing jobs represented 14% of all jobs for the community of Nondalton and these jobs employed 23% of households during the study year. Service industry jobs represented 11% of jobs for the community and these jobs employed 15% of the households during the study year.

During the study year, most adults (77% of adults working age 16 or older) were employed for some portion of the year, and most households (90%) had at least 1 employed household member (Table 2-8). There were approximately 75 jobs worked by Nondalton residents during the study year, but the majority of these did not offer year-round employment. Approximately 40% of employed adults worked year-round in 2021 and the mean number of months an employed adult worked was 10. Of the jobs where the schedule was reported, there were slightly more full-time jobs than not; 46% of jobs were reported as full-time, 16% as part-time, and 25% as on-call (Table 2-9).

Table 2-6.–Estimated earned and other income, Nondalton, 2021.

Income source	Number of employed adults	Number of households	Total for community	-/+ 95% CI	Mean per household	Percentage of total community income
Earned income						
Local government, including tribal	33.3	21.2	$869,079	$503,439 – $1,281,574	$22,870	32.3%
Agriculture, forestry, and fishing	10.5	7.9	$308,214	$61,890 – $746,832	$8,111	11.4%
Services	7.9	5.3	$256,201	$1,336 – $672,684	$6,742	9.5%
Industry not specified	10.5	7.8	$237,242	$87,082 – $495,200	$6,243	8.8%
Federal government	3.9	3.9	$180,907	$40,582 – $500,379	$4,761	6.7%
State government	1.3	1.3	$86,068	$65,000 – $403,016	$2,265	3.2%
Transportation, communication, and utilities	1.4	1.4	$16,751	$5,000 – $74,761	$441	0.6%
Construction	1.3	1.3	$15,890	$12,000 – $74,403	$418	0.6%
Retail trade	1.3	1.3	$11,203	$9,000 – $24,123	$295	0.4%
Earned income subtotal	**60.6**	**34.1**	**$1,981,555**	**$1,372,154 – $2,576,902**	**$52,146**	**73.6%**
Other income						
Pension/retirement		3.9	$143,257	$110,000 – $380,000	$3,770	5.3%
Alaska Permanent Fund dividend		36.7	$108,475	$89,043 – $141,593	$2,855	4.0%
Energy assistance		28.9	$105,381	$79,800 – $126,841	$2,773	3.9%
Unemployment		8.0	$104,368	$9,852 – $270,823	$2,747	3.9%
Economic impact payment (stimulus check)		35.5	$92,198	$58,179 – $133,422	$2,426	3.4%
Native corp. dividend		31.2	$87,642	$55,816 – $141,550	$2,306	3.3%
Social Security		5.3	$41,097	$1,292 – $141,022	$1,082	1.5%
Food stamps		2.6	$8,368	$901 – $33,778	$220	0.3%

-continued-

Table 2-6.–Page 2 of 2.

Income source	Number of employed adults	Number of households	Total for community	-/+ 95% CI	Mean per household	Percentage of total community income
Supplemental Security Income (SSI)		2.6	$5,613	$1,358 – $21,956	$148	0.2%
Child support		2.7	$4,638	$874 – $20,310	$122	0.2%
Other		2.6	$1,952	$919 – $6,756	$51	0.1%
Longevity bonus		1.3	$1,867	$0 – $8,397	$49	0.1%
Workers' compensation/ insurance		1.3	$1,240	$0 – $5,403	$33	0.0%
Disability		1.3	$1,240	$0 – $5,403	$33	0.0%
Veterans assistance		1.3	$1,240	$0 – $5,403	$33	0.0%
Foster care		1.3	$921	$0 – $4,150	$24	0.0%
Meeting honoraria		1.3	$921	$0 – $4,150	$24	0.0%
Fuel vouchers		2.7	$865	$385 – $3,135	$23	0.0%
TANF (Temp. Asst. for Needy Families)		1.3	$608	$0 – $6,176	$16	0.0%
Adult Public Assistance (OAA, APD)		1.3	$608	$0 – $6,176	$16	0.0%
Other income subtotal		**38.0**	**$712,498**	**$487,914 – $1,008,233**	**$18,750**	**26.4%**
Community income total			**$2,694,054**	**$2,090,978 – $3,287,545**	**$70,896**	**100.0%**

Source ADF&G Division of Subsistence household surveys, 2022.

Note Values of 0 (zero) for lower-range CI for non-zero income estimates indicate low precision and high variability. Total reported income from survey forms for these income sources may plausibly be the total community income for that source. Reported values are omitted to maintain confidentiality.

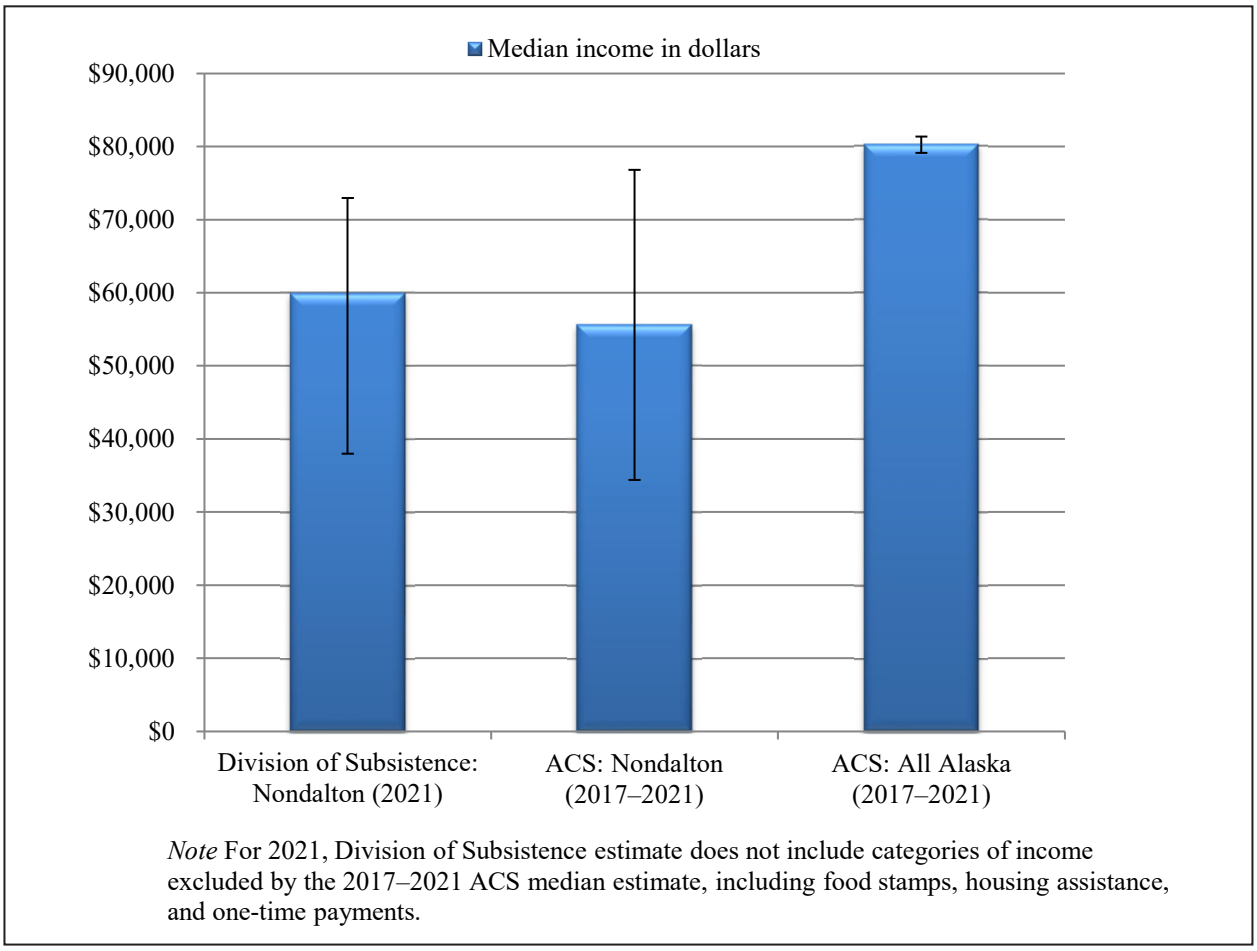


Figure 2-4.–Comparison of median household income estimates, Nondalton, 2021.

Table 2-7.–Employment by industry, Nondalton, 2021.

Industry	Jobs	Employed households	Employed individuals	Percentage of wage earnings
Estimated total number	**75.3**	**34.1**	**60.6**	
Federal government	**5.1%**	**11.3%**	**6.4%**	**9.1%**
Executive, administrative, and managerial	1.7%	3.8%	2.2%	2.5%
Service occupations	3.4%	7.5%	4.2%	6.7%
State government	**1.8%**	**3.9%**	**2.2%**	**4.3%**
Service occupations	1.8%	3.9%	2.2%	4.3%
Local government, including tribal	**47.5%**	**62.3%**	**54.9%**	**43.9%**
Teachers, librarians, and counselors	13.9%	23.2%	13.1%	16.0%
Technologists and technicians, except health	7.1%	15.7%	8.9%	6.0%
Administrative support occupations, including clerical	5.2%	11.6%	6.5%	4.9%
Service occupations	12.3%	23.3%	15.3%	11.6%
Construction and extractive occupations	1.8%	3.9%	2.2%	0.5%
Transportation and material moving occupations	3.6%	7.9%	4.5%	1.2%
Handlers, equipment cleaners, helpers, and laborers	1.8%	3.9%	2.2%	2.6%
Occupation not specified	1.8%	4.1%	2.3%	1.0%
Agriculture, forestry, and fishing	**14.0%**	**23.3%**	**17.4%**	**15.6%**
Agricultural, forestry, and fishing occupations	14.0%	23.3%	17.4%	15.6%
Construction	**1.8%**	**3.9%**	**2.2%**	**0.8%**
Construction and extractive occupations	1.8%	3.9%	2.2%	0.8%
Transportation, communication, and utilities	**3.7%**	**4.1%**	**2.3%**	**0.8%**
Marketing and sales occupations	1.8%	4.1%	2.3%	0.3%
Transportation and material moving occupations	1.8%	4.1%	2.3%	0.5%
Retail trade	**1.7%**	**3.7%**	**2.1%**	**0.6%**
Marketing and sales occupations	1.7%	3.7%	2.1%	0.6%
Services	**10.5%**	**15.4%**	**13.1%**	**12.9%**
Executive, administrative, and managerial	3.7%	4.1%	4.6%	4.0%
Health diagnosing and treating practitioners	1.7%	3.8%	2.1%	3.9%
Health technologists and technician	1.7%	3.7%	2.1%	3.1%
Service occupations	1.8%	3.9%	2.2%	0.1%
Handlers, equipment cleaners, helpers, and laborers	1.7%	3.7%	2.1%	1.9%
Industry not specified	**13.9%**	**22.8%**	**17.3%**	**12.0%**
Service occupations	1.8%	4.0%	2.2%	0.6%
Occupation not specified	12.1%	22.8%	15.1%	11.3%

Source ADF&G Division of Subsistence household surveys, 2022.

Table 2-8.–Employment characteristics, Nondalton, 2021.

Characteristic	Community Nondalton
All adults	
Number	78.6
Mean weeks employed	33.3
Employed adults	
Number	60.6
Percentage	77.0%
Jobs	
Number	75.3
Mean	1.2
Minimum	1
Maximum	5
Months employed	
Mean	10.0
Minimum	2
Maximum	12
Percentage employed year-round	40.2%
Mean weeks employed	43.2
Households	
Number	38.0
Employed	
Number	34.1
Percentage	89.7%
Jobs per employed household	
Mean	2.2
Minimum	1
Maximum	6
Employed adults	
Mean	
Employed households	1.8
Total households	1.6
Minimum	1
Maximum	4
Mean person-weeks of employment	76.8

Source ADF&G Division of Subsistence household surveys, 2022.

Table 2-9.–Job schedules, Nondalton, 2021.

	Jobs		Employed persons		Employed households	
Schedule	Number	Percentage	Number	Percentage	Number	Percentage
Full time	34.4	45.7%	27.7	45.8%	22.3	65.5%
Part time	12.0	15.9%	12.0	19.7%	10.6	31.2%
On-call, varies	18.5	24.6%	15.8	26.1%	11.8	34.8%
Schedule not reported	10.5	13.9%	10.5	17.3%	9.1	26.7%

Source ADF&G Division of Subsistence household surveys, 2022.

Note Respondents who had more than 1 job in the study year could provide multiple responses, so the percentages may sum to more than 100%.

Food Security

Survey respondents were asked a set of questions intended to assess their household's food security, defined as, "access by all people at all times to enough food for an active, healthy life" (Coleman-Jensen et al. 2020). The food security questions were modeled after those developed by the U.S. Department of Agriculture (USDA) but modified by ADF&G to account for differences in access to subsistence and store-bought foods. Based on their responses to these questions, households were broadly categorized as being food secure or food insecure following a USDA protocol (Bickel et al. 2000). Food secure households were broken down further into 2 subcategories—high or marginal food security. Food insecure households were also divided into 2 subcategories—low food security or very low food security. Households in the high food security category did not report any food access problems or limitations. Households in the marginal food security category reported 1 or 2 instances of food access problems or limitations—typically anxiety over food sufficiency or a shortage of particular foods in the house—but gave little or no indication of changes in diets or food intake. For households to be in the low food security category, they would have reported reduced quality, variety, or desirability of their diet; however, they, too, would have given little indication of reduced food intake. Households would have reported multiple instances of disrupted eating patterns and reduced food intake to be classified as having very low food security (Coleman-Jensen et al. 2020).

Food security results for surveys for Nondalton, the state of Alaska, and the United States are summarized in Figure 2-5. No households reported being food insecure during the study year. This is in comparison to the state and national averages of 14% of households being food insecure. Despite all households being considered food secure, some households experienced instances of food insecurity during the study year.

Table 2-10 shows, by percentage of sampled Nondalton households, the assessments results regarding the desired types of foods eaten during the study year. According to survey results, 69% of households had enough of the kinds of food they desired and 31% had enough food, but not the desired kinds. No households (0%) reported not having enough food. Core questions and responses from Nondalton households who responded that they did not have enough of the kinds of food they wanted to eat are summarized in Figure 2-6. For this study, additional questions asked were designed to determine whether food insecurities were related to subsistence foods or store-bought foods. Households were most likely to respond that they lacked the resources to get food (21% of households). Approximately 7% of households stated that they worried about having enough food or that their food did not last and they could not get more. Drilling down into food not lasting, an estimated 10% of Nondalton households responded that their subsistence foods did not last and 3% of Nondalton households responded that their store-bought food did not last. No Nondalton households reported experiencing comparably serious food insecure conditions such as skipping meals or weight loss.

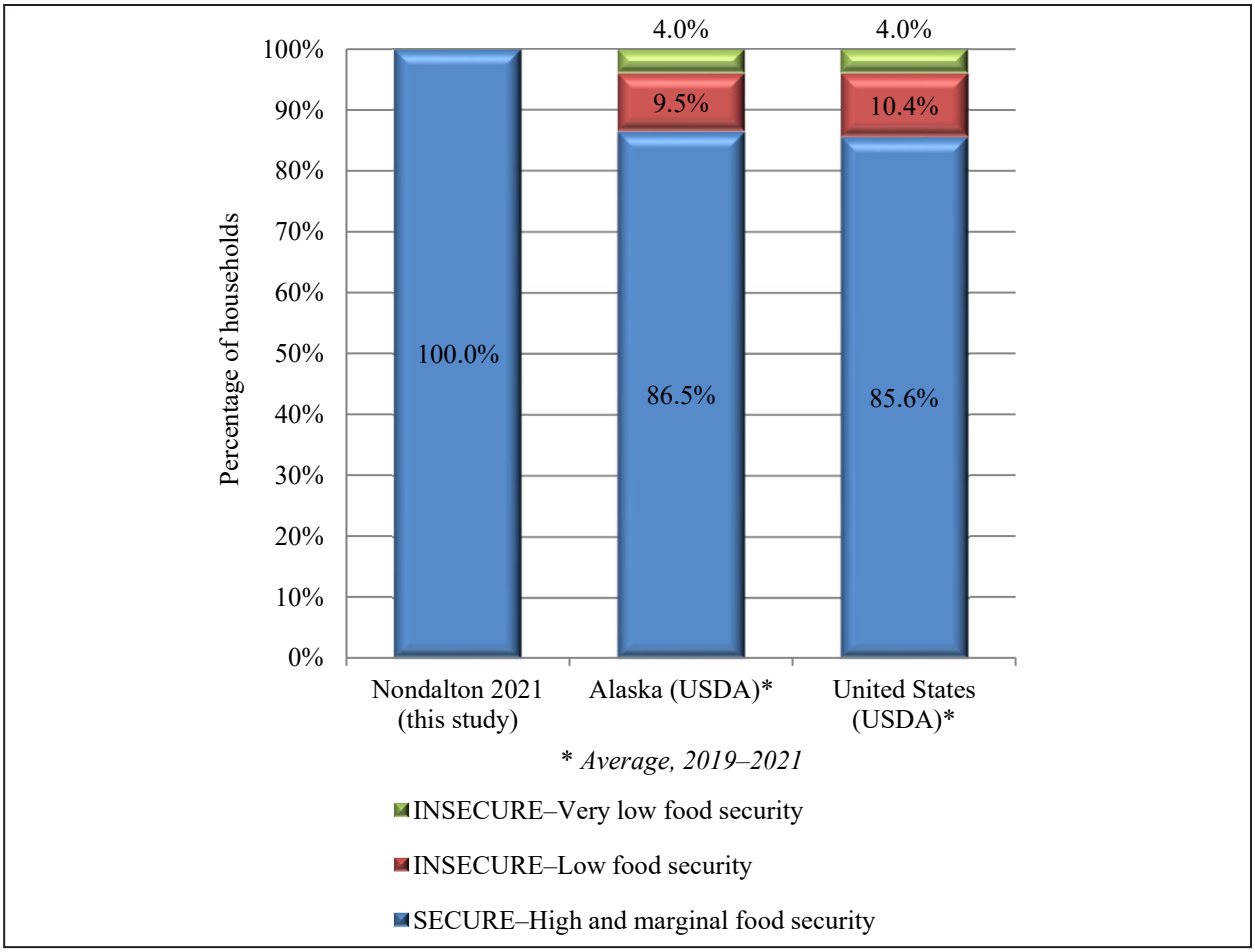


Figure 2-5.–Comparison of food security categories, Nondalton, Alaska, and United States, 2021.

Table 2-10.–Households' assessments of food security conditions, Nondalton, 2021.

Statement	Percentage of households
Had enough of the kinds of food desired	69.0%
Had enough food, but not the desired kind	31.0%
Somestimes, or often, did not have enough food	0.0%
Missing/no response	0.0%

Source ADF&G Division of Subsistence household surveys, 2022.

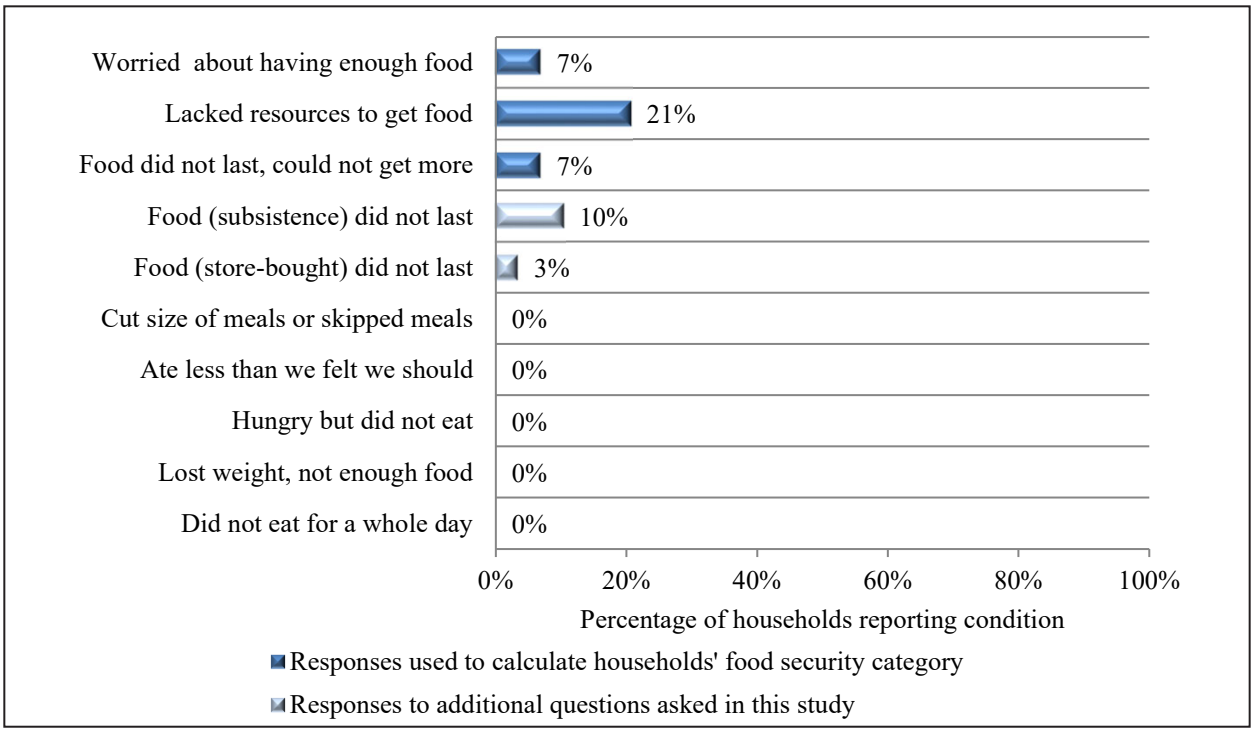
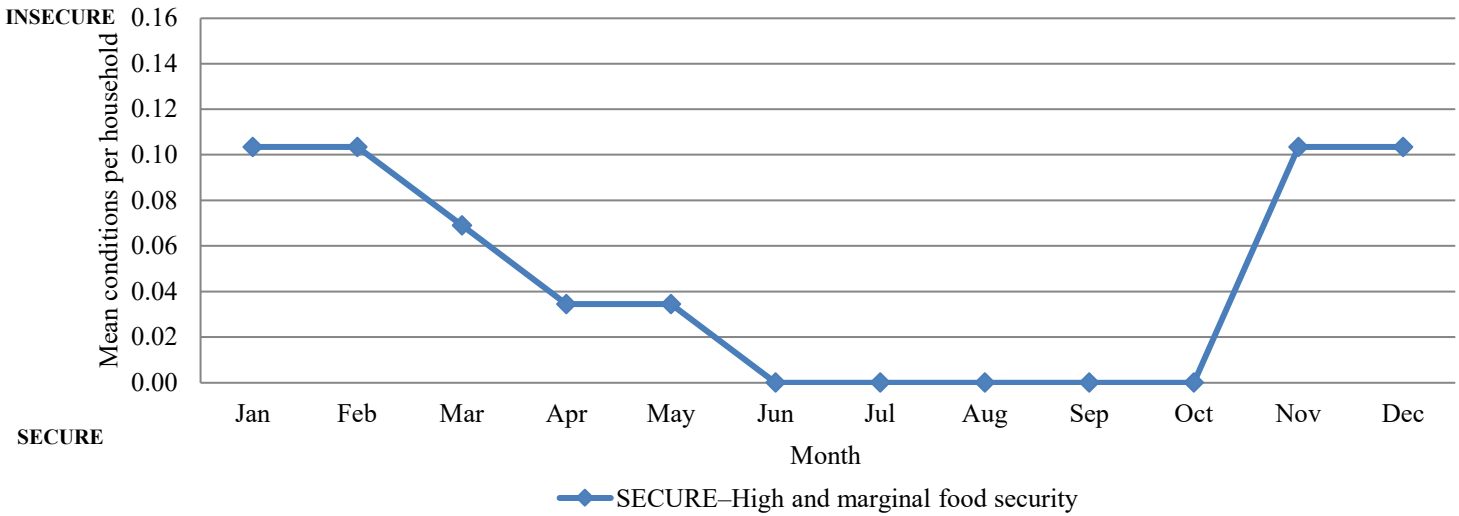


Figure 2-6.–Responses to questions about food insecure conditions, Nondalton, 2021.

While there are many factors that go into a household's food security, including access to wages, resource availability, weather, and social ties, a part of the overall high level of food security in the community is due to the abundant natural resources available to residents. As residents commented, Nondalton is ideally situated:

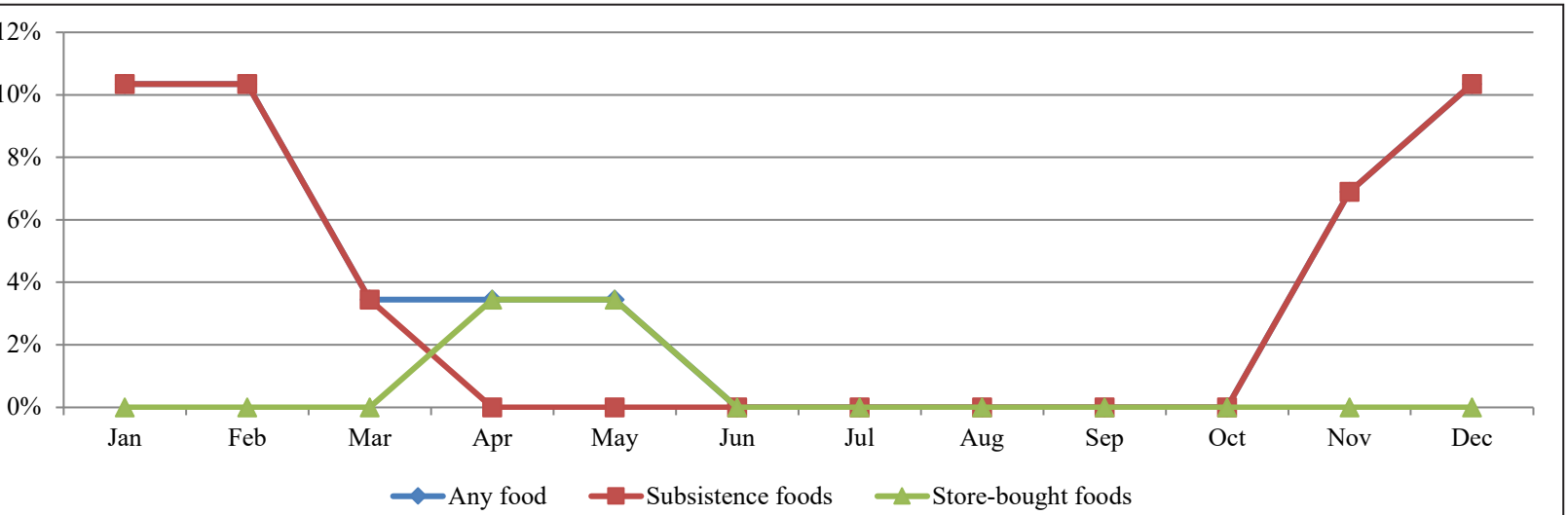
> Yeah, I mean, mainly the reason why our people settled where they did is because they didn't have to move to get the fish, because they were coming right for us, so. … They knew what they were doing. And we have, we literally have everything we need in this area, to live off the land if we chose to. (NNL01)

Figure 2-7 demonstrates the mean number of food insecure conditions experienced per household by month; since no households were considered to have low food security, only households in the secure category are represented in the figure. Figure 2-8 portrays which months households reported food not lasting. Very few food insecure conditions were reported throughout the year, but all were reported during the spring and winter months in January through May and November through December (Figure 2-7). Figure 2-8 demonstrates that Nondalton households experienced store-bought foods lasting more throughout the year than their subsistence foods. Approximately 3% of households experienced a shortage of store-bought foods in the months of April and May, but otherwise reported that store-bought foods lasted throughout the year. In comparison, approximately 10% of households reported that subsistence foods did not last in the months of January, February, and December, but subsistence foods continued to consistently last from April through October, when subsistence foods are more available for harvest and households are less dependent on stored and preserved subsistence foods from the previous year.



Note No Nondalton households were categorized as having low or very low food security and the categories were removed from this figure to avoid confusion.

Figure 2-7.–Mean number of food insecure conditions by month and by household food security category, Nondalton, 2021.



Note Data for "Any food" is only partially visible because it mostly mirrors data for "Subsistence foods."

Figure 2-8.–Comparison of months when food did not last, Nondalton, 2021.

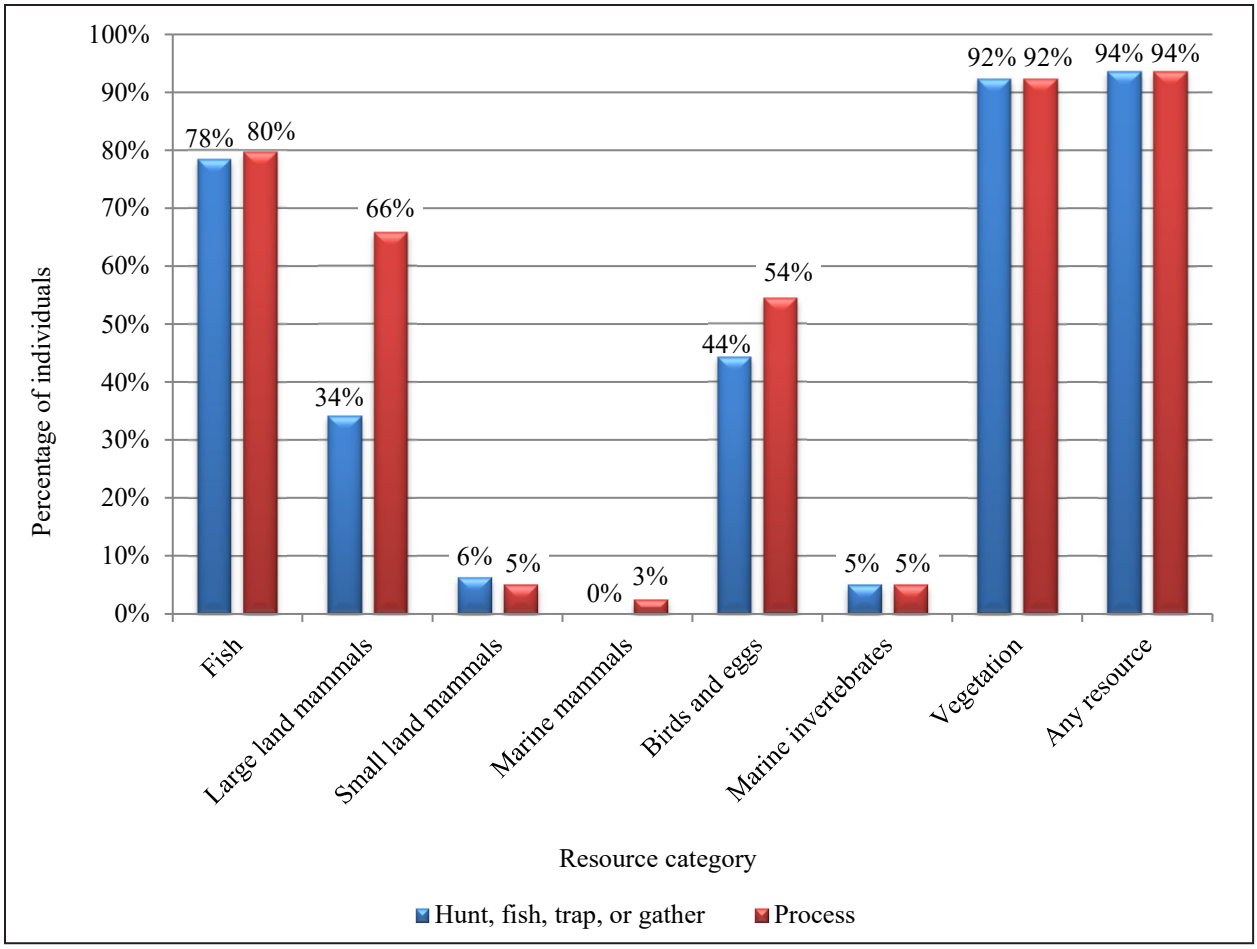


Figure 2-9.–Individual participation in subsistence harvesting and processing activities, Nondalton, 2021.

Summary of Harvest and Use Patterns

Individual Participation in the Harvesting and Processing of Wild Resources

Figure 2-9 reports the expanded levels of individual participation in harvesting and processing wild resources by all Nondalton residents in 2021. Most community members (94%) participated in the harvesting and processing of at least 1 wild resource during the study year. For most of the resource categories with high individual participation, there is a pattern of more Nondalton residents processing wild resources than harvesting them. This disparity is most pronounced among large land mammals, where 34% of individuals harvested but 66% processed. Moose is one of the most accessible large land mammals in Nondalton, and processing such a large animal is not usually an individual undertaking. One respondent spoke about his experience with moose hunting: "And majority of it is, like I really haven't shot a moose in a long time. A friend was, call me, 'Hey man I got a moose, can you come help me?' Like, sure. And so I'll go out there" (NNL01). For birds and eggs, a slightly higher proportion of residents (54%) processed these resources, in comparison to the 44% who harvested them, and slightly more individuals (80%) helped process fish than harvested these resources (78%). Vegetation is the only resource category with high participation in harvesting and processing, and no difference between the percentage of individuals harvesting and processing (92%).

Table 2-11.–Individual participation in subsistence-related craft and construction activities, Nondalton, 2021.

Total number of people	**103.5**
Building fish traps	
Number	7.9
Percentage	7.6%
Building sleds	
Number	7.9
Percentage	7.6%
Sewing skins or fur	
Number	13.1
Percentage	12.7%
Cooking wild foods	
Number	81.2
Percentage	78.5%

-continued-

Total number of people	**103.5**
Making handicrafts	
Number	14.4
Percentage	13.9%
Building shelters	
Number	15.7
Percentage	15.2%

Source ADF&G Division of Subsistence household surveys, 2022.

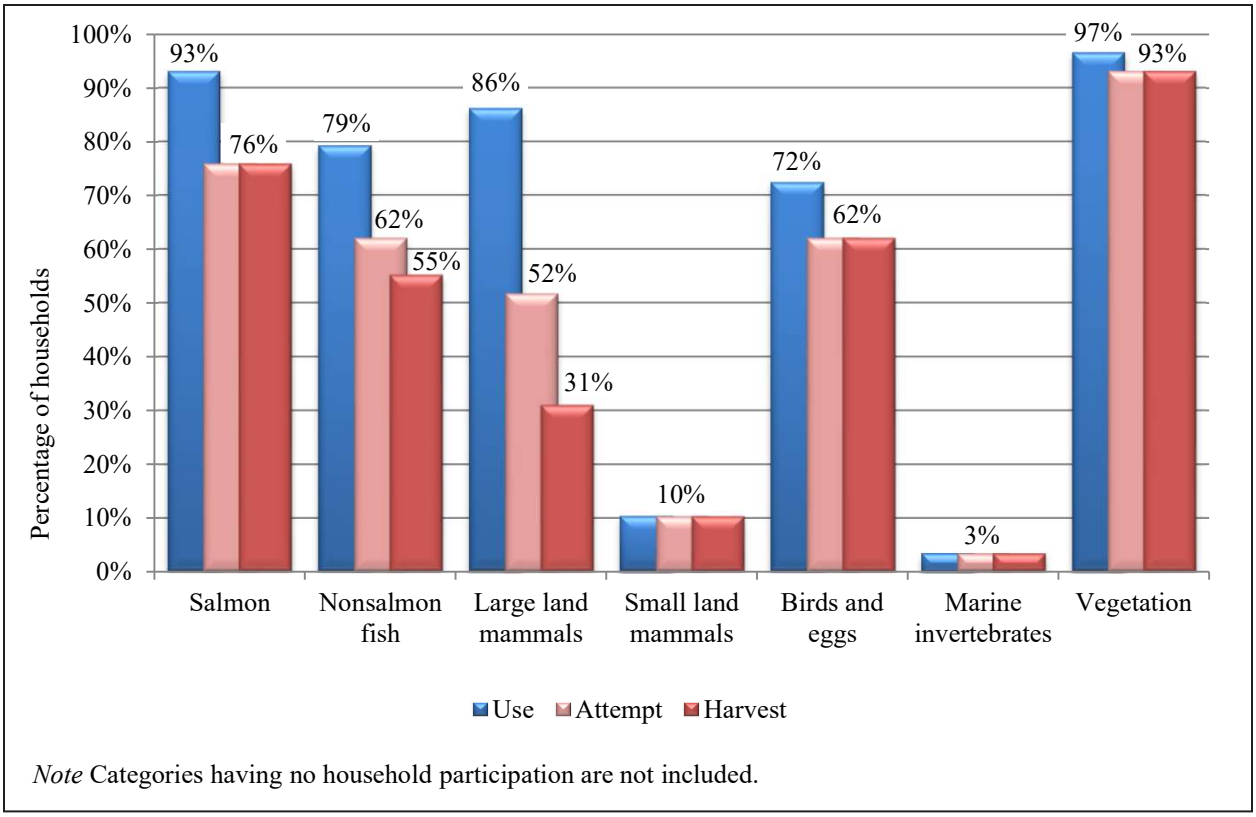
The survey included questions about participation in craft activities relating to subsistence efforts or using subsistence resources (Table 2-11). Most Nondalton residents (79%) cooked with wild foods during the study year. No more than 15% of residents engaged in other activities associated with subsistence harvests: 15% built a cabin, shelter, or lean-to; 14% made handicrafts using natural materials; 13% of residents sewed skins or furs; and 8% each built fish traps and sleds.

Harvest and Use of Wild Resources at the Household Level

Figure 2-10 shows by resource category the percentages of households that used, attempted to harvest, and harvested wild foods during the study year. More than 70% of households used 5 out of 7 resource categories; note that marine mammals were not used or harvested by Nondalton households in 2021. More households used vegetation (97%) than any other resource category. Following vegetation, salmon (93%), large land mammals (86%), nonsalmon fish (79%), and birds and eggs (72%) were all highly used categories. For each of these resource categories, a higher percentage of households used than attempted to harvest or harvested resources.

Households were generally successful in their harvesting efforts. The same percentage of households attempted to and successfully harvested vegetation (93%), salmon (76%), and birds and eggs (62%). Households pursuing large land mammals had the greatest disparity between households that successfully harvested (31%) and those that attempted to harvest (52%). Not all households successfully harvested nonsalmon fish as well: 62% of households fished for these resources and 55% harvested them. Few households used or pursued small land mammals (10%) or marine invertebrates (3%) but those that did were successful.

Table 2-12 summarizes resource harvest and use characteristics for Nondalton in 2021 at the household level. The average harvest was 813 lb usable weight per household; a range of harvests spanning 0 lb to 2,176 lb indicates that there are high harvesting households in Nondalton that are important to the subsistence patterns of the community. The per capita harvest was 298 lb. Nondalton households harvested an average of 10 resources and used an average of 13 resources. The maximum number of resources used by any household was 47. In addition, households gave away an average of 7 resources (with a range of 0 to



Note Categories having no household participation are not included.

Figure 2-10.–Percentage of households using, attempting to harvest, and harvesting wild resources, by resource category, Nondalton, 2021.

25 resources) and received an average of 5 resources in 2021. Overall, more than 67 resources were used by Nondalton households during the study year (Table 1-1). Harvest diversity and sharing are characteristics of subsistence economies and important components of their resilience and stability; this will be discussed further in the report.

Transportation is a key factor shaping a community's harvest patterns. For example, in order to access marine invertebrates, a Nondalton household would first have to fly to the coast, likely influencing why only a very small fraction of households used or harvested marine invertebrates during the study year. Nondalton residents used several different modes of transportation to access wild resources in 2021. A majority of sampled households reported using an all-terrain vehicle (ATV) (86%) or a boat (76%) (Table 2-13). Just more than one-half (55%) reported using a snowmachine and a smaller percentage of households reported using a highway vehicle (17%) or an aircraft (14%). A majority of households that reported using transportation equipment to access wild resources in 2021 reported ownership, with a smaller portion of households reporting that they borrowed equipment, rode along with someone else, or chartered transportation. The majority of households that reported using snowmachines, ATVs, boats, and highway vehicles owned said equipment. One-half (50%) of households that reported using aircraft in 2021 owned the aircraft, while 25% borrowed, 25% rode along with someone who owned the aircraft, and 25% chartered a flight. Apart from aircraft, households only reported borrowing boats (14%) and ATVs (4%) to access wild resources. Portable motorized equipment was also used to harvest and search for wild resources in 2021. Chainsaws were most frequently used, with 79% of households reporting use (Table 2-14). Sampled households also reported using ice augers (38% of households), winches (31%), generators (28%), and other portable motors or motorized equipment (3%). Efforts to collect firewood may be significantly aided by motorized equipment, particularly chainsaws. The majority of households used firewood for home heating (76%), emphasizing the need for motorized equipment and the importance of the resource (Table 2-15).

Table 2-12.–Resource harvest and use characteristics, Nondalton, 2021.

Characteristic	
Mean number of resources used per household	**13.1**
Minimum	1
Maximum	47
95% confidence limit (±)	12.8%
Median	11
Mean number of resources attempted to harvest per household	**10.7**
Minimum	0
Maximum	45
95% confidence limit (±)	15.7%
Median	8
Mean number of resources harvested per household	**10.3**
Minimum	0
Maximum	42
95% confidence limit (±)	15.9%
Median	7
Mean number of resources received per household	**5.2**
Minimum	1
Maximum	16
95% confidence limit (±)	12.4%
Median	5
Mean number of resources given away per household	**6.6**
Minimum	0
Maximum	25
95% confidence limit (±)	17.7%
Median	6
Household harvest (pounds)	
Minimum	0
Maximum	2,176
Mean	812.7
Median	717
Total harvest weight (lb)	30,882.2
Community per capita harvest (lb)	298.3
Percentage using any resource	100.0%
Percentage attempting to harvest any resource	93.1%
Percentage harvesting any resource	93.1%
Percentage receiving any resource	100.0%
Percentage giving away any resource	86.2%
Number of households in sample	29
Number of resources asked about and identified voluntarily by respondents	139

Source ADF&G Division of Subsistence household surveys, 2022.

Table 2-13.–Modes of transportation used by sampled households to access wild resources, Nondalton, 2021.

	Households reporting use		Households reporting how equipment was obtained									
			Own		Borrow		Lease		Charter		Ride along	
Equipment	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Boat	22	75.9%	19	86.4%	3	13.6%	0	0.0%	0	0.0%	0	0.0%
Snowmachine	16	55.2%	16	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
ATV	25	86.2%	24	96.0%	1	4.0%	0	0.0%	0	0.0%	0	0.0%
Sled	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Highway vehicle	5	17.2%	4	80.0%	0	0.0%	0	0.0%	0	0.0%	1	20.0%
Aircraft	4	13.8%	2	50.0%	1	25.0%	0	0.0%	1	25.0%	1	25.0%
Horses	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, 2022.

Note The percentage of households owning, borrowing, leasing, riding along, or chartering equipment is calculated out of those households reporting use of the equipment.

Table 2-14.–Portable motorized equipment used by sampled households to search for and harvest wild resources, Nondalton, 2021.

	Households reporting use	
Equipment	Number	Percentage
Generator	8	27.6%
Chainsaw	23	79.3%
Ice auger	11	37.9%
Winch	9	31.0%
Other portable motors or motorized equipment	1	3.4%

Source ADF&G Division of Subsistence household surveys, 2022.

Table 2-15.–Use of firewood for home heating in sampled households, Nondalton, 2021.

Sampled households	Household use of wood for home heating											
	None		A little (some, but less than half)		About half		A lot (more than half, but not all)		All		Missing	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
29	6	20.7%	7	24.1%	6	20.7%	6	20.7%	3	10.3%	1	3.4%

Source ADF&G Division of Subsistence household surveys, 2022.

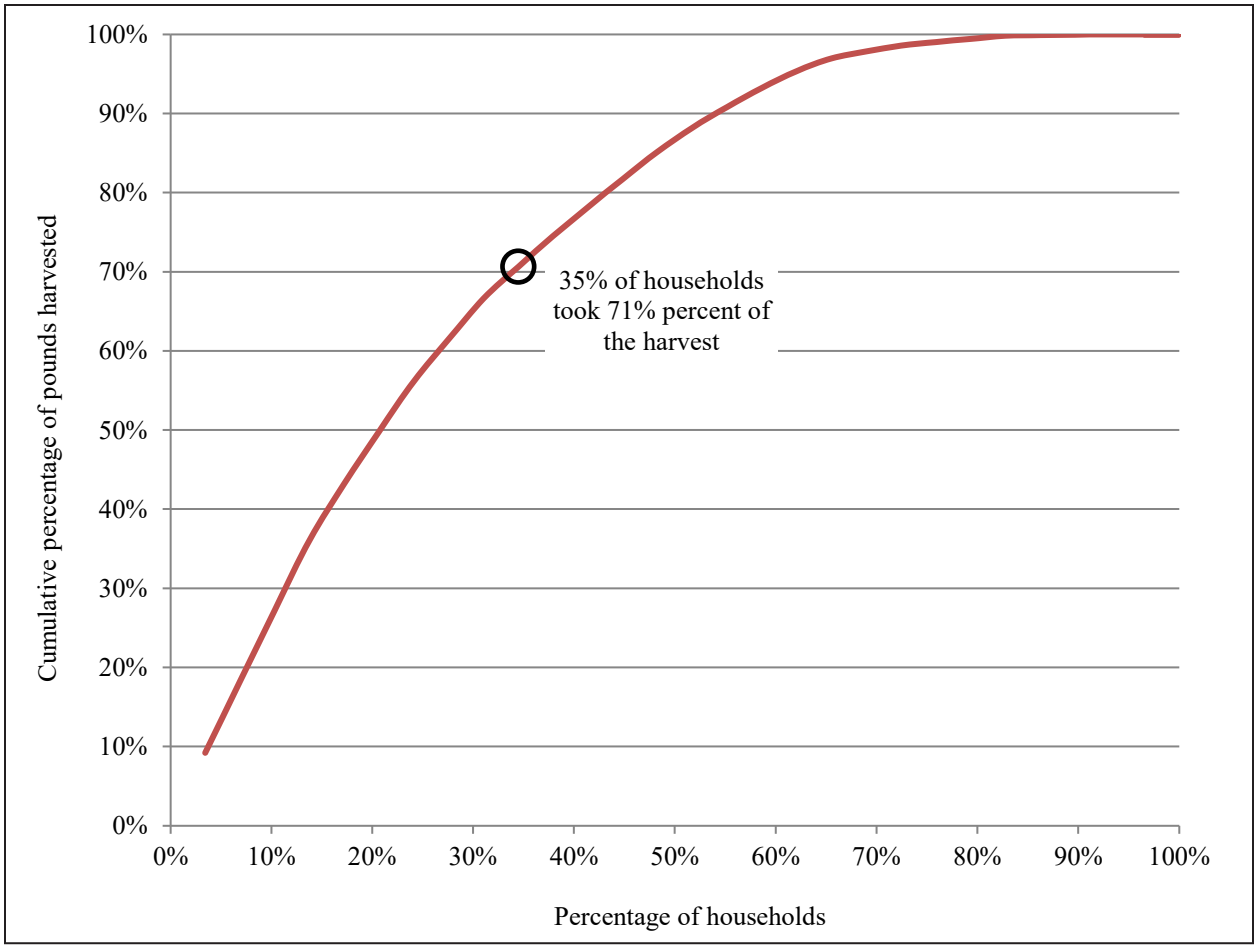


Figure 2-11.–Household specialization, Nondalton, 2021.

Household Specialization in Resource Harvesting

Previous studies (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 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 2-11, in the 2021 study year in Nondalton, about 71% of the harvests of wild resources as estimated in pounds usable weight were harvested by 35% of the community's households. This result is comparable to the findings by Wolfe et al. (2010). Further analysis of the study findings, beyond the scope of this report, might identify characteristics of the highly productive households in Nondalton and the other study communities. Harvest specialization is tied to sharing, harvest diversity, and economic factors, among others, and will be discussed further in the final chapter of the report.

Harvest Quantities and Composition

Table 2-16 reports estimated wild resource harvests and uses by Nondalton residents in 2021 and is organized first by general category and then by species. All edible resources are reported in pounds usable weight (see Appendix D 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 harvest by Nondalton residents in 2021 was 30,822 lb, or 298 lb per capita (Table 2-16). The majority of this harvest, by weight, was salmon (62% of the total harvest weight) and large land mammals (18%) (Figure 2-12). Households harvested approximately 19,000 lb of salmon (184 lb per capita) and nearly 5,500 lb of large land mammals (53 lb per capita) (Table 2-16). The remaining 20% of the harvest weight comprised nonsalmon fish (8%; 2,433 lb; 24 lb per capita), vegetation (6%; 1,955 lb; 19 lb per capita), birds and eggs (3%; 1,077 lb; 10 lb per capita), and marine invertebrates (less than 1%; 4 lb total) (Figure 2-12; Table 2-16).

Use and Harvest Characteristics by Resource Category

Nondalton households were very involved in subsistence harvesting activities during the study year. All households used wild resources and 93% of households both attempted to harvest and successfully harvested wild resources (Table 2-16). Every household in Nondalton received wild resources from other households, and 86% of households gave away resources, demonstrating the importance of sharing activities within the local subsistence economy. Sharing and exchange has long been a part of life in this region:

> And, a hundred years ago, people from Bristol Bay would walk through Lake Clark or Merrill Pass to go trade with the Cook Inlet, Tyonek and those folks over there. And they would walk through on to this side, you know. (NNL02+03)

Contemporarily, households share with other Nondalton households, but also with other communities in the region and beyond:

> I send fish down to my family in Hawaii actually. And then we have family in Anchorage, and obviously people don't have time because of work, but how they contribute to the harvest and the sharing is they'll send us rock salt or jars or sugar, whatever it is we need. So it's like a return, you know, like, they'll give us what we need and in return they get fish. So it's a win-win for everybody. (NNL01)

For many resource categories, more households received resources than shared them during the study year. The exceptions were that the same percentage of households shared and received nonsalmon fish (48%) and small land mammals (3%), and more households shared bird eggs (48%) than received them (35%). Nondalton households most frequently received large land mammals (76% of households), and these resources were shared by the third highest percentage of households (52%). The second highest percentage of households both shared (69%) and received (72%) vegetation, and salmon were shared (62%) and received (72%) by almost the same proportion of households as vegetation. Few households (3%) shared or received small land mammals, and there was no exchange of marine invertebrates.

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

Table 2-16.–Estimated use and harvest of fish, game, and vegetation resources, Nondalton, 2021.

Resource	Percentage of households					Harvest weight (lb)			Harvest amount			95% confidence limit (±) harvest
	Use %	Attempt %	Harvest %	Receive %	Give %	Total	Mean per household	Per capita	Total	Unit	Mean per household	
All resources	**100.0**	**93.1**	**93.1**	**100.0**	**86.2**	**30,882.2**	**812.7**	**298.3**	**30,882.2**	**lb**	**812.7**	**16.7**
Salmon	**93.1**	**75.9**	**75.9**	**72.4**	**62.1**	**19,068.4**	**501.8**	**184.2**	**5,318.7**	**ind**	**140.0**	**18.1**
Chum salmon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Coho salmon	10.3	6.9	6.9	6.9	3.4	201.8	5.3	1.9	43.2	ind	1.1	70.9
Chinook salmon	27.6	6.9	6.9	20.7	10.3	301.7	7.9	2.9	44.6	ind	1.2	72.4
Pink salmon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Sockeye salmon	89.7	75.9	75.9	62.1	62.1	15,681.6	412.7	151.5	4,418.5	ind	116.3	18.6
Landlocked salmon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Spawning sockeye salmon	31.0	27.6	27.6	6.9	20.7	2,883.3	75.9	27.9	812.4	ind	21.4	37.6
Unspecified salmon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Nonsalmon fish	**79.3**	**62.1**	**55.2**	**48.3**	**48.3**	**2,432.7**	**64.0**	**23.5**	**2,432.7**	**lb**	**64.0**	**32.6**
Unspecified smelts	3.4	0.0	0.0	3.4	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Bullhead sculpin	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Stickleback (needlefish)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Alaska blackfish	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Burbot	10.3	6.9	6.9	3.4	6.9	11.8	0.3	0.1	11.8	ind	0.3	73.2
Arctic char	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Dolly Varden, unknown type	0.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Lake trout	34.5	27.6	27.6	6.9	24.1	523.6	13.8	5.1	193.9	ind	5.1	42.0
Arctic grayling	17.2	13.8	13.8	3.4	6.9	48.6	1.3	0.5	69.4	ind	1.8	67.7
Northern pike	24.1	24.1	24.1	3.4	17.2	377.9	9.9	3.7	135.0	ind	3.6	46.3
Longnose sucker	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Rainbow trout	37.9	31.0	27.6	13.8	20.7	115.6	3.0	1.1	165.1	ind	4.3	37.3

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Table 2-16.–Page 2 of 7.

Resource	Percentage of households					Harvest weight (lb)			Harvest amount			95% confidence limit (±) harvest
	Use %	Attempt %	Harvest %	Receive %	Give %	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Steelhead	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified trouts	3.4	3.4	3.4	0.0	3.4	4.6	0.1	0.0	6.6	ind	0.2	99.7
Broad whitefish	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Least cisco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Humpback whitefish	72.4	55.2	51.7	41.4	44.8	1,350.6	35.5	13.0	771.8	ind	20.3	36.3
Round whitefish	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Large land mammals	**86.2**	**51.7**	**31.0**	**75.9**	**51.7**	**5,458.9**	**143.7**	**52.7**	**15.7**	**ind**	**0.4**	**28.1**
Black bear	27.6	13.8	10.3	17.2	13.8	152.0	4.0	1.5	3.9	ind	0.1	69.2
Brown bear	3.4	3.4	0.0	3.4	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Caribou	20.7	0.0	0.0	20.7	3.4	0.0	0.0	0.0	0.0	ind	0.0	0.0
Mountain goat	3.4	0.0	0.0	3.4	3.4	0.0	0.0	0.0	0.0	ind	0.0	0.0
Moose	86.2	51.7	31.0	69.0	51.7	5,306.9	139.7	51.3	11.8	ind	0.3	28.1
Dall sheep	3.4	0.0	0.0	3.4	3.4	0.0	0.0	0.0	0.0	ind	0.0	0.0
Small land mammals	**10.3**	**10.3**	**10.3**	**3.4**	**3.4**	**886.4**	**23.3**	**8.6**	**321.0**	**ind**	**8.4**	**99.7**
Beaver	3.4	3.4	3.4	0.0	3.4	497.9	13.1	4.8	24.9	ind	0.7	99.7
Coyote	3.4	3.4	3.4	0.0	0.0	0.0	0.0	0.0	1.3	ind	0.0	0.0
Red fox	3.4	3.4	3.4	0.0	3.4	0.0	0.0	0.0	17.0	ind	0.4	0.0
Snowshoe hare	3.4	3.4	3.4	3.4	3.4	53.1	1.4	0.5	38.0	ind	1.0	99.7
River otter	3.4	3.4	3.4	0.0	0.0	0.0	0.0	0.0	1.3	ind	0.0	0.0
Lynx	10.3	10.3	10.3	0.0	3.4	21.0	0.6	0.2	14.4	ind	0.4	99.7
Marmots	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Martens	3.4	3.4	3.4	0.0	3.4	0.0	0.0	0.0	30.1	ind	0.8	99.7
Mink	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Muskrat	3.4	3.4	3.4	0.0	0.0	0.0	0.0	0.0	26.2	ind	0.7	99.7
Porcupine	3.4	3.4	3.4	0.0	3.4	262.1	6.9	2.5	32.8	ind	0.9	99.7

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Table 2-16.–Page 3 of 7.

Resource	Percentage of households					Harvest weight (lb)			Harvest amount			95% confidence limit (±) harvest
	Use %	Attempt %	Harvest %	Receive %	Give %	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Arctic ground squirrel	3.4	3.4	3.4	0.0	0.0	26.2	0.7	0.3	52.4	ind	1.4	99.7
Red squirrel	3.4	3.4	3.4	0.0	0.0	26.2	0.7	0.3	52.4	ind	1.4	99.7
Weasels	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Gray wolf	3.4	3.4	3.4	0.0	0.0	0.0	0.0	0.0	10.5	ind	0.3	99.7
Wolverine	10.3	10.3	10.3	0.0	0.0	0.0	0.0	0.0	19.7	ind	0.5	69.4
Marine mammals	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**ind**	**0.0**	**0.0**
Harbor seal, freshwater	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Harbor seal, saltwater	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Sea otter	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Steller sea lion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Beluga whale	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Birds and eggs	**72.4**	**62.1**	**62.1**	**34.5**	**48.3**	**1,076.5**	**28.3**	**10.4**	**765.2**	**ind**	**20.1**	**28.3**
Bufflehead	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Common eider	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
King eider	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Spectacled eider	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Steller's eider	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified goldeneyes	13.8	13.8	13.8	0.0	6.9	34.9	0.9	0.3	27.5	ind	0.7	61.5
Harlequin duck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Mallard	37.9	31.0	31.0	6.9	24.1	164.6	4.3	1.6	102.2	ind	2.7	33.7
Unspecified mergansers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Long-tailed duck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Northern pintail	6.9	6.9	6.9	0.0	3.4	27.8	0.7	0.3	23.6	ind	0.6	73.2
Unspecified scaups	3.4	3.4	3.4	0.0	3.4	21.2	0.6	0.2	15.7	ind	0.4	99.7
Black scoter	0.0	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 2-16.–Page 4 of 7.

Resource	Percentage of households					Harvest weight (lb)			Harvest amount			95% confidence limit (±) harvest
	Use %	Attempt %	Harvest %	Receive %	Give %	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Surf scoter	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
White-winged scoter	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Northern shoveler	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified teals	3.4	3.4	3.4	0.0	3.4	6.2	0.2	0.1	13.1	ind	0.3	99.7
American wigeon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified ducks	10.3	3.4	3.4	6.9	6.9	10.2	0.3	0.1	13.1	ind	0.3	99.7
Brant	3.4	0.0	0.0	3.4	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified Canada/ cackling geese	17.2	17.2	17.2	3.4	17.2	188.8	5.0	1.8	56.3	ind	1.5	52.4
Emperor goose	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Snow goose	3.4	3.4	3.4	0.0	3.4	91.7	2.4	0.9	32.8	ind	0.9	99.7
Greater white-fronted goose	24.1	20.7	20.7	10.3	17.2	162.5	4.3	1.6	51.1	ind	1.3	42.6
Unspecified geese	3.4	0.0	0.0	3.4	3.4	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified swans	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Sandhill crane	3.4	0.0	0.0	3.4	3.4	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified cormorants	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Mew gull	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Sabine's gull	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Large gull	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Black-legged kittiwake	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified murres	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified terns	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified grouses	65.5	58.6	58.6	20.7	44.8	335.1	8.8	3.2	368.2	ind	9.7	22.3
Unspecified ptarmigans	13.8	6.9	6.9	6.9	3.4	29.3	0.8	0.3	38.0	ind	1.0	86.5

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Table 2-16.–Page 5 of 7.

Resource	Percentage of households					Harvest weight (lb)			Harvest amount			95% confidence limit (±) harvest
	Use %	Attempt %	Harvest %	Receive %	Give %	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Mallard eggs	3.4	3.4	3.4	0.0	3.4	0.9	0.0	0.0	7.9	ind	0.2	99.7
Unspecified small shorebird eggs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified large shorebird eggs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Mew gull eggs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Large gull eggs	6.9	3.4	3.4	3.4	0.0	3.4	0.1	0.0	15.7	ind	0.4	99.7
Black-legged kittiwake eggs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified murre eggs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified tern eggs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Marine invertebrates	**3.4**	**3.4**	**3.4**	**0.0**	**0.0**	**3.9**	**0.1**	**0.0**	**3.9**	**lb**	**0.1**	**99.7**
Butter clam	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	gal	0.0	0.0
Pacific littleneck clam (steamers)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Razor clam	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Unspecified clams	3.4	3.4	3.4	0.0	0.0	3.9	0.1	0.0	1.3	gal	0.0	99.7
Unspecified cockles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Dungeness crab	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified king crabs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified mussels	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Vegetation	**96.6**	**93.1**	**93.1**	**72.4**	**69.0**	**1,955.2**	**51.5**	**18.9**	**1,955.2**	**lb**	**51.5**	**19.0**
Blueberry	89.7	86.2	86.2	48.3	51.7	906.8	23.9	8.8	226.7	gal	6.0	24.0
Lowbush cranberry	75.9	69.0	69.0	31.0	37.9	309.2	8.1	3.0	77.3	gal	2.0	17.9

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Table 2-16.–Page 6 of 7.

Resource	Percentage of households					Harvest weight (lb)			Harvest amount			95% confidence limit (±) harvest
	Use %	Attempt %	Harvest %	Receive %	Give %	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Highbush cranberry	20.7	20.7	20.7	6.9	13.8	62.9	1.7	0.6	15.7	gal	0.4	47.1
Crowberry	62.1	62.1	58.6	13.8	24.1	482.2	12.7	4.7	120.6	gal	3.2	30.2
Elderberry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Cloudberry	51.7	41.4	41.4	20.7	10.3	124.5	3.3	1.2	31.1	gal	0.8	30.2
Raspberry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Strawberry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Twisted stalk berry (watermelon berry)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Juniper berry	3.4	3.4	3.4	0.0	0.0	2.6	0.1	0.0	0.7	gal	0.0	99.7
Other wild berries	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Goose tongue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Wild rhubarb	6.9	6.9	6.9	3.4	3.4	5.2	0.1	0.1	5.2	gal	0.1	78.0
Wild potato	3.4	3.4	3.4	0.0	0.0	0.2	0.0	0.0	0.2	gal	0.0	99.7
Fiddlehead ferns	34.5	34.5	31.0	3.4	10.3	16.1	0.4	0.2	16.1	gal	0.4	34.0
Nettles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Hudson's Bay (Labrador) tea	10.3	10.3	10.3	0.0	3.4	11.1	0.3	0.1	11.1	gal	0.3	67.3
Sourdock	3.4	3.4	3.4	0.0	0.0	1.3	0.0	0.0	1.3	gal	0.0	99.7
Spruce tips	3.4	3.4	3.4	0.0	0.0	0.3	0.0	0.0	0.3	gal	0.0	99.7
Wild celery	13.8	13.8	13.8	0.0	3.4	14.4	0.4	0.1	14.4	gal	0.4	54.4
Wild parsley	3.4	3.4	3.4	0.0	0.0	1.3	0.0	0.0	1.3	gal	0.0	99.7
Yarrows	3.4	3.4	3.4	0.0	0.0	0.3	0.0	0.0	0.3	gal	0.0	99.7
Other wild greens	3.4	3.4	3.4	0.0	0.0	2.6	0.1	0.0	2.6	gal	0.1	99.7
Unspecified mushrooms	3.4	3.4	3.4	0.0	0.0	0.7	0.0	0.0	0.7	gal	0.0	99.7
Fireweed	10.3	10.3	10.3	0.0	3.4	6.6	0.2	0.1	6.6	gal	0.2	57.9

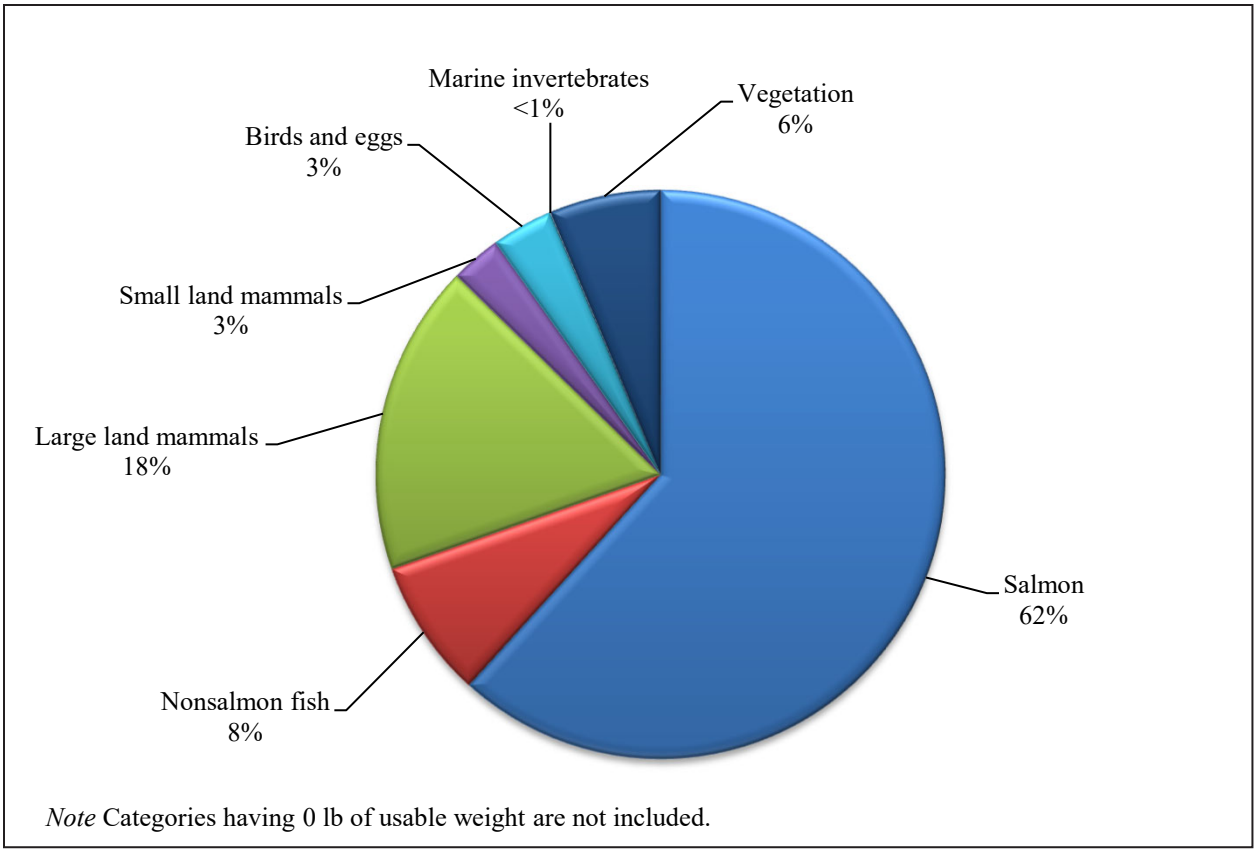
-continued-

Table 2-16.–Page 7 of 7.

Resource	Percentage of households					Harvest weight (lb)			Harvest amount			95% confidence limit (±) harvest
	Use %	Attempt %	Harvest %	Receive %	Give %	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Sea lovage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Beach greens	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Wild chive	24.1	20.7	20.7	6.9	13.8	6.9	0.2	0.1	6.9	gal	0.2	39.8
Seaweeds/kelps used for fertilizer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Unspecified seaweeds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Cottonwoods	3.4	3.4	3.4	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Firewood	79.3	69.0	69.0	24.1	20.7	0.0	0.0	0.0	187.4	cord	4.9	28.0
Other wood	6.9	6.9	6.9	0.0	3.4	0.0	0.0	0.0	1.4	cord	0.0	98.0

Source ADF&G Division of Subsistence household surveys, 2022.

Note Resources harvested for purposes other than food consumption show a non-zero harvest amount with a 0 (zero) harvest weight.



Note Categories having 0 lb of usable weight are not included.

Figure 2-12.–Composition of harvest in pounds usable weight, by resource category, Nondalton, 2021.

Table 2-17.–Top ranked resources used by households, Nondalton, 2021.

Rank[a]	Resource	Percentage of households using
1.	Sockeye salmon	89.7%
1.	Blueberry	89.7%
3.	Moose	86.2%
4.	Lowbush cranberry	75.9%
5.	Humpback whitefish	72.4%
6.	Unspecified grouses	65.5%
7.	Crowberry	62.1%
8.	Cloudberry	51.7%
9.	Rainbow trout	37.9%
9.	Mallard	37.9%

Source ADF&G Division of Subsistence household surveys, 2022.

a. Resources used by the same percentage of households share the highest rank value instead of having sequential rank values.

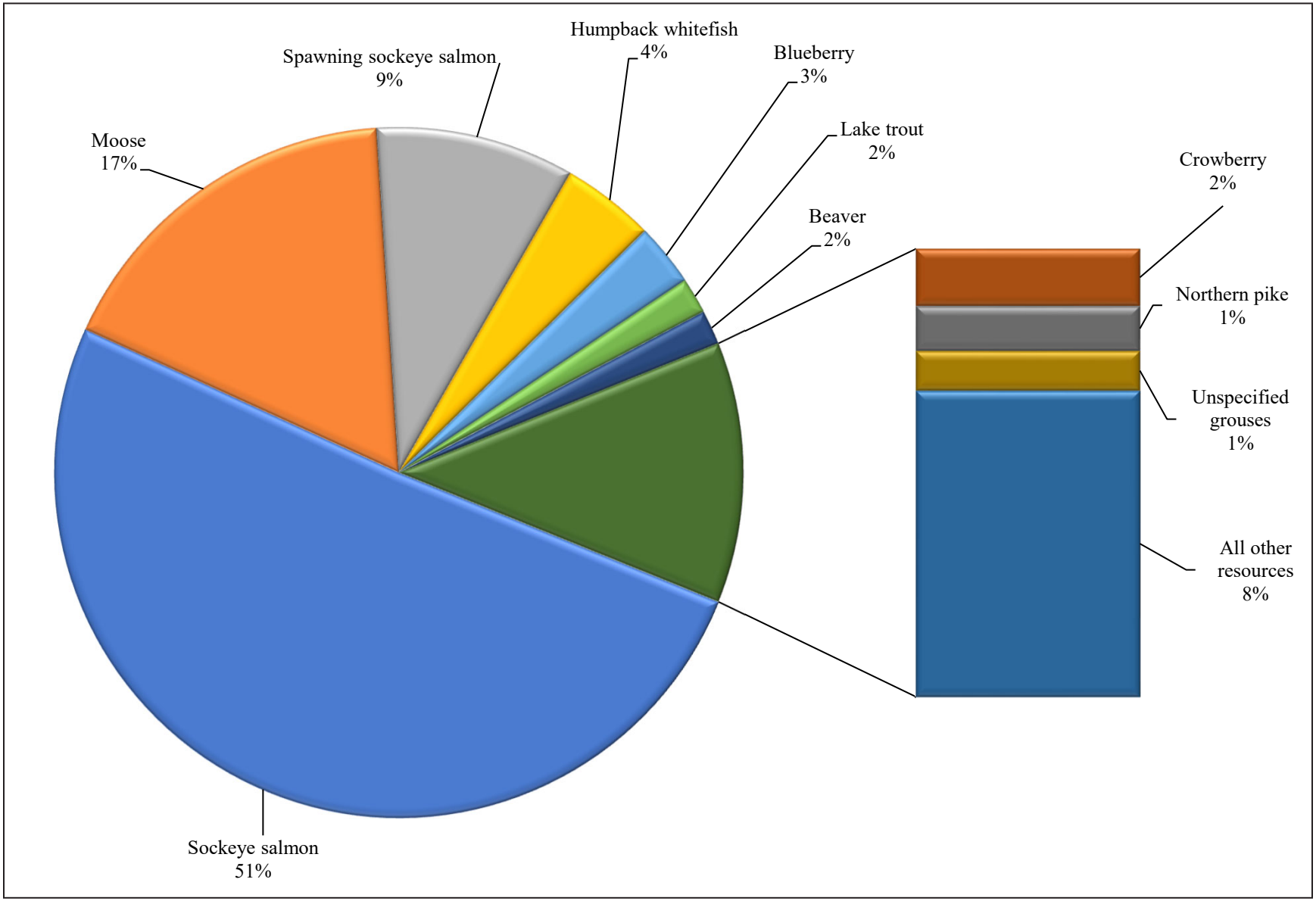


Figure 2-13.–Top resources harvested by percentage of total harvest, in pounds usable weight, Nondalton, 2021.

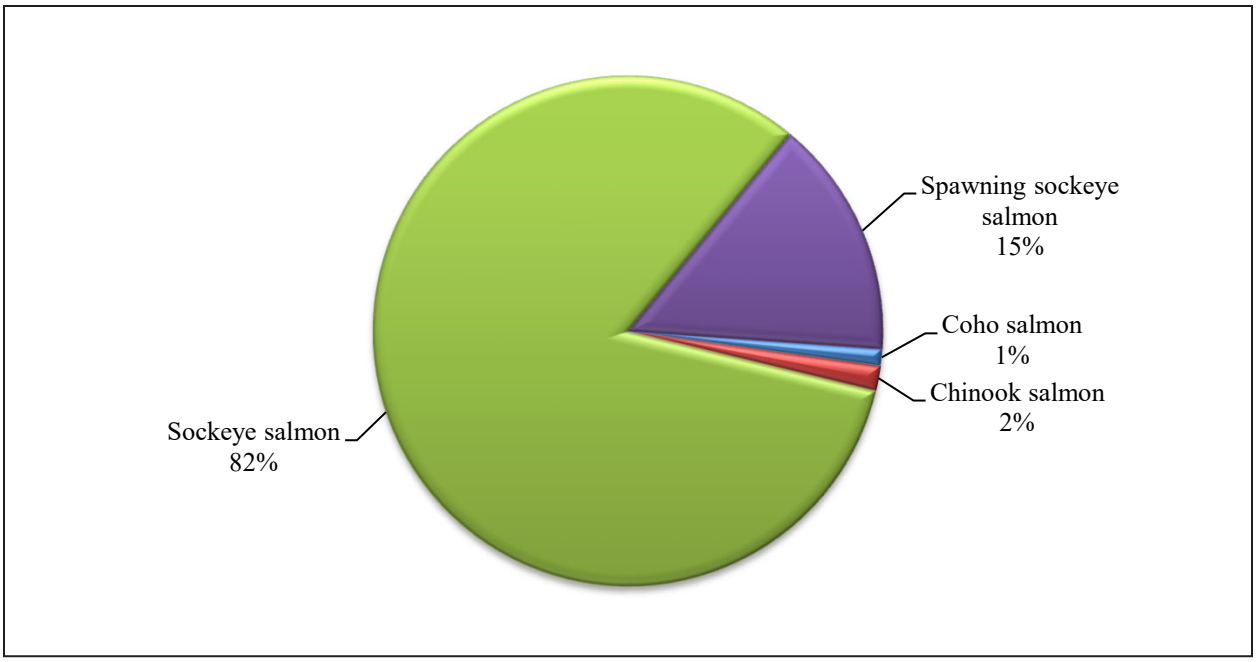


Figure 2-14.–Composition of salmon harvest in pounds usable weight, Nondalton, 2021.

Table 2-17 lists the top ranked resources used by households and Figure 2-13 shows the species with the highest harvests by percentage of total harvest weight in 2021. Sockeye salmon was tied with blueberries for being used by the most households, and sockeye salmon was also the top harvested species. Although used by a large percentage of the community's households, blueberries only contributed 3% to the overall harvest weight but this resource was still within the top 5 species harvested by weight. Several species of berry were among the most used species: blueberry (90% of households), lowbush cranberry (76%), crowberry (62%), and cloudberry (52%), which is locally referred to as salmonberry. Moose was the next most used and harvested resource. Given berries' relative weight compared to other resources such as moose or salmon, it is not surprising that some of the most used berries were not among the top harvested species, and perhaps more surprising is that blueberries and crowberries were. The remainder of the most used species were nonsalmon fish (humpback whitefish and rainbow trout) and birds (grouses and mallard). All the top used resources, except mallard, were among the most harvested species as well. Some of the most heavily harvested species were not as widely used—spawning sockeye salmon, beaver, and northern pike—perhaps reflecting changing dietary preferences within the community.

Salmon

Of all the resource categories, Nondalton households used and harvested salmon the most during the study year. Nondalton residents harvested an estimated 19,068 lb of salmon, or 184 lb per capita; the majority of this was sockeye salmon (82%; 15,682 lb; 152 lb per capita) and spawning sockeye salmon (15%; 2,883 lb; 28 lb per capita) (Table 2-16; Figure 2-14). Chinook and coho salmon composed the remaining 3%; no chum or pink salmon were used or harvested. Sockeye salmon are clearly the focus of subsistence salmon fishing in Nondalton, but some fishers will target other types of salmon:

> Well once in a while we'll get a king maybe, not very much. But we'll, we'll smoke that and eat that, too, if we catch one. But, and, like couple years ago, I never noticed, 'cause I didn't go across there last year too much, but I noticed we're getting silvers across here. (NNL04)

More households harvested (76%) and used (90%) sockeye salmon than any other salmon species (Table 2-16). Approximately one-third of households used and harvested spawning sockeye salmon (Plate 2-2). A

Plate 2-2.–Spawning sockeye salmon harvested from Lake Clark.

similar percentage of households used Chinook salmon (28%), but only 7% of households harvested them; the same percentage of households harvested coho salmon, which were used by the fewest households (10%). All households that fished for any salmon species were successful in harvesting them. In keeping with being the most harvested and used, sockeye salmon were also shared and received by the most households (62%). Spawning sockeye salmon and Chinook salmon have an inverse relationship for sharing: 10% of households shared Chinook salmon and 21% received, while 21% of households shared spawning sockeye salmon and only 7% received. Chinook salmon are large and can be shared with multiple households; additionally, they may be more difficult to obtain during times of low Chinook salmon populations, such as during the study year, and households that have Chinook salmon may share with more households when few in the community harvest for themselves. Spawning sockeye are harvested at Kijik and are dried for nudelvay;[2] more households sharing this resource than receiving it perhaps indicates families who harvest this resource prefer to harvest and prepare it themselves but may share their processed catch.

Nondalton fishers used seines, gillnets, and rod and reel to harvest salmon, and also retained salmon from their commercial harvests (Figure 2-15). The majority of salmon (5,180 fish; 18,413 lb) were harvested using a subsistence net, whether seine (2,614 fish; 9,307 lb) or a gillnet (2,566 fish; 9,106 lb) during the study year (Table 2-18). An additional 49 salmon (191 lb) were harvested with rod and reel and 90 salmon (465 lb) were removed from commercial catches, meaning just 2% of the total salmon harvest weight was retained from commercial fishing (Table 2-18; Table 2-19). Nondalton fishers used the most gear types to harvest sockeye salmon; other salmon species were harvested with just 1 or 2 gear types. Nearly all (98%) sockeye salmon and 100% of spawning sockeye salmon were harvested with a subsistence net; the use of seines accounted for 49% of the bright sockeye salmon harvest and 51% of the spawning sockeye harvest while gillnets were used to harvest 49% of both species (Table 2-19). Sockeye salmon composed the majority of the seine harvest (83%) and of the gillnet harvest (84%). The use of seines to harvest sockeye salmon is a relatively new practice for Nondalton residents. During an earlier study, seines were used to

2. See Fall et al. (2010:15, 81) for more description about processing spawned-out salmon.

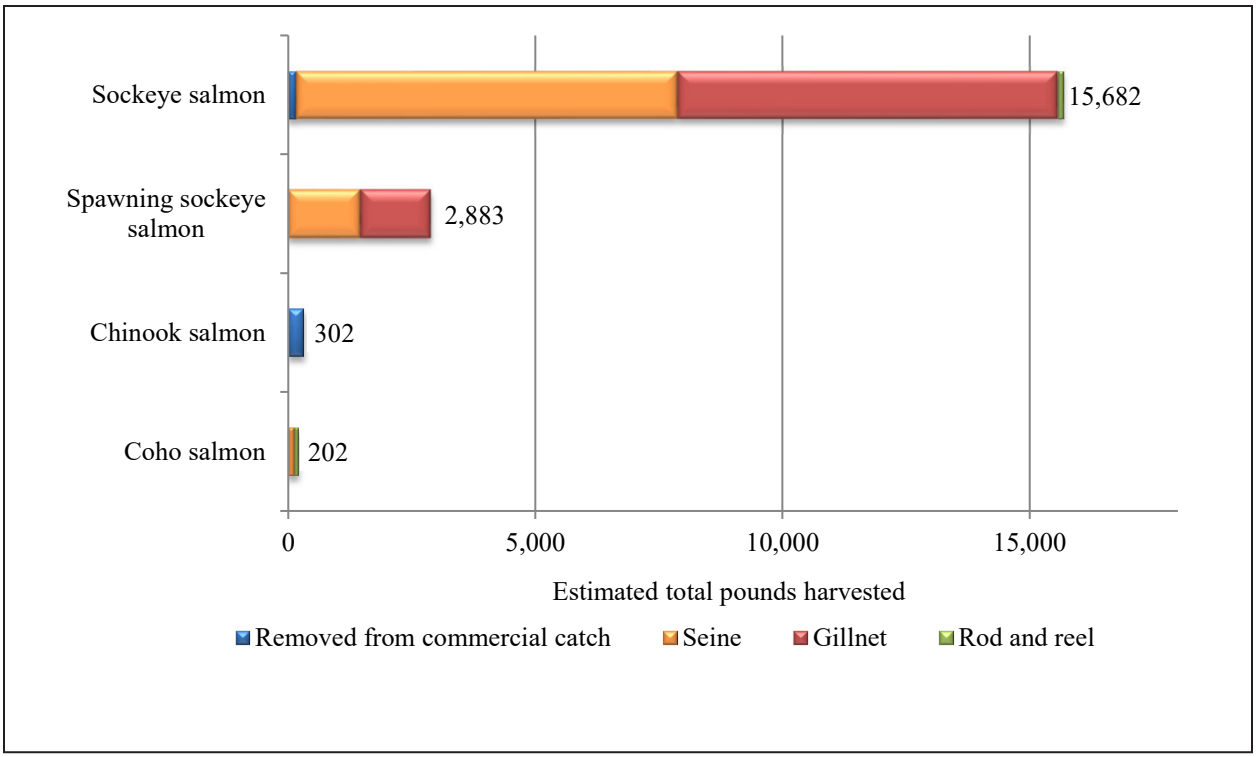


Figure 2-15.–Estimated harvest of salmon in pounds usable weight, by gear type and resource, Nondalton, 2021.

harvest only 22% of the sockeye salmon harvest (Fall et al. 2006:173). Under state regulations (5AAC 01.320(b)(6)), beach seines became legal gear in Sixmile Lake, Lake Clark, and Iliamna Lake in 2007 (Fall et al. 2010:62). The reason seines were not legal prior to 2007 was not clear to Nondalton respondents, since the resource benefits of seines were obvious:

> You know, I want to say it hasn't been that long, and I don't understand why that was frowned upon for so long, because seine you can literally count how much fish you want to take, and release the rest. Whereas a gillnet, you have to keep what you catch, and a gillnet, when they get tangled up it kind of bruises the meat a little bit. So, I haven't used a gillnet in six, seven years now, because seining is just so much easier. You can take exactly what you want, and release, which is what we as Athabascans like to live by, you just take what you need. (NNL01)

One survey respondent also noted that the tribal government had recently purchased a seine and a gillnet to lend to people who lacked a net.

Although few sockeye salmon were harvested with a rod and reel, the harvest composed 58% of the total rod and reel harvest; the remainder comprised coho salmon. The majority of coho salmon were caught with seine (61%) and the remaining 39% were caught with rod and reel. Chinook salmon were only harvested through removal from commercial catches, contributing 65% of the total harvest weight that was retained from commercial harvests. The remainder of the commercial retention was sockeye salmon.

Table 2-18.–Estimated harvest of salmon by gear type and resource, Nondalton, 2021.

	Removed from commercial catch		Subsistence methods									
			Seine		Gillnet		Subsistence gear, any method		Rod and reel		Any method	
Resource	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Salmon	**90.4**	**464.5**	**2,614.1**	**9,307.1**	**2,565.7**	**9,105.8**	**5,179.8**	**18,412.9**	**48.5**	**191.1**	**5,318.7**	**19,068.4**
Chum salmon	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	0.0	0.0	26.2	122.3	0.0	0.0	26.2	122.3	17.0	79.5	43.2	201.8
Chinook salmon	44.6	301.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44.6	301.7
Pink salmon	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	45.9	162.8	2,175.2	7,719.9	2,166.0	7,687.3	4,341.2	15,407.2	31.4	111.6	4,418.5	15,681.6
Landlocked salmon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spawning sockeye salmon	0.0	0.0	412.8	1,464.9	399.7	1,418.4	812.4	2,883.3	0.0	0.0	812.4	2,883.3
Unspecified salmon	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, 2022.

Note The harvested number of salmon is represented as individual fish harvested.

Table 2-19.–Estimated percentages of salmon harvested by gear type, resource, and total salmon harvest, Nondalton, 2021.

Resource	Percentage base	Removed from commercial catch		Subsistence methods									
				Seine		Gillnet		Subsistence gear, any method		Rod and reel		Any method	
		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%**
	Resource	**1.7%**	**2.4%**	**49.2%**	**48.8%**	**48.2%**	**47.8%**	**97.4%**	**96.6%**	**0.9%**	**1.0%**	**100.0%**	**100.0%**
	Total	**1.7%**	**2.4%**	**49.2%**	**48.8%**	**48.2%**	**47.8%**	**97.4%**	**96.6%**	**0.9%**	**1.0%**	**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%
	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%
Coho salmon	Gear type	0.0%	0.0%	1.0%	1.3%	0.0%	0.0%	0.5%	0.7%	35.1%	41.6%	0.8%	1.1%
	Resource	0.0%	0.0%	60.6%	60.6%	0.0%	0.0%	60.6%	60.6%	39.4%	39.4%	100.0%	100.0%
	Total	0.0%	0.0%	0.5%	0.6%	0.0%	0.0%	0.5%	0.6%	0.3%	0.4%	0.8%	1.1%
Chinook salmon	Gear type	49.3%	65.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	1.6%
	Resource	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.8%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	1.6%
Pink salmon	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	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%
Sockeye salmon	Gear type	50.7%	35.0%	83.2%	82.9%	84.4%	84.4%	83.8%	83.7%	64.9%	58.4%	83.1%	82.2%
	Resource	1.0%	1.0%	49.2%	49.2%	49.0%	49.0%	98.3%	98.3%	0.7%	0.7%	100.0%	100.0%
	Total	0.9%	0.9%	40.9%	40.5%	40.7%	40.3%	81.6%	80.8%	0.6%	0.6%	83.1%	82.2%
Landlocked 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%
	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%
Spawning sockeye salmon	Gear type	0.0%	0.0%	15.8%	15.7%	15.6%	15.6%	15.7%	15.7%	0.0%	0.0%	15.3%	15.1%
	Resource	0.0%	0.0%	50.8%	50.8%	49.2%	49.2%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	7.8%	7.7%	7.5%	7.4%	15.3%	15.1%	0.0%	0.0%	15.3%	15.1%
Unspecified 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%
	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, 2022.

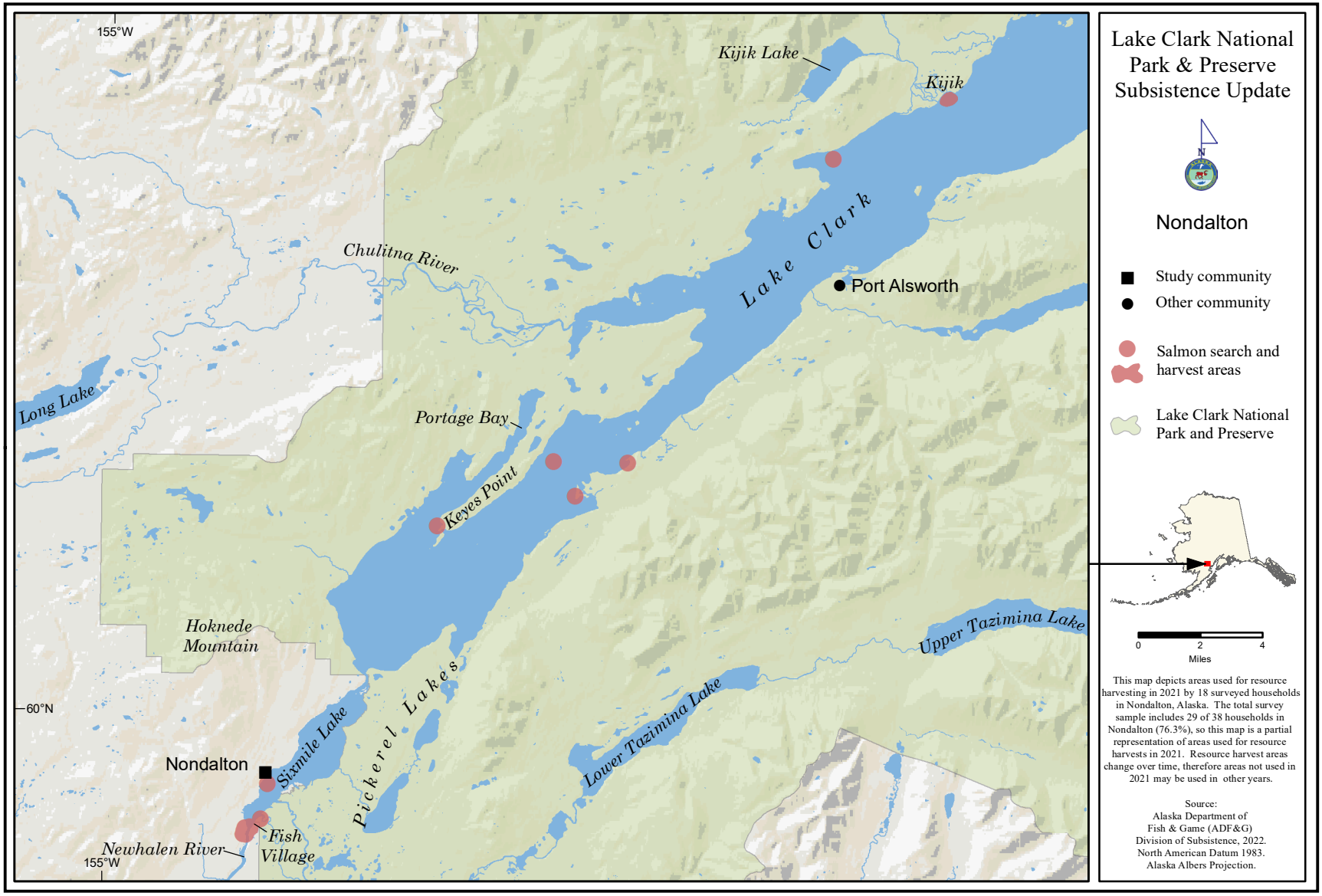


Figure 2-16.–Fishing and harvest locations of salmon, Nondalton, 2021.

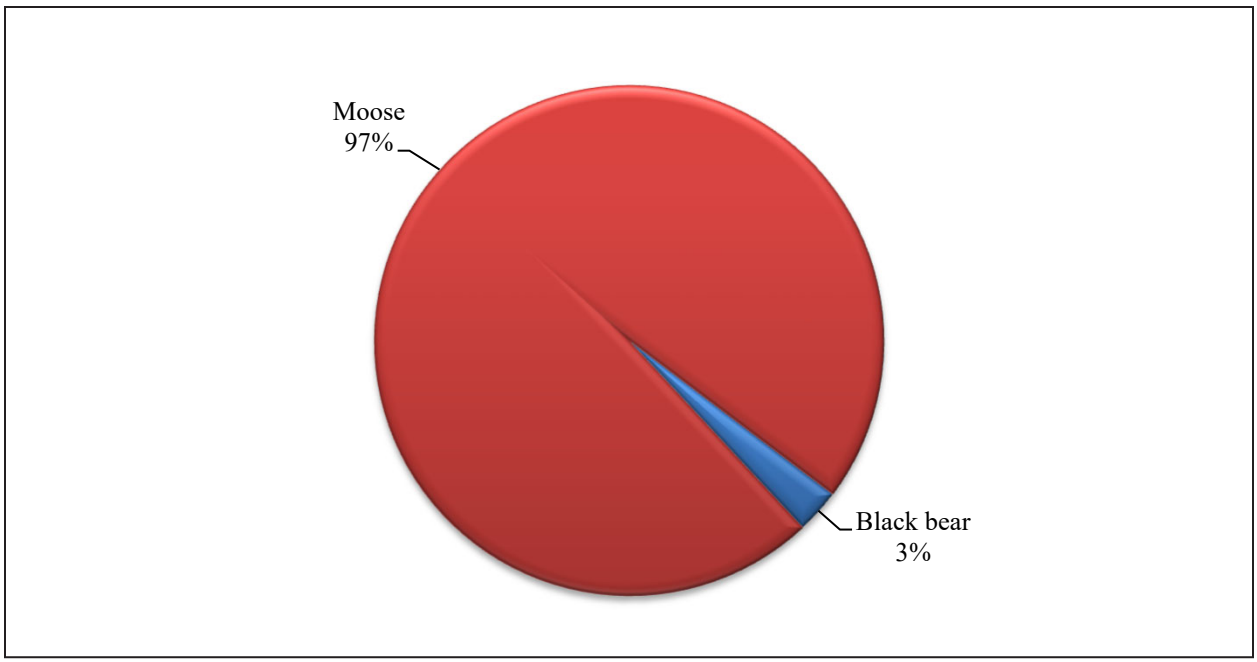


Figure 2-17.–Composition of large land mammal harvest in pounds usable weight, Nondalton, 2021.

In 2021, the majority of salmon search and harvest areas occurred within LACL (Figure 2-16). The most concentrated salmon search and harvest areas were at the community's fish camp, south of Nondalton where Sixmile Lake drains into Newhalen River. Fishers harvested salmon near the historical village of Kijik at the mouth of the Kijik River where it enters the northern side of Lake Clark; this is a traditional location for harvesting spawning sockeye salmon.[3] Other salmon search and harvest areas included just south of the community, off Keyes Point in Lake Clark, and along the southern bank of Lake Clark across from Portage Bay.

Large Land Mammals

While salmon dominated the overall Nondalton community harvest, large land mammals accounted for approximately 18% of the total harvest weight in 2021 and this harvest is an important component in the seasonal round (Figure 2-12). A majority (86%) of Nondalton residents used large land mammals during the study year, predominantly moose, which was the most received resource of all (by 69% of households) (Table 2-16). The entire large land mammals harvest for food comprised 2 species: moose, with 97% of the harvest weight, and black bear accounted for the remaining 3% (Figure 2-17). In general, the large land mammal resource category showed the largest disparity between hunting households and harvesting households, and within this category the disparity for moose hunting was most pronounced. Nearly 52% of households hunted moose and 31% of households harvested moose. In part this disparity is a reflection of moose hunting practices, in which members of multiple households go moose hunting together but only 1 household may record the harvest of a moose.

In comparison to moose, relatively few households used or harvested black bear: 28% of households used black bear, 14% hunted them, and 10% harvested them. Black bear were hunted during the spring and fall hunts, with 3 bears harvested in September and 1 in April (Table 2-20). The timing of harvest affects the flavor of the harvested meat. One black bear hunter commented:

3. Data collected in the field documented harvesting areas within Kijik Lake; however, during the data review with the Lake Clark National Park and Preserve Subsistence Resource Commission, residents identified the areas as misplaced. Fishing occurs at the old village site at the mouth of Kijik River since Kijik Lake may be accessed only by using airplanes.

> And it's this time of the year when the berries are good, because their meat, it tastes just like what they're eating. So you get a black bear that's been eating blueberries and blackberries for three, four weeks, that is gonna be some nice sweet meat. (NNL01)

Another respondent shared:

> And then you'd want to eat a black bear before he starts eating the green, 'cause their taste is strong. The only time they are good is in the, uh, right after they get out of their den and before they start eating too much green, in the springtime. And then when they're good again is late in the fall again, they get good again late in the fall, like, uh, September month. (NNL04)

Black bear was shared by 14% of households and received by 17%.

A small percentage of households hunted unsuccessfully for brown bear during the study year, as well as received brown bear from another source. While no Nondalton hunters hunted caribou, mountain goat, or Dall sheep, all 3 species were received by households. Of these 3 species, the most households used caribou (21%) and 3% of households each used the other 2. The same number of households that used each of these resources also received them, and all were further shared by 3% of households.

Large land mammal search and harvest efforts mainly occurred on the preserve lands of LACL and the surrounding area to the west (Figure 2-18). Moose search and harvest areas occurred predominantly along the Chulitna River, both at its drainage point north of Portage Bay as well as farther upriver between Long Lake and Nikabuna Lakes. Nondalton community members hunt along the Chulitna River by ATV, or by boat, following the river corridor. One moose hunter spoke about the joy he experienced hunting in this area:

> … it's probably my favorite place in the whole world. It really is. I can't remember the Dena'ina word for it, but an elder told me it translates to "threshold," where you're crossing something, and I definitely feel something like that when I'm up there. … Yeah, I love that place so much I don't even care if I harvest a moose. I want to, but it's so nice up there, just being up there is more than enough for me. (NNL01)

Moose search and harvest effort also occurred at Upper Talarik Creek and surrounding the community of Nikolai. During the data review, community residents noted that they also used the Chulitna River flats area and hunted along the southeastern shore of Lake Clark. Bear search and harvest areas in 2021 occurred northwest of the community of Nondalton, south of Long Lake, as well as in an area southwest of the community of Port Alsworth along the southern shore of Lake Clark.

Table 2-20.–Estimated large land mammal harvests by month and sex, Nondalton, 2021.

Resource	Estimated harvest by month													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Unk	**Total**
All large land mammals	**0.0**	**0.0**	**0.0**	**1.3**	**0.0**	**0.0**	**0.0**	**0.0**	**13.1**	**0.0**	**0.0**	**1.3**	**0.0**	**15.7**
Black bear	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	**3.9**
Brown bear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Caribou	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Mountain goat	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Moose	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	0.0	0.0	1.3	0.0	**11.8**
Moose, male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	0.0	0.0	1.3	0.0	**11.8**
Moose, female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Moose, unknown sex	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Dall sheep	0.0	0.0	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, 2022.

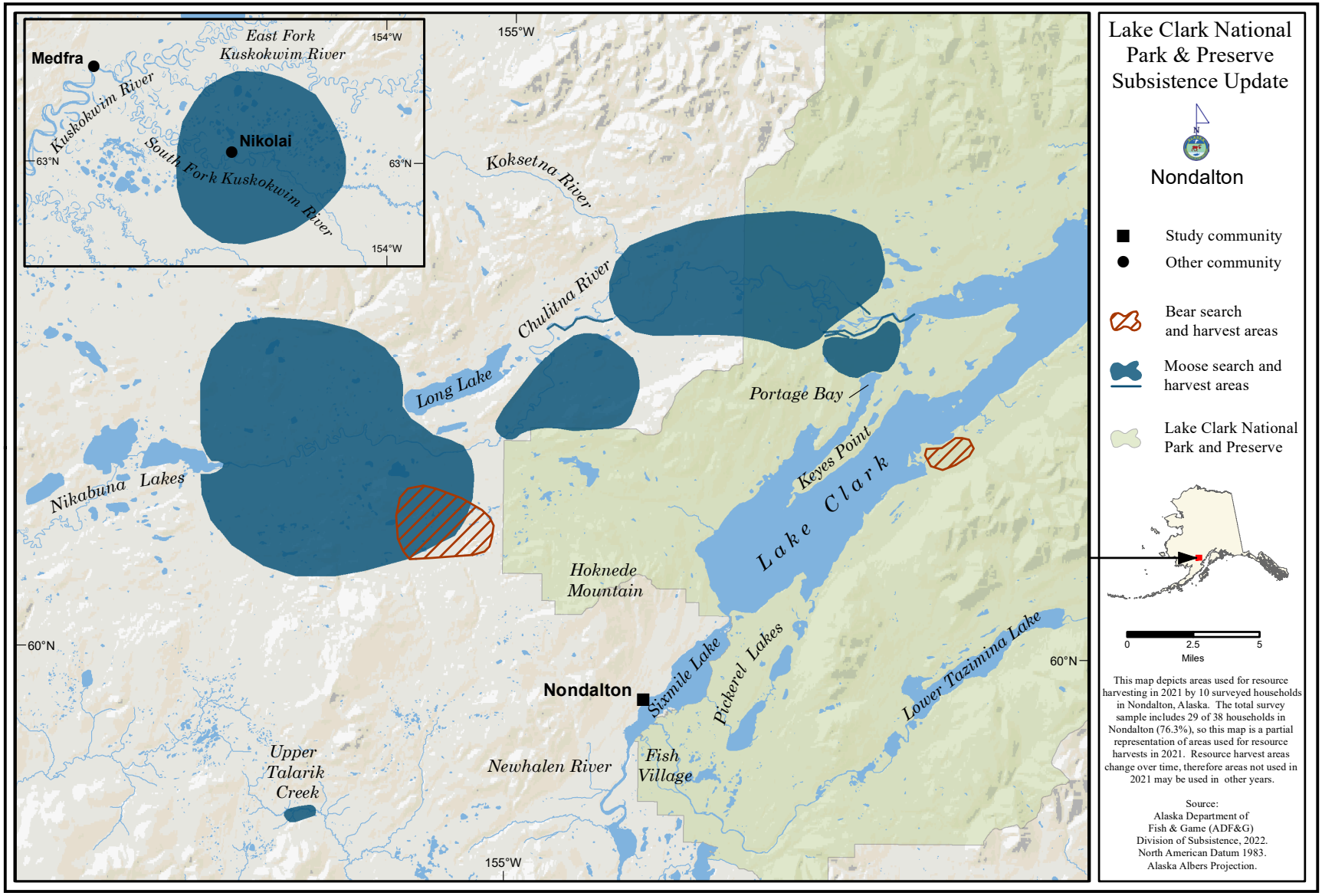
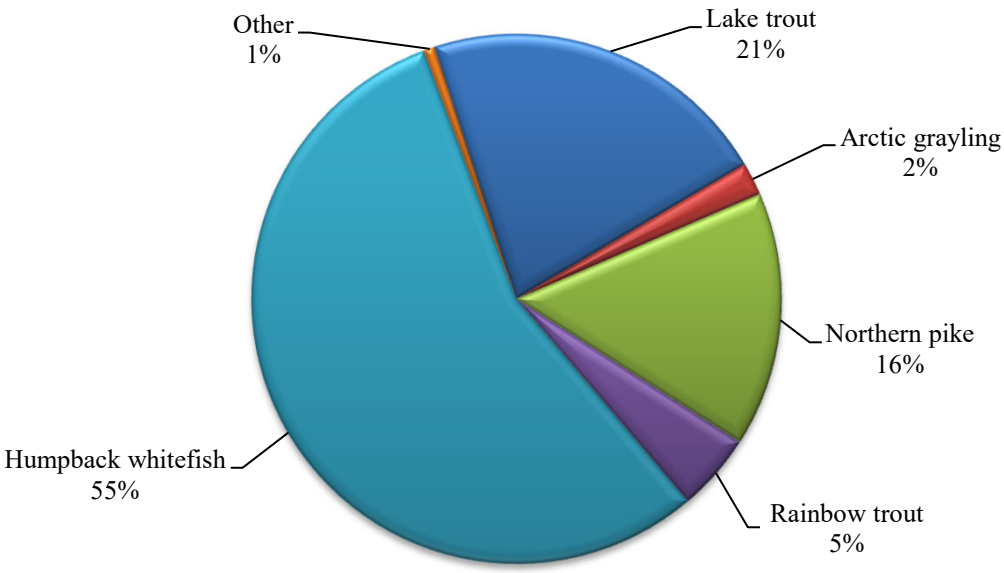


Figure 2-18.–Hunting and harvest locations of moose and bear, Nondalton, 2021.



Note "Other" represents all species that each contributed less than 1% to the total category harvest weight.

Figure 2-19.–Composition of nonsalmon fish harvest in pounds usable weight, Nondalton, 2021.

Nonsalmon Fish

Nondalton fishers harvested several types of freshwater nonsalmon fish, equaling a harvest weight of 2,433 lb, or 24 lb per capita (Table 2-16). The largest proportion of the harvest by weight composed humpback whitefish (55%), followed by lake trout (21%) and northern pike (16%) (Figure 2-19). Fishers harvested several other species that each composed 5% or less of the nonsalmon fish harvest.

Nearly 80% of households used nonsalmon fish in 2021 and 62% fished for them (Table 2-16). Not all fishers were successful: only 55% of households harvested these fish. Humpback whitefish was the most used (72%) and targeted (55%) nonsalmon fish in 2021, with a total harvest of approximately 1,351 lb, or 13 lb per capita. A small proportion of households were unsuccessful in their fishing efforts for whitefish. Humpback whitefish was also the most widely shared nonsalmon fish resource in 2021: 45% of households gave away humpback whitefish and it was received by 41% of Nondalton households. While salmon is the mainstay of Nondalton households, whitefish is also appreciated:

> Oh yeah. We'll get whitefish, too, 'cause it's, uh, we're still eating whitefish year-round. So, if we want different-flavored fish, 'cause sometimes that whitefish tastes pretty good, you know, pan fried. (NNL04)

Following whitefish, more households used rainbow trout (38%) and lake trout (35%) than any other nonsalmon resource. More than one-quarter of households harvested trout (28% of households harvested lake trout and harvested rainbow trout), but more households fished for rainbow trout (31%). All households who fished for lake trout were successful. The overall harvest of lake trout was 524 lb (5 lb per capita), which was greater than the 116 lb (1 lb per capita) of rainbow trout harvested. More households gave away lake trout (24%) than rainbow trout (21%), but more households received rainbow (14%) than lake trout (7%). Nearly one-quarter of households used, fished for, and harvested northern pike. While 17% of households gave this resource away, only 3% of households received it. Nondalton households harvested approximately 378 lb of northern pike, or 4 lb per capita. The remaining harvested nonsalmon fish resources each contributed less than 1 lb per capita: Arctic grayling (49 lb), burbot (12 lb), and unspecified trout (5 lb). Approximately 3% of households used smelt that was received from another household.

Nondalton households harvested nonsalmon fish with a variety of gear types: approximately 1,696 lb of nonsalmon fish (70%) were harvested with subsistence gear and 737 lb (30%) were caught using rod and reel (Figure 2-20; tables 2-21 and 2-22). No households retained any nonsalmon fish from a commercial harvest. Households were more likely to harvest nonsalmon fish with a gillnet (917 lb) than with a hook under the ice (700 lb) or a net under the ice or a spear. One interview respondent noted that it used to be more common for households to fish under the ice:

> Well, like, so we don't see very many people, like, fishing through the ice with just a hook and line. You know, very few, compared to what used to be. That'd be, you know, there'd be big groups out here, especially over by Pickerel Creek over there, you know, in the springtime. (NNL02+03)

Households used different gear types depending on the species being harvested, and employed more gear types to harvest whitefish, lake trout, and northern pike than other types of nonsalmon fish (Table 2-22). Humpback whitefish was primarily caught using subsistence methods; 51% of the humpback whitefish harvest weight came from a gillnet harvest and 29% from using a hook under the ice. An additional 19% of the humpback whitefish harvest was caught using rod and reel and the remaining 1% was harvested using a net under ice. Similar proportions of lake trout were caught using a gillnet (34%), rod and reel (36%), and a hook under the ice (24%), while northern pike were primarily caught using a hook under the ice (46%) or rod and reel (39%).

Humpback whitefish dominated the gillnet harvest of nonsalmon fish (75%), but harvests by other gear types comprised a variety of resources. Households set nets under the ice to harvest trout (lake trout composed 36% of the harvest by nets under ice and rainbow trout composed 28%) along with whitefish (28%) and burbot (8%). Similarly, the harvest of nonsalmon fish using hooks under the ice was largely humpback whitefish (57%) followed by northern pike (25%) and lake trout (18%). Households used rod and reel to harvest the greatest variety of fish. The rod and reel harvest comprised humpback whitefish (34%), lake trout (25%), northern pike (20%), rainbow trout (13%), and small amounts of Arctic grayling and unspecified trouts.

Nondalton residents' search and harvest areas for nonsalmon fish predominantly occurred within LACL (Figure 2-21). Nonsalmon fish were harvested on Sixmile Lake, proximal to the community of Nondalton, toward the eastern shore of the lake, and at the community fish camp where Sixmile Lake drains into the Newhalen River. Other search and harvest areas for nonsalmon fish were along the Chulitna River, in lower Pickerel Lakes, and at a few places along the shore of Lake Clark in the vicinity of Keyes Point. During the community data review, residents noted that fishers use a greater extent of the Chulitna River, traveling all the way to Long Lake in search of nonsalmon fish. All search and harvest areas occurred relatively close to the community and remained within the Lake Clark watershed.

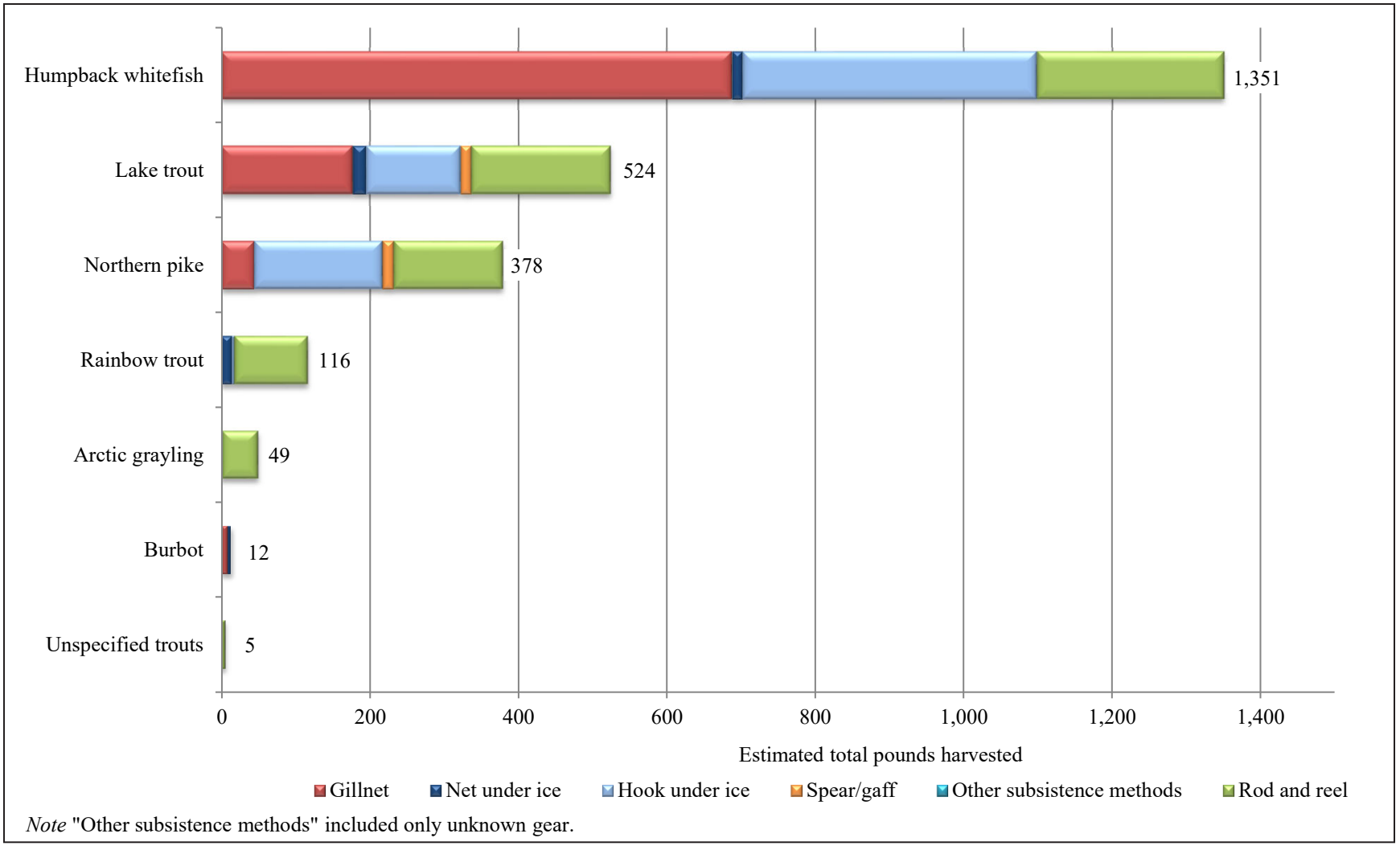


Figure 2-20.–Estimated harvest of nonsalmon fish in pounds usable weight, by gear type and resource, Nondalton, 2021.

Table 2-21.–Estimated harvest of nonsalmon fish by gear type and resource, Nondalton, 2021.

		Subsistence methods															
		Gillnet		Net under ice		Hook under ice		Spear/gaff		Other subsistence methods[b]		Subsistence gear, any method		Rod and reel		Any method	
Resource	Unit[a]	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Nonsalmon fish			**916.7**		**49.1**		**700.2**		**28.8**		**0.9**		**1,695.8**		**736.9**		**2,432.7**
Unspecified smelts	gal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bullhead sculpin	ind	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stickleback (needlefish)	gal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alaska blackfish	ind	0.0	0.0	0.0	0.0	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	ind	7.9	7.9	3.9	3.9	0.0	0.0	0.0	0.0	0.0	0.0	11.8	11.8	0.0	0.0	11.8	11.8
Arctic char	ind	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dolly Varden, unknown type	ind	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lake trout	ind	65.5	176.9	6.6	17.7	47.2	127.4	5.2	14.2	0.0	0.0	124.5	336.1	69.4	187.5	193.9	523.6
Arctic grayling	ind	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.9	1.3	0.9	68.1	47.7	69.4	48.6
Northern pike	ind	15.7	44.0	0.0	0.0	61.6	172.4	5.2	14.7	0.0	0.0	82.6	231.1	52.4	146.8	135.0	377.9
Longnose sucker	ind	0.0	0.0	0.0	0.0	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	ind	0.0	0.0	19.7	13.8	5.2	3.7	0.0	0.0	0.0	0.0	24.9	17.4	140.2	98.1	165.1	115.6
Steelhead	ind	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unspecified trouts	ind	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.6	4.6	6.6	4.6
Broad whitefish	ind	0.0	0.0	0.0	0.0	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	ind	0.0	0.0	0.0	0.0	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	ind	393.1	687.9	7.9	13.8	226.7	396.7	0.0	0.0	0.0	0.0	627.7	1,098.4	144.1	252.2	771.8	1,350.6
Round whitefish	ind	0.0	0.0	0.0	0.0	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, 2022.

Note The summary row that may include incompatible units of measure has been left blank.

a. The harvested number of each resource is measured by the unit in which the resource harvest information was collected; the unit of measurement is provided for each resource.

b. Other subsistence methods include only unknown methods.

Table 2-22.–Estimated percentages of nonsalmon fish harvested in pounds usable weight by gear type, resource, and total nonsalmon fish harvest, Nondalton, 2021.

Resource	Percentage base	Subsistence methods							
		Gillnet	Net under ice	Hook under ice	Spear/gaff	Other subsistence methods[a]	Subsistence gear, any method	Rod and reel	Any method
Nonsalmon fish	**Gear type**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
	Resource	**37.7%**	**2.0%**	**28.8%**	**1.2%**	**0.0%**	**69.7%**	**30.3%**	**100.0%**
	Total	**37.7%**	**2.0%**	**28.8%**	**1.2%**	**0.0%**	**69.7%**	**30.3%**	**100.0%**
Unspecified smelts	Gear type	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%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bullhead sculpin	Gear type	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%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Stickleback (needlefish)	Gear type	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%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Alaska blackfish	Gear type	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%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Burbot	Gear type	0.9%	8.0%	0.0%	0.0%	0.0%	0.7%	0.0%	0.5%
	Resource	66.7%	33.3%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
	Total	0.3%	0.2%	0.0%	0.0%	0.0%	0.5%	0.0%	0.5%
Arctic char	Gear type	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%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Dolly Varden, unknown type	Gear type	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%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

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Table 2-22.–Page 2 of 3.

Resource	Percentage base	Subsistence methods							
		Gillnet	Net under ice	Hook under ice	Spear/gaff	Other subsistence methods[a]	Subsistence gear, any method	Rod and reel	Any method
Lake trout	Gear type	19.3%	36.0%	18.2%	49.1%	0.0%	19.8%	25.4%	21.5%
	Resource	33.8%	3.4%	24.3%	2.7%	0.0%	64.2%	35.8%	100.0%
	Total	7.3%	0.7%	5.2%	0.6%	0.0%	13.8%	7.7%	21.5%
Arctic grayling	Gear type	0.0%	0.0%	0.0%	0.0%	100.0%	0.1%	6.5%	2.0%
	Resource	0.0%	0.0%	0.0%	0.0%	1.9%	1.9%	98.1%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.0%	2.0%
Northern pike	Gear type	4.8%	0.0%	24.6%	50.9%	0.0%	13.6%	19.9%	15.5%
	Resource	11.7%	0.0%	45.6%	3.9%	0.0%	61.2%	38.8%	100.0%
	Total	1.8%	0.0%	7.1%	0.6%	0.0%	9.5%	6.0%	15.5%
Longnose sucker	Gear type	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%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Rainbow trout	Gear type	0.0%	28.0%	0.5%	0.0%	0.0%	1.0%	13.3%	4.8%
	Resource	0.0%	11.9%	3.2%	0.0%	0.0%	15.1%	84.9%	100.0%
	Total	0.0%	0.6%	0.2%	0.0%	0.0%	0.7%	4.0%	4.8%
Steelhead	Gear type	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%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Unspecified trouts	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.2%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.2%
Broad whitefish	Gear type	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%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

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Table 2-22.–Page 3 of 3.

Resource	Percentage base	Subsistence methods							
		Gillnet	Net under ice	Hook under ice	Spear/gaff	Other subsistence methods[a]	Subsistence gear, any method	Rod and reel	Any method
Least cisco	Gear type	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%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Humpback whitefish	Gear type	75.0%	28.0%	56.7%	0.0%	0.0%	64.8%	34.2%	55.5%
	Resource	50.9%	1.0%	29.4%	0.0%	0.0%	81.3%	18.7%	100.0%
	Total	28.3%	0.6%	16.3%	0.0%	0.0%	45.2%	10.4%	55.5%
Round whitefish	Gear type	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%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Source ADF&G Division of Subsistence household surveys, 2022.

a. Other subsistence methods include only unknown methods.

Figure 2-21.–Fishing and harvest locations of nonsalmon fish, Nondalton, 2021.

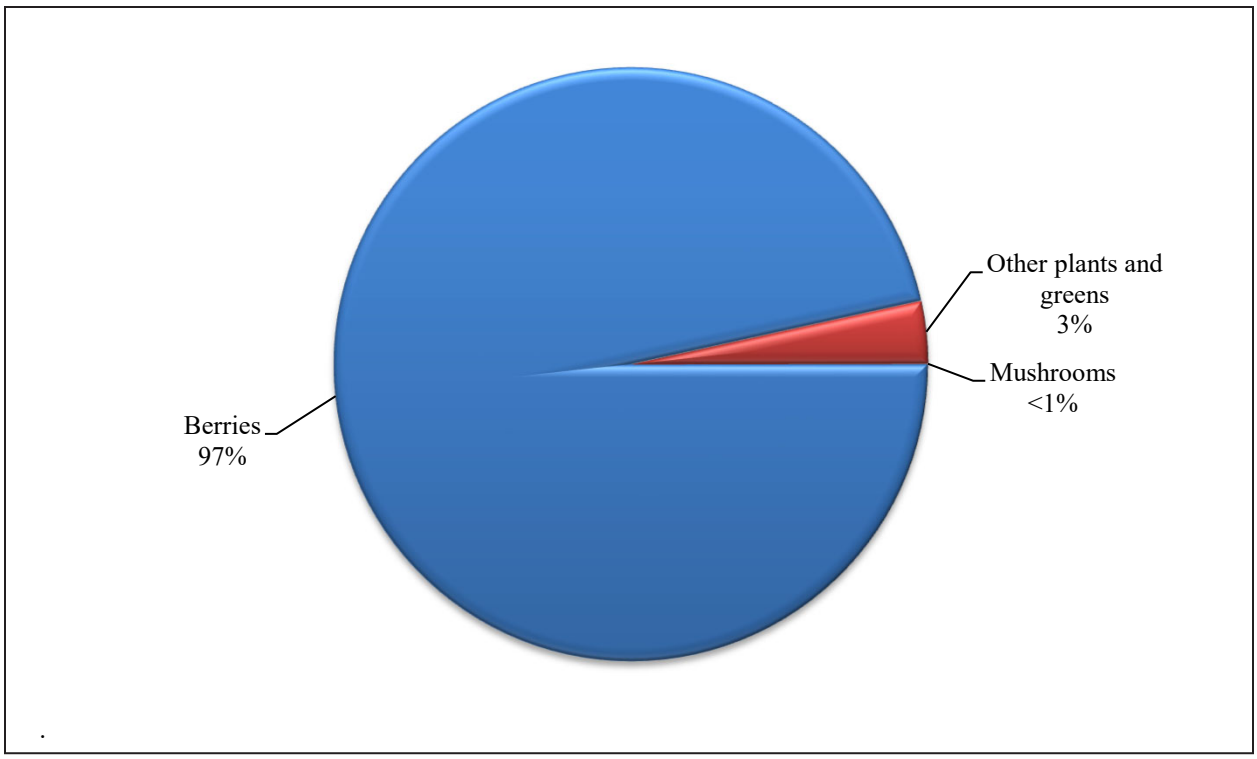


Figure 2-22.–Composition of vegetation harvest by type in pounds usable weight, Nondalton, 2021.

Table 2-23.–Changes to firewood harvest areas, Nondalton, 2021.

Households reporting firewood use	Households reporting changes to firewood harvest area							
	Yes		No		Unknown		Missing	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
22	8	36.4%	12	54.5%	1	4.5%	1	4.5%

Source ADF&G Division of Subsistence household surveys, 2022.

Vegetation

More Nondalton households used, harvested, shared, and received vegetation than any other resource category (Table 2-16). Approximately 97% of households used at least one type of vegetation in 2021 and 93% both attempted to harvest these resources and successfully harvested vegetation. Overall, Nondalton residents harvested an estimated total of 1,955 lb of plants, berries, greens, and mushrooms, or approximately 19 lb per capita. The majority of the harvest weight came from berries (97%), with smaller amounts of plants and greens (3%) and mushrooms (less than 1%) also contributing to the harvest weight (Figure 2-22). Nondalton households used more than 20 different types of plants, greens, berries, and mushrooms during the study year.

Blueberries dominated the berry harvest with households harvesting 907 lb during the study year, or 9 lb per capita (Plate 2-3; Table 2-16). Crowberry harvest distantly followed, with 482 lb (5 lb per capita) harvested. Other berries harvested included lowbush and highbush cranberries, cloudberries, and juniper berries. Juniper berries were the least harvested and used, by just 3% of Nondalton households, and none were shared. Highbush cranberries were also not widely used, with 21% of households harvesting and using, and less than 15% sharing or receiving. Among the other berries, more than one-half of Nondalton households

Table 2-24.–Natural materials used by sampled households for making handicrafts, Nondalton, 2021.

Material	Households reporting use	
	Number	Percentage
Bark	3	10.3%
Willows	2	6.9%
Horns	0	0.0%
Antlers	1	3.4%
Grass	1	3.4%
Bone	2	6.9%
Other raw material	2	6.9%
Qiviut	0	0.0%

Source ADF&G Division of Subsistence household surveys, 2022.

Note The percentage of households using materials is calculated out of sampled households.

used each of these species. The most households harvested blueberries (86% of households), followed by lowbush cranberries (69%), crowberries (59%), and cloudberries (41%). In general, households were successful in their pursuit of these berries, except for a few houses that were unable to harvest crowberries. Nondalton residents shared blueberries more than any other berry: 52% of households gave blueberries away and 48% received them. Lowbush cranberries were shared by 38% of households and received by 31%. Other berry species were shared, but by 25% of households or less.

Other plants and greens were harvested, used, and shared less frequently than berries. By harvest weight, fiddlehead ferns were the most harvested type of plants and greens in 2021, followed by wild celery. Households harvested 16 lb of fiddlehead ferns and 14 lb of wild celery during the study year, each amounting to less than 1 lb per capita. An estimated 35% of households used fiddlehead ferns and 31% of households harvested this resource. For wild celery, 14% of households both used and harvested. Besides 11 lb of Hudson's Bay tea (Labrador tea), no other plant or green was harvested in an amount greater than 7 lb total, nor were they harvested or used by more than one-quarter of the community households.

This study also collected information on the use of firewood, but the harvest amount is not converted into estimated usable harvest weight. An estimated 79% of households harvested firewood in 2021 and 69% of households used this resource. When asked what percentage of their home's heating is sourced from firewood, most households used firewood in conjunction with some other heating source (Table 2-15). One respondent emphasized the need for firewood because of the community's remote location:

> Yes, and a big part of that is because our runway, that's how we get these little bi-planes, and as you know in Alaska, the weather doesn't always cooperate, and with that, sometimes our plane breaks down and there will be times where we're out of heating oil for months. But everyone has a wood stove, so we definitely wood harvest a lot. (NNL01)

Approximately 21% of Nondalton households did not use firewood to heat their homes at all in 2021 and 10% of households used firewood exclusively. The survey asked households that used firewood whether their harvest areas had changed in the past 5 years and just more than one-half (55%) of the 22 respondents said no (Table 2-23). A smaller portion (36%) of households that used firewood to heat their homes in 2021 said that their search and harvest areas had changed. Several respondents stated that more people were gathering firewood and the competition for the resource had forced them to go farther away from the community or their original search and harvest areas. Another respondent stated that Sixmile Lake had not frozen over in recent winters, indicating that it was impossible to cross to get firewood on the other side of the lake from the community.

Several Nondalton households reported using specific natural materials for handicrafts, and the majority of natural materials used was vegetation (Table 2-24). The most common material households used for handicrafts in 2021 was bark (used by 10% of households). Households used willow and bone as well (7% of households used each), and a few households (3%) each reported using grasses and antler sheds. Additionally, 7% of households used another type of raw material that was not specified.

Plate 2-3.–Blueberry harvest, Lake Clark.

Vegetation was predominantly harvested in and around the community of Nondalton and around Sixmile Lake and predominantly southeast of Lake Clark (Figure 2-23). Wild plants were almost exclusively harvested along the northwest shore of Sixmile Lake, as well as the area surrounding the community's fish camp where Sixmile Lake drains into the Newhalen River. Some wild plants were also gathered on the southern shore of Lake Clark opposite Keyes Point. Berry search and harvest areas were more expansive in 2021. Wild berry search and harvest areas were predominantly surrounding the entirety of Sixmile Lake and the south shore of Lake Clark. Residents also searched for and harvested berries in the low hills west of the community of Nondalton, as well as areas on both sides of Lake Clark, including a larger area across from Keyes Point than where greens were collected. Berries were also harvested off Nushagak Bay, near the communities of Ekuk and Clarks Point. Firewood was mainly harvested in areas close to the community of Nondalton (Figure 2-24). The search and harvest areas for vegetation remain in close proximity to the community of Nondalton, as well as in close proximity to areas where other subsistence activities occur for Nondalton residents and the locations of access points, such as Port Alsworth and Bristol Bay, to transportation and industry.

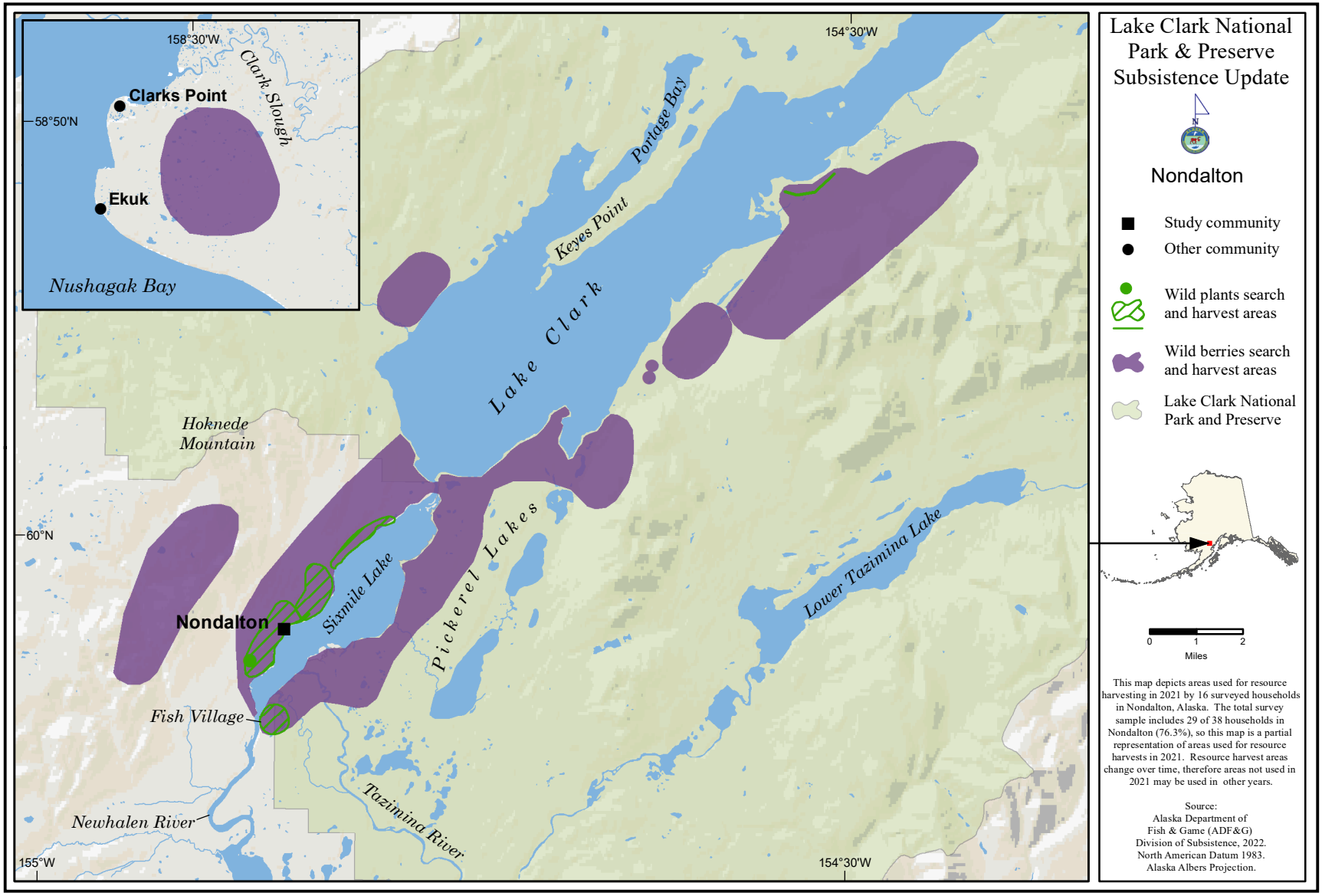


Figure 2-23.–Gathering and harvest locations of wild plants and berries, Nondalton, 2021.

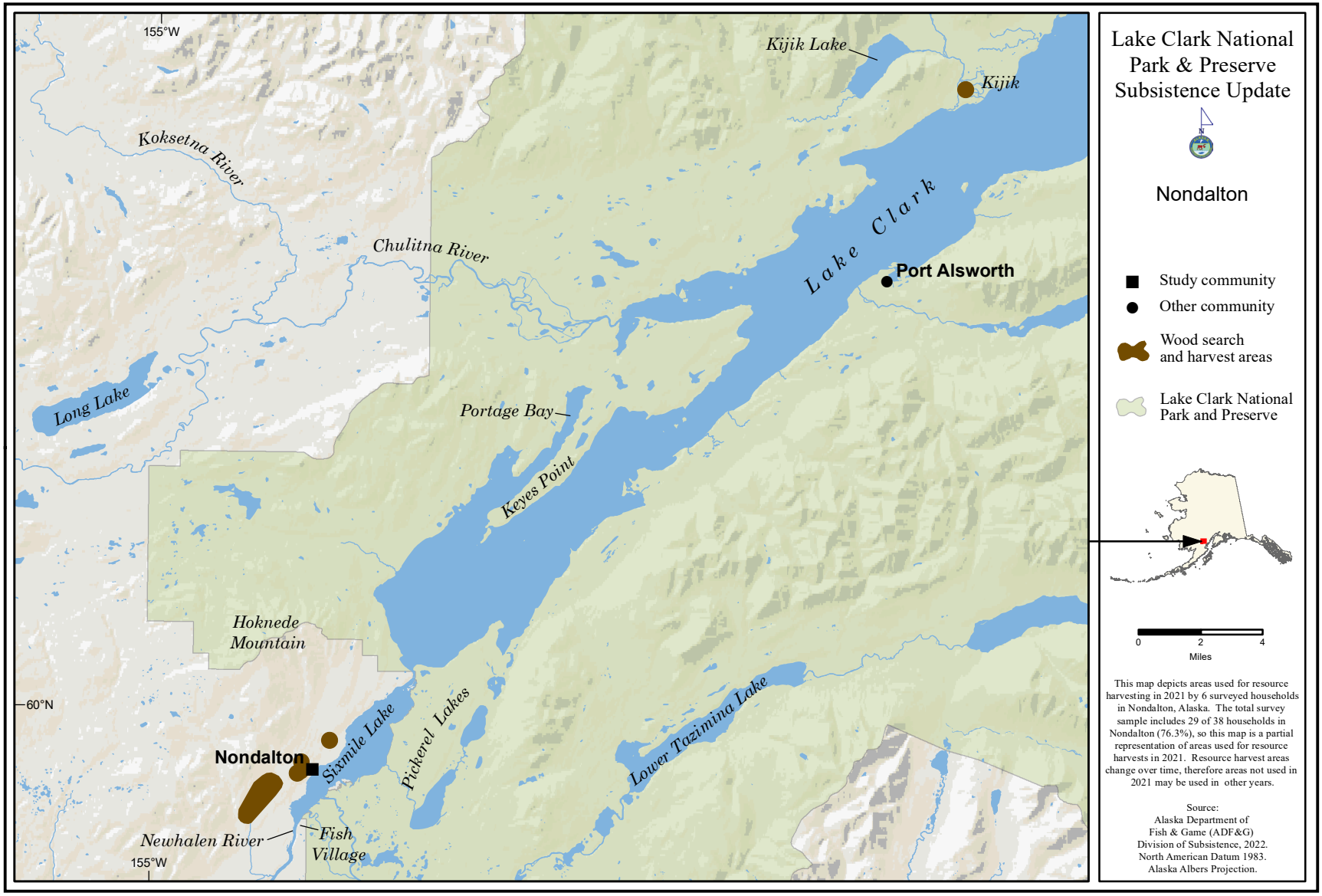
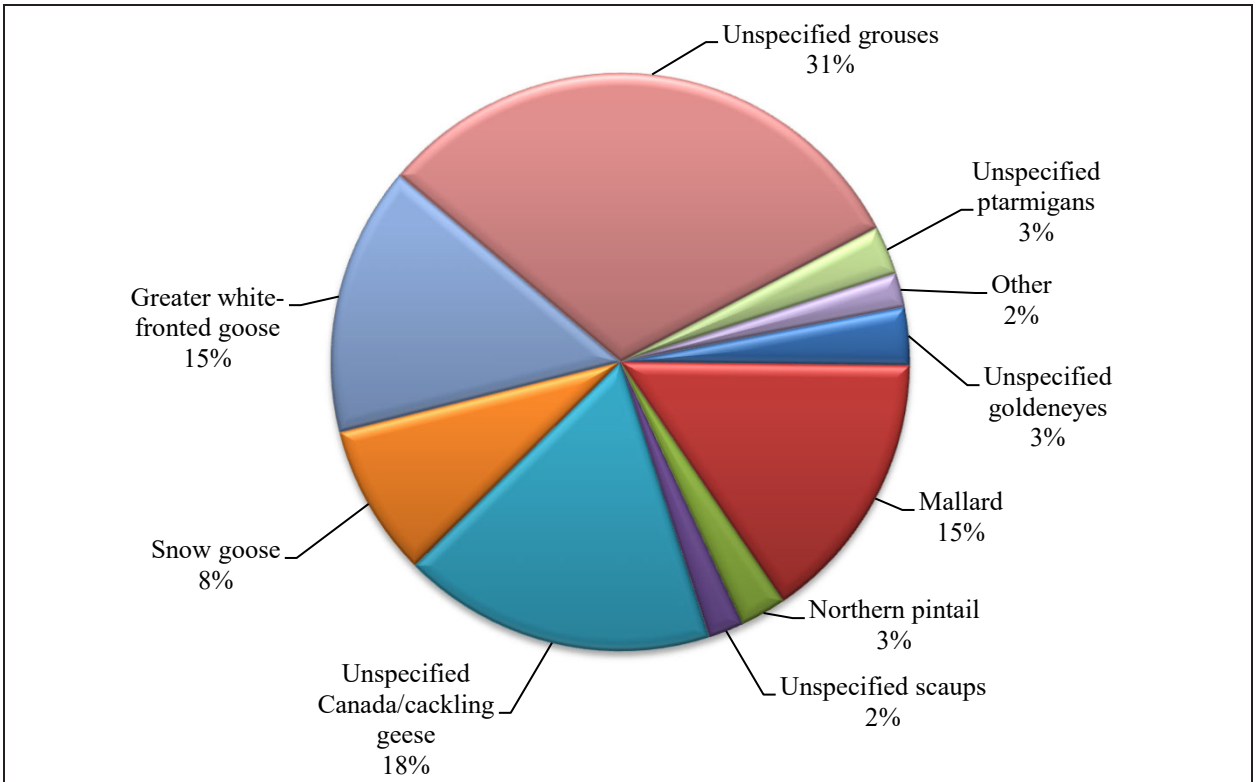


Figure 2-24.–Gathering and harvest locations of wood, Nondalton, 2021.



Note "Other" represents all species that each contributed less than 1% to the total category harvest weight.

Figure 2-25.–Composition of bird and bird egg harvest in pounds usable weight, Nondalton, 2021.

Birds and Eggs

Nondalton hunters harvested more than a dozen types of birds and eggs in 2021. These 765 birds and eggs harvested accounted for approximately 3% of the total harvest weight (1,077 lb; 10 lb per capita) during the study year (Figure 2-12; Table 2-16). An estimated 72% of Nondalton households used at least one species of bird or egg during the study year and 62% both attempted to harvest and harvested these resources. Grouses composed the single largest component of the category harvest by weight (31%; 335 lb, or 3 lb per capita), followed by Canada/cackling geese (18% of the harvest; 189 lb, or 2 lb per capita), mallards (15%; 165 lb, or 2 lb per capita), and greater white-fronted geese (15%; 163 lb, or 2 lb per capita) (Figure 2-25; Table 2-16). Households harvested several other types of birds and bird eggs, but none in amounts greater than 1 lb per capita.

In line with the harvest estimates, more households used (65%) and harvested (59%) grouses than any other species. Mallard was the next most used bird species, with 38% of households using and 31% harvesting this resource. Next, approximately 24% of Nondalton households used greater white-fronted geese and 21% harvested these geese. All other bird and egg resources were used by fewer than 20% of Nondalton households. Eggs were not heavily harvested in 2021 by Nondalton residents, but mallard eggs and large gull eggs were harvested by 3% of households and both had less than 1 lb per capita of harvest. Egg harvests may have been more prevalent in the past. One respondent noted, “Yeah, I know people used to do seagull eggs, but we don’t do that too much anymore” (NNL01). One survey respondent noted that there are not seagulls anymore to gather eggs from.

Table 2-25.–Estimated bird harvests by season, Nondalton, 2021.

Resource	Estimated harvest by season					
	Spring	Summer	Fall	Winter	Season unknown	**Total**
All birds	**315.8**	**0.0**	**306.6**	**119.2**	**0.0**	**741.7**
Bufflehead	0.0	0.0	0.0	0.0	0.0	**0.0**
Common eider	0.0	0.0	0.0	0.0	0.0	**0.0**
King eider	0.0	0.0	0.0	0.0	0.0	**0.0**
Spectacled eider	0.0	0.0	0.0	0.0	0.0	**0.0**
Steller's eider	0.0	0.0	0.0	0.0	0.0	**0.0**
Unspecified goldeneyes	27.5	0.0	0.0	0.0	0.0	**27.5**
Harlequin duck	0.0	0.0	0.0	0.0	0.0	**0.0**
Mallard	86.5	0.0	0.0	15.7	0.0	**102.2**
Unspecified mergansers	0.0	0.0	0.0	0.0	0.0	**0.0**
Long-tailed duck	0.0	0.0	0.0	0.0	0.0	**0.0**
Northern pintail	23.6	0.0	0.0	0.0	0.0	**23.6**
Unspecified scaups	15.7	0.0	0.0	0.0	0.0	**15.7**
Black scoter	0.0	0.0	0.0	0.0	0.0	**0.0**
Surf scoter	0.0	0.0	0.0	0.0	0.0	**0.0**
White-winged scoter	0.0	0.0	0.0	0.0	0.0	**0.0**
Northern shoveler	0.0	0.0	0.0	0.0	0.0	**0.0**
Unspecified teals	13.1	0.0	0.0	0.0	0.0	**13.1**
American wigeon	0.0	0.0	0.0	0.0	0.0	**0.0**
Unspecified ducks	13.1	0.0	0.0	0.0	0.0	**13.1**
Brant	0.0	0.0	0.0	0.0	0.0	**0.0**
Unspecified Canada/cackling geese	49.8	0.0	3.9	2.6	0.0	**56.3**
Emperor goose	0.0	0.0	0.0	0.0	0.0	**0.0**
Snow goose	32.8	0.0	0.0	0.0	0.0	**32.8**
Greater white-fronted goose	48.5	0.0	2.6	0.0	0.0	**51.1**
Unspecified geese	0.0	0.0	0.0	0.0	0.0	**0.0**
Unspecified swans	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**
Unspecified cormorants	0.0	0.0	0.0	0.0	0.0	**0.0**
Mew gull	0.0	0.0	0.0	0.0	0.0	**0.0**
Sabine's gull	0.0	0.0	0.0	0.0	0.0	**0.0**
Large gull	0.0	0.0	0.0	0.0	0.0	**0.0**
Black-legged kittiwake	0.0	0.0	0.0	0.0	0.0	**0.0**
Unspecified murres	0.0	0.0	0.0	0.0	0.0	**0.0**
Unspecified terns	0.0	0.0	0.0	0.0	0.0	**0.0**
Unspecified grouses	5.2	0.0	294.8	68.1	0.0	**368.2**
Unspecified ptarmigans	0.0	0.0	5.2	32.8	0.0	**38.0**

Source ADF&G Division of Subsistence household surveys, 2022.

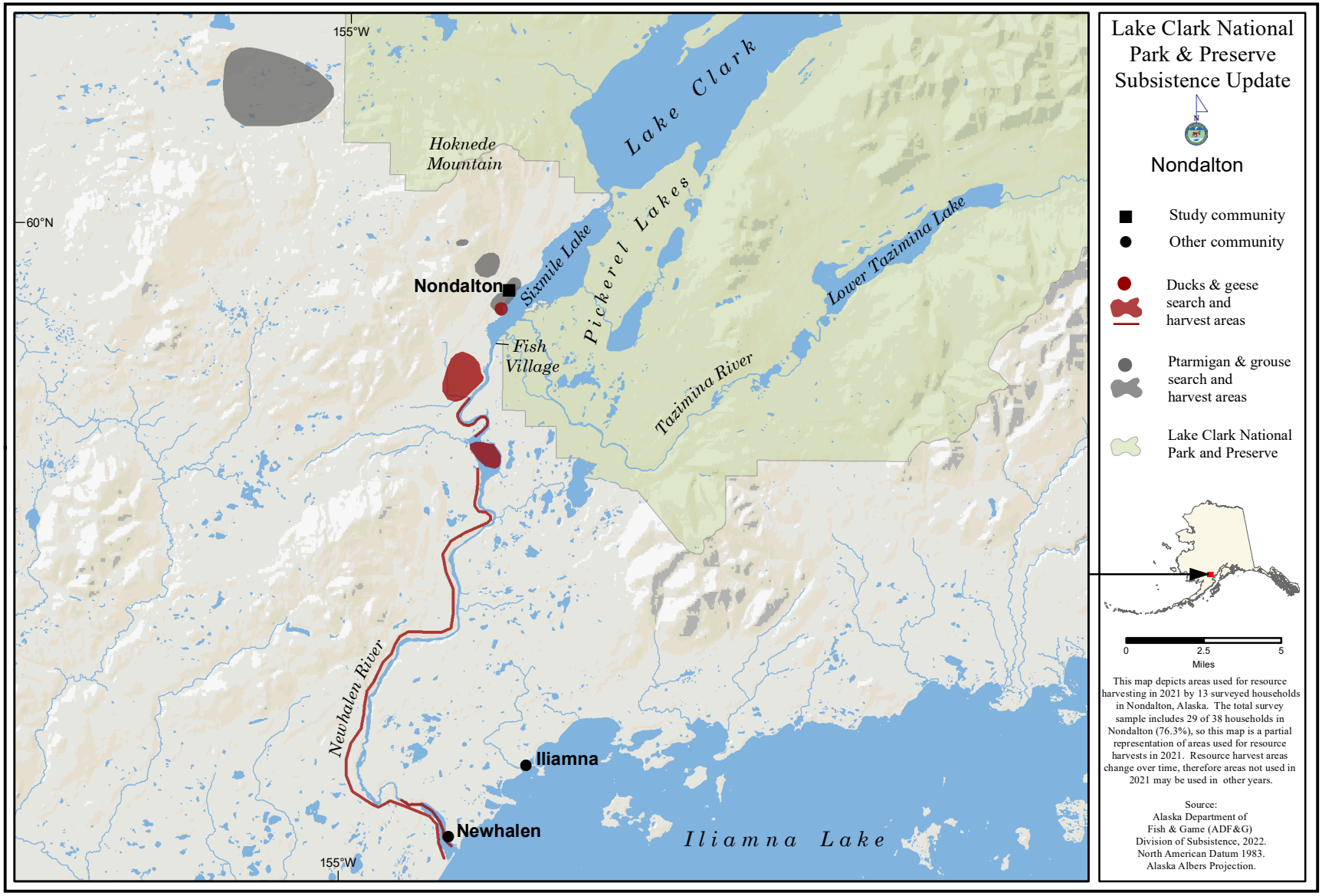


Figure 2-26.–Hunting and harvest locations of ducks and geese, and of ptarmigan and grouse, Nondalton, 2021.

During the study year, birds and eggs were not widely shared among Nondalton households. Almost one-half (45%) of households shared grouses and one-quarter shared mallards. Seventeen percent of households each shared Canada/cackling geese and white-fronted geese; no other bird or egg species was shared by more than 7% of households. Fewer households received birds and eggs than shared them: 21% of households received grouses, 10% received white-fronted geese, and mallards and unspecified ducks were each received by 7% of households. No more than 3% of households received any other bird or egg species, and many species that were harvested and shared were not received by any households.

Nondalton residents harvested an estimated 742 individual birds in 2021, mostly in the spring and fall (Table 2-25). Households harvested ducks and geese mostly in the spring and predominantly grouses and ptarmigans in the fall. Some winter harvest of ducks, geese, and upland game birds occurred, but in small numbers compared to the spring and fall harvests. No birds were harvested in the summer.

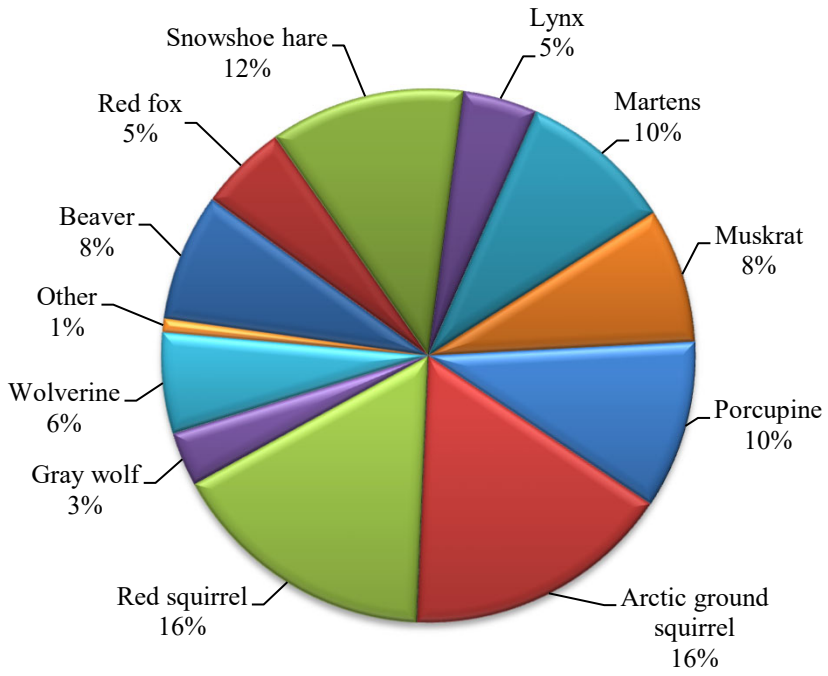
The bird harvest and search areas are depicted in Figure 2-26 and are divided into waterfowl search and harvest areas and ptarmigan and grouse search and harvest areas. Ducks and geese were predominantly hunted along the entirety of the Newhalen River, between the communities of Nondalton and Newhalen. Although not mapped during the survey effort, during a data review, Nondalton residents noted that the Chulitna River flats is one of the most important waterfowl search and harvest areas for the community. Ptarmigan and grouse search areas included the surrounding hills outside of the community of Nondalton, as well as an area northwest of the community near the border of LACL.

Small Land Mammals/Furbearers

Trapping used to be of greater importance to Nondalton residents, but the markets for furs have declined in recent years:

> You know, it's not like it was a long time ago. A good big tom lynx you know with good spots and hair, no rubs, he's not dark brown, uh, you can get maybe two hundred bucks, max. (NNL02+03)

Hunting small land mammals for food, especially porcupine, also was of greater importance in past years. In 2021, only 10% of households hunted or used furbearers or small land mammals, but they harvested 321 animals of different species (Table 2-16; Figure 2-27). Arctic ground squirrel and red squirrel were harvested in the greatest numbers (each contributing 16% of the harvest by numbers of animals), followed by snowshoe hare (12%), porcupine and martens (10% each), and muskrat and beaver (8% each). Considering just the animals harvested for food, a total of 886 lb usable weight (9 lb per capita) were harvested, composed mainly of beaver (56% of the harvest weight) and porcupine (30% of harvest weight). Except for lynx and wolverine, 3% of households harvested and used each of the harvested species. Ten percent of households harvested and used lynx and wolverine. All households that attempted to harvest were successful. Few households shared resources within this category but did share a variety of animals: beaver, red fox, snowshoe hare, lynx, marten, and porcupine.



Note "Other" represents all species that each contributed less than 1% to the total category harvest amount.

Figure 2-27.–Composition of small land mammal/furbearer harvest by individual animals harvested, Nondalton, 2021.

Of the 321 harvested small land mammals, hunters could not recall the month of harvest for 174 (Table 2-26). All small land mammals with a known month of harvest were harvested in fall and winter months (September–March) with the greatest harvests in January (38 individuals), November (35 individuals), and December (38 individuals). Beaver harvests occurred during more months than other animals, with harvests spread throughout the fall and winter months with the greatest number harvested in January (8 individuals). Most other species were harvested in 2 or 3 months of the late fall or early winter, when furs are likely at their prime. Search and harvest areas occurred within the general area of Nondalton and nearby lakes, although to protect the confidentiality of survey respondents, a map depicting spatial data was not produced for this report.

Marine Invertebrates

Nondalton's location on the shores of Lake Clark provides abundant access to many resources, but not to marine invertebrates. To harvest these resources, Nondalton households need to fly approximately 30 minutes to get to the coast. Because of this distant access, marine invertebrates have always been a small component of Nondalton's subsistence harvests. During the 2021 study year, marine invertebrates accounted for less than 1% of the total harvest weight (Figure 2-12). A total of 4 lb of marine invertebrates were harvested by Nondalton residents in 2021 and an estimated 3% of Nondalton households used and harvested marine invertebrates (Table 2-16). The only marine invertebrates that were harvested in 2021 were unspecified clams. No marine invertebrates were given or received by any households during the study year.

Table 2-26.–Estimated small land mammal/furbearer harvests by month, Nondalton, 2021.

Resource	Estimated harvest by month													Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Unk	
All small land mammals	**38.0**	**23.6**	**6.6**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**2.6**	**2.6**	**35.4**	**38.0**	**174.3**	**321.0**
Beaver	7.9	2.6	3.9	0.0	0.0	0.0	0.0	0.0	2.6	2.6	2.6	2.6	0.0	**24.9**
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	1.3	**1.3**
Red fox	7.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	5.2	0.0	**17.0**
Snowshoe hare	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.7	15.7	0.0	**38.0**
River 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	1.3	**1.3**
Lynx	0.0	2.6	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.6	0.0	2.6	**14.4**
Marmots	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Martens	7.9	10.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.8	0.0	**30.1**
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.2	**26.2**
Porcupine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.8	**32.8**
Arctic ground squirrel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	52.4	**52.4**
Red squirrel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	52.4	**52.4**
Weasels	0.0	0.0	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	5.2	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**10.5**
Wolverine	2.6	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.6	2.6	5.2	**19.7**

Source ADF&G Division of Subsistence household surveys, 2022.

Comparing Harvests and Uses in 2021 with Previous Years

Harvest Assessments

Researchers asked respondents to assess their own harvests in 2 ways: whether they used more, less, or about the same amount of 8 resource categories in 2021 as in the past 5 years, and whether they got "enough" of each of the 8 resource categories; the same questions were asked about all wild resources overall. Households also were asked to provide reasons if their use was different or if they were unable to get enough of a resource. If they did not get enough of a resource, they were asked to evaluate the severity of the impact to their household as a result of not getting enough, as well as to list what wild resources were needed. This section discusses responses to those questions.

Together, Table 2-27 and Figure 2-28 provide a broad overview of households' assessments of their harvests in 2021. Because not everyone uses all resource categories, some households did not respond to the assessment questions. Additionally, some households that do typically use a resource category simply did not answer questions. Overall, when asked about the resource categories used by most of the community (salmon, nonsalmon fish, large land mammals, birds, and vegetation), one-half or more of responding households thought they used about the same amount of those resource categories as in recent previous years (Figure 2-28). It was more common for a household to say they used less large land mammals than any other resource category, and more households used more vegetation than any other category. The majority of responding households also thought that they got enough of each resource category, with more households affirming they got enough than explaining that they did not get enough (Table 2-28). The largest number of households (10) indicated not having enough large land mammals.

Although vegetation harvests composed only a small portion of the total harvest weight in Nondalton during the study year, nearly every household used and harvested vegetation. Approximately one-half (52%) of responding households reported using the same amount of vegetation as in previous years, 24% reported using more, and 21% of households reported using less vegetation (Figure 2-28). Of the households that responded that they used less vegetation in 2021, 67% stated that these resources were less available, 33% stated that they were working or had no time, and 17% gave personal or family reasons for using less (Table 2-29). More households reported getting more vegetation during the study year than any other resource category. Of the 7 households that responded that they used more vegetation during the study year, 43% each gave as a reason that there was increased availability of these resources and the weather was more favorable for harvest (Table 2-30). Another 29% of households that used more vegetation said that they increased their effort to harvest, and 14% each stated that they needed more vegetation in 2021 and that they traveled farther to harvest vegetation during the study year. Only 14% of responding households did not have enough vegetation during the study year (Table 2-28). Of the 4 households that stated that they did not get enough vegetation during the study year, 75% reported that the impact of not getting enough was minor, and 25% stated that the impact was severe.

Table 2-27.–Changes in household uses of resources compared to recent years, Nondalton, 2021.

Resource category	Sampled households	Valid responses[a]	Households reporting use: Total households Number	Total households Percentage	Less Number	Less Percentage	Same Number	Same Percentage	More Number	More Percentage	Households not using Number	Households not using Percentage
Any resource	29	29	29	100.0%	23	79.3%	29	100.0%	14	48.3%		
All resources	29	29	29	100.0%	5	17.2%	20	69.0%	4	13.8%	0	0.0%
Salmon	29	28	27	96.4%	7	25.0%	17	60.7%	3	10.7%	1	3.6%
Nonsalmon fish	29	29	26	89.7%	8	27.6%	16	55.2%	2	6.9%	3	10.3%
Large land mammals	29	28	25	89.3%	10	35.7%	14	50.0%	1	3.6%	3	10.7%
Small land mammals	29	29	6	20.7%	5	17.2%	1	3.4%	0	0.0%	23	79.3%
Marine mammals	29	29	2	6.9%	2	6.9%	0	0.0%	0	0.0%	27	93.1%
Birds and eggs	29	27	20	74.1%	4	14.8%	15	55.6%	1	3.7%	7	25.9%
Marine invertebrates	29	29	2	6.9%	1	3.4%	0	0.0%	1	3.4%	27	93.1%
Vegetation	29	29	28	96.6%	6	20.7%	15	51.7%	7	24.1%	1	3.4%

Source ADF&G Division of Subsistence household surveys, 2022.

a. Valid responses do not include households that did not provide any response.

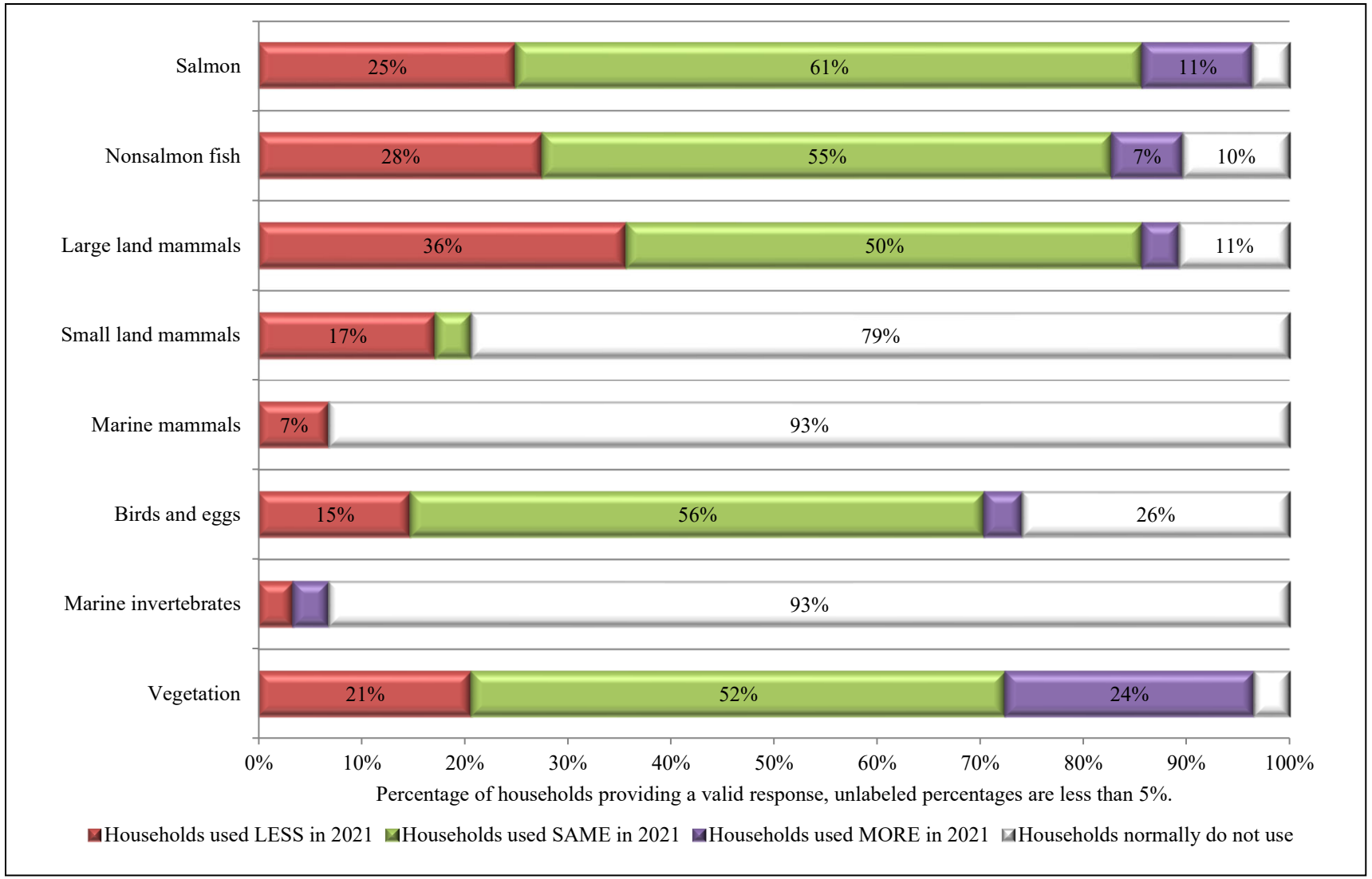


Figure 2-28.–Changes in household uses of resources compared to recent years, Nondalton, 2021.

Table 2-28.–Reported impact to households reporting that they did not get enough of a type of resource, Nondalton, 2021.

Resource category	Sampled households	Households not getting enough _____ . Valid responses[a] No.	Valid responses[a] Pct.	Did not get enough No.	Did not get enough Pct.	Impact to those not getting enough _____ . No response No.	No response Pct.	Not noticeable No.	Not noticeable Pct.	Minor No.	Minor Pct.	Moderate No.	Moderate Pct.	Major No.	Major Pct.	Severe No.	Severe Pct.
All resources	29	27	93.1%	5	18.5%	1	20.0%	0	0.0%	1	20.0%	2	40.0%	1	20.0%	0	0.0%
Salmon	29	27	93.1%	3	11.1%	1	33.3%	0	0.0%	1	33.3%	1	33.3%	0	0.0%	0	0.0%
Nonsalmon fish	29	26	89.7%	3	11.5%	1	33.3%	0	0.0%	0	0.0%	2	66.7%	0	0.0%	0	0.0%
Large land mammals	29	26	89.7%	10	38.5%	0	0.0%	0	0.0%	1	10.0%	7	70.0%	2	20.0%	0	0.0%
Small land mammals	29	6	20.7%	1	16.7%	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Marine mammals	29	2	6.9%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Birds and eggs	29	20	69.0%	1	5.0%	0	0.0%	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%
Marine invertebrates	29	2	6.9%	1	50.0%	0	0.0%	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%
Vegetation	29	28	96.6%	4	14.3%	0	0.0%	0	0.0%	3	75.0%	0	0.0%	0	0.0%	1	25.0%

Source ADF&G Division of Subsistence household surveys, 2022.

a. Does not include households that failed to respond to the question or those households that generally do not use the resource.

Table 2-29.–Reasons for less household uses of resources compared to recent years, Nondalton, 2021.

Resource category	Valid responses[a]	Households reporting reasons for less use	Family/ personal		Resources less available		Too far to travel		Lack of equipment		Less sharing	
			Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource	29	22	5	22.7%	9	40.9%	2	9.1%	2	9.1%	3	13.6%
All resources	29	4	1	25.0%	1	25.0%	0	0.0%	1	25.0%	1	25.0%
Salmon	28	7	2	28.6%	0	0.0%	0	0.0%	0	0.0%	1	14.3%
Nonsalmon fish	29	8	2	25.0%	0	0.0%	0	0.0%	1	12.5%	0	0.0%
Large land mammals	28	10	2	20.0%	6	60.0%	1	10.0%	1	10.0%	1	10.0%
Small land mammals	29	5	0	0.0%	1	20.0%	0	0.0%	0	0.0%	0	0.0%
Marine mammals	29	2	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Birds and eggs	27	4	0	0.0%	0	0.0%	1	25.0%	0	0.0%	0	0.0%
Marine invertebrates	29	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Vegetation	29	6	1	16.7%	4	66.7%	0	0.0%	0	0.0%	0	0.0%

-continued-

Table 2-29.–Continued.

Resource category	Valid responses[a]	Households reporting reasons for less use	Lack of effort		Unsuccessful		Other reasons		Working/ no time		Did not need	
			Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource	29	22	7	31.8%	4	18.2%	1	4.5%	4	18.2%	2	9.1%
All resources	29	4	1	25.0%	0	0.0%	0	0.0%	1	25.0%	0	0.0%
Salmon	28	7	1	14.3%	0	0.0%	0	0.0%	2	28.6%	1	14.3%
Nonsalmon fish	29	8	2	25.0%	1	12.5%	1	12.5%	1	12.5%	1	12.5%
Large land mammals	28	10	0	0.0%	2	20.0%	0	0.0%	0	0.0%	0	0.0%
Small land mammals	29	5	2	40.0%	1	20.0%	0	0.0%	1	20.0%	1	20.0%
Marine mammals	29	2	2	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Birds and eggs	27	4	2	50.0%	0	0.0%	0	0.0%	2	50.0%	0	0.0%
Marine invertebrates	29	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Vegetation	29	6	0	0.0%	0	0.0%	0	0.0%	2	33.3%	0	0.0%

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Table 2-29.–Page 2 of 2.

Resource category	Valid responses[a]	Households reporting reasons for less use	Equipment/ fuel expense		Competition		Did not have help	
			Number	Percentage	Number	Percentage	Number	Percentage
Any resource	29	22	1	4.5%	1	4.5%	2	9.1%
All resources	29	4	0	0.0%	0	0.0%	1	25.0%
Salmon	28	7	0	0.0%	0	0.0%	1	14.3%
Nonsalmon fish	29	8	0	0.0%	0	0.0%	0	0.0%
Large land mammals	28	10	1	10.0%	1	10.0%	0	0.0%
Small land mammals	29	5	0	0.0%	0	0.0%	0	0.0%
Marine mammals	29	2	0	0.0%	0	0.0%	0	0.0%
Birds and eggs	27	4	0	0.0%	0	0.0%	0	0.0%
Marine invertebrates	29	0	0	0.0%	0	0.0%	0	0.0%
Vegetation	29	6	0	0.0%	0	0.0%	0	0.0%

Source ADF&G Division of Subsistence household surveys, 2022.

Note This table summarizes open-ended responses that have been categorized into 1 or more standard classifications. Only reasons offered by respondents for the study have been included.

a. Valid responses do not include households that did not provide any response to the less, same, or more use assessment question.

Table 2-30.–Reasons for more household uses of resources compared to recent years, Nondalton, 2021.

Resource category	Valid responses[a]	Households reporting reasons for more use	Family/personal		Increased availability		Favorable weather		Received more		Needed more	
			Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource	29	13	1	7.7%	4	30.8%	3	23.1%	1	7.7%	3	23.1%
All resources	29	4	1	25.0%	0	0.0%	0	0.0%	0	0.0%	3	75.0%
Salmon	28	3	1	33.3%	1	33.3%	0	0.0%	0	0.0%	1	33.3%
Nonsalmon fish	29	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Large land mammals	28	1	0	0.0%	0	0.0%	0	0.0%	1	100.0%	0	0.0%
Small land mammals	29	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Marine mammals	29	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Birds and eggs	27	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%
Marine invertebrates	29	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Vegetation	29	7	0	0.0%	3	42.9%	3	42.9%	0	0.0%	1	14.3%

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Table 2-30.–Page 2 of 2.

Resource category	Valid responses[a]	Households reporting reasons for more use	Increased effort		Traveled farther		Had more help	
			Number	Percentage	Number	Percentage	Number	Percentage
Any resource	29	13	5	38.5%	2	15.4%	2	15.4%
All resources	29	4	2	50.0%	0	0.0%	0	0.0%
Salmon	28	3	0	0.0%	0	0.0%	0	0.0%
Nonsalmon fish	29	1	1	100.0%	0	0.0%	1	100.0%
Large land mammals	28	1	0	0.0%	0	0.0%	0	0.0%
Small land mammals	29	0	0	0.0%	0	0.0%	0	0.0%
Marine mammals	29	0	0	0.0%	0	0.0%	0	0.0%
Birds and eggs	27	1	0	0.0%	0	0.0%	1	100.0%
Marine invertebrates	29	1	1	100.0%	1	100.0%	0	0.0%
Vegetation	29	7	2	28.6%	1	14.3%	0	0.0%

Source ADF&G Division of Subsistence household surveys, 2022.

Note This table summarizes open-ended responses that have been categorized into 1 or more standard classifications. Only reasons offered by respondents for the study have been included.

a. Valid responses do not include households that did not provide any response to the less, same, or more use assessment question.

More Nondalton households used salmon than almost any other subsistence resource category, and salmon composed the greatest proportion of the harvest weight. In 2021, 61% of responding households explained that they used the same amount of salmon as they did in previous years, 25% reported that they used less, and 11% said they used more (Table 2-27; Figure 2-28). When asked why they used less, 29% each indicated that they did so due to family or personal reasons and that they were working or had no time (Table 2-29). Other stated reasons for using less salmon included less sharing (14%), lack of effort (14%), did not have help to harvest (14%), and that they did not need salmon in 2021 (14%). For those 3 households that used more salmon in the study year, 33% stated that there was more available in 2021, 33% stated that they needed more salmon, and 33% stated that they used more due to family or personal reasons (Table 2-30). In Nondalton, few households (3) indicated they did not get enough salmon (Table 2-28). The ethnographic findings supported the survey responses. Although some interview respondents talked about declining salmon runs, they also said people were still getting the salmon they needed: "Oh, just like the return of salmon, it seems like the numbers fluctuate from high to lower. But number-wise it's pretty consistent, we usually know how much we need," (NNL01); "Well everybody here gets enough fish, but what I'm, what my point is, is that the runs are not as big as they used to be" (NNL02+03). When the 3 households that did not get enough salmon were asked to evaluate the impact of not getting enough, 33% described it as minor, 33% described the impact as moderate, and 33% did not respond.

One of the major changes to occur in the Lake Clark area is the decline of locally available caribou. Said one respondent:

> I remember, I briefly remember when my parents took them, there was like tens of thousands of caribou, right on Sixmile Lake. They used to be all over the mountains, all over Ground Hill, or Groundhog, and then just in the hills up there. Now they're gone. (NNL01)

Moose are still locally available, but the lack of caribou is still felt among households, and this emerges in responses to these assessment questions. In 2021, 36% of responding households stated that they used less large land mammals than in previous years, which was the highest percentage of households to say they used less of any resource category. Similarly, 50% of households stated that they used the same amount, which is the lowest percentage of households to respond this way of any resource category, and 4% reported using more large land mammals than in previous years (Table 2-27; Figure 2-28). Of the households that stated that they used less in 2021, the majority (60%) stated that there was less availability of large land mammals during the study year (Table 2-29). Other explanations included: family/personal reasons (20%) and unsuccessful harvest (20%), and 10% of households each said the resource was too far away to harvest, they lacked equipment, there was less sharing of the resource, equipment and fuel expenses were too high, and there was too much competition for the resource. The household that used more large land mammals during the study year said it was because they received more of the resource (Table 2-30). More than one-third of responding households (39%) did not get enough large land mammals in 2021 and the assessments were more negative for this category compared to any other (Table 2-28) When responding households that did not get enough large land mammals were asked to evaluate the impact of not getting enough, most (70%) stated that it had a moderate impact on their household, 20% stated that the impact of not getting enough large land mammals that year was major, and 10% characterized the impact as minor.

Nonsalmon fish was a highly used resource category during the study year and had substantial harvests. Approximately 55% of households reported using the same amount of nonsalmon fish as they had in previous years, 28% reported using less, and 7% reported using more nonsalmon fish (Table 2-27; Figure 2-28). Of the 8 households that used less nonsalmon fish, approximately 25% each stated that they used less due to family or personal reasons and due to a lack of effort (Table 2-29). Several other reasons were offered by 1 household each (13%). Few reasons were given for more use of nonsalmon fish (Table 2-30). Just 12% of responding households did not get enough nonsalmon fish in 2021, and 67% of those respondents stated that this had a moderate impact on their household and 33% did not respond (Table 2-28).

The harvest of birds and eggs composed a small proportion of Nondalton's harvest in 2021, but these resources were used by nearly three-quarters of community households. Most responding households (56%) reported using the same amount of these resources, 15% said they used less, and 4% reported using more birds and bird eggs than in previous years (Table 2-27). One-half (50%) of the 4 households responding that they used less birds and bird eggs in 2021 cited a lack of effort as the reason for using less and 50% responded that they were working or had no time (Table 2-29). One-quarter of responding households also stated that it was too far to travel to harvest these resources. The small percentage of households that used more attributed the increase to needing more and having more help during the study year (Table 2-30). The majority of responding households stated that they got enough birds and eggs in 2021, while 1 household (5%) said that they did not get enough, which had a minor impact on the household in 2021 (Table 2-28).

The remaining resource categories—small land mammals, marine mammals, and marine invertebrates—all composed a small percentage of the total community harvest and were used by few households (Table 2-16; Figure 2-12). According to survey and interview respondents, marine mammals are not significant resources for the community of Nondalton, and small land mammals have decreased in importance. The few households that answered questions for these resource categories generally assessed that their use during the study year was different than in recent years (Figure 2-28). Most of the households that usually use small land mammals and marine mammals thought they used less, while those that use marine invertebrates were evenly split between using more and using less during the study year. The household did not explain why they used less marine invertebrates during the study year (Table 2-29). The few households that used less marine mammals did so because of a lack of effort. Of the households that used less small land mammals, 40% cited a lack of effort as the reason for using less, while 20% each cited resource availability, unsuccessful harvest effort, working or no time, and the household did not need these resources in 2021. No households reported using more small land mammals or marine mammals, and the reasons given for more use of marine invertebrates were increased effort and traveling farther in search of these resources (Table 2-30). Overall, households that used these resource categories believed they got enough of them during the study year (Table 2-28). The impact to the households that did not get enough of these resources was not noticeable or minor.

Households may use more of some resource categories and less of others, but it is important to understand how the entirety of a household's subsistence harvest has differed, or not, in the study year compared to recent years. Therefore, households were asked to consider all of the subsistence foods they used during the study year and assess their use compared to recent years. Most households (69%) said they used the same amount of wild resources overall during the study year as compared to recent years (Table 2-27). Another 17% stated they used less and 14% used more. Several reasons were given for using less resources overall, and each reason was given by 1 household: family/personal reasons, resource availability, lack of equipment, less sharing, lack of effort, working/no time to harvest, and did not have help to harvest (Table 2-29). Fewer reasons were provided for why households used more resources: 75% (3 households) said they needed more, 50% increased effort, and 25% used more due to family/personal reasons (Table 2-30). Most households—approximately 80%—got enough resources overall (Table 2-28). For the 5 households that did not, the impacts ranged from minor to major.

Of the resources that households reported needing, households most frequently cited needing more moose (35%) (Table 2-31). Households also reported needing wood (17%), sockeye salmon (10%), caribou (7%), and berries (7%); 5 other resources were named by 3% of households. This list supports earlier discussions about the lack of large land mammals in Nondalton, especially caribou, and the importance of firewood to community residents.

Table 2-31.–Resources that households reported needing, Nondalton, 2021.

Resource	Households needing	Percentage of sampled households
Moose	10	34.5%
Wood	5	17.2%
Sockeye salmon	3	10.3%
Caribou	2	6.9%
Berries	2	6.9%
Dall sheep	1	3.4%
Lynx	1	3.4%
Wolverine	1	3.4%
Spruce grouse	1	3.4%
Razor clam	1	3.4%

Source ADF&G Division of Subsistence household surveys, 2022.

Harvest Data

Changes in the harvest of resources by Nondalton residents can also be discerned through comparisons with findings from other study years. Comprehensive subsistence harvest surveys were conducted in Nondalton for the study years 1973 (Gasbarro and Utermohle 1975), 1980 (Behnke 1982), 1981 (Behnke 1982), 1983 (Morris 1986), 2004 (Fall et al. 2006), and 2021. Researchers in the first 3 study years did not ask about harvests of marine mammals, marine invertebrates, or vegetation. In addition to comprehensive harvest studies, division staff have conducted species-specific studies in Nondalton. Researchers documented the harvest and use of large land mammals in several Bristol Bay communities in the early 2000s, including Nondalton for 2001 (Holen et al. 2005); also, for study year 2005, Krieg et al. (2005) documented the harvest and use of nonsalmon fish resources and Hazell et al. (2015) provided estimates for whitefishes and other nonsalmon fish harvests for the 2012 and 2013 study years. Household surveys of salmon harvests were conducted in conjunction with an ethnographic study by Fall et al. (2010), which provided additional salmon harvest estimates for 2007 and 2008; harvest estimates published in the CSIS are presented in this chapter.

Changes in harvests can be discerned in several ways, such as comparing the total harvest composition (i.e., the percentage each resource category contributed to the total harvest weight) and the per capita harvest weights from all of the study years. Comparing per capita harvest estimates across the study years provides a metric that allows for analogous comparisons between the studies, even if the overall population has fluctuated over time. But first, looking at all wild resource harvests, Nondalton households harvested 329,274 lb of wild resources, or 1,175 lb per capita, in 1983, which remains the largest estimated total harvest weight of any of the study years (Table 2-32). Estimated harvests prior to 1983 were similar to each other, around 150,000 lb, and substantially higher than harvests in study years after 1983, which were about 50,000 lb or less. Some aspects of the composition of the resources harvested have changed over time, which, as mentioned above, resulted in an overall harvest weight that decreased by 298,392 lb from 1983 to 2021 (Figure 2-29). This observed decrease in total harvest could be attributed to a decrease in population, decreased availability of resources locally, increased availability of nonsubsistence foods, or increased cost of equipment and fuel to participate in subsistence activities, among other possible explanations.

Figure 2-30 compares estimated harvests in pounds per capita for 6 study years by resource category. The per capita harvest for all resource categories has decreased since the 1983 study, except for birds and eggs (increased by 1 lb per capita only) (Figure 2-30; Table 2-32). Salmon, nonsalmon fish, and large land mammal harvests account for the majority of change over time to the total per capita harvest weight. Similar to the total harvest weight, the per capita harvests in 1973, 1980, and 1981 were less variable compared to the other study years, ranging from a low of 738 lb in 1981 to a high of 1,036 lb in 1980. In contrast to total harvest weight, taking into account changes in population size aligns the 1983 estimated harvests with the previous years. Also similar to total harvest weight, the 2004 per capita harvest (358 lb) was considerably lower by comparison to previous years and the 2021 per capita estimate (298 lb) was the lowest of all. Again, in contrast to the total harvest weight, the decrease in harvests between 2004 and 2021 was not as severe when accounting for population changes.

Throughout all 6 of the harvest studies, the salmon category has composed the largest portion of the total subsistence harvest—upward of 60% of the harvest weight in each study year (Figure 2-31; Table 2-32). However, the per capita harvests of salmon have decreased substantially over time. During the first study years, per capita salmon harvests ranged between 500 and 800 lb (Table 2-33). In 2004 and 2021, per capita harvests decreased to 219 lb and then 184 lb. Sockeye salmon is the most abundant and readily available fish to Nondalton households, and, as such, has composed the majority of salmon harvests. Not every study year distinguished between sockeye salmon and spawning sockeye in the reporting of sockeye salmon harvests, but the written reports indicate that harvests of spawning salmon were common. No households harvested chum salmon during any study year and coho salmon were rarely harvested. Households engaged in commercial fishing bring home Chinook salmon from Bristol Bay on occasion and have done so during the 3 most recent studies.

Subsistence salmon permits also provide information about fishing practices in Bristol Bay. Among the local Kvichak River drainage communities, including Nondalton, the number of permits and reported harvests have decreased (Jones and Neufeld 2022). In Nondalton, the historical average harvest (1985–2020) of sockeye salmon was approximately 10,000 fish, the most recent 10-year average harvest was about 6,100 fish, and the most-recent 5-year average was nearly 3,200 fish (Jones and Neufeld 2022:29). Among non-local residents, the trend in harvests is the opposite, but of a considerably smaller magnitude of change.

Understanding the biological status of salmon populations provides some context for harvest estimates. Depressed runs during the 2004 study likely contributed to decreased harvests; from 2001 through 2012, the Kvichak River sockeye salmon stock was classified as a stock of concern (Morstad and Brazil 2012). The escapement goal for this system is 2 million to 10 million fish; recent escapements have averaged 3.9 million fish (Elison et al. 2022:56). The most recent 10-year average escapement (2011–2020) for sockeye salmon was better than the previous 10-year average (2001–2010) and the 2021 escapement was higher than average (Elison et al. 2022:56). Despite these numbers for the Kvichak River drainage broadly, during this study some respondents indicated the runs are not as large as they were.

While there may be more nuanced changes in salmon populations seen on a local level that are affecting community harvests, run abundance, or other factors likely contributing to the general decline in the harvest of sockeye salmon, were not directly explored in this study. Key respondent interviews and past research in Nondalton can inform a discussion about these factors, however. Up through the 1980s, some households kept dog teams and harvested large quantities of salmon to feed them. The wholesale change from dog teams to motorized transport is responsible for some of the decrease observed in per capita salmon harvests (Fall et al. 2006). Some of the observed decreases may also stem from social changes. During this study, a key respondent commented on how much the community changed in the mid-1980s with the advent of electricity, water/sewer, phones, and TV in the community. Along with these changes, this respondent thought residents rely more on store-bought foods and access to Anchorage rather than relying on subsistence foods. In the past, employment in commercial fishing and firefighting both reduced the summer labor pool for subsistence activities and brought available cash resources to residents, providing the option of purchasing more foods than they might otherwise be able to.

Table 2-32.–Comparison of estimated total and per capita harvests, by resource category, Nondalton, 1973, 1980–1981, 1983, 2004, and 2021.

	Estimated harvest in pounds usable weight											
	1973				1980				1981			
Resource category	Total	Per capita	Percentage of total	CIP	Total	Per capita	Percentage of total	CIP	Total	Per capita	Percentage of total	CIP
All resources	**124,242.0**	**802.6**	**100.0%**		**173,595.0**	**1,036.4**	**100.0%**		**146,876.0**	**738.3**	**100.0%**	
Salmon	78,401.0	506.5	63.1%		139,480.0	832.7	80.3%		100,903.0	507.2	68.7%	
Nonsalmon fish	6,241.0	40.3	5.0%		4,550.0	27.2	2.6%		7,175.0	36.1	4.9%	
Large land mammals	33,912.0	219.1	27.3%		24,435.0	145.9	14.1%		31,647.0	159.1	21.5%	
Small land mammals	4,817.0	31.1	3.9%		4,850.0	29.0	2.8%		6,337.0	31.9	4.3%	
Marine mammals												
Birds and eggs	871.0	5.6	0.7%		280.0	1.7	0.2%		815.0	4.1	0.6%	
Marine invertebrates												
Vegetation												

-continued-

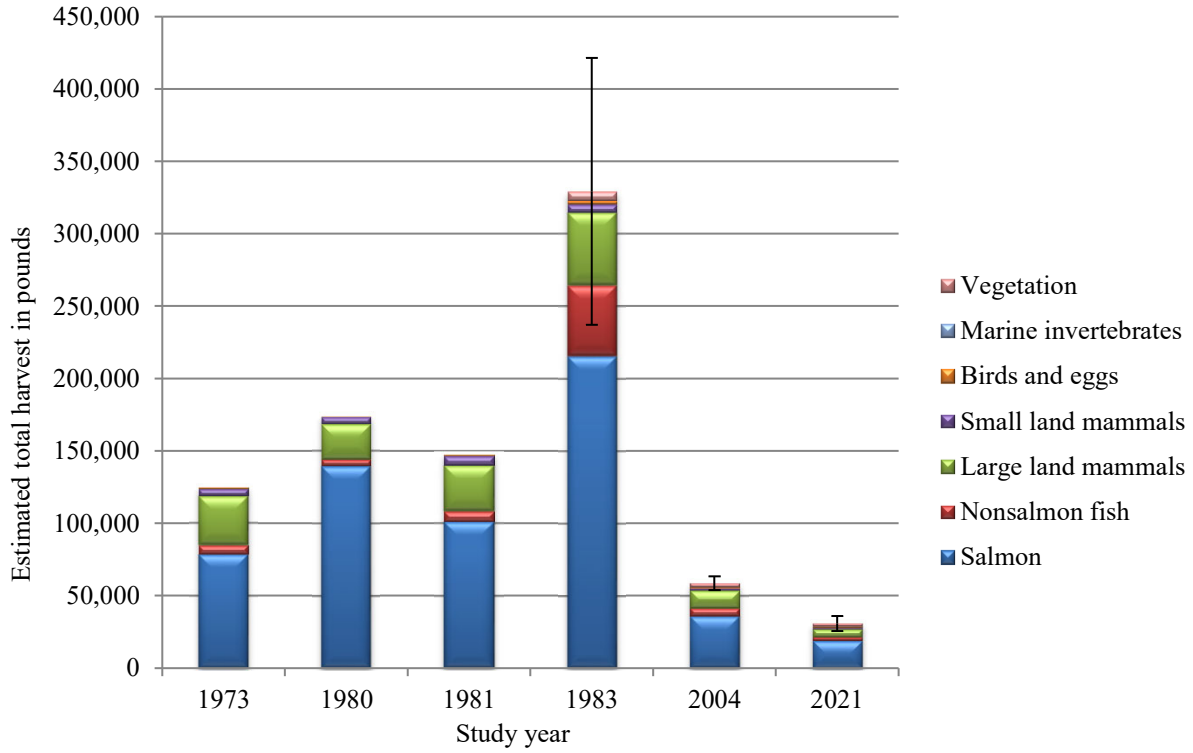
Table 2-32.–Continued.

	Estimated harvest in pounds usable weight											
	1983				2004				2021			
Resource category	Total	Per capita	Percentage of total	CIP	Total	Per capita	Percentage of total	CIP	Total	Per capita	Percentage of total	CIP
All resources	**329,274.0**	**1,174.8**	**100.0%**	**28.0%**	**58,685.0**	**357.7**	**100.0%**	**8.0%**	**30,882.2**	**298.3**	**100.0%**	**16.7%**
Salmon	215,447.0	768.7	65.4%	34.0%	36,004.0	219.4	61.3%	8.0%	19,068.4	184.2	61.7%	18.1%
Nonsalmon fish	48,946.0	174.6	14.9%	56.0%	5,561.0	33.9	9.5%	11.0%	2,432.7	23.5	7.9%	32.6%
Large land mammals	50,323.0	179.5	15.3%	29.0%	12,209.0	74.4	20.8%	10.0%	5,458.9	52.7	17.7%	28.1%
Small land mammals	5,498.0	19.6	1.7%	43.0%	1,206.0	7.4	2.1%	13.0%	886.4	8.6	2.9%	99.7%
Marine mammals	0.0	0.0	0.0%	–	0.0	0.0	0.0%	–	0.0	0.0	0.0%	–
Birds and eggs	2,442.0	8.7	0.7%	58.0%	624.0	3.8	1.1%	8.0%	1,076.5	10.4	3.5%	28.3%
Marine invertebrates	0.0	0.0	0.0%	0.0%	66.0	0.4	0.1%	2.0%	3.9	0.0	0.0%	99.7%
Vegetation	6,619.0	23.6	2.0%	31.0%	3,012.0	18.4	5.1%	11.0%	1,955.2	18.9	6.3%	19.0%

Sources For 2021, ADF&G Division of Subsistence household surveys, 2022; for previous study years, ADF&G Division of Subsistence Community Subsistence Information System (CSIS), accessed 2022.

Note Blank cells indicate no data are available.

Note "–" indicates the confidence interval could not be calculated due to no harvest.



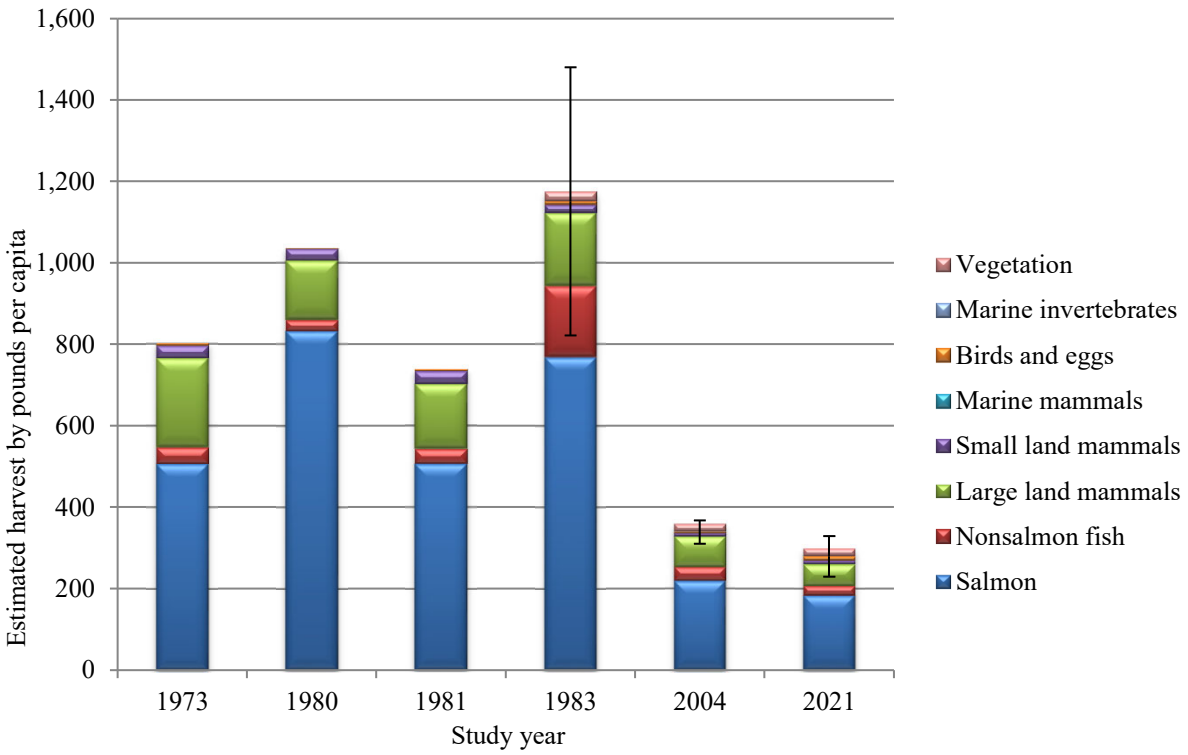
Note Error bars represent the upper and lower bounds of the 95% confidence interval for all resources combined.

Figure 2-29.–Composition of total harvest, by resource category, Nondalton, 1973, 1980–1981, 1983, 2004, and 2021.

Nondalton elders interviewed in 2001 reported that fewer people were participating in subsistence salmon harvesting and processing activities at fish camp, and generally spending less time at camp, a sentiment affirmed during 2007 ethnographic work (Fall et al. 2010; Stickman et al. 2003). Researchers in the 2021 study year also heard similar comments:

> … on Fourth of July, man, it'd be jam packed with people on both sides of the river down there. … getting ready for fish. July Fourth you know the fish aren't quite there yet, but almost, you know? The place would be buzzing. Not so much anymore. (NNL02+03)

One concern with people spending less time at fish camp is the effect that has on intergenerational transmission of knowledge. The question of whether youth are still learning subsistence ways of life has been a concern documented in Nondalton research since at least the early 2000s. Respondents in the 2021 study also perceived that kids were not learning how to live off the land the way the respondents had. One respondent attributed changing participation in subsistence activities to available amenities: kids spend more time on video games or the internet, rather than on subsistence. Kids have also been leaving the community for school, or after they have completed schooling and are young adults. In their 2007 ethnography, Fall et al. (2010) presented a more nuanced view on the question of youth and subsistence. During this study, researchers documented concerns that families were not making their kids go with them to fish camp, and that they were eating store food. For the case study families in that study, however, the researchers documented the involvement of youth, both of local Nondalton kids as well as some kids who had ties to Nondalton but were living elsewhere. One connection made in this research was that because people do not keep dogs anymore, and therefore do not need to put up fish for the dogs, a key role for the young children



Note Error bars represent the upper and lower bounds of the 95% confidence interval for all resources combined.

Figure 2-30.–Composition of harvest in pounds per capita, by resource category, Nondalton, 1973, 1980–1981, 1983, 2004, and 2021.

in fish camp has disappeared. In Nondalton, one of the first tasks kids were able to do in fish camp was to tie bundles of backbones to dry for later use for consumption by dogs. Kids could do this before they were able to help with many of the other fish camp tasks, so losing this early task has changed how kids participate in fish camp as they grow older. A graduate student at Case Western was engaged in research with Nondalton youth at the same time division researchers were working in the community. This graduate student found that while Nondalton youth may not be spending as much time at fish camp as previous generations, many of the teenaged youth were busy engaging in a variety of other camps, some of which were subsistence-focused, others on career development (Fall et al. 2010:173–176). These kids were not just playing video games, but were engaging in community activities besides fish camp.

Throughout all 6 study years, the nonsalmon fish category has composed less than 10% of the total harvest weight, with the sole exception being in 1983, when the total nonsalmon fish harvest weight was 48,946 lb, or 175 lb per capita (15% of the total harvest) (Table 2-32). Prior to 1983, nonsalmon fish composed 5% or less of the total harvest, but the portion of the total harvest weight that nonsalmon fish make up has increased slightly in recent studies. Despite the increased proportion of the total harvest, the total and per capita harvest weight of nonsalmon fish has decreased. Hazell et al. (2015) documented the harvest and use of nonsalmon fish in Nondalton and other local communities during 2012 and 2013 and estimated a per capita harvest of 30 lb in 2012 and 45 lb in 2013 (Hazell et al. 2015:124–125). The estimated harvest in 2012 is consistent with decreasing harvests seen through comprehensive household surveys. Hazell et al. (2015) attributed the relatively high harvest in 2013 to anomalous changes in environmental conditions. While warmer winters have created challenges for nonsalmon fish harvesters, the winter and spring of 2013 provided better conditions for ice fishing. Some of the respondents in the study also thought that while whitefish populations had generally been declining, the population in 2013 was strong.

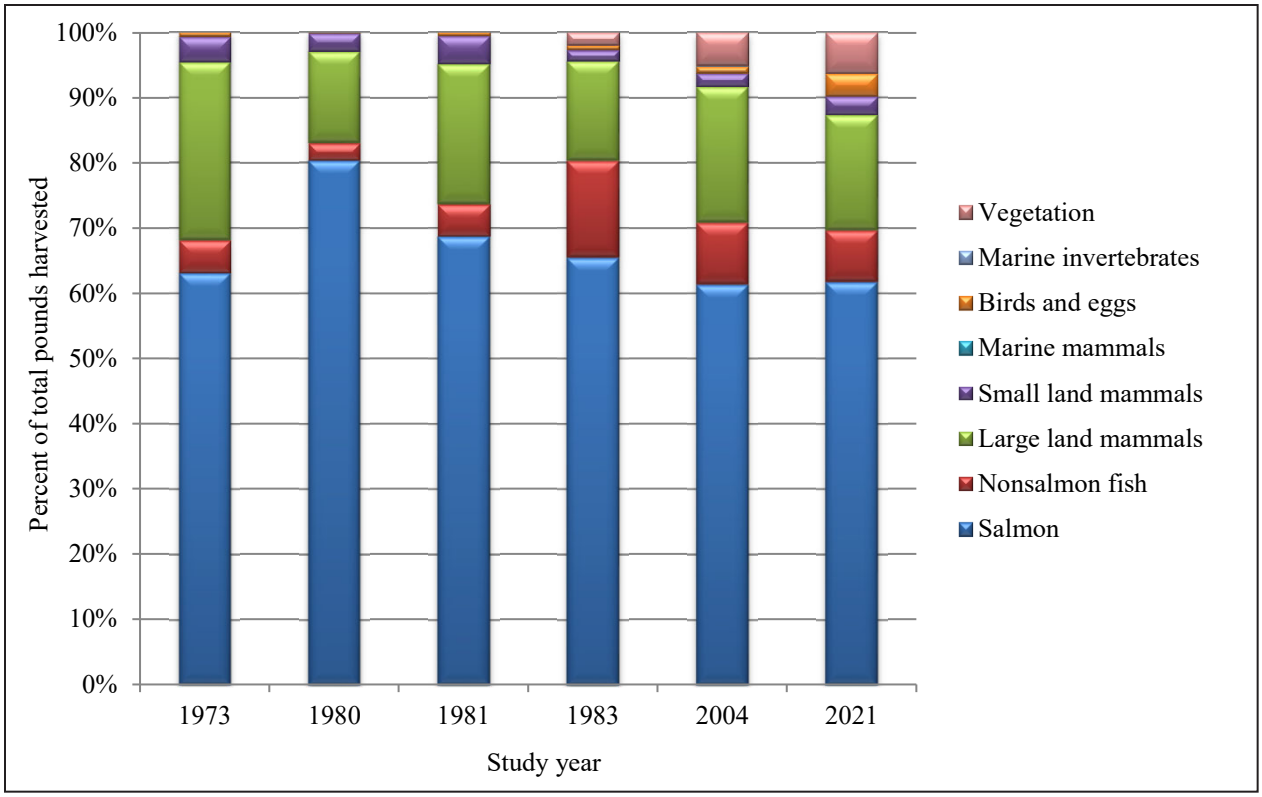


Figure 2-31.–Comparison of composition of harvest in pounds usable weight, by resource category, Nondalton, 1973, 1980–1981, 1983, 2004, and 2021.

Similar to salmon, Nondalton residents have perceived a decline in nonsalmon fish populations, particularly whitefishes. One explanation for those declines is the increasing prevalence of beaver dams in the area. While increasing beaver populations was not a new phenomenon, concern for the effect they have on whitefishes persists. During research for this study, respondents discussed lack of participation in nonsalmon fish harvesting, but did not discuss perspectives on whitefish populations.

Through interviews with elders and other knowledgeable residents, Hazell et al. (2015) documented similar concerns for the lack of youth participation and intergenerational transmission of knowledge as was discussed regarding salmon. In addition, environmental factors are also influencing the harvests of nonsalmon fish species. Nonsalmon fish are harvested year-round, but the winter harvest has always been an important component of the seasonal round. Warmer winter weather made planning harvesting activities more challenging, and travel to those activities more difficult and riskier. This warming trend is not new; Ellanna and Balluta (1992) documented accounts of freeze-up occurring later in the fall and break-up earlier in the spring than in the past. Fall et al. (2006) also documented accounts of and concerns about warmer waters in the summertime and winters not getting as cold or snowy as they had in the past. During his fieldwork in the early 1980s, Behnke (1982) noted the timing of breakup as late May or early June; in 2014, Hazell et al. (2015) study researchers were present in the community during breakup, which occurred in mid-April. During the 2021 study, survey and interview respondents noted that ice fishing was difficult in recent years due to poor ice conditions on Sixmile Lake.

Large land mammal harvests have varied greatly across the 6 study years. The harvest of large land mammals was highest in 1983, at 50,323 lb, or 180 lb per capita (15% of the total harvest) (Table 2-32). The overall total harvest of large land mammals has decreased since the 1980s: in 2004 the total harvest was 12,209 lb, or 74 lb per capita (21% of the total harvest), and in the current study year, the total harvest of large land mammals was 5,459 lb, or 53 lb per capita (18%). In contrast, the large mammal per capita harvests in the

Table 2-33.–Comparison of estimated total and per capita salmon harvests, Nondalton, 1973, 1980–1981, 1983, 2004, 2007–2008, and 2021.

	Estimated harvest in pounds usable weight							
	1973		1980		1981		1983	
Resource	Total	Per capita	Total	Per capita	Total	Per capita	Total	Per capita
Salmon	**78,401.0**	**506.5**	**139,480.0**	**832.7**	**100,903.0**	**507.2**	**215,447.0**	**768.7**
Chum salmon	–	–	–	–	–	–	–	–
Coho salmon	–	–	–	–	–	–	–	–
Chinook salmon	–	–	–	–	–	–	578.0	2.1
Pink salmon	–	–	–	–	–	–	–	–
Sockeye salmon	78,401.0	506.5	139,480.0	832.7	100,903.0	507.2	174,343.0	622.0
Spawning sockeye salmon	–	–	–	–	–	–	40,526.0	144.6

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Table 2-.33–Continued.

	Estimated harvest in pounds usable weight							
	2004		2007		2008		2021	
Resource	Total	Per capita	Total	Per capita	Total	Per capita	Total	Per capita
Salmon	**36,004.0**	**219.4**	**41,340.0**	**318.7**	**44,117.0**	**292.2**	**19,068.4**	**184.2**
Chum salmon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Coho salmon	28.0	0.2	73.0	0.6	52.0	0.3	201.8	1.9
Chinook salmon	62.0	0.4	210.0	1.6	157.0	1.0	301.7	2.9
Pink salmon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sockeye salmon	35,913.0	218.9	39,415.0	303.8	42,288.0	280.1	15,681.6	151.5
Spawning sockeye salmon	–	–	1,642.0	12.7	1,620.0	10.7	2,883.3	27.9

Sources For 2021, ADF&G Division of Subsistence household surveys, 2022; for previous study years, ADF&G Division of Subsistence Community Subsistence Information System (CSIS), accessed 2024.

Note "–" indicates no data are available.

earliest study years generally exceeded 150 lb per capita, with the largest per capita harvest estimated in 1973 (219 lb). The reasons for these observed decreases likely stem from at least 2 factors: the percentage of households engaged in hunting has decreased over time (Table 2-34) and local caribou populations have migrated west of the community, causing regulation changes that closed caribou hunting in the area during the study year, as described below.

Fall et al. (2006) reported that the caribou harvest was low for study year 2004 because of weather and poor snow conditions. As discussed about nonsalmon fishing, Nondalton residents noted generally warmer weather, especially during the winter, likely depressing large game hunting. During research conducted in Bristol Bay communities in the early 2000s, Holen et al. (2005) noted that local residents were reporting a decline in the number of caribou available to harvest during the study year and in recent prior years.

Table 2-34.–Composition of large land mammal harvest in pounds per capita and household participation rates, Nondalton, 1973, 1980–1981, 1983, 2001, 2004, and 2021.

	1973				1980			
	Percentage of households			Estimated harvest (ind)	Percentage of households			Estimated harvest (ind)
Resource	Attempting	Harvesting	Success rate		Attempting	Harvesting	Success rate	
Large land mammals	**–**	**–**	**–**	**155.0**	**–**	**–**	**–**	**103.0**
Black bear	–	24.0%	–	10.0	–	–	–	–
Brown bear	–	4.0%	–	1.0	–	–	–	–
Caribou	–	60.0%	–	115.0	–	71.0%	–	78.0
Dall sheep	–	–	–	–	–	–	–	–
Moose	–	52.0%	–	29.0	–	50.0%	–	25.0

-continued-

Table 2-34.–Continued.

	1981				1983			
	Percentage of households			Estimated harvest (ind)	Percentage of households			Estimated harvest (ind)
Resource	Attempting	Harvesting	Success rate		Attempting	Harvesting	Success rate	
Large land mammals	**–**		**–**	**138.0**	**95.2%**	**85.7%**	**90.0%**	**255.0**
Black bear	–	32.0%	–	17.0	28.6%	23.8%	83.2%	18.0
Brown bear	–	21.0%	–	9.0	4.8%	0.0%	0.0%	0.0
Caribou	–	68.0%	–	81.0	85.7%	85.7%	100.0%	203.0
Dall sheep	–	–	–	–	4.8%	0.0%	0.0%	0.0
Moose	–	53.0%	–	31.0	71.4%	38.1%	53.4%	33.0

-continued-

Table 2-34.–Continued.

	2001				2004			
	Percentage of households			Estimated harvest (ind)	Percentage of households			Estimated harvest (ind)
Resource	Attempting	Harvesting	Success rate		Attempting	Harvesting	Success rate	
Large land mammals	**60.6%**	**57.6%**	**95.0%**	**139.0**	**44.7%**	**26.3%**	**58.8%**	**40.0**
Black bear	51.5%	36.4%	70.6%	18.0	26.3%	13.2%	50.2%	5.0
Brown bear	15.2%	9.1%	60.0%	4.0	2.6%	0.0%	0.0%	0.0
Caribou	42.4%	27.3%	64.3%	23.0	31.6%	13.2%	41.8%	18.0
Dall sheep	21.2%	0.0%	0.0%	0.0	5.3%	0.0%	0.0%	0.0
Moose	57.6%	51.5%	89.5%	95.0	44.7%	15.8%	35.3%	17.0

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Table 2-34.–Page 2 of 2.

Resource	2021 Percentage of households Attempting	Harvesting	Success rate	Estimated harvest (ind)
Large land mammals	**51.7%**	**31.0%**	**60.0%**	**15.7**
Black bear	13.8%	10.3%	75.0%	3.9
Brown bear	3.4%	0.0%	0.0%	0.0
Caribou	0.0%	0.0%	–	0.0
Dall sheep	0.0%	0.0%	–	0.0
Moose	51.7%	31.0%	60.0%	11.8

Sources For 2021, ADF&G Division of Subsistence household surveys, 2022; for previous study years, ADF&G Division of Subsistence Community Subsistence Information System (CSIS), accessed 2024.

Note "–" indicates no data are available.

Table 2-35.–Changes in household access to harvest areas due to changing environmental conditions, Nondalton, 2021.

Sampled households	Households reporting changes to accessing harvest areas due to environmental conditions: Yes Number	Yes Percentage	No Number	No Percentage	Missing Number	Missing Percentage
29	14	48.3%	11	37.9%	4	13.8%

Source ADF&G Division of Subsistence household surveys, 2022.

Because they were so scarce, only a handful of people were hunting them. Usually, caribou would cross Sixmile Lake by the community's shoreline on their normal migration route to Lake Clark, but that had not happened in the previous 5 years. Van Lanen at al. (2018) mapped the distribution of the Mulchatna caribou herd as identified by local knowledge holders with observations spanning since the 1980s. In the 1980s, the herd's range fully encompassed the community of Nondalton, stretching south to the Naknek River. The highest-density areas of caribou were just to the west of the community. By the 1990s, the herd was not as far south, but was still around Nondalton, with high concentrations of caribou just to the west. By the 2000s, scattered caribou were still around Nondalton, but the main herd and the highest concentrations of caribou had moved away from Nondalton and to the west. For the most recent years (2010–2015), the Van Lanen et al. (2018) mapping results show the herd more scattered throughout their range, with the nearest high concentration of caribou being a small area around the Mulchatna River. The herd decreased in size over this time period and has continued its downward population trajectory. No hunting opportunity was provided for this herd in 2021.

The Mulchatna caribou herd has fluctuated in population and range in the past, and communities have responded with more or less caribou hunting and harvesting. Since moose have become available in the area (1950s), their populations have not fluctuated as much as caribou populations. As caribou have become more difficult to harvest, hunters have turned more to moose. During the early 2000s, moose meat donated by non-local sport hunters was a common occurrence, but Nondalton residents did not mention this source

of meat during the current research. From comprehensive harvest surveys, approximately 30 moose were harvested annually in Nondalton during the study years of 1973 through 1983 (Table 2-34). This estimate increased dramatically in 2001, partly due to an increased abundance of moose local to the community. In 2004 and 2021, many fewer moose were harvested (17 and 12), but approximately one-half of community households hunted moose in all 3 years. While annual harvest reporting is required for both moose and caribou, past research has demonstrated that these reported harvests through harvest tickets drastically underestimate hunters and harvests in the region (Behnke 1982; Holen et al. 2005; Schichnes and Chythlook 1991).

While the present study was not focused on how environmental conditions and changes affected subsistence harvests during the study year, some key respondents discussed the topic, as noted above, and the survey did ask 1 specific question concerning environmental conditions. For wild resources combined overall, respondents were asked to determine whether access to hunting, fishing, and gathering areas had changed in the last 5 years due to changing environmental conditions. A portion (38%) of sampled households said no and 48% reported that they had experienced changes to accessible harvest areas (Table 2-35). Respondents provided additional comments, primarily indicating that weather patterns had become unpredictable and that there was less ice and snow throughout the winters, limiting areas to which residents could travel.

Current and Historical Harvest Areas

The most recent previous comprehensive harvest survey documented comparable wild resource search and harvest areas for the 2004 study year. Detailed maps of that study year are available in Fall et al. (2006:see Appendix E). Mapping also occurred during the 1983 study, however the timeframe used for that mapping exercise was the previous 20 years. In addition, researchers mapped a limited selection of specific species, rather than all resources from every category. Division spatial data collection techniques changed between 2004 and 2021. Data were collected in 1983 and 2004 on paper maps upon which respondents drew locations of wild resource search and harvest areas; markings were later digitized by division staff. In 2021, researchers used digital maps on iPads to collect information. Using iPads allowed for more detailed and specific search and harvest area data collection, as well as documenting search areas that occurred far from the community.

Published maps from 2004 were presented at the species level, rather than the resource category level as was done in 2021. For comparison purposes, ADF&G staff reproduced select 2004 species harvest maps, aggregated at the resource category level (figures 2-32 through 2-35).

Salmon Search and Harvest Areas

Salmon harvest areas have remained largely the same from 2004 to 2021 (Figure 2-16; Figure 2-32). Residents fished in Lake Clark near the confluence of the Chulitna River in 2004, but similar use was not documented in 2021. In 2004, salmon fishing was documented south of town in the Newhalen River, an area not used in 2021. In both study years, households traveled to the old village site of Kijik to harvest fall sockeye salmon (spawning and spawnouts). The majority of fish camps used in Nondalton are in the area labeled as Fish Village on Figure 2-16, which was true in 2004 and 2021. Other areas fished in both 2004 and 2021 were on the south shore of Lake Clark, across from the area of Keyes Point.

Nonsalmon Fish Search and Harvest Areas

One of the major changes in fishing locations between the 2004 and 2021 study years was the absence of fishing along the Newhalen River in 2021 (Figure 2-21). In 2004, Nondalton residents used the Newhalen River more than halfway to Iliamna Lake to harvest various species of nonsalmon fish (Fall et al. 2006:see Appendix E). The area within the vicinity of Nondalton was heavily used both in 2004 and 2021. While residents fished the Chulitna River in 2021, no one fished in the bay at the mouth of the river, whereas in 2004, fishers used that area extensively (especially for northern pike and burbot), but did not fish the river itself. Respondents spoke of fewer households fishing for nonsalmon fish with a net under the ice, which may be part of the reason for changed harvesting areas.

Land Mammals Search and Harvest Areas

In 2021, there were not enough households providing spatial data for small land mammal harvest and use areas to publish a map; the harvest areas documented by the few households engaged in harvesting small land mammals totaled less than 1 square mile. The small area used, and the few households engaging in this activity, are a major change from 2004. During that study year, one-half of Nondalton households harvested small land mammals, documenting more than 60 square miles for their hunting and trapping activities (Fall et al. 2006). For hunting large land mammals, Nondalton residents used the same general areas west and north of the community for hunting in 2021 as they did in 2004, but those areas have become less extensive. The biggest change between the 2 years, however, is the complete lack of caribou hunting in 2021 due to regulatory closures, which is certainly responsible for some of the documented changes overall. In 2004, the hunting areas for caribou, moose, and other large land mammals focused on a large area radiating from Nondalton, especially in westward and northward directions, but also wrapped around the entirety of Sixmile Lake and extended north nearly to Kijik Lake (Figure 2-33). Moose were additionally hunted on both shores of Lake Clark, all the way around Little Lake Clark; also, other large land mammals were hunted on the southern shore of Lake Clark in an area north of Port Alsworth to the northern end of Little Lake Clark. In 2021, hunting still occurred within the primary focus area, but in smaller, more discrete areas that were concentrated to places accessible from the Chulitna River. Residents did not hunt in the immediate vicinity of the community in 2021, a notable change from 2004.

Residents of Nondalton described the Chulitna River as the most important hunting area for moose, which is reflected in the 2021 large land mammals search and harvest map (Figure 2-18). As noted earlier, during the data review, residents noted that they use more areas than were documented during surveys, particularly the Chulitna River flats. Community members expressed concern that increased hunting pressure along the Chulitna River during the past 15–20 years has increased significantly from both guided sport hunts and hunters from Port Alsworth and other surrounding communities. Some Nondalton residents noted increased guided sport fishing in the Chulitna River during hunting season. The increased presence of hunting people and increased hunting pressure have made harvesting moose more difficult in recent years.

Birds and Eggs Search and Harvest Areas

Both waterfowl and upland bird search and harvest areas have constricted and shifted since 2004. No search and harvest areas for either type of bird were recorded on Lake Clark in 2021, in a departure from the 2004 map, which shows waterfowl and upland bird harvest areas in the Chulitna River flats along the northwestern shore of Lake Clark (Fall et al. 2006:see Appendix E). Although this area was not documented during the surveys in 2021, residents in attendance at the data review meeting noted that this area is still one of the most important waterfowl hunting areas for Nondalton residents. In 2021, bird hunters documented approximately 20 miles of search and harvest effort along the Newhalen River, which was not recorded in 2004 (Figure 2-26). Upland bird harvest areas in 2004 were documented around the community, south of town, and on the north shore of Lake Clark; in 2021 the only hunting areas were just to the northwest of the community. Although harvest areas have become smaller, more residents participated in hunting and harvesting birds and eggs, especially grouse, in 2021 than in 2004. Grouse populations can fluctuate widely from year to year due to a number of factors, including climate, predator abundance, or food conditions. There is little indication from survey or interview respondents about the status of bird populations during either study year, but it is possible that the changes in hunting areas correspond to changes in the availability of grouse populations.

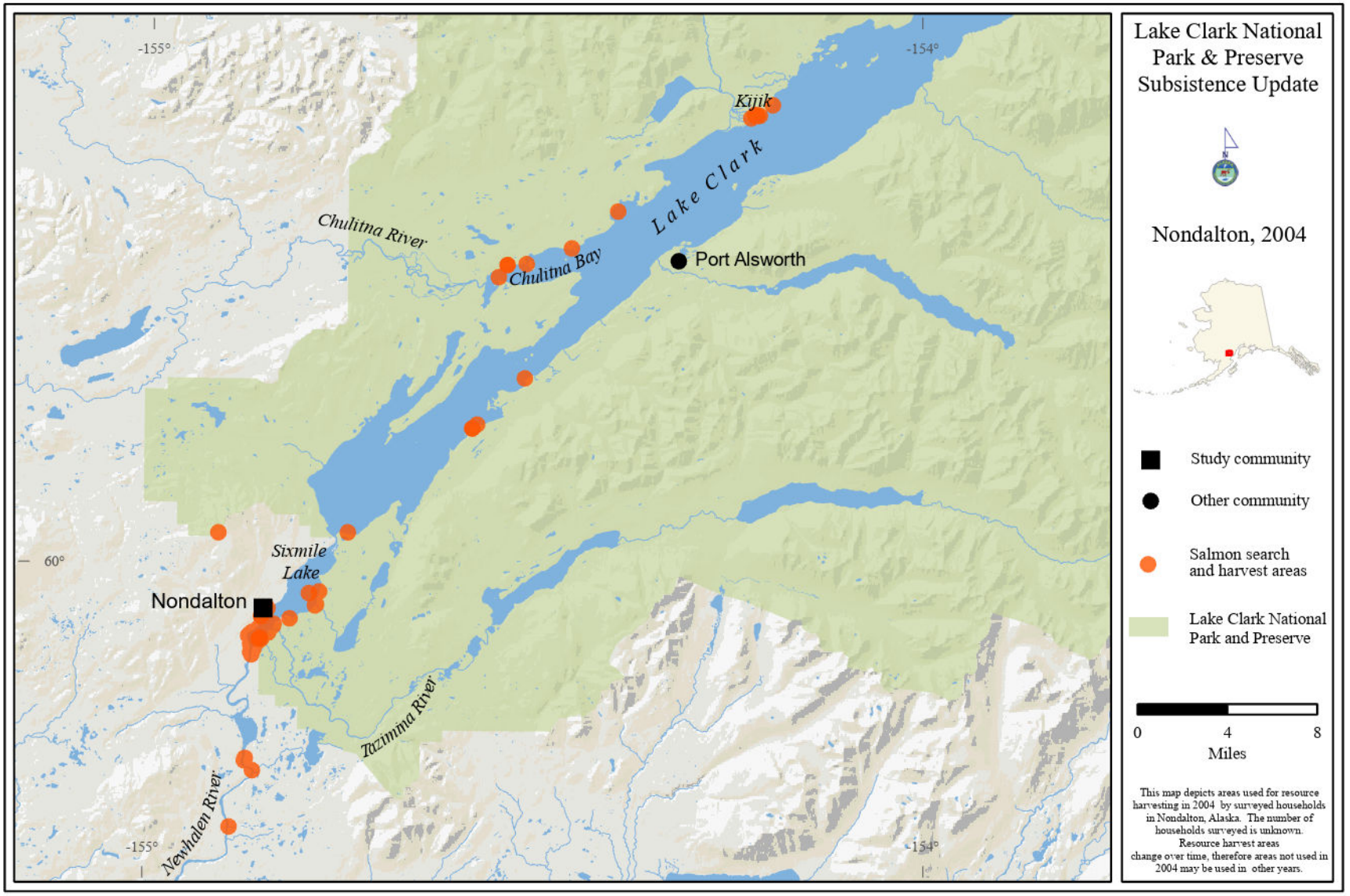


Figure 2-32.–Fishing and harvest locations of salmon, Nondalton, 2004.

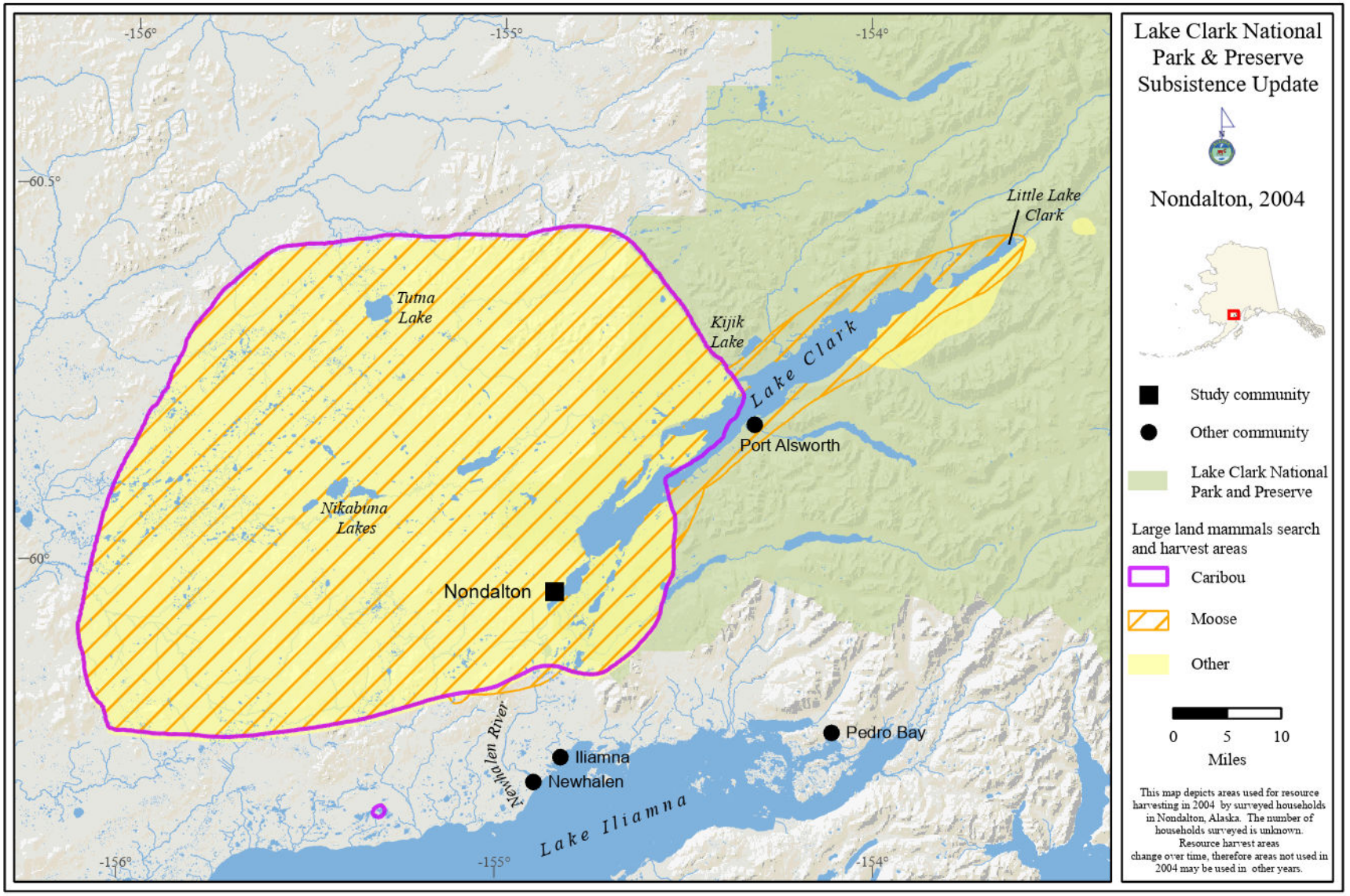


Figure 2-33.–Hunting and harvest locations of large land mammals, Nondalton, 2004.

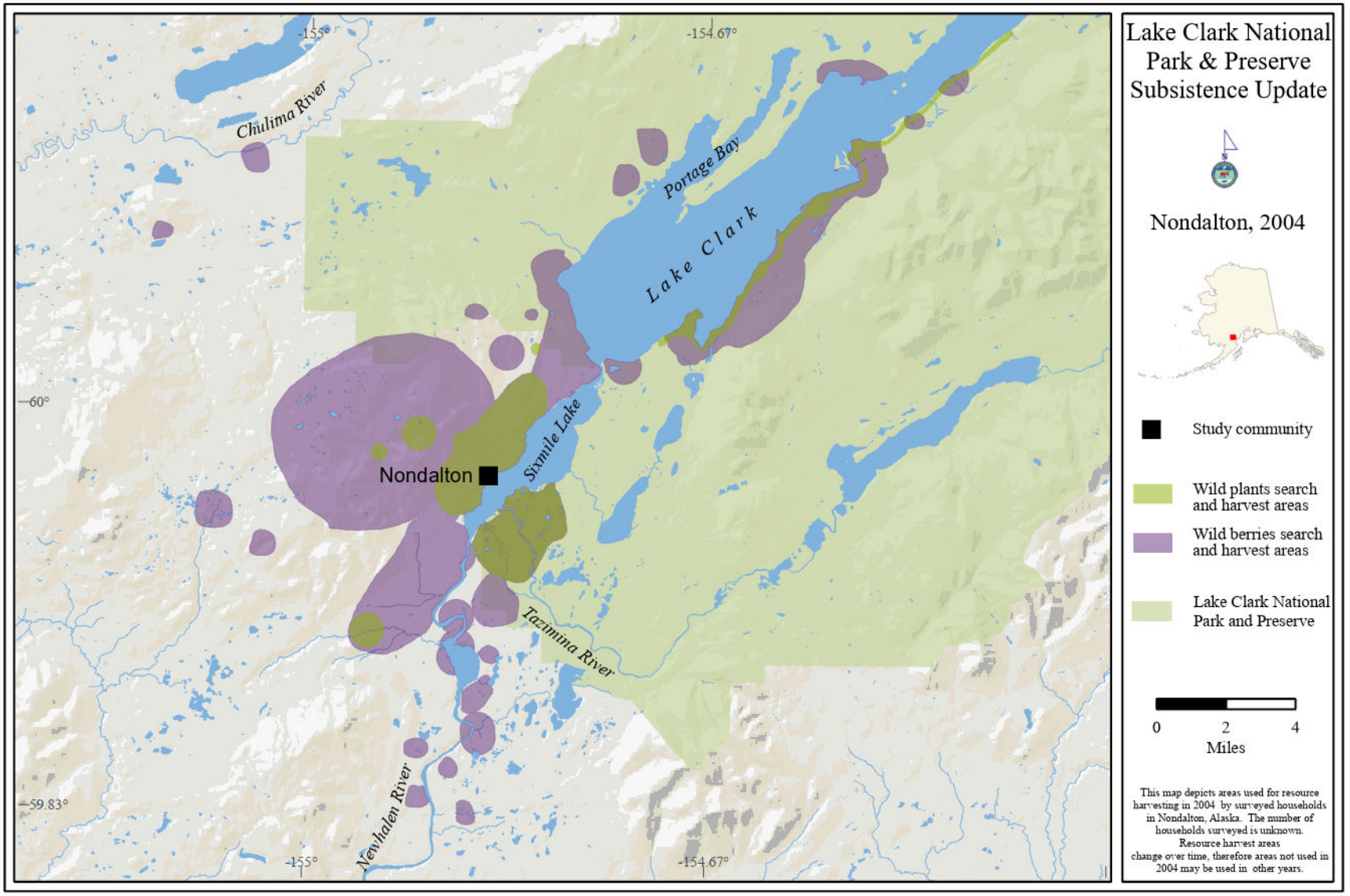


Figure 2-34.–Gathering and harvest locations of wild plants and berries, Nondalton, 2004.

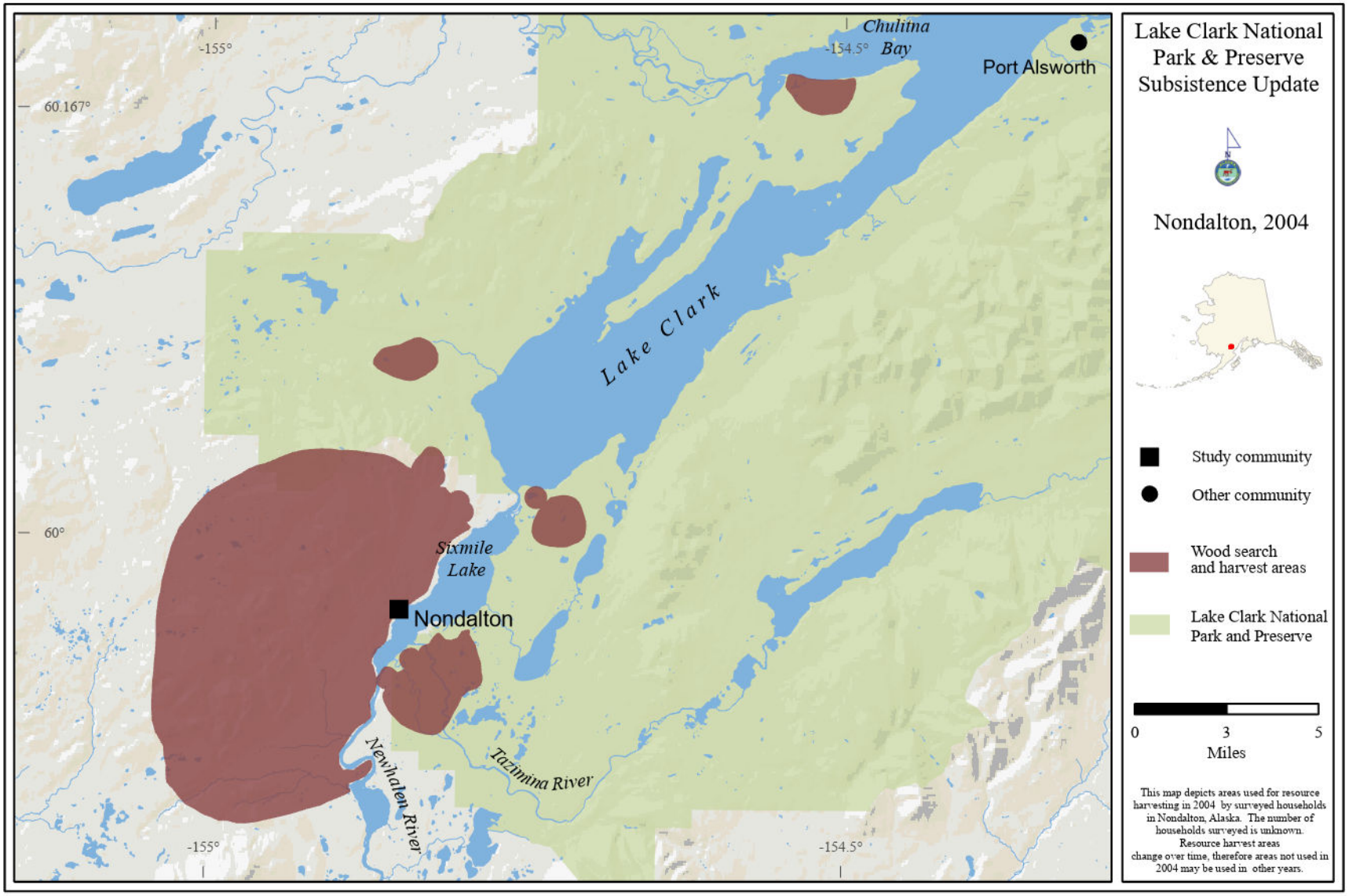


Figure 2-35.–Gathering and harvest locations of wood, Nondalton, 2004.

Vegetation Search and Harvest Areas

Berry harvesting areas have largely remained the same between 2004 and 2021 (Figure 2-34; Figure 2-23). Areas were used surrounding Sixmile Lake and intermittently along the southern and southeastern shore of Lake Clark.

Wild plant harvest and search areas have reduced since 2004. Originally surrounding the southern end of Sixmile Lake and running along a large portion of the southeastern shore of Lake Clark, they are now concentrated on the northwestern side of Sixmile Lake, at most 2 miles up the lake from Nondalton, and in a less than 1-mile-wide area near Fish Village.

Wood harvest and search areas have also reduced since 2004 (Figure 2-35; Figure 2-24). The harvest and search area used to extend in a 5-mile radius around Nondalton, and now only includes 3 distinct areas within 2 miles of Nondalton. All areas in 2021 are less than 2 miles long.

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 survey administration, so not all households are represented in the summary. In addition, respondents expressed their concerns about wild resources during the community review meeting of preliminary data. These concerns have been included in the summary.

Fish

One survey respondent commented on warmer-than-average water in 2019 and noted that it seemed to cause the fish to be "too soft;" as a result, they did not set a net that year. Another survey respondent spoke about the intergenerational nature of their fish camp. They use their camp each year and their children and grandchildren accompany them. They appreciate not only the help, but the ability to carry on and pass down subsistence harvesting practices.

Large Land Mammals

Historically caribou have been among the most important and used subsistence resources for this community. Throughout this study, Nondalton community members expressed concerns about the area's caribou population. Respondents spoke about the large abundance of caribou that used to exist and how the lowered population is concerning; a few respondents opined that hunting pressure was part of the reason for the decline. Several respondents voiced the observation that the caribou have been avoiding the area surrounding Nondalton since the exploration for the Pebble Mine began in the mid-2000s. These residents believe that the increased presence of helicopters and explosives may have changed caribou migration patterns. Other residents noted an increase in the number of bears, noting that this may be a contributing factor to a decline in caribou. As was noted above, some residents perceive that hunting pressure on moose from non-local hunters has created challenges to their ability to harvest a moose. One survey respondent expressed a desire for hunting in the area to be limited to tribal members.

Subsistence and Community

One survey respondent expressed an appreciation for the tribe encouraging community residents to engage in subsistence practices through their purchase of communal subsistence equipment, including a setnet, meat grinder, and food processor. This same respondent noted that not all residents have access to transportation for subsistence activities so their household tries to harvest farther away from the community, leaving more easily accessible locations to those residents without transportation means.

One survey respondent echoed the observations of key respondent interview participants concerning the presence of winter ice. This respondent had noted that waters were warmer than usual in 2019 and 2020, but not in 2021. They continued to note that the lake froze in November during 2021, which was the first time that had happened in 20 years, and the year overall felt like a "normal" winter. Another respondent noted greater fluctuation in water levels, remarking that a few years ago the Chulitna River was very low, but the very next year it flooded.

ACKNOWLEDGMENTS

The Division of Subsistence would first like to thank the Nondalton Tribal Council for their efforts and guidance to make this project possible. In particular, Fawn Silas and Michelle Wilson were essential to the success of the survey administration and effort, and we owe them our sincerest thanks. Additionally, we would like to thank the Lake Clark National Park Subsistence Resource Commission and the National Park Service for their incredible support for this project. Finally, we acknowledge and thank all of the residents of Nondalton who took the time to complete a survey or participate in an interview, or simply welcomed us to their community. We learned a great deal from each of you, and hope this report reflects the depth of your community and the rich subsistence ways of life that our research team experienced in Nondalton.

3. PORT ALSWORTH HARVEST SURVEY RESULTS

Community Background

Port Alsworth is situated on the south shore of Lake Clark, about 165 airmiles southwest from Anchorage (Figure 1-1). The topography of the land is characterized by dense willow and spruce groves, leading to rolling foothills and eventually to steep mountain peaks that reach around 4,000 feet in elevation. Tanalian Mountain (elevation 3,878 feet) rises prominently to the east of the community, directly south of this mountain is Kontrashibuna Lake, which flows into Tanalian River and eventually into Lake Clark. Port Alsworth is located within the boundaries of Lake Clark National Park and Preserve (LACL), an area that is home to a multitude of fish and wildlife, including brown and black bear, Dall sheep, moose, salmon and nonsalmon fish, and many types of birds (Himes-Cornell et al. 2013).

In the Dena'ina language, Lake Clark is known as Qizhjeh Vena.[1] The Dena'ina people have inhabited the area for thousands of years. The history of Euro-American settlement began in the late 1700s with Russian missionaries.[2] Throughout the late 1890s and early 1900s an influx of Euro-American prospectors moved into the area in search of copper and gold. At the time of the first American expeditions into the Lake Clark area, many Dena'ina lived at Kijik, a village on the northwest shore of Lake Clark. Port Alsworth was originally settled in the late 1880s by prospectors, and some Dena'ina moved there from Kijik. In 1902, a measles and flu epidemic decimated the local Dena'ina population; many remaining Dena'ina people settled in Old Nondalton, Lime Village, or moved to a settlement known as Tanalian Point.[3] Tanalian Point was established south of where Port Alsworth is today and was a hub for prospectors, trappers, and travelers.[4] Kijik was abandoned in 1914 and many Euro-American settlers abandoned Tanalian Point around the same time.

In 1942, Leon "Babe" Alsworth Sr. moved his family from Bristol Bay to Tanalian Point to establish a homestead. The Alsworth family relocated to Hardenberg Bay in 1944 and started one of the first air taxi services in the region: Lake Clark Air. A post office was established in 1950. The aviation business in Port Alsworth has continued and many guide services and lodges have made Port Alsworth their base since this time.

After the enactment of the Alaska National Interest Lands Conservation Act (ANILCA) in December 1980, LACL was established, and Port Alsworth became the site of the National Park Service field headquarters and visitors center for the new park. Today, Port Alsworth remains an unincorporated community located in the Lake and Peninsula Borough. Much of the community exists on private land as inholdings within LACL. The community does not have a federally recognized tribe but is served by the village corporation Tanalian, Inc.

1. National Park Service, 2022, "Dena'ina Athabascan Culture," accessed October 2024, https://www.nps.gov/lacl/learn/historyculture/denainaculture.htm
2. National Park Service, 2015, "History – Lake Clark," accessed October 2024, https://www.nps.gov/lacl/learn/historyculture/history.htm
3. National Park Service, 2015, "History – Lake Clark," accessed October 2024, https://www.nps.gov/lacl/learn/historyculture/history.htm
4. National Park Service, 2017, "Tanalian Point," accessed October 2024, https://www.nps.gov/lacl/learn/historyculture/tanalian-point.htm#:~:text=structure%20in%20Lake%20Clark.,Lake%2C%20and%20the%20Bonanza%20Hills.

There is no road connecting Port Alsworth to another community and many people access Port Alsworth by plane—in the study year, there were 2 privately owned and operated airstrips in the community. Residents of regional communities can access Port Alsworth over land, by boat, or snowmachine. The local economy is most active in the summer months and caters to tourists who come to explore the national park, attendees of religious-based camps and lodges,[5] and sport hunters and fishermen who use the many guide services headquartered at Port Alsworth. Throughout the rest of the year, the community has 2 privately owned air taxi services that operate, a K–12 school, a fuel delivery service, and several bed-and-breakfast businesses. Year-round federal, state, and local agencies present in Port Alsworth include the National Park Service, a medical clinic, and a post office.

Population Estimates and Demographic Information

Based on a survey sample of 35 households, the estimated 2021 Port Alsworth population was 133 individuals living in 49 households (Table 1-4; Table 3-1). Of these residents, an estimated 13% (17 people) were Alaska Native. Compared to the 2020 U.S. Census, this study estimated 50 fewer residents and less than one-half the Alaska Native population, but the same number of households. Considering the margin of error surrounding the American Community Survey (ACS) 5-year (2017–2021) average, this study's estimates were not significantly different (Table 3-1; Figure 3-1). Reasons this study's estimates differ from the U.S. Census may relate to different criteria used by the agencies to determine full-time residency. The criteria employed in this study required at least 9 months of occupancy in the community during the study year and self-identification as a full-time resident, while the census counts any individual living in a domicile at the time of the count.

Based on census counts and Alaska Department of Labor estimates, the overall population of Port Alsworth has increased since 1939, growing from 18 residents to a peak of 199 people in 2017 (Figure 3-2). The first 5 decades after its settlement, the population of Port Alsworth grew slowly, adding approximately 40 residents over that time period. Between 1990 and 2010, the population tripled. Since 2010, the population has continued to grow, though somewhat less rapidly, adding approximately 30 people over the following decade. Division of Subsistence population estimates mirror this increasing population trend, albeit in a less pronounced way. According to residents, population growth stems from the growing community infrastructure, businesses, and agency presence increasing employment opportunities from lodges, churches, and the National Park Service. During review of the final report, members of the Port Alsworth Improvement Corporation (PAIC) conveyed that this study's population estimate was low; even factoring in this study's residency requirements, PAIC members estimated their community population to be in line with the federal census count or Alaska Department of Labor estimate (Figure 3-2). PAIC members also shared that the percentage of Alaska Native residents is higher than that estimated in this study.

Household demographic characteristics provide important information about the structure and stability of the community. The mean household size in 2021 was 3 individuals, with a range from 1 person in a household to 8 people (Table 3-2). This study described a relatively young community: the average age of Port Alsworth residents was estimated at 32 years old with the youngest individual being 1 year old and the oldest individual being 76 years old. The population is characterized by a strong representation of children in the community between the ages of 0–9; one-third of the community was younger than 20 years of age. (Table 3-3; Figure 3-3). The ratio of females (60) to males (73) was relatively even across age cohorts; over the age of 44, there were more disparities between the number of men and women, though neither gender was predominant among the older residents. The largest female and male age cohorts were both for ages 40–44.

5. The Samaritan's Purse operates a lodge for wounded United States military veterans in Port Alsworth and since 1973 the Tanalian Youth Bible Camp has operated in the community.

Table 3-1.–Population estimates, Port Alsworth, 2020 and 2021.

	Census (2020)	5-year American Community Survey (2017–2021)		This study (2021)	
		Estimate	Range[a]	Estimate	Range[b]
Total population					
Households	49	16.0	0 – 32	49.0	
Population	186	116.0	44 – 188	133.0	118 – 148
Alaska Native					
Population	51	16.0	0 – 33	16.8	7 – 27
Percentage	27.4%	13.8%	0.0% – 100.0%	12.6%	5.3% – 100.0%

Sources U.S. Census Bureau (n.d.) for 2020 decennial census data, and for American Community Survey (ACS) 5-year average estimate for 2021 (2017–2021); and ADF&G Division of Subsistence household surveys, 2022, for 2021 estimate.

Note Division of Subsistence household survey elegiblity requirements differ from those used by ACS.

a. ACS data range is the reported margin of error.

b. No range of households is estimated for division surveys.

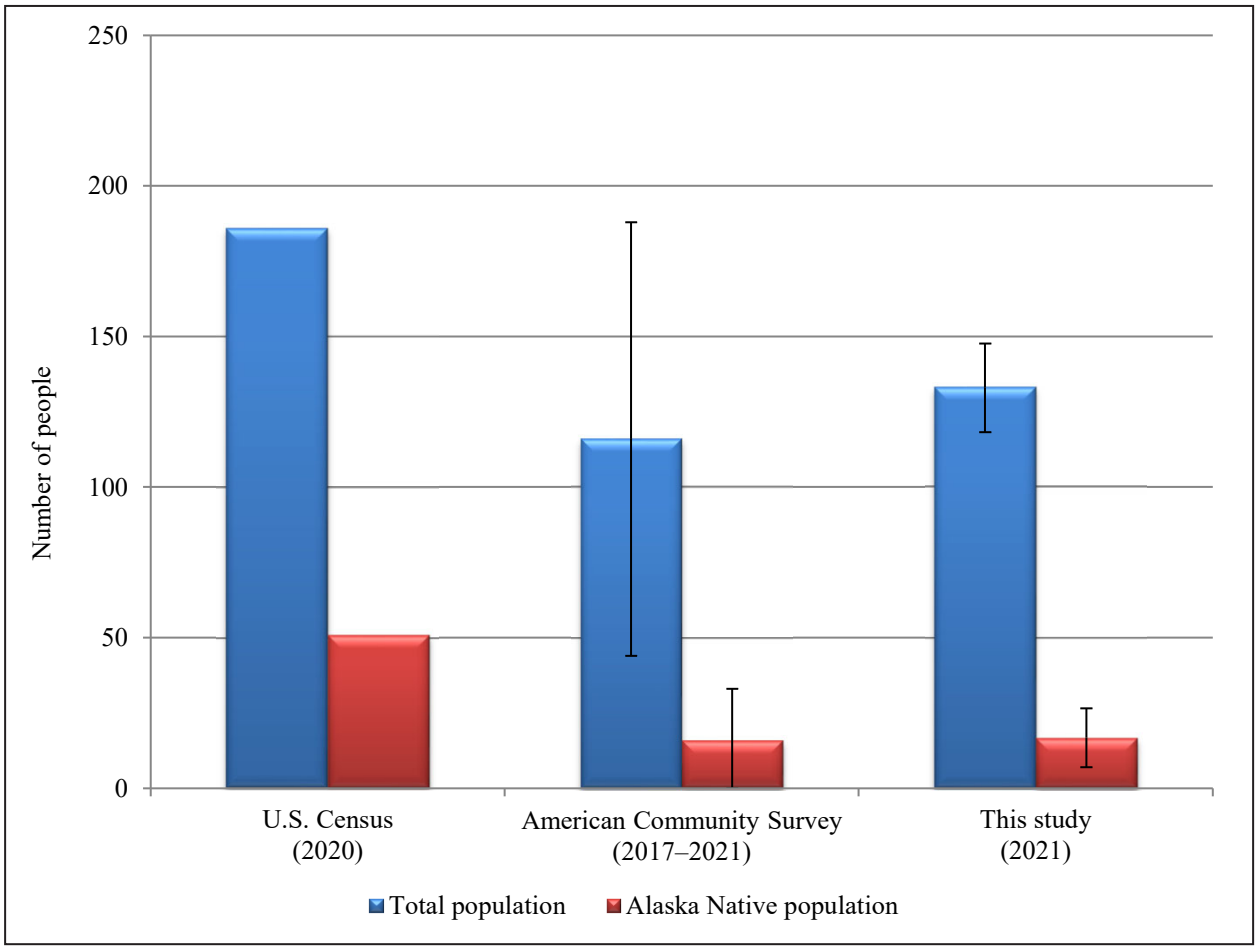


Figure 3-1.–Alaska Native and overall population estimates, Port Alsworth, 2020 and 2021.

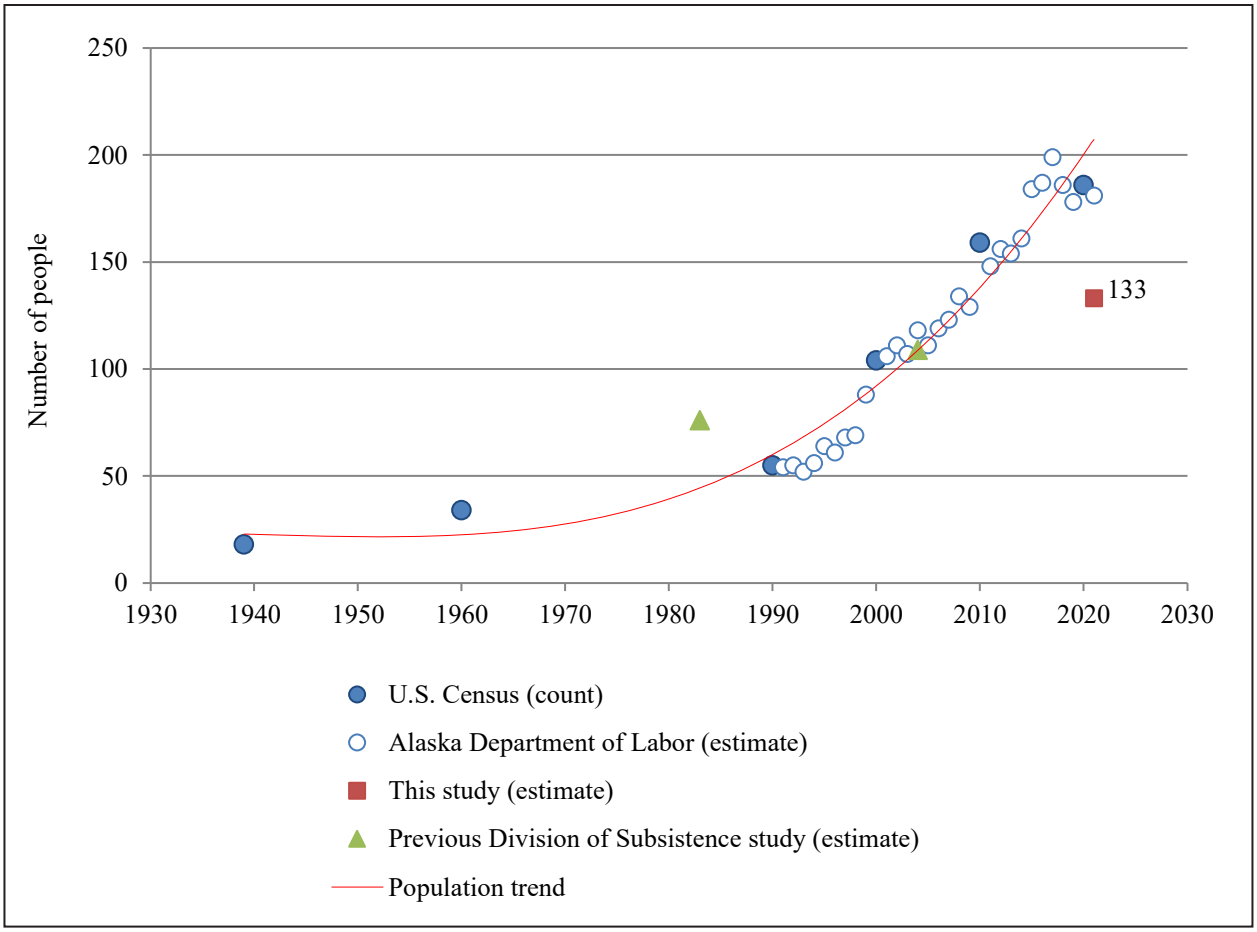


Figure 3-2.–Historical population estimates, Port Alsworth, 1939–2021.

Table 3-2.–Sample and demographic characteristics, Port Alsworth, 2021.

Characteristics	Community Port Alsworth
Sampled households	35
Eligible households	49
Percentage sampled	71.4%
Sampled population	95
Estimated community population	133.0
Household size	
Mean	2.7
Minimum	1
Maximum	8
Age	
Mean	32.2
Minimum[a]	1
Maximum	76
Median	36
Length of residency	
Total population	
Mean	11.8
Minimum[a]	1
Maximum	58
Heads of household	
Mean	14.4
Minimum[b]	1
Maximum	58
Alaska Native	
Estimated households[c]	
Number	8.4
Percentage	17.1%
Estimated population	
Number	16.8
Percentage	12.6%

Source ADF&G Division of Subsistence household surveys, 2022.

a. A minimum age or residency length of 0 (zero) is used for infants who are less than 1 year of age but eligible for the survey.

b. Residency length of 0 (zero) indicates residency of less than 1 year but eligible for the survey.

c. The estimated number of households in which at least 1 head of household is Alaska Native.

Table 3-3.–Population profile, Port Alsworth, 2021.

	Male			Female			Total		
Age	Number	Percentage	Cumulative percentage	Number	Percentage	Cumulative percentage	Number	Percentage	Cumulative percentage
0–4	8.4	11.5%	11.5%	4.2	7.0%	7.0%	12.6	9.5%	9.5%
5–9	7.0	9.6%	21.2%	5.6	9.3%	16.3%	12.6	9.5%	18.9%
10–14	4.2	5.8%	26.9%	1.4	2.3%	18.6%	5.6	4.2%	23.2%
15–19	8.4	11.5%	38.5%	5.6	9.3%	27.9%	14.0	10.5%	33.7%
20–24	2.8	3.8%	42.3%	2.8	4.7%	32.6%	5.6	4.2%	37.9%
25–29	0.0	0.0%	42.3%	1.4	2.3%	34.9%	1.4	1.1%	38.9%
30–34	4.2	5.8%	48.1%	5.6	9.3%	44.2%	9.8	7.4%	46.3%
35–39	4.2	5.8%	53.8%	8.4	14.0%	58.1%	12.6	9.5%	55.8%
40–44	9.8	13.5%	67.3%	8.4	14.0%	72.1%	18.2	13.7%	69.5%
45–49	7.0	9.6%	76.9%	4.2	7.0%	79.1%	11.2	8.4%	77.9%
50–54	2.8	3.8%	80.8%	7.0	11.6%	90.7%	9.8	7.4%	85.3%
55–59	7.0	9.6%	90.4%	1.4	2.3%	93.0%	8.4	6.3%	91.6%
60–64	4.2	5.8%	96.2%	0.0	0.0%	93.0%	4.2	3.2%	94.7%
65–69	0.0	0.0%	96.2%	1.4	2.3%	95.3%	1.4	1.1%	95.8%
70–74	0.0	0.0%	96.2%	1.4	2.3%	97.7%	1.4	1.1%	96.8%
75–79	1.4	1.9%	98.1%	0.0	0.0%	97.7%	1.4	1.1%	97.9%
80–84	0.0	0.0%	98.1%	0.0	0.0%	97.7%	0.0	0.0%	97.9%
85–89	0.0	0.0%	98.1%	0.0	0.0%	97.7%	0.0	0.0%	97.9%
90–94	0.0	0.0%	98.1%	0.0	0.0%	97.7%	0.0	0.0%	97.9%
95–99	0.0	0.0%	98.1%	0.0	0.0%	97.7%	0.0	0.0%	97.9%
100–104	0.0	0.0%	98.1%	0.0	0.0%	97.7%	0.0	0.0%	97.9%
Missing	1.4	1.9%	100.0%	1.4	2.3%	100.0%	2.8	2.1%	100.0%
Total	**72.8**	**100.0%**	**100.0%**	**60.2**	**100.0%**	**100.0%**	**133.0**	**100.0%**	**100.0%**

Source ADF&G Division of Subsistence household surveys, 2022.

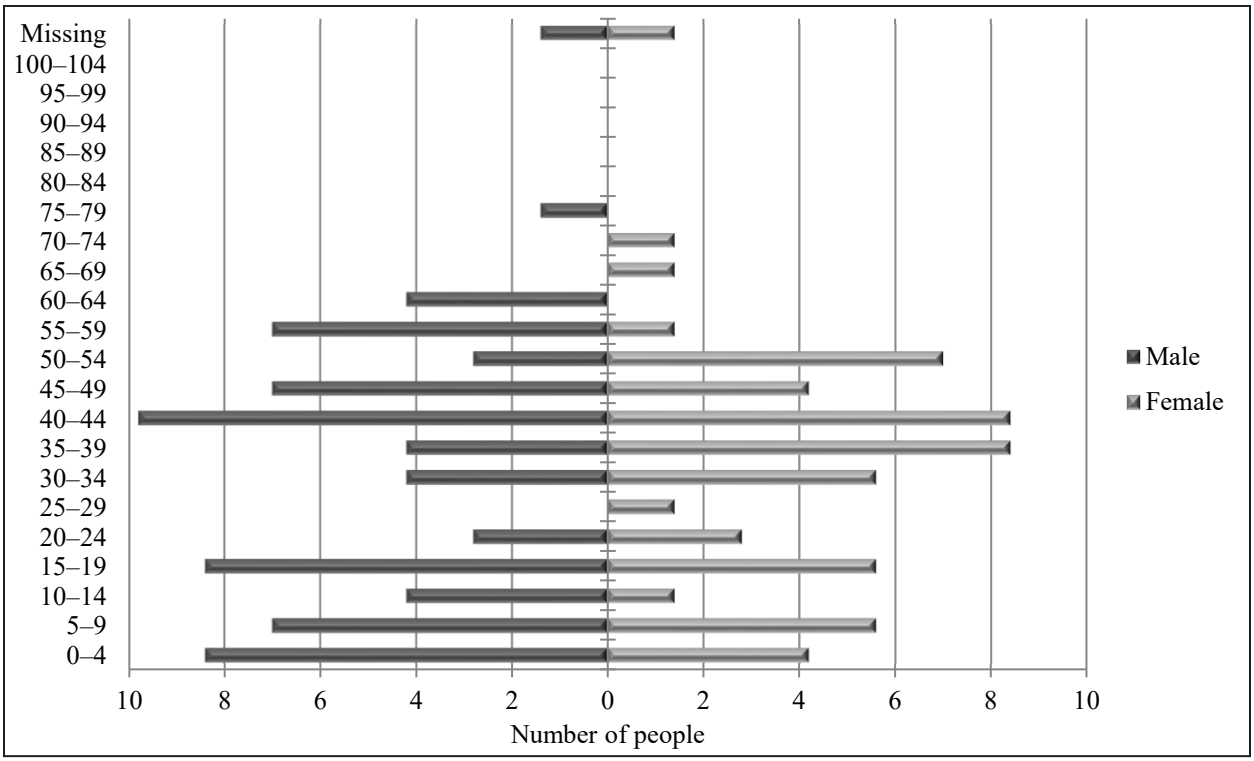


Figure 3-3.–Population profile, Port Alsworth, 2021.

Table 3-4.–Birthplaces of household heads, Port Alsworth, 2021.

Birthplace	Percentage
Anchorage	3.4%
Eek	1.7%
Fairbanks	1.7%
Iliamna	1.7%
Juneau	1.7%
Port Alsworth	11.9%
Seward	1.7%
Pile Bay	1.7%
Other U.S.	71.2%
Foreign	3.4%

Source ADF&G Division of Subsistence household surveys, 2022.

Note "Birthplace" means the place of residence of the parents of the individual when the individual was born.

Table 3-5.–Birthplaces of population, Port Alsworth, 2021.

Birthplace	Percentage
Anchorage	2.1%
Eek	1.1%
Fairbanks	1.1%
Iliamna	1.1%
Juneau	1.1%
King Salmon	3.2%
Kokhanok	1.1%
Nondalton	2.1%
Pilot Point	1.1%
Port Alsworth	24.2%
Russian Mission	2.1%
Seward	1.1%
Pile Bay	1.1%
Other U.S.	53.7%
Foreign	3.2%
Missing	1.1%

Source ADF&G Division of Subsistence household surveys, 2022.

Note "Birthplace" means the place of residence of the parents of the individual when the individual was born.

Few residents were born in Port Alsworth; just 12% of household heads and 24% of the overall population were born locally (tables 3-4 and 3-5). The majority of residents (54%) and household heads (71%) were born in the United States outside of Alaska. The increase in the percentage of the population born locally indicates that people are moving to Port Alsworth, from either another state or another Alaska town, and staying. The mean length of residency was 12 years for the general population and 14 years for household heads (Table 3-2). The longest-residing resident in 2021 had lived in the community for 58 years.

Income and Cash Employment

One of the first established businesses in the contemporary Port Alsworth community was an air taxi service, and the importance of that industry continues to be seen in the town's employment characteristics. Combined, the transportation, communication, and utilities industry and the services sector composed more than one-half of total community income in 2021 (Table 3-6). Employment with the federal government (17%) and local government (16%) composed another one-third of community income. The per capita income in 2021 in Port Alsworth was $40,033, and the mean household income was $108,661, the majority of which (92%) came from wage-earning employment (Table 1-7; Table 3-6). The largest sources of other income were the Alaska Permanent Fund dividend, food stamps, energy assistance, and Social Security. Almost all households had both earned income (49 households) and other sources of income (48 households).

Table 3-6.–Estimated earned and other income, Port Alsworth, 2021.

Income source	Number of employed adults	Number of households	Total for community	-/+ 95% CI	Mean per household	Percentage of total community income
Earned income						
Transportation, communication, and utilities	30.8	23.9	$1,742,608	$1,019,400 – $2,587,867	$35,563	32.7%
Services	22.2	15.2	$1,074,175	$300,431 – $1,959,494	$21,922	20.2%
Federal government	18.2	14.0	$895,999	$341,447 – $1,532,798	$18,286	16.8%
Local government, including tribal	23.9	21.1	$846,332	$345,248 – $1,489,051	$17,272	15.9%
Industry not specified	2.8	2.8	$171,842	$72,000 – $485,426	$3,507	3.2%
Agriculture, forestry, and fishing	4.2	4.2	$100,999	$16,457 – $311,534	$2,061	1.9%
Construction	2.7	1.4	$54,344	$40,000 – $168,397	$1,109	1.0%
Earned income subtotal	**88.4**	**49.0**	**$4,886,299**	**$4,007,533 – $5,889,200**	**$99,720**	**91.8%**
Other income						
Alaska Permanent Fund dividend		44.8	$133,753	$101,374 – $165,412	$2,730	2.5%
Food stamps		4.2	$76,190	$2,240 – $286,440	$1,555	1.4%
Energy assistance		1.5	$74,690	$50,000 – $350,000	$1,524	1.4%
Social Security		42.0	$73,016	$54,788 – $100,240	$1,490	1.4%
Disability		1.4	$31,324	$22,000 – $154,000	$639	0.6%
TANF (Temp. Asst. for Needy Families)		6.9	$26,458	$891 – $89,091	$540	0.5%
Adult Public Assistance (OAA, APD)		5.6	$7,436	$1,558 – $41,344	$152	0.1%

-continued-

Table 3-6.–Page 2 of 2.

Income source	Number of employed adults	Number of households	Total for community	-/+ 95% CI	Mean per household	Percentage of total community income
Supplemental Security Income (SSI)		6.9	$7,367	$2,240 – $15,260	$150	0.1%
Longevity bonus		4.1	$5,322	$3,900 – $11,760	$109	0.1%
Workers' compensation/ insurance		1.5	$1,942	$1,300 – $9,100	$40	0.0%
Veterans assistance		1.4	$573	$0 – $2,302	$12	0.0%
Child support		0.0	$0	$0 – $0	$0	0.0%
Foster care		0.0	$0	$0 – $0	$0	0.0%
Fuel vouchers		0.0	$0	$0 – $0	$0	0.0%
Meeting honoraria		0.0	$0	$0 – $0	$0	0.0%
Other income subtotal		**47.6**	**$438,069**	**$266,386 – $678,461**	**$8,940**	**8.2%**
Community income total			**$5,324,368**	**$4,449,374 – $6,346,231**	**$108,661**	**100.0%**

Source ADF&G Division of Subsistence household surveys, 2022.

Note Values of 0 (zero) for lower-range CI for non-zero income estimates indicate low precision and high variability. Total reported income from survey forms for these income sources may plausibly be the total community income for that source. Reported values are omitted to maintain confidentiality.

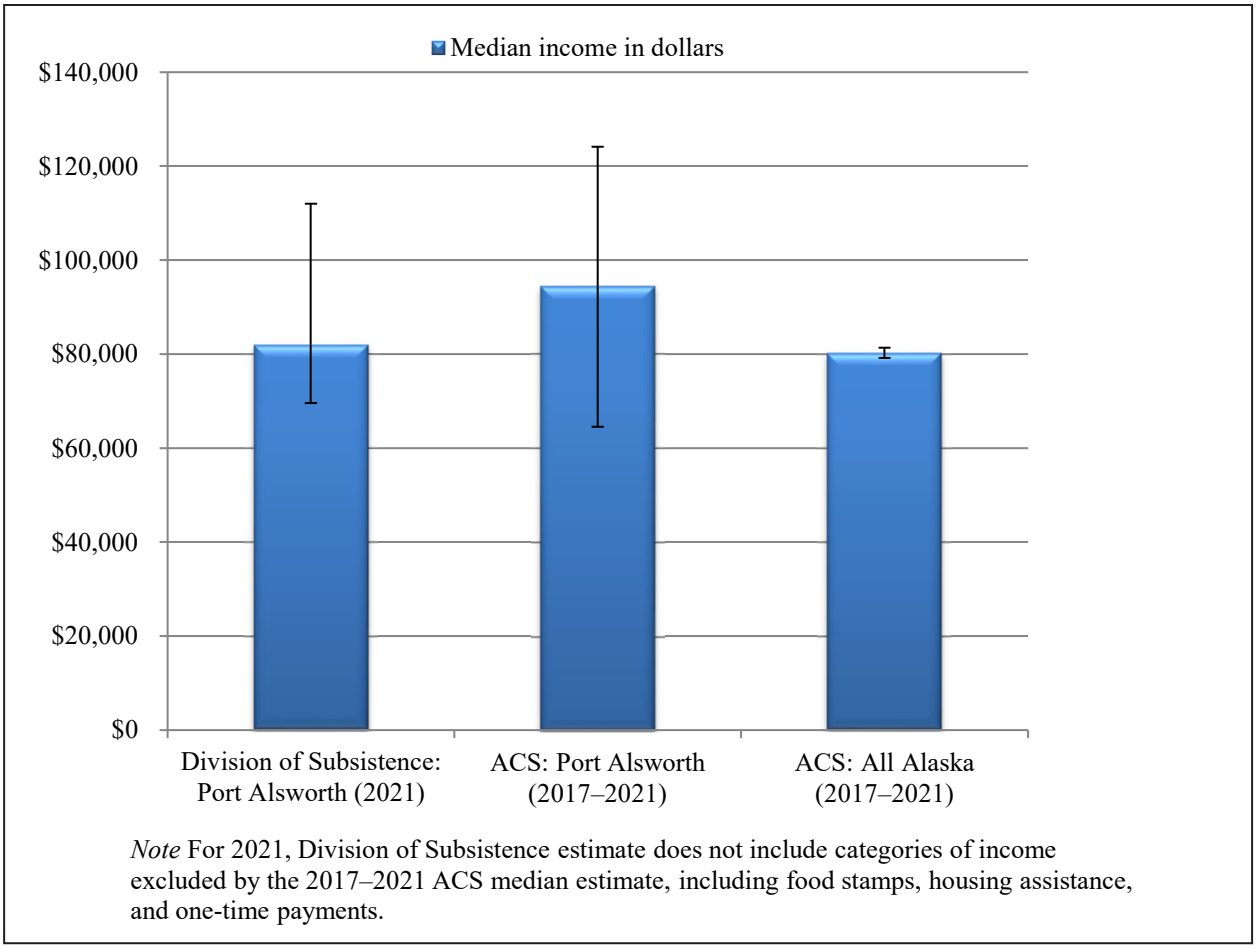


Figure 3-4.–Comparison of median household income estimates, Port Alsworth, 2021.

Table 3-7.–Employment by industry, Port Alsworth, 2021.

Industry	Jobs	Employed households	Employed individuals	Percentage of wage earnings
Estimated total number	**115.9**	**49.0**	**88.4**	
Federal government	**15.7%**	**28.6%**	**20.6%**	**18.3%**
Executive, administrative, and managerial	4.9%	11.5%	6.4%	6.3%
Teachers, librarians, and counselors	1.2%	2.9%	1.6%	1.1%
Technologists and technicians, except health	2.4%	2.8%	3.1%	2.1%
Administrative support occupations, including clerical	1.2%	2.9%	1.6%	1.8%
Service occupations	6.0%	14.3%	7.9%	6.9%
Local government, including tribal	**20.6%**	**43.1%**	**27.0%**	**17.3%**
Teachers, librarians, and counselors	17.0%	37.5%	22.3%	16.1%
Writers, artists, entertainers, and athletes	2.4%	5.6%	3.1%	0.1%
Administrative support occupations, including clerical	1.2%	2.8%	1.6%	1.1%
Agriculture, forestry, and fishing	**3.6%**	**8.6%**	**4.8%**	**2.1%**
Agricultural, forestry, and fishing occupations	3.6%	8.6%	4.8%	2.1%
Construction	**4.7%**	**2.8%**	**3.1%**	**1.1%**
Construction and extractive occupations	4.7%	2.8%	3.1%	1.1%
Transportation, communication, and utilities	**31.3%**	**48.7%**	**34.8%**	**35.7%**
Executive, administrative, and managerial	2.4%	5.6%	3.1%	3.0%
Administrative support occupations, including clerical	4.7%	11.2%	6.2%	4.2%
Mechanics and repairers	8.4%	17.1%	9.5%	12.8%
Transportation and material moving occupations	15.8%	28.8%	16.0%	15.7%
Services	**21.6%**	**31.1%**	**25.1%**	**22.0%**
Executive, administrative, and managerial	8.4%	17.1%	11.0%	8.3%
Teachers, librarians, and counselors	1.2%	2.9%	1.6%	0.7%
Health diagnosing and treating practitioners	1.2%	2.8%	1.5%	6.0%
Writers, artists, entertainers, and athletes	1.1%	2.7%	1.5%	1.7%
Administrative support occupations, including clerical	1.2%	2.9%	1.6%	1.8%
Service occupations	3.5%	8.4%	4.6%	2.2%
Handlers, equipment cleaners, helpers, and laborers	2.5%	2.9%	3.2%	0.9%
Occupation not specified	2.4%	5.8%	3.2%	0.4%
Industry not specified	**2.5%**	**5.8%**	**3.2%**	**3.5%**
Executive, administrative, and managerial	1.2%	2.9%	1.6%	2.1%
Occupation not specified	1.2%	2.9%	1.6%	1.4%

Source ADF&G Division of Subsistence household surveys, 2022.

Table 3-8.–Employment characteristics, Port Alsworth, 2021.

Characteristic	Community Port Alsworth
All adults	
Number	93.0
Mean weeks employed	47.4
Employed adults	
Number	88.4
Percentage	95.1%
Jobs	
Number	115.9
Mean	1.3
Minimum	1
Maximum	4
Months employed	
Mean	11.5
Minimum	1
Maximum	12
Percentage employed year-round	56.1%
Mean weeks employed	49.9
Households	
Number	49.0
Employed	
Number	49.0
Percentage	100.0%
Jobs per employed household	
Mean	2.4
Minimum	1
Maximum	6
Employed adults	
Mean	
Employed households	1.8
Total households	1.8
Minimum	1
Maximum	5
Mean person-weeks of employment	90.0

Source ADF&G Division of Subsistence household surveys, 2022.

Table 3-9.–Job schedules, Port Alsworth, 2021.

	Jobs		Employed persons		Employed households	
Schedule	Number	Percentage	Number	Percentage	Number	Percentage
Full time	63.2	54.5%	57.5	65.1%	42.0	85.7%
Part time	25.1	21.7%	22.4	25.4%	19.6	40.0%
On-call, varies	22.1	19.1%	16.7	18.9%	11.1	22.8%
Schedule not reported	6.2	5.3%	4.7	5.3%	3.1	6.4%

Source ADF&G Division of Subsistence household surveys, 2022.

Note Respondents who had more than 1 job in the study year could provide multiple responses, so the percentages may sum to more than 100%.

Compared to the ACS 5-year (2017–2021) average estimate for all Alaska households, Port Alsworth households had a slightly higher median income (Figure 3-4). This study's estimated median household income of $82,000 was not significantly different than the ACS 5-year (2017–2021) average median income estimate of $94,375.

The industries that provided the greatest sources of income also provided the most jobs and household employment. Overall, transportation, communication, and utilities industry jobs contributed the largest percentage (31%) of jobs for the community of Port Alsworth, and these jobs employed 49% of employed households in 2021 (Table 3-7). Within this category, transportation and material moving occupations (jobs related to the air-taxi services) composed the greatest percentage of wage earnings (16% of overall jobs in the community, employing 29% of households). Service industry jobs represented 22% of jobs for the community of Port Alsworth, while the local government contributed 21% of jobs, but fewer households were employed in the services industry (31%) than in local government (43%).

Most Port Alsworth adult residents were employed during the study year. There were approximately 88 employed adults (working age 16 and older), representing 95% of all adults and all households had at least 1 employed household member (Table 3-8). On average, employed adults worked 50 weeks out of the year, or most months, but 56% of them had year-round employment. There was a high rate of adults holding multiple year-round jobs, explaining the relatively large number of weeks worked per year. Port Alsworth adults worked approximately 116 jobs during the study year (Table 3-7); on average, employed adults worked 1 job, but the maximum number of jobs held was 4. Most employed adults (65%) worked full-time job schedules, 25% worked part time, and 19% worked on-call schedules (Table 3-9).

Food Security

Survey respondents were asked a set of questions intended to assess their household's food security, defined as, "access by all people at all times to enough food for an active, healthy life" (Coleman-Jensen et al. 2020). The food security questions were modeled after those developed by the U.S. Department of Agriculture (USDA) but modified by ADF&G to account for differences in access to subsistence and store-bought foods. Based on their responses to these questions, households were broadly categorized as being food secure or food insecure following a USDA protocol (Bickel et al. 2000). Food secure households were broken down further into 2 subcategories—high or marginal food security. Food insecure households were divided into 2 subcategories—low food security or very low food security. Households in the high food security category did not report any food access problems or limitations. Households in the marginal food security category reported 1 or 2 instances of food access problems or limitations—typically anxiety over food sufficiency or a shortage of particular foods in the house—but gave little or no indication of changes in diets or food intake. In this study, households in the low food security category reported reduced quality, variety, or desirability of their diet; however, they, too, gave little indication of reduced food intake.

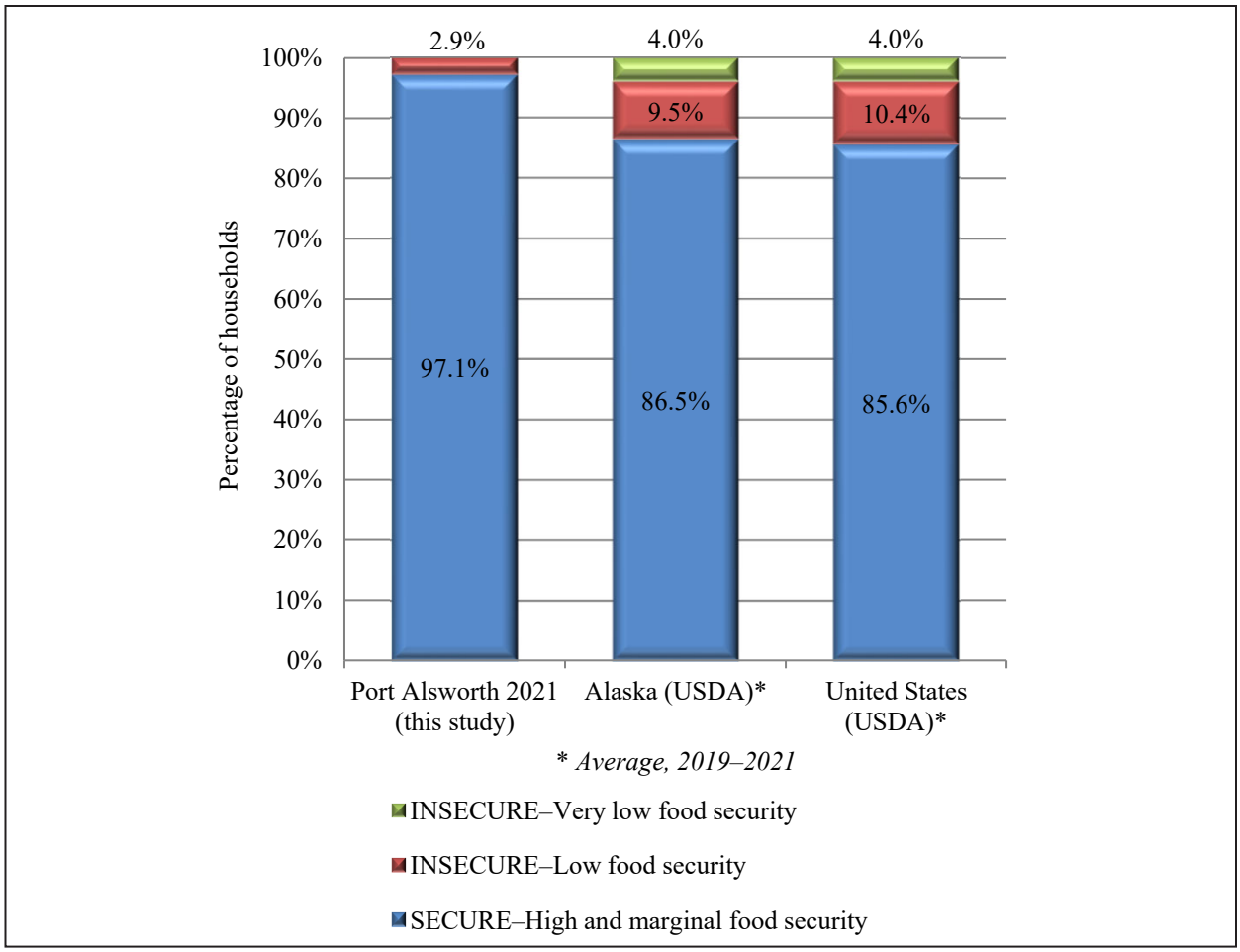


Figure 3-5.–Comparison of food security categories, Port Alsworth, Alaska, and United States, 2021.

Table 3-10.–Households' assessments of food security conditions, Port Alsworth, 2021.

Statement	Percentage of households
Had enough of the kinds of food desired	82.9%
Had enough food, but not the desired kind	17.1%
Somestimes, or often, did not have enough food	0.0%
Missing/no response	0.0%

Source ADF&G Division of Subsistence household surveys, 2022.

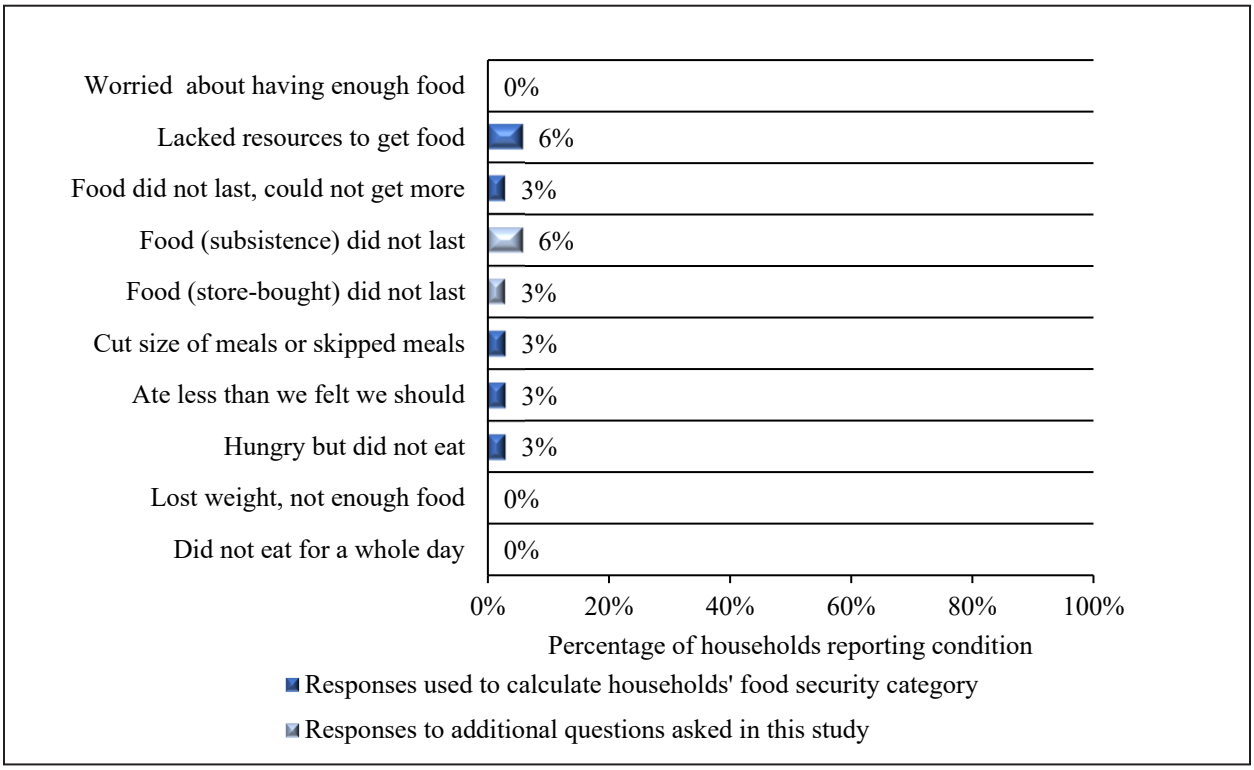


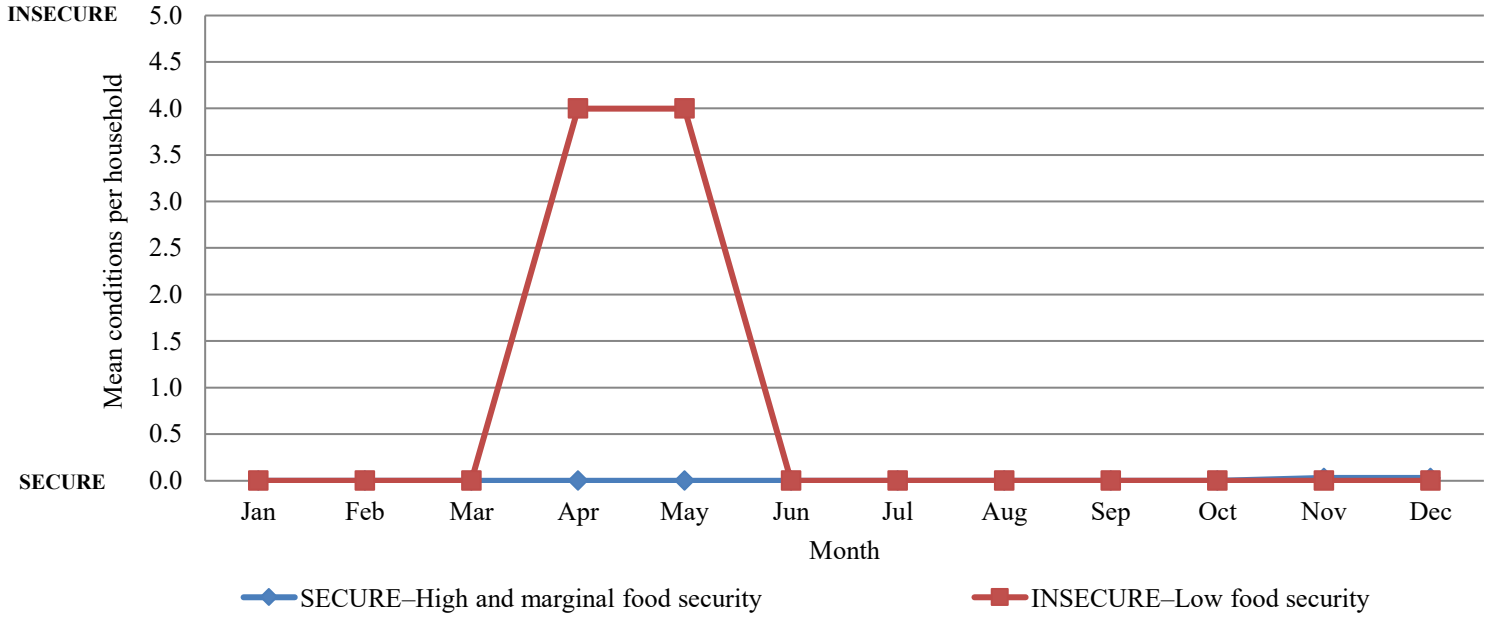
Figure 3-6.–Responses to questions about food insecure conditions, Port Alsworth, 2021.

Households classified as having very low food security were those that reported multiple instances of disrupted eating patterns and reduced food intake (Coleman-Jensen et al. 2020).

Food security results from surveys for Port Alsworth, the state of Alaska, and the United States are summarized in Figure 3-5. Overall, 97% of Port Alsworth households were considered to have high or marginal food security. More Port Alsworth households were considered food secure than the state and national averages of 87% and 86%, respectively. In 2021, 3% of Port Alsworth households experienced low food security, and no households were considered to have very low food security. Both of these metrics compare favorably to the state and the national averages.

Table 3-10 shows by percentage of sampled Port Alsworth households the assessment results regarding eating desired types of food during the study year. According to study results, 83% of households had enough of the kinds of food desired and 17% had enough food, but not the desired kinds; no households reported not having enough food.

Core questions and responses from Port Alsworth households who responded that they did not have enough of the kinds of food they wanted to eat are summarized in Figure 3-6. For this study, additional questions asked were designed to determine whether food insecurities, if any, were related to subsistence foods or store-bought foods. Fewer than 6% of households answered in the affirmative to questions concerning experiencing food insecure conditions. Approximately 6% of households indicated that they lacked the resources needed to get food, either subsistence or store-bought. While 3% of households reported that their food did not last and they could not get more, this was more common for subsistence than for store-bought foods. Some Port Alsworth households experienced more serious food insecure conditions: 3% had cut the size of meals or skipped meals, 3% indicated that they ate less than they felt they should, and 3% of households said its members were hungry but did not eat; however no respondents reported that members of the household reported weight loss due to a lack of food, nor did any households report that members of the household did not eat for a whole day.



Note No Port Alsworth households were categorized as having very low food security and the category was removed from this figure to avoid confusion. Also, both secure households and insecure households experienced an average of zero (0) food insecure conditions in January–March and June–October. In November and December, secure households experienced an average of 0.3 food insecure conditions.

Figure 3-7.–Mean number of food insecure conditions by month and by household food security category, Port Alsworth, 2021.

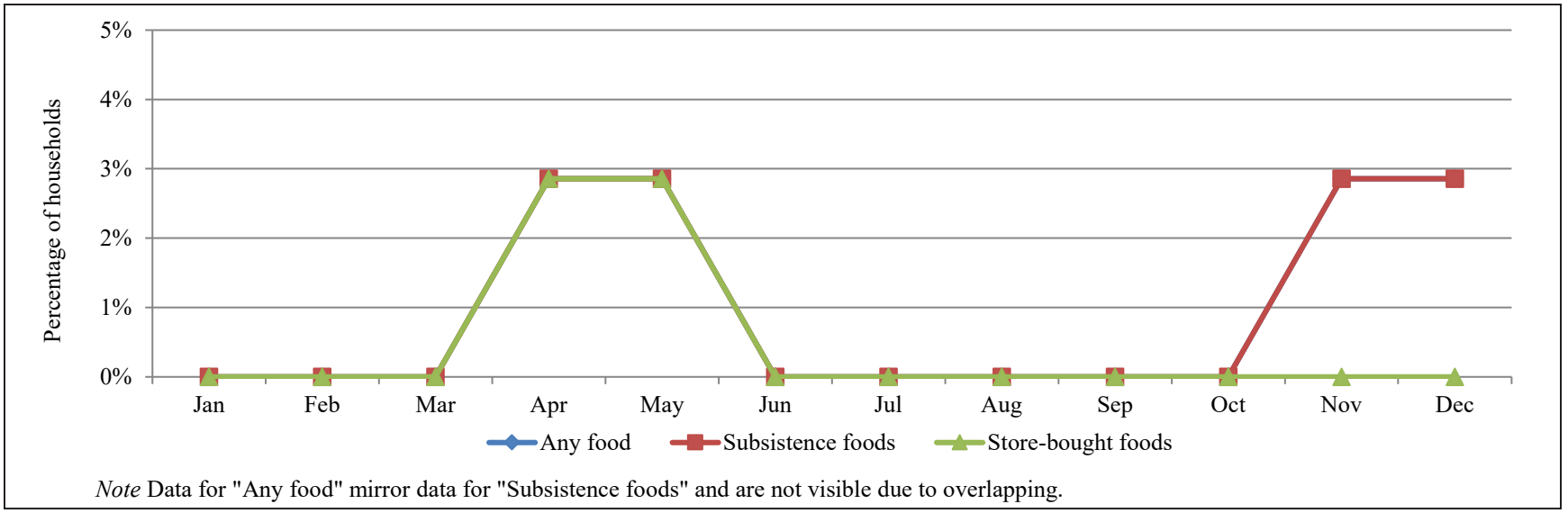


Figure 3-8.–Comparison of months when food did not last, Port Alsworth, 2021.

For households considered to have experienced low food security during the study year, a clear seasonal pattern was evidenced, while households considered to have high or marginal food security experienced nearly no insecure conditions throughout the year. Figure 3-7 portrays the mean number of food insecure conditions per household by food security category by month. Figure 3-8 shows which months households reported foods not lasting. Households with low food security experienced food insecure conditions during April and May, but not during any other month. These were also the months when households explained that food did not last in their household, both store-bought and subsistence. Households also experienced subsistence foods not lasting in November and December, but store-bought foods remained plentiful. Despite no local store, there is frequent air traffic from Anchorage, making it easier to provision store-bought foods in Port Alsworth than in some other rural communities.

Summary of Harvest and Use Patterns

Individual Participation in the Harvesting and Processing of Wild Resources

Figure 3-9 depicts the expanded levels of individual participation in harvesting and processing wild resources by all Port Alsworth residents in 2021. Nearly all residents (96%) participated in harvesting wild resources, and the vast majority (91%) also helped to process wild resources. For most resource categories, approximately the same percentage of individuals harvested and processed resources. Slightly fewer individuals processed small land mammals and vegetation than harvested those resources, and slightly more individuals processed birds and eggs and marine invertebrates. However, for large land mammals, substantially more individuals processed game meat than harvested it: 31% of individuals hunted large land mammals but 57% processed these resources. Large land mammals such as moose are harvested by 1 individual, typically hunting as part of a group, and meat processing is divided among the participants, therefore more participation in processing these resources is expected.

The survey included questions requested by NPS about participation in craft and construction activities relating to subsistence harvesting efforts or using subsistence resources. Most Port Alsworth residents (82%) cooked with wild food during the study year (Table 3-11). Less than one-quarter of residents participated in other activities associated with subsistence harvests: 22% of residents built shelters, 19% made handicrafts, 7% sewed skins or furs, and 2% built sleds.

Harvest and Use of Wild Resources at the Household Level

Figure 3-10 shows by resource category the percentages of households that used, attempted to harvest, and harvested wild foods during the study year. For most resource categories, the majority of households used the resources: 91% of households used vegetation, 86% of households used salmon, 83% used large land mammals, and 66% used nonsalmon fish. Approximately one-quarter or fewer households used the remaining resource categories: birds and bird eggs (23%), small land mammals (11%), and marine invertebrates (9%). For small land mammals and vegetation, the same percentage of households used and harvested resources, but for all other resource categories, a higher percentage of households used resources than attempted to harvest or harvested resources. The largest disparity between use and harvest existed for large land mammals, where just 20% of households harvested large game. Other resource categories with prominent harvest and use disparities were nonsalmon fish, which 46% of households harvested, and salmon, which 69% of households harvested. In general, households that attempted to harvest a resource were successful, although this was not the case for large land mammals and nonsalmon fish. Note that no Port Alsworth households harvested or used marine mammals in 2021.

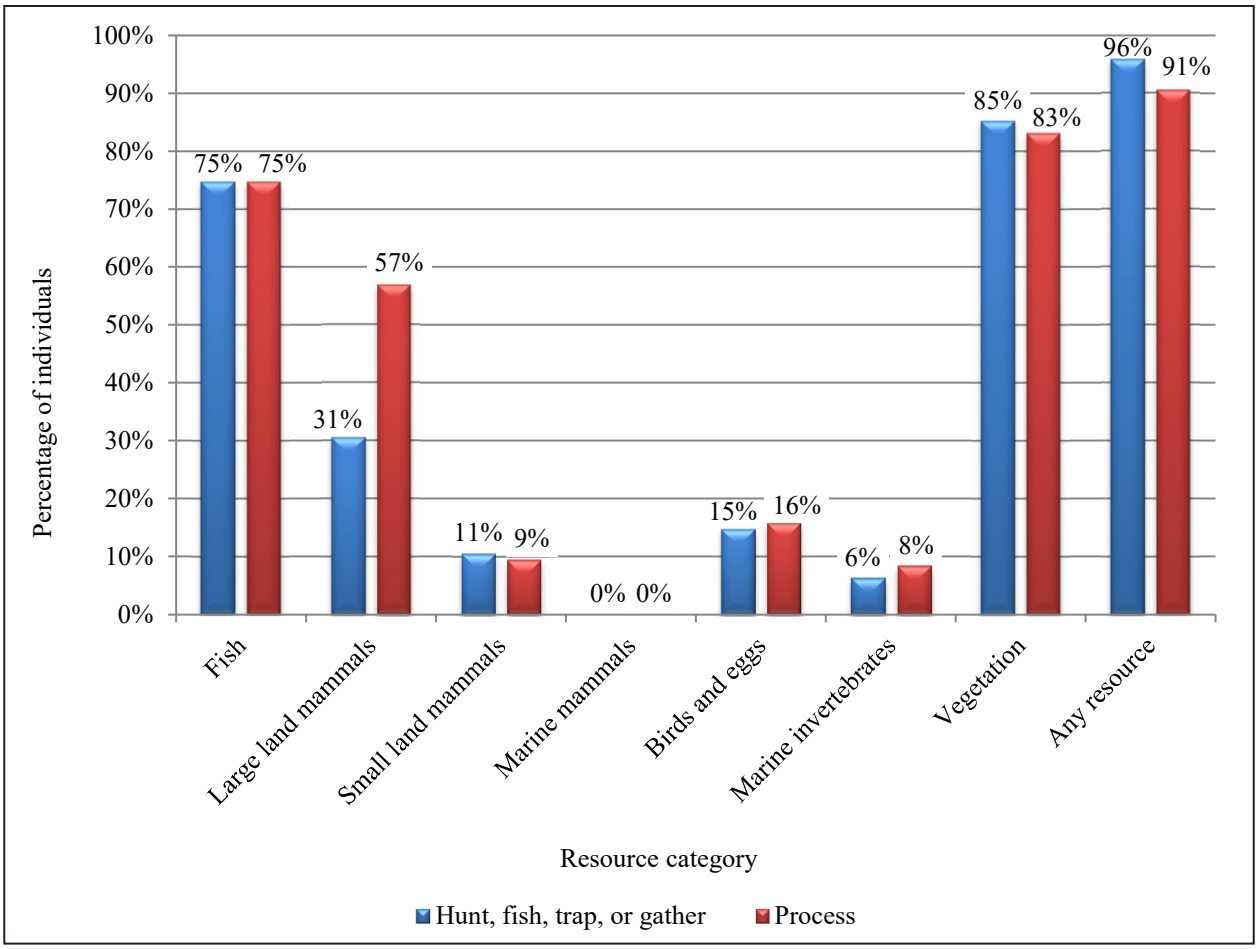


Figure 3-9.–Individual participation in subsistence harvesting and processing activities, Port Alsworth, 2021.

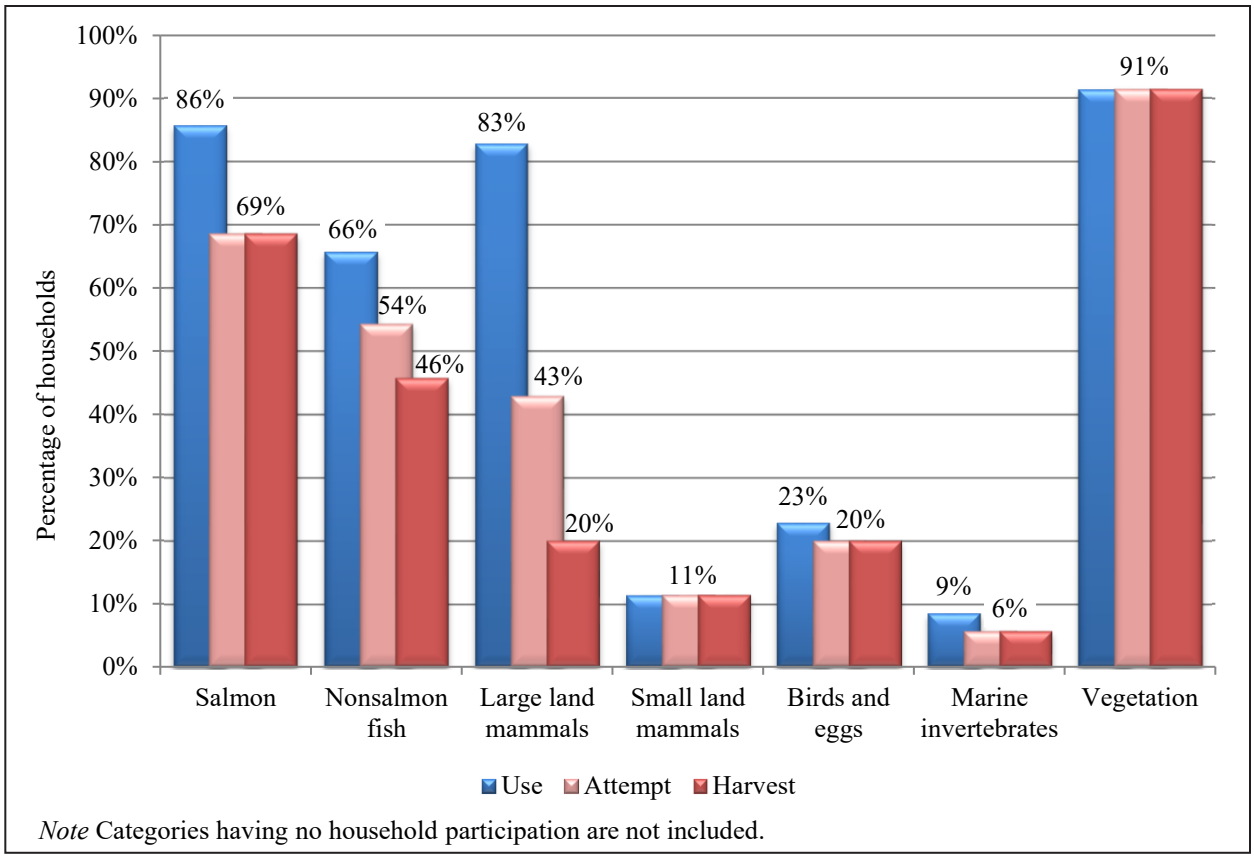
Table 3-11.–Individual participation in subsistence-related craft and construction activities, Port Alsworth, 2021.

Total number of people	**133.0**
Building fish traps	
Number	0.0
Percentage	0.0%
Building sleds	
Number	2.8
Percentage	2.1%
Sewing skins or fur	
Number	9.8
Percentage	7.4%

-continued-

Total number of people	**133.0**
Cooking wild foods	
Number	109.2
Percentage	82.1%
Making handicrafts	
Number	25.2
Percentage	18.9%
Building shelters	
Number	29.4
Percentage	22.1%

Source ADF&G Division of Subsistence household surveys, 2022.



Note Categories having no household participation are not included.

Figure 3-10.–Percentage of households using, attempting to harvest, and harvesting wild resources, by resource category, Port Alsworth, 2021.

These household harvest and use characteristics reflect the nature of resources available in the Port Alsworth area. Vegetation is abundant, widespread, and requires little in the way of equipment and skill to harvest, leading to high rates of use and widespread participation in harvesting. Salmon are also widely available and harvested in family groups, explaining both the high household use rates and high participation. Resources like moose, trout or char, and beaver require more equipment, more time, and more knowledge to successfully harvest. Fewer households will be able and willing to attempt these harvests, and external factors like weather and ice conditions can significantly affect harvest efforts. Additionally, although multiple households will hunt moose or fish for salmon together, only 1 household shoots each harvested moose but multiple households can harvest from a net, resulting in comparably lower harvest success for large mammals when a group harvest effort occurred.

Table 3-12 summarizes resource harvest and use characteristics for Port Alsworth in 2021 at the household level. The average harvest was 315 lb usable weight per household, but household harvests ranged from none at all to 1,960 lb. The per capita harvest was 116 lb. During the study year, households harvested an average of 6 kinds of resources and used an average of 8 kinds. The maximum number of resources used by any household was 32. In addition, households gave away and received an average of 3 kinds of resources, with a maximum of 17 resources shared. Overall, Port Alsworth households used more than 55 different types of resources over the course of the study year (Table 1-2). Harvest diversity is an important component of resilience and stability and will be discussed further in the report.

Table 3-12.–Resource harvest and use characteristics, Port Alsworth, 2021.

Characteristic	
Mean number of resources used per household	**8.0**
Minimum	0
Maximum	32
95% confidence limit (±)	12.9%
Median	8
Mean number of resources attempted to harvest per household	**6.6**
Minimum	0
Maximum	30
95% confidence limit (±)	16.2%
Median	6
Mean number of resources harvested per household	**6.1**
Minimum	0
Maximum	29
95% confidence limit (±)	16.4%
Median	5
Mean number of resources received per household	**2.9**
Minimum	0
Maximum	8
95% confidence limit (±)	15.3%
Median	2
Mean number of resources given away per household	**3.0**
Minimum	0
Maximum	17
95% confidence limit (±)	22.4%
Median	2
Household harvest (pounds)	
Minimum	0
Maximum	1,960
Mean	314.5
Median	180
Total harvest weight (lb)	15,409.6
Community per capita harvest (lb)	115.9
Percentage using any resource	97.1%
Percentage attempting to harvest any resource	97.1%
Percentage harvesting any resource	94.3%
Percentage receiving any resource	80.0%
Percentage giving away any resource	80.0%
Number of households in sample	35
Number of resources asked about and identified voluntarily by respondents	148

Source ADF&G Division of Subsistence household surveys, 2022.

Table 3-13.–Modes of transportation used by sampled households to access wild resources, Port Alsworth, 2021.

	Households reporting use		Households reporting how equipment was obtained									
			Own		Borrow		Lease		Charter		Ride along	
Equipment	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Boat	27	77.1%	19	70.4%	7	25.9%	1	3.7%	2	7.4%	3	11.1%
Snowmachine	17	48.6%	15	88.2%	3	17.6%	0	0.0%	0	0.0%	0	0.0%
ATV	17	48.6%	16	94.1%	2	11.8%	0	0.0%	0	0.0%	0	0.0%
Sled	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Highway vehicle	5	14.3%	4	80.0%	1	20.0%	0	0.0%	0	0.0%	0	0.0%
Aircraft	12	34.3%	6	50.0%	0	0.0%	0	0.0%	2	16.7%	4	33.3%
Horses	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, 2022.

Note The percentage of households owning, borrowing, leasing, riding along, or chartering equipment is calculated out of those households reporting use of the equipment.

Table 3-14.–Portable motorized equipment used by sampled households to search for and harvest wild resources, Port Alsworth, 2021.

	Households reporting use	
Equipment	Number	Percentage
Generator	5	14.3%
Chainsaw	21	60.0%
Ice auger	9	25.7%
Winch	6	17.1%
Other portable motors or motorized equipment	3	8.6%

Source ADF&G Division of Subsistence household surveys, 2022.

Table 3-15.–Use of firewood for home heating in sampled households, Port Alsworth, 2021.

Sampled households	Household use of wood for home heating									
	None		A little (some, but less than half)		About half		A lot (more than half, but not all)		All	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
35	16	45.7%	8	22.9%	5	14.3%	4	11.4%	2	5.7%

Source ADF&G Division of Subsistence household surveys, 2022.

A household's ability to harvest resources, and the variety of resources they can harvest, depends on multiple factors, but a major one is transportation. Having the necessary equipment to traverse rivers, frozen water and ground, or access otherwise inaccessible areas provides opportunities for greater harvests. As one respondent noted:

> I think the hunting side of things is really hard to get into here because you need a plane. Except for moose hunt on the lake, you're not gonna be hunting sheep- you need a plane for sheep and caribou and all those big animals pretty much. You need a plane, or you need a boat … . So yeah, I think that's a big thing for hunting is just access and money… ." (PTA03)

Port Alsworth households used a variety of transportation methods and equipment in 2021 to pursue wild resources. The majority of sampled households reported using a boat (77%), almost one-half used an ATV (49%) or snowmachine (49%), 34% used an aircraft, and a few households used a highway vehicle (14%) (Table 3-13). Mostly, households owned the transportation equipment used in 2021, but of those households using each mode of transportation, a portion borrowed a boat (26%), highway vehicle (20%), snowmachine (18%), or ATV (12%). One-half of the households that used aircraft for harvesting resources during the study year owned the aircraft, while 33% rode along with another household and 17% chartered an aircraft. Portable motorized equipment was also used to harvest wild resources, including chainsaws (60% of sampled households); ice augers (26%); winches (17%); generators (14%); and other portable motors or smaller equipment (9%) (Table 3-14). Motorized equipment can increase efficiency for many types of harvests, but in Port Alsworth it may be especially important for harvesting wood. Respondents mentioned wood is important for constructing new buildings as the community continues to grow and firewood is important for heating homes. More than one-half of Port Alsworth households use firewood for a percentage of their home heating needs (Table 3-15).

Household Specialization in Resource Harvesting

Previous studies (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 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.

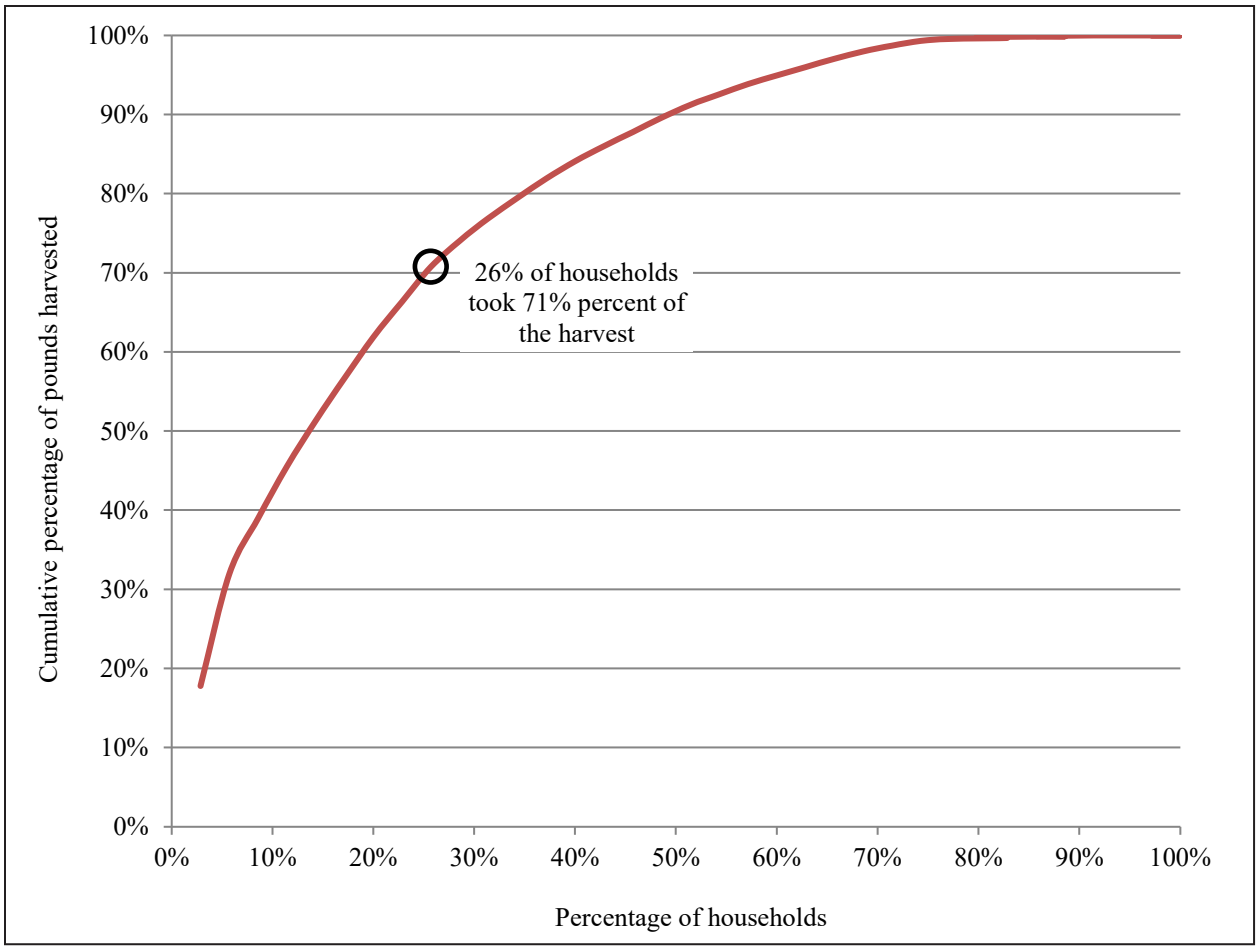


Figure 3-11.–Household specialization, Port Alsworth, 2021.

As shown in Figure 3-11, about 71% of the harvests of wild resources as estimated in pounds usable weight were harvested by 26% of the community's households. This result indicates harvests in Port Alsworth were slightly more concentrated to fewer households in 2021 in comparison to the findings by Wolfe et al. (2010). Further analysis of the study findings, beyond the scope of this report, might identify characteristics of the highly productive households in Port Alsworth and the other study communities.

Harvest Quantities and Composition

Table 3-16 reports estimated wild resource harvests and uses by Port Alsworth residents in 2021 and is organized first by general category and then by species. All edible resources are reported in pounds usable weight (see Appendix D for conversion factors[6]). 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.

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

Port Alsworth residents harvested an estimated total 15,410 lb, or 116 lb per capita, of wild resources in 2021 (Table 3-16). Salmon composed the largest proportion (68%) of the harvest weight (10,494 lb; 79 lb per capita) followed by large land mammals, which composed 18% of the overall harvest (2,702 lb; 20 lb per capita) (Figure 3-12; Table 3-16). Nonsalmon fish and vegetation each contributed an additional 6% to the overall harvest, or approximately 900 lb (7 lb per capita) each. Harvests of bird and eggs, small land mammals, and marine invertebrates each composed 1% of the harvest or less and combined contributed approximately 400 lb total.

Use and Harvest Characteristics by Resource Category

Port Alsworth households were highly engaged in harvesting activities during the study year. Nearly every household (97%) used wild resources and attempted to harvest wild resources, and 94% of households successfully harvested (Table 3-16). Sharing resources was also clearly important for Port Alsworth residents: 80% of Port Alsworth households received or gave away at least 1 wild resource in 2021. Sharing harvests is an important way community members who cannot hunt or fish for themselves are able to enjoy these resources, and brings the community together: "Not everyone has a boat to set a net, so it's the people that have the resources end up doing that part of it, and then it's more of a community sharing the resource" (PTA03). Many residents of Port Alsworth explained that they share subsistence resources within the community, with friends and family who live outside of the community, and in some cases with people who live outside of Alaska.

The resource category that was most frequently received by Port Alsworth households in 2021 was large land mammals. Large land mammals such as moose are usually harvested by more than 1 household working together, and the meat is divided among the participants, therefore wide sharing of these resources is expected. In addition, not all households have someone able to go on a moose hunt, due to age, available time, or other reasons. As 1 key respondent reflected, sharing brings benefits to both the donor and the recipient:

> … it's like a huge thing to get a moose, and one of my favorite things to do is actually the first- when we bring the meat back, I go and take moose meat to some of the elders. … Those guys that have moose hunted their whole life, and they get to an age where it's really hard to do, they still want to go moose hunting in their mind, so to actually honor them and bring them meat is something big. (PTA02)

An estimated 74% of community households received large land mammals in 2021 and 43% of households shared this resource. The next most widely received resource category was salmon (63% of households received), which was shared by the most households (51%). While approximately one-quarter of households shared nonsalmon fish, these fish were received by 40% of households. The inverse was true of vegetation resources: 43% of households shared this resource category and 29% received it. Approximately 10% of households shared and received birds, and one-half that amount shared and received marine invertebrates. No households received small land mammals, though 3% of households gave them away.

Table 3-17 lists the top ranked resources used by households and Figure 3-13 shows the species with the highest harvests during the 2021 study year. Sockeye salmon was the most used species, by 86% of households in the community, and the most harvested, accounting for 67% of the community's total harvest weight. Moose was the third most used (80%) and second most harvested species by weight (16%). The most used species do not always correlate to the most harvested, however; for instance, blueberries only contributed 3% to the overall harvest weight even though they were used by 83% of households. All other top harvested species were harvested in amounts composing less than 2% of the overall harvest weight, but more than one-quarter of Port Alsworth households used many of them.

Table 3-16.–Estimated use and harvest of fish, game, and vegetation resources, Port Alsworth, 2021.

Resource	Percentage of households					Harvest weight (lb)			Harvest amount			95% confidence limit (±) harvest
	Use %	Attempt %	Harvest %	Receive %	Give %	Total	Mean per household	Per capita	Total	Unit	Mean per household	
All resources	**97.1**	**97.1**	**94.3**	**80.0**	**80.0**	**15,409.6**	**314.5**	**115.9**	**15,409.6**	**lb**	**314.5**	**24.9**
Salmon	**85.7**	**68.6**	**68.6**	**62.9**	**51.4**	**10,493.9**	**214.2**	**78.9**	**2,952.6**	**ind**	**60.3**	**32.6**
Chum salmon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Coho salmon	8.6	2.9	2.9	8.6	2.9	65.3	1.3	0.5	14.0	ind	0.3	108.6
Chinook salmon	20.0	0.0	0.0	20.0	2.9	0.0	0.0	0.0	0.0	ind	0.0	0.0
Pink salmon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Sockeye salmon	85.7	68.6	68.6	57.1	51.4	10,330.0	210.8	77.7	2,910.6	ind	59.4	33.1
Landlocked salmon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Spawning sockeye salmon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified salmon	2.9	2.9	2.9	0.0	0.0	98.6	2.0	0.7	28.0	ind	0.6	108.6
Nonsalmon fish	**65.7**	**54.3**	**45.7**	**40.0**	**25.7**	**916.3**	**18.7**	**6.9**	**916.3**	**lb**	**18.7**	**36.1**
Eulachon (hooligan, candlefish)	2.9	2.9	2.9	0.0	2.9	16.8	0.3	0.1	2.8	gal	0.1	108.6
Unspecified smelts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Pacific (gray) cod	2.9	2.9	2.9	2.9	2.9	56.0	1.1	0.4	17.5	ind	0.4	108.6
Unspecified cods	2.9	0.0	0.0	2.9	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Lingcod	2.9	2.9	2.9	0.0	0.0	5.6	0.1	0.0	1.4	ind	0.0	108.6
Pacific halibut	14.3	5.7	5.7	11.4	2.9	112.0	2.3	0.8	112.0	lb	2.3	75.7
Unspecified rockfishes	5.7	5.7	5.7	2.9	2.9	72.8	1.5	0.5	36.4	ind	0.7	86.5
Bullhead sculpin	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Stickleback (needlefish)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Alaska blackfish	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Burbot	22.9	22.9	17.1	8.6	8.6	67.2	1.4	0.5	67.2	ind	1.4	52.7
Arctic char	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Dolly Varden, unknown type	2.9	2.9	2.9	0.0	0.0	23.5	0.5	0.2	16.8	ind	0.3	108.6
Lake trout	42.9	34.3	31.4	11.4	20.0	306.2	6.2	2.3	113.4	ind	2.3	37.0

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Table 3-16.–Page 2 of 7.

Resource	Percentage of households					Harvest weight (lb)			Harvest amount			95% confidence limit (±) harvest
	Use %	Attempt %	Harvest %	Receive %	Give %	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Arctic grayling	20.0	20.0	20.0	0.0	8.6	90.2	1.8	0.7	128.8	ind	2.6	53.2
Northern pike	31.4	22.9	20.0	11.4	2.9	104.5	2.1	0.8	37.3	ind	0.8	50.7
Longnose sucker	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Rainbow trout	2.9	5.7	2.9	0.0	0.0	3.9	0.1	0.0	5.6	ind	0.1	108.6
Steelhead	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified trouts	2.9	0.0	0.0	2.9	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Broad whitefish	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Least cisco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Humpback whitefish	5.7	11.4	5.7	0.0	2.9	51.5	1.1	0.4	29.4	ind	0.6	103.4
Round whitefish	2.9	2.9	2.9	0.0	0.0	1.4	0.0	0.0	1.4	ind	0.0	108.6
Unspecified whitefishes	2.9	2.9	2.9	0.0	0.0	4.8	0.1	0.0	2.8	ind	0.1	108.6
Large land mammals	**82.9**	**42.9**	**20.0**	**74.3**	**42.9**	**2,702.0**	**55.1**	**20.3**	**9.8**	**ind**	**0.2**	**48.5**
Bison	2.9	0.0	0.0	2.9	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Black bear	11.4	8.6	2.9	11.4	5.7	0.0	0.0	0.0	1.4	ind	0.0	0.0
Brown bear	2.9	2.9	2.9	0.0	0.0	0.0	0.0	0.0	1.4	ind	0.0	0.0
Caribou	8.6	5.7	2.9	5.7	2.9	182.0	3.7	1.4	1.4	ind	0.0	108.6
Mountain goat	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Moose	80.0	31.4	11.4	71.4	37.1	2,520.0	51.4	18.9	5.6	ind	0.1	51.9
Dall sheep	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Small land mammals	**11.4**	**11.4**	**11.4**	**0.0**	**2.9**	**234.9**	**4.8**	**1.8**	**105.0**	**ind**	**2.1**	**103.6**
Beaver	5.7	5.7	5.7	0.0	2.9	224.0	4.6	1.7	18.2	ind	0.4	108.6
Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Red fox	8.6	8.6	8.6	0.0	2.9	10.9	0.2	0.1	28.0	ind	0.6	108.6
Snowshoe hare	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
River otter	0.0	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 3-16.–Page 3 of 7.

Resource	Percentage of households					Harvest weight (lb)			Harvest amount			95% confidence limit (±) harvest
	Use %	Attempt %	Harvest %	Receive %	Give %	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Lynx	8.6	8.6	8.6	0.0	0.0	0.0	0.0	0.0	9.8	ind	0.2	0.0
Marmots	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Martens	2.9	2.9	2.9	0.0	0.0	0.0	0.0	0.0	16.8	ind	0.3	108.6
Mink	0.0	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	0.0	ind	0.0	0.0
Porcupine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Arctic ground squirrel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Red squirrel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Weasels	5.7	5.7	5.7	0.0	0.0	0.0	0.0	0.0	16.8	ind	0.3	0.0
Gray wolf	5.7	5.7	5.7	0.0	0.0	0.0	0.0	0.0	4.2	ind	0.1	80.0
Wolverine	5.7	5.7	5.7	0.0	0.0	0.0	0.0	0.0	11.2	ind	0.2	85.1
Marine mammals	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**ind**	**0.0**	**0.0**
Harbor seal, freshwater	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Harbor seal, saltwater	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Sea otter	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Steller sea lion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Beluga whale	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Birds and eggs	**22.9**	**20.0**	**20.0**	**8.6**	**11.4**	**156.3**	**3.2**	**1.2**	**173.6**	**ind**	**3.5**	**55.3**
Bufflehead	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Common eider	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
King eider	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Spectacled eider	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Steller's eider	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified goldeneyes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Harlequin duck	0.0	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 3-16.–Page 4 of 7.

Resource	Percentage of households					Harvest weight (lb)			Harvest amount			95% confidence limit (±) harvest
	Use %	Attempt %	Harvest %	Receive %	Give %	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Mallard	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified mergansers	2.9	2.9	2.9	0.0	2.9	12.2	0.2	0.1	7.0	ind	0.1	108.6
Long-tailed duck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Northern pintail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified scaups	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Black scoter	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Surf scoter	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
White-winged scoter	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Northern shoveler	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified teals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
American wigeon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Brant	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified Canada/cackling geese	0.0	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	ind	0.0	0.0
Snow goose	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Greater white-fronted goose	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified geese	2.9	2.9	2.9	0.0	0.0	3.4	0.1	0.0	1.4	ind	0.0	108.6
Unspecified swans	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Sandhill crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified cormorants	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Mew gull	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Sabine's gull	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Large gull	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Black-legged kittiwake	0.0	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 3-16.–Page 5 of 7.

Resource	Percentage of households					Harvest weight (lb)			Harvest amount			95% confidence limit (±) harvest
	Use %	Attempt %	Harvest %	Receive %	Give %	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Unspecified murres	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified terns	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified grouses	20.0	17.1	17.1	5.7	11.4	87.9	1.8	0.7	96.6	ind	2.0	49.7
Unspecified ptarmigans	11.4	11.4	11.4	2.9	5.7	52.8	1.1	0.4	68.6	ind	1.4	63.8
Mallard eggs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified small shorebird eggs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified large shorebird eggs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Mew gull eggs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Large gull eggs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Black-legged kittiwake eggs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified murre eggs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified tern eggs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Marine invertebrates	**8.6**	**5.7**	**5.7**	**5.7**	**5.7**	**8.4**	**0.2**	**0.1**	**8.4**	**lb**	**0.2**	**75.7**
Butter clam	2.9	2.9	2.9	2.9	2.9	4.2	0.1	0.0	1.4	gal	0.0	108.6
Freshwater clams	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Pacific littleneck clam (steamers)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Razor clam	5.7	2.9	2.9	2.9	2.9	4.2	0.1	0.0	1.4	gal	0.0	108.6
Unspecified clams	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Unspecified cockles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Dungeness crab	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified king crabs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified Tanner crabs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified mussels	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0

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Table 3-16.–Page 6 of 7.

Resource	Percentage of households					Harvest weight (lb)			Harvest amount			95% confidence limit (±) harvest
	Use %	Attempt %	Harvest %	Receive %	Give %	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Unspecified scallops	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Vegetation	**91.4**	**91.4**	**91.4**	**28.6**	**42.9**	**897.8**	**18.3**	**6.8**	**897.8**	**lb**	**18.3**	**16.3**
Blueberry	82.9	82.9	82.9	11.4	31.4	521.9	10.7	3.9	130.5	gal	2.7	17.7
Lowbush cranberry	60.0	57.1	57.1	11.4	28.6	232.4	4.7	1.7	58.1	gal	1.2	21.9
Highbush cranberry	25.7	25.7	25.7	2.9	11.4	56.0	1.1	0.4	14.0	gal	0.3	33.6
Crowberry	5.7	5.7	5.7	0.0	0.0	7.0	0.1	0.1	1.8	gal	0.0	89.0
Elderberry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Currants	17.1	14.3	14.3	2.9	5.7	24.5	0.5	0.2	6.1	gal	0.1	59.2
Cloudberry	2.9	2.9	2.9	2.9	2.9	8.4	0.2	0.1	2.1	gal	0.0	108.6
Raspberry	5.7	5.7	5.7	0.0	2.9	16.8	0.3	0.1	4.2	gal	0.1	80.0
Strawberry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Twisted stalk berry (watermelon berry)	2.9	2.9	2.9	0.0	0.0	5.6	0.1	0.0	1.4	gal	0.0	108.6
Other wild berries	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Goose tongue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Wild rhubarb	5.7	5.7	5.7	2.9	5.7	12.6	0.3	0.1	12.6	gal	0.3	87.2
Fiddlehead ferns	14.3	14.3	14.3	0.0	2.9	2.5	0.1	0.0	2.5	gal	0.1	63.7
Nettles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Hudson's Bay (Labrador) tea	2.9	2.9	2.9	0.0	0.0	0.4	0.0	0.0	0.4	gal	0.0	108.6
Sourdock	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Wild celery	2.9	2.9	2.9	0.0	0.0	1.4	0.0	0.0	1.4	gal	0.0	108.6
Wild parsley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Wild rose hips	2.9	2.9	2.9	0.0	2.9	2.8	0.1	0.0	0.7	gal	0.0	108.6
Yarrows	2.9	2.9	2.9	0.0	0.0	0.1	0.0	0.0	0.1	gal	0.0	108.6
Other wild greens	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0

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Table 3-16.–Page 7 of 7.

Resource	Percentage of households					Harvest weight (lb)			Harvest amount			95% confidence limit (±) harvest
	Use %	Attempt %	Harvest %	Receive %	Give %	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Sweet gale	5.7	5.7	5.7	0.0	0.0	2.1	0.0	0.0	2.1	gal	0.0	80.0
Unspecified mushrooms	8.6	8.6	8.6	0.0	2.9	3.0	0.1	0.0	3.0	gal	0.1	71.2
Fireweed	5.7	2.9	2.9	2.9	0.0	0.4	0.0	0.0	0.4	gal	0.0	108.6
Chaga	2.9	2.9	2.9	0.0	0.0	0.1	0.0	0.0	0.1	gal	0.0	108.6
Sea lovage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Beach greens	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Seaweeds/kelps used for fertilizer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Unspecified seaweeds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Birch sap	2.9	2.9	2.9	0.0	0.0	0.0	0.0	0.0	1.4	gal	0.0	0.0
Firewood	54.3	48.6	48.6	5.7	14.3	0.0	0.0	0.0	102.2	cord	2.1	29.1
Other wood	8.6	8.6	8.6	0.0	2.9	0.0	0.0	0.0	4.2	cord	0.1	0.0

Source ADF&G Division of Subsistence household surveys, 2022.

Note Resources harvested for purposes other than food consumption show a non-zero harvest amount with a zero harvest weight.

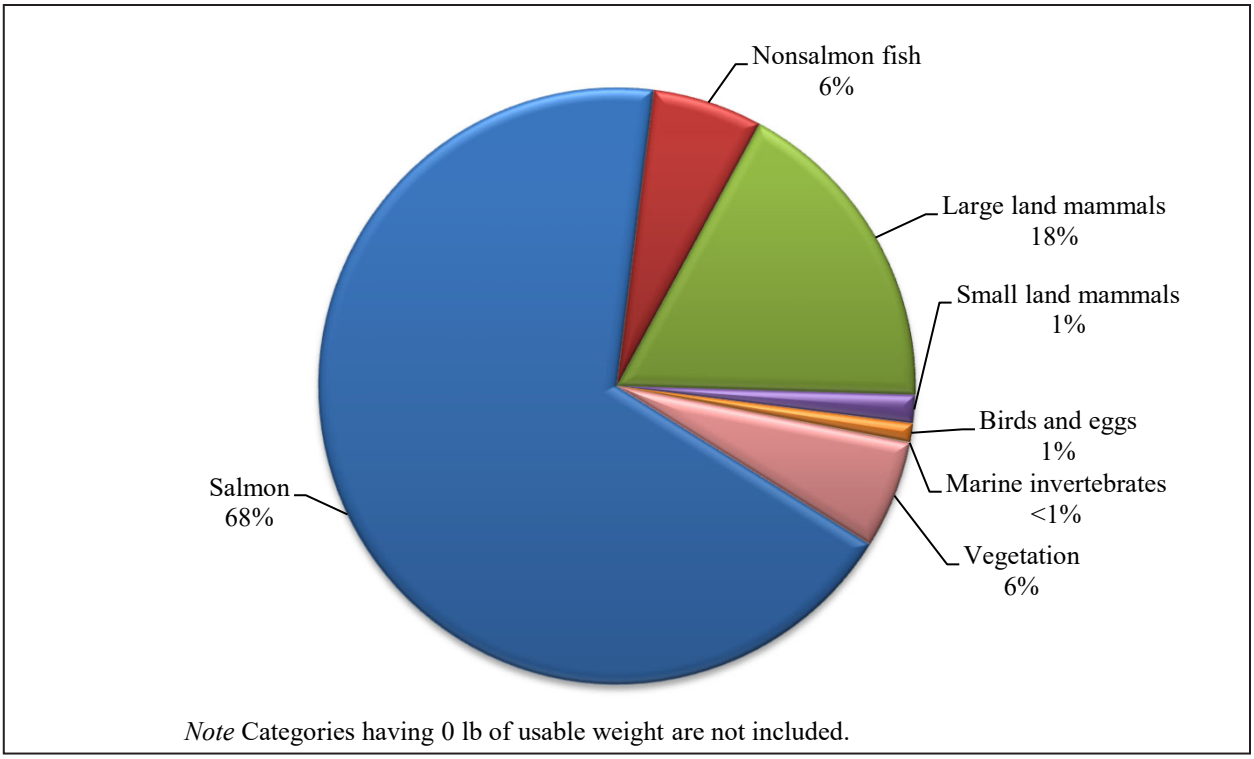


Figure 3-12.–Composition of harvest in pounds usable weight, by resource category, Port Alsworth, 2021.

Table 3-17.–Top ranked resources used by households, Port Alsworth, 2021.

Rank[a]	Resource	Percentage of households using
1.	Sockeye salmon	85.7%
2.	Blueberry	82.9%
3.	Moose	80.0%
4.	Lowbush cranberry	60.0%
5.	Lake trout	42.9%
6.	Northern pike	31.4%
7.	Highbush cranberry	25.7%
8.	Burbot	22.9%
9.	Chinook salmon	20.0%
9.	Arctic grayling	20.0%

Source ADF&G Division of Subsistence household surveys, 2022.

a. Resources used by the same percentage of households share the highest rank value instead of having sequential rank values.

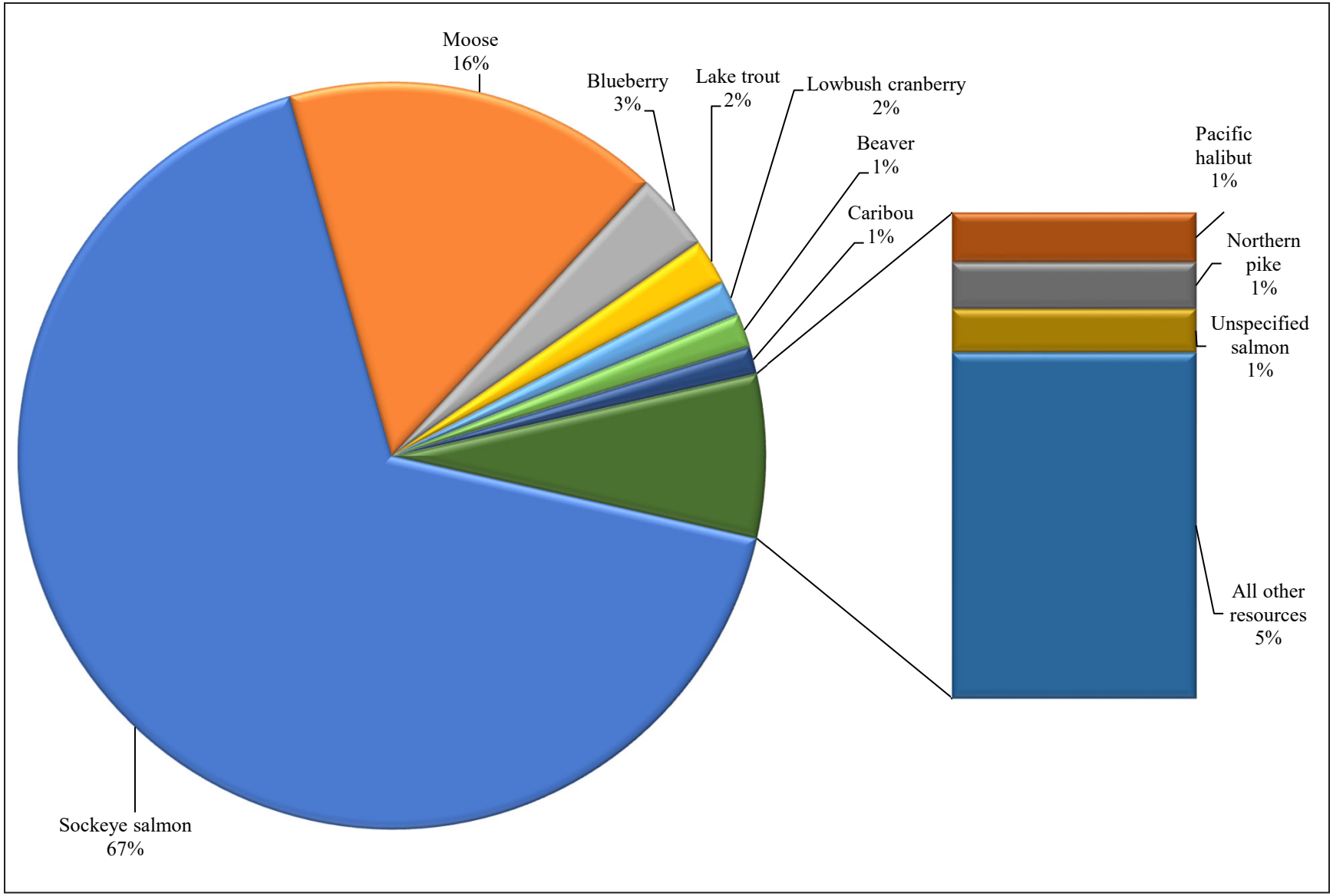


Figure 3-13.–Top resources harvested by percentage of total harvest, in pounds usable weight, Port Alsworth, 2021.

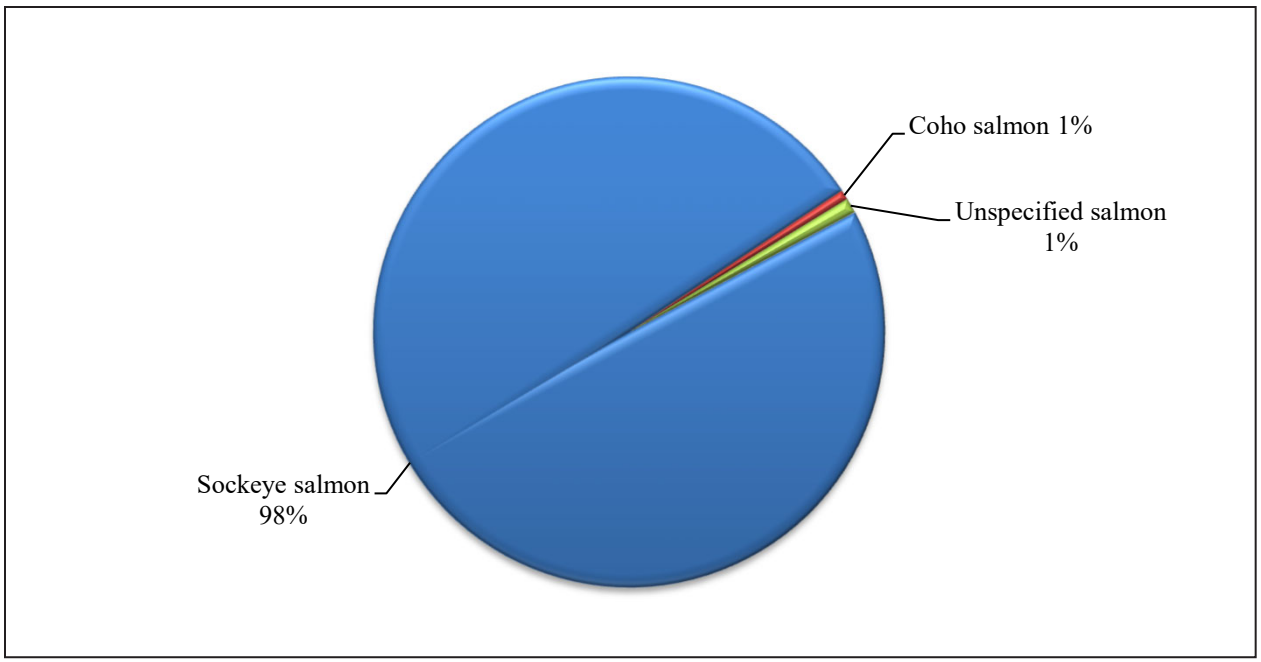


Figure 3-14.–Composition of salmon harvest in pounds usable weight, Port Alsworth, 2021.

Salmon

Port Alsworth residents harvested more salmon, by weight, than any other resource in 2021. Salmon composed nearly three-quarters of the total community harvest of wild resources, with 10,494 lb of salmon, or 79 lb per capita, harvested (Table 3-16). Of that harvest, almost all (98%) was sockeye salmon, with a small amount of coho salmon and unspecified salmon harvested (Figure 3-14). This reliance on sockeye salmon over other salmon species was not unusual during the study year:

> Since we are on the Lake Clark drainage, which comes, I believe from the Kvichak, all the way up from Bristol Bay, it's sockeye, sockeye, sockeye. One time there was a jack king salmon in the net and everybody stopped what they were doing and checked it out, because it was out of place … . (PTA02)

Due to the dominant space sockeye salmon occupied in the community's harvest, it is unsurprising that more households used, harvested, and shared sockeye salmon than almost any other species (a higher percentage of households harvested blueberries and received moose meat) (Table 3-16). In 2021, 69% of households harvested sockeye salmon, 86% used this species, 57% of households received sockeye salmon, and 51% gave away this resource. All households that fished for sockeye salmon were successful harvesting. Port Alsworth residents harvested a total of 10,330 lb of sockeye salmon (2,911 fish, or 78 lb per capita). A few households (3%) also harvested coho salmon or unspecified salmon. The unspecified salmon were only used by the households that harvested fish and none were shared or received. Coho salmon were shared by those who harvested fish and 9% of households used and received this resource. Although Chinook salmon was not fished for or harvested, 20% of Port Alsworth households received and used this species, and 3% of households further shared it.

During review of the final report, PAIC members shared with ADF&G staff that the actual harvest of salmon was higher than this study's estimates, although no specific number was provided. Considering the margin of error around the salmon harvest estimate (± 32.6%) the actual salmon harvest may be up to 1,000 salmon more than the point estimate of 2,953 salmon. Based on returned subsistence salmon permits, which could

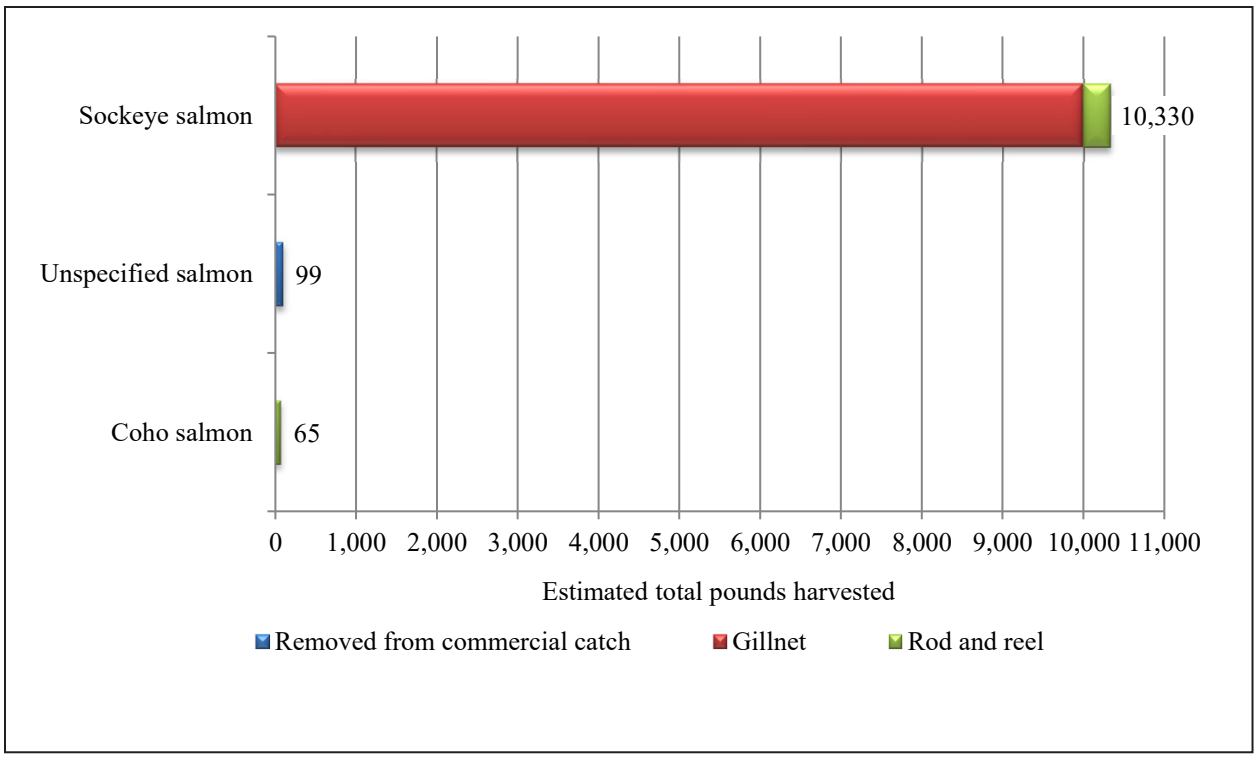


Figure 3-15.–Estimated harvest of salmon in pounds usable weight, by gear type and resource, Port Alsworth, 2021.

include subsistence fishers considered ineligible for this study, an estimated 4,313 salmon were harvested in 2021 by Port Alsworth households.[7]

Port Alsworth fishers used gillnets to harvest nearly all of their salmon in 2021 (Figure 3-15); 111 salmon (408 lb) were taken using rod and reel, and 28 salmon (99 lb) were removed from commercial harvests for home use (Table 3-18). Overall, 95% of the salmon harvest weight was caught by a subsistence method—gillnets—and 4% of the salmon harvest weight was caught using rod and reel (Table 3-19). Coho salmon were only caught on rod and reel and unspecified salmon were only removed from commercial harvests. Fishers mainly used nets to harvest sockeye salmon, but some were harvested with rod and reel. While subsistence gillnets were the predominant gear type used, some families are beginning to use seines for salmon harvesting as well:

> Well, we just always gillnetted before. Um, seines are very expensive, and there's been some grants lately. We don't have a seine, but my family … has multiple so we go down and seine with them. It's actually much more efficient way to do it. (PTA01)

During the study year, Port Alsworth fishers generally stayed within Lake Clark (Figure 3-16). The most concentrated salmon search and harvest areas were in Lake Clark within a mile of the community, near the Tanalian River and at Tanalian Point. Other salmon harvest locations ranged from northeast of the community on the shore of Lake Clark roughly across from Kijik, in the Kijik area, and southwest of Port Alsworth near Portage Bay. Additionally, salmon were harvested in Resurrection Bay, near Seward. Although not recorded during surveys, according to attendees of the data review meeting, there are Port Alsworth households that do fish in the southern portion of Sixmile Lake.

7. Terri Barnett, Research Analyst 3, ADF&G Division of Subsistence, Anchorage, May 21, 2025, personal communication; the salmon harvest estimate was accessed in May 2025 from the Alaska Subsistence Fisheries Database (ASFDB).

Table 3-18.–Estimated harvest of salmon by gear type and resource, Port Alsworth, 2021.

Resource	Removed from commercial catch		Subsistence methods							
			Gillnet		Subsistence gear, any method		Rod and reel		Any method	
	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Salmon	**28.0**	**98.6**	**2,814.0**	**9,987.2**	**2,814.0**	**9,987.2**	**110.6**	**408.2**	**2,952.6**	**10,493.9**
Chum salmon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Coho salmon	0.0	0.0	0.0	0.0	0.0	0.0	14.0	65.3	14.0	65.3
Chinook salmon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pink salmon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sockeye salmon	0.0	0.0	2,814.0	9,987.2	2,814.0	9,987.2	96.6	342.8	2,910.6	10,330.0
Landlocked salmon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spawning sockeye salmon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unspecified salmon	28.0	98.6	0.0	0.0	0.0	0.0	0.0	0.0	28.0	98.6

Source ADF&G Division of Subsistence household surveys, 2022.

Note The harvested number of salmon is represented as individual fish harvested.

Table 3-19.–Estimated percentages of salmon harvested by gear type, resource, and total salmon harvest, Port Alsworth, 2021.

Resource	Percentage base	Removed from commercial catch		Subsistence methods: Gillnet		Subsistence methods: Subsistence gear, any method		Rod and reel		Any method	
		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%**
	Resource	**0.9%**	**0.9%**	**95.3%**	**95.2%**	**95.3%**	**95.2%**	**3.7%**	**3.9%**	**100.0%**	**100.0%**
	Total	**0.9%**	**0.9%**	**95.3%**	**95.2%**	**95.3%**	**95.2%**	**3.7%**	**3.9%**	**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%
	Resource	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%
Coho salmon	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.7%	16.0%	0.5%	0.6%
	Resource	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%	0.5%	0.6%	0.5%	0.6%
Chinook salmon	Gear type	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%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pink salmon	Gear type	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%
	Total	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%	100.0%	100.0%	100.0%	100.0%	87.3%	84.0%	98.6%	98.4%
	Resource	0.0%	0.0%	96.7%	96.7%	96.7%	96.7%	3.3%	3.3%	100.0%	100.0%
	Total	0.0%	0.0%	95.3%	95.2%	95.3%	95.2%	3.3%	3.3%	98.6%	98.4%
Landlocked salmon	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	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%
Spawning sockeye salmon	Gear type	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%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Unspecified salmon	Gear type	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	0.9%
	Resource	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.9%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	0.9%

Source ADF&G Division of Subsistence household surveys, 2022.

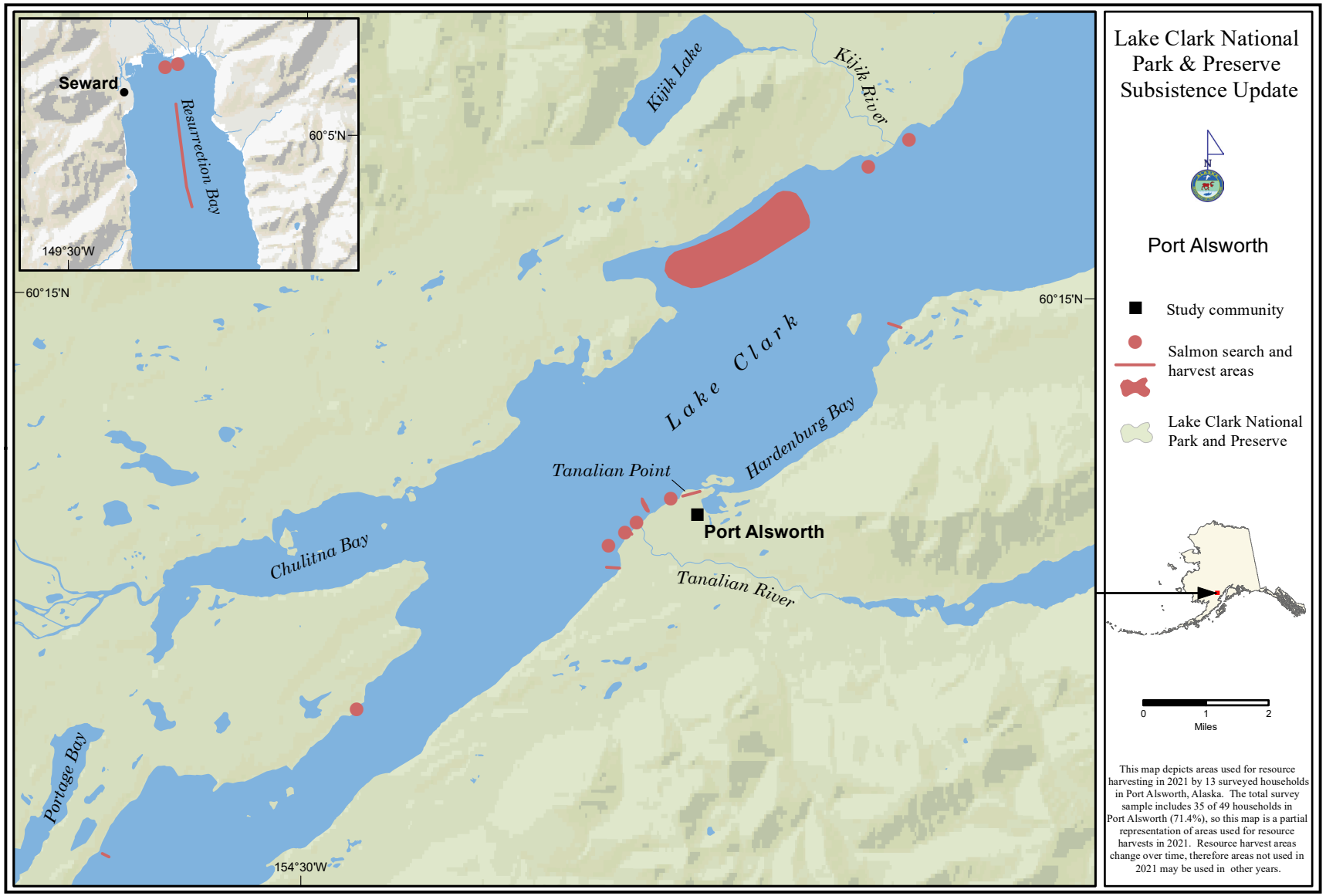


Figure 3-16.–Fishing and harvest locations of salmon, Port Alsworth, 2021.

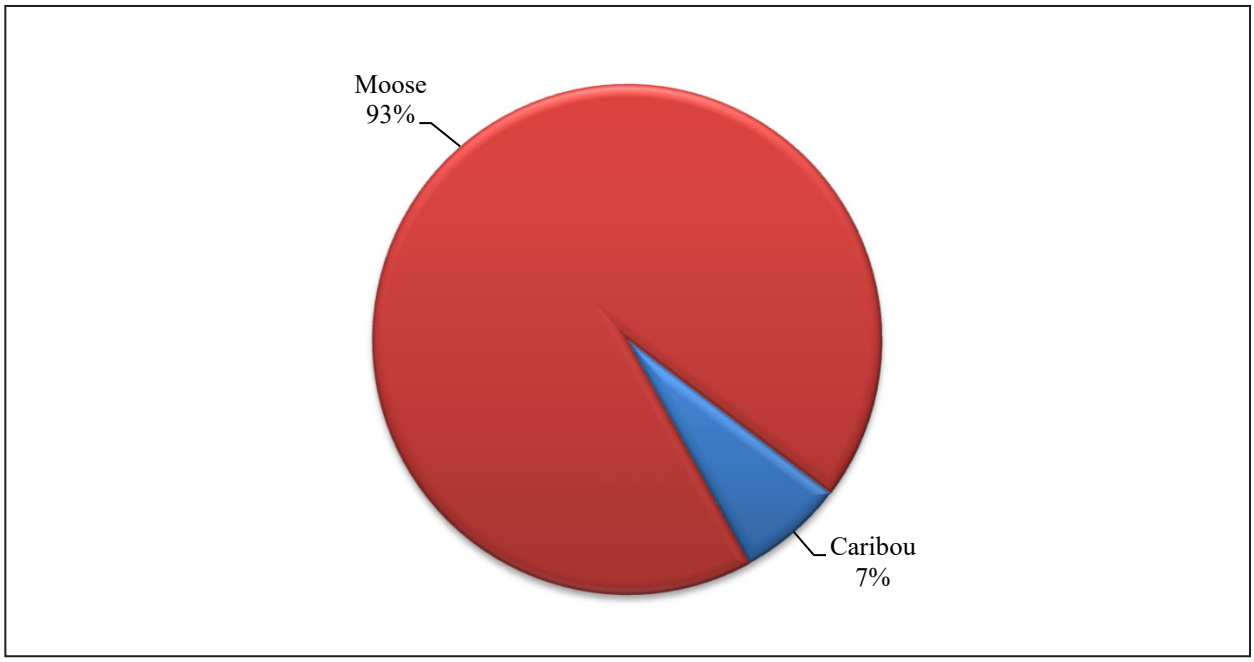


Figure 3-17.–Composition of large land mammal harvest in pounds usable weight, Port Alsworth, 2021.

Large Land Mammals

Although salmon clearly dominate Port Alsworth households' harvests and uses of wild resources, large land mammals also play an important role. The majority (83%) of Port Alsworth households used large land mammals, mostly moose, and the resource category composed 18% of the community's harvest, by weight, in 2021 (Table 3-16; Figure 3-12). Only moose and caribou were harvested for food, and most (93%) of the harvest weight was moose (Figure 3-17). As is discussed further in the "Harvest Data" section, this study's estimate of moose harvests in 2021 may be low. Black bear and brown bear were also hunted by a few households, but those bears that were killed were not eaten. A small proportion of households received bison during the study year, likely from another community since no Port Alsworth households hunted or shared bison.

The total large land mammal harvest in 2021 was 2,702 lb, or 20 lb per capita, and the total moose harvest weight was 2,520 lb (19 lb per capita) (Table 3-16). Moose were used by 80% of Port Alsworth households, making it the third most frequently used wild resource during the study year (Table 3-17). Sharing moose within Port Alsworth is important to its residents:

> So it's like a little- it makes me feel proud if I do get one, and I am successful, there's just a list of people in my mind where they're, like, hoping you're gonna bring them something. And when you're able to, it's a good feeling. (PTA02)

Although widely used, only one-third of households hunted moose, and only 11% of households in Port Alsworth were successful in 2021 (Table 3-16). Much of the household use came through sharing: moose were given away by 37% of households and was received by 71%. All moose harvested in 2021 were males, and all were taken during the fall (Table 3-20). Although there is a winter moose hunt, most residents prefer the fall hunt. As one respondent stated, "… I still would not focus on a winter moose hunt myself, even if we had good ice. It'd be like an oppor- you know, a random opportunity. The fall hunt is, is and was, has been my focus …" (PTA01). Moose search and harvest areas ranged north and east of the community, from nearby lands around Tanalian Mountain and Kijik Lake, east to Currant Creek, and the headwaters of Little Lake Clark (Figure 3-18).

Table 3-20.–Estimated large land mammal harvests by month and sex, Port Alsworth, 2021.

Resource	Estimated harvest by month													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Unk	**Total**
All large land mammals	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.4**	**4.2**	**1.4**	**2.8**	**0.0**	**0.0**	**9.8**
Bison	0.0	0.0	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 bear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	**1.4**
Brown bear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	**1.4**
Caribou	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	**1.4**
Caribou, male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	**1.4**
Caribou, female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Caribou, unknown sex	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Mountain goat	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Moose	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	2.8	0.0	1.4	0.0	0.0	**5.6**
Moose, male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	2.8	0.0	1.4	0.0	0.0	**5.6**
Moose, female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Moose, unknown sex	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Dall sheep	0.0	0.0	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, 2022.

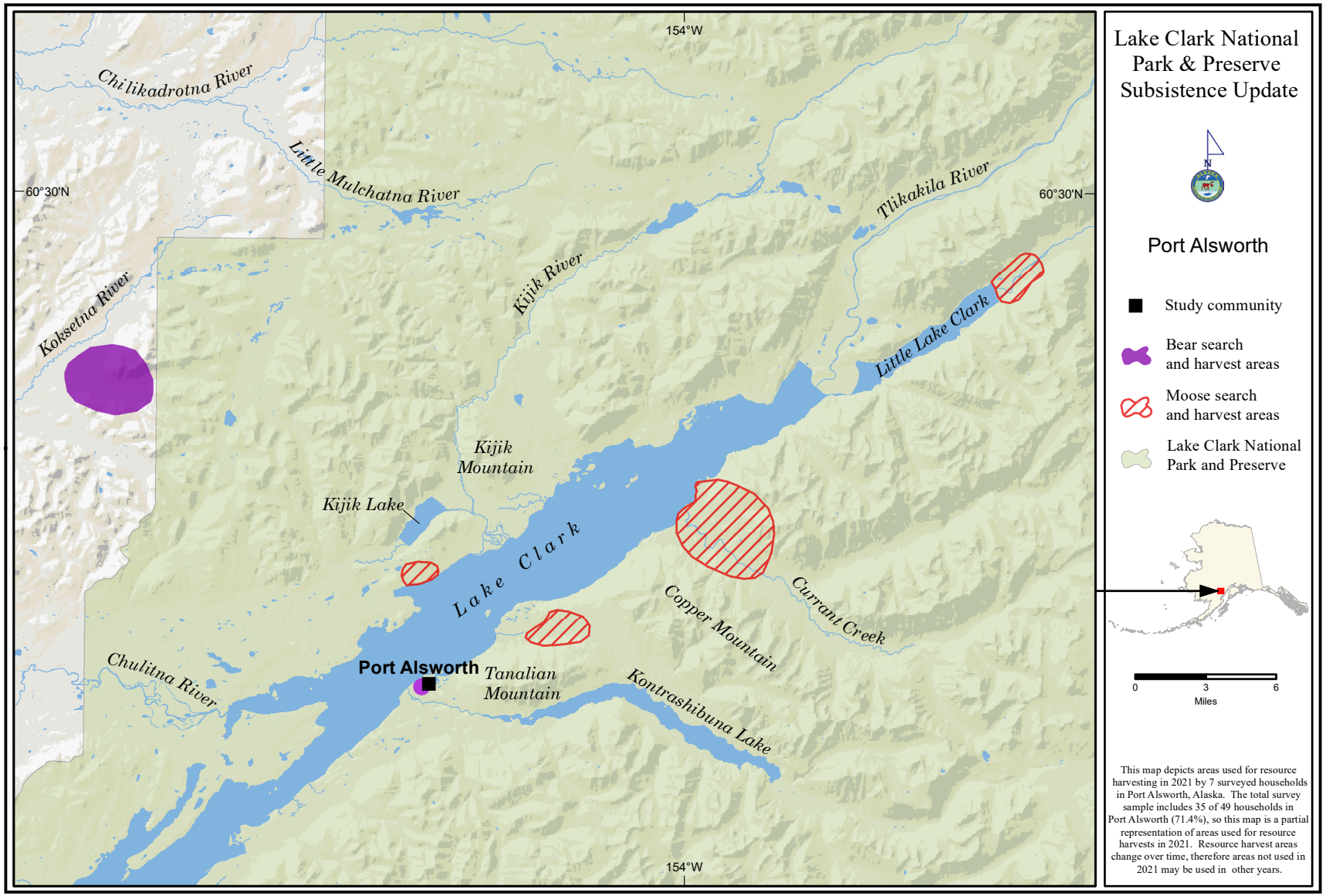
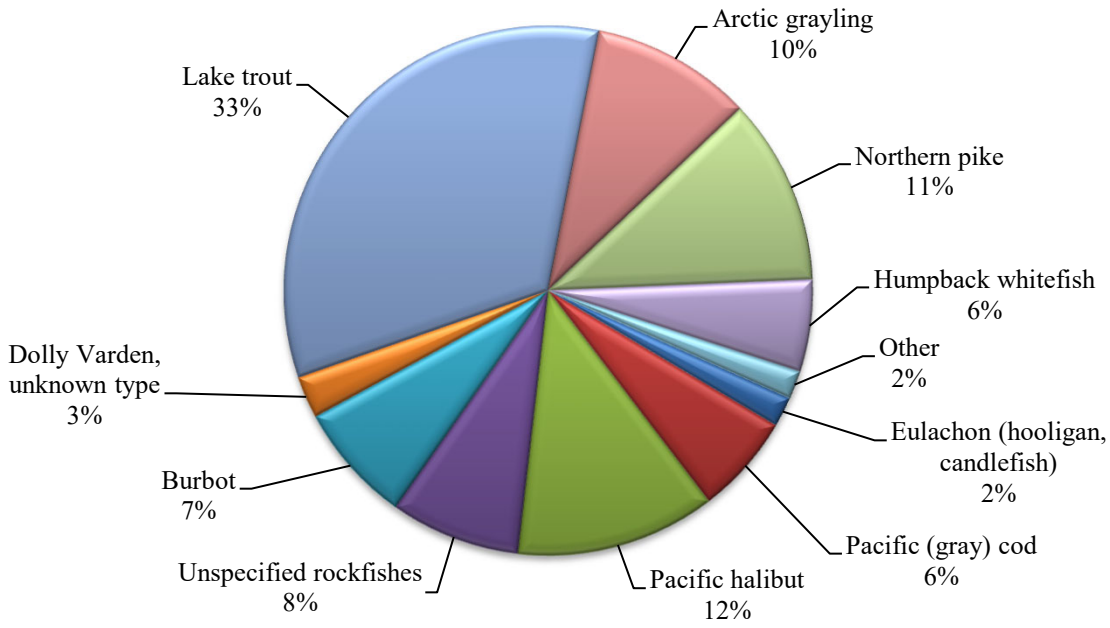


Figure 3-18.–Hunting and harvest locations of moose and bear, Port Alsworth, 2021.



Note "Other" represents all species that each contributed less than 1% to the total category harvest weight.

Figure 3-19.–Composition of nonsalmon fish harvest in pounds usable weight, Port Alsworth, 2021.

Caribou hunting in GMU 9B was closed during the 2021 study year, therefore caribou harvests were lower during the study year than previous years. Approximately 6% of households hunted caribou and 3% of community households successfully harvested a total of approximately 1 caribou (182 lb; slightly more than 1 lb per capita) (Table 3-16). Three percent of households gave away caribou, which was received by 6% of households, and overall 9% of households used caribou. The only caribou harvested in 2021 was harvested in September (Table 3-20). Hunters searched for caribou in another part of the state, and the area was not mapped during the survey.

In addition to the animals harvested for meat, a small percentage (3%) of households harvested a brown bear and 3% harvested a black bear for fur only during the study year (Table 3-16). The brown bear was harvested in October and the black bear was harvested November (Table 3-20). Bear search and harvest areas were around Port Alsworth and to the northwest of the community, near the Koksetna River (Figure 3-18). No households documented sheep hunting during the study year, but NPS issued 11 sheep permits for hunting in the park in 2021, and 1–3 of them were hunted.[8]

Nonsalmon Fish

Although the harvest of nonsalmon fish accounted for a small portion of the total community harvest weight (6%), these species are still important resources used by two-thirds (66%) of Port Alsworth households (Table 3-16). Fishers harvested approximately 916 lb of nonsalmon fish during the study year, equating to a per capita harvest of 7 lb. Lake trout, harvested by 31% of households, was the most harvested nonsalmon fish, composing 33% of the total nonsalmon fish harvest weight (306 lb; 2 lb per capita) (Table 3-16; Figure 3-19). A variety of other nonsalmon fish were harvested, but none in amounts greater than 1 lb per capita: Pacific halibut (12%; 112 lb total), northern pike (11%; 105 lb), Arctic grayling (10%; 90 lb), unspecified

8. Buck Mangipane, Natural Resources Program Manager, Lake Clark National Park and Preserve, Port Alsworth, Sept. 28, 2024, personal communication.

rockfishes (8%; 73 lb), burbot (7%; 67 lb), Pacific (gray) cod (6%; 56 lb), and humpback whitefish (6%; 52 lb). Port Alsworth residents harvested at least another 6 species, all in amounts of less than 25 lb.

The most harvested nonsalmon fish resource, lake trout, was also used and shared the most: almost one-half (43%) of Port Alsworth households used lake trout, which were given away by 20% of households and received by 11%. Northern pike were used by 31% of Port Alsworth households and harvested by 20% of households during the study year. Few households (3%) shared northern pike, but they were received by 11% of households. Approximately 20% of households harvested and used burbot and Arctic grayling, and 9% of households shared these resources. No community households reported receiving Arctic grayling. Because it is not locally available, few households (6%) harvested Pacific halibut, but approximately 14% of Port Alsworth households used this saltwater resource. Not all who harvested halibut gave it away, but those who did share halibut may have shared with multiple households since 11% of Port Alsworth households received halibut.

Figure 3-20 is a visual representation of the nonsalmon fish harvest weight caught by gear type. Rod and reel was the most prevalent gear used to harvest nonsalmon fish species: approximately 739 lb of the nonsalmon fish harvest was caught by rod and reel, 134 lb were caught using hook under ice, 27 lb were taken with gillnet, and 17 lb were harvested using dip net (Table 3-21). Port Alsworth fishers used rod and reel to harvest all of the Pacific cod, lingcod, Pacific halibut, rockfishes, Dolly Varden, and Arctic grayling, and used subsistence gear to harvest all of their eulachon (dip net), round whitefish (hook under ice), and unspecified whitefishes (gillnet) (Table 3-22). Remaining species were harvested with a combination of methods. Rod and reel was the most used method to harvest lake trout (91% of the total harvest weight), but fishers also used hook under ice (5% of the harvest weight) and gillnet (4%). Similarly, fishers used rod and reel to harvest the majority of northern pike (85%), and gillnet and hook under ice to catch the remainder of the harvest. The majority (88%) of the burbot harvest was caught using hook under ice, 8% (6 lb) was harvested using rod and reel, and the remaining 4% was caught using a gillnet. Similar to burbot, almost all (95%) of the humpback whitefish harvest was caught using hook under ice and the remaining 5% was caught with rod and reel.

Port Alsworth residents mainly searched for and harvested nonsalmon fish near the community as well as northeast and northwest of Port Alsworth (Figure 3-21). Nonsalmon fish were harvested within the Tanalian River, near Tanalian Point, and in Hardenburg Bay. Although not documented during the survey, Kontrashibuna Lake, east of Tanalian River, is a common harvest area for lake trout, according to Port Alsworth residents in attendance at the data review meeting. Northwest of Port Alsworth, nonsalmon fish were reported to have been harvested in an area of Lake Clark almost in Chulitna Bay near Cape Shishkin. Port Alsworth residents harvest pike in Chulitna Bay, according to attendees of the data review meeting, though no households reported use of the area during the survey year. North of the community, nonsalmon fish search and harvest areas included within Kijik River and at the mouth of Kijik River where there was a village previously. Some Port Alsworth residents traveled farther to harvest nonsalmon fish, such as in Blying Sound and Resurrection River, near Seward.

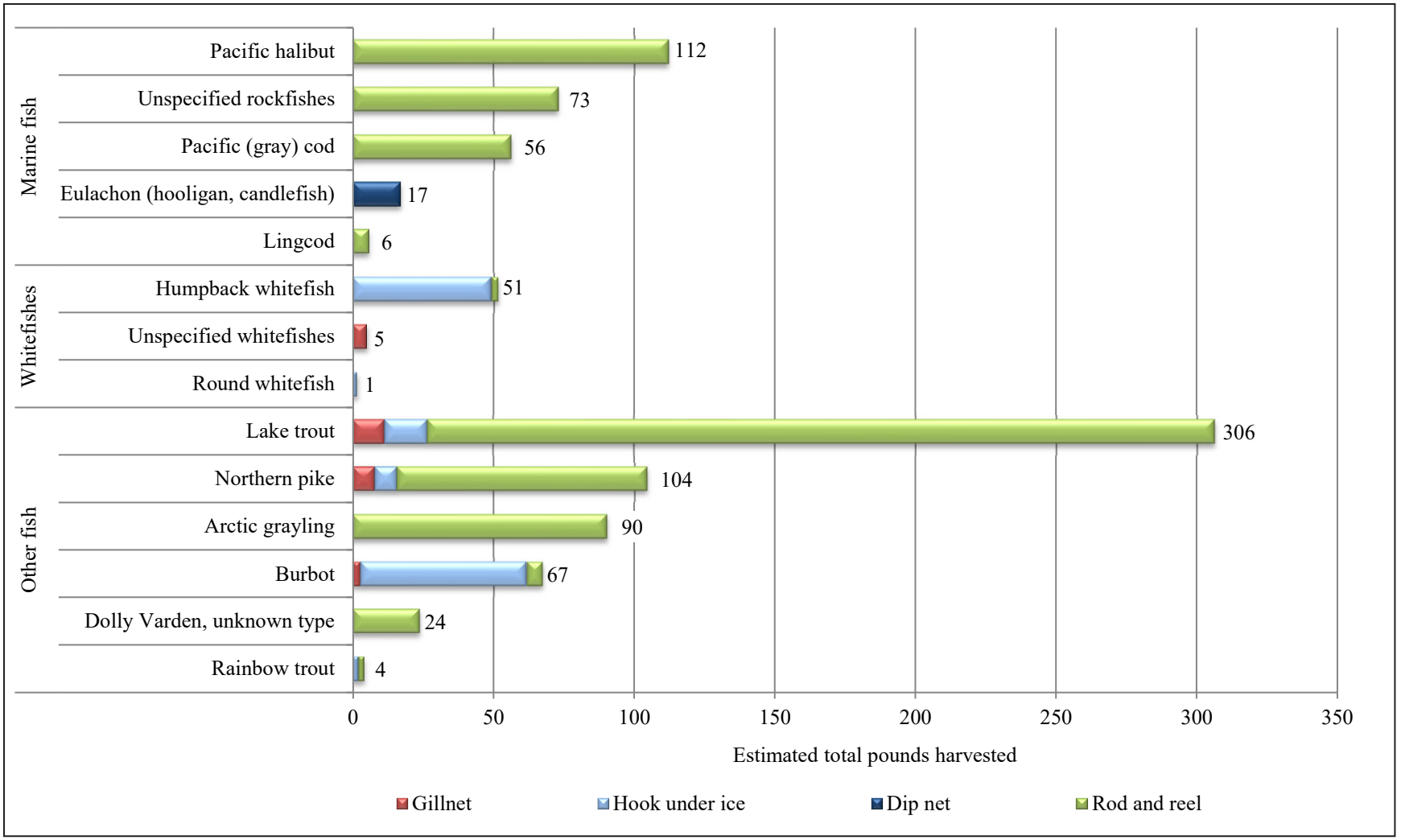


Figure 3-20.–Estimated harvest of nonsalmon fish in pounds usable weight, by gear type and resource, Port Alsworth, 2021.

Table 3-21.–Estimated harvest of nonsalmon fish by gear type and resource, Port Alsworth, 2021.

		Subsistence methods											
		Gillnet		Hook under ice		Dip net		Subsistence gear, any method		Rod and reel		Any method	
Resource	Unit[a]	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Nonsalmon fish			**26.8**		**134.1**		**16.8**		**177.7**		**738.6**		**916.3**
Eulachon (hooligan, candlefish)	gal	0.0	0.0	0.0	0.0	2.8	16.8	2.8	16.8	0.0	0.0	2.8	16.8
Unspecified smelts	gal	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	ind	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.5	56.0	17.5	56.0
Unspecified cods	ind	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	ind	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	5.6	1.4	5.6
Pacific halibut	lb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	112.0	112.0	112.0	112.0
Unspecified rockfishes	ind	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.4	72.8	36.4	72.8
Bullhead sculpin	ind	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stickleback (needlefish)	gal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alaska blackfish	ind	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	ind	2.8	2.8	58.8	58.8	0.0	0.0	61.6	61.6	5.6	5.6	67.2	67.2
Arctic char	ind	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dolly Varden, unknown type	ind	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.8	23.5	16.8	23.5
Lake trout	ind	4.2	11.3	5.6	15.1	0.0	0.0	9.8	26.5	103.6	279.7	113.4	306.2
Arctic grayling	ind	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	128.8	90.2	128.8	90.2
Northern pike	ind	2.8	7.8	2.8	7.8	0.0	0.0	5.6	15.7	31.7	88.8	37.3	104.5
Longnose sucker	ind	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	ind	0.0	0.0	2.8	2.0	0.0	0.0	2.8	2.0	2.8	2.0	5.6	3.9
Steelhead	ind	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unspecified trouts	ind	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	ind	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	ind	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	ind	0.0	0.0	28.0	49.0	0.0	0.0	28.0	49.0	1.4	2.5	29.4	51.5
Round whitefish	ind	0.0	0.0	1.4	1.4	0.0	0.0	1.4	1.4	0.0	0.0	1.4	1.4
Unspecified whitefishes	ind	2.8	4.8	0.0	0.0	0.0	0.0	2.8	4.8	0.0	0.0	2.8	4.8

Source ADF&G Division of Subsistence household surveys, 2022.

Note The summary row that may include incompatible units of measure has been left blank.

a. The harvested number of each resource is measured by the unit in which the resource harvest information was collected; the unit of measurement is provided for each resource.

Table 3-22.–Estimated percentages of nonsalmon fish harvested in pounds usable weight by gear type, resource, and total nonsalmon fish harvest, Port Alsworth, 2021.

Resource	Percentage base	Subsistence methods					
		Gillnet	Hook under ice	Dip net	Subsistence gear, any method	Rod and reel	Any method
Nonsalmon fish	**Gear type**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
	Resource	**2.9%**	**14.6%**	**1.8%**	**19.4%**	**80.6%**	**100.0%**
	Total	**2.9%**	**14.6%**	**1.8%**	**19.4%**	**80.6%**	**100.0%**
Eulachon (hooligan, candlefish)	Gear type	0.0%	0.0%	100.0%	9.5%	0.0%	1.8%
	Resource	0.0%	0.0%	100.0%	100.0%	0.0%	100.0%
	Total	0.0%	0.0%	1.8%	1.8%	0.0%	1.8%
Unspecified smelts	Gear type	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%
	Total	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%	7.6%	6.1%
	Resource	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	6.1%	6.1%
Unspecified cods	Gear type	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%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Lingcod	Gear type	0.0%	0.0%	0.0%	0.0%	0.8%	0.6%
	Resource	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.6%	0.6%
Pacific halibut	Gear type	0.0%	0.0%	0.0%	0.0%	15.2%	12.2%
	Resource	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	12.2%	12.2%
Unspecified rockfishes	Gear type	0.0%	0.0%	0.0%	0.0%	9.9%	7.9%
	Resource	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	7.9%	7.9%

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Table 3-22.–Page 2 of 4.

Resource	Percentage base	Subsistence methods: Gillnet	Hook under ice	Dip net	Subsistence gear, any method	Rod and reel	Any method
Bullhead sculpin	Gear type	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%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Stickleback (needlefish)	Gear type	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%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Alaska blackfish	Gear type	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%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Burbot	Gear type	10.5%	43.8%	0.0%	34.7%	0.8%	7.3%
	Resource	4.2%	87.5%	0.0%	91.7%	8.3%	100.0%
	Total	0.3%	6.4%	0.0%	6.7%	0.6%	7.3%
Arctic char	Gear type	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%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Dolly Varden, unknown	Gear type	0.0%	0.0%	0.0%	0.0%	3.2%	2.6%
type	Resource	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	2.6%	2.6%
Lake trout	Gear type	42.3%	11.3%	0.0%	14.9%	37.9%	33.4%
	Resource	3.7%	4.9%	0.0%	8.6%	91.4%	100.0%
	Total	1.2%	1.7%	0.0%	2.9%	30.5%	33.4%
Arctic grayling	Gear type	0.0%	0.0%	0.0%	0.0%	12.2%	9.8%
	Resource	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	9.8%	9.8%

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Table 3-22.–Page 3 of 4.

Resource	Percentage base	Subsistence methods: Gillnet	Hook under ice	Dip net	Subsistence gear, any method	Rod and reel	Any method
Northern pike	Gear type	29.3%	5.8%	0.0%	8.8%	12.0%	11.4%
	Resource	7.5%	7.5%	0.0%	15.0%	85.0%	100.0%
	Total	0.9%	0.9%	0.0%	1.7%	9.7%	11.4%
Longnose sucker	Gear type	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%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Rainbow trout	Gear type	0.0%	1.5%	0.0%	1.1%	0.3%	0.4%
	Resource	0.0%	50.0%	0.0%	50.0%	50.0%	100.0%
	Total	0.0%	0.2%	0.0%	0.2%	0.2%	0.4%
Steelhead	Gear type	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%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Unspecified trouts	Gear type	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%
	Total	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%
	Resource	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%
Least cisco	Gear type	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%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Humpback whitefish	Gear type	0.0%	36.5%	0.0%	27.6%	0.3%	5.6%
	Resource	0.0%	95.2%	0.0%	95.2%	4.8%	100.0%
	Total	0.0%	5.3%	0.0%	5.3%	0.3%	5.6%

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Table 3-22.–Page 4 of 4.

Resource	Percentage base	Subsistence methods					
		Gillnet	Hook under ice	Dip net	Subsistence gear, any method	Rod and reel	Any method
Round whitefish	Gear type	0.0%	1.0%	0.0%	0.8%	0.0%	0.2%
	Resource	0.0%	100.0%	0.0%	100.0%	0.0%	100.0%
	Total	0.0%	0.2%	0.0%	0.2%	0.0%	0.2%
Unspecified whitefishes	Gear type	17.9%	0.0%	0.0%	2.7%	0.0%	0.5%
	Resource	100.0%	0.0%	0.0%	100.0%	0.0%	100.0%
	Total	0.5%	0.0%	0.0%	0.5%	0.0%	0.5%

Source ADF&G Division of Subsistence household surveys, 2022.

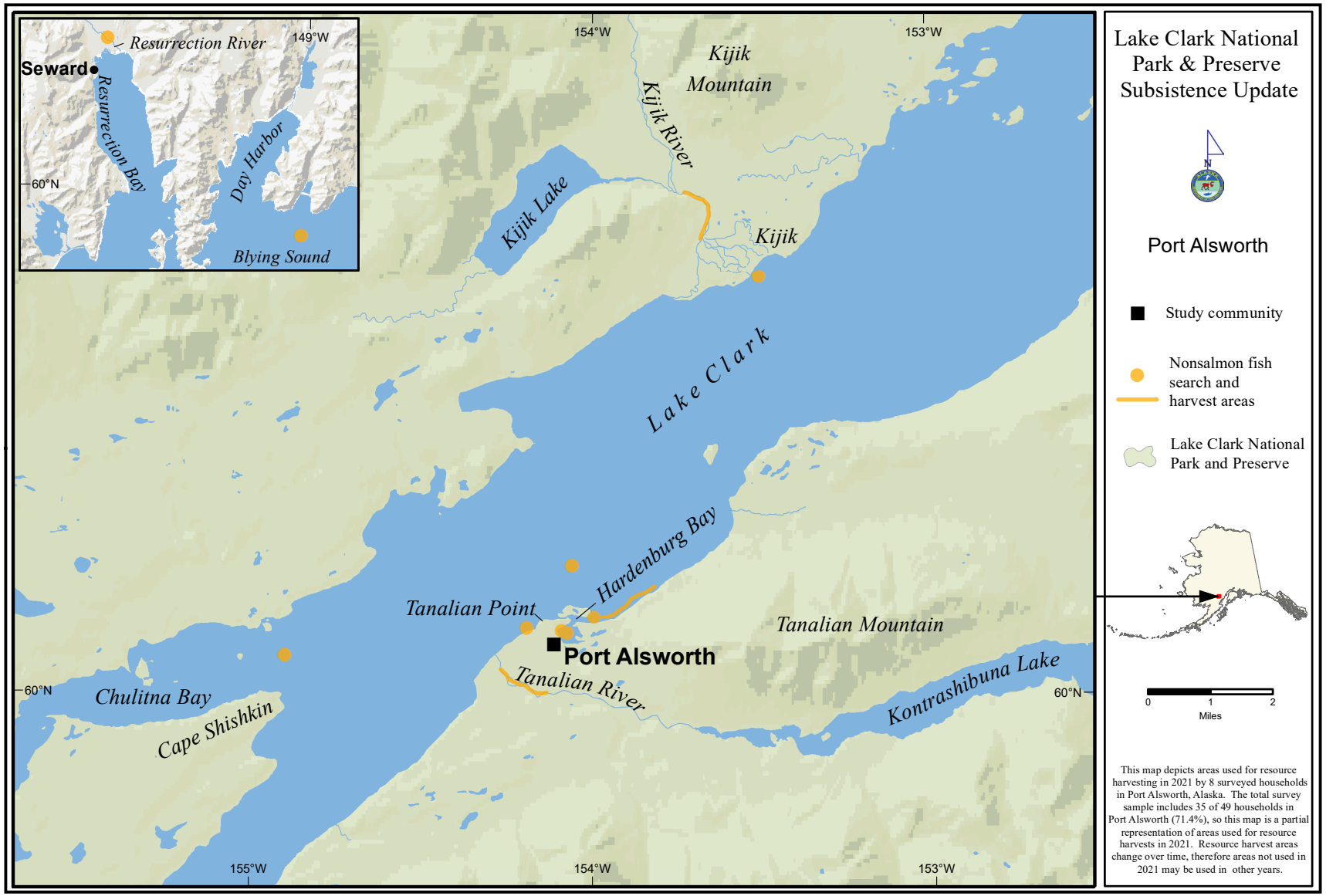

Figure 3-21.–Fishing and harvest locations of nonsalmon fish, Port Alsworth, 2021.

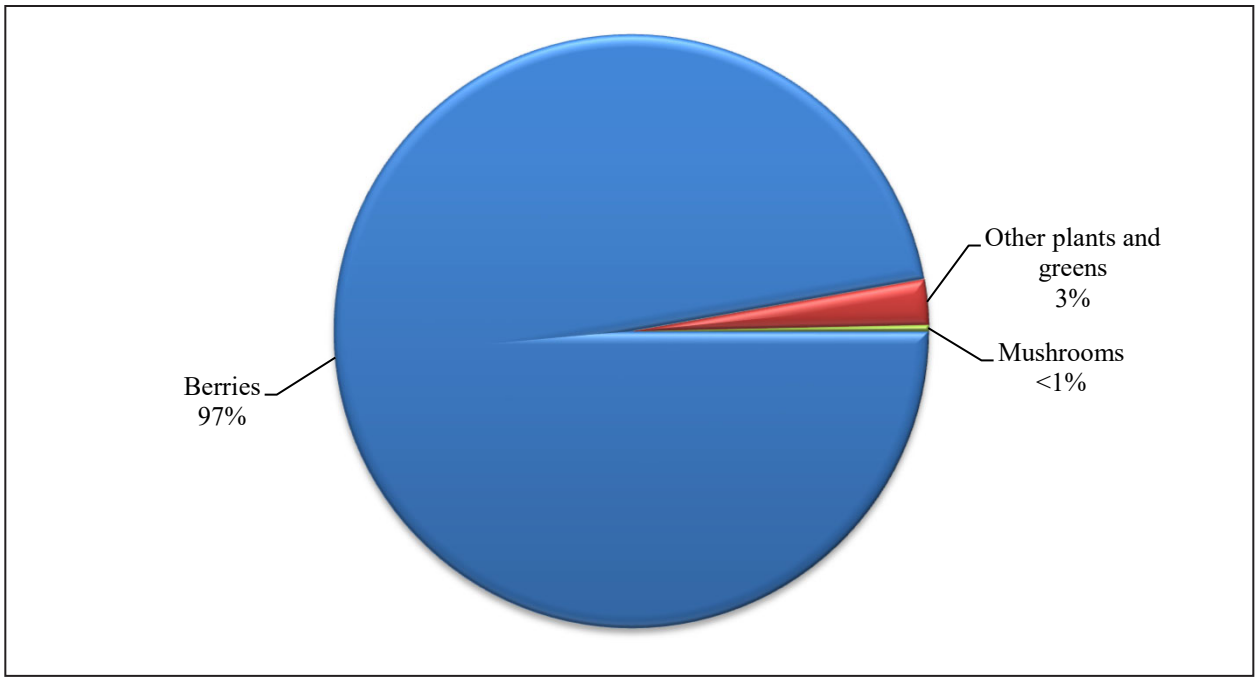

Figure 3-22.–Composition of vegetation harvest by type in pounds usable weight, Port Alsworth, 2021.

Table 3-23.–Changes to firewood harvest areas, Port Alsworth, 2021.

Households reporting firewood use	Households reporting changes to firewood harvest area			
	Yes		No	
	Number	Percentage	Number	Percentage
19	5	26.3%	14	73.7%

Source ADF&G Division of Subsistence household surveys, 2022.

Vegetation

In 2021, more households used, harvested, and shared vegetation (wild plants) than almost any other resource category. Approximately 91% of households used, attempted to harvest, and harvested at least one type of vegetation (Table 3-16). Households in Port Alsworth used at least 21 types of vegetation and all households that attempted to harvest were successful. Overall, more households shared vegetation resources during the study year than received them. Berries dominated the harvest weight of vegetation (Figure 3-22).

In 2021, 8 species of berries were used by Port Alsworth households (Table 3-16). The most households harvested and used blueberries (83% of households), and households harvested more blueberries than any other vegetation. The blueberry harvest totaled 522 lb, or 4 lb per capita. During the study year, 31% of households gave away some blueberries and 11% of households received blueberries. Lowbush cranberry was the second most frequently harvested and used type of vegetation: 60% of households used and 57% harvested lowbush cranberries. The total lowbush cranberry harvest was 232 lb, or 2 lb per capita. During the study year, 29% of households gave away some lowbush cranberries, and 11% of households received lowbush cranberries. Approximately one-quarter of households used and harvested highbush cranberries, and while 11% of households gave away highbush cranberries only 3% of households received them.

Table 3-24.–Natural materials used by sampled households for making handicrafts, Port Alsworth, 2021.

Material	Households reporting use	
	Number	Percentage
Bark	5	14.3%
Willows	2	5.7%
Horns	0	0.0%
Antlers	1	2.9%
Grass	1	2.9%
Bone	0	0.0%
Other raw material	0	0.0%
Qiviut	0	0.0%

Source ADF&G Division of Subsistence household surveys, 2022.

Note The percentage of households using materials is calculated out of sampled households.

A total of 56 lb of highbush cranberries were harvested, equaling less than 1 lb per capita. No other berry was used or harvested by more than 18% of households, and none was shared by more than 6%. The harvests of these other berries were small—all in amounts of less than 25 lb.

Other plants were harvested, used, and shared less frequently than berries; fiddlehead ferns were the most used and harvested in this subcategory. Despite higher participation in harvesting and using fiddlehead ferns (14% of households), only 3% of households shared and no households received fiddleheads. More wild rhubarb was harvested in 2021 (13 lb compared to 3 lb of fiddleheads), but fewer households (6%) harvested it or used it. Approximately 9% of Port Alsworth households used and harvested mushrooms, but only 3% of households gave away mushrooms and none received mushrooms. No other plant species (excluding wood) was used or harvested by more than 6% of households, and harvest weights of these resources did not exceed 3 lb.

More than one-half (54%) of Port Alsworth households used firewood during the study year, and 49% of households harvested it. Approximately 14% of households shared firewood and 6% received it. In addition to estimating the percentage of households harvesting and using firewood, the survey asked respondents about their use of firewood for heating their homes. Approximately 23% of households stated that "a little (some, but less than half)" of their home's heating came from firewood; 14% stated "about half" of their home's heating came from firewood; 11% of households stated "a lot (more than half, but not all)" of their home's heating came from firewood; and 6% of households stated "all" of their home's heating came from firewood (Table 3-15). The survey asked firewood collectors whether their wood harvest areas had changed in the past 5 years and most (74%) said no (Table 3-23). A smaller proportion (26%) of households that used firewood to heat homes said they had changed where they were looking for firewood. One survey respondent indicated that there seemed to be less wood available close to the community, while another thought that more people in town was causing that scarcity. Several survey respondents indicated that in recent winters Lake Clark has not frozen, causing difficulties in accessing and obtaining firewood. One key respondent commented:

> Well, I'm sure some people would say they have problems accessing the wood 'cause of lake ice, to be able to travel, 'cause there's really no trails here. So you're, either you move it in the summer with a boat, which is a big pain, or you move it in winter on the ice. The sooner there is ice, there's a flurry of activity, the whole town is out, around the lake, searching out dry wood. (PTA01)

Vegetation resources are the predominant natural materials used in making handicrafts in Port Alsworth. The most common material used was bark, which 14% of households used during the study year to make handicrafts (Table 3-24). Six percent of households used willows, while 3% used grass. The only non-vegetation resource used in handicrafts was antler, and this was used by 3% of households.

Port Alsworth residents harvested vegetation from much of the land within and surrounding Port Alsworth (Figure 3-23). Many households harvested both plants and berries within the immediate community area. Farther away from the community, berries were harvested along the Koksetna River, near Keyes Point, and along the roadway near the community of Iliamna. Outside of the Lake Clark region, plants were harvested near the community of Seward, and some berries were harvested north of Lake Clark near the Telaquana River. Firewood was harvested relatively close to Port Alsworth, along the shorelines around the community and across the lake along the shoreline across from Tanalian Point until an area just north of Kijik (Figure 3-24). One key respondent reflected on the issue of harvesting firewood within LACL:

> … so you have to have a federal subsistence permit to harvest wood in the park. And in order to get that, like for state subsistence it's a lot easier to get a subsistence permit. For federal, like if you want to harvest anything in the park, including firewood, you have to go through an interview process and you have to prove that you actually live here and this is your main residence. It's harder to get that, yeah, it's a lot harder to get that here, so there's not a bunch of people that actually have those permits to harvest within the park, so a lot of people go out on the lake and the state land and not go on park land. (PTA03)

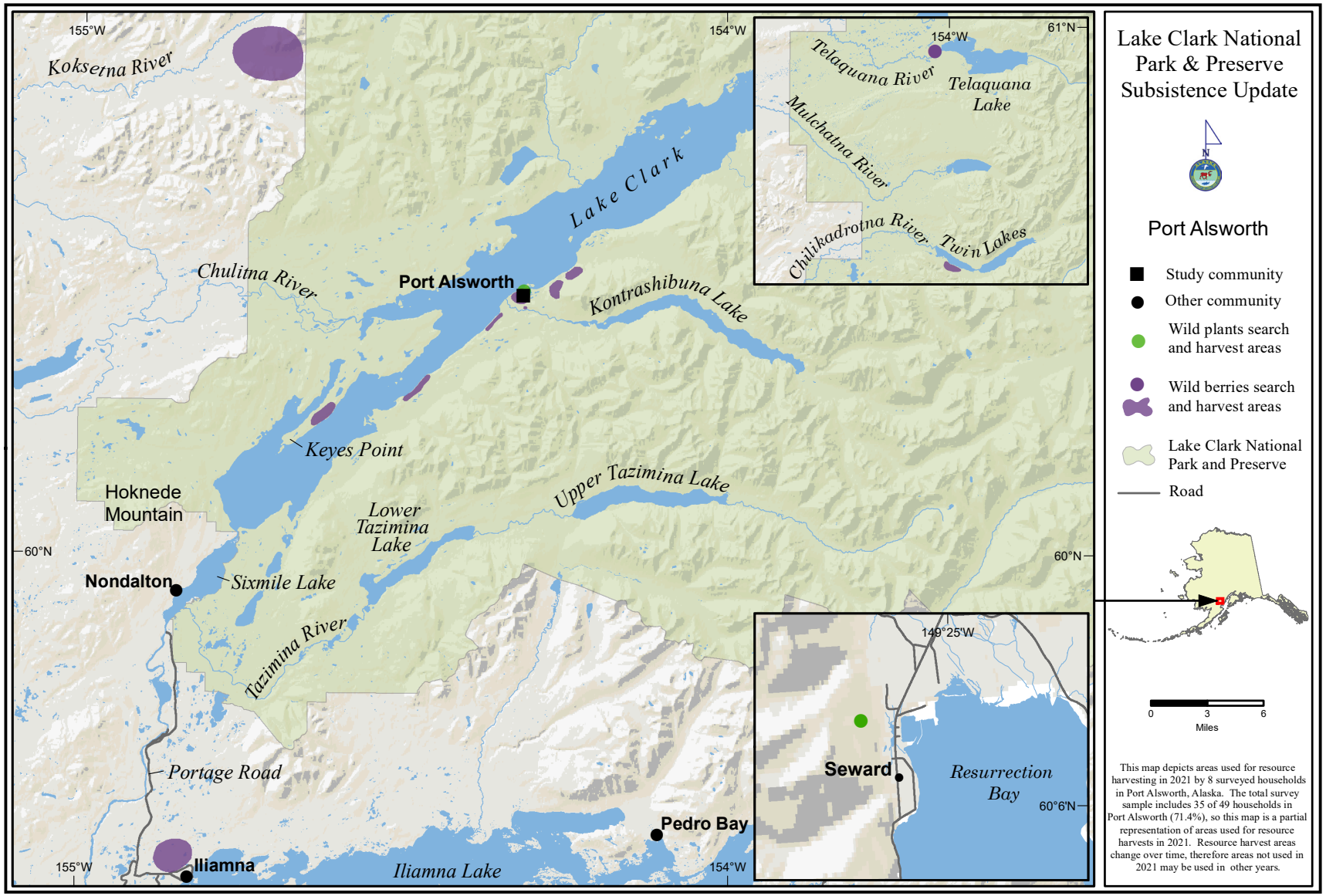

Figure 3-23.–Gathering and harvest locations of wild plants and berries, Port Alsworth, 2021.

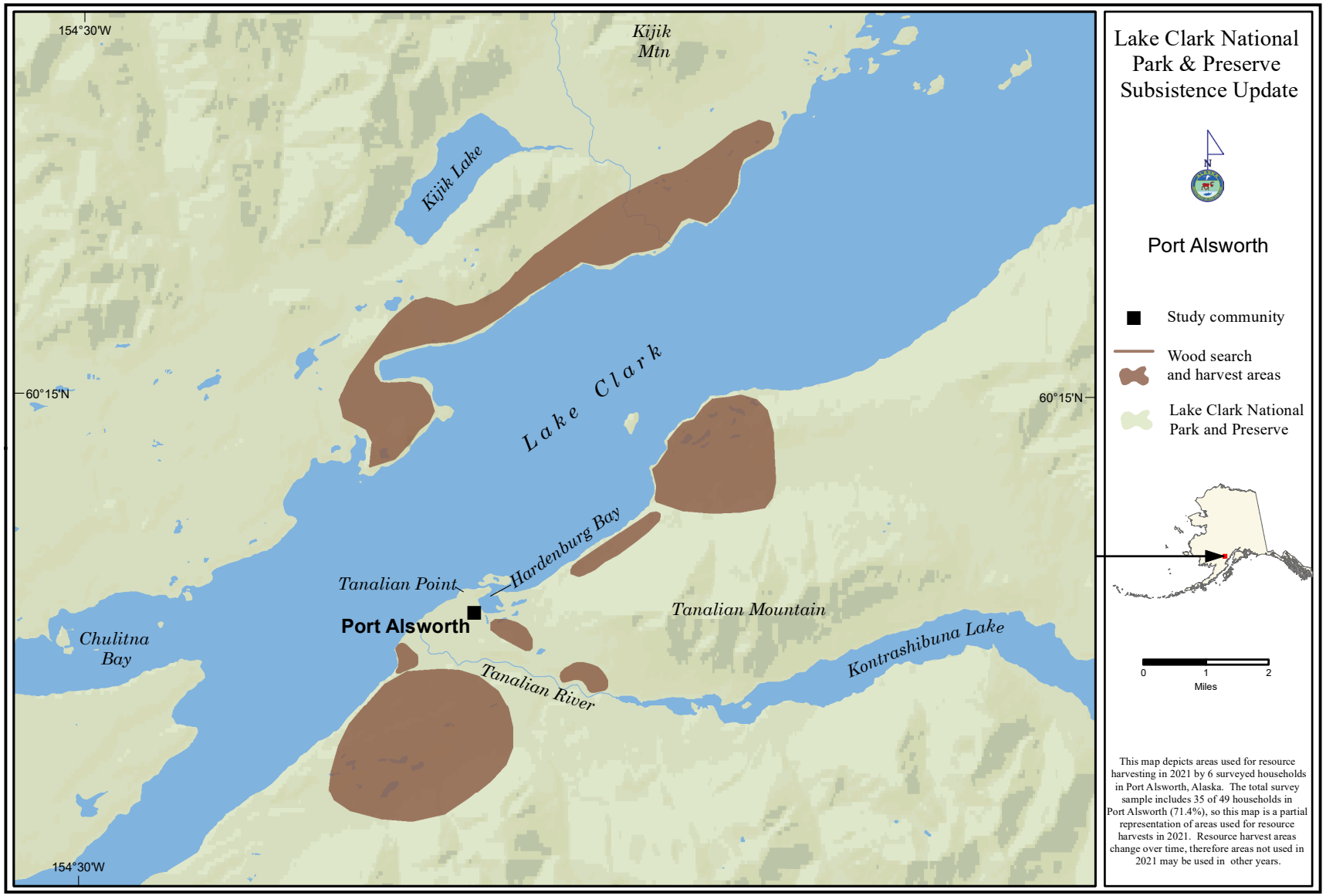

Figure 3-24.–Gathering and harvest locations of wood, Port Alsworth, 2021.

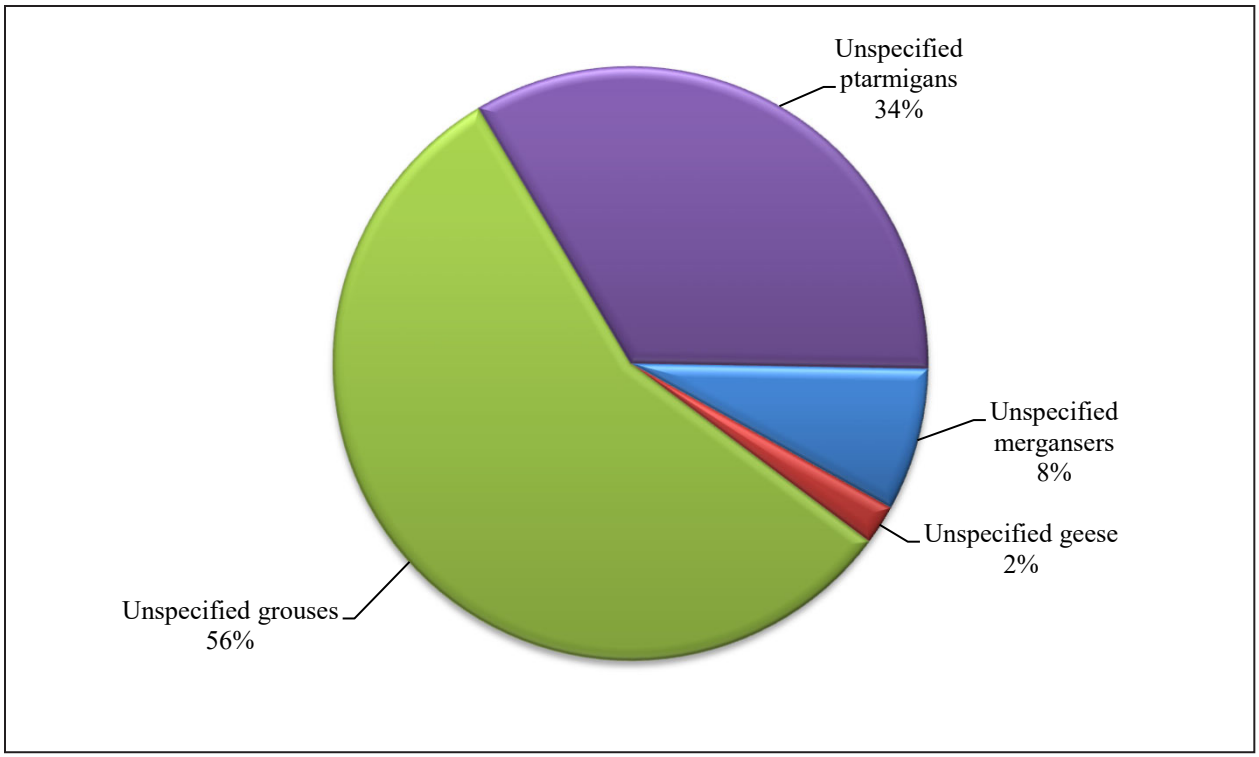

Figure 3-25.–Composition of bird and bird egg harvest in pounds usable weight, Port Alsworth, 2021.

Birds and Eggs

Birds accounted for a small amount of the total harvest in Port Alsworth during the study year but were used by nearly one-quarter of households (Table 3-16). A total of approximately 156 lb of birds were harvested in Port Alsworth, equating to a per capita harvest of 1 lb. The composition of the bird harvest included: grouses (56% of total category harvest weight), ptarmigans (34%), mergansers (8%), and unspecified geese (2%) (Figure 3-25). No bird eggs were harvested during the study year.

About 20% of households hunted and used grouses while 11% hunted and used ptarmigans (Table 3-16). The total grouse harvest was 97 birds (88 lb). Sixty-nine ptarmigans were harvested, for a harvest weight of 53 lb. Grouses were harvested in the fall and the winter, while ptarmigans were mainly hunted in the winter (Table 3-25). Approximately 3% of households hunted and used geese and mergansers, with a total harvest of 8 birds (7 mergansers and 1 goose) (Table 3-16). The waterfowl harvest occurred entirely during spring months (Table 3-25). One key respondent noted that goose hunting can be an important part of their household's seasonal round:

> When the opportunity is there, when the ice allows, uh, spring geese is big for us. And it's kind of a fifty-fifty whether or not the local areas will be accessible, because of the lake ice and spring thaw timing. (PTA01)

Birds were not widely shared among Port Alsworth households. Grouses were shared and received the most (Table 3-16). Due to few responses when collecting spatial data, a map depicting hunting and harvest locations was not produced for this report.

Table 3-25.–Estimated bird harvests by season, Port Alsworth, 2021.

Resource	Estimated harvest by season					
	Spring	Summer	Fall	Winter	Season unknown	**Total**
All birds	**8.4**	**0.0**	**32.2**	**133.0**	**0.0**	**173.6**
Bufflehead	0.0	0.0	0.0	0.0	0.0	**0.0**
Common eider	0.0	0.0	0.0	0.0	0.0	**0.0**
King eider	0.0	0.0	0.0	0.0	0.0	**0.0**
Spectacled eider	0.0	0.0	0.0	0.0	0.0	**0.0**
Steller's eider	0.0	0.0	0.0	0.0	0.0	**0.0**
Unspecified goldeneyes	0.0	0.0	0.0	0.0	0.0	**0.0**
Harlequin duck	0.0	0.0	0.0	0.0	0.0	**0.0**
Mallard	0.0	0.0	0.0	0.0	0.0	**0.0**
Unspecified mergansers	7.0	0.0	0.0	0.0	0.0	**7.0**
Long-tailed duck	0.0	0.0	0.0	0.0	0.0	**0.0**
Northern pintail	0.0	0.0	0.0	0.0	0.0	**0.0**
Unspecified scaups	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**
Surf scoter	0.0	0.0	0.0	0.0	0.0	**0.0**
White-winged scoter	0.0	0.0	0.0	0.0	0.0	**0.0**
Northern shoveler	0.0	0.0	0.0	0.0	0.0	**0.0**
Unspecified teals	0.0	0.0	0.0	0.0	0.0	**0.0**
American wigeon	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**
Unspecified Canada/cackling geese	0.0	0.0	0.0	0.0	0.0	**0.0**
Emperor goose	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**
Greater white-fronted goose	0.0	0.0	0.0	0.0	0.0	**0.0**
Unspecified geese	1.4	0.0	0.0	0.0	0.0	**1.4**
Unspecified swans	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**
Unspecified cormorants	0.0	0.0	0.0	0.0	0.0	**0.0**
Mew gull	0.0	0.0	0.0	0.0	0.0	**0.0**
Sabine's gull	0.0	0.0	0.0	0.0	0.0	**0.0**
Large gull	0.0	0.0	0.0	0.0	0.0	**0.0**
Black-legged kittiwake	0.0	0.0	0.0	0.0	0.0	**0.0**
Unspecified murres	0.0	0.0	0.0	0.0	0.0	**0.0**
Unspecified terns	0.0	0.0	0.0	0.0	0.0	**0.0**
Unspecified grouses	0.0	0.0	29.4	67.2	0.0	**96.6**
Unspecified ptarmigans	0.0	0.0	2.8	65.8	0.0	**68.6**

Source ADF&G Division of Subsistence household surveys, 2022.

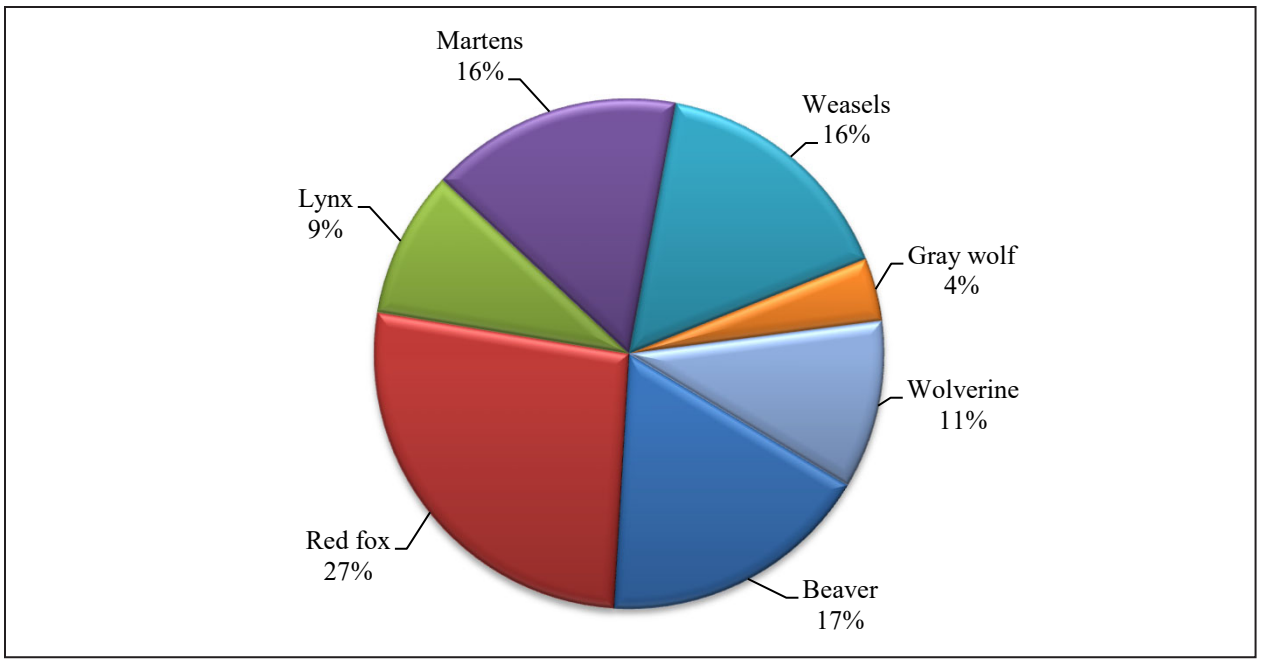

Figure 3-26.–Composition of small land mammal/furbearer harvest by individual animals harvested, Port Alsworth, 2021.

Small Land Mammals/Furbearers

Few households use or harvest small land mammals, but those who do harvested a variety of animals in 2021 for both food and fur. Red fox was the most harvested small land mammal (27%), followed by beaver (17%), martens (16%), weasels (16%), and wolverine (11%) (Figure 3-26). Of these animals, only beavers were consumed and 1 fox was consumed, which is atypical. Harvests of small land mammals ranged from 4 wolves to 28 red foxes. All small land mammals and furbearers were harvested in winter months from November through March (Table 3-26). Almost all the animals harvested primarily for fur were harvested in January and February when their coats are likely at their prime and worth the most. Only weasels were also harvested in November and December. Beavers were harvested primarily for food and fur, and these were harvested in February and December.

Overall, 11% of households used and harvested small land mammals during the study year (Table 3-16). The most households (9%) harvested red foxes and lynx, while the fewest (3%) harvested martens. Six percent of households harvested and used beavers, weasels, gray wolves, and wolverines. Sharing of small land mammals was not widespread. Only beavers and red foxes were given away, and only by 3% of households. No household reported receiving small land mammals during the study year. Search and harvest areas occurred within the general area of Port Alsworth both within and outside the park, although to protect the confidentiality of survey respondents, a map depicting spatial data was not produced for this report.

Table 3-26.–Estimated small land mammal/furbearer harvests by month, Port Alsworth, 2021.

Resource	Estimated harvest by month													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Unk	**Total**
All small land mammals	**22.4**	**67.2**	**5.6**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.4**	**8.4**	**0.0**	**105.0**
Beaver	0.0	11.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	0.0	**18.2**
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	5.6	16.8	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**28.0**
Snowshoe hare	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
River 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	7.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**9.8**
Marmots	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Martens	0.0	16.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**16.8**
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	0.0	0.0	0.0	**0.0**
Arctic ground squirrel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Red squirrel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Weasels	7.0	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	1.4	0.0	**16.8**
Gray wolf	2.8	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**4.2**
Wolverine	0.0	11.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**11.2**

Source ADF&G Division of Subsistence household surveys, 2022.

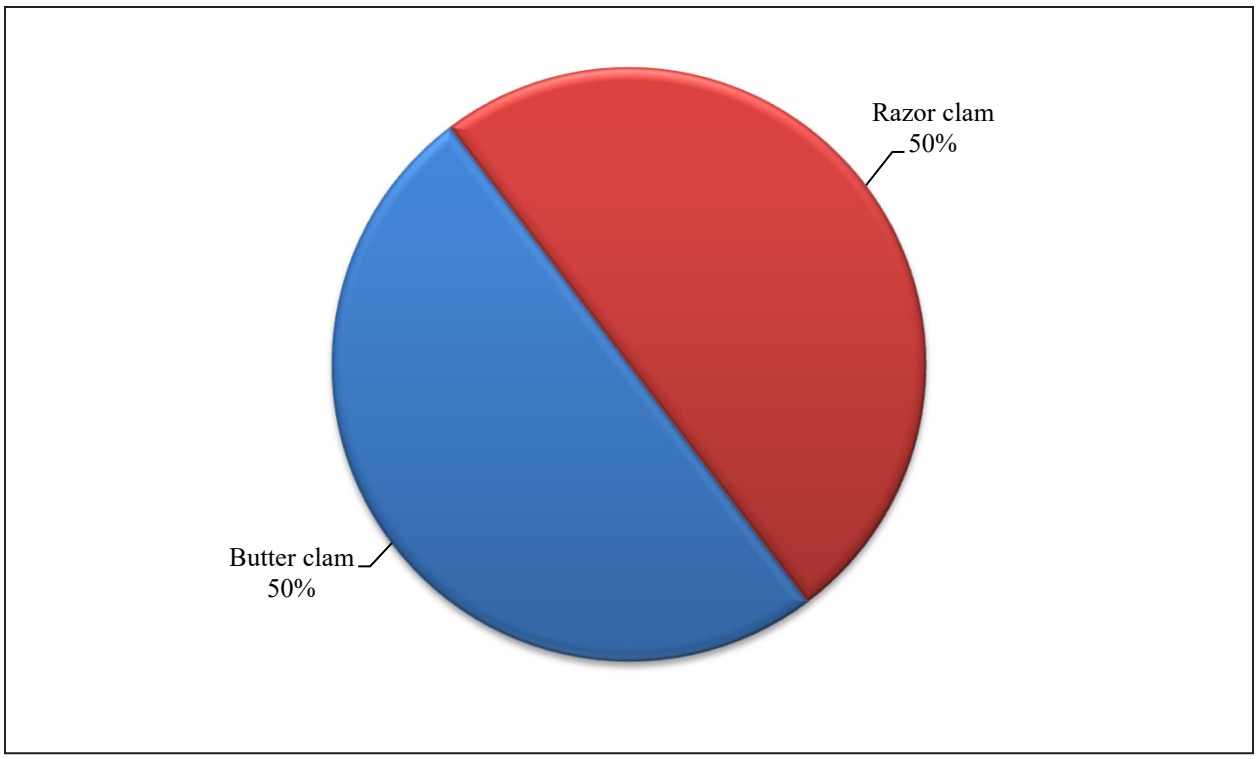

Figure 3-27.–Composition of marine invertebrate harvest in pounds usable weight, Port Alsworth, 2021.

Marine Invertebrates

Marine invertebrates contributed the least amount in harvest weight of all the resource categories and were used by the fewest households (9%) (Table 3-16). The total harvest of marine invertebrates was 8 lb, or less than 1 lb per capita and was composed entirely of butter clams (50%) and razor clams (50%) (Table 3-16; Figure 3-27). Butter clams and razor clams were each harvested, shared, and received by 3% of households. Slightly more households used razor clams than butter clams (6% compared to 3%). For each resource, just more than 1 gallon was harvested. Spatial data for these resources were not mapped during the survey, but they are not locally available so households had to travel elsewhere in the state to harvest.

Comparing Harvests and Uses in 2021 with Previous Years

Harvest Assessments

The following section compares the harvest and use findings from 2021 to wild resource harvests and uses in recent years. Researchers asked respondents to assess their own harvests in 2 ways: whether they used more, less, or about the same amount of 8 resource categories in 2021 as in the past 5 years, and whether they got "enough" of each of the 8 resource categories; the same questions were asked about all wild resources overall. Households also were asked to provide reasons if their use was different or if they were unable to get enough of a resource. If they did not get enough of a resource, they were asked to evaluate the severity of the impact to their household as a result of not getting enough, as well as to list what wild resources were needed. This section discusses responses to those questions.

Together, Table 3-27 and Figure 3-28 provide a broad overview of households' assessments of their harvests in 2021. Because not everyone uses all resource categories, some households did not respond to the assessment questions. Additionally, some households that do typically use a resource category simply did not answer questions. For the most used resource categories, more households used the same amount of resources during the study year than used more or less, and most households got enough resources.

Table 3-27.–Changes in household uses of resources compared to recent years, Port Alsworth, 2021.

Resource category	Sampled households	Valid responses[a]	Households reporting use								Households not using	
			Total households		Less		Same		More			
			Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource	35	35	35	100.0%	27	77.1%	29	82.9%	21	60.0%		
All resources	35	35	35	100.0%	7	20.0%	21	60.0%	7	20.0%	0	0.0%
Salmon	35	35	32	91.4%	6	17.1%	18	51.4%	8	22.9%	3	8.6%
Nonsalmon fish	35	35	28	80.0%	9	25.7%	11	31.4%	8	22.9%	7	20.0%
Large land mammals	35	35	32	91.4%	12	34.3%	14	40.0%	6	17.1%	3	8.6%
Small land mammals	35	35	5	14.3%	2	5.7%	1	2.9%	2	5.7%	30	85.7%
Marine mammals	35	35	0	0.0%	0	0.0%	0	0.0%	0	0.0%	35	100.0%
Birds and eggs	35	34	9	26.5%	2	5.9%	6	17.6%	1	2.9%	25	73.5%
Marine invertebrates	35	35	7	20.0%	4	11.4%	2	5.7%	1	2.9%	28	80.0%
Vegetation	35	34	32	94.1%	10	29.4%	16	47.1%	6	17.6%	2	5.9%

Source ADF&G Division of Subsistence household surveys, 2022.

a. Valid responses do not include households that did not provide any response.

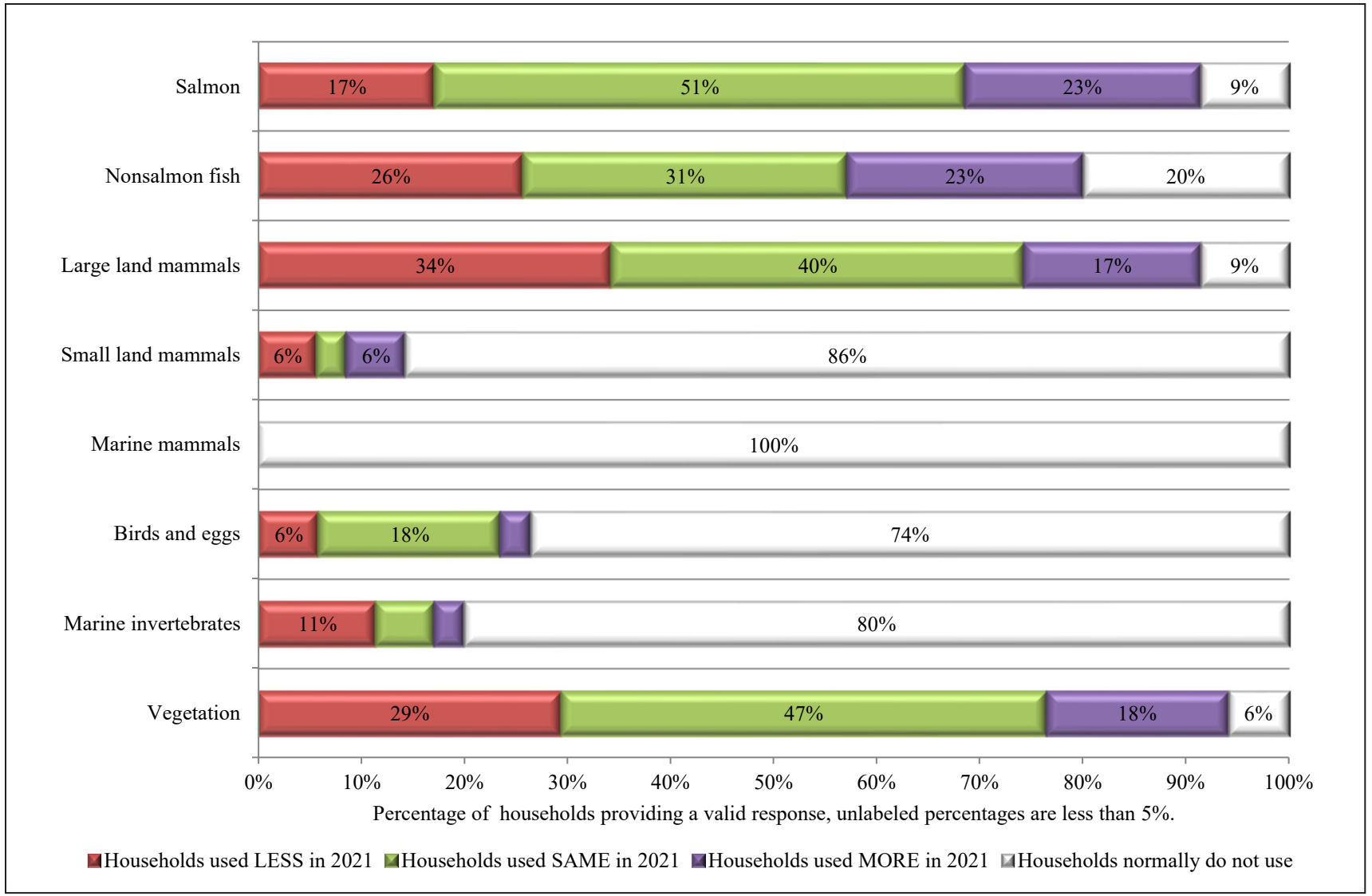

Figure 3-28.–Changes in household uses of resources compared to recent years, Port Alsworth, 2021.

Table 3-28.–Reasons for less household uses of resources compared to recent years, Port Alsworth, 2021.

Resource category	Valid responses[a]	Households reporting reasons for less use	Family/ personal		Resources less available		Too far to travel		Lack of equipment		Less sharing	
			Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource	35	26	5	19.2%	4	15.4%	2	7.7%	1	3.8%	8	30.8%
All resources	35	7	2	28.6%	3	42.9%	0	0.0%	0	0.0%	2	28.6%
Salmon	32	5	1	20.0%	0	0.0%	1	20.0%	0	0.0%	0	0.0%
Nonsalmon fish	28	9	2	22.2%	0	0.0%	0	0.0%	1	11.1%	2	22.2%
Large land mammals	32	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	5	41.7%
Small land mammals	5	2	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Marine mammals	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Birds and eggs	9	2	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Marine invertebrates	7	4	0	0.0%	0	0.0%	2	50.0%	0	0.0%	0	0.0%
Vegetation	32	10	2	20.0%	2	20.0%	0	0.0%	0	0.0%	0	0.0%

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Table 3-28.–Continued.

Resource category	Valid responses[a]	Households reporting reasons for less use	Lack of effort		Unsuccessful		Weather/ environment		Working/ no time		Did not need	
			Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource	35	26	8	30.8%	4	15.4%	3	11.5%	11	42.3%	3	11.5%
All resources	35	7	1	14.3%	0	0.0%	0	0.0%	2	28.6%	0	0.0%
Salmon	35	5	2	40.0%	0	0.0%	0	0.0%	1	20.0%	2	40.0%
Nonsalmon fish	35	9	1	11.1%	1	11.1%	0	0.0%	3	33.3%	0	0.0%
Large land mammals	35	12	4	33.3%	2	16.7%	1	8.3%	0	0.0%	0	0.0%
Small land mammals	35	2	2	100.0%	0	0.0%	0	0.0%	1	50.0%	0	0.0%
Marine mammals	35	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Birds and eggs	34	2	1	50.0%	0	0.0%	0	0.0%	1	50.0%	0	0.0%
Marine invertebrates	35	4	1	25.0%	0	0.0%	0	0.0%	2	50.0%	0	0.0%
Vegetation	34	10	0	0.0%	1	10.0%	2	20.0%	4	40.0%	1	10.0%

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Table 3-28.–Page 2 of 2.

Resource category	Valid responses[a]	Households reporting reasons for less use	Competition		Did not have help	
			Number	Percentage	Number	Percentage
Any resource	35	26	1	3.8%	1	3.8%
All resources	35	7	0	0.0%	0	0.0%
Salmon	35	5	0	0.0%	0	0.0%
Nonsalmon fish	35	9	0	0.0%	1	11.1%
Large land mammals	35	12	1	8.3%	0	0.0%
Small land mammals	35	2	0	0.0%	0	0.0%
Marine mammals	35	0	0	0.0%	0	0.0%
Birds and eggs	34	2	0	0.0%	0	0.0%
Marine invertebrates	35	4	0	0.0%	0	0.0%
Vegetation	34	10	0	0.0%	0	0.0%

Source ADF&G Division of Subsistence household surveys, 2022.

Note This table summarizes open-ended responses that have been categorized into 1 or more standard classifications. Only reasons offered by respondents for the study have been included.

a. Valid responses do not include households that did not provide any response to the less, same, or more use assessment question.

Table 3-29.–Reasons for more household uses of resources compared to recent years, Port Alsworth, 2021.

Resource category	Valid responses[a]	Households reporting reasons for more use	Family/personal		Increased availability		Received more		Needed more		Increased effort	
			Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource	35	21	4	19.0%	5	23.8%	10	47.6%	2	9.5%	13	61.9%
All resources	35	7	3	42.9%	0	0.0%	0	0.0%	0	0.0%	2	28.6%
Salmon	35	8	0	0.0%	2	25.0%	2	25.0%	1	12.5%	5	62.5%
Nonsalmon fish	35	8	2	25.0%	0	0.0%	4	50.0%	0	0.0%	3	37.5%
Large land mammals	35	6	0	0.0%	0	0.0%	4	66.7%	0	0.0%	2	33.3%
Small land mammals	35	2	0	0.0%	1	50.0%	0	0.0%	0	0.0%	2	100.0%
Marine mammals	35	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Birds and eggs	34	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%
Marine invertebrates	35	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%
Vegetation	34	5	0	0.0%	2	40.0%	0	0.0%	1	20.0%	3	60.0%

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Table 3-29.–Page 2 of 2.

Resource category	Valid responses[a]	Households reporting reasons for more use	More success		Had more time		Got/ fixed equipment		Had more help	
			Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource	35	21	3	14.3%	1	4.8%	2	9.5%	2	9.5%
All resources	35	7	2	28.6%	1	14.3%	2	28.6%	0	0.0%
Salmon	35	8	0	0.0%	0	0.0%	1	12.5%	0	0.0%
Nonsalmon fish	35	8	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Large land mammals	35	6	2	33.3%	0	0.0%	0	0.0%	1	16.7%
Small land mammals	35	2	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Marine mammals	35	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Birds and eggs	34	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Marine invertebrates	35	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Vegetation	34	5	1	20.0%	0	0.0%	0	0.0%	1	20.0%

Source ADF&G Division of Subsistence household surveys, 2022.

Note This table summarizes open-ended responses that have been categorized into 1 or more standard classifications. Only reasons offered by respondents for the study have been included.

a. Valid responses do not include households that did not provide any response to the less, same, or more use assessment question.

Table 3-30.–Reported impact to households reporting that they did not get enough of a type of resource, Port Alsworth, 2021.

Resource category	Sampled households	Households not getting enough _____ . Valid responses[a] No.	Pct.	Did not get enough No.	Pct.	Impact to those not getting enough _____ . No response No.	Pct.	Not noticeable No.	Pct.	Minor No.	Pct.	Moderate No.	Pct.	Major No.	Pct.	Severe No.	Pct.
All resources	35	33	94.3%	4	12.1%	4	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Salmon	35	30	85.7%	3	10.0%	0	0.0%	1	33.3%	1	33.3%	1	33.3%	0	0.0%	0	0.0%
Nonsalmon fish	35	28	80.0%	3	10.7%	1	33.3%	2	66.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Large land mammals	35	32	91.4%	9	28.1%	0	0.0%	0	0.0%	3	33.3%	6	66.7%	0	0.0%	0	0.0%
Small land mammals	35	5	14.3%	1	20.0%	0	0.0%	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%
Marine mammals	35	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Birds and eggs	35	9	25.7%	2	22.2%	1	50.0%	0	0.0%	1	50.0%	0	0.0%	0	0.0%	0	0.0%
Marine invertebrates	35	7	20.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Vegetation	35	33	94.3%	5	15.2%	0	0.0%	1	20.0%	2	40.0%	2	40.0%	0	0.0%	0	0.0%

Source ADF&G Division of Subsistence household surveys, 2022.

a. Does not include households that failed to respond to the question or those households that generally do not use the resource.

Of all subsistence resource categories used by Port Alsworth households in 2021, salmon was harvested in the greatest amounts and by the most households. Slightly more than one-half of sampled households explained that they used the same amount of salmon as they did in previous years, and similar percentages reported that they used more (23%) or less (17%) (Table 3-27; Figure 3-28). When asked why they used less, households responded in a variety of ways: lack of effort, did not need salmon in 2021, too far to travel, working/no time, and family or personal reasons (Table 3-28). The most common reason for why a household used more salmon during the study year was an increase in effort (63% of households that used more) (Table 3-29). Other reasons for more use included increased availability (25%) and received more (25%). The majority of respondents got enough salmon during the study year, with only 10% not having enough salmon (Table 3-30). When households that did not get enough salmon were asked to evaluate the impact of not getting enough, they were equally divided in describing it as not noticeable, as minor, and as moderate.

Of all the resource categories, a greater percentage of households used less large land mammals than any other: 34% of sampled Port Alsworth households explained that they used less large land mammals in 2021 than they did in previous years, but 40% reported that they used the same amount, and 17% said they used more (Figure 3-28). Less sharing and a lack of effort were the 2 most common explanations provided for why households used less large land mammals, provided by 42% and 33% of households that used less, respectively (Table 3-28). Other stated reasons for using less large land mammals included: unsuccessful hunting (17%), weather/environment (8%), and competition (8%). Reasons for more use were similar to the reasons for less use: 67% of households reported that using more large land mammals was a result of receiving more, and 33% reported more use because of increased effort (Table 3-29). Thirty-three percent of households also cited more success, and 17% stated they had more help. Approximately 26% of responding households reported not getting enough large land mammals during the study year, which was a higher percentage of households than for any other resource category (Table 3-30). When households that did not get enough large land mammals were asked to evaluate the impact of not getting enough, more than one-half (67%) explained that not getting enough had a moderate effect on their household and 33% of households described it as a minor impact.

While vegetation composed a small proportion of the overall community harvest, most Port Alsworth households used vegetation during the study year. Nearly one-half of responding households (47%) reported using the same amount of vegetation as previous years, 29% reported using less, and 18% reported using more (Figure 3-28). Of the 10 households that reported using less vegetation in 2021, the most common response was that the household was working or otherwise did not have time, followed by resources were less available, the weather, or personal family reasons (Table 3-28). The most cited reasons for using more vegetation included: increased effort (60%, 3 responding households), increased availability (40%, 2 households), and needed more, had more success, and had more help (each cited by 1 household) (Table 3-29). Of the 5 respondents who stated that they did not get enough vegetation resources, almost one-half (40%) thought that not getting enough had a minor impact on their household, 40% reported that it had a moderate impact, and 20% reported the impact of not getting enough vegetation as not noticeable (Table 3-30).

Similar to vegetation, Port Alsworth residents did not harvest large amounts of nonsalmon fish during the study year, but it is an important resource category used by more than one-half of the community. Of the sampled households, 31% reported using the same amount of nonsalmon fish during the study year as they had in previous years, 26% reported using less, and 23% reported using more nonsalmon fish (Table 3-27). A variety of reasons were given for less use of nonsalmon fish: approximately 33% of respondents who used less reported it was because of working/no time, 22% of respondents each said it was due to family/personal reasons and less sharing, while 11% of households each gave the reasons of lack of equipment, lack of effort, lack of help, and unsuccessful efforts (Table 3-28). Fewer types of reasons were provided for more use of nonsalmon fish during the study year: received more (50%), increased effort (38%), and family/personal reasons (25%) (Table 3-29). Of the 3 households that did not have enough nonsalmon fish during the study year, two-thirds reported the impact was not noticeable and one-third failed to provide a response (Table 3-30).

Less than one-quarter of households used either birds, small land mammals, or marine invertebrates during the study year (Figure 3-10). No households used marine mammals, and all said they do not normally use resources from that category. During the study year, 11% of households said they used less marine invertebrates, and 6% of households each said they used less small land mammals or birds and eggs (Figure 3-28). Less than 6% of households used the same amount of marine invertebrates or small land mammals during the study year as in recent years, and 18% of households said the same about birds. Less than 5% of households used more birds and eggs or marine invertebrates during the study year, while 6% of households used more small land mammals. Lack of effort and working/no time were the 2 reasons given for why a household used less of all 3 resource categories while too far to travel was provided as a reason only for marine invertebrates (Table 3-28). Conversely, households said increased effort was the reason for why they used more marine invertebrates, small land mammals, or birds and eggs during the study year (Table 3-29). For these 3 resource categories, more households said they got enough than said they did not (Table 3-30). No households said they did not get enough marine invertebrates, and about 20% of responding households did not have enough small land mammals or birds. For both categories, the stated impact to the affected households was minor.

While an accounting of households' assessments of use for specific resource categories over the year provides insights into specific challenges or characteristics associated with each, a more holistic understanding of subsistence resources overall provides a broader perspective. Therefore, households were asked to evaluate their overall use of subsistence resources during the study year. Most households (60%) used the same amount of resources overall during the study year as in recent years, and equal percentages of households (20%) said they used more and they used less (Table 3-27). Reasons why a household used less overall generally were in line with reasons for changes in use for specific resource categories; resources were less available, family/personal reasons, less sharing, working/no time, and lack of effort (Table 3-28). For those households that used more, family or personal reasons was given as the most common reason, followed by increased effort, more success, or new/fixed equipment (Table 3-29). Most households said they got enough resources overall during the study year (Table 3-30). None of the households that did not get enough provided a response to describe the impact of not having enough.

Moose (23%), berries (9%), and sockeye salmon (6%) were cited as being needed by households more frequently than any other specific resource or even any category of resources (all of which were cited by fewer than 3% of households) (Table 3-31). This finding underscores the responses discussed previously, which make evident that not all households in Port Alsworth had access to a sufficient amount of large land mammal resources: people explained that less moose was shared in 2021 than had been in previous years and local caribou hunting was closed during the study year. Researchers noted that many of the respondents' reasons for less use of vegetation was based on berries, and that 2021 was a poor berry year. One respondent shared:

> So last year, I don't know if you've been hearing this but it was a terrible blueberry year last year, like, everywhere. And, even- like everywhere, including all the way up in the northern part of the park, there was no berries, it was like the whole park there was no berries, and it seems like the whole region. It was really bad blueberries. (PTA03)

For wild resources combined overall, respondents were asked to determine whether access to hunting, fishing, and gathering areas had changed in the last 5 years due to changing environmental conditions. The majority of sampled households (71%) said no and 6% of households did experience changes to accessible harvest areas (Table 3-32). The few additional comments provided by respondents predominantly mentioned the variability in ice conditions on Lake Clark from year to year and the effects this has on hunting and gathering activities throughout the winter.

> Well other than the difficulty of winter opportunity around here … with ice, and definitely less snow. … Not like when I was growing up. But again, we focus on the fall stuff. Maybe that's the result of not trusting the winters [laughs]. (PTA01)

Table 3-31.–Resources that households reported needing, Port Alsworth, 2021.

Resource	Households needing	Percentage of sampled households
Moose	8	22.9%
Berries	3	8.6%
Sockeye salmon	2	5.7%
Pacific halibut	1	2.9%
Caribou	1	2.9%
Beaver	1	2.9%
Foxes	1	2.9%
Grouses	1	2.9%
Blueberry	1	2.9%
Lowbush cranberry	1	2.9%
Crowberry	1	2.9%
Wood	1	2.9%

Source ADF&G Division of Subsistence household surveys, 2022.

Table 3-32.–Changes in household access to harvest areas due to changing environmental conditions, Port Alsworth, 2021

Sampled households	Households reporting changes to accessing harvest areas due to environmental conditions					
	Yes		No		Missing	
	Number	Percentage	Number	Percentage	Number	Percentage
35	2	5.7%	25	71.4%	8	22.9%

Source ADF&G Division of Subsistence household surveys, 2022.

Harvest Data

Changes in the harvest of resources by Port Alsworth residents can also be discerned through comparisons with findings from other study years (Table 1-6). Comprehensive subsistence harvest surveys were conducted in Port Alsworth for the study years 1983, 2004, and 2021. In addition to the comprehensive surveys, a survey specific to large land mammals occurred for Port Alsworth for study year 2001 (Holen et al. 2005), a nonsalmon fish species survey was conducted for 2003 (Krieg et al. 2005), and 2 salmon-only surveys were conducted for study years 2007 and 2008 (Fall et al. 2010); harvest estimates published in the CSIS from some of these studies are presented in this chapter.

Examining the changes or the consistencies of the harvest composition of a particular community over time can offer longitudinal data that may provide insights into any changes, trends, or patterns in subsistence practices in order to gain a more holistic understanding of the subsistence economy. There are multiple ways to look at harvest data across time. Total harvest weight provides a metric but does not account for changes in the size of the population of a community. As a community's population increases or decreases, changes would be expected in harvest weights. Comparing per capita harvest estimates across study years accounts for population size changes and allows a modulated comparison. Comparing the percentage each resource category contributed to the total harvest, or harvest composition, provides perspective on how the relative contributions of each resource category have changed over time, regardless of the total or per capita harvest amounts; this potentially highlights resource substitution in subsistence practices. Looking at all wild resource harvests, in 1983, Port Alsworth households harvested substantially more resources than in 2004 or 2021, whether considered by total weight or by per capita harvest weight (Table 3-33; figures 3-29 and 3-30). In 1983, Port Alsworth households harvested 27,416 lb of wild resources, or 361 lb per capita, which was higher than both the 2004 and 2021 harvests of 14,489 lb and 15,410 lb, respectively. Despite the total harvest weight being slightly higher in 2021 than in 2004, the per capita harvest was lower in 2021 (116 lb) than 2004 (133 lb) (Figure 3-30). Of note, per capita harvests declined by 63% between 1983 and 2004 and by 13% between 2004 and 2021. Despite significant changes in harvest weight, the composition of the harvest across the 3 study years was very similar. Salmon and large land mammals composed the majority of the harvest in each study year—93% in 1983 and 85%–86% in 2004 and 2021—and changes in these resource categories drove changes in overall harvests (Figure 3-31).

Salmon harvests have accounted for approximately 70% of the total subsistence harvest in Port Alsworth during each study year. There was a significant change from the estimated 240 lb per capita harvested in 1983 and the estimated 89 lb per capita harvested in 2004, but harvests changed little between 2004 and study years 2007, 2008, and 2021 (Table 3-34). Across all study years, harvests of sockeye salmon dominated the salmon harvest. Small amounts (less than 3 lb per capita) of Chinook, chum, coho, pink, and spawning sockeye or spawnouts were occasionally harvested in 2004, 2007, 2008, and 2021. In 1983, besides sockeye salmon, an estimated 18 lb per capita of spawnouts were harvested, indicating spawning salmon are relied upon far less than in 1983. Fall et al. (2006:215, 218–219) attributed the change in sockeye salmon harvests observed during the 2004 study year to recent poor salmon runs. However, subsistence salmon harvests have been declining in the Kvichak subsistence salmon fishery since the 1960s, perhaps because of a change from using dog teams to snowmachines in the 1970s and then depressed runs from the 1980s through the early 2000s (Fall et al. 2006). The Kvichak sockeye salmon run was designated a stock of concern from 2001–2012 (Morstad and Brazil 2012). It is a highly variable run and is usually the largest component of the overall Bristol Bay sockeye salmon run (Fall et al. 2003). Although recently the run has been above current escapement goals (Elison et al. 2024:60), residents consider it to still be a smaller run than it was:

> Oh yeah, well obviously salmon. I mean, the numbers are slowly dropping. They've been maintaining steadily for the last ten years, with some fluctuation, but compared to historic numbers it's a lot lower than what it was. (PTA01)

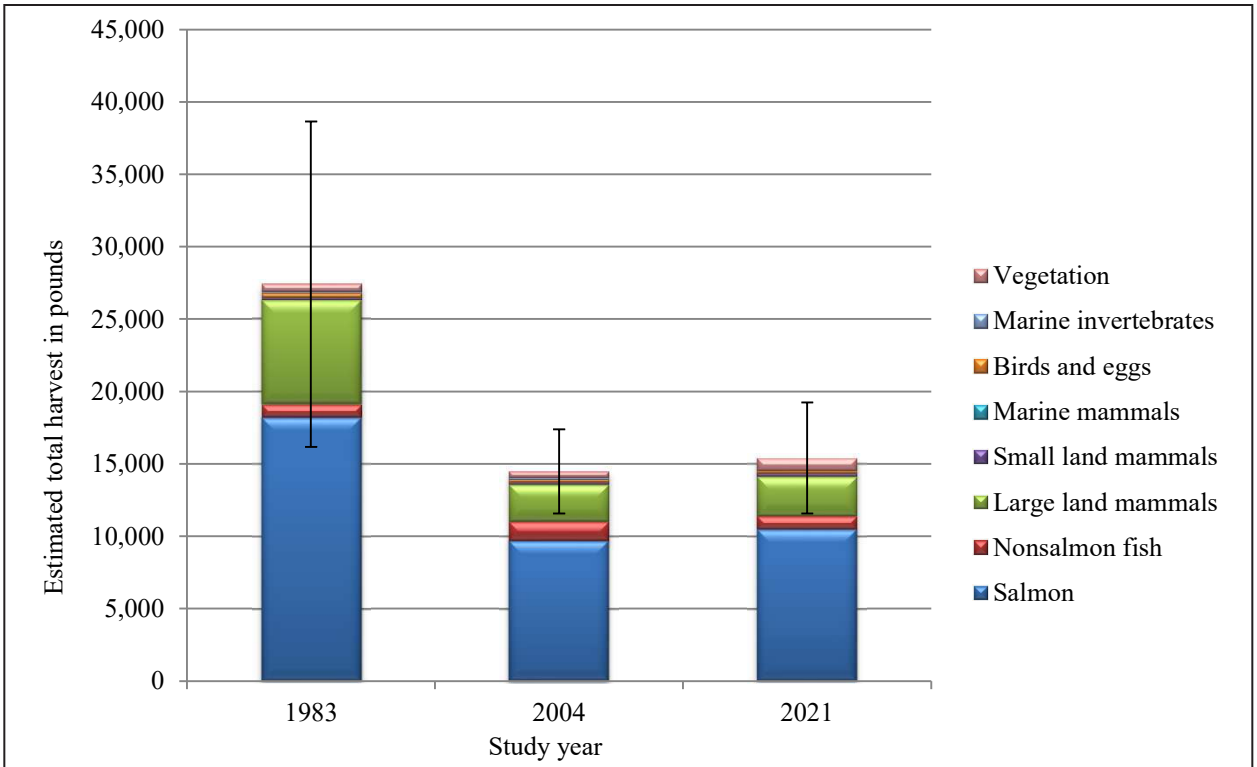
Despite the historically lower run size, salmon abundance is not viewed as the main reason for changes in harvest amounts. The social factors that influence harvesting, and the variability of timing of the run, both play a role. One respondent shared his thoughts on changes in local harvests:

Table 3-33.–Comparison of estimated total and per capita harvests, by resource category, Port Alsworth, 1983, 2004, and 2021.

	Estimated harvest in pounds usable weight											
	1983				2004				2021			
Resource	Total	Per capita	Percentage of total	CIP	Total	Per capita	Percentage of total	CIP	Total	Per capita	Percentage of total	CIP
All resources	**27,416.0**	**361.1**	**100.0%**	**41.0%**	**14,489.0**	**132.8**	**100.0%**	**20.0%**	**15,409.6**	**115.9**	**100.0%**	**24.9%**
Salmon	18,209.0	239.8	66.4%	48.0%	9,712.0	89.0	67.0%	20.0%	10,493.9	78.9	68.1%	32.6%
Nonsalmon fish	881.0	11.6	3.2%	55.0%	1,314.0	12.0	9.0%	16.0%	916.3	6.9	5.9%	36.1%
Large land mammals	7,205.0	94.9	26.3%	52.0%	2,547.0	23.4	17.6%	16.0%	2,702.0	20.3	17.5%	48.5%
Small land mammals	142.0	1.9	0.5%	58.0%	146.0	1.3	1.0%	24.0%	234.9	1.8	1.5%	103.6%
Marine mammals	0.0	0.0	0.0%	–	0.0	0.0	0.0%	–	0.0	0.0	0.0%	–
Birds and eggs	332.0	4.4	1.2%	63.0%	174.0	1.6	1.2%	20.0%	156.3	1.2	1.0%	55.3%
Marine invertebrates	84.0	1.1	0.3%	80.0%	115.0	1.1	0.8%	9.0%	8.4	0.1	0.1%	75.7%
Vegetation	564.0	7.4	2.1%	46.0%	478.0	4.4	3.3%	16.0%	897.8	6.8	5.8%	16.3%

Sources For 2021, ADF&G Division of Subsistence household surveys, 2022; for previous study years, ADF&G Division of Subsistence Community Subsistence Information System (CSIS), accessed 2022.

Note "–" indicates the confidence interval could not be calculated due to no harvest.

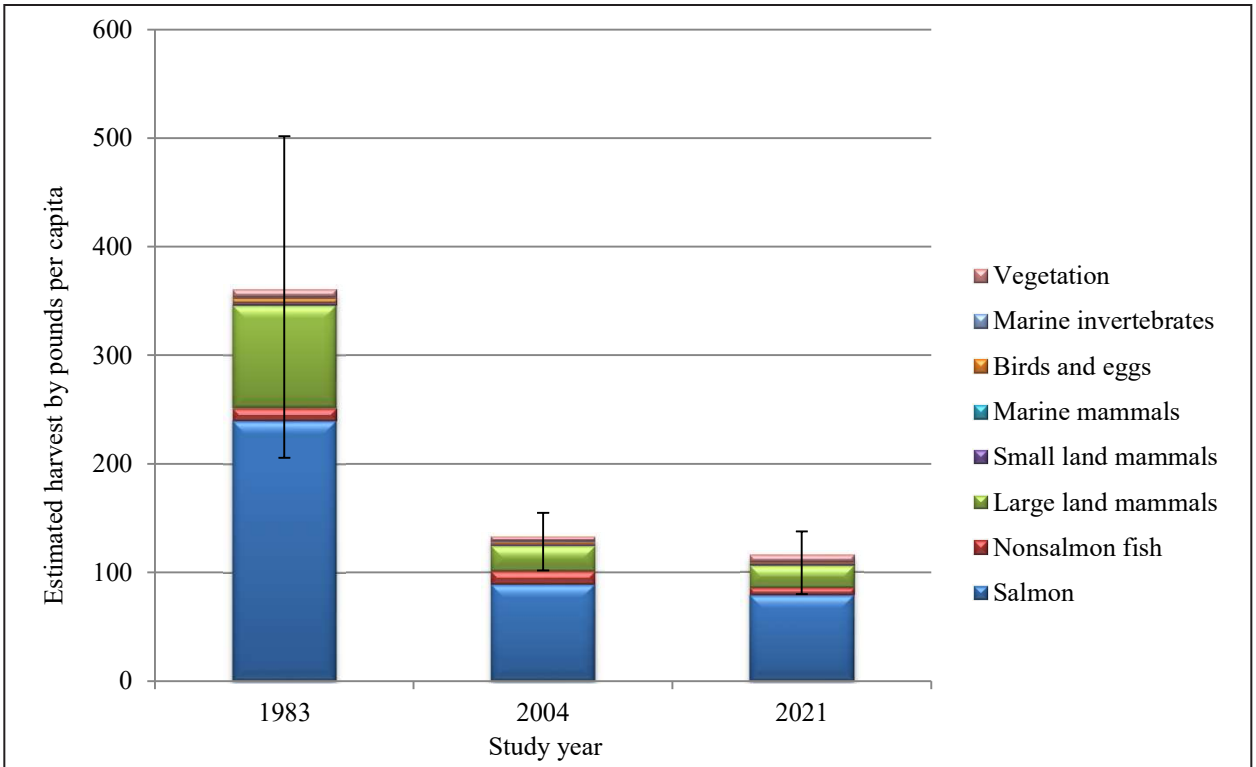


Note Error bars represent the upper and lower bounds of the 95% confidence interval for all resources combined.

Figure 3-29.–Composition of total harvest, by resource category, Port Alsworth, 1983, 2004, and 2021.

> Yeah, I think people just get all the fish that they want to get. We've never had a run, since I've been here, that's been so low that people couldn't catch fish. It's just a matter of time and- people, in their minds, they're like, 'Ok, this is the week I'm gonna do fish and I'm not gonna plan anything this week,' and then when it doesn't happen that week it's harder, just schedule-wise, to go down and set your net, because it's a lot of work. And so if you're like, 'I wanted to do it now, and now I'm having to do it over three weeks because they're trickling in slower than I'm used to.' So that part is maybe harder to catch fish, but it's not that there's not enough fish. And I don't think that people are like, 'Oh, I better not catch my hundred,' or whatever, I think they're still gonna catch what they want to catch. (PTA03)

Although still the second largest component of the community harvest, large land mammal harvests have declined over time, both in terms of harvest weight as well as proportion of the total harvest. During the 1983 study year, Port Alsworth residents harvested 95 lb per capita of large game, which composed approximately one-quarter of the total community harvest (Table 3-35; Table 3-33). In 2001, residents harvested just 16 lb per capita of game meat. This was an even smaller harvest than 2004, which was 23 lb per capita and about 18% of the harvest. There was a smaller difference between 2004 and 2021, when 20 lb per capita of large game were harvested. Port Alsworth residents harvest mainly caribou and moose, but also some bears and Dall sheep. Compared to other years, residents harvested a lot of brown bear for food in 2001 (4 lb per capita) and a large number of Dall sheep in 2004 (7 lb per capita). During other study years, per capita harvests of all large game besides moose and caribou were less than 2 lb per capita.



Note Error bars represent the upper and lower bounds of the 95% confidence interval for all resources combined.

Figure 3-30.–Composition of harvest in pounds per capita, by resource category, Port Alsworth, 1983, 2004, and 2021.

Fall et al. (2006:140) noted the importance of guided sport hunters donating meat to the community. During the data review meeting, residents commented on how that used to be important, but that donations happen much less often now. Overall, the percentage of households hunting large land mammals has decreased, from a high of 77% of households in 1983 to a low of 43% of households in 2021 (Table 3-35). Since 2001 there has been little decrease; 50% of households hunted large land mammals in 2001 and 2004. Potentially some of the decrease in participation occurred because of the relative abundance of donated game meat from sport hunters, but other factors are also shaping participation rates, which have not increased as donations have decreased. Relative success rates over this time period of declining participation have remained relatively stable: 40%–64%. In line with overall participation rates, fewer Port Alsworth households are hunting for moose and caribou, the 2 main species harvested. With the local reductions of caribou populations, and a closed season during the study year, reduced participation is unsurprising. However, harvest reporting and household surveys demonstrate that residents continue to hunt caribou, even in 2021 when local areas were closed, indicating some residents traveled away from traditional hunting grounds to an open area for caribou harvest. Based on harvest ticket data, Port Alsworth hunters showed a spike in caribou harvest during 2020 (which spanned regulatory years [RY] 2019 and 2020), potentially as a result of food security concerns and COVID-19, before plummeting to no caribou harvest in RY 2021 (Table 3-36). Decreasing abundance of the Mulchatna caribou herd and their movement to the west has shifted hunting patterns in Port Alsworth. One interview respondent recalled his childhood when caribou were abundant:

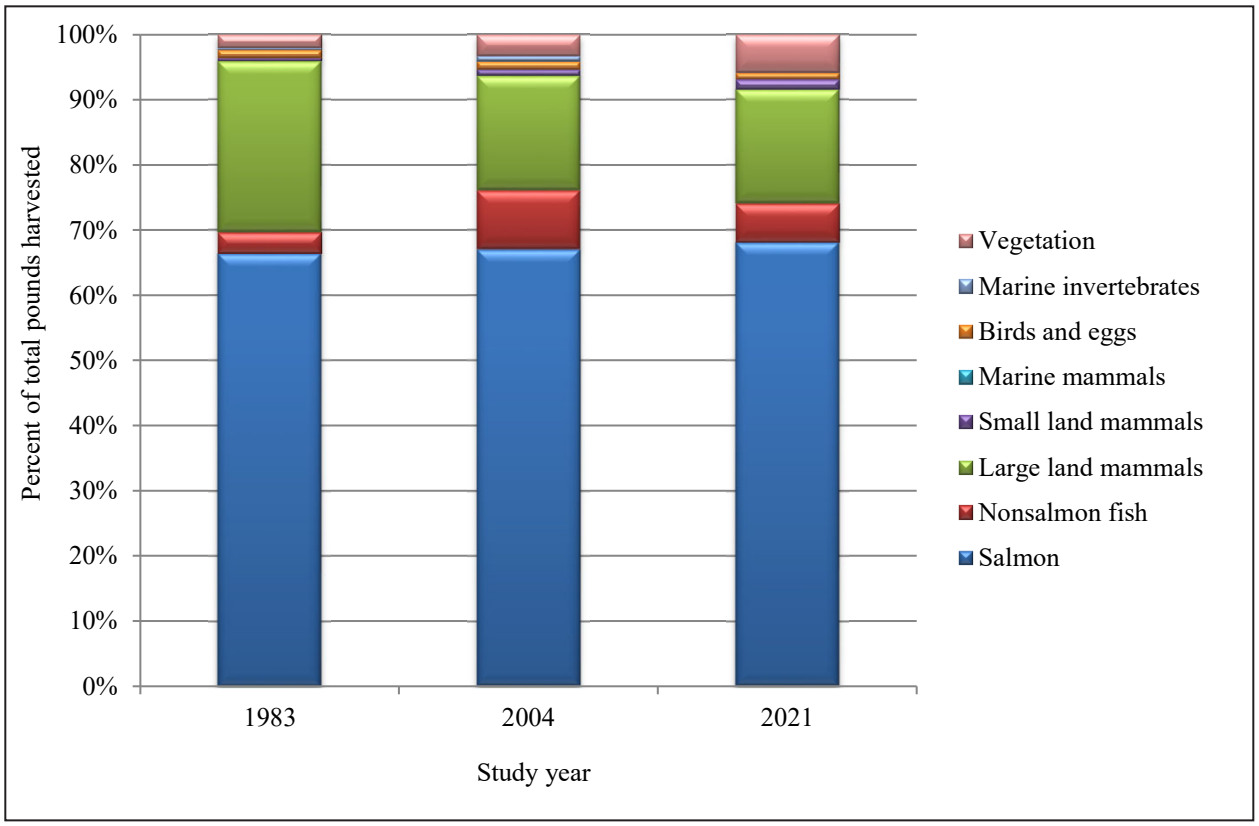


Figure 3-31.–Comparison of composition of harvest in pounds usable weight, by resource category, Port Alsworth, 1983,2004, and 2021.

> Well like I said, when I was a kid, man, caribou were everywhere. And we were allowed, like, five per person, so in our household of five- and we got all 25 of those every year. And I would take my rifle to school, check it in with the principle, and on the way home I'd take the long way home on the snowmachine and get a caribou, drag it home for the dogs. They were- it was, it was quite easy. Moose was like a rare and lucky thing when I was a child. (PTA 01)

Both interview respondents and harvest ticket data (Table 3-37) tell a story of increasing moose harvests, but this differs from the data in Table 3-35. Household survey data show a decrease in moose harvests, from a high of 11 moose to a low of 1 moose. Based on harvest reporting, the number of moose hunters was relatively stable from 2000 through 2010, at which point it began increasing. While the number of reported moose harvests has fluctuated since 2000, harvests show an increasing trend after 2013. These timeframes loosely correspond with when the primary range of the Mulchatna caribou herd moved away from Lake Clark (Van Lanen et al. 2018). As caribou have become less abundant locally, Port Alsworth residents have increasingly turned to moose as a source of red meat. There may be a few sources for discrepancies between trends seen in harvest ticket data and discussed in ethnographic material and the household harvest survey data. Rather than looking at numbers of moose, the per capita harvest of moose has increased since 2001, from 7 lb to 19 lb. This is still significantly lower than the 1983 estimate of 80 lb per capita, but there is little information to provide context for the 1983 estimate. Twenty years passed before there was another survey conducted, and unlike other Iliamna Lake communities, no survey was conducted in the 1970s in Port Alsworth. The disparities that exist between the harvest ticket database and household surveys may rest on who is considered a community resident. Because of the relatively high seasonal population in Port Alsworth, some hunters and moose harvests captured in the harvest ticket database as Port Alsworth residents would not be reflected in household harvest data because of the length of residency requirement implemented for eligibility in household harvest surveys. However, PAIC members shared with ADF&G

Table 3-34.–Comparison of estimated total and per capita salmon harvests, Port Alsworth, 1983, 2004, 2007, 2008, and 2021.

	Estimated harvest in pounds usable weight									
	1983		2004		2007		2008		2021	
Resource	Total	Per capita	Total	Per capita	Total	Per capita	Total	Per capita	Total	Per capita
Salmon	**18,209**	**239.8**	**9,712**	**89.0**	**11,027**	**92.8**	**9,698**	**88.2**	**2,953**	**78.9**
Chum salmon	–	–	0	0	0	0	77	1	0	0
Coho salmon	–	–	83	1	0	0	77	1	14	0
Chinook salmon	0	0	75	1	73	1	312	3	0	0
Pink salmon	–	–	0	0	0	0	17	0	0	0
Sockeye salmon	16,884	222	9,553	88	10,716	90	8,975	82	2,911	78
Spawning sockeye salmon	–	–	–	–	238	2	240	2	–	–
Spawnouts	1,325	18	–	–	–	–	–	–	–	–
Unspecified salmon	–	–	–	–	–	–	–	–	28	1

Sources For 2021, ADF&G Division of Subsistence household surveys, 2022; for previous study years, ADF&G Division of Subsistence Community Subsistence Information System (CSIS), accessed 2024.

Note "–" indicates no data available.

Table 3-35.–Composition of large land mammal harvest in pounds per capita and household participation rates, Port Alsworth, 1983, 2001, 2004, and 2021.

	1983					2001				
	Percentage of households			Estimated harvest		Percentage of households			Estimated harvest	
Resource	Attempting	Harvesting	Success rate	Amount	Per capita (lb)	Attempting	Harvesting	Success rate	Amount	Per capita (lb)
Large land mammals	**76.9%**	**46.2%**	**60.1%**	**19.0**	**94.9**	**50.0%**	**20.0%**	**40.0%**	**10.0**	**16.1**
Black bear	7.7%	0.0%	0.0%	0.0	0.0	25.0%	5.0%	20.0%	1.0	0.0
Brown bear	0.0%	0.0%	–	0.0	0.0	30.0%	10.0%	33.3%	3.0	3.8
Caribou	46.2%	23.1%	50.0%	6.0	12.76	35.0%	10.0%	28.6%	4.0	5.6
Moose	61.5%	38.5%	62.6%	11.0	80.42	30.0%	5.0%	16.7%	1.0	6.8
Dall sheep	7.7%	7.7%	100.0%	2.0	1.7	10.0%	0.0%	0.0%	0.0	0.0

-continued-

Table 3-35.–Continued.

	2004					2021				
	Percentage of households			Estimated harvest		Percentage of households			Estimated harvest	
Resource	Attempting	Harvesting	Success rate	Amount	Per capita (lb)	Attempting	Harvesting	Success rate	Amount	Per capita (lb)
Large land mammals	**50.0%**	**31.8%**	**63.6%**	**16.0**	**23.4**	**42.9%**	**20.0%**	**46.7%**	**9.8**	**20.3**
Black bear	27.3%	4.5%	16.5%	1.0	0.7	8.6%	2.9%	33.3%	1.4	0.0
Brown bear	4.5%	0.0%	0.0%	0.0	0.0	2.9%	2.9%	100.0%	1.4	0.0
Caribou	31.8%	9.1%	28.6%	6.0	9.4	5.7%	2.9%	50.0%	1.4	1.4
Moose	36.4%	4.5%	12.4%	1.0	6.8	31.4%	11.4%	36.4%	5.6	18.9
Dall sheep	27.3%	22.7%	83.2%	6.0	6.5	0.0%	0.0%	–	0.0	0.0

Sources For 2021, ADF&G Division of Subsistence household surveys, 2022; for previous study years, ADF&G Division of Subsistence Community Subsistence Information System (CSIS), accessed 2024.

Note "–" indicates no harvest was attempted so the success rate could not be calculated.

Table 3-36.–Reported numbers of hunters and harvests of caribou from harvest tickets, Port Alsworth, 1977–2021.

Year	Hunters	Caribou	Year	Hunters	Caribou
1977	10	0	2000	8	6
1978	5	0	2001	4	3
1979	7	0	2002	3	9
1980	0	0	2003	5	3
1981	6	0	2004	4	4
1982	2	3	2005	6	6
1983	9	5	2006	10	8
1984	4	2	2007	4	1
1985	0	0	2008	3	1
1986	3	2	2009	3	1
1987	0	0	2010	7	6
1988	0	0	2011	5	4
1989	0	0	2012	7	6
1990	0	0	2013	10	7
1991	0	0	2014	9	6
1992	0	0	2015	13	11
1993	1	0	2016	4	2
1994	0	0	2017	11	4
1995	0	0	2018	16	15
1996	1	1	2019	14	17
1997	11	4	2020	9	4
1998	14	11	2021	1	0
1999	20	29			

Source Alaska Department of Fish and Game, Division of Wildlife Conservation, Winfonet, accessed Dec. 4, 2024.

Table 3-37.–Reported numbers of hunters and harvests of moose from harvest tickets, Port Alsworth, 1977–2021.

Year	Hunters	Moose	Year	Hunters	Moose
1977	4	0	2000	10	2
1978	7	0	2001	10	1
1979	7	0	2002	7	0
1980	0	0	2003	9	2
1981	11	0	2004	10	2
1982	6	1	2005	8	3
1983	13	7	2006	11	1
1984	5	4	2007	9	0
1985	10	0	2008	8	1
1986	9	0	2009	10	1
1987	8	3	2010	9	4
1988	7	1	2011	13	5
1989	10	4	2012	14	3
1990	11	4	2013	15	1
1991	12	2	2014	17	4
1992	14	4	2015	20	6
1993	18	4	2016	19	9
1994	7	7	2017	18	7
1995	6	1	2018	31	10
1996	12	1	2019	23	4
1997	15	4	2020	28	6
1998	9	3	2021	22	11
1999	14	3			

Source Alaska Department of Fish and Game, Division of Wildlife Conservation, Winfonet, accessed Dec. 4, 2024.

staff that even taking into consideration hunters that may not be considered eligible for the survey, the moose harvest estimate was still low. Similar to salmon harvest estimates, it may be that the actual moose harvest was closer to the higher end of the confidence limit surrounding the point estimate, which would be 9 moose (Table 2-16).

Harvests of other resource categories varied only slightly (Table 3-33). Small land mammals and birds and eggs have accounted for 2% or less of the total wild resource harvest in all 3 the study years. Per capita harvests of small land mammals stayed consistent at less than 2 lb per capita. The per capita harvests of birds and eggs dropped from 4 lb per capita in 1983 to slightly more than 1 lb in 2021. Marine invertebrates accounted for less than 1% of the total wild resource harvest in all the study years. Marine invertebrates are not locally available to Port Alsworth residents; the use of aircraft is required to access those resources and the price of airplane fuel was cited by several Port Alsworth households as a reason for not pursuing marine invertebrates in 2021. Throughout the 3 study years, nonsalmon fish have accounted for less than 10% of the total wild resource harvest composition each year. Per capita harvests were similar in 1983 and 2004, but were reduced by nearly one-half in 2021. Survey respondents noted that ice fishing was difficult during the 2021 study year because of poor ice conditions, possibly contributing to the reduced harvests compared to previous years. Port Alsworth residents harvested approximately the same per capita amount of vegetation in 2021 as they did in 1983, and more than was harvested in 2004. During the 2021 study year, survey respondents explained that there had been a recent increase in community members with knowledge of edible greens and berries moving into the community, and these respondents cited this as a reason for pursuing more vegetation in recent years.

Current and Historical Harvest Areas

As noted, mapping occurred for all wild resource harvest and use areas for the 2021 survey. Comparable wild resource harvest and use area data were collected for the past study year 2004 (Fall et al. 2006:see Appendix E). Mapping also occurred during the 1983 study; however, the timeframe used for that mapping exercise was the previous 20 years. In addition, researchers mapped a limited selection of specific species, rather than all resources from every category. Division spatial data collection techniques changed between 2004 and 2021. Data were collected in 1983 and 2004 on paper maps upon which respondents drew locations of wild resource search and harvest areas; markings were later digitized by division staff. In 2021, researchers used digital maps on iPads to collect information. Using iPads allowed for more detailed and specific search and harvest area data collection, as well as documenting search areas that occurred far from the community.

Published maps from 2004 were presented at the species level, rather than the resource category level as was done in 2021. For comparison purposes, ADF&G staff reproduced select 2004 species harvest maps, aggregated at the resource category level (figures 3-32 through 3-35).

Salmon and Nonsalmon Fish Search and Harvest Areas

Overall, Port Alsworth residents used the same areas to fish for salmon and nonsalmon fish in 2021 as in 2004. Salmon fishing was concentrated in and around the community of Port Alsworth in both study years, including west of where Kijik River drains into Lake Clark on the shoreline across from where Port Alsworth is situated (Figure 3-16; Figure 3-32). Residents likewise concentrated nonsalmon fishing efforts close to the community in both study years along the Tanalian River, throughout Hardenburg Bay, and near Kijik (Figure 3-21 and Fall et al. [2006:see Appendix E]).

Large Land Mammals Search and Harvest Areas

Port Alsworth residents used a smaller area to hunt for large land mammals in 2021 than they did in 2004, which is likely associated with the closure of local caribou hunting during 2021 and overall decrease in hunting effort (Figure 3-18; Figure 3-33). In 2004, the largest spatial extent of hunting was in pursuit of caribou, extending north, south, and west from the mouth of the Chulitna River; more caribou hunting occurred near Kijik and east of Port Alsworth. In 2021, no caribou hunting areas were mapped and the lands around Port Alsworth were not open to caribou hunting.

Moose hunting in 2004 occurred mostly within LACL, encompassing 6 miles around Port Alsworth. Additionally, there was a search area near the southern end of Little Lake Clark. Search and harvest areas were also recorded along the Chulitna River and between Lake Clark and Kijik Lake. The 2021 harvest area was more constrained but still occurred in generally the same areas; the largest harvest area was on the east side of Lake Clark, near Currant Creek, and 3 other areas were used, similar in location if not extent to 2004. No moose hunting was documented around the Chulitna River in 2021, although key respondent interviews reaffirmed the importance of the Chulitna River for moose hunting. For other large game, such as bears or sheep, combined, hunting efforts were concentrated around Lake Clark in 2004 and near Koksetna River in 2021.

Small Land Mammals Search and Harvest Areas

Small land mammal harvest areas have changed considerably between 2004 and 2021. In 2004 the small land mammal harvest area comprised 66 square miles and extended 3 miles from the southernmost point of Turner Bay down the southwestern side of Lake Clark (Fall et al. 2006:see Appendix E). Small land mammals were also harvested west of Nondalton 30 miles to the Koktuli River. Not enough small land mammal hunters or trappers mapped harvest locations to publish results, however the areas mapped were substantially more constrained (a total of 1.6 square miles) than the 2004 harvest areas. Despite the smaller areas of effort, more small land mammals were harvested in 2021 than in 2004.

Birds Search and Harvest Areas

In 2004, upland game bird harvest areas extended from Turner Bay south past Nondalton into an 18-mile-wide area that included multiple tributaries of the Koktuli River, as well as in the vicinity of the community (Fall et al. 2006:see Appendix E). Waterfowl harvest and use areas were limited to 2 small areas—one on the confluence of the Chulitna River and Lake Clark, and the other just south of the Pebble Mine site on the Koktuli River. In 2021, not enough bird hunters mapped harvest locations to publish results; however, bird hunting continued to occur across Lake Clark.

Vegetation Search and Harvest Areas

Vegetation harvest areas in 2021 were much more extensive than those documented in 2004 (Figure 3-23; Figure 3-34). Berries and greens harvest areas in 2004 were limited to a 6-mile area southwest of Port Alsworth, close to the shore of Lake Clark. In 2021, berries were still harvested in the area documented in 2004, and they were also harvested on the western side of Lake Clark, near Keyes Point, and just northwest of the community of Iliamna. In both years, there were also vegetation harvests on the south shore of Twin Lakes, and the westernmost end of Telaquana Lake. During the community data review, residents remarked on the poor berry year in 2021, potentially accounting for the increased areas visited in search of berries. Wood harvest areas in 2021 were more expansive than in 2004, when documented efforts covered a small area just southwest of Port Alsworth and adjacent to the Lake Clark shoreline extending northeast of the community (Figure 3-24; Figure 3-35). Harvest areas in 2021 included a 4-mile area south of the Tanalian River, as well as a 5-mile stretch on the northwestern shore of Lake Clark around the mouth of the Kijik River.

Local Comments and Concerns

Following is a summary of local observations of wild resource populations and trends that were recorded during the surveys and key respondent interviews. Some households did not offer any additional information during the surveys, so not all households are represented in the summary.

Appreciation for Subsistence

Residents of Port Alsworth voiced their appreciation throughout the study for locally available wild resources to harvest and use. One survey respondent commented, “We love subsistence. We love that it’s available, it’s always been a large part of our lives.” Another survey respondent stated, “I am thankful we have subsistence. It is vital.” Some newer community members expressed gratitude toward their friends and neighbors for helping them become familiar with subsistence activities in the area. One survey respondent

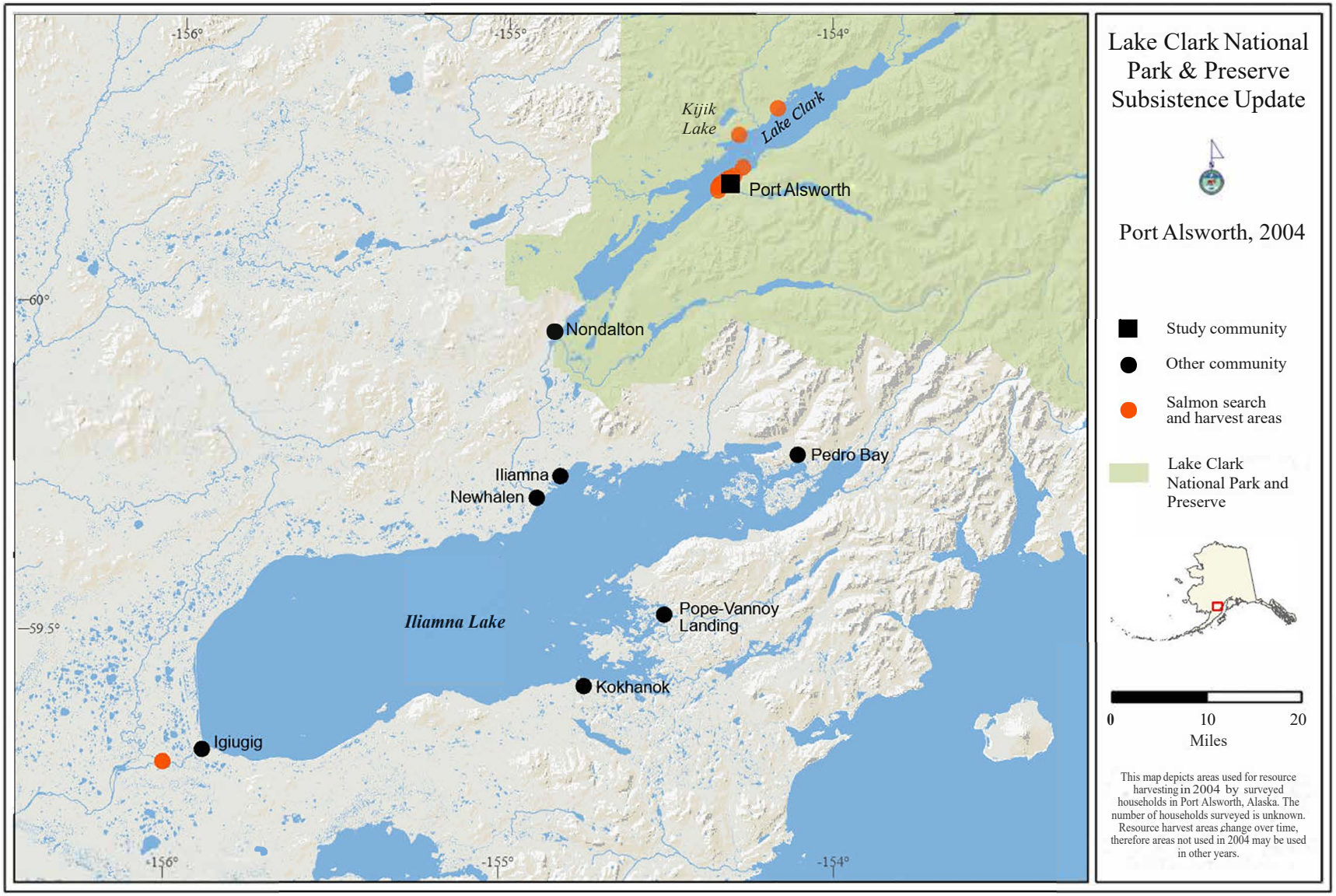


Figure 3-32.–Fishing and harvest locations of salmon, Port Alsworth, 2004.

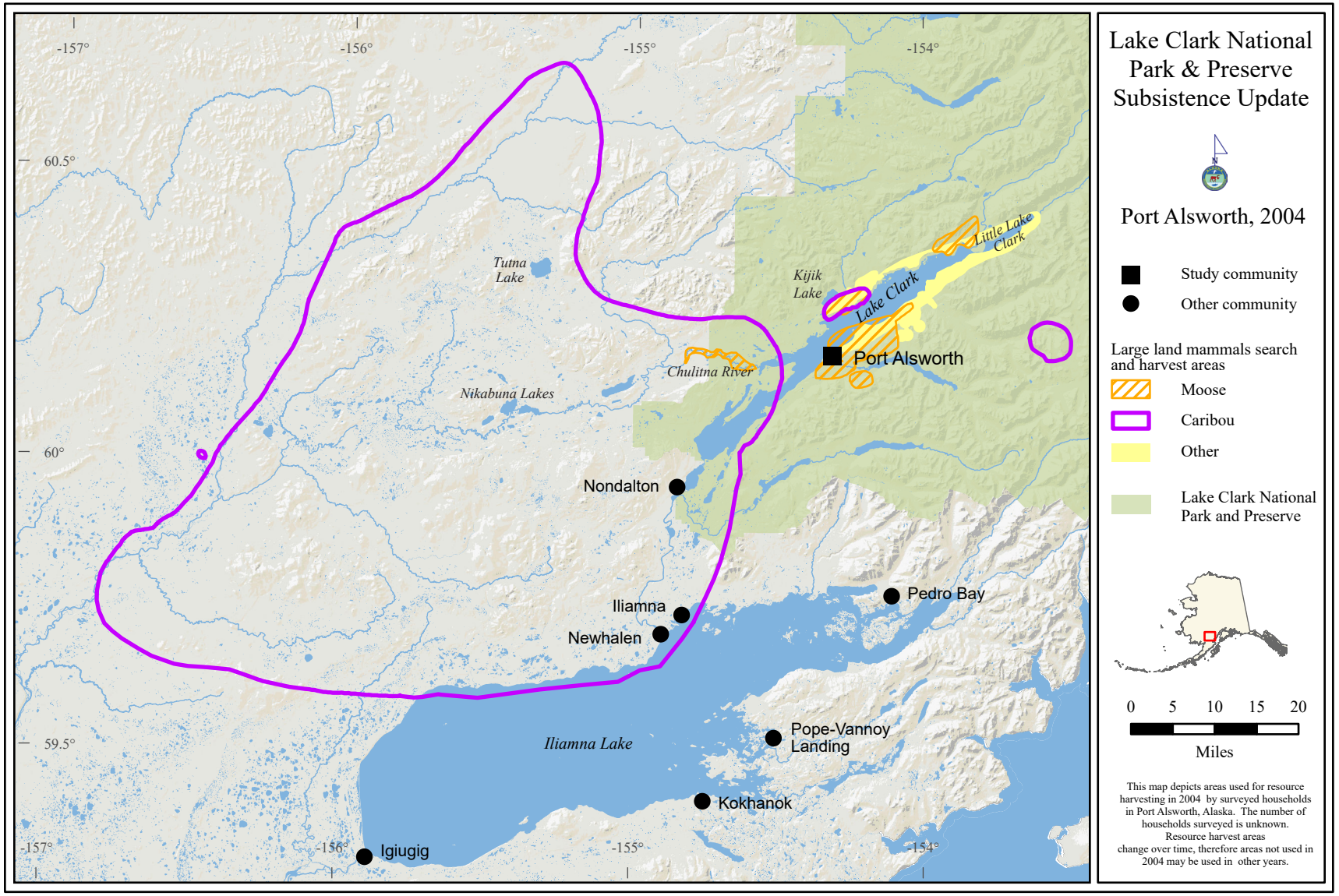


Figure 3-33.–Hunting and harvest locations of large land mammals, Port Alsworth, 2004.

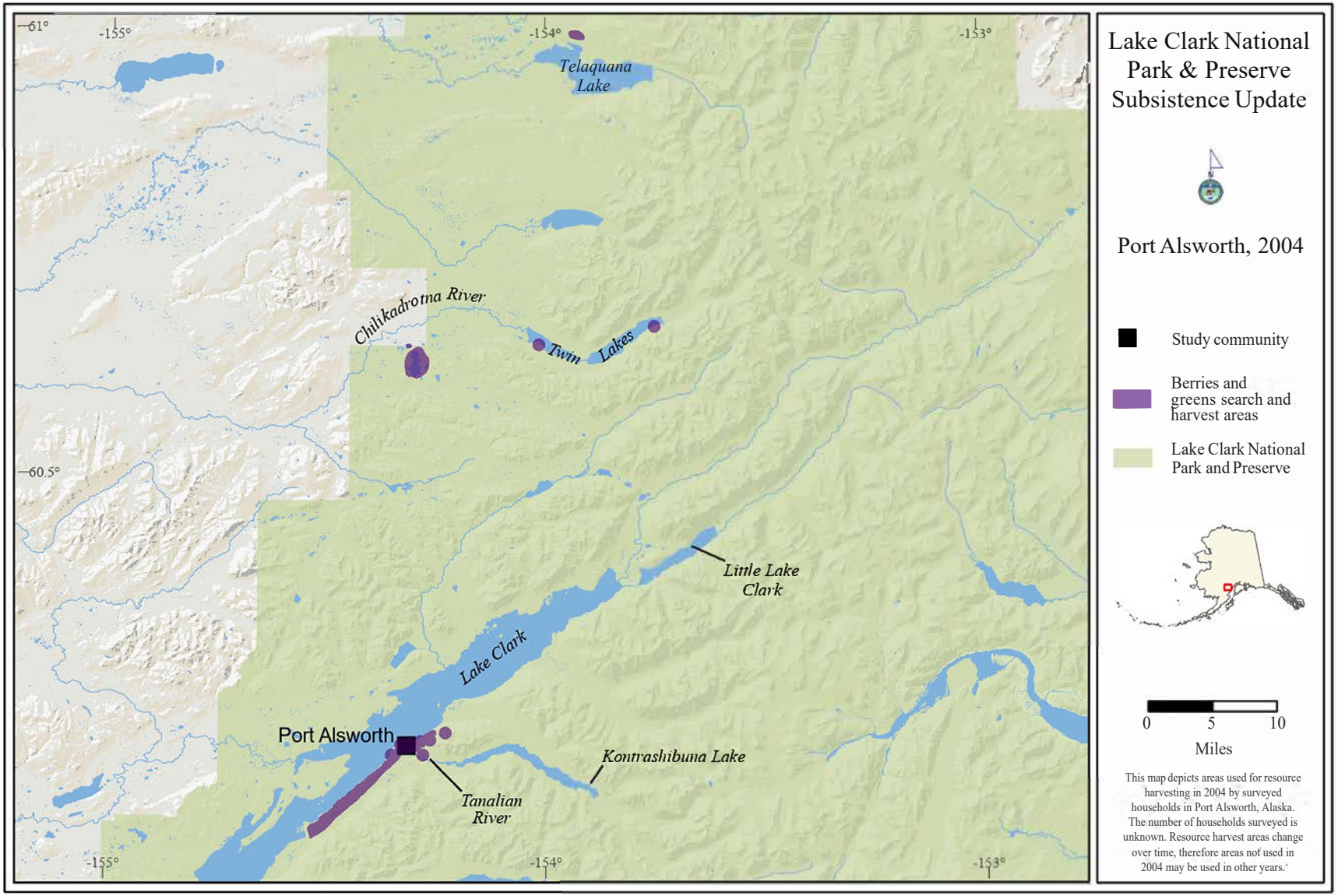


Figure 3-34.–Gathering and harvest locations of wild plants and berries, Port Alsworth, 2004.

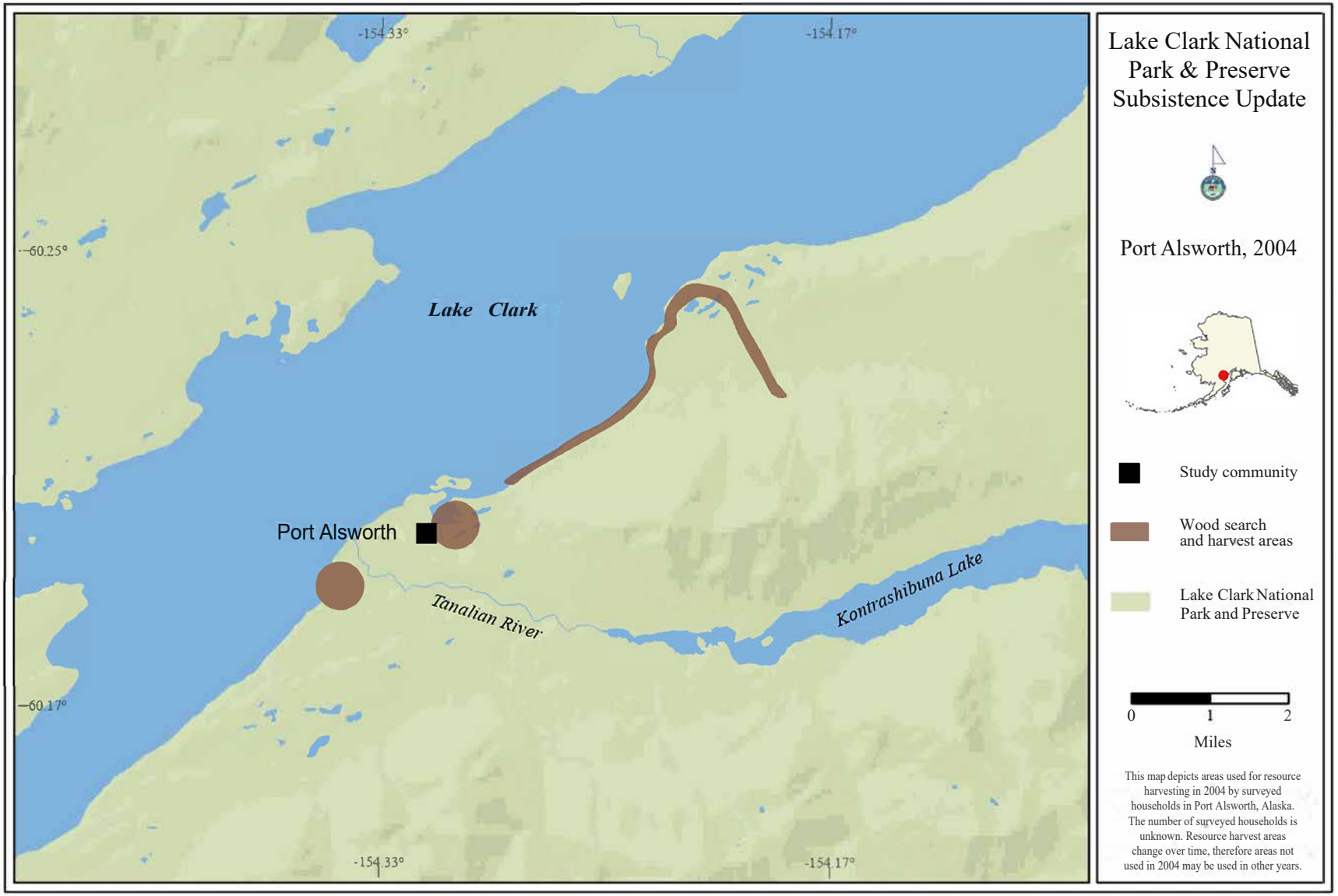


Figure 3-35.–Gathering and harvest locations of wood, Port Alsworth, 2004.

explained, “We are so excited to be here and through the support of our community we are becoming familiar with harvesting food for our family.” People in the community voiced their desire to continue to have subsistence opportunities in the future. One resident stated during a survey: “I hope Port Alsworth residents can continue to have subsistence opportunities and resources. It is important.”

Salmon

Salmon is a staple subsistence resource for Port Alsworth residents. Community members expressed gratitude for the access they have to this wild resource. According to a survey respondent: “We get what we want [salmon] with little effort; it is nice to have the resources so easily available.” Community members who were newer to Port Alsworth most frequently cited salmon as the subsistence resource that they were learning about from friends and neighbors. These residents discussed how other households lent them gear to catch salmon and, in some cases, invited their household on fishing trips to learn how to harvest salmon.

Nonsalmon Fish

When asked about nonsalmon fish, both during surveys and key respondent interviews, respondents often first mentioned the importance of salmon over nonsalmon fish, but then mentioned several species of nonsalmon fish that their households harvested. For example, one interview respondent stated, “We definitely focus on salmon, but we also certainly appreciate burbot. Burbot is really the only other thing that we target specifically” (PTA01). When asked about harvesting other nonsalmon fish, this same interview respondent stated, “I mean we’ll eat them if we’re out camping or something, we’ll catch a trout to eat, or a grayling, but it’s not really something we target, when we’ve got a freezer full of salmon” (PTA01). Besides the preference for and ease of access to salmon, there were several other reasons provided for not putting great effort into harvesting nonsalmon fish. Several survey respondents cited avoiding consuming large nonsalmon fish species such as rainbow trout caught in Lake Clark because of concerns of mercury content in the fish. Poor ice conditions for ice fishing on Lake Clark and surrounding bodies of water were referenced by others as a reason for less nonsalmon fish use in recent years.

Ice Conditions

Another frequently discussed topic throughout this project was unpredictable ice conditions. Recent warm winters and poor snow conditions made travel for subsistence pursuits difficult. According to various survey respondents, winter conditions allowing snowmachine crossing of Lake Clark and other local lakes are variable from year to year, and the season for traveling on ice has become shorter overall. One survey respondent explained that in 2021, “ice conditions limit travel so we were limited to where we could ice fish.” Other community members believe that the failure of area lakes to freeze impedes caribou movements in the area, and some explained when winter caribou hunting was open in previous years, ice conditions hampered where people could hunt for caribou, sometimes leading to dangerous scenarios for community hunters.

Wood

Confusion related to the regulations surrounding wood gathering inside LACL was cited by several survey respondents. One interview respondent explained that they would like there to be more use of wood harvesting permits within the park to keep track of how much is being taken (PTA03). This respondent further explained the concerns were not related to taking wood for firewood, but instead logging large areas to build houses in Port Alsworth as migration of new people into the community continues.

ACKNOWLEDGMENTS

The Division of Subsistence would like to first thank all the residents of Port Alsworth for being receptive to this research project; community participation in this project was essential and appreciated. Additionally, researchers would like to thank the Port Alsworth Improvement Corporation and the Lake Clark National Park Subsistence Resource Commission for supporting this project. The survey would not have been as successful as it was without assistance and guidance from Maggie McKay and Erin Bebee—we thank you. Lastly, we would like to thank the staff at Lake Clark National Park and Preserve for their support and for providing funds to make this research possible.

4. DISCUSSION AND CONCLUSIONS

Introduction

This report described the contemporary harvests and uses of wild resources by Nondalton and Port Alsworth residents in 2021. Subsistence uses of wild resources provide the foundation of community relations, nutrition, and food security for the residents of these communities. The survey data collected in this study show that harvests are diverse and that wild foods are widely distributed within Nondalton and Port Alsworth. While sharing similarities in geography and resource availability, the study communities differ in history, demographics, and subsistence practices. This chapter provides an overview of findings for the 2 study communities and contextualizes these results within broader rural Alaska subsistence patterns.

Overview of Findings for the Study Communities, 2021

In 2021, subsistence remained an important component of the study communities' economies, as evidenced by the magnitude and diversity of harvests as well as participation in subsistence activities. Subsistence practices look different in Nondalton and Port Alsworth as a result of their differing histories. Subsistence harvests in Nondalton were generally higher and more diverse than in Port Alsworth (Table 2-12; Table 3-12). Nearly all residents in the study communities participated in harvesting or processing at least 1 wild resource (Figure 2-9; Figure 3-9). In both communities, residents participated most frequently in harvesting and processing vegetation, fish, and land mammals. Nondalton residents pursued birds and eggs more commonly than Port Alsworth residents. Household participation rates were high for harvesting subsistence resources as were rates of sharing in both communities. Sharing provides many benefits to individuals, households, and communities, including increased wellbeing, food security, food diversity, and heritage and cultural identity (Langdon 2021). The value of subsistence in these communities is evident through consideration of harvest characteristics. While there was disparity between the volume of harvests in each community, total harvests were still substantial in both communities. Residents of both communities used and harvested a wide diversity of resources. The importance of subsistence was a sentiment echoed in many of the ethnographic interviews conducted in both communities.

Study findings from 2021 are generally consistent with earlier study findings (Fall et al. 2006). Broadly, these 2004 findings were that, in both communities, subsistence harvests were high, as was participation by residents in subsistence practices. However, Fall et al. (2006) documented overall changes in subsistence harvests, including a long-term trend toward lower harvests of salmon; shifts in caribou and moose locations; competition with nonlocal hunters; and effects of climate change. Nonetheless, both communities continued to demonstrate an extensive engagement in sharing resources. The next sections will consider specific study findings from both study years within the context of existing literature on subsistence economies in Alaska.

Comparisons Between Subsistence Harvests in 2004 and 2021

Overall Harvest and Use

In 2004, subsistence harvests were relatively large at 358 lb per capita in Nondalton and 133 lb per capita in Port Alsworth (Fall et al. 2006:28). Both communities exhibited high rates of participation in subsistence activities, with 100% of households in both communities using subsistence resources and 97% or more harvesting them. More households engaged in giving and receiving resources in Nondalton than in Port Alsworth, but sharing was widespread in both communities: in Nondalton 92% of households gave resources and 97% received them, while in Port Alsworth 73% of households shared resources and 91% received them. In 2021, per capita harvests declined to an estimated 298 lb in Nondalton and 116 lb in Port Alsworth. Compared to the overall region's per capita harvests of 210 lb per person (Fall 2018), Nondalton per capita harvests were higher and Port Alsworth per capita harvests were lower. Similar to 2004, all Nondalton households and nearly all Port Alsworth households used wild resources during the 2021 study year; slightly more Port Alsworth households attempted to harvest and successfully harvested wild resources than Nondalton households, but, in both communities, household participation rates surpassed

90% of households. Sharing remained important in both communities in 2021. An estimated 80% or more households shared and received resources in both communities, and all Nondalton households received resources. The high rates of sharing in these communities in 2021 were similar to 2004 study year findings, indicating that despite, or perhaps because of, changing harvest amounts and composition, sharing remains a valued and necessary practice.

Nearly all the resources that were most used by Port Alsworth households in 2004 were also among the most harvested resources (Fall et al. 2006:154). The only exceptions were Dall sheep, which was the fourth most-harvested species by weight but used by less than 41% of households, and Chinook salmon, which were used by 41% of households but did not register as one of the most harvested resources. The most used and harvested species was sockeye salmon. Other resources included large game (caribou and moose), freshwater fish (northern pike, humpback whitefish, and lake trout) and marine species (Pacific halibut and razor clams). In Nondalton in 2004, however, there was more of a divergence in the top species harvested and used. Sockeye salmon (bright and spawning), caribou, berries, humpback whitefish, and rainbow trout appeared on both the most used and the most harvested resources lists (Fall et al. 2006:198). Moose, beaver, northern pike, and Dolly Varden were heavily harvested, but not used. Lake trout and Arctic grayling were widely used, but not harvested in large amounts, as were the terrestrial species of grouse, porcupine, and black bear. Comparing these rankings between Port Alsworth and Nondalton, it is interesting that while there is overlap (sockeye salmon, caribou, berries, whitefish), there are locally available species that are harvested and used in Nondalton but not in Port Alsworth (spawning sockeye salmon, black bear) while the species that require travel are more heavily harvested and used in Port Alsworth but not in Nondalton (Pacific halibut, razor clams), potentially reflecting demographic differences and the importance and prevalence of aircraft in Port Alsworth.

In 2021, residents of both study communities used and harvested a variety of resources, but the magnitude and breadth of harvest was again greater among Nondalton residents (Table 2-12; Table 3-12). Comparing the top resources used in each community in 2021, households in both communities used the same top 4 species: sockeye salmon, blueberry, moose, and lowbush cranberry (Table 2-17; Table 3-17). Residents of both communities harvested sockeye salmon and moose the most in 2021; among the remaining species, blueberry, lake trout, beaver, and northern pike were shared in common. Nondalton households' harvest comprised 9% spawning sockeye salmon and 4% humpback whitefish, both of which were not among the most harvested species in Port Alsworth. Conversely, Port Alsworth households harvested enough caribou and Pacific halibut to be among the top resources harvested in that community, and these species were not reflected in Nondalton harvests at all. The absence of caribou in Nondalton's overall harvest is likely due to the Mulchatna herd's migration changes such that they are no longer locally accessible. This is a significant departure from earlier subsistence studies. The higher percentage of Alaska Native residents and households likely account for the significant presence of spawning sockeye salmon and whitefish harvests in Nondalton (discussed in more detail below), while the abundance of air transportation in Port Alsworth could explain caribou and Pacific halibut harvests, given the requirement to travel much farther distances to harvest those 2 species.

Specialization

Despite most households engaging in sharing resources in 2004 and 2021, in both years a smaller percentage of households harvested the majority of resources in both communities. In both study years, Port Alsworth households displayed higher levels of specialization in harvests than did Nondalton households, but both communities are commensurate with research in other parts of the state. Wolfe (1987) posited that approximately 30% of households within a community produce about 70% of the community's wild food harvests. This finding has been supported by additional research (Magdanz et al. 2016; Wolfe et al. 2009). In 2021, in Port Alsworth, 26% of households harvested 71% of the community harvest and 35% of Nondalton households took 71% of the harvest (Figure 2-11; Figure 3-11). Compared to 2004, Port Alsworth harvests have become more specialized and Nondalton has remained basically the same (Figure 4-1; Figure 4-2). In Nondalton in 2004, 34% of the community's households harvested 69% of the harvest, while in Port Alsworth 31% of households harvested 68% of the total harvest. More recent studies in several

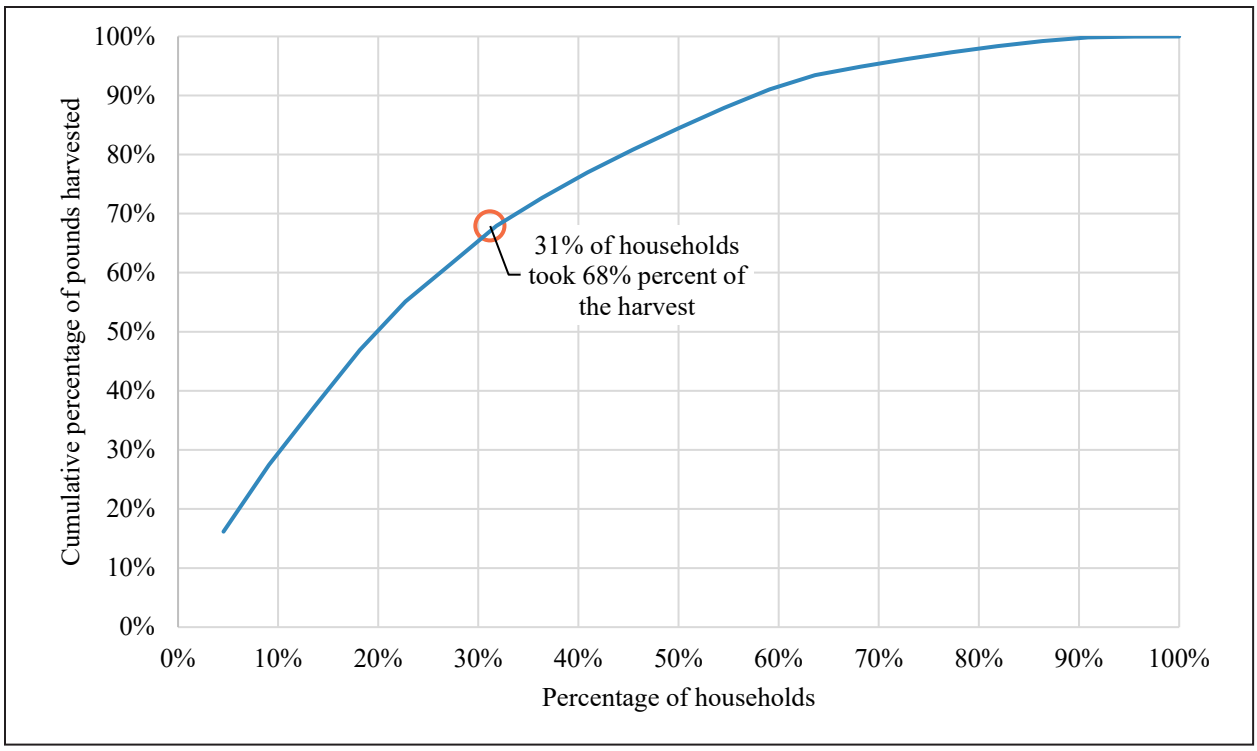


Figure 4-1.–Household specialization, Port Alsworth, 2004.

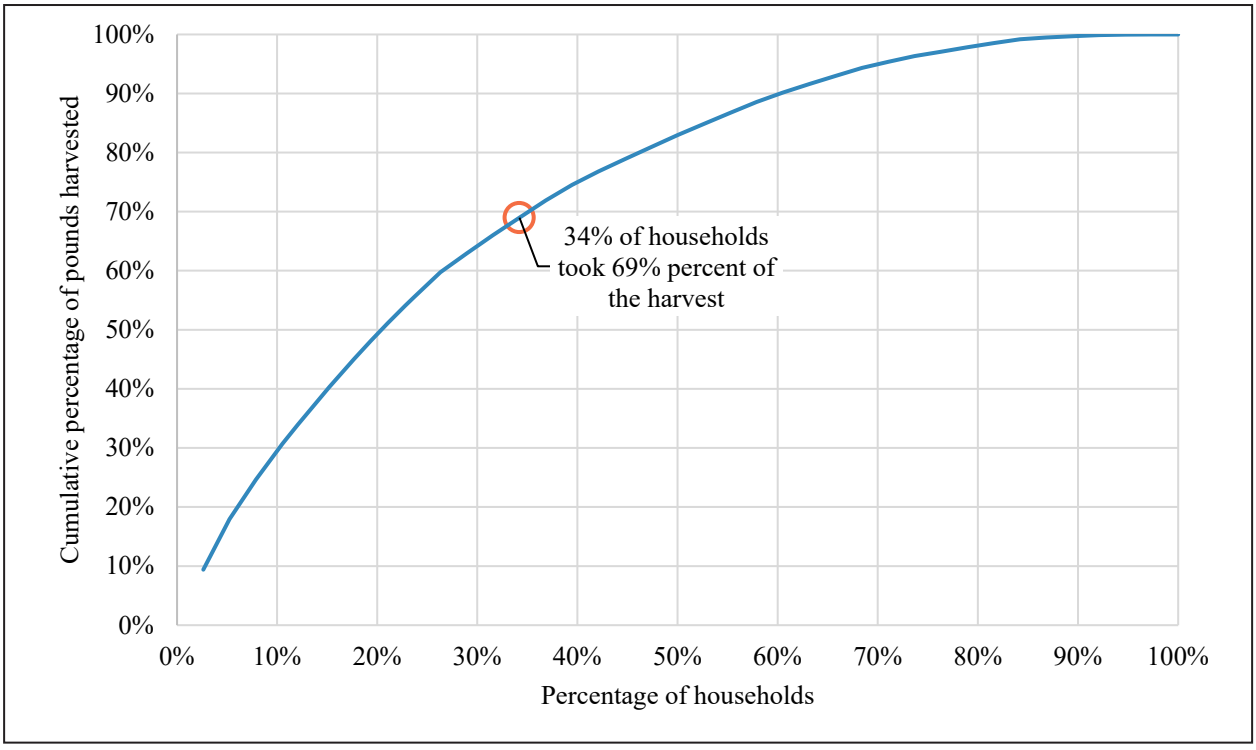


Figure 4-2.–Household specialization, Nondalton, 2004.

communities have shown trends toward increasing specialization in varied parts of the state (Coleman et al. 2024; Keating et al. 2020; 2022; 2024; Lamb et al. 2024; Sill et al. 2021; Sill and Koster 2017). Residents of Nondalton and Port Alsworth continue to be engaged in substantial harvests, spreading the community harvest among a higher number of households. This appears to be even more pronounced in Nondalton.

Resource Diversity

Residents of both Nondalton and Port Alsworth harvested a diversity of resources in 2004. Researchers documented the use of more than 65 resources in Nondalton during the 2004 study year and the use of nearly 50 resources in Port Alsworth. At the household level, Port Alsworth households used an average of 11 resources (range of 1 to 29) and Nondalton households used 14 resources on average (range of 4 to 48) (Fall et al. 2006:28). This pattern of a greater diversity of resources for Nondalton households than Port Alsworth households carried through the average number of resources harvested, received, and shared. Among the most productive households in a community, in Nondalton those households continued to exhibit higher diversity of resource use. The top 25% producing households used an average of 28 resources in Nondalton, while the same group of Port Alsworth households used only 17 (Fall et al. 2006:225). However, the households least engaged in harvest activities used a similar average number of resources in both communities: 9 in Nondalton and 8 in Port Alsworth.

Similar to 2004 findings, in 2021, Nondalton households' harvest and use activities displayed higher diversity than Port Alsworth households. The average Nondalton household used 13 different resources (range of 1 to 47) and Port Alsworth households used 8 (range of 0 to 32) (Tables 2-12; Table 3-12). The average number of resources used and harvested in each community was slightly lower in Nondalton in 2021 than in 2004. The difference in Port Alsworth was more pronounced. Interestingly, the average number of resources given and received by Nondalton households did not change between the 2 study years while they did decrease in Port Alsworth.

Drilling down into household-level activities, the picture that emerges continues to be one of less diverse and more concentrated harvests among a smaller number of households in Port Alsworth. Considering just the lowest ranked 50% of households by harvest weight in each community, more resources were used by this group of households in Nondalton (8 resources) compared to Port Alsworth (6 resources), and they harvested more, both in terms of per capita harvest and proportion of overall harvest (Table 1-7). The per capita harvest of this group of households in Nondalton (93 lb) was more than 3 times as great as in Port Alsworth (27 lb), but, because of the overall larger magnitude of harvests in Nondalton, the difference between the 2 communities in terms of the percentage of the overall harvest obtained was not as stark (12% in Nondalton compared to 9% in Port Alsworth). Changing the focus to the top 25% of households by harvest weight in each community, the percentage of the harvest taken by this group was smaller in Nondalton (56%) than in Port Alsworth (66%). This group of households used double the number of resources in Nondalton (22 resources) than in Port Alsworth (10 resources).

Demographics

Since its founding in the mid-1900s, Port Alsworth has grown steadily, while Nondalton experienced growth through much of the 20th century before beginning a downward trend in the 1990s that has continued to the present day. Despite its increasing population, household sizes in Port Alsworth have decreased slightly from an average of 4 people per household in 1983 and 2004 to 3 people per household in 2021 (Fall et al. 2006; Morris 1986; Table 3-2). Household sizes have also decreased in Nondalton, along with overall population, from 5 people per household in 1983 to 4 people in 2004 and 3 in 2021 (Fall et al. 2006; Table 2-2).

Nondalton is an Alaska Native community that has become more diverse with a growing non-Native population: in the 1980s, all residents identified as Alaska Native (Morris 1986). By 2021, 91% of the population and 86% of households identified as Alaska Native (Table 2-2). In contrast, Port Alsworth had few Alaska Native residents during the 1983 study (Morris 1986). It is still a predominantly non-Native community but is also becoming more diverse: 13% of Port Alsworth residents and 17% of households identified as Alaska Native during the 2021 survey year (Table 3-2). Data on birthplaces of the population

are missing from the 1983 study, but in 2004 and 2021, just over 10% of Port Alsworth household heads were born locally, while approximately three-fourths were born in another U.S. state (Table 3-4; Fall et al. 2006:23). Among the total population, length of residency in 2021 was 12 years, compared to 11 years in 2004 (Table 3-2; Fall et al. 2006:22). In 2021, average length of residency of Port Alsworth household heads was 23 years, compared to 15 years in 2004. In contrast, approximately two-thirds of Nondalton residents were born locally and just over 10% were born in another U.S. state in both the 2004 and 2021 study years (Fall et al. 2006:23; Table 2-4). Average length of residency for Nondalton residents was 30 years in 2021, slightly longer than the 24 years documented in 2004 (Table 2-2; Fall et al. 2006:22). Among household heads, average length of residency was 66 years, much longer than the 35 years in 2004.

In 2021, 34% of Port Alsworth residents were 19 years of age or younger, and 70% of the population was 44 years old or younger (Table 3-3). In comparison, 28% of Nondalton residents were 19 years or younger and 67% were 44 years old or younger (Table 2-3). This disparity is a recent development. During the 2004 and 1983 study years, roughly similar percentages of the population were under 19 years of age or 39 years of age.

Income and Employment

Compared to the statewide per capita income, in both the 2004 and 2021 study years, incomes in both communities were much smaller: in 2004 statewide per capita income was $22,600, Port Alsworth per capita income was $13,393, and in Nondalton it was $5,228 (Fall et al. 2006:225). Since 2004, per capita incomes in both communities have grown, but are still below the statewide estimate. In 2021, statewide per capita income was $65,813 while Port Alsworth residents had a per capita income of $40,033 and Nondalton residents had $26,025 (Fried 2023; Table 1-7). In terms of percent of the statewide estimate, Port Alsworth per capita incomes were the same proportion in 2021 as in 2004, and Nondalton per capita income was proportionally higher in 2021 in comparison to 2004.

In both study years, a majority of adults were employed in both study communities, but Port Alsworth residents experienced higher rates of employment. In 2004, 84% of Port Alsworth adults and 69% of Nondalton adults were employed and in 2021 these percentages were 95% and 77% (Fall et al. 2006:24; tables 2-8 and 3-8). Although the number of jobs held by employed adults in the study communities differed between communities and changed between the study years, the average number of jobs held by employed adults was consistent across communities and study years. On average, in 2004, Nondalton adults were employed 6.5 months of the year and Port Alsworth adults were employed nearly 10 months of the year; by 2021, adults in both communities were employed for more months (10 months on average for Nondalton and 11.5 months for Port Alsworth). Overall, 20% of Nondalton employed adults and 67% of Port Alsworth employed adults worked year-round in 2004, a percentage that doubled to 40% for Nondalton in 2021, but fell to 56% for Port Alsworth. Most households in both communities had employed adults, with an average of 3 jobs per employed household in Nondalton and 4 jobs in Port Alsworth. The average number of jobs per household fell in the 2021 study year to 2.2 jobs in Nondalton and 2.4 jobs in Port Alsworth.

The Relationship Between Subsistence and Community Characteristics

Wolfe and Walker (1987) provide a framework for considering this study's findings in context of past findings and community characteristics. From their study of 98 Alaska communities, Wolfe and Walker (1987) drew several conclusions and identified several main factors that influence subsistence harvests in Alaska. With 40 years of additional subsistence research since the time of publication, many of their findings have been corroborated and expanded upon, such as that subsistence harvests vary dramatically in Alaska communities, that fishing predominates in most Alaska communities except for the sea mammal-caribou hunting Arctic coast communities, and that subsistence harvests make substantial contributions to the welfare of rural Alaska communities. The key factors identified in that study that influence subsistence harvests were the ecological zone and region of the community, distance from urban centers, presence of roads, degree of settlement entry, and community income. Of these, degree of settlement entry accounted for the most variation in community harvest levels. The degree of settlement entry refers to the percentage of a community's population that is non-Native; as this percentage increases, overall subsistence

productivity decreases. In that study, roads were also correlated with reduced subsistence productivity, perhaps because of increased access for non-locals and concurrent rise in competition, which can lead to more restrictive hunting and fishing regulations. Interestingly, community income was also associated with lower subsistence productivity; at the community level, higher mean incomes were correlated with lower subsistence productivity, and positively associated with settlement entry. This study considered subsistence harvests at a community level, but in a later study, Wolfe et al. (2010) found that household income was positively correlated with that household's subsistence production, so subsistence production and income are differently correlated depending on the level of analysis. Other characteristics of high producing households are involvement with commercial fisheries and multiple working-age males in a household, factors associated with the developmental cycle of a household (Wolfe et al. 2010). The factors Wolfe and Walker (1987) identify that most resonate with subsistence patterns and engagement in the subsistence way of life in the study communities relate to community demographics and income.

Demographics

Based on the research done by Wolfe and Walker (1987) and Wolfe et al. (2010), it is clear that considering demographics, and persistence or changes in community demographics, is worthwhile in an attempt to understand current and past subsistence practices in the study communities. Port Alsworth is a younger town than Nondalton, but it has undergone steady growth since the 1940s. Nondalton used to be the largest community in the Iliamna Lake region, but has been declining in population since the 1990s. In the 1980s, Nondalton experienced a lack of housing, causing extended families to live in a single household (Morris 1986). New housing was built in the 1980s which led to a reduction in average household sizes. Although the composition of the 2 communities has been and remains different, those differences are becoming less pronounced.

As noted above, Wolfe and Walker (1987) found a strong correlation between the degree of settlement entry by non-Natives in a community and decreased subsistence production. Magdanz et al. (2016) performed similar analyses with an updated dataset with similar results: mean per capita harvests increased with increases in the Indigenous population of a community. Nondalton is an Alaska Native community that has become more diverse with a growing non-Native population. In contrast, Port Alsworth has always been a predominantly non-Native community but is also becoming more diverse with more Alaska Native households in the community (Table 3-2). Higher per capita harvests in Nondalton in both comprehensive study years suggest that the pattern identified by Wolfe and Walker (1987) continues in the study area.

In keeping with these demographic findings, it is perhaps unsurprising that the majority of Port Alsworth residents were not born locally and have not lived in the community for a long time. However, household heads are staying longer in the community than they were in the early 2000s. Nondalton residents, in contrast, are largely from the community and have a longer length of residency. In both study years, however, Nondalton residents had a much longer length of residency as compared to Port Alsworth residents.

Both communities show a slight imbalance of men to women, and this imbalance has grown since the 2004 study year. While female outmigration from rural Alaska has been well-documented (Hamilton and Seyfrit 1994; Martin 2009), what effect, if any, the resulting gender imbalance has on subsistence practices has not been widely investigated. In addition to changes in gender composition, the populations of both communities are becoming older, although Port Alsworth is a younger community than Nondalton. These changing household demographics likely alter subsistence productivity on the household level.

Income and Employment

In this study year as well as the previous study year in 2004, Port Alsworth households had a higher per capita income than Nondalton households (Table 1-7; Fall et al. 2006). Compared to the statewide per capita income, in both years incomes in both communities were much smaller. Nondalton per capita income grew the most relative to statewide per capita income, while Port Alsworth remained about the same in relation to statewide. As noted above, the relationship between income and subsistence harvests is nuanced. Community income is negatively correlated with subsistence productivity, while household income is positively correlated with household subsistence productivity. Magdanz et al. (2016) corroborated

these findings, showing that across all study communities, increasing income correlated with decreased harvests, but within a study community, increased household income correlated with increased subsistence harvests. If household sizes were controlled for, the correlation between income and subsistence harvests disappeared. The type of wage activity may contribute to the effect on subsistence productivity. Wolfe et al. (2010) found, and Magdanz et al. (2016) affirmed, a positive correlation between a household's participation in commercial fishing and subsistence productivity. Commercial fishing activities provide cash income, but also potentially the equipment for harvesting and means of travel to good harvesting locations. Port Alsworth residents generally do not participate in commercial fisheries. In neither of the 2 most recent study years did any resident report commercial fishing employment. Port Alsworth residents do not have a history of engaging in commercial fishing, but Nondalton residents do. While commercial fishing participation decreased in Port Alsworth, it grew in Nondalton in comparison to the 2004 study year, but was still a smaller percentage of households than in the 1980s study.

While wage-earning activities provide income, they can also take away from a household's time to pursue subsistence activities. Based on the employment data reported during household surveys, compared to 2004, residents of both Nondalton and Port Alsworth are more involved in the wage-earning economy, with a greater percentage of community adults working, a higher percentage of full-time employment, and a higher average number of weeks worked (Fall et al. 2006:24; Table 2-8; Table 3-8). The most common reason given by Port Alsworth households when asked why they used less resources during the study year was that they were working or otherwise had no time (Table 3-28). Added to this aspect of potentially less time for subsistence activities is the relative ease of getting store-bought food. Lake Clark Air participates in transporting personal shopper purchases from an online service called InstaCart, which has changed life in the community for some residents. According to one Port Alsworth resident:

> Oh man, that's [InstaCart] been a game changer. And I think it really makes it more appealing to a lot of people to live out here. 'Cuz you can get online- well, the internet has changed how everybody does everything. InstaCart wouldn't be here without the internet. Uh, yeah, InstaCart has wildly changed how and who is comfortable living out here. (PTA 01)

Another Port Alsworth key respondent commented on how the growing prevalence of smartphones in younger generations is leading to less interest in outdoor activities (PTA 02). While some Nondalton residents held similar concerns about youth engagement in subsistence, the role of store-bought foods and technology was not discussed to the same degree as in Port Alsworth. A higher prevalence of freezers has also enabled less consistent hunting and fishing because it is easier to store food, subsistence or store-bought, year-round. Other recent community studies have found similar perspectives on how access to store-bought food and technology has changed what subsistence looks like in their communities. In a study of Unalaska in 2021, respondents noted that the presence of stores in town has led to less need for subsistence fishing (Keating et al. 2022). Respondents from communities affected by the *Exxon Valdez* oil spill also discussed how the presence of store-bought foods and the income to buy food has had a negative effect on local participation in subsistence activities (Keating et al. 2020).

Conclusions

This study documented the continuing importance of wild foods to residents of Nondalton and Port Alsworth. Analyses of subsistence harvest levels, demographic characteristics, food security, community economies, and search and harvest areas help characterize contemporary subsistence harvesting practices in the study communities, but contribute to a broader understanding of subsistence harvesting practices in Alaska. The composition of subsistence harvests in the 2 study communities were similar to past harvest compositions documented, though the magnitude of the harvest has decreased since the 1980s. Sockeye salmon continues to be the most harvested wild resource in the study communities, and the presence of salmon runs each summer remain paramount to the health of the communities. The large land mammal harvest is secondary to the salmon harvest, but harvests of these animals have long been important nutritionally and culturally, especially in Nondalton (Ellanna and Balluta 1992). The loss of locally available caribou has changed

how Nondalton and Port Alsworth residents harvest large land mammals, causing a shift to relying more upon moose than in the past. Though salmon and large land mammals represent a significant portion of the harvest weight for both communities, the remainder of the harvest is diversified and composed of many species that are also important to the communities. The importance of access to a variety of wild resources was demonstrated by the number of resources harvested and used, as well as the high rate of individual participation in harvesting and processing wild resources during the study year. The continuing value and importance of supporting subsistence ways of life, for themselves and future generations, was echoed by Port Alsworth and Nondalton community members. The intent of this report has been to provide updated information that will help these communities maintain their goal of sustaining subsistence ways of life.

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APPENDIX A: SURVEY FORM (NONDALTON)

COMPREHENSIVE WILD FOOD HARVEST SURVEY

NPS LAKE CLARK

NONDALTON, ALASKA

From January 1, 2021 to December 31, 2021

OMB # 1024-0262

Expiration date: 01/31/24

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

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 skip questions or stop at any time.

HOUSEHOLD ID:		
COMMUNITY ID:	Nondalton	252
INTERVIEWER 1:		
INTERVIEWER 2:		
INTERVIEW DATE:		
START TIME:		
STOP TIME:		
DATA CODED BY:		
DATA ENTERED BY:		
SUPERVISOR:		

photo by Jessica Hay

PAPERWORK REDUCTION ACT STATEMENT:

A federal agency may not conduct or sponsor, and a person is not required to respond to, a collection of information, unless a currently valid OMB control number is displayed. 16 U.S.C.1a 7 authorizes collection of this information. This information will be used by the National Park Service, the Federal Subsistence Management Program, and the Alaska Department of Fish and Game, Division of Subsistence to understand more about the communities eligible to engage in subsistence in Lake Clark National Park and Preserve. Response to this request is voluntary. Your name will not appear anywhere on the completed survey and your responses will be completely anonymous. The public reporting burden for completing individual interviews is estimated to take 60 minutes. Please direct comments regarding any aspect of this collection to:

Elizabeth Rupp, Chief of Cultural Resources, Lake Clark National Park & Preserve Administrative HQ, 240 W 5th Avenue, Suite 236, AK 99501, (907) 644 3648 or elizabeth_rupp@nps.gov (email)

COOPERATING ORGANZATIONS

LAKE CLARK NATIONAL PARK AND PRESERVE
PO BOX 227
PORT ALSWORTH, AK 99653
907-644-3626

ALASKA DEPARTMENT OF FISH AND GAME
333 RASPBERRY RD
ANCHORAGE, AK 99518
907-267-2353

REFUSAL BIAS QUESTIONS

HOUSEHOLD ID HHID

...If the household refuses, ask…

We respect your decision not to participate. Could you please quickly answer these two short questions?

Refused to answer these questions…..... Y N *(circle one)*

1. How many people live in this household?…..... _____

2. In 2021, did anyone in this household go hunting or fishing?…..... Y N *(circle one)*

Notes/comments:

HOUSEHOLD MEMBERS

HOUSEHOLD ID HHID

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

Last year, that is, between January 1, 2021 and December 31, 2021 WHO were the head or heads of your household?

Is this person answering questions on this survey?		How is this person related to HEAD 1?	Is this person MALE or FEMALE?	Is this person an ALASKA NATIVE?	In what YEAR was this person born?	Where were parents living when this person was born?	How many years has this person lived in Nondalton?
ID #	*(circle)*	*(relation)*	*(circle)*	*(circle)*	*(year)*	*(AK city or state)*	*(number)*
HEAD 1	Y N		M F	Y N			
1							
NEXT enter spouse or partner. If a household has a SINGLE HEAD, leave HEAD 2 row BLANK and move to PERSON 3.							
HEAD 2	Y N		M F	Y N			
2							
BELOW, enter children (oldest to youngest), grandchildren, grandparents, or anyone else living full-time in this household.							
PERSON 03	Y N		M F	Y N			
3							
PERSON 04	Y N		M F	Y N			
4							
PERSON 05	Y N		M F	Y N			
5							
PERSON 06	Y N		M F	Y N			
6							
PERSON 07	Y N		M F	Y N			
7							
PERSON 08	Y N		M F	Y N			
8							
PERSON 09	Y N		M F	Y N			
9							
PERSON 10	Y N		M F	Y N			
10							
PERSON 11	Y N		M F	Y N			
11							
PERSON 12	Y N		M F	Y N			
12							
PERSON 13	Y N		M F	Y N			
13							
PERSON 14	Y N		M F	Y N			
14							
PERSON 15	Y N		M F	Y N			
15							

PERMANENT HH MEMBERS: 01 **NONDALTON: 252**

HOUSEHOLD PARTICIPATION

HOUSEHOLD ID HHID

To continue our questions about people in your household, I would like to ask a few questions about participation in harvesting wild foods…

Between January 1, 2021 and December 31, 2021 ...

Did this person….

PERSON ID FROM PAGE 2	FISH		MARINE INVERTEBRATES		LARGE LAND MAMMALS		SMALL LAND MAMMALS/ FURBEARERS		MARINE MAMMALS		BIRDS AND EGGS		PLANTS/ BERRIES/ WOOD	
	FISH FOR	PROCESS	GATHER	PROCESS	HUNT	PROCESS	HUNT / TRAP	PROCESS	HUNT	PROCESS	GATHER	PROCESS	GATHER	PROCESS
ID #	*(circle)*	*(circle)*	*(circle)*	*(circle)*	*(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	Y N	Y N	Y N	Y N
1														
HEAD 2	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
2														
PERSON 03	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
3														
PERSON 04	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
4														
PERSON 05	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
5														
PERSON 06	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
6														
PERSON 07	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
7														
PERSON 08	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
8														
PERSON 09	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
9														
PERSON 10	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
10														
PERSON 11	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
11														
PERSON 12	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
12														
PERSON 13	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
13														
PERSON 14	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
14														
PERSON 15	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
15														

PERMANENT HH MEMBERS: 01 **NONDALTON: 252**

HOUSEHOLD PARTICIPATION

HOUSEHOLD ID HHID

… Continued from previous page

Between January 1, 2021 and December 31, 2021 ...

Did this person….

PERSON ID FROM PAGE 2	BUILD FISH TRAPS	BUILD SLEDS	SEW SKINS	COOK WILD FOODS	MAKE HANDI-CRAFTS W/ NATURAL MATERIALS	BUILD A SHELTER, CABIN, LEAN-TO, etc.
ID #	*(circle)*	*(circle)*	*(circle)*	*(circle)*	*(circle)*	*(circle)*
HEAD 1	Y N	Y N	Y N	Y N	Y N	Y N
1						
HEAD 2	Y N	Y N	Y N	Y N	Y N	Y N
2						
PERSON 03	Y N	Y N	Y N	Y N	Y N	Y N
3						
PERSON 04	Y N	Y N	Y N	Y N	Y N	Y N
4						
PERSON 05	Y N	Y N	Y N	Y N	Y N	Y N
5						
PERSON 06	Y N	Y N	Y N	Y N	Y N	Y N
6						
PERSON 07	Y N	Y N	Y N	Y N	Y N	Y N
7						
PERSON 08	Y N	Y N	Y N	Y N	Y N	Y N
8						
PERSON 09	Y N	Y N	Y N	Y N	Y N	Y N
9						
PERSON 10	Y N	Y N	Y N	Y N	Y N	Y N
10						
PERSON 11	Y N	Y N	Y N	Y N	Y N	Y N
11						
PERSON 12	Y N	Y N	Y N	Y N	Y N	Y N
12						
PERSON 13	Y N	Y N	Y N	Y N	Y N	Y N
13						
PERSON 14	Y N	Y N	Y N	Y N	Y N	Y N
14						
PERSON 15	Y N	Y N	Y N	Y N	Y N	Y N
15						

PERMANENT HH MEMBERS: 01 **NONDALTON: 252**

RETAINED COMMERCIAL HARVESTS

HOUSEHOLD ID HHID

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

2. During the last year (January 1, 2021 and December 31, 2021),
did you, or members of your houseohld PARTICIPATE in any commercial fishery?..... Y N

IF the answer to QUESTION 2 is NO, go to the *NEXT PAGE* .

IF the answer to QUESTION 2 is *YES*, continue on this page...

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

A … FISH commercially for _____?

B … KEEP any ____ from your commercial catch for your own use[2] or to share?

C Was the ____ that you kept INCIDENTAL[4] catch?

if keep is "yes"

Please estimate how many fish ALL MEMBERS OF YOUR HOUSEHOLD removed from commercial harvests for personal use during the last year.

Include COMMERCIALLY HARVESTED fish that members of this household gave away, ate fresh, fed to dogs, lost to spoilage, or got by helping others. If helping others, report ONLY THIS HOUSEHOLD's share.

Read names below in blanks above	A COMM FISH?	B KEEP?	C INCI?	How many were removed for your OWN USE?[5] *number*	How many were removed for your CREW?[5] *number*	How many were removed for your OTHERS? *number*	Units[3] *specify*	*comments*
CHINOOK (KING) SALMON	Y N	Y N	Y N				IND.	
113000001								
CHUM (DOG) SALMON	Y N	Y N	Y N				IND.	
111000001								
SOCKEYE (RED) SALMON	Y N	Y N	Y N				IND.	
115000001								
PINK (HUMPIES) SALMON	Y N	Y N	Y N				IND.	
114000001								
COHO (SILVER) SALMON	Y N	Y N	Y N				IND.	
112000001								
SALMON - UNKNOWN	Y N	Y N	Y N				IND.	
119000001								
	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					

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*
2 *"USE" includes eating, feeding to dogs, sharing or trading with others, etc.*
3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*
4 *"INCIDENTAL CATCH" means the fish kept was not being commercially fished. For example, a king salmon kept from a chum commerical fishery.*
5 *Double counting (captains' removals for crew members and crew members' removal for own uses) is fixed in analysis. Collect both.*

HARVESTS: SALMON

HOUSEHOLD ID HHID

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

2. During the last year (January 1, 2021 and December 31, 2021),
did you, or members of your household USE or TRY TO HARVEST salmon ?..... Y N

IF the answer to QUESTION 2 is NO, go to the *NEXT PAGE* .

IF the answer to QUESTION 2 is *YES*, continue on this page...

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

A … use[2] _____?
B … receive _____ from another HH or community?
C … give ____ to another HH or community?
D …try[2] to harvest _____?
E … actually harvest any _____?

if harvest is "yes"

Please estimate how many salmon ALL MEMBERS OF YOUR HOUSEHOLD got during the last year. How many were harvested with ….

INCLUDE salmon that members of this household gave away, ate fresh, fed to dogs, lost to spoilage, or got by helping others. If fishing with or helping others, report ONLY THIS HOUSEHOLD'S share of the harvest. DO NOT INCLUDE catch and release fish or retained commercial harvests.

Read names below in blanks above	A USE	B REC	C GIVE	D TRY	E HAR	GILL NET	SEINE	ROD & REEL[3]	OTHER GEAR (specify type)	Units[4]	# of those used just for dog food?
						(number harvested by each gear type)			*amount / type*	*unit*	*amount*
SOCKEYE (RED) SALMON	Y N	Y N	Y N	Y N	Y N				/	IND.	
115000000											
SPAWNING REDS	Y N	Y N	Y N	Y N	Y N				/	IND.	
117050000											
CHUM (DOG) SALMON	Y N	Y N	Y N	Y N	Y N				/	IND.	
111000000											
CHINOOK (KING) SALMON	Y N	Y N	Y N	Y N	Y N				/	IND.	
113000000											
PINK SALMON (HUMPIES)	Y N	Y N	Y N	Y N	Y N				/	IND.	
114000000											
COHO (SILVER) SALMON	Y N	Y N	Y N	Y N	Y N				/	IND.	
112000000											
LANDLOCKED SALMON	Y N	Y N	Y N	Y N	Y N				/	IND.	
116000000											
UNKNOWN SALMON	Y N	Y N	Y N	Y N	Y N				/	IND.	
119000000											
	Y N	Y N	Y N	Y N	Y N				/		
	Y N	Y N	Y N	Y N	Y N				/		
	Y N	Y N	Y N	Y N	Y N				/		

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

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

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*
2 *"USE" includes eating, feeding to dogs, sharing or trading with others, etc.*
3 *"ROD AND REEL" includes fish caught in open water with a hook and a line attached to a rod or a pole.*
4 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

SALMON: 04 **NONDALTON: 252**

HARVEST SUMMARY: SALMON

HOUSEHOLD ID HHID

If this household DID NOT USE or HARVEST salmon last year, go to the ASSESSMENT section below.

Otherwise, continue with mapping, and assessment sections…

MAPPING *Refer to data collection maps and mapping instructions to map salmon…*

ASSESSMENTS: SALMON 110000000

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

During the last year,[1]

...Did your household use LESS, SAME, or MORE salmon than in recent years?..... X L S M

X = do not use

IF LESS or MORE …

WHY was your use different? _____ 1

_____ 2

During the last year,[1]

… did your household GET ENOUGH salmon?..... Y N

IF NO…

What KIND of salmon did you need? _____

How would you describe the impact to your household of not getting enough last year?

not noticable?	*minor?*	*moderate?*	*major?*	*severe?*
(0)	(1)	(2)	(3)	(4)

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ASSESSMENTS OF SALMON: 66 **NONDALTON: 252**

HARVESTS: OTHER FISH

HOUSEHOLD ID HHID

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

2. During the last year (January 1, 2021 and December 31, 2021),
did you, or members of your household USE or TRY TO HARVEST other fish ?..... Y N

IF the answer to QUESTION 2 is NO, go to the *NEXT PAGE* .

IF the answer to QUESTION 2 is *YES*, continue on this page...

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

A … use[2] _____?
B … receive _____ from another HH or community?
C … give ____ to another HH or community?
D …try[2] to harvest _____?
E … actually harvest any _____?

if harvest is "yes"

Please estimate how many other fish ALL MEMBERS OF YOUR HOUSEHOLD got during the last year. How many were harvested with ….

INCLUDE other fish that members of this household gave away, ate fresh, fed to dogs, lost to spoilage, or got by helping others. If fishing with or helping others, report ONLY THIS HOUSEHOLD'S share of the harvest. DO NOT INCLUDE catch and release fish or retained commercial harvests.

Read names below in blanks above	A USE	B REC	C GIVE	D TRY	E HAR	GILL NET OR SEINE	NET UNDER ICE	ICE FISHING HAND-LINE	ROD & REEL[3]	OTHER GEAR (specify type)	Units[4]	# of those used just for dog food?
						(number harvested by each gear type)				*amount / type*	*unit*	*amount*
DOLLY VARDEN (TROUT)	Y N	Y N	Y N	Y N	Y N					/	IND.	
125006990												
ARCTIC CHAR	Y N	Y N	Y N	Y N	Y N					/	IND.	
125002000												
LAKE TROUT	Y N	Y N	Y N	Y N	Y N					/	IND.	
125010000												
RAINBOW TROUT	Y N	Y N	Y N	Y N	Y N					/	IND.	
126204000												
STEELHEAD	Y N	Y N	Y N	Y N	Y N					/	IND.	
126206000												
UNKNOWN TROUT	Y N	Y N	Y N	Y N	Y N					/	IND.	
126299000												
ARCTIC GRAYLING	Y N	Y N	Y N	Y N	Y N					/	IND.	
125200000												
NORTHERN PIKE	Y N	Y N	Y N	Y N	Y N					/	IND.	
125400000												
ROUND WHITEFISH "CANDLEFISH"	Y N	Y N	Y N	Y N	Y N					/	IND.	
126412000												
HUMPBACK WHITEFISH	Y N	Y N	Y N	Y N	Y N					/	IND.	
126408000												
BROAD WHITEFISH	Y N	Y N	Y N	Y N	Y N					/	IND.	
126404000												

… Continue on next page

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*
2 *"USE" includes eating, feeding to dogs, sharing or trading with others, etc.*
3 *"ROD AND REEL" includes fish caught in open water with a hook and a line attached to a rod or a pole.*
4 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

HARVESTS: OTHER FISH

HOUSEHOLD ID HHID

IF this household did not USE or TRY TO HARVEST other fish during the last year (January 1, 2021 and December 31, 2021) skip this page.

…continued from previous page

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

- **A** … use[2] _____?
- **B** … receive _____ from another HH or community?
- **C** … give ____ to another HH or community?
- **D** …try[2] to harvest _____?
- **E** … actually harvest any _____?

if harvest is "yes"

Please estimate how many other fish ALL MEMBERS OF YOUR HOUSEHOLD got during the last year. How many were harvested with ….

INCLUDE other fish that members of this household gave away, ate fresh, fed to dogs, lost to spoilage, or got by helping others. If fishing with or helping others, report ONLY THIS HOUSEHOLD'S share of the harvest. DO NOT INCLUDE catch and release fish or retained commercial harvests.

Read names below in blanks above	A USE	B REC	C GIVE	D TRY	E HAR	GILL NET OR SEINE	NET UNDER ICE	ICE FISHING HAND-LINE	ROD & REEL	OTHER GEAR (specify type)	amount / type	Units[4] unit	# of those used just for dog food? amount
						(number harvested by each gear type)							
LEAST CISCO	Y N	Y N	Y N	Y N	Y N						/	IND	
126406060													
BULLHEAD SCULPIN	Y N	Y N	Y N	Y N	Y N						/	IND.	
123004000													
BURBOT	Y N	Y N	Y N	Y N	Y N						/	IND.	
124800000													
ALASKA BLACKFISH	Y N	Y N	Y N	Y N	Y N						/	IND.	
124600000													
LONGNOSE SUCKER	Y N	Y N	Y N	Y N	Y N						/	IND.	
126000000													
SMELT	Y N	Y N	Y N	Y N	Y N						/	GAL.	
120499000													
STICKLEBACK (NEEDLEFISH)	Y N	Y N	Y N	Y N	Y N						/	GAL.	
123800000													
	Y N	Y N	Y N	Y N	Y N						/		
	Y N	Y N	Y N	Y N	Y N						/		
	Y N	Y N	Y N	Y N	Y N						/		
	Y N	Y N	Y N	Y N	Y N						/		
	Y N	Y N	Y N	Y N	Y N						/		

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

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

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*
2 *"USE" includes eating, feeding to dogs, sharing or trading with others, etc.*
3 *"ROD AND REEL" includes fish caught in open water with a hook and a line attached to a rod or a pole.*
4 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

HARVEST SUMMARY: OTHER FISH

HOUSEHOLD ID HHID

If this household DID NOT USE or HARVEST other fish last year, go to the ASSESSMENT section below.
Otherwise, continue with mapping, and assessment sections…

MAPPING *Refer to data collection maps and mapping instructions to map other fish…*

ASSESSMENTS: OTHER FISH 120000000

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

During the last year,[1]

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

X = do not use

IF LESS or MORE …

WHY was your use different? _____ 1

_____ 2

During the last year,[1]

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

IF NO…

What KIND of other fish did you need? _____

How would you describe the impact to your household of not getting enough last year?

not noticable?	*minor?*	*moderate?*	*major?*	*severe?*
(0)	(1)	(2)	(3)	(4)

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ASSESSMENTS OF OTHER FISH: 66 **NONDALTON: 252**

HARVESTS: MARINE INVERTEBRATES

HOUSEHOLD ID HHID

1. Do you or members of your household USUALLY harvest marine invertebrates?..... Y N

2. During the last year (January 1, 2021 and December 31, 2021),
did you, or members of your household USE or TRY TO HARVEST marine invertebrates ?..... Y N

IF the answer to QUESTION 2 is NO, go to the NEXT PAGE.

IF the answer to QUESTION 2 is *YES*, continue on this page...

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

A … use[2] _____?
B … receive _____ from another HH or community?
C … give ____ to another HH or community?
D …try[2] to harvest _____?
E … actually harvest any _____?

if harvest is "yes"

Please estimate how many marine invertebrates ALL MEMBERS OF YOUR HOUSEHOLD got during the last year. How many were harvested?

INCLUDE marine invertebrates that members of this household gave away, ate fresh, fed to dogs, lost to spoilage, or got by helping others. If harvesting with or helping others, report ONLY THIS HOUSEHOLD'S share of the harvest. DO NOT INCLUDE retained commercial harvests.

Read names below in blanks above	A USE	B REC	C GIVE	D TRY	E HAR	Amount *(amount)*	Units[3] *unit*	Comments
FRESHWATER CLAMS	Y N	Y N	Y N	Y N	Y N		GAL.	
500604000								
BUTTER CLAMS	Y N	Y N	Y N	Y N	Y N		GAL.	
500602000								
RAZOR CLAMS	Y N	Y N	Y N	Y N	Y N		GAL.	
500612000								
PACIFIC LITTLENECK CLAMS (STEAMERS)	Y N	Y N	Y N	Y N	Y N		GAL.	
500608000								
UNKNOWN CLAMS	Y N	Y N	Y N	Y N	Y N		GAL.	
500699000								
COCKLES	Y N	Y N	Y N	Y N	Y N		GAL.	
500899000								
MUSSELS	Y N	Y N	Y N	Y N	Y N		GAL.	
502099000								
DUNGENESS CRAB	Y N	Y N	Y N	Y N	Y N		IND.	
501004000								
KING CRAB	Y N	Y N	Y N	Y N	Y N		IND.	
501008990								
	Y N	Y N	Y N	Y N	Y N			
	Y N	Y N	Y N	Y N	Y N			

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

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

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*
2 *"USE" includes eating, feeding to dogs, sharing or trading with others, etc.*
3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

MARINE INVERTEBRATES: 08 **NONDALTON: 252**

HARVEST SUMMARY: MARINE INVERTEBRATES

HOUSEHOLD ID HHID

If this household DID NOT USE or HARVEST marine invertebrates last year, go to the ASSESSMENT section below.

Otherwise, continue with mapping, and assessment sections…

MAPPING *Refer to data collection maps and mapping instructions to map marine invertebrates…*

ASSESSMENTS: MARINE INVERTEBRATES 500000000

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

During the last year,[1]

...Did your household use LESS, SAME, or MORE marine invertebrates than in recent years?..... X L S M

X = do not use

IF LESS or MORE …

WHY was your use different? _____ 1

_____ 2

During the last year,[1]

… did your household GET ENOUGH marine invertebrates?..... Y N

IF NO…

What KIND of marine invertebrates did you need? _____

How would you describe the impact to your household of not getting enough last year?

not noticable?	*minor?*	*moderate?*	*major?*	*severe?*
(0)	(1)	(2)	(3)	(4)

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ASSESSMENTS OF MARINE INVERTEBRATES: 66 **NONDALTON: 252**

HARVESTS: LARGE LAND MAMMALS

HOUSEHOLD ID HHID

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

2. During the last year (January 1, 2021 and December 31, 2021),
did you, or members of your household USE or TRY TO HARVEST large land mammals ?..... Y N

IF the answer to QUESTION 2 is NO, go to the NEXT PAGE.

IF the answer to QUESTION 2 is *YES*, continue on this page...

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

A … use[2] _____?
B … receive _____ from another HH or community?
C … give ____ to another HH or community?
D …try[2] to harvest _____?
E … actually harvest any _____?

if harvest is "yes"

Please estimate how many large land mammals ALL MEMBERS OF YOUR HOUSEHOLD got during the last year.

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

Read names below in blanks above	A USE	B REC	C GIVE	D TRY	E HAR	SEX	January	February	March	April	May	June	July	August	September	October	November	December	Unknown	Units[3]	# used for food or food & fur?
						M/F	(specify amount harvested per month)														(num)
CARIBOU	Y N	Y N	Y N	Y N	Y N	M														IND.	
						F														IND.	
211000000						UNK														IND.	
211000001						1															
211000002						2															
211000009						-9															
MOOSE	Y N	Y N	Y N	Y N	Y N	M														IND.	
						F														IND.	
211800000						UNK														IND.	
211800001						1															
211800002						2															
211800009						-9															
BLACK BEAR	Y N	Y N	Y N	Y N	Y N															IND.	
210600000																					
BROWN BEAR	Y N	Y N	Y N	Y N	Y N															IND.	
210800000																					
SHEEP	Y N	Y N	Y N	Y N	Y N															IND.	
212200000																					
GOAT	Y N	Y N	Y N	Y N	Y N															IND.	
211600000																					
	Y N	Y N	Y N	Y N	Y N																
	Y N	Y N	Y N	Y N	Y N																
	Y N	Y N	Y N	Y N	Y N																

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

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

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*
2 *"USE" includes eating, feeding to dogs, sharing or trading with others, etc.*
3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

LARGE LAND MAMMALS: 10 **NONDALTON: 252**

HARVEST SUMMARY: LARGE LAND MAMMALS

HOUSEHOLD ID HHID

If this household DID NOT USE or HARVEST large land mammals last year, go to the ASSESSMENT section below.

Otherwise, continue with mapping, and assessment sections…

MAPPING *Refer to data collection maps and mapping instructions to map large land mammals…*

ASSESSMENTS: LARGE LAND MAMMALS 210000000

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

During the last year,[1]

...Did your household use LESS, SAME, or MORE large land mammals than in recent years?..... X L S M

X = do not use

IF LESS or MORE …

WHY was your use different? 1 _____

2 _____

During the last year,[1]

… did your household GET ENOUGH large land mammals?..... Y N

IF NO…

What KIND of large land mammals did you need? _____

How would you describe the impact to your household of not getting enough last year?

not noticable?	*minor?*	*moderate?*	*major?*	*severe?*
(0)	(1)	(2)	(3)	(4)

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ASSESSMENTS OF LARGE LAND MAMMALS: 66 **NONDALTON: 252**

HARVESTS: SMALL LAND MAMMALS OR FURBEARERS

HOUSEHOLD ID HHID

1. Do you or members of your household USUALLY hunt or trap for small land mammals or furbearers ?..... Y N

2. During the last year (January 1, 2021 and December 31, 2021),
did you, or members of your household USE or TRY TO HARVEST small land mammals or furbearers ?..... Y N

IF the answer to QUESTION 2 is NO, go to the NEXT PAGE.

IF the answer to QUESTION 2 is *YES*, continue on this page...

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

A … use[2] _____?
B … receive _____ from another HH or community?
C … give ____ to another HH or community?
D …try[2] to harvest _____?
E … actually harvest any _____?

if harvest is "yes"

Please estimate how many small land mammals or furbearers ALL MEMBERS OF YOUR HOUSEHOLD got during the last year.

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

Read names below in blanks above	A USE	B REC	C GIVE	D TRY	E HAR	January	February	March	April	May	June	July	August	September	October	November	December	Unknown	# used for food or food & fur? (num)	Units[3]
						(specify amount harvested per month)														
RED FOX	Y N	Y N	Y N	Y N	Y N															IND.
220804040																				
BEAVER	Y N	Y N	Y N	Y N	Y N															IND.
220200000																				
COYOTE	Y N	Y N	Y N	Y N	Y N															IND.
220400000																				
SNOWSHOE HARE	Y N	Y N	Y N	Y N	Y N															IND.
221004000																				
RIVER (LAND) OTTER	Y N	Y N	Y N	Y N	Y N															IND.
221200000																				
LYNX	Y N	Y N	Y N	Y N	Y N															IND.
221600000																				
MARMOT	Y N	Y N	Y N	Y N	Y N															IND.
221800000																				
MARTEN	Y N	Y N	Y N	Y N	Y N															IND.
222000000																				
MINK	Y N	Y N	Y N	Y N	Y N															IND.
222200000																				
MUSKRAT	Y N	Y N	Y N	Y N	Y N															IND.
222400000																				
PORCUPINE	Y N	Y N	Y N	Y N	Y N															IND.
222600000																				

… continue on next page

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*
2 *"USE" includes eating, feeding to dogs, sharing or trading with others, etc.*
3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

SMALL LAND MAMMALS OR FURBEARERS: 14 **NONDALTON: 252**

HARVESTS: SMALL LAND MAMMALS OR FURBEARERS

HOUSEHOLD ID HHID

IF this household did not USE or TRY TO HARVEST small land mammals or furbearers during the last year (January 1, 2021 and December 31, 2021) skip this page.

… continued from previous page

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

- **A** … use[2] ______?
- **B** … receive _____ from another HH or community?
- **C** … give ____ to another HH or community?
- **D** …try[2] to harvest _____?
- **E** … actually harvest any ________?

if harvest is "yes" →

Please estimate how many small land mammals or furbearers ALL MEMBERS OF YOUR HOUSEHOLD got during the last year.

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

Read names below in blanks above	A USE	B REC	C GIVE	D TRY	E HAR	January	February	March	April	May	June	July	August	September	October	November	December	Unknown	# used for food or food & fur?	Units[3]
						(specify amount harvested per month)													*(num)*	
WEASEL 223000000	Y N	Y N	Y N	Y N	Y N															IND.
WOLF 223200000	Y N	Y N	Y N	Y N	Y N															IND.
WOLVERINE 223400000	Y N	Y N	Y N	Y N	Y N															IND.
RED TREE SQUIRREL 222804000	Y N	Y N	Y N	Y N	Y N															IND.
PARKA SQUIRREL (GROUND) 222802000	Y N	Y N	Y N	Y N	Y N															IND.
	Y N	Y N	Y N	Y N	Y N															
	Y N	Y N	Y N	Y N	Y N															
	Y N	Y N	Y N	Y N	Y N															
	Y N	Y N	Y N	Y N	Y N															
	Y N	Y N	Y N	Y N	Y N															
	Y N	Y N	Y N	Y N	Y N															
	Y N	Y N	Y N	Y N	Y N															

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

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

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*
2 *"USE" includes eating, feeding to dogs, sharing or trading with others, etc.*
3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

HARVEST SUMMARY: SMALL LAND MAMMALS/FURBEARERS

HOUSEHOLD ID HHID

If this household DID NOT USE or HARVEST small land mammals/furbearers last year, go to the ASSESSMENT section below.

Otherwise, continue with mapping, and assessment sections…

MAPPING *Refer to data collection maps and mapping instructions to map small land mammals/furbearers…*

ASSESSMENTS: SMALL LAND MAMMALS/FURBEARERS 220000000

To conclude our small land mammals/furbearers section, I am going to ask a few general questions about small land mammals/furbearers.

During the last year,[1]

...Did your household use LESS, SAME, or MORE small land mammals/furbearers than in recent years?..... X L S M

X = do not use

IF LESS or MORE …

WHY was your use different? _____ 1

_____ 2

During the last year,[1]

… did your household GET ENOUGH small land mammals/furbearers?..... Y N

IF NO…

What KIND of small land mammals/furbearers did you need? _____

How would you describe the impact to your household of not getting enough last year?

not noticable?	*minor?*	*moderate?*	*major?*	*severe?*
(0)	(1)	(2)	(3)	(4)

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ASSESSMENTS OF SMALL LAND MAMMALS/FURBEARERS: 66 **NONDALTON: 252**

HARVESTS: MARINE MAMMALS

HOUSEHOLD ID HHID

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

2. During the last year (January 1, 2021 and December 31, 2021),
did you, or members of your household USE or TRY TO HARVEST marine mammals ?..... Y N

IF the answer to QUESTION 2 is NO, go to the NEXT PAGE.

IF the answer to QUESTION 2 is *YES*, continue on this page...

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

A … use[2] _____?
B … receive _____ from another HH or community?
C … give ____ to another HH or community?
D …try[2] to harvest _____?
E … actually harvest any _____?

if harvest is "yes"

Please estimate how many marine mammals ALL MEMBERS OF YOUR HOUSEHOLD got during the last year.

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

Read names below in blanks above	A USE	B REC	C GIVE	D TRY	E HAR	SEX M/F	January	February	March	April	May	June	July	August	September	October	November	December	Unknown	Units[3] (specify)
STELLER SEA LION	Y N	Y N	Y N	Y N	Y N	M														IND.
						F														IND.
301200000						UNK														IND.
301200001						1														
301200002						2														
301200009						-9														
FRESHWATER SEAL	Y N	Y N	Y N	Y N	Y N															IND.
300806020																				
HARBOR SEAL	Y N	Y N	Y N	Y N	Y N															IND.
300806000																				
BELUGA	Y N	Y N	Y N	Y N	Y N															IND.
301602000																				
SEA OTTER	Y N	Y N	Y N	Y N	Y N															IND.
301000000																				
	Y N	Y N	Y N	Y N	Y N															
	Y N	Y N	Y N	Y N	Y N															
	Y N	Y N	Y N	Y N	Y N															
	Y N	Y N	Y N	Y N	Y N															
	Y N	Y N	Y N	Y N	Y N															

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

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

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*
2 *"USE" includes eating, feeding to dogs, sharing or trading with others, etc.*
3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

MARINE MAMMALS: 12 **NONDALTON: 252**

HARVEST SUMMARY: MARINE MAMMALS

HOUSEHOLD ID HHID

If this household DID NOT USE or HARVEST marine mammals last year, go to the ASSESSMENT section below.

Otherwise, continue with mapping, and assessment sections…

MAPPING *Refer to data collection maps and mapping instructions to map marine mammals…*

ASSESSMENTS: MARINE MAMMALS 300000000

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

During the last year,[1]

...Did your household use LESS, SAME, or MORE marine mammals than in recent years?..... X L S M

X = do not use

IF LESS or MORE …

WHY was your use different? _____ 1

_____ 2

During the last year,[1]

… did your household GET ENOUGH marine mammals?..... Y N

IF NO…

What KIND of marine mammals did you need? _____

How would you describe the impact to your household of not getting enough last year?

not noticable?	*minor?*	*moderate?*	*major?*	*severe?*
(0)	(1)	(2)	(3)	(4)

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ASSESSMENTS OF MARINE MAMMALS: 66 **NONDALTON: 252**

HARVESTS: BIRDS

HOUSEHOLD ID HHID

1. Do you or members of your household USUALLY hunt for birds ?..... Y N

2. During the last year (January 1, 2021 and December 31, 2021),
did you, or members of your household USE or TRY TO HARVEST birds ?..... Y N

IF the answer to QUESTION 2 is NO, go to the NEXT PAGE.

IF the answer to QUESTION 2 is *YES*, continue on this page...

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

A … use[2] _____?
B … receive _____ from another HH or community?
C … give ____ to another HH or community?
D …try[2] to harvest _____?
E … actually harvest any _____?

if harvest is "yes"

Please estimate how many birds ALL MEMBERS OF YOUR HOUSEHOLD got during the last year.

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

Read names below in blanks above	A USE	B REC	C GIVE	D TRY	E HAR	November - March WINTER	April - June SPRING	July - August SUMMER	September - October FALL	Season of harvest unknown *(number)*	Units[3] *(specify)*
						(specify amount harvested per season)					
AMERICAN WIGEON	Y N	Y N	Y N	Y N	Y N						IND.
410236000											
TEAL	Y N	Y N	Y N	Y N	Y N						IND.
410232990											
MALLARD	Y N	Y N	Y N	Y N	Y N						IND.
410214000											
NORTHERN PINTAIL	Y N	Y N	Y N	Y N	Y N						IND.
410220000											
NORTHERN SHOVELER	Y N	Y N	Y N	Y N	Y N						IND.
410230000											
BLACK SCOTER	Y N	Y N	Y N	Y N	Y N						IND.
410228020											
SURF SCOTER	Y N	Y N	Y N	Y N	Y N						IND.
410228040											
WHITE-WINGED SCOTER	Y N	Y N	Y N	Y N	Y N						IND.
410228060											
BUFFLEHEAD (BUTTERBALL)	Y N	Y N	Y N	Y N	Y N						IND.
410202000											
GOLDENEYE	Y N	Y N	Y N	Y N	Y N						IND.
410210990											
SCAUP	Y N	Y N	Y N	Y N	Y N						IND.
410226990											

… continue on next page

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*
2 *"USE" includes eating, feeding to dogs, sharing or trading with others, etc.*
3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

BIRDS: 15 **NONDALTON: 252**

HARVESTS: BIRDS

HOUSEHOLD ID HHID

IF this household did not USE or TRY TO HARVEST birds during the last year (January 1, 2021 and December 31, 2021) skip this page.

… continued from previous page

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

A … use[2] _____?
B … receive _____ from another HH or community?
C … give ____ to another HH or community?
D …try[2] to harvest _____?
E … actually harvest any _____?

if harvest is "yes"

Please estimate how many birds ALL MEMBERS OF YOUR HOUSEHOLD got during the last year.

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

Read names below in blanks above	A USE	B REC	C GIVE	D TRY	E HAR	November - March WINTER	April - June SPRING	July - August SUMMER	September - October FALL	Season of harvest unknown (number)	Units[3] (specify)
						(specify amount harvested per season)					
COMMON EIDER	Y N	Y N	Y N	Y N	Y N						IND.
410206020											
KING EIDER	Y N	Y N	Y N	Y N	Y N						IND.
410206040											
SPECTACLED EIDER	Y N	Y N	Y N	Y N	Y N						IND.
410206060											
STELLER'S EIDER	Y N	Y N	Y N	Y N	Y N						IND.
410206080											
HARLEQUIN DUCK	Y N	Y N	Y N	Y N	Y N						IND.
410212000											
LONG-TAILED DUCK	Y N	Y N	Y N	Y N	Y N						IND.
410218000											
MERGANSER	Y N	Y N	Y N	Y N	Y N						IND.
410216990											
BLACK BRANT	Y N	Y N	Y N	Y N	Y N						IND.
410402000											
CACKLING/CANADA GOOSE	Y N	Y N	Y N	Y N	Y N						IND.
410404990											
GREATER WHITE-FRONTED GOOSE	Y N	Y N	Y N	Y N	Y N						IND.
410410000											
EMPEROR GOOSE	Y N	Y N	Y N	Y N	Y N						IND.
410406000											
SNOW GOOSE	Y N	Y N	Y N	Y N	Y N						IND.
410408000											

… continue on next page

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*
2 *"USE" includes eating, feeding to dogs, sharing or trading with others, etc.*
3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

HARVESTS: BIRDS

HOUSEHOLD ID HHID

IF this household did not USE or TRY TO HARVEST birds during the last year (January 1, 2021 and December 31, 2021) skip this page.

… continued from previous page

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

A … use[2] _____?
B … receive _____ from another HH or community?
C … give ____ to another HH or community?
D …try[2] to harvest _____?
E … actually harvest any _____?

if harvest is "yes"

Please estimate how many birds ALL MEMBERS OF YOUR HOUSEHOLD got during the last year.

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

Read names below in blanks above	A USE	B REC	C GIVE	D TRY	E HAR	November - March WINTER	April - June SPRING	July - August SUMMER	September - October FALL	Season of harvest unknown (number)	Units[3] (specify)
						(specify amount harvested per season)					
SWAN	Y N	Y N	Y N	Y N	Y N						IND.
410699000											
SANDHILL CRANE	Y N	Y N	Y N	Y N	Y N						IND.
410802000											
GROUSE	Y N	Y N	Y N	Y N	Y N						IND.
421802990											
PTARMIGAN	Y N	Y N	Y N	Y N	Y N						IND.
421804990											
CORMORANT	Y N	Y N	Y N	Y N	Y N						IND.
411204990											
MURRE	Y N	Y N	Y N	Y N	Y N						IND.
411218990											
MEW GULL	Y N	Y N	Y N	Y N	Y N						IND.
411212080											
BLACK-LEGGED KITTIWAKE	Y N	Y N	Y N	Y N	Y N						IND.
411214020											
BONAPARTE'S/SABINE'S GULL	Y N	Y N	Y N	Y N	Y N						IND.
411212100											
LARGE GULL	Y N	Y N	Y N	Y N	Y N						IND.
411212970											
TERN	Y N	Y N	Y N	Y N	Y N						IND.
411226990											
	Y N	Y N	Y N	Y N	Y N						

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

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

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*
2 *"USE" includes eating, feeding to dogs, sharing or trading with others, etc.*
3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

BIRDS: 15 **NONDALTON: 252**

HARVESTS: BIRD EGGS

HOUSEHOLD ID HHID

1. Do you or members of your household USUALLY gather bird eggs ?..... Y N

2. During the last year (January 1, 2021 and December 31, 2021),
did you, or members of your household USE or TRY TO HARVEST bird eggs ?..... Y N

IF the answer to QUESTION 2 is NO, go to the NEXT PAGE.

IF the answer to QUESTION 2 is *YES*, continue on this page...

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

A … use[2] _____?
B … receive _____ from another HH or community?
C … give ____ to another HH or community?
D …try[2] to harvest _____?
E … actually harvest any _____?

if harvest is "yes"

Please estimate how many bird eggs ALL MEMBERS OF YOUR HOUSEHOLD got during the last year.

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

Read names below in blanks above	A USE	B REC	C GIVE	D TRY	E HAR	AMOUNT	Units[3] (specify)	COMMENTS
MALLARD EGGS	Y N	Y N	Y N	Y N	Y N		IND.	
430214000								
MURRE EGGS	Y N	Y N	Y N	Y N	Y N		IND.	
431218990								
MEW GULL EGGS	Y N	Y N	Y N	Y N	Y N		IND.	
431212080								
BLACK-LEGGED KITTIWAKE EGGS	Y N	Y N	Y N	Y N	Y N		IND.	
431214020								
LARGE GULL EGGS	Y N	Y N	Y N	Y N	Y N		IND.	
431212971								
TERN EGGS	Y N	Y N	Y N	Y N	Y N		IND.	
431226990								
LARGE SHOREBIRD EGGS	Y N	Y N	Y N	Y N	Y N		IND.	
431099020								
SMALL SHOREBIRD EGGS	Y N	Y N	Y N	Y N	Y N		IND.	
431099010								
	Y N	Y N	Y N	Y N	Y N			
	Y N	Y N	Y N	Y N	Y N			
	Y N	Y N	Y N	Y N	Y N			

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

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

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*
2 *"USE" includes eating, feeding to dogs, sharing or trading with others, etc.*
3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

BIRD EGGS: 15 **NONDALTON: 252**

HARVEST SUMMARY: BIRDS AND EGGS

HOUSEHOLD ID HHID

If this household DID NOT USE or HARVEST birds and eggs last year, go to the ASSESSMENT section below.

Otherwise, continue with mapping, and assessment sections…

MAPPING *Refer to data collection maps and mapping instructions to map birds and eggs…*

ASSESSMENTS: BIRDS AND EGGS 400000000

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

During the last year,[1]

...Did your household use LESS, SAME, or MORE birds and eggs than in recent years?..... X L S M

X = do not use

IF LESS or MORE …

WHY was your use different? 1 _____

2 _____

During the last year,[1]

… did your household GET ENOUGH birds and eggs?..... Y N

IF NO…

What KIND of birds and eggs did you need? _____

How would you describe the impact to your household of not getting enough last year?

not noticable?	*minor?*	*moderate?*	*major?*	*severe?*
(0)	(1)	(2)	(3)	(4)

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ASSESSMENTS OF BIRDS AND EGGS: 66 **NONDALTON: 252**

HARVESTS: PLANTS AND BERRIES (INCLUDING WOOD)

HOUSEHOLD ID HHID

1. Do you or members of your household USUALLY gather plants and berries (including wood) ?..... Y N

2. During the last year (January 1, 2021 and December 31, 2021),
did you, or members of your household USE or TRY TO HARVEST plants and berries (including wood) ?..... Y N

IF the answer to QUESTION 2 is NO, go to the NEXT PAGE.

IF the answer to QUESTION 2 is *YES*, continue on this page...

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

A … use[2] _____?
B … receive _____ from another HH or community?
C … give ____ to another HH or community?
D …try[2] to harvest _____?
E … actually harvest any _____?

if harvest is "yes"

Please estimate how many plants and berries (including wood) ALL MEMBERS OF YOUR HOUSEHOLD got during the last year.

INCLUDE plants and berries (including wood) that members of this household gave away, ate fresh, fed to dogs, lost to spoilage, or got by helping others. If gathering with or helping others, report ONLY THIS HOUSEHOLD'S share of the harvest.

Read names below in blanks above	A USE	B REC	C GIVE	D TRY	E HAR	AMOUNT	Units[3] (specify)	COMMENTS
SALMONBERRY	Y N	Y N	Y N	Y N	Y N		GAL.	
601022000								
BLUEBERRY	Y N	Y N	Y N	Y N	Y N		GAL.	
601002000								
TRAILING RASPBERRY	Y N	Y N	Y N	Y N	Y N		GAL.	
601020000								
LOW BUSH CRANBERRY	Y N	Y N	Y N	Y N	Y N		GAL.	
601004000								
HIGH BUSH CRANBERRY	Y N	Y N	Y N	Y N	Y N		GAL.	
601006000								
CROWBERRY	Y N	Y N	Y N	Y N	Y N		GAL.	
601007000								
TWISTED STALK BERRY (WATERMELON BERRY)	Y N	Y N	Y N	Y N	Y N		GAL.	
601032000								
ELDERBERRY	Y N	Y N	Y N	Y N	Y N		GAL.	
601008000								
OTHER WILD BERRY	Y N	Y N	Y N	Y N	Y N		GAL.	
601099000								
STRAWBERRY	Y N	Y N	Y N	Y N	Y N		GAL.	
601026000								
WILD RHUBARB	Y N	Y N	Y N	Y N	Y N		GAL.	
602006000								
GOOSE TONGUE	Y N	Y N	Y N	Y N	Y N		GAL.	
602004000								

… continue on next page

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*
2 *"USE" includes eating, feeding to dogs, sharing or trading with others, etc.*
3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

HARVESTS: PLANTS AND BERRIES (INCLUDING WOOD)

HOUSEHOLD ID HHID

IF this household did not USE or TRY TO HARVEST plants and berries (including wood) during the last year (January 1, 2021 and December 31, 2021) skip this page.

… continued from previous page

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

A … use[2] _____?
B … receive _____ from another HH or community?
C … give ____ to another HH or community?
D …try[2] to harvest _____?
E … actually harvest any _____?

if harvest is "yes"

Please estimate how many plants and berries (including wood) ALL MEMBERS OF YOUR HOUSEHOLD got during the last year.

INCLUDE plants and berries (including wood) that members of this household gave away, ate fresh, fed to dogs, lost to spoilage, or got by helping others. If gathering with or helping others, report ONLY THIS HOUSEHOLD'S share of the harvest.

Read names below in blanks above	A USE	B REC	C GIVE	D TRY	E HAR	AMOUNT	Units[3] (specify)	COMMENTS
NETTLE	Y N	Y N	Y N	Y N	Y N		GAL.	
602016000								
BEACH GREENS	Y N	Y N	Y N	Y N	Y N		GAL.	
602051000								
SEA LOVAGE	Y N	Y N	Y N	Y N	Y N		GAL.	
602049000								
WILD PARSLEY	Y N	Y N	Y N	Y N	Y N		GAL.	
602034000								
WILD CELERY	Y N	Y N	Y N	Y N	Y N		GAL.	
602032000								
FIDDLEHEAD FERNS	Y N	Y N	Y N	Y N	Y N		GAL.	
602014000								
FIREWEED SHOOTS	Y N	Y N	Y N	Y N	Y N		GAL.	
602042000								
SOURDOCK	Y N	Y N	Y N	Y N	Y N		GAL.	
602028000								
OTHER WILD GREENS	Y N	Y N	Y N	Y N	Y N		GAL.	
602038000								
SEAWEED/KELP *(USED FOR FOOD)*	Y N	Y N	Y N	Y N	Y N		GAL.	
603099000								
SEAWEED/KELP *(USED FOR FERTELIZER)*	Y N	Y N	Y N	Y N	Y N		GAL.	
603090000								
MUSHROOMS	Y N	Y N	Y N	Y N	Y N		GAL.	
602040000								

… continue on next page

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*
2 *"USE" includes eating, feeding to dogs, sharing or trading with others, etc.*
3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

HARVESTS: PLANTS AND BERRIES (INCLUDING WOOD)

HOUSEHOLD ID HHID

IF this household did not USE or TRY TO HARVEST plants and berries (including wood) during the last year (January 1, 2021 and December 31, 2021) skip this page.

… continued from previous page

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

A … use[2] _____?
B … receive _____ from another HH or community?
C … give ____ to another HH or community?
D …try[2] to harvest _____?
E … actually harvest any _____?

if harvest is "yes"

Please estimate how many plants and berries (including wood) ALL MEMBERS OF YOUR HOUSEHOLD got during the last year.

INCLUDE plants and berries (including wood) that members of this household gave away, ate fresh, fed to dogs, lost to spoilage, or got by helping others. If gathering with or helping others, report ONLY THIS HOUSEHOLD'S share of the harvest.

Read names below in blanks above	A USE	B REC	C GIVE	D TRY	E HAR	AMOUNT	Units[3] (specify)	COMMENTS
WOOD (OTHER) *(SPECIFY USE)*	Y N	Y N	Y N	Y N	Y N		CORD.	
604000000								
FIREWOOD	Y N	Y N	Y N	Y N	Y N		CORD.	
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	Y N	Y N	Y N	Y N			
	Y N	Y N	Y N	Y N	Y N			
	Y N	Y N	Y N	Y N	Y N			
	Y N	Y N	Y N	Y N	Y N			

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

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

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*
2 *"USE" includes eating, feeding to dogs, sharing or trading with others, etc.*
3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

HARVESTS: PLANTS AND BERRIES (INCLUDING WOOD)

HOUSEHOLD ID HHID

If this household DID NOT USE or HARVEST plants and berries (including wood) last year, go to the ASSESSMENT section below.

Otherwise, continue with firewood, mapping, and assessment sections…

MAPPING *Refer to data collection maps and mapping instructions to map plants and berries (including wood)…*

ASSESSMENTS: PLANTS AND BERRIES (INCLUDING WOOD) 600000000

To conclude our plants and berries (including wood) section, I am going to ask a few general questions about plants and berries (including wood).

During the last year,[1]

...Did your household use LESS, SAME, or MORE plants and berries (including wood) than in recent years?..... X L S M

X = do not use

IF LESS or MORE …

WHY was your use different? _____ 1

_____ 2

During the last year,[1]

… did your household GET ENOUGH plants and berries (including wood)?..... Y N

IF NO…

What KIND of plants and berries (including wood) did you need? _____

How would you describe the impact to your household of not getting enough last year?

not noticable?	*minor?*	*moderate?*	*major?*	*severe?*
(0)	(1)	(2)	(3)	(4)

HEATING FROM FIREWOOD

What proportion of your household's home heating comes from firewood?

(Circle one)

None	*A little (some, but less than half)*	*About half*	*A lot (more than half, but not all)*	*All*	*?*
(0)	(1)	(2)	(3)	(4)	(8)

In the past 5 years has your harvest area for firewood changed? Y N

If YES, please explain why? _____

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ASSESSMENTS OF PLANTS AND BERRIES (INCLUDING WOOD): 66 **NONDALTON: 252**

HARVEST SUMMARY: ALL RESOURCES

HOUSEHOLD ID HHID

ASSESSMENTS: ALL RESOURCES 0

To conclude our harvests section, I am going to ask a few general questions about wild resources

During the last year,[1]

...Did your household use LESS, SAME, or MORE all resources than in recent years?..... X L S M

X = do not use

IF LESS or MORE …

WHY was your use different? _____ 1

_____ 2

During the last year,[1]

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

IF NO…

What KIND of all resources did you need? _____

How would you describe the impact to your household of not getting enough last year?

not noticable?	*minor?*	*moderate?*	*major?*	*severe?*
(0)	(1)	(2)	(3)	(4)

Has your ability to get to your hunting, fishing, and gathering areas changed in the last five years due to environmental conditions?..... Y N

IF YES…

Could you describe those conditions? _____ 1

_____ 2

ASSESSMENTS: RESOURCE HEALTH

Between January 1st, and December 31st, 2021….were there any resources that your household avoided harvesting or were concerned about consuming due to disease, contamination, or other resource health issues ?..... Y N

(Note to interviewer: This is not about resouce numbers (i.e. low population), but about physical characteristics of the resourse.)

IF YES…

Which resources did your household avoid?

Why did your household avoid using _____?

	(Specify resouce)	*(Write reasons households avoided using each resource in the spaces below)*	
1			1
			2
			3
2			1
			2
			3
3			1
			2
			3
4			1
			2
			3
5			1
			2
			3

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ASSESSMENTS OF ALL RESOURCES: 66 **NONDALTON: 252**

ADDITIONAL ASSESSMENTS

HOUSEHOLD ID HHID

TRANSPORTATION AND MOTORIZED EQUIPMENT

During the last year (between January 1st and December 31st),
...did members of your household use the following when harvesting or attempting to harvest wild foods?

	(circle)
BOAT	Y N ?
980110000	
SNOWMACHINE	Y N ?
980210100	
4-WHEELER/ORV	Y N ?
980210200	
AIRPLANE	Y N ?
980230000	
HIGHWAY VEHICLE	Y N ?
980220000	
DOGSLED	Y N ?
980210300	
HORSES	Y N ?
980250100	

….Does your household own, borrow, rent, or charter this equipment? Or do you ride with someone else?

	(circle all that apply)				
	Own	Borrow	Rent	Charter	Ride along with someone else
BOAT	Y N ?	Y N ?	Y N ?	Y N ?	Y N ?
980110000					
SNOWMACHINE	Y N ?	Y N ?	Y N ?	Y N ?	Y N ?
980210100					
4-WHEELER/ORV	Y N ?	Y N ?	Y N ?	Y N ?	Y N ?
980210200					
AIRPLANE	Y N ?	Y N ?	Y N ?	Y N ?	Y N ?
980230000					
HIGHWAY VEHICLE	Y N ?	Y N ?	Y N ?	Y N ?	Y N ?
980220000					
DOGSLED	Y N ?	Y N ?	Y N ?	Y N ?	Y N ?
980210300					
HORSES	Y N ?	Y N ?	Y N ?	Y N ?	Y N ?
980250100					

During the last year (between January 1st and December 31st),
...did members of your household use the following or other motorized equipment when harvesting or attempting to harvest resources?

	(circle)
CHAINSAW	Y N ?
980600300	
ICE AUGER	Y N ?
980210210	
WINCH	Y N ?
980600500	
GENERATOR	Y N ?
980600200	
OTHER (Specify)	Y N ?

Comments: _____

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ADDITIONAL ASSESSMENTS

HOUSEHOLD ID HHID

HANDICRAFTS

It is legal to collect shed or discarded animals parts (horn, antlers, bones, etc...) on NPS lands for the making and selling of handicrafts for personal use, barter, or sale.

During the last year (between January 1st and December 31st),

...did members of your household collect shed or discarded animal parts such as horn/antlers on NPS land? Y N

...If YES, which of the following did you collect? If applicable what NPS unit did you collect it from?

	(circle)	Amount	Units (ind, lbs, etc…)	Location (name of NPS parklands or description of where you collected them)
HORNS	Y N ?			
940100322				
ANTLERS	Y N ?			
940100323				
BONES	Y N ?			
940100328				
QIVIUT	Y N ?			
940100334				
OTHER (Specify)	Y N ?			

It is legal to collect plant materials on NPS lands for making handicrafts for personal use, barter, or sale.

During the last year (between January 1st and December 31st),

...did members of your household collect plant materials on NPS lands for the production and sale of handicrafts? Y N

...If YES, which of the following did you collect? If applicable what NPS unit did you collect it from?

	(circle)	Amount	Units (ind, lbs, etc…)	Location (name of NPS parklands or description of where you collected them)
BIRCH BARK	Y N ?			
604002000				
WILLOW	Y N ?			
604013000				
GRASS	Y N ?			
940100326				
OTHER (Specify)	Y N ?			

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

FOOD SECURITY

HOUSEHOLD ID HHID

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 community have enough to eat. I'd like you to think about all your household's food, both and store-bought...

Which of these three statements best describes the food eaten in your household in the last 12 months…

(circle one) HH1

1 **STATEMENT 1**. We had enough of the kinds of WILD and STORE BOUGHT food we wanted to eat.……
2 **STATEMENT 2**. We had enough food, but not always the KIND of food we wanted to eat.……..... 1 2 3
3 **STATEMENT 3**. Sometimes, or often, we did **NOT HAVE ENOUGH** food to eat.……..... 1 2 3

If *STATEMENT 2* or *STATEMENT 3* was *TRUE*, continue with food security questions on this page. Otherwise, go to next section…

Now I am going to read you several statements about different food situations.
Please tell me whether EACH statement was true for your household (HH) in the last 12 months.

4 **STATEMENT 4. We WORRIED that our household would run out of food before we could get more.** HH4

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

…did this happen because your household couldn't get WILD FOOD,
your HH couldn't get STORE-BOUGHT food, or your HH couldn't get BOTH KINDS of food?..... WILD STOR BOTH

5 **STATEMENT 5. We could not get the kinds of foods we wanted to eat because of a LACK OF RESOURCES.** HH5

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

…did this happen because your household couldn't get WILD FOOD,
your HH couldn't get STORE-BOUGHT food, or your HH couldn't get BOTH KINDS of food?..... WILD STOR BOTH

6 **STATEMENT 6. The food we had JUST DID NOT LAST, and we could not get more.** HH6

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 WILD FOOD…

7 **STATEMENT 7. The WILD food we had JUST DID NOT LAST, and we could not get more.** HH7

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…

8 **STATEMENT 8. The STORE-BOUGHT food we had JUST DID NOT LAST, and we could not get more.** HH8

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 any ONE of the STATEMENTS 4, 5, OR 6 was "YES," continue with food security questions on next page. Otherwise, go to next section…

FOOD SECURITY

HOUSEHOLD ID HHID

If any ONE of the STATEMENTS 4, 5, or 6 on previous page was "YES," continue with food security questions below. Otherwise, go to next section…

In the past 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? …… AD1 N Y ?

If YES…

…in which months did this happen? J F M A M J J A S O N D

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?..... AD2 N Y ?

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

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

In the last 12 months, did adults in the HH ever NOT EAT FOR A WHOLE DAY because there was not enough food?..... AD4 N Y ?

If YES…

…in which months did this happen? J F M A M J J A S O N D

EMPLOYMENT

HOUSEHOLD ID HHID

The next few pages ask about jobs and income. We ask about these things because we are trying to understand all parts of the community economy. Many people use wages from jobs to support hunting, fishing, and gathering activities.

Between January 1, 2021 and December 31, 2021 ...

…Did any members of your household earn money from a JOB or from SELF EMPLOYMENT?.. Y N

… Was your income MORE, LESS, or ABOUT THE SAME compared to recent years?.. X L S M

X = Not in workforce

Between January 1, 2021 and December 31, 2021 ...

For each member of this household born before 2006, list EACH JOB held last year. For household members who did not have a job, write: RETIRED, UNEMPLOYED, STUDENT, HOMEMAKER, DISABLED, etc..

INCLUDE EACH PERSON 16 YEARS AND OLDER EVEN IF THEY DID NOT HAVE A JOB

	Person code from page 2 *(ID #)*	What kind of work did he or she do in this job? *(job title [1])*	For whom did he or she work in this job? *(employer)*	In the past year, what months did he or she work in this job? *(circle each month worked)*	WORK SCHEDULE[2]: FULL TIME / PART TIME / SHIFT - FULL TIME / ON CALL, VARIES / SHIFT PART-TIME *(circle one)*	In the past year how much did he or she earn in this job? *(gross income [3])*
1ST JOB				J F M A M J J A S O N D	FT PT SF OC SP	$ /YR
1 6 910100000		SOC:	SIC:		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:	SIC:		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:	SIC:		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:	SIC:		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:	SIC:		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:	SIC:		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:	SIC:		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:	SIC:		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:	SIC:		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:	SIC:		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:	SIC:		schedule:	

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

If a person does not earn money from any kind of work, enter RETIRED, UNEMPLOYED, DISABLED, STUDENT, or HOMEMAKER or other appropriate description as the job title.

Leave employer, months worked, schedule, and gross income blank.

WORK SCHEDULE
***FT** - Fulltime (35+ hr/wk)*
***PT** - Parttime (<35 hr/wk)*
***SF** - Shift (2wks on/2wks off, etc.)*
***SP** - Shift - part time*
***OC** - Irregular, on call*
-- -Unemployed

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

OTHER INCOME

HOUSEHOLD ID HHID

Between January 1, 2021 and December 31, 2021 ...

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

IF NO, go to the next section on this page

IF YES, continue below…

		Did anyone in your household receive income from _____ in 2021 (circle one)		TOTAL amount all members of your household received from _____ in 2021 (dollars)	
DIVIDENDS	ALASKA PERMANENT FUND DIVIDEND	Y	N	$	/YR
	32				
	NATIVE CORPORATION DIVIDENDS	Y	N	$	/YR
	13				

Alaska PFD IN 2021	
1	*PFD = $1,114*
2	*PFD = $2,228*
3	*PFD = $3,342*
4	*PFD = $4,456*
5	*PFD = $5,570*
6	*PFD = $6,684*
7	*PFD = $7,798*
8	*PFD = $8,912*
9	*PFD = $10,026*
10	*PFD = $11,140*
11	*PFD = $12,254*
12	*PFD = $13,368*

Regional corporations	***Dividend***
Bristol Bay Native Corporation	

Village corporations	***Dividend***
Kijik Corporation	

Between January 1, 2021 and December 31, 2021 ...

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

IF NO, go to the next section on this page

IF YES, continue below…

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

Senior Benefits of $125 per month for 12 months = $1,500 per elder

Senior Benefits of $175 per month for 12 months = $2,100 per elder

Senior Benefits of $250 per month for 12 months = $3,000 per elder

		Received? (circle one)		Total amount? (dollars)	
FAMILY & CHILD	TANF (say "tanif", used to be ADFC)	Y	N	$	/YR
	2				
	CHILD SUPPORT	Y	N	$	/YR
	15				
	FOSTER CARE	Y	N	$	/YR
	41				
OTHER	FUEL VOUCHERS	Y	N	$	/YR
	49				
	MEETING HONORARIA *(not per diem*)*	Y	N	$	/YR
	50				
	STIMULUS CHECK *(economic impact payment)*	Y	N	$	/YR
	51				
	OTHER (describe)	Y	N	$	/YR
	OTHER (describe)	Y	N	$	/YR

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

Scratch paper for calculations

for _____ weeks =
for _____ weeks =

for _____ weeks =
for _____ weeks =

for _____ weeks =
for _____ weeks =

OTHER INCOME: 24 **NONDALTON: 252**

COMMENTS

HOUSEHOLD ID HHID

DO YOU HAVE ANY QUESTIONS, COMMENTS OR CONCERNS?

INTERVIEW SUMMARY:

DON'T FORGET TO FILL IN THE STOP TIME _____

COMMENTS: 300 **NONDALTON: 252**

APPENDIX B: COMMUNITY SUPPORT LETTER

December 3, 2021

Nondalton Tribal Council
P.O. Box 49
Nondalton, A.K. 99640

Bronwyn Jones
Division of Subsistence
Alaska Department of Fish and Game
333 Raspberry Road
Anchorage, AK 99518

To the Division of Subsistence, Alaska Department of Fish and Game:

The Federally recognized Nondalton Tribal Council would like to acknowledge support for and our participation in the planned comprehensive baseline harvest survey of Nondalton to be conducted by the Division of Subsistence, Alaska Department of Fish and Game. We acknowledge that funding for this project was provided by the National Park Service (NPS). The division has informed us they will be collecting data about our subsistence way of life in all its complexity including the harvest, use, and sharing of wild resources. The Division of Subsistence has conveyed to us the anonymous nature of the data collection and reporting and that participation in the survey by any member is completely voluntary.

We have planned for our community to participate in the survey. We will be assisting the Division of Subsistence with recommendations about community members who may want to assist collecting survey data as contract workers (Local Research Assistants). We have also indicated that we will provide space at the tribal office for the Division of Subsistence to conduct interviews. Finally, we are aware Division representatives will come back to Nondalton to present the findings of the study for community feedback and to verify the inclusion of any community concerns for the final report. The Division of Subsistence will send a complete final report for our records and short summary reports for all community households involved in the study at the end of the project.

Sincerely,

APPENDIX C: KEY RESPONDENT INTERVIEW PROTOCOL (PORT ALSWORTH)

Lake Clark Comprehensives
Key respondent interview protocol

Name of community:

Date:

Name of interviewer:

Name of respondent:

Age of respondent:

How long have you lived in this community?

Would you like to have your name included in the report? Yes No

Notes:

Project Overview

We are currently conducting a survey in your community to document the harvest and use of wild resources for the calendar year 2021. We understand that one year doesn't represent the long-term pattern of resource use. As part of this survey we ask questions about how the harvest and use of wild resources is different than in recent years, say the past five years. This interview is intended to understand long-term trends in harvest patterns over time, possibly over your lifetime. We appreciate you sharing this information with us as it will give us a much better understanding of the changes that have occurred in your area over time.

Note to interviewer. You do not have to ask all of these questions. You can simply ask the main questions and then use this protocol as a guide to understand the types of questions we are interested in.

Please tell me a little bit about your past and how you ended up here in this community.

Where, how, and from who, did you learn your subsistence way of life?

SALMON –

- Have your harvest locations for salmon changed over time?
- Has harvest timing changed?
- What kind of gear/transportation did you use in the past? What about now?
- Has environmental changes affected harvest patterns over your lifetime?
- Do you travel elsewhere to harvest different species of salmon or trade with others to versify the types of salmon you get?

NONSALMON –

- What kinds of nonsalmon fish are important to your household and community? How has this changed over your lifetime?
- Do you travel outside of Port Alsworth to harvest any nonsalmon fish (such as Halibut, cod etc)

Large Land Mammals –

- What large animals are most important to your household and community? Has what you harvest and how you harvest changed over your lifetime?
- Has harvest timing changed? If so why?
- How have you changed the areas you harvest over your lifetime, and why do you think this has occurred?
- What kind of transportation did you use in the past and how has this changed over time?

Small Land Mammals/Furbearers –

- Do you or have you in the past hunted for or trapped SLMs? if so…What small game and furbearers are most important to your household and community? How has your harvesting effort changed over your lifetime?
- What small game do you harvest to eat and which game do you harvest for fur?
- Has harvest timing changed? What about harvest locations?
- Do you harvest small game opportunistically or do you target small game?
- What kind of gear/transportation did you use in the past? What about now?

Birds and Eggs –

- What birds are most important to your household and community? How has your harvesting effort changed over your lifetime?
- Are wild eggs important to your household or community?
- Has harvest timing changed?
- Are the places you go to find birds and eggs different now than in the past?

Plants/Berries/Wood –

- What plants and berries are most important to your household and community? Has what you harvest and how you harvest changed over your lifetime?
- Has harvest timing changed?
- Do you use more or less wood for heat than in the past? Is it more or less difficult to find wood?
- Are there any issues you are aware of with harvesting wood in the Park?
- Are the places you go to find plants, berries, or wood different now than in the past?
- What kind of transportation did you use in the past? What about now?
- How has environmental change affected the areas you use to harvest plants/berries or wood? What about the abundance of berries?

Resources particular to your community

- Are there resources that you feel are unique to your community, or hold a special value to your community?
- Are there particular times of year that you harvest these resources? What about sharing these resources within your community and with other communities?

Final Comments

- What do you feel has been the biggest change in your subsistence way of life, from the time you can remember until now?
- Do you recall a time before regulations were enforced? How has your harvest practice and patterns changed since that time?
- Is there anything else you would like to share?

APPENDIX D: CONVERSION FACTORS

The following tables present the conversion factors used in determining how many pounds were harvested of each resource surveyed. For instance, if respondents reported harvesting 3 quarts of fiddlehead ferns, the quantity would be multiplied by the appropriate conversion factor (in this case 0.25) to show a harvest of 0.75 lb of fiddlehead ferns.

Appendix Table D-1.– Conversion factors, Nondalton, 2021.

Resource name	Reported units	Conversion factor
Chum salmon	Individual	3.943
Chum salmon [CF retention]	Individual	3.943
Coho salmon	Individual	4.666
Coho salmon [CF retention]	Individual	4.666
Chinook salmon	Individual	6.772
Chinook salmon [CF retention]	Individual	6.772
Pink salmon	Individual	2.409
Pink salmon [CF retention]	Individual	2.409
Sockeye salmon	Individual	3.549
Sockeye salmon [CF retention]	Individual	3.549
Landlocked salmon	Individual	1.000
Spawning sockeye salmon	Individual	3.549
Unspecified salmon	Individual	3.521
Unspecified salmon [CF retention]	Individual	3.521
Unspecified smelts	Gallons	6.000
Bullhead sculpin	Individual	0.500
Stickleback (needlefish)	Gallons	6.000
Alaska blackfish	Individual	0.700
Burbot	Individual	1.000
Arctic char	Individual	1.400
Dolly Varden, unknown type	Individual	1.400
Lake trout	Individual	2.700
Arctic grayling	Individual	0.700
Northern pike	Individual	2.800
Longnose sucker	Individual	1.500
Rainbow trout	Individual	0.700
Steelhead	Individual	0.700
Unspecified trouts	Individual	0.700
Broad whitefish	Individual	4.000
Least cisco	Individual	0.400
Humpback whitefish	Individual	1.750
Round whitefish	Individual	1.000
Black bear	Individual	58.000
Brown bear	Individual	141.000
Caribou	Individual	130.000
Mountain goat	Individual	72.500

-continued-

Appendix Table D-1.–Page 2 of 4.

Resource name	Reported units	Conversion factor
Moose	Individual	450.000
Dall sheep	Individual	65.000
Beaver	Individual	20.000
Coyote	Individual	0.000
Red fox	Individual	3.900
Snowshoe hare	Individual	1.500
River otter	Individual	0.000
Lynx	Individual	4.000
Marmots	Individual	0.000
Martens	Individual	0.000
Mink	Individual	0.000
Muskrat	Individual	0.000
Porcupine	Individual	8.000
Arctic ground squirrel	Individual	0.500
Red squirrel	Individual	0.500
Weasels	Individual	0.000
Gray wolf	Individual	0.000
Wolverine	Individual	0.000
Harbor seal, freshwater	Individual	56.000
Harbor seal, saltwater	Individual	56.000
Sea otter	Individual	0.000
Steller sea lion	Individual	200.000
Beluga whale	Individual	995.000
Bufflehead	Individual	0.570
Common eider	Individual	3.280
King eider	Individual	2.250
Spectacled eider	Individual	2.100
Steller's eider	Individual	1.200
Unspecified goldeneyes	Individual	1.270
Harlequin duck	Individual	0.850
Mallard	Individual	1.610
Unspecified mergansers	Individual	1.740
Long-tailed duck	Individual	1.160
Northern pintail	Individual	1.180
Unspecified scaups	Individual	1.350
Black scoter	Individual	1.510
Surf scoter	Individual	1.460
White-winged scoter	Individual	2.610
Northern shoveler	Individual	0.860
Unspecified teals	Individual	0.470

-continued-

Appendix Table D-1.–Page 3 of 4.

Resource name	Reported units	Conversion factor
American wigeon	Individual	1.050
Unspecified ducks	Individual	0.780
Brant	Individual	1.890
Unspecified Canada/cackling geese	Individual	3.350
Emperor goose	Individual	3.080
Snow goose	Individual	2.800
Greater white-fronted goose	Individual	3.180
Unspecified geese	Individual	2.400
Unspecified swans	Individual	10.980
Sandhill crane	Individual	5.400
Unspecified cormorants	Individual	2.850
Mew gull	Individual	0.560
Sabine's gull	Individual	0.270
Large gull	Individual	1.720
Black-legged kittiwake	Individual	0.620
Unspecified murres	Individual	1.380
Unspecified terns	Individual	0.160
Unspecified grouses	Individual	0.910
Unspecified ptarmigans	Individual	0.770
Mallard eggs	Individual	0.115
Unspecified small shorebird eggs	Individual	0.018
Unspecified large shorebird eggs	Individual	0.110
Mew gull eggs	Individual	0.115
Large gull eggs	Individual	0.214
Black-legged kittiwake eggs	Individual	0.115
Unspecified murre eggs	Individual	0.231
Unspecified tern eggs	Individual	0.042
Butter clam	Gallons	3.000
Freshwater clams	Gallons	3.000
Pacific littleneck clam (steamers)	Gallons	3.000
Razor clam	Gallons	3.000
Unspecified clams	Gallons	3.000
Unspecified cockles	Gallons	3.000
Dungeness crab	Individual	0.700
Unspecified king crabs	Individual	2.300
Unspecified mussels	Gallons	1.500
Blueberry	Gallons	4.000
Lowbush cranberry	Gallons	4.000
Highbush cranberry	Gallons	4.000

-continued-

Appendix Table D-1.–Page 4 of 4.

Resource name	Reported units	Conversion factor
Crowberry	Gallons	4.000
Elderberry	Gallons	4.000
Cloudberry	Gallons	4.000
Cloudberry	Quarts	1.000
Raspberry	Gallons	4.000
Strawberry	Gallons	4.000
Twisted stalk berry (watermelon berry)	Gallons	4.000
Juniper berry	Gallons	4.000
Juniper berry	Quarts	1.000
Other wild berries	Gallons	4.000
Goose tongue	Gallons	1.000
Wild rhubarb	Gallons	1.000
Wild potato	Gallons	1.000
Wild potato	Pints	0.125
Fiddlehead ferns	Gallons	1.000
Fiddlehead ferns	Quarts	0.250
Nettles	Gallons	1.000
Hudson's Bay (Labrador) tea	Gallons	1.000
Hudson's Bay (Labrador) tea	Quarts	0.250
Sourdock	Gallons	1.000
Spruce tips	Gallons	1.000
Spruce tips	Quarts	0.250
Wild celery	Gallons	1.000
Wild parsley	Gallons	1.000
Yarrows	Gallons	1.000
Yarrows	Quarts	0.250
Other wild greens	Gallons	1.000
Unspecified mushrooms	Gallons	1.000
Unspecified mushrooms	Quarts	0.250
Fireweed	Gallons	1.000
Sea lovage	Gallons	1.000
Beach greens	Gallons	1.000
Wild chive	Gallons	1.000
Wild chive	Quarts	0.250
Seaweeds/kelps used for fertilizer	Gallons	0.000
Unspecified seaweeds	Gallons	1.000
Cottonwoods	Quarts	0.000
Cottonwoods	Cords	0.000
Firewood	Cords	0.000
Other wood	Cords	0.000

Source ADF&G Division of Subsistence household surveys, 2022.

Appendix Table D-2.– Conversion factors, Port Alsworth, 2021.

Resource name	Reported units	Conversion factor
Chum salmon	Individual	3.943
Chum salmon [CF retention]	Individual	3.943
Coho salmon	Individual	4.666
Coho salmon [CF retention]	Individual	4.666
Chinook salmon	Individual	6.772
Chinook salmon [CF retention]	Individual	6.772
Pink salmon	Individual	2.409
Pink salmon [CF retention]	Individual	2.409
Sockeye salmon	Individual	3.549
Sockeye salmon [CF retention]	Individual	3.549
Landlocked salmon	Individual	1.000
Spawning sockeye salmon	Individual	3.549
Unspecified salmon	Individual	3.521
Unspecified salmon [CF retention]	Individual	3.521
Eulachon (hooligan, candlefish)	Gallons	6.000
Unspecified smelts	Gallons	6.000
Pacific (gray) cod	Individual	3.200
Pacific (gray) cod	Pounds	1.000
Unspecified cods	Individual	3.200
Lingcod	Individual	4.000
Pacific halibut	Pounds	1.000
Unspecified rockfishes	Individual	2.000
Bullhead sculpin	Individual	0.500
Stickleback (needlefish)	Gallons	6.000
Alaska blackfish	Individual	0.700
Burbot	Individual	1.000
Arctic char	Individual	1.400
Dolly Varden, unknown type	Individual	1.400
Lake trout	Individual	2.700
Arctic grayling	Individual	0.700
Northern pike	Individual	2.800
Longnose sucker	Individual	1.500
Rainbow trout	Individual	0.700
Steelhead	Individual	0.700
Unspecified trouts	Individual	0.700
Broad whitefish	Individual	4.000
Least cisco	Individual	0.400
Humpback whitefish	Individual	1.750
Round whitefish	Individual	1.000

-continued-

Appendix Table D-2.–Page 2 of 5.

Resource name	Reported units	Conversion factor
Unspecified whitefishes	Individual	1.716
Bison	Individual	450.000
Black bear	Individual	58.000
Brown bear	Individual	141.000
Caribou	Individual	130.000
Mountain goat	Individual	72.500
Moose	Individual	450.000
Dall sheep	Individual	65.000
Beaver	Individual	20.000
Coyote	Individual	0.000
Red fox	Individual	3.900
Snowshoe hare	Individual	1.500
River otter	Individual	3.000
Lynx	Individual	4.000
Marmots	Individual	5.000
Martens	Individual	0.000
Mink	Individual	2.500
Muskrat	Individual	0.750
Porcupine	Individual	8.000
Arctic ground squirrel	Individual	0.500
Red squirrel	Individual	0.500
Weasels	Individual	0.500
Gray wolf	Individual	0.000
Wolverine	Individual	0.000
Harbor seal, freshwater	Individual	56.000
Harbor seal, saltwater	Individual	56.000
Sea otter	Individual	0.000
Steller sea lion	Individual	200.000
Beluga whale	Individual	995.000
Bufflehead	Individual	0.570
Common eider	Individual	3.280
King eider	Individual	2.250
Spectacled eider	Individual	2.100
Steller’s eider	Individual	1.200
Unspecified goldeneyes	Individual	1.270
Harlequin duck	Individual	0.850
Mallard	Individual	1.610
Unspecified mergansers	Individual	1.740
Long-tailed duck	Individual	1.160

-continued-

Appendix Table D-2.–Page 3 of 5.

Resource name	Reported units	Conversion factor
Northern pintail	Individual	1.180
Unspecified scaups	Individual	1.350
Black scoter	Individual	1.510
Surf scoter	Individual	1.460
White-winged scoter	Individual	2.610
Northern shoveler	Individual	0.860
Unspecified teals	Individual	0.470
American wigeon	Individual	1.050
Brant	Individual	1.890
Unspecified Canada/cackling geese	Individual	3.350
Emperor goose	Individual	3.080
Snow goose	Individual	2.800
Greater white-fronted goose	Individual	3.180
Unspecified geese	Individual	2.400
Unspecified swans	Individual	10.980
Sandhill crane	Individual	5.400
Unspecified cormorants	Individual	2.850
Mew gull	Individual	0.560
Sabine's gull	Individual	0.270
Large gull	Individual	1.720
Black-legged kittiwake	Individual	0.620
Unspecified murres	Individual	1.380
Unspecified terns	Individual	0.160
Unspecified grouses	Individual	0.910
Unspecified ptarmigans	Individual	0.770
Mallard eggs	Individual	0.115
Unspecified small shorebird eggs	Individual	0.018
Unspecified large shorebird eggs	Individual	0.110
Mew gull eggs	Individual	0.115
Large gull eggs	Individual	0.214
Black-legged kittiwake eggs	Individual	0.115
Unspecified murre eggs	Individual	0.231
Unspecified tern eggs	Individual	0.042
Butter clam	Gallons	3.000
Freshwater clams	Gallons	3.000
Pacific littleneck clam (steamers)	Gallons	3.000
Razor clam	Gallons	3.000
Unspecified clams	Gallons	3.000
Unspecified cockles	Gallons	3.000

-continued-

Appendix Table D-2.–Page 4 of 5.

Resource name	Reported units	Conversion factor
Dungeness crab	Individual	0.700
Unspecified king crabs	Individual	2.300
Unspecified Tanner crabs	Individual	0.400
Unspecified mussels	Gallons	1.500
Unspecified scallops	Gallons	1.640
Blueberry	Gallons	4.000
Blueberry	Half-pints	0.250
Lowbush cranberry	Gallons	4.000
Lowbush cranberry	Quarts	1.000
Highbush cranberry	Gallons	4.000
Highbush cranberry	Quarts	1.000
Crowberry	Gallons	4.000
Crowberry	Quarts	1.000
Elderberry	Gallons	4.000
Currants	Gallons	4.000
Currants	Quarts	1.000
Currants	Pints	0.500
Cloudberry	Gallons	4.000
Cloudberry	Quarts	1.000
Raspberry	Gallons	4.000
Strawberry	Gallons	4.000
Twisted stalk berry (watermelon berry)	Gallons	4.000
Other wild berries	Gallons	4.000
Goose tongue	Gallons	1.000
Wild rhubarb	Gallons	1.000
Fiddlehead ferns	Gallons	1.000
Fiddlehead ferns	Quarts	0.250
Fiddlehead ferns	Half-pints	0.063
Nettles	Gallons	1.000
Hudson’s Bay (Labrador) tea	Gallons	1.000
Hudson’s Bay (Labrador) tea	Quarts	0.250
Sourdock	Gallons	1.000
Wild celery	Gallons	1.000
Wild parsley	Gallons	1.000
Wild rose hips	Gallons	4.000
Wild rose hips	Quarts	1.000
Yarrows	Gallons	1.000
Yarrows	Half-pints	0.063
Other wild greens	Gallons	1.000

-continued-

Appendix Table D-2.–Page 5 of 5.

Resource name	Reported units	Conversion factor
Sweet gale	Gallons	1.000
Sweet gale	Quarts	0.250
Unspecified mushrooms	Gallons	1.000
Unspecified mushrooms	Pints	0.125
Fireweed	Gallons	1.000
Fireweed	Quarts	0.250
Chaga	Gallons	1.000
Chaga	Half-pints	0.063
Sea lovage	Gallons	1.000
Beach greens	Gallons	1.000
Seaweeds/kelps used for fertilizer	Gallons	0.000
Unspecified seaweeds	Gallons	1.000
Birch sap	Gallons	0.000
Birch sap	Half-pints	0.000
Firewood	Cords	0.000
Other wood	Cords	0.000

Source ADF&G Division of Subsistence household surveys, 2022.

APPENDIX E: PROJECT SUMMARIES

COMMUNITY SUMMARY - Technical Paper No. 510

Subsistence Harvests in Nondalton and Port Alsworth: 2021

Study Overview

ADF&G Division of Subsistence conducted household harvest surveys in spring 2022 to document the harvests and uses of wild resources by households in Nondalton and Port Alsworth during the 2021 calendar year. These communities are located near Lake Clark National Park and Preserve (LCNPP) in Southwest Alaska and depend on subsistence resources. Twenty-nine of 38 households in Nondalton and 35 of 49 Port Alsworth households participated in the survey. In addition, division researchers conducted 6 ethnographic key respondent interviews with 7 residents from the 2 communities. Funding was provided through the National Park Service (NPS) and the project was carried out in cooperation with NPS staff and the study communities.

Harvest and Use Overview

Nearly all residents of the study communities participated in harvesting or processing at least 1 wild resource: plants and berries, fish, and large game were the most common. Sharing was widespread in both communities. An estimated 80% or more households shared and received resources in both communities, and all Nondalton households received resources. The high rates of sharing in these communities in 2021 were similar to 2004 study year findings, indicating that despite, or because of, changing harvest amounts, sharing remains a valued and necessary practice.

In both communities, sockeye salmon and moose were the most harvested resources; Nondalton households harvested both bright and spawning sockeye salmon (Fig. 1).

Photo courtesy of National Park Service

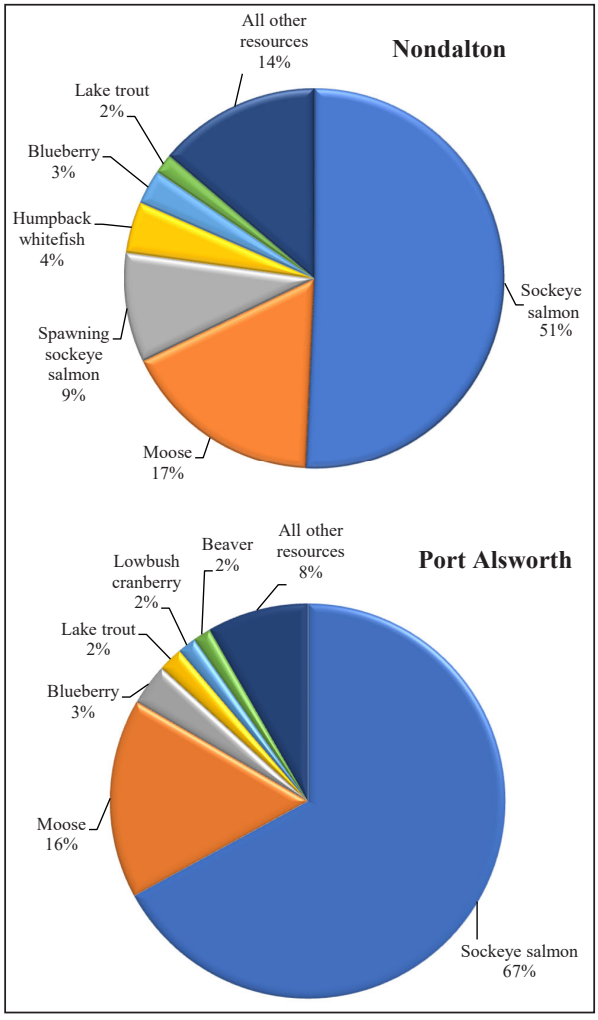

Figure 1.–Top harvested resources, in pounds usable weight, Nondalton and Port Alsworth, 2021.

Electronic copy of project report is online:
http://www.subsistence.adfg.state.ak.us/TechPap/TP510.pdf

Community Subsistence Information System (CSIS):
http://www.subsistence.adfg.state.ak.us/CSIS

Total harvests were substantial in both communities. Nondalton residents harvested an average of **298 lb per person**, and Port Alsworth residents harvested an average of **116 lb per person** (Fig. 2). Residents of both communities use and harvest a wide diversity of resources. In Nondalton, households harvested 10 resources on average and used 13, while Port Alsworth households harvested 6 and used 8 types of resources on average.

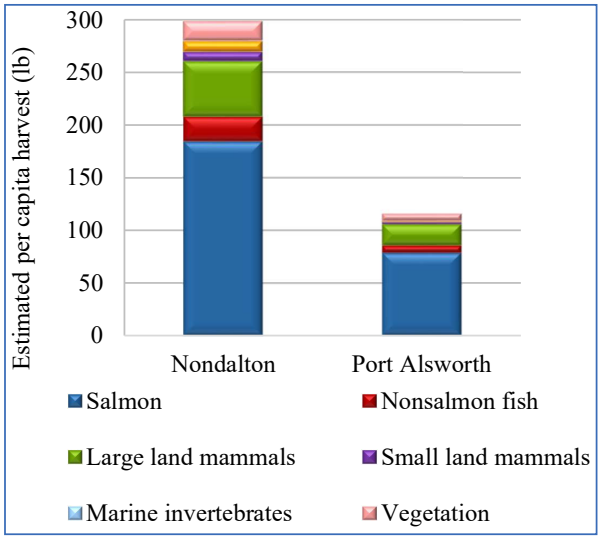

Figure 2.–Estimated per capita harvest, by resource category, Nondalton and Port Alsworth, 2021.

Harvests Over Time

Salmon, nonsalmon fish, and large land mammal harvests account for the majority of change over time to the overall per capita harvest weight, which has declined since the 1980s (Fig. 3). Households are harvesting and using a similar diversity of resources as in the past, just in smaller amounts.

> *"And we have, we literally have everything we need in this area, to live off the land if we chose to."*
> *– Nondalton resident*

Salmon

Salmon have always composed the majority of community harvests, but salmon harvests have decreased substantially, even accounting for changes in community populations. During the 2004 study year, 82% of Port Alsworth households and 87% of Nondalton households harvested salmon, compared to 69% and 76% of households in 2021, respectively. During the most recent study years in Nondalton (2001, 2007, 2021), researchers heard from elders and other community members that fewer people go to fish camps to harvest and process salmon, and generally people spend less time there. Some residents commented on reduced abundance and changed timing of local salmon runs recently—runs trickle in rather than arrive all at once.

Large Game

The overall total and per person harvest of large land mammals has decreased since the 1980s. In 2021 in Nondalton, the total harvest of large land mammals was 5,459 lb, or 53 lb per capita (18% of total harvest). In contrast, the large mammal per capita harvests in the earliest study years generally exceeded 150 lb per capita, with the largest per capita harvest estimated in 1973 (219 lb).

Similar to salmon fishing, the percentage of households engaged in hunting has decreased over time. In the 1980s, the local caribou herd's range fully encompassed Nondalton and exhibited a scattered presence in the vicinity of Port Alsworth, but local caribou populations have migrated west of the communities, causing regulation changes that closed caribou hunting in the area during the study year. Now, more moose are harvested than have been in the past.

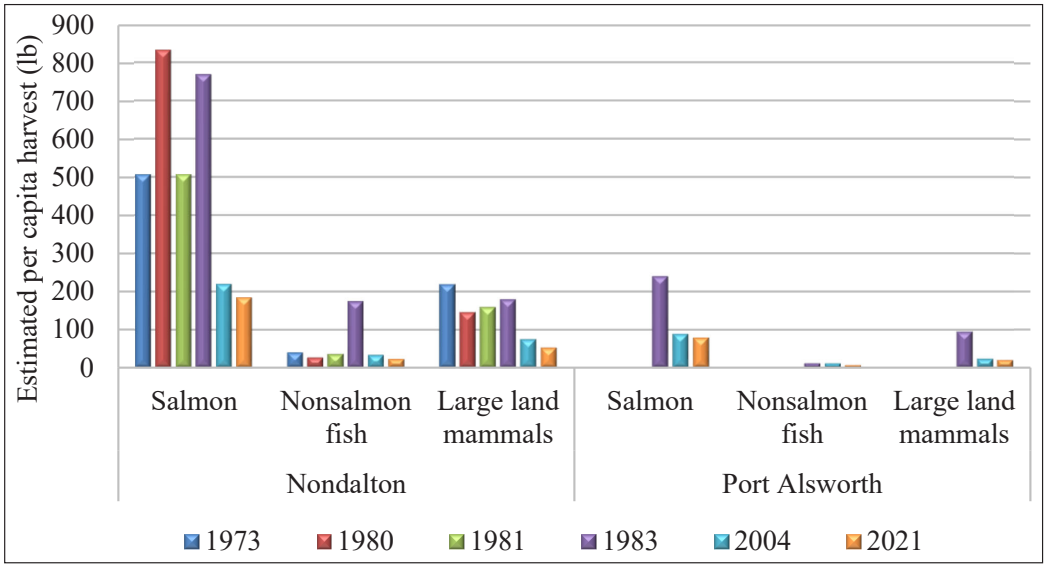

Figure 3.–Comparison of estimated per capita harvests of select resource categories in 2021 and previous study years.

Subsistence and Community

- Subsistence remains an important and valued way of life in both communities.
- Subsistence practices are passed on through family and friendship ties.
- Residents of both communities expressed a strong desire to ensure healthy subsistence opportunities continue into the future.

Salmon

For newer community residents, salmon is the most common subsistence resource people learn how to harvest and process. Sharing gear is common and fosters community ties: households lend nets, harvest together, and share their catch.

Although gillnets are the most common gear type used, some community members have been using seines in recent years. Nondalton Tribal Council purchased seines for community use.

Ice Conditions

- Unpredictable ice conditions have become more of a concern for community residents in recent years.
- Warm winters and poor snow conditions make travel for subsistence pursuits difficult.
- Winter conditions allowing snowmachine crossing of Lake Clark and other local lakes are variable from year to year, and the season for traveling on ice has become shorter overall.
- Residents are concerned that the failure of area lakes to freeze impedes caribou movements in the area.
- When winter caribou hunting was open in recent previous years, ice conditions hampered where people could safely hunt for caribou.
- Observations of change extended outside of the winter season. Waters were warmer than usual in 2019 and 2020, but not in 2021. Some residents highlighted greater fluctuations in water levels, from very low levels to flooding.

Photo courtesy of National Park Service

“I am thankful we have subsistence. It is vital.”
– Survey form comment

“… it’s sockeye, sockeye, sockeye. One time there was a jack king [Chinook] salmon in the net and everybody stopped what they were doing and checked it out, because it was out of place … .”
– Port Alsworth resident

“I remember, I briefly remember when my parents told me, there was like tens of thousands of caribou, right on Sixmile Lake. They used to be all over the mountains, all over Ground hill, or Groundhog, and then just in the hills up there. Now they’re gone.”
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“When the opportunity is there, when the ice allows, uh, spring geese is big for us. And it’s kind of a fifty-fifty whether or not the local areas will be accessible, because of the lake ice and spring thaw timing.”
– Port Alsworth resident

Harvest and Use Highlights: Nondalton

Most households in Nondalton rely on wild resources—obtained through sharing, hunting, fishing, or wild food gathering—for nutrition and to support their way of life.

In 2021:

- All households used wild resources.
- An estimated 93% of households harvested at least 1 type of wild resource.
- Overall, Nondalton households used more than 67 different types of resources.
- Sharing was important with most households sharing resources and all households receiving them from others.
- Wild resource harvests totaled 30,882 lb (298 lb per capita).
- Salmon composed more than one-half of the harvest weight; most of the salmon harvest was of bright or spawning sockeye salmon (Fig. 4).
- Large game composed 18% of the harvest weight—mostly harvests of moose (Fig. 4).
- Large game was widely shared: 30% of households harvested large game but 86% of households used it (Fig. 5).
- Overall, most households thought they used the same amount of resources in 2021 as they had in recent prior years.
- Most households reported getting enough wild resources overall; more households reported not getting enough large game than any other resource category.

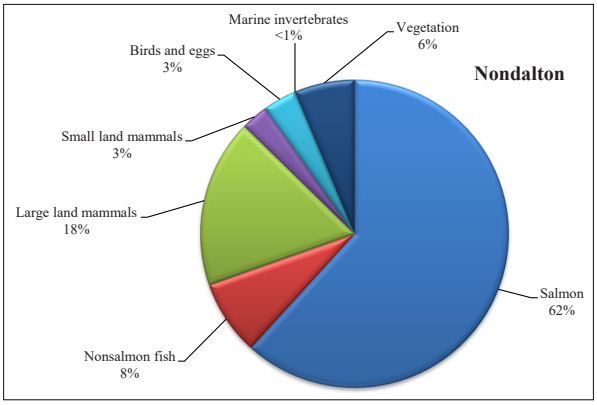

Figure 4.–Harvest composition by resource category.

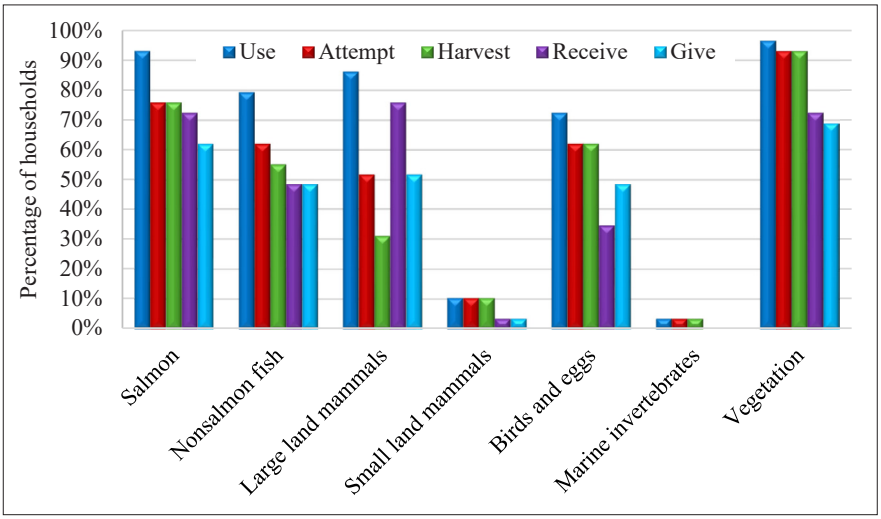

Figure 5.–Household participation characteristics, by resource category, Nondalton, 2021.

> *" ... it's [Chulitna River] probably my favorite place in the whole world. ... Yeah, I love that place so much I don't even care if I harvest a moose. I want to, but it's so nice up there, just being up there is more than enough for me. "*
> *– Nondalton resident*

DIVISION OF SUBSISTENCE

Lauren A. Sill
PO Box 110024
Juneau, AK 99811
907-465-3617
lauren.sill@alaska.gov

Chance Wilcox
Bronwyn Jones
Margaret Cunningham
1333 Raspberry Rd.
Anchorage, AK 99518
907-267-2353

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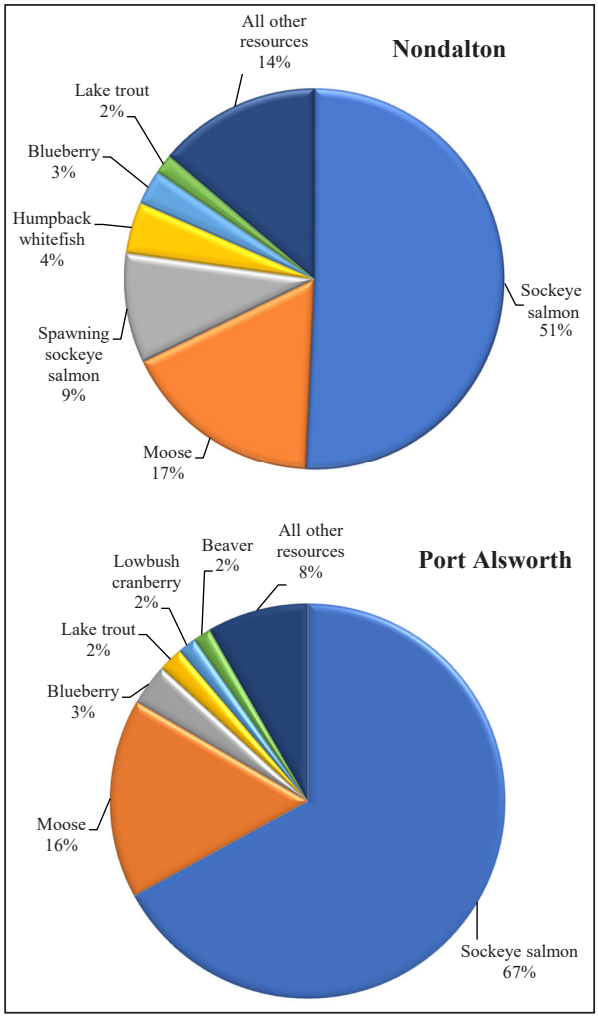

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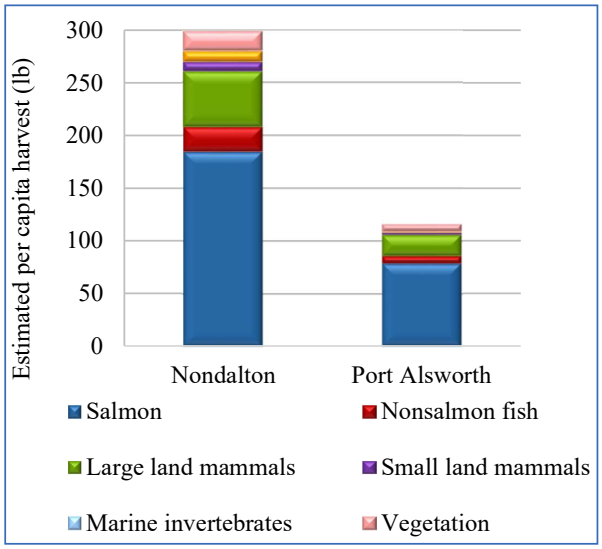

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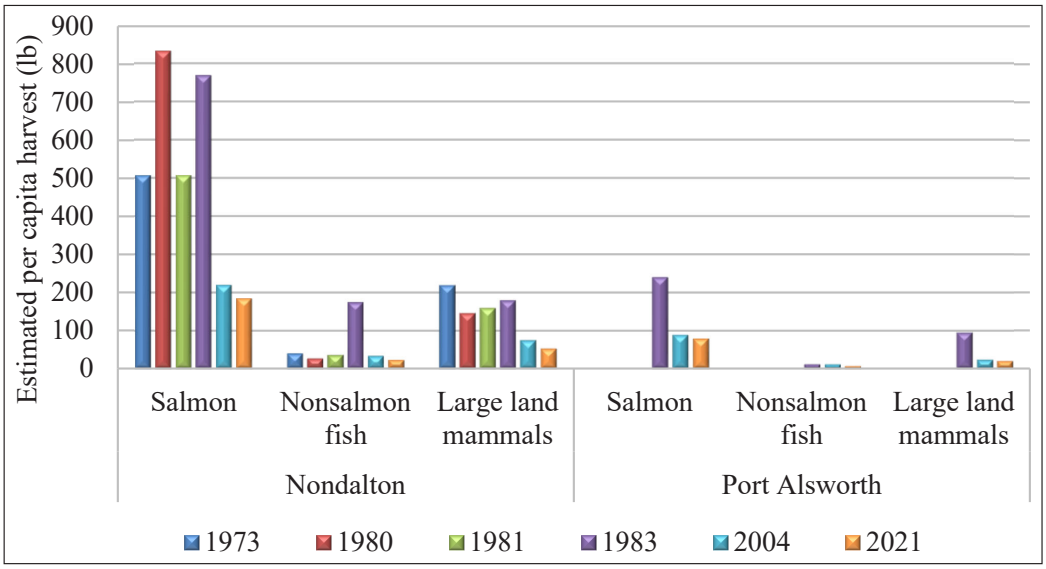

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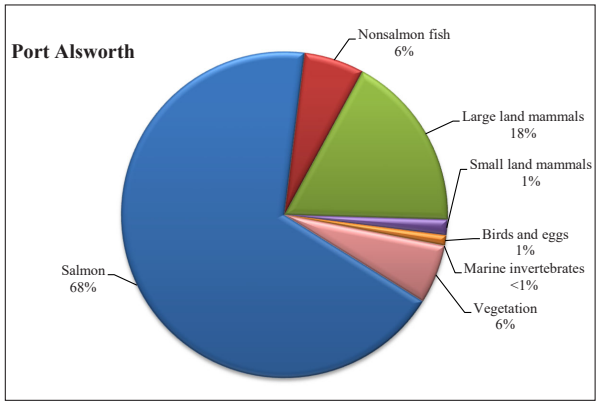
Most households in Port Alsworth rely on wild resources—obtained through sharing, hunting, fishing, or wild food gathering—for nutrition and to support their way of life.

In 2021:

- Nearly all households used wild resources.
- An estimated 94% of households harvested at least 1 type of wild resource.
- Overall, Port Alsworth households used more than 50 different types of resources.
- Sharing was important: 80% of households shared and received resources.
- Wild resource harvests totaled 15,410 lb (116 lb per capita).
- Salmon composed more than one-half of the harvest weight; most of the salmon harvest was of sockeye salmon (Fig. 4).
- Large game composed 18% of the harvest weight—mostly harvests of moose (Fig. 4).
- Large game was widely shared: 20% of households harvested large game but 83% of households used it (Fig. 5).
- Overall, more households thought they used the same amount of resources in 2021 as they had in recent prior years than thought they used more or less.
- Most households reported getting enough wild resources overall; more households reported not getting enough large game than any other resource category.



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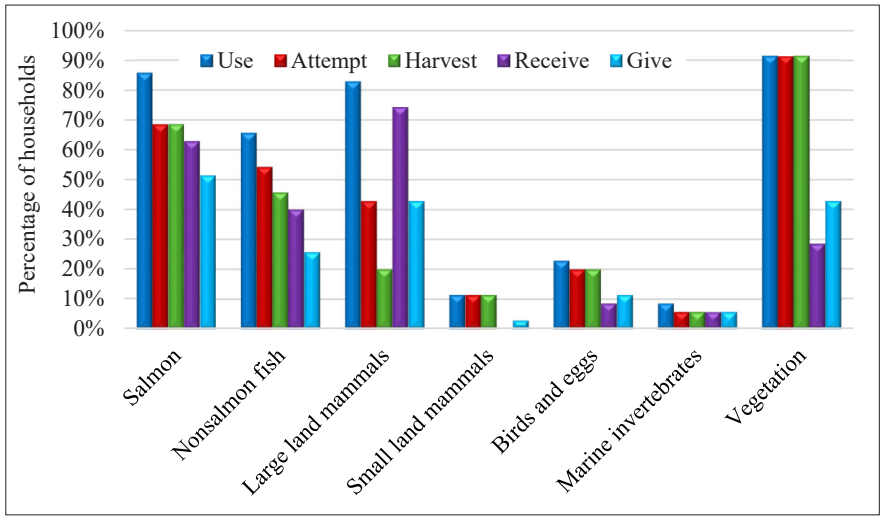

Figure 5.–Household participation characteristics, by resource category, Port Alsworth, 2021.

> *"So it's like a little- it makes me feel proud if I do get one, and I am successful, there's just a list of people in my mind where they're, like, hoping you're gonna bring them something. And when you're able to, it's a good feeling."*
> *– Port Alsworth resident*

DIVISION OF SUBSISTENCE

Lauren A. Sill
PO Box 110024
Juneau, AK 99811
907-465-3617
lauren.sill@alaska.gov

Chance Wilcox
Bronwyn Jones
Margaret Cunningham
1333 Raspberry Rd.
Anchorage, AK 99518
907-267-2353