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The Harvest and Use of Wild Resources in Hooper Bay and Chevak, Alaska, 2021

by
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and
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December 2023

Alaska Department of Fish and Game

Division of Subsistence



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Weights and measures (metric)

centimeter	cm
deciliter	dL
gram	g
hectare	ha
kilogram	kg
kilometer	km
liter	L
meter	m
milliliter	mL
millimeter	mm

Weights and measures (English)

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

Time and temperature

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

Physics and chemistry

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

General

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

TECHNICAL PAPER NO. 496

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December 2023

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ABSTRACT

This report summarizes the results of research conducted in the communities of Hooper Bay, and Chevak, Alaska. Data were collected in January 2022 in Hooper Bay and in May 2022 in Chevak. This was the first year that data were collected as part of a Yukon River Treaty Implementation Fund increase to the Alaska Department of Fish & Game. This work supports the bilateral US-Canada agreement to cooperatively manage transboundary stocks of salmon, including Yukon River Chinook salmon. The communities of Hooper Bay and Chevak were chosen because baseline subsistence harvest and use patterns had not been documented in either community. Further, residents of the Yukon Management Area Coastal District—including Hooper Bay, Chevak, and Scammon Bay—have expressed concern in recent years over regulatory restrictions on subsistence fishing in the Coastal District designed to conserve Canadian-origin Chinook salmon. The primary objectives of this study were to: 1) quantify the harvest and use of all subsistence resources in the communities; 2) understand how subsistence practices have changed over time; 3) qualitatively describe subsistence practices, traditions, and values; and 4) document search and harvest areas for eight resource categories. In early 2022, researchers from the ADF&G Division of Subsistence surveyed household heads about their wild resource harvest and use during the previous calendar year (January 1 to December 31, 2021). Researchers also conducted ethnographic interviews with knowledgeable residents to document traditional ecological knowledge on a variety of wild resources, ranging from berries and medicinal plants to marine mammals. The key findings from this study included the harvest and use of a wide variety of locally abundant marine and terrestrial resources, climate change and its effects on the timing and predictability of environmental conditions and animal migration and abundance patterns, and the 2021 closure of the subsistence fishery for Chinook and summer chum salmon and its effects on nutritional and cultural needs in the communities.

Key words: Subsistence fishing, subsistence hunting, Hooper Bay, Chevak, Bering Sea, Ninglikfak River, Keoklevik River, Kashunuk River, Aphrewn River, Yukon River, Yukon-Delta National Wildlife Refuge, Chinook salmon, summer chum salmon, pink salmon, moose, marine mammals, berries, vegetation, food security, harvest areas

1. INTRODUCTION

This report provides information about the harvests and uses of fish, wildlife, and wild plant resources by residents of Hooper Bay and Chevak, Alaska, in 2021. Hooper Bay and Chevak are located 17 miles from one another near the southern extent of the Yukon River delta (Figure 1-1). This research effort marks the first attempt to collect comprehensive subsistence harvest information for all wild resources in the communities and serves as a baseline dataset describing the contemporary uses of wild resources by Hooper Bay and Chevak residents.

Topics covered in this study include the use and harvest of wild resources, participation in harvest activities, and locations used for subsistence activities. Survey respondents gave details about their use of resources in 2021 compared to recent years, and ethnographic respondents provided additional historical information and shared traditional knowledge on a variety of subsistence topics. This report also discusses information related to community demographics, income, and food security. Given their proximity and shared cultural backgrounds, similarities and differences between Hooper Bay and Chevak with respect to context and survey and ethnographic results are detailed in the discussion chapter.

Project Background

The Division of Subsistence was formed in 1978 to conduct research on the uses of wild resources for subsistence purposes by Alaskans. Specifically, the division is tasked with conducting studies of the roles of subsistence hunting and fishing in the lives of the state's residents; quantifying the amount, nutritional value, and extent of dependence on food acquired through subsistence hunting and fishing; making information on subsistence available to the public and other institutions; assisting other Alaska Department of Fish and Game (ADF&G) divisions, the Board of Fisheries, and the Board of Game in decision-making regarding subsistence harvest methods and means; evaluating the effects of state and federal laws and regulations on subsistence hunting and fishing and, when corrective action is indicated, making recommendations to the department; and cooperating with other ADF&G divisions in the preparation of statewide and regional management plans so that those plans recognize and incorporate the needs of subsistence users of fish and game.

Comprehensive subsistence harvest surveys are core to the Division's mission. The comprehensive surveys ask households about their use, harvest, and sharing of a wide range of wild resources, in addition to demographic, income, food security, and subsistence participation information. In 2021, the department received dedicated funding through an increase to the Yukon River Salmon Treaty Implementation (TI) fund to complete comprehensive subsistence harvest surveys in communities in the US portion of the Yukon River drainage. The Division prioritized Yukon River communities that had not previously been surveyed or for which subsistence harvest data were no longer representative of current harvest and use patterns. A targeted survey of Hooper Bay was conducted in 1998 to document the use of seals and sea lions in the Yukon-Kuskokwim (Y-K) Delta; however, these data are not considered to be representative of the total subsistence harvest in the community. In the years prior to the increase in the TI fund, the Division of Commercial Fisheries received several requests to be included in research on salmon harvest and use from the communities of Hooper Bay and Chevak. To fulfill these requests and to establish baseline harvest information, the Divisions of Subsistence and Commercial Fisheries decided to conduct the first TI-funded study with Hooper Bay and Chevak.

Regional Background

Geography and Demographics

Hooper Bay and Chevak are located along the coast of the Yukon River delta. The geographic features of the region include meandering lowland rivers and shallow lakes interspersed with tundra, coastal bluffs, small mountain ranges, and ancient volcanoes. The rivers nearest Hooper Bay and Chevak connect via several natural and manmade channels and provide an inland route to the Yukon River for harvesting



Figure 1-1.–Map of study communities, 2022.

particular resources (e.g., firewood, moose) or visiting other communities along the river. Much of the delta is treeless, although shrubs such as willow and alder are common. The Bering Sea and coastal areas sustain abundant and diverse populations of marine and freshwater resources to support the subsistence harvest by the region's communities. Hooper Bay and Chevak are in the Kusilvak Census Area, which includes 8,368 people, 97% of whom identify as Alaska Native alone or in combination with other races.[1] Because the delta is disconnected from Alaska's road system, freight is delivered mostly by barge and occasionally by air. Daily flights from Bethel and Emmonak move people around the region. Numerous overland trails connect communities in the region, and a winter trail exists between Hooper Bay and Chevak.

Culture and Language

Within the larger Y-K Delta are the traditional homelands of the Central Yup'ik people (Yupiit). Most YK Delta residents speak Yugcetun, also referred to as the Central Yup'ik language, to some degree. Most elders and adults are fluent speakers. An estimated 10,400 fluent Central Yup'ik language speakers—more than any other Alaska Native language—live in Alaska.[2] The Hooper Bay-Chevak dialect of Central Yup'ik is spoken by residents of both communities, with the language referred to as Cup'ik by residents of Chevak. Yup'ik traditions vary by community, but most Yup'ik communities gather regularly to practice traditional dancing, singing, and drumming (Barker et al. 2010). Yup'ik people express and live their cultural values through relationships with the land, water, plants, and animals that provide for the people (Napoleon 1991). Subsistence harvesting provides opportunities for people to take what the land and water offer to them, to practice stewardship by taking only what they need, and to care for others in the community through sharing resources (Raymond-Yakoubian and Raymond-Yakoubian 2015).

Social History

The Central Yup'ik people are estimated to have continuously occupied the Y-K Delta for several thousands of years (Shaw 1998). For much of this time, confederations of single or multiple extended family groups moved seasonally to hunting and fishing areas within a larger territory. The latter half of the 19th century in the Yukon River delta was characterized by regional conflict and cessation of inter-group trade. During this period and in the Bow and Arrow Wars that marked its climax, the Qissunamiut (Chevak ancestors) and Naparyaarmiut (Hooper Bay ancestors) allied with Nunivak and Nelson islanders against the Pastuligmiut and Kuigpagmiut on the Yukon River (Fienup-Riordan 1986; Funk 2010). The Russian-American Company established a trading post at St. Michael in 1833, and although the coastal areas of the Yukon River delta were not directly targeted by Russian traders, interregional trade relations between former enemies resumed during this time (VanStone 1959). The purchase of Alaska in 1867 by the United States spurred further importation of goods and immigration of people into the region, many of whom followed a wave of gold rushes along the Yukon River and Bering Sea coast (Berton 2011). Devastating epidemics of smallpox, measles, and influenza killed many groups of people across the region; for instance, the population at Qissunaq (Kashunuk) is believed to have been reduced by half—from 195 to just 88—by the 1918–1919 Spanish influenza epidemic (Robaut 1891).

Despite the estimated loss of half of their population, the people of the Yukon River delta thrived by continuing to practice their cultural traditions by harvesting food from the land and sea. Commercial fisheries began on the lower Yukon River in 1918, but coastal residents participated to a lesser degree than residents of the lower Yukon River communities (Schultz et al. 1994). Nevertheless, the influx of cash and goods such as firearms and store foods continued to reshape subsistence economies and livelihoods in the region (Buklis 1999). In the late 19th century, religious missionaries of various denominations moved into the Y-K Delta and imposed a new spiritual paradigm that often conflicted with Yupiaq beliefs and ways of relating to the natural world. In the mid-20th century, children were forcibly removed from their communities by Bureau of Indian Affairs agents and sent to boarding schools in the contiguous U.S. (Hirshberg 2008). This

1. U.S. Census Bureau, Washington D.C., n.d. "Explore Census Data: Kusilvak Census Area." Accessed November 23, 2022. https://data.census.gov/table?q=kusilvak+census+area&tid=DECENNIALPL2020.P1
2. Alaska Native Languages. "Yugtun • Cugtun: Yup'ik/Cup'ik/Cup'ig Language," accessed March 17, 2023. https://www.alaskanativelanguages.org/yugtun

removal had devastating consequences for the physical, emotional, and spiritual wellbeing of the children, their families, and their communities (Barnhardt 2001). The losses of knowledge and cultural traditions that resulted from epidemics, missionaries, and boarding schools have affected subsistence practices, but the communities of Hooper Bay and Chevak continue to depend heavily on the harvest of locally available resources.

Regulatory Context

Overview of State and Federal Subsistence Law

Alaska is unique in the nation in having both state and federal laws that recognize customary and traditional (C&T) subsistence uses of wild resources and the amount of those resources necessary for subsistence (ANS). Aboriginal hunting and fishing rights were extinguished by the Alaska Native Claims Settlement Act (ANCSA) in 1971. Both the state and federal governments subsequently adopted laws intended to protect opportunities for customary and traditional uses of fish and wildlife in the state. In 1978, the Alaska State Legislature adopted priorities for subsistence uses of fish and game over other consumptive uses, including a subsistence fishing priority under what was then Alaska Statute 16.05.251(a)(6, 12) and a subsistence hunting priority under what was then AS 16.05.255(a)(10). In 1980, the U.S. Congress adopted a similar subsistence priority in the Alaska National Interest Lands Conservation Act (ANILCA). In 1986, after a court decision striking down state regulations that imposed a rural residency requirement on subsistence users, the Alaska Legislature adopted a statute re-establishing a rural subsistence priority consistent with ANILCA's so that the state could continue to manage all subsistence uses on state and federal land. In 1989, the language in the state statute that re-established a rural subsistence priority was ruled unconstitutional in *McDowell v. State of Alaska.*[3] In 1992, the Alaska Legislature adopted the current subsistence statute, AS 16.05.258, which lacks a rural preference.

The Alaska Board of Fisheries (BOF) and the Alaska Board of Game (BOG) adopt and revise state subsistence regulations throughout Alaska. Fishing and hunting statutes and regulations affecting subsistence have been further refined by and in response to subsequent court rulings. After the state's rural priority language in statute was ruled unconstitutional, the federal government began managing subsistence uses by rural residents on federal public lands and waters. Federal subsistence regulations are adopted by the Federal Subsistence Board (FSB).

The practical consequence of this arrangement is that subsistence users must often consult both state and federal regulations for the lands on which they are hunting and fishing. This can be confusing, even for agency personnel. State regulations generally apply on most lands, and exclusively on state and private lands, which include ANCSA regional and village corporation lands.[4] State and federal seasons and bag limits are often identical, but in some cases they differ significantly. On most federal public lands, unless pre-empted by federal law, all Alaska residents may hunt and fish under state regulations and bag limits. In certain national parks and monuments, hunting and fishing may be restricted to certain federally qualified subsistence users,[5] for example resident zone community residents. Federal subsistence regulations apply to federally qualified subsistence users on federal public lands.

In addition to regulating resource harvest, state and federal subsistence laws also exist that simultaneously protect and restrict the right of people to barter and customarily trade subsistence resources.[6] For details on the regulatory history of barter and customary trade, see Pappas (2012) and Brown et al. (2017).

3. *McDowell v. State of Alaska*. 785 P. 2d 1 (Alaska 1989).
4. However, ANCSA corporations and individual allotment owners may limit access to Native-owned lands, as could any other landowner.
5. Federal qualifications include being a rural Alaska resident domiciled in a community determined to have customary and traditional use of a fish stock or game population.
6. Barter and customary trade are defined in AS 16.05.940.

Local Regulatory Context and Current Issues

The Y-K Delta comprises federal, state, regional Alaska Native corporation, village corporation, and privately owned lands. Much of the federal land in the region is managed by the U.S. Fish and Wildlife Service, including Yukon Delta National Wildlife Refuge (YDNWR) lands, which extend from Stebbins in the north to Quinhagak in the south. A 2023 decision by the Federal Subsistence Board recognized Hooper Bay and Chevak (and Scammon Bay) residents as federally qualified subsistence users of all salmon species in waters adjacent to and within the YDNWR. Prior to the adoption of the new regulation, residents of these communities were considered federally qualified users of fall chum salmon and freshwater fish species other than salmon, only.[7]

As residents of Alaska, the people of Hooper Bay and Chevak are also eligible to participate in state subsistence fisheries and hunts. The communities are located in the Coastal District of the Yukon Management Area for fisheries, and Game Management Unit (GMU) 18 for the harvest of wildlife. In 2021, the subsistence salmon fishery remained closed, with harvest limited to nonsalmon fish using 4-inch mesh gillnets (Ransbury et al. 2022). This fishery closure applied to Chinook, summer chum, and fall chum salmon. Commercial fisheries were also closed for the duration of the 2021 season. Although run strengths of Chinook and chum salmon have fluctuated over the past few decades, the subsistence fishery had not previously been closed for an entire season for these key subsistence species in the Coastal District. This new reality caused significant hardship for the residents of Hooper Bay and Chevak, both because they were unable to provide food for their families and they had fewer opportunities to practice cultural values and traditions, such as sharing food with others and passing on knowledge to youth. Because of this closure and the poor returns of Yukon River-bound salmon, residents of the Yukon Management Area Coastal District have argued that they should not be restricted from harvesting salmon in terminal coastal streams and that the fishery closures on the mainstem Yukon River should not necessarily apply to those systems.[8] However, fishery managers made the decision to close the subsistence salmon fishery to protect any Canadian-origin Chinook and fall chum salmon that may enter but then leave coastal streams during migration. Previous studies have shown, though not conclusively, that salmon in coastal streams are eventually bound for the Yukon River or Norton Sound; more data are needed to assess the degree to which salmon migrate through or spawn in coastal streams (e.g., Brown and Eiler 2005; Kerkvliet 1986).

Seasonal Round

Hooper Bay and Chevak share many similarities in their seasonal round of subsistence activities, which is described jointly below. Practices that are unique to one community are noted in the text. Many factors influence which resources are harvested and when, including availability or abundance of particular resources, cultural or local traditions, climate or weather patterns, seasonal access to harvest areas, type and availability of income-earning opportunities, and regulatory "open" periods for harvest of fish or game populations (Fienup-Riordan 1986). Residents of both communities harvest marine resources from Hooper, Angyoyaravak, and Hazen bays, and from areas up to 40 miles offshore in the Bering Sea, from the communities of Scammon Bay in the north to Tununak in the south. Harvest areas for freshwater and terrestrial resources cover much of the Yukon River delta, including river-lake complexes—rivers and lakes connected to one another via natural or manmade channels—that provide access via Kashunuk Slough to the Yukon River near Pilot Station.

Throughout the year, people harvest several nonsalmon fish species. Whitefishes, including humpback, broad, and round whitefish; Bering and least cisco and sheefish are harvested in open water and under the ice with set gillnets. Seal hunters target bearded, ringed, and spotted seals and regularly harvest seals in open water or on top of the ice. Hunters target seals when visibility conditions are good so that they may

7. Federal Subsistence Board Public Materials: Volume I. Fisheries Proposal 23-02 Executive Summary. https://www.doi.gov/sites/doi.gov/files/vol-i-consensus-agenda-final.pdf
8. Yukon-Kuskokwim Delta Regional Advisory Council meeting minutes. October 27-28, 2022. Accessed March 16, 2023. https://www.doi.gov/sites/doi.gov/files/r5-draft-ykdrac-draft-fall-2022-meeting-minutes-3rd-draft.pdf

easily retrieve them from open water. Seasonally specific patterns of harvest for nonsalmon fish and seals are described below.

From March to May, prior to ice breakup in nearshore areas, marine mammal hunters attempt to harvest seals from the ice. They travel solo or in groups of two to six hunters by skiff to ice floes or areas of shorefast ice where seals have hauled out. Hunting from on top of the ice reduces the chances that a seal will sink in the water before it is retrieved and makes transferring a seal into the skiff or butchering on the ice much easier than if the seal were harvested in the open water. However, hunters still target seals after breakup, or hunt them opportunistically while traveling to harvest areas for other resources. Some Chevak hunters leave their boats near Hooper Bay to access ice-free marine waters for hunting because the bay remains frozen often until May. They drive across the bay ice by snowmachine when it is safe to do so or overland by snowmachine until too little snow remains to make the trip. People harvest walrus and beluga whale during this time when these animals migrate through the Bering Strait. Beluga whales migrate past Hooper Bay in the spring, making occasional stopovers in the bay and nearby rivers to follow schools of Pacific herring.[9] People hunt beluga whales cooperatively, often with multiple boats pursuing a pod simultaneously. Hunters use large caliber rifles to kill the whale, and a harpoon gun to attach a line for retrieving the whale. Successful hunters tow the whale to shore where it is butchered, and they distribute shares of beluga meat widely throughout the community. Both Hooper Bay and Chevak participate in beluga whale hunting.

During the ice-free period that begins in late April or early May, residents are able to travel by boat and navigate lake-river complexes in search of waterfowl and to set gillnets for whitefishes near the outlets of lakes. In late spring, people make forays into marine waters to drift for herring, jig for smelts, or dig for clams. Fishing for nonsalmon species, including herring, Pacific halibut, smelts, and saffron cod (locally known as tomcod), continues into June. People also gather bird eggs in May and June and begin to prepare for salmon camp. Most Hooper Bay residents set gillnets along the beach that runs north to south outside of town, and Chevak residents travel to fish camps on the Keoklevik, Kashunuk, and Aphrewn rivers to set up fish camps. By mid-June, fishing families harvest the first salmon of the season. Chinook salmon arrive first, followed by chum salmon. In even-numbered years, pink salmon return in abundance to coastal streams, although they are not as prized as Chinook or chum salmon. In 2021, due to the Chinook and chum salmon fishery closures, many people reported not traveling to fish camps for more than a few days or at all. Others went to fish camp to harvest other resources, such as whitefishes, or they harvested more pink salmon. In a typical year, however, fishing groups spend up to six weeks at fish camp, set gillnetting and drying fish on racks outside of cabins. By mid-July, most salmon fishing is complete, and people return home to prepare for berry camp.

Many Hooper Bay and Chevak families have specific camps just for picking berries. Typically, a family member will travel to berry camp before the berry season to determine when the berries will be ripe, prepare camp (e.g., bring fuel, fix cabins), and return to the community. Later, when the berries are ripe, the family will travel to berry camp and spend a few days to a month at camp, picking salmonberries (cloudberries), blackberries (crowberries), nagoonberries (marsh raspberries), blueberries, and low- and highbush cranberries. Other plants, such as stinkweed and tundra tea, may be harvested while at berry camp, or opportunistically from home throughout the summer.

When the salmon runs slow down and the berries have been picked, hunters get ready to go moose hunting. Most people harvest moose in the early fall, before the rut period begins in late October. Moose hunting generally occurs along rivers, so hunters camp on sandbars or use fish camp cabins from which to base their hunting operations. While moose hunting, some hunters will opportunistically hunt for waterfowl, which are fatter in the fall than in the spring. Hunters may also harvest seals from the open water during the fall. Nonsalmon fishing starts again around this time and continues through the winter. Fishers set gillnets at lake outlets as whitefish migrate back to rivers from their lakeshore spawning grounds. People also set fish traps (fyke nets) for Alaska blackfish.[10] Fishers continue to use traps and gillnets after ice has formed on lakes and

9 Hereinafter *herring*.

10. Hereinafter *blackfish.*

rivers, with traps and nets set through holes chipped or cut through the ice. Set gillnets target whitefishes, northern pike,[11] and burbot (locally known as "lush") throughout the fall and winter. Some families make once-yearly trips to the Yukon River to cut trees for firewood in the late fall in preparation for winter, in order to offset the high cost of heating fuel in the communities.

Subsistence harvesting activities slow down as temperatures drop and daylight becomes short. Some respondents said that they preferred winter moose hunting because it is easier to travel and transport a moose via snowmachine, but others only hunted moose in winter if they were not successful in the fall. A few people trap or hunt furbearers, including mink and beaver. Hunting for hares and ptarmigan also takes place in the winter. Seal hunting from sea ice continues, as does fishing under the ice. A variety of gears are used: set gillnets and hook and line catch pike, burbot, and whitefishes, dipnets catch sticklebacks (also known as needlefish), and traps catch blackfish. Fishermen described checking their traps or nets every few days in the winter until chipping through the ice becomes overly burdensome. Other respondents viewed winter as a time to stay home: they would go out when the weather is favorable or cabin fever sets in.

Study Objectives

The project had the following objectives:

- Estimate subsistence harvests and uses of wild fish, birds, land animals, and marine and plant resources by residents of Hooper Bay and Chevak in a 12-month study year (2021);
- Map areas used for hunting, fishing, and gathering during the study year;
- Work with the local tribal government to select and interview longtime and knowledgeable residents who have extensive history of participating in subsistence activities;
- Collect demographic information for Hooper Bay and Chevak, including population size, age composition, ethnicities, birthplaces, and lengths of residency in the study community;
- Characterize Hooper Bay and Chevak's involvement in the cash economy, including jobs and other sources of income; and
- Document local concerns relating to subsistence hunting and fishing.

Research Methods

Ethical Principles for the Conduct of Research

The project was guided by the research principles outlined in the Alaska Federation of Natives Guidelines for Research[12] and by the National Science Foundation, Office of Polar Programs in its Principles for the Conduct of Research in the Arctic,[13] 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 the provision of study findings to each study community upon completion of the research.

11. Hereinafter *pike.*
12. Alaska Federation of Natives. 2013. "Alaska Federation of Natives Guidelines for Research." Alaska Native Knowledge Network. Accessed Nov. 14, 2022. http://ankn.uaf.edu/Publications/Knowledge.html
13. National Science Foundation Interagency Social Science Task Force. 2012. "Principles for the Conduct of Research in the Arctic." Accessed Nov. 14, 2022. http://www.nsf.gov/od/opp/arctic/conduct.jsp

Project Planning and Approvals

On October 12, 2021, Division of Subsistence staff traveled to Hooper Bay to meet with the Native Village of Hooper Bay's tribal council to discuss the project, including survey methods and objectives (Table 1-1; Table 1-2). The tribal council subsequently approved the project at their regular meeting on November 16, 2021. Researchers called into the November 16, 2021, meeting of the Chevak Traditional Council to seek approval for the project. The Chevak Traditional Council voted to approve the research at that meeting.

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 Hooper Bay survey instrument in December 2021 and the Chevak survey instrument in April 2022. As noted above, a key objective of this study was to structure the survey instrument to collect demographic, resource harvest and use, and other economic data that are comparable with information collected in other household surveys in the study communities and with data in the Community Subsistence Information System (CSIS).[14] Appendices A and B are examples of the survey instruments used in this project for Hooper Bay and Chevak, respectively. Following several challenges with the survey effort in Hooper Bay (see Household Survey Implementation), the instrument was modified prior to deployment in Chevak in an effort to increase the sample and decrease an what was anticipated to be a high refusal rate, given the challenges in Hooper Bay. Sections on income and cash employment, food security, and individual participation in subsistence harvesting and processing were omitted from the survey instrument used in Chevak to reduce the amount of time the survey took to complete in order to reduce the likelihood of refusal. The average survey lengths in Hooper Bay and Chevak were 37 and 29 minutes, respectively (Table 1-3).

Mapping Locations of Subsistence Hunting, Fishing, and Gathering Activities

During household surveys, the researchers asked respondents to indicate the locations of their fishing, hunting, and gathering activities during the study year. In addition, surveyors asked the respondents to mark on the maps the areas of search and harvest, the species harvested, the amounts harvested, and the months of harvest. ADF&G staff established a standard mapping method. Points were used to mark harvest locations and polygons (circled areas) were used to indicate harvest effort areas, such as areas searched while hunting moose. Lines were drawn to depict when the harvesting activity did not occur at a specific point: for example, lines were used to depict traplines or courses taken while drift gillnetting for fish.

Harvest locations and fishing, hunting, and gathering areas were documented using an application designed on the ArcGIS Runtime SDK for the iOS platform, a mapping data collection application for iPad.[15] The point, polygon, or line was drawn on a U.S. Geological Survey topographic relief map downloaded on the iPad. The iPad allowed the user to zoom in and out to the appropriate scale, and the ability to document harvesting activities wherever they occurred in the state of Alaska. Once a feature was accepted, an attribute box was filled out by the researcher that noted the species harvested, amount, method of access to the resource, and month(s) of harvest. The data were uploaded via WiFi to a server. Once data collection was complete the data were downloaded into an ArcGIS file geodatabase. Paper maps were also available to be used as a reference for respondents as well as by a local research assistant (LRA) when an ADF&G researcher was not available for the interview. These maps were 11x17 inches at a scale of 1:250,000 and 1:500:000 and only documented the area within the survey area. Very few paper maps were used, and research staff digitized markings on paper maps using the iPad application.

Once a survey was complete, researchers conducted a quality control exercise by matching the map data to the survey form to ensure all map data had been documented. This was completed in the field before the surveys were submitted to the community's lead researcher. Once the data had been uploaded, researchers also verified that the household data were logged into the server.

14. ADF&G Community Subsistence Information System: http://www.adfg.alaska.gov/sb/CSIS/ Hereinafter *ADF&G CSIS*.
15. Product names are given because they are established standards for the State of Alaska or for scientific completeness; they do not constitute product endorsement.

Table 1-1.–Project staff.

Task	Name	Organization
Northern Regional Program Manager	Alida Trainor	ADF&G Division of Subsistence
Principal Investigator	Alida Trainor	ADF&G Division of Subsistence
Administrative support	Pamela Amundson	ADF&G Division of Subsistence
	Cheryl Park	ADF&G Division of Subsistence
	Tamsen Coursey-Willis	ADF&G Division of Subsistence
Data Management Lead	David Koster	ADF&G Division of Subsistence
Programmer	Margaret Cunningham	ADF&G Division of Subsistence
Data Entry	Loraine Navarro	ADF&G Division of Subsistence
	Reve Tomlin	ADF&G Division of Subsistence
	Devin Anderson	ADF&G Division of Subsistence
	Halia Valdez	ADF&G Division of Subsistence
Data Cleaning/Validation	Loraine Navarro	ADF&G Division of Subsistence
	Reve Tomlin	ADF&G Division of Subsistence
Data Analysis	Dave Koster	ADF&G Division of Subsistence
	Loraine Navarro	ADF&G Division of Subsistence
	Margaret Cunningham	ADF&G Division of Subsistence
	Reve Tomlin	ADF&G Division of Subsistence
Mapping	Loraine Navarro	ADF&G Division of Subsistence
Editorial Review Leads	Rebecca Dunne and Adam Knight	ADF&G Division of Subsistence
Production Lead	Adam Knight	ADF&G Division of Subsistence
Field Research Staff	Jeff Park	ADF&G Division of Subsistence
	Brooke McDavid	ADF&G Division of Subsistence
	Chris McDevitt	ADF&G Division of Subsistence
	Kathleen Roush	ADF&G Division of Subsistence
	Cassidy Somerville	ADF&G Division of Subsistence
	Blake Spears	ADF&G Division of Subsistence
	Adam Knight	ADF&G Division of Subsistence
	Chance Wilcox	ADF&G Division of Subsistence
Local Research Assistants	Charlie Bell	Hooper Bay, AK
	Roy Bell	Hooper Bay, AK
	Louisa Night	Hooper Bay, AK
	Nancy Night	Hooper Bay, AK
	Kenneth Reed	Hooper Bay, AK
	Nelson Simon	Hooper Bay, AK
	David Smart Jr.	Hooper Bay, AK
	Xavier Noratak	Chevak, AK
	Roy Atchak	Chevak, AK
	Inez Pingayak	Chevak, AK
	Leo Ayuluk	Chevak, AK
	Andy Allen	Chevak, AK

Source ADF&G Division of Subsistence, 2022.

Table 1-2.–Community approval and review meetings and fieldwork schedule, Hooper Bay and Chevak, Alaska, 2023.

Community	Community approval meeting	Fieldwork	Community data review meeting
Chevak	October 12, 2021	May 2–11, 2022	February 5, 2023
Hooper Bay	October 12, 2021	January 13–24, 2022	March 15, 2023

Source ADF&G Division of Subsistence, 2023.

Table 1-3.–Survey length, Hooper Bay and Chevak, Alaska, 2021.

	Interview length (in minutes)		
Community	Average	Minimum	Maximum
Chevak	29	10	60
Hooper Bay	37	4	86

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

At the end of the field season, iPad data hosted in ArcGIS Online were downloaded by division information management staff for analysis in ArcMap and storage in geodatabase format. Any remaining paper maps were digitized before map production began. The data were first sorted by community, and then by resource. Maps were then produced at the resource-specific level for each community. Search and harvest areas used by individual households are grouped by community and resource category to maintain confidentiality.

Key Respondent Interviews

While researchers were in the study communities, they consulted with the tribal councils, tribal coordinators, and LRAs to identify key respondents to interview. The purposes of the key respondent interviews were to provide additional context for the quantitative data and to provide information for the community background section at the beginning of each chapter, the seasonal round sections, harvest-over-time analysis, and the community comments and concerns section at the end of each chapter. The number of key respondent interviews varied among communities. Key respondent interviews were semi-structured and directed by a key respondent interview protocol designed by ADF&G (see Appendix C). In addition to gathering qualitative data through the key respondent interview protocol, ADF&G staff took notes during interviews to provide additional context for this report. Key respondents were informed that to maintain anonymity their names would not be included in this report.

Household Survey Implementation

The sampling goal was to complete surveys with 60% of households in each community. Details of the survey efforts in Hooper Bay and Chevak are described below.

Hooper Bay

In Hooper Bay, the survey was deployed January 13–24, 2022, by division staff and local research assistants (LRAs; Table 1-1). Survey training was held January 13–14, 2022. Seven LRAs participated in training and completed surveys with households. Several challenges were encountered by division staff during the survey effort. First, a local outbreak of Covid-19 occurred shortly after the survey team arrived in Hooper Bay. It was not immediately clear whether the community would go into lockdown, so after consulting with

the tribal coordinator, staff decided to stay in the community but to contact households via telephone instead of in person. The phone list received from ADF&G Division of Commercial Fisheries was out of date, so telephonic contact was largely unsuccessful. After two days in the community, the number of Covid-19 cases in Hooper Bay had doubled, and staff decided to finish the remaining surveys that had been scheduled and conduct key respondent interviews, but not to continue the survey effort. Many households refused to participate because of the risk of spreading Covid-19, because they were frustrated with ADF&G for closing the subsistence salmon fishery in 2021, or for other reasons (Table 1-4). Several survey participants concluded the survey prior to finishing it, citing the length of the survey and the time it took to complete. These challenges prompted staff to revise the survey instrument for use in Chevak in hopes that a shorter survey would increase the sampling rate in that community. Overall, 52 Hooper Bay households (22%) completed a survey and 70 of 122 contacted households (57%) declined to participate in the study. The low sample and high refusal rates in Hooper Bay are atypical for Division of Subsistence survey efforts in other communities across the state and speak to the local tensions that were present in 2022.

Chevak

The Chevak survey was deployed May 2–11, 2022. Division staff and LRAs are listed in Table 1-1. Five LRAs received training and completed surveys with households. Researchers completed surveys by working with the tribal administrator at the Chevak Traditional Council to identify the names of household heads and the locations of sampled households. High refusal rates in Hooper Bay and concerns of similar outcomes in Chevak prompted a review of the survey tool to identify lines of inquiry that could be omitted to shorten the survey and encourage participation. The survey effort in Chevak resulted in a higher sampling rate than in Hooper Bay, but some households were still reluctant to share information with ADF&G staff (Table 1-4). Staff contacted 188 households, of which 49% (92 households) completed a survey and 36% (52 households) declined to be surveyed.

Table 1-4.–Estimated households and sample achievement, Hooper Bay and Chevak, Alaska, 2021.

	Community	
Sample information	Chevak	Hooper Bay
Number of dwelling units	207	241
Survey goal	60%	60%
Households surveyed	92	52
Households failed to be contacted	44	16
Households declined to be surveyed	52	70
Households moved or occupied by nonresident	8	0
New households	15	0
Total households attempted to be surveyed	188	138
Refusal rate	36.1%	57.4%
Final estimate of permanent households	214	241
Percentage of total households surveyed	43.0%	21.6%
Survey weighting factor	2.33	4.63
Sampled population	460	234
Estimated population	1,070.0	1,084.5

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

Data Analysis and Review

Survey Data Entry and Analysis

Surveys were coded for data entry by research staff and reviewed by the project leads in each community for consistency. Responses were coded following standardized conventions used by the Division of Subsistence to facilitate data entry. Information Management staff within the Division of Subsistence set up database structures within Microsoft SQL Server[16] 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, developed in Microsoft Access, were available on a secure internal network drive. Daily incremental backups of the database occurred, and transaction logs were backed up hourly. Full backups of the database occurred twice weekly. This ensured that no more than one hour of data entry would be lost in the unlikely event of a catastrophic failure. All survey data were entered twice, and each set compared in order to minimize data entry errors.

Once data were entered and confirmed, information was processed with the use of R Statistical software version 4.2.0, or higher, and Tidyverse packages. Initial processing included the performance of double-data entry validation and standardized logic checks of the data with R-Markdown. Logic checks are often needed in complex data sets where rules, constraints, and referential integrity do not capture all 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 appendices D and E for conversion factors).

ADF&G 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. During this review, analysts looked for indications of systematic bias, which included frequency of missing data for individual questions. Through this evaluation, analysts determined the level of missing data for employment and income related questions in Hooper Bay was unacceptable and that the avoidance of these questions likely had a systematic component. As a result, the sample for income and employment were not deemed representative of the community and estimates were not developed. Income and employment questions were not asked in Chevak. Other variables were examined and found to contain only apparently random occurring instances of missing data and no clear signs that the sample was not representative. 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 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,

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

$\bar{y}$ = 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 indicates less confidence in the estimate. For interpretation with this study, a confidence interval range where the lower bound falls below the sum of reported values suggests the reported harvest amount is plausibly the same as the community estimate. However, due to relatively small sample sizes in Hooper Bay, a more robust interpretation is that the sample size may be inadequate for estimation of a species. Further, because subsistence harvests are typically approximately exponentially distributed, all estimates having a lower confidence bound below reported values can be considered 'minimum' estimates in Hooper Bay. All other estimates can be considered representative of each community with the stated level of confidence. Because the sample was taken from a finite population of households, confidence intervals were calculated using finite population correction as formulated below (Cochran 1977):

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

where:

$t_{\frac{a}{2},\,n-1}$ = student's two-tailed t critical value for α=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.

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

Ethnographic Interview Transcription and Analysis

Upon return from fieldwork, digitally recorded interviews were transcribed using the Olympus DSS Player Standard Transcription Module software and reviewed for accuracy. Interview data were imported to ATLAS.ti, a computer-aided qualitative data analysis software for coding. The development of an appropriate coding structure is critical to the analysis, so the PI and project staff worked together to develop this structure prior to any analysis (see Andersen et al. 2013). Coding of transcribed interviews is accomplished using an inductive process that allows for the development and refinement of codes based on emergent themes and relationships present in the interview data, as opposed to using a predetermined code list. Specifically, researchers identified levels of themes or categories of information from broad categories (for example, knowledge about nonsalmon fish as it relates to seasonality of harvest and gear types) to more detailed information (for example, the relationships between harvests and changing water temperatures). The final steps in the process were to identify and organize emergent themes and to describe them and their relationships through analytical memoing (Bernard 2011). Analytical memos are used to fully describe a theme using quotations from the coded interviews and to place themes in the broader context of the study by referencing previous research.

Population Estimates and Other Demographic Information

As noted above, a goal of the research was to collect demographic information for a sample of year-round households in each study community. For this study, "year-round" was defined as being domiciled in the community when the surveys took place and for at least 6 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 year-round households, as identified by Division of Subsistence researchers in consultation with community officials and other knowledgeable respondents.

There may be several reasons for the differences among the population estimates for Hooper Bay and Chevak generated from the division's surveys and other demographic data developed by the 2020 decennial census, the U.S. Census Bureau's American Community Survey,[17] and the Alaska Department of Labor and Workforce Development.[18] Sampling of households, depending on when surveys are conducted, or eligibility criteria for inclusion in the survey, may explain differences in the population estimates. Specific reasons for differences in estimates are described in study community chapters.

Map Data Entry and Analysis

As discussed above, maps were generated based on data collected using an iPad or on 11x17-inch paper maps. All data were entered on an iPad, either in the field during interviews or by ADF&G research staff while coding survey data. Map features were matched to the survey form to ensure that all harvest data were recorded accurately. Once all data were entered, an ArcGIS file geodatabase was downloaded by ADF&G researchers from the server, and maps showing harvest locations for each species were created in ArcGIS 10.X using a standard template for reports. Maps show search and harvest areas for fish and marine invertebrate species, plants, berries, wood, and birds, and hunting areas for land and marine mammals. To ensure confidentiality, specific harvest locations for large land mammals were not produced for the report. Maps were reviewed at a community review meeting to ensure accuracy and to identify any data the community would like to keep confidential.

Food Security Analysis

A "food security" section of the survey used a standard national questionnaire to assess whether or not the household had enough food to eat, whether from subsistence sources or from market sources. Food security questions were asked only in Hooper Bay. The protocol used in this survey was a modified version of the 12-month food security scale questionnaire developed by the U.S. Department of Agriculture (USDA). This questionnaire is administered nationwide each year as part of the annual Current Population Survey (CPS). In 2007, approximately 125,000 U.S. households were interviewed, including 1,653 in Alaska (Nord et al. 2008). From CPS data, the USDA prepares an annual report on food security in the United States.

Food security protocols have been extensively reviewed (Coates 2004; Webb et al. 2006; Wunderlich and Norwood 2006) and have been used around the world, including in northern Burkina Faso (Frongillo and Nanama 2006), Bangladesh (Coates et al. 2006), Bolivia and the Philippines (Melgar-Quinonez et al. 2006), and Brazil (Pérez-Escamilla et al. 2004). Although there have been efforts to develop a universal food security measurement protocol (Swindale and Bilinsky 2006), researchers often modify the protocol slightly to respond to community social, cultural, and economic circumstances, as was done here.

For this study, the food security protocol was modified by the addition of several questions designed to determine whether food insecurities, if any, were related to subsistence foods or store-bought foods. 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

17. U.S. Census Bureau, Washington, D.C., n.d. "Explore Census Data." Accessed Nov. 14, 2022. https://data.census.gov/cedsci/
18. Alaska Department of Labor and Workforce Development (ADLWD), Research and Analysis Section, Juneau, n.d. "Population of Alaska by economic region, borough and census area, 2010–2013." Accessed Nov. 14, 2022. http://laborstats.alaska.gov/pop/

was replaced with the term "healthy meals" to reflect unique dietary and cultural circumstances in rural Alaska.

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.

Community Review Meetings

ADF&G staff presented preliminary survey findings and associated search area and harvest maps at a meeting in each community. Table 1-2 shows when a community review meeting occurred in each study community and how many community residents attended. At the community meeting in Chevak, researchers shared results and asked attendees about search and harvest area maps. Three attendees discussed the study findings, corroborated search and harvest area data, and shared their experiences as subsistence users in recent years. Researchers shared Hooper Bay survey results over the phone with members of the tribal council at their monthly meeting held on March 15, 2023. Council members gave feedback on the number of beluga whales and muskoxen typically harvested in a year, and shared observations about fishing closures.

Final Report Organization

This report summarizes the results of systematic household surveys and mapping interviews conducted by staff from ADF&G as well as LRAs, and the report also summarizes resident feedback provided at community review meetings. The findings are organized by study community. Each 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, and food security,[19] and harvest and use trends over time. Maps of hunting, fishing, and gathering areas used by each community in 2021 are included in individual chapters. The final chapter of the report provides a short, general overview of the harvests and uses of wild resources in the study communities.

With regard to the 2021 harvest and use data in each chapter, the content is consistent in each chapter because the data are based on the survey instrument; however, there are differences among the chapters in terms of documenting historical trends because each community has a different history of subsistence harvesting practices.

ADF&G provided a draft report to the study communities for review and comment. After receipt of comments, the report was finalized. ADF&G mailed a 4-page summary of the study findings to every household in the study communities (appendices F and G).

19. Employment characteristics, individual participation, and food security sections are omitted from the Chevak chapter of this report. See Systematic Household Surveys section for details.

2. HOOPER BAY

This chapter summarizes findings from household surveys conducted in 2021, in Hooper Bay, Alaska, including demographic characteristics, responses to harvest assessment questions, harvest estimates, employment, income, sharing of wild resources, and food security. Harvest numbers are expanded estimates. Results from this survey are available online in the ADF&G Community Subsistence Information System (CSIS). In addition to the comprehensive survey, 12 ethnographic interviews were conducted with 12 key respondents. The ethnographic interviews help to provide context for the quantitative data presented in this chapter. Findings from interviews, historical background information, and comparisons to earlier studies are presented throughout the chapter.

Community Background

Situated between the mouths of the Kuskokwim and Yukon rivers, the mainly Yup'ik village of Hooper Bay (Naparagamiut) is approximately 150 miles northwest of Bethel, Alaska, and 17 miles from the nearest community of Chevak (Figure 1-1). Commonly known as the Big Lake district, the region is characterized by numerous lakes of various size (Oswalt 1952). Except for the nearby Askinuk Mountains, the landscape is flat and wet with a low elevation, and large daily tides drain sections of the coast and bays. The village of Hooper Bay is in an area just high enough to avoid major flooding, but with easy overland and river access to the bay. This region is located near the southernmost limit of winter sea ice, an important factor for the subsistence hunting of sea mammals (Oswalt 1952).

Pre-contact life in the Hooper Bay region was defined by a number of seasonal camps (Oswalt 1952). Where and when people traveled depended on the resources available for harvest, and the many camps ensured resource diversity and security throughout the year. During the winter, people would gather at a larger settlement where the contemporary village is now located. They used this time for ceremonies, trade, and the building of relationships (Fienup-Riordan and Rearden 2016). The organization of camps was structured based on strict gender roles: men would stay in the qasgi, the men's house, while women and children stayed in huts around the community. The men and boys hunted and took part in warfare, and the women and girls gathered plants and processed the harvests. Gendered hunting, gathering, and processing roles are still often seen today (01162022HPB1).

Local Yup'ik historians share many stories of the pre-contact society which center around warfare, and some archeological evidence supports long-term fighting spanning centuries (Fienup-Riordan and Rearden 2016). Stories do not resolve why the conflict, known as the Bow and Arrow wars, began, but they emphasize vengeance as the continuing motivator (Fienup-Riordan and Rearden 2016). Accounts tell of Hooper Bay inhabitants engaging in the conflicts between coastal communities and Yukon communities further inland. The Hooper Bay stories say the final battle in this region occurred at present-day Hooper Bay, between the coastal allies and those from further north (Fienup-Riordan and Rearden 2016). By 1830 large-scale violent conflict between communities had ended due to the sudden decline in population from disease and the addition of trading with Euroamerican explorers.

The first recorded contact by Euroamericans was in 1878 when E.W. Nelson stopped in Hooper Bay on his way from St. Michael to Cape Vancouver, though the people of Hooper Bay may have been contacted by Russian Orthodox missionaries earlier (Oswalt 1952). The community itself sits on three knolls which, due to a long-term occupancy and the buildup of debris, have risen in elevation. An archaeological excavation working around current residences recovered artifacts that date the Hooper Bay village site from approximately 1600 CE to present. During the archaeological investigation, the site was not fully excavated and the possibility of even longer occupancy of the site exists (Oswalt 1952). At the time of Nelson's arrival, the community of Hooper Bay was locally known as Askinuk. In 1878, Nelson named the nearby bay Hooper Bay after Capt. Calvin Leighton Hooper. In 1934, when a post office was established, the community name officially changed as well (Orth 1967). The modern Yup'ik name, Naparagamiut

was officially recorded by the United States Coast and Geodetic Survey in 1951 and means "stake village people."

Because the community is off the road system, access is limited to either planes, or all-terrain vehicles (ATVs) and snowmachines from nearby communities. Between June and August, a few barges bring supplies and the year's supply of fuel. At other times of the year, goods must be flown in. Because the topography is very flat, the wind can be harsh and may blow up to 40 mph in the winter.[1] The temperatures range from highs near 80˚F in summer to lows of -25˚F in winter.

Hooper Bay's location allows access to a vast range of wild resources in every season of the year. The people have easy access to the bay and offshore sea ice for hunting marine mammals such as seals and beluga whales. The tundra yields large amounts of berries: some family groups spend time each year at a berry camp, where they pick close to 70 gallons of berries in under a week (01152022HPB1). Multiple species of birds migrate and nest close to the community. Subsistence users can harvest many species of fish, such as salmon, saffron cod, and several different whitefishes year-round in the bay, rivers, sloughs, and lakes surrounding the community.

Hooper Bay was incorporated in 1966 and is part of the Kusilvak census area[2]. Hooper Bay's village corporation, Sea Lion, and the ANCSA regional corporation, Calista, both serve the community. The community includes two stores, a clinic, school, post office, and a youth and elder cultural center. Although employment is available, much of it is seasonal, such as with Interior wildland fire crews during the summer and the school in the winter. Respondents discussed the tradeoffs involved for those who seek out employment. Subsistence harvesting takes time, and if someone has to travel away for work, they are unable to spend the necessary time to collect the wild foods they prefer (01222022HPB1). Subsistence also requires cash, whether it is earned within the household or received from other households or entities. Necessary purchases to participate in subsistence activities include fuel, equipment, and supplies for harvesting efforts. Cash is also often used to purchase store food to supplement wild food (01222022HPB1).

Although Hooper Bay is integrated into the cash economy, the community is working to retain its cultural traditions. To many residents, passing on their knowledge and values is an important responsibility (01212022HPB1; 01002022HPB4; 011162022HPB1; 01222022HPB1; 01002022HPB1; 01212022HPB2). Hunters have children join them on harvests and teach them about the land, environment, and correct hunting practices for each species. The Hooper Bay Charter School plays a supporting role by utilizing a curriculum based on traditional values. Students are encouraged to be active in, and take control of, their own learning.[3,4] The Yup'ik language has a significant place in the curriculum, and the teachers hope it helps the students connect with both their Native and non-Native roots.

Population Estimates and Demographic Information

Expanding for unsurveyed households, 1,085 residents lived in 241 households in Hooper Bay in 2021, and 97% of the population identified as Alaska Native (Table 2-1; Figure 2-1). At the time of the survey, the estimated population included 517 males and 568 females (Table 2-2; Figure 2-2). The average age of resident was 28; the oldest individual in the community was 89 and the youngest was less than one year old

1. Windfinder, "Wind and Weather Statistics Hooper Bay Airport," Accessed March 3, 2023. https://www.windfinder.com/windstatistics/hooper_bay_airport
2. Alaska Department of Commerce, Community, and Economic Development (ADCCED) Division of Community and Regional Affairs, Juneau. N.D. "Alaska Community Database Online: Community Information." Accessed August 19, 2022. https://dcra-cdo-dcced.opendata.arcgis.com
3. Alaska Department of Education and Early Development, October 12, 2020, Press release, "Alaska Nonprofit Receives Grant to Support Rural Charter School," Accessed April 5, 2023. https://education.alaska.gov/news/releases/2020/101220 Alaska Nonprofit Receives Grant to Support Rural Charter School.pdf.
4. Sophia Desalvo, 2020, "Newly Opened Hooper Bay Charter School to Receive $500,000 in Grant Funds," KNOM Radio Mission, Accessed April 4, 2023. https://knom.org/2020/11/09/newly-opened-hooper-bay-charter-school-to-receive-500000-in-grant-funds/

Table 2-1.–Population estimates, Hooper Bay, Alaska, 2010 and 2021.

	Census (2020)	5-year American Community Survey (2016–2020)		This study (2021)	
		Estimate	Range[a]	Estimate	Range[b]
Total population					
Households	280	174.0	0–208	241.0	
Population	1,375	961.0	640–1,282	1,084.5	917–1,252
Alaska Native					
Population	1,337	835.0	673–997	1,054.4	989–1,119
Percentage	97.2%	86.9%	70.%–103.7%	97.2%	91.2%–103.2%

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

Note Division of Subsistence household survey eligibility 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.

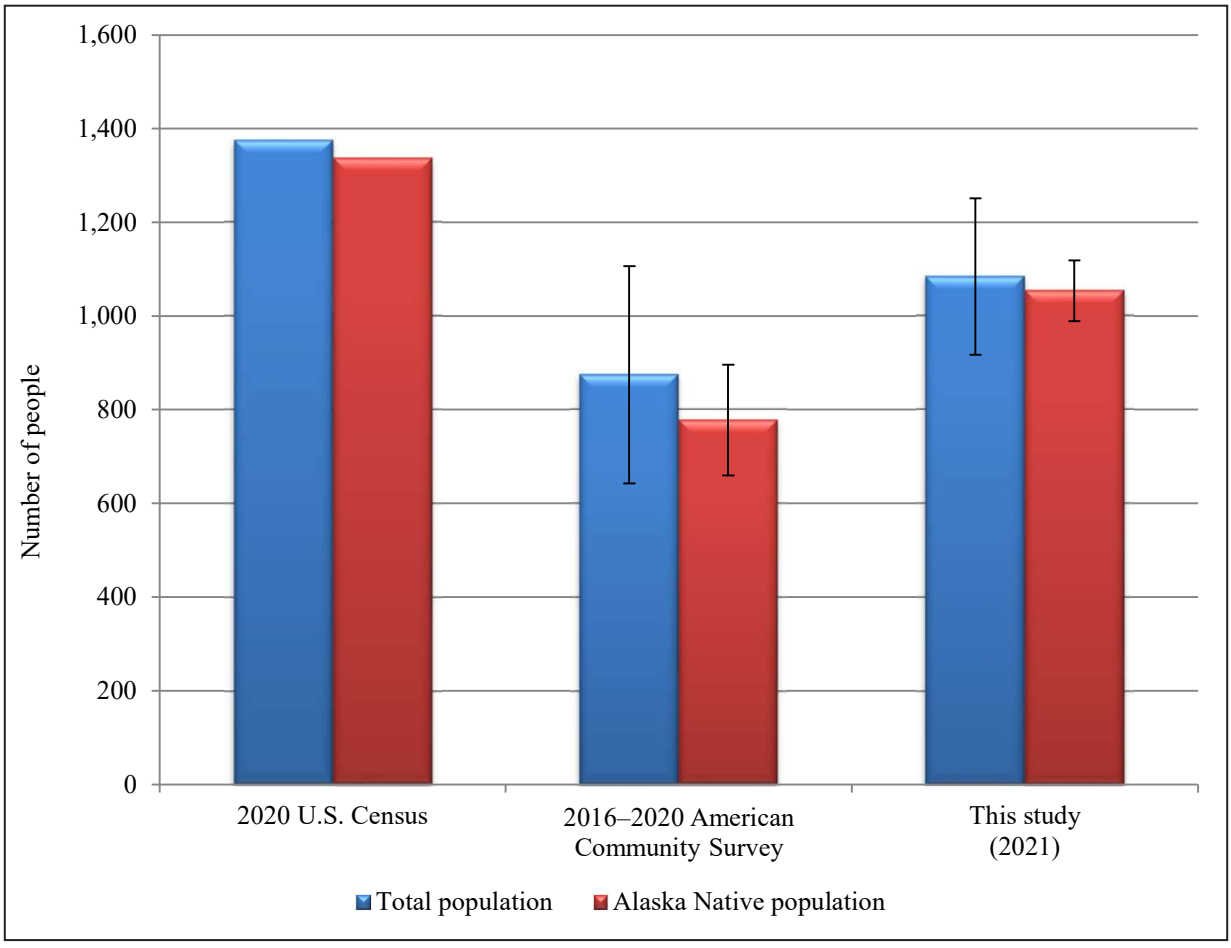


Figure 2-1.–Alaska Native and overall population estimates, Hooper Bay, Alaska, 2020 and 2021.

Table 2-2.–Population profile, Hooper Bay, Alaska, 2021.

	Male			Female			Total		
Age	Number	Percentage	Cumulative percentage	Number	Percentage	Cumulative percentage	Number	Percentage	Cumulative percentage
0–4	45.4	8.8%	8.8%	62.5	11.0%	11.0%	107.9	9.9%	9.9%
5–9	45.4	8.8%	17.6%	56.8	10.0%	21.0%	102.2	9.4%	19.4%
10–14	45.4	8.8%	26.4%	73.8	13.0%	34.0%	119.2	11.0%	30.4%
15–19	45.4	8.8%	35.2%	73.8	13.0%	47.0%	119.2	11.0%	41.4%
20–24	45.4	8.8%	44.0%	11.4	2.0%	49.0%	56.8	5.2%	46.6%
25–29	34.1	6.6%	50.5%	34.1	6.0%	55.0%	68.1	6.3%	52.9%
30–34	11.4	2.2%	52.7%	28.4	5.0%	60.0%	39.7	3.7%	56.5%
35–39	45.4	8.8%	61.5%	28.4	5.0%	65.0%	73.8	6.8%	63.4%
40–44	5.7	1.1%	62.6%	11.4	2.0%	67.0%	17.0	1.6%	64.9%
45–49	0.0	0.0%	62.6%	22.7	4.0%	71.0%	22.7	2.1%	67.0%
50–54	22.7	4.4%	67.0%	34.1	6.0%	77.0%	56.8	5.2%	72.3%
55–59	51.1	9.9%	76.9%	34.1	6.0%	83.0%	85.2	7.9%	80.1%
60–64	22.7	4.4%	81.3%	11.4	2.0%	85.0%	34.1	3.1%	83.2%
65–69	11.4	2.2%	83.5%	5.7	1.0%	86.0%	17.0	1.6%	84.8%
70–74	5.7	1.1%	84.6%	0.0	0.0%	86.0%	5.7	0.5%	85.3%
75–79	0.0	0.0%	84.6%	11.4	2.0%	88.0%	11.4	1.0%	86.4%
80–84	5.7	1.1%	85.7%	5.7	1.0%	89.0%	11.4	1.0%	87.4%
85–89	0.0	0.0%	85.7%	5.7	1.0%	90.0%	5.7	0.5%	88.0%
90–94	0.0	0.0%	85.7%	0.0	0.0%	90.0%	0.0	0.0%	88.0%
95–99	0.0	0.0%	85.7%	0.0	0.0%	90.0%	0.0	0.0%	88.0%
100–104	0.0	0.0%	85.7%	0.0	0.0%	90.0%	0.0	0.0%	88.0%
Missing	73.8	14.3%	100.0%	56.8	10.0%	100.0%	130.6	12.0%	100.0%
Total	**516.7**	**100.0%**	**100.0%**	**567.8**	**100.0%**	**100.0%**	**1,084.5**	**100.0%**	**100.0%**

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

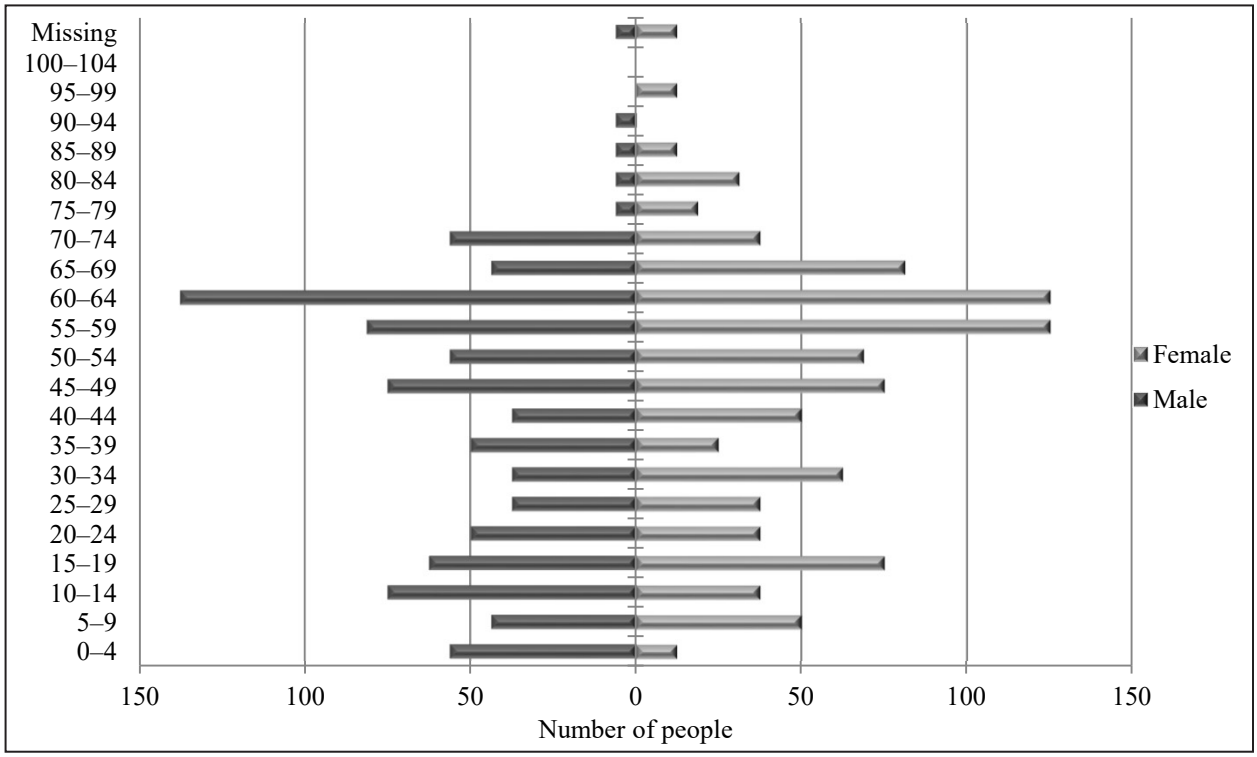


Figure 2-2.–Population profile, Hooper Bay, Alaska, 2021.

(Table 2-3). Household sizes ranged from 1 to 14 individuals and averaged 5 individuals per household. The average length of residency in Hooper Bay was 25 years for the total population and 45 years for those identifying as household heads. Most Hooper Bay residents (74%) and household heads (70%) were born in the community (Table 2-4; Table 2-5). Respondents, including household heads, identified other birthplaces such as Chevak, Bethel, Scammon Bay, Saint Michael, and Tununak. Small percentages of residents were born in other U.S. states or in other countries. Of the 1,085 individuals living in Hooper Bay during the study year, 41% were 19 years of age or younger. Young adults (ages 20 to 34) made up 15% of the total population, and individuals from ages 35 to 69 composed 30% of the total population (Table 2-2).

Hooper Bay's population has steadily increased since the 1970s which is the first and lowest recorded population at about 500 residents (Figure 2-3). The subsequent census reports showed an increase of between 150 and 200 residents every 10 years with the highest estimate in 2020 at just under 1,400 residents. Differences between population and demographic estimates from this study and the U.S. Census likely result from variations in the sampling methods, timing of surveys, refusal rates, and definitions of residency.

Income and Cash Employment

Described in the Methods section above, the low sample size in Hooper Bay resulted in confidentiality concerns for some of the results. Although respondents in Hooper Bay were asked about their employment and income in 2021, those results are not reported here to protect respondents' identities.

Table 2-3.–Sample and demographic characteristics, Hooper Bay, Alaska, 2021.

Characteristics	Community Hooper Bay
Sampled households	52
Eligible households	241
Percentage sampled	21.58%
Sampled population	234
Estimated community population	1,085
Household size	
Mean	4.5
Minimum	1.0
Maximum	14.0
Age	
Mean	27.8
Minimum[a]	0.0
Maximum	89.0
Median	20
Length of residency	
Total population	
Mean	24.7
Minimum[c]	1.0
Maximum	82.0
Heads of household	
Mean	44.7
Minimum[c]	2.0
Maximum	82.0
Alaska Native	
Estimated households[b]	
Number	227.1
Percentage	94.23%
Estimated population	
Number	1,054.4
Percentage	97.2%

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

a. A minimum age of 0 (zero) is used for infants who are less than 1 year of age.

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

c. Residency length of 0 (zero) indicates residency of less than 1 year but more than 3 months.

Table 2-4.–Birthplaces of population, Hooper Bay, Alaska, 2021.

Birthplace	Percentage
Bethel	0.4%
Chevak	1.7%
Hooper Bay	73.9%
Scammon Bay	1.7%
Saint Michael	0.4%
Tununak	0.4%
Other U.S.	2.1%
Foreign	0.9%
Missing	18.4%

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 2-5.–Birthplaces of household heads, Hooper Bay, Alaska, 2021.

Birthplace	Percentage
Chevak	4.3%
Hooper Bay	70.0%
Scammon Bay	2.9%
Tununak	1.4%
Other U.S.	7.1%
Foreign	2.9%
Missing	11.4%

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.

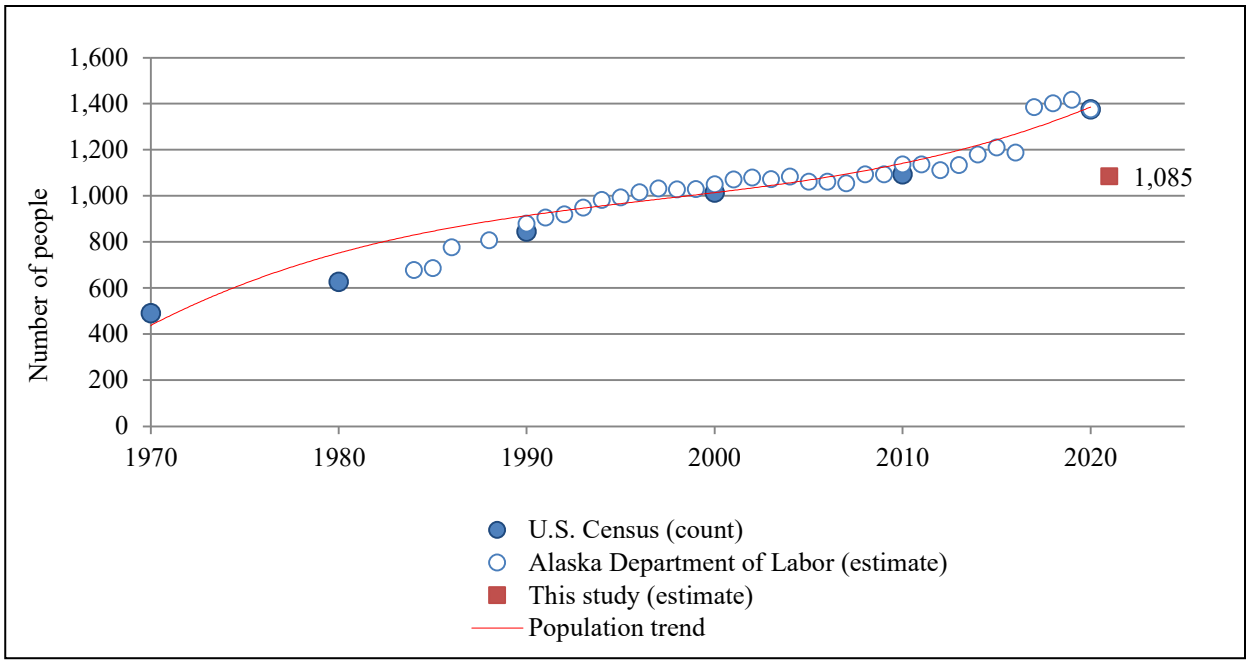


Figure 2-3.–Historical population estimates, Hooper Bay, Alaska, 1970–2021.

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. 2012). 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 two subcategories: high or marginal food security. Food insecure households were divided into two subcategories: low food security or very low food security.

Households with high food security did not report any food access problems or limitations. Households with marginal food security reported one or two instances of food access problems or limitations—typically anxiety over food sufficiency or a shortage of specific foods in the house—but gave little or no indication of changes in diets or food intake. Households with low food security reported reduced quality, variety, or desirability of their diet, but they, too, gave little indication of reduced food intake. 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. 2012).

Core questions and responses from Hooper Bay residents are summarized in Figure 2-4. Eight of the ten statements listed in the figure are used to calculate a household's food security. Of the surveyed households, 17% stated they were worried about having enough food during the survey year, and 6% said once they ran out of food, they were unable to get more. Of the reporting households, 8% said they ran out of subsistence foods in particular, and 10% lacked the resources to get more food, whether that be subsistence or store bought. Other responses from Hooper Bay residents included that household members ate less than they felt they should (8%), lost weight due to lack of food (6%), and cut the size of, or skipped, meals (6%).

Food security results for surveys for Hooper Bay, the state of Alaska, and the United States are summarized in Figure 2-5. A greater percentage of Hooper Bay households were classified as food secure (92%) in comparison to Alaska (87%) and the U.S. (86%). In Hooper Bay, 4% of households were considered to have

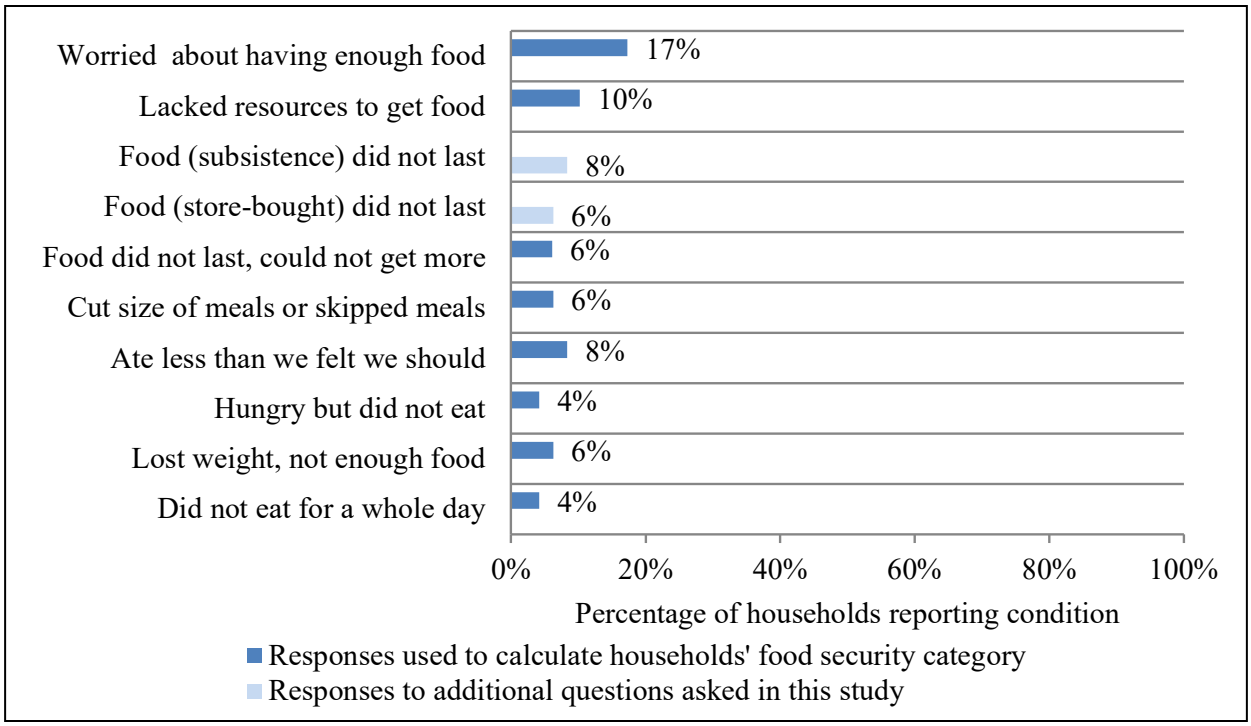


Figure 2-4.–Responses to questions about food insecure conditions, Hooper Bay, Alaska, 2021.

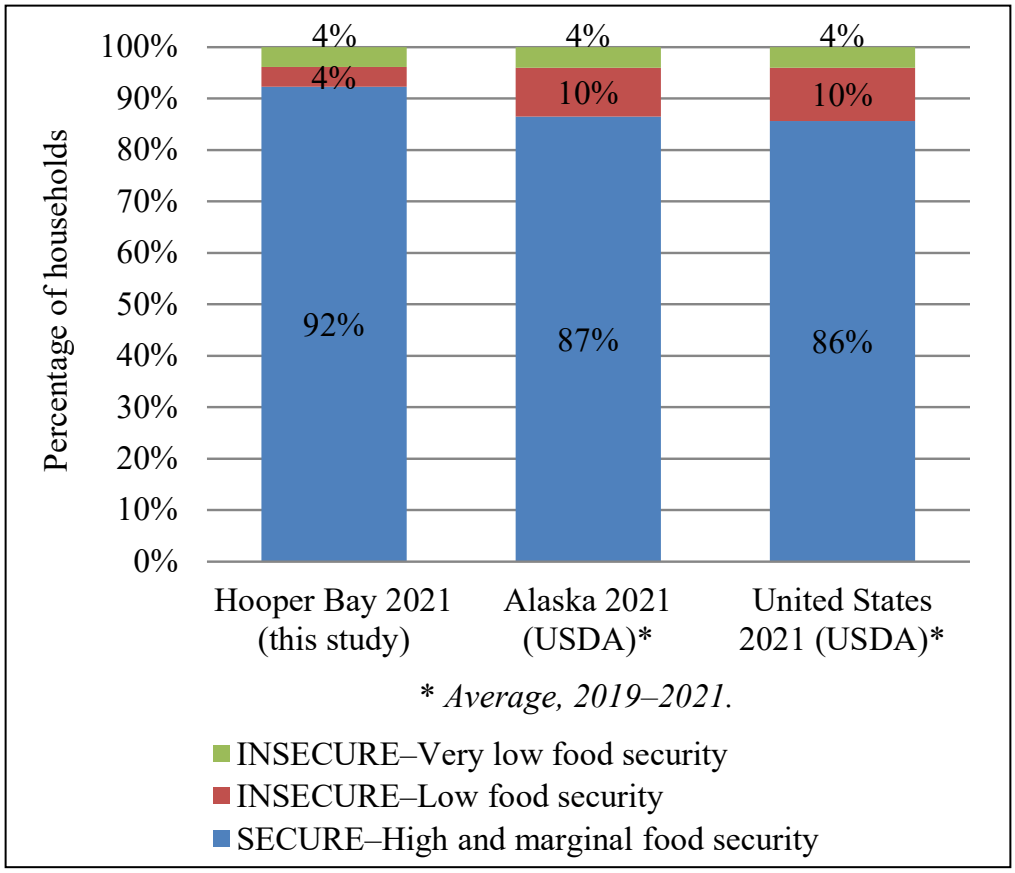


Figure 2-5.–Comparison of food security categories, Hooper Bay, Alaska, and United States, 2021.

low food security and 4% to have very low food security. In Alaska and the U.S., 10% of households are classified as having low food security and 4% have very low food security.

Figure 2-6 shows trends of food insecurity, by month, for households in Hooper Bay. Households in the very low food security category identified the months of January and February as the most food insecure. Households also indicated March, April, June, and July as months that trended towards higher food insecurity. As shown in Table 2-6, four households reported very low food security in these latter months, specifically of subsistence foods, which coincided with the 2021 closure of the Yukon Coastal District to subsistence salmon fishing.[5]

Figure 2-7 shows the months that respondents said they ran out of food and could not get more. The survey asked respondents whether they ran out of wild food, store-bought food, or both. May and September were the only months where the respondents did not run out. Respondents identified January, February, March, and April as the months with the most households running out in all three categories, though subsistence foods were marginally more available in January and February. Any food, and subsistence foods ran out in June, July, and August, while any food and store-bought foods ran out in October, November, and December.

Summary of Harvest and Use Patterns

Individual Participation in the Harvesting and Processing of Wild Resources

Table 2-7 reports individual participation rates in the harvest and processing of wild resources expanded to all Hooper Bay residents in 2021. Overall, 48% of Hooper Bay residents hunted, fished, trapped, or gathered wild foods, and 47% worked to process those resources. Across nearly all resource categories the difference between the percentage of individuals who helped harvest and those who helped process was minimal. The exceptions were large land mammals where 14% harvested and 24% processed, and marine mammals where 9% harvested and 17% processed. Vegetation had the highest rate of participation (44% harvest, 40% process), possibly due to plants being accessible to everyone and requiring less investment to participate in their harvest, unlike for land and marine mammals and other resources.

Harvest and Use of Wild Resources at the Household Level

Figure 2-8 shows, by resource category, the percentages of households that used wild resources, attempted to harvest, and harvested wild foods. Nearly all responding households used salmon (87%), nonsalmon fish (83%), large land mammals (90%), marine mammals (83%), birds and eggs (75%), and vegetation (90%). Less than 55% of respondents harvested the majority of the resources, with the exception of vegetation, which 75% of respondents reported harvesting. There was a high success rate across all resource categories, and nearly every household that attempted to harvest resources was successful.

Table 2-8 summarizes resource harvest and use characteristics, at the household level, for Hooper Bay in 2021. From January through December 2021, residents of Hooper Bay harvested an estimated 357,803 lb, in edible weight, of wild foods. This estimate represents a mathematical expansion to all households in the community based upon the harvests reported by the households of the sample. The average harvest per household was 1,485 lb, and the average harvest per person was 330 lb. During the study year, community households harvested an average of 12 kinds of resources and used an average of 18 kinds of resources. The maximum number of resources used by any household was 62. In addition, households gave away an average of 7 kinds of resources. Overall, as many as 124 resources were reported as available for households to harvest in the study area; this included species that survey respondents identified but were not asked about in the survey instrument.

5. ADF&G Division of Commercial Fisheries, July 20, 2021, "2021 Yukon River Salmon Summer Fishery Announcement #16, Summer Update #7, Yukon Area Salmon Fishery." ADF&G Division of Commercial Fisheries, Accessed April 5, 2023. https://www.adfg.alaska.gov/static/applications/dcfnewsrelease/1301954168.pdf.

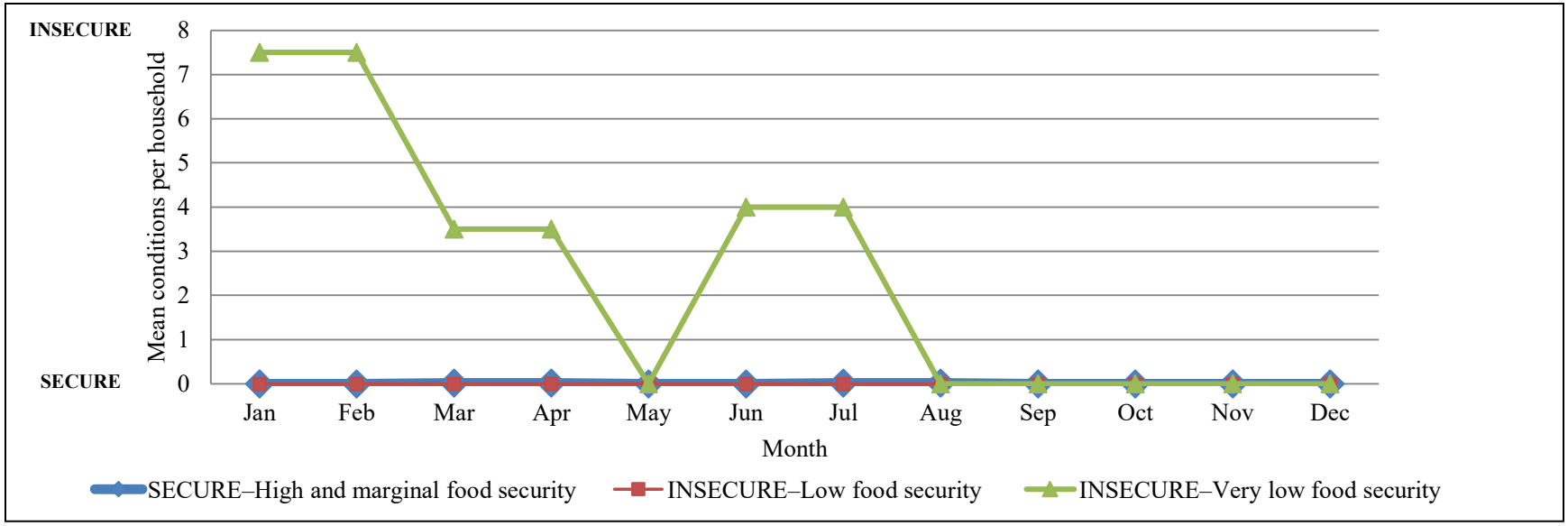


Figure 2-6.–Mean number of food insecure conditions by month and by household food security category, Hooper Bay, Alaska, 2021.

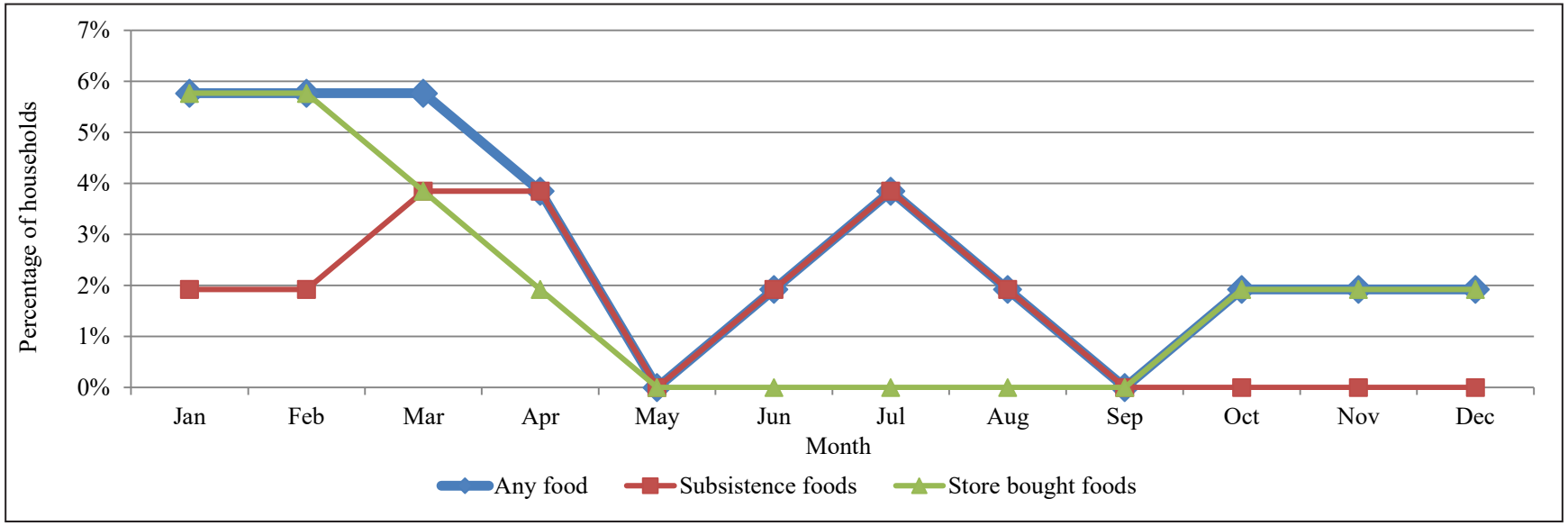


Figure 2-7.–Comparison of months when food did not last, Hooper Bay, Alaska, 2021.

Table 2-6.–Mean number of food insecure conditions for each month food was reported not to have lasted, Hooper Bay, Alaska 2021.

	Mean number of food insecure conditions for either subsistence or store-bought food											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High and marginal food security	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low food security	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Very low food security	7.5	7.5	3.5	3.5	0.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0

	Mean number of food insecure conditions for subsistence foods											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High and marginal food security	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low food security	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Very low food security	3.5	3.5	3.5	3.5	0.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0

	Mean number of food insecure conditions for store-bought foods											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High and marginal food security	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low food security	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Very low food security	7.5	7.5	3.5	3.5	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.

Table 2-7.–Individual participation in subsistence harvesting and processing activities, Hooper Bay, Alaska, 2021.

Total number of people	**1,084.5**
Fish	
Fish	
Number	245.6
Percentage	22.6%
Process	
Number	254.9
Percentage	23.5%
Large land mammals	
Hunt	
Number	148.3
Percentage	13.7%
Process	
Number	264.2
Percentage	24.4%
Small land mammals	
Hunt or trap	
Number	27.8
Percentage	2.6%
Process	
Number	23.2
Percentage	2.1%
Marine mammals	
Hunt	
Number	102.0
Percentage	9.4%
Process	
Number	180.8
Percentage	16.7%
Birds and eggs	
Hunt/gather	
Number	254.9
Percentage	23.5%
Process	
Number	264.2
Percentage	24%

-continued-

Table 2-7.–Page 2 of 2.

Total number of people	**1,084.5**
Marine invertebrates	
Harvest	
Number	245.6
Percentage	22.6%
Process	
Number	222.5
Percentage	20.5%
Vegetation	
Gather	
Number	482.0
Percentage	44.4%
Process	
Number	435.7
Percentage	40.2%
Any resource	
Attempt harvest	
Number	519.1
Percentage	47.9%
Process	
Number	509.8
Percentage	47.0%

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

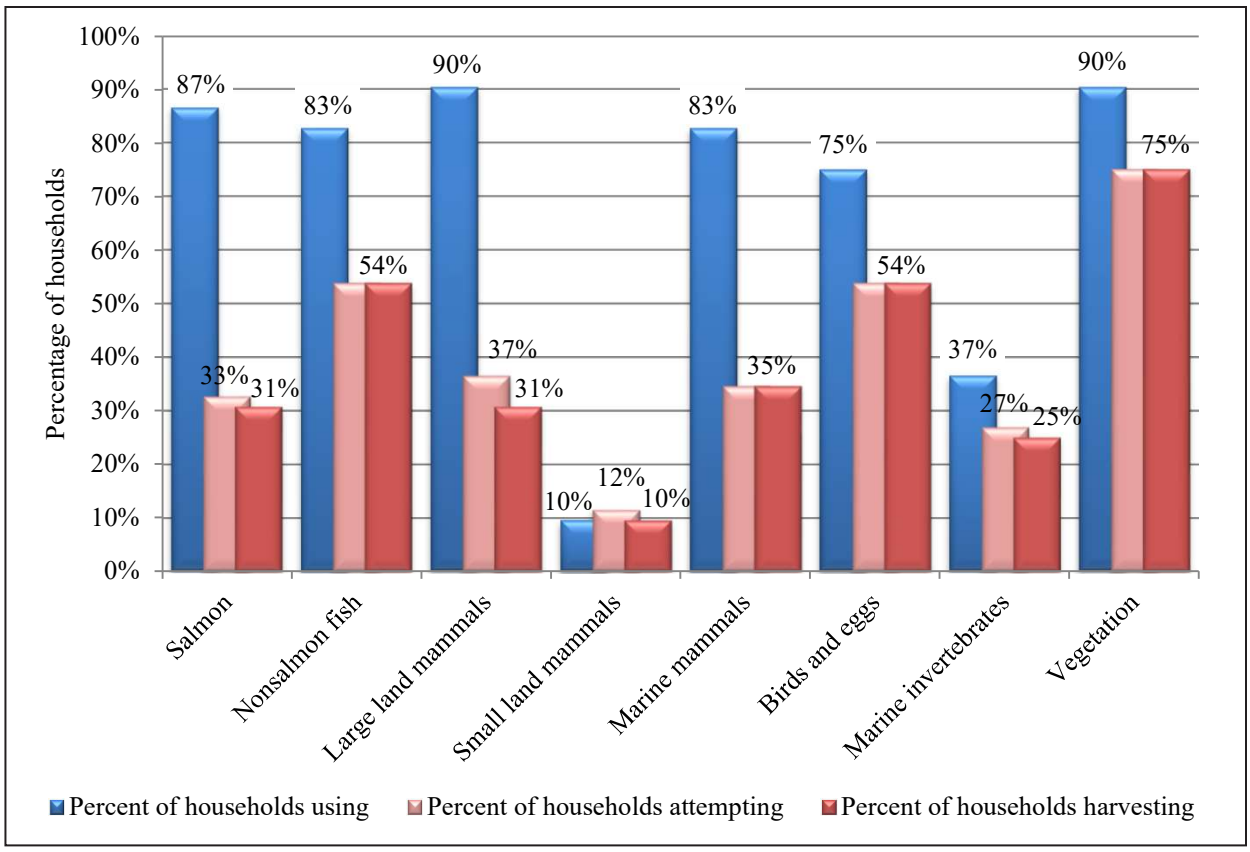


Figure 2-8.–Percentage of households using, attempting to harvest, and harvesting wild resources, by resource category, Hooper Bay, Alaska, 2021.

Sharing of Wild Resources

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 recent study of 3,265 households in 66 rural Alaska communities found that about 33% of the households accounted for 76% of subsistence harvests (Wolfe et al. 2010). 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 2-9, in the 2021 study year in Hooper Bay, about 72% of the harvests of wild resources as estimated in pounds usable weight were harvested by 17% of the community's households. Further analysis of the study findings, beyond the scope of this report, might identify characteristics of the highly productive households in Hooper Bay and the other study communities.

Harvest Quantities and Composition

Table 2-9 reports estimated wild resource harvests and uses by Hooper Bay residents in 2021 and is organized first by general category and then by species. All edible resources are reported in pounds usable weight (see appendices D and E 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,

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.

Table 2-8.–Resource harvest and use characteristics, Hooper Bay, Alaska, 2021.

Characteristic	
Mean number of resources used per household	**18.3**
Minimum	0
Maximum	62
95% confidence limit (±)	19.4%
Median	15.0
Mean number of resources attempted to harvest per household	**12.7**
Minimum	0
Maximum	62
95% confidence limit (±)	29.9%
Median	7.0
Mean number of resources harvested per household	**12.4**
Minimum	0
Maximum	62
95% confidence limit (±)	30.2%
Median	7.0
Mean number of resources received per household	**7.3**
Minimum	0
Maximum	23
95% confidence limit (±)	19.4%
Median	6.5
Mean number of resources given away per household	**6.9**
Minimum	0
Maximum	37
95% confidence limit (±)	33.8%
Median	2.0
Household harvest (pounds)	
Minimum	0
Maximum	10,270
Mean	1,484.7
Median	133.5
Total harvest weight (lb)	357,803.1
Community per capita harvest (lb)	329.9
Percentage using any resource	98.1%
Percentage attempting to harvest any resource	82.7%
Percentage harvesting any resource	82.7%
Percentage receiving any resource	98.1%
Percentage giving away any resource	71.2%
Number of households in sample	52
Number of resources asked about and identified voluntarily by respondents	124

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

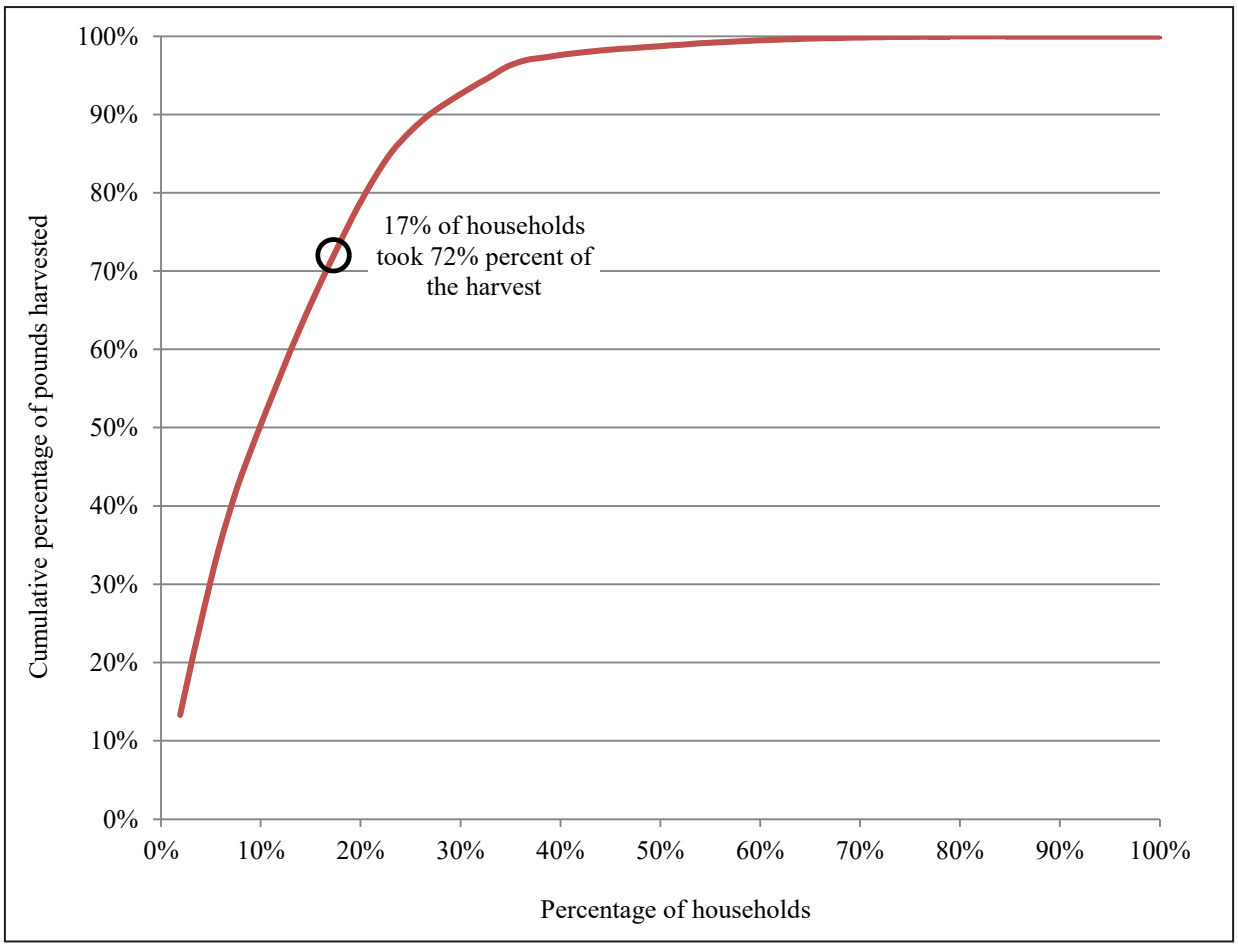


Figure 2-9.–Household specialization, Hooper Bay, Alaska, 2021.

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 nonlocal 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.

Figure 2-10 shows the composition of Hooper Bay's harvest by weight for each resource category. Marine mammals made up the greatest percentage of the total harvest (65%) with a total of 231,987 lb caught by Hooper Bay residents in 2021. Large land mammals accounted for 15% of the harvest (51,718 lb). Vegetation (24,267 lb) and nonsalmon fish (23,852 lb) each made up 7% of the harvest, while salmon (12,175 lb) and birds and eggs (12,090 lb) were 3% of the harvest. Marine invertebrates and small land mammals each made up less than 1% of the total harvest. Had the region not experienced a complete salmon fishing closure, it is expected that this harvest composition would look notably different.

Harvest and Use Characteristics by Resource Category

Table 2-10 lists the top ranked resources used by households and Figure 2-11 shows the species with the highest harvests during the 2021 study year. Hooper Bay's most used resource in 2021 was moose (90%). Cloudberries (85%), crowberries (77%), summer chum salmon (67%), beluga whale (60%), and ringed seal (54%) were also widely used. In edible pounds per person, beluga whale made up 27% of all resources harvested, followed by walrus (16%), bearded seal (15%), moose (12%), ringed seal (7%), cloudberries (5%), pink salmon (2%), and other resources (16%).

Table 2-9.–Estimated use and harvest of fish, game, and vegetation resources, Hooper Bay, Alaska, 2021.

	Percentage of households					Harvest weight (lb)			Harvest amount[a]			95% confidence limit (±) harvest
Resource	Use %	Attempt %	Harvest %	Receive %	Give %	Total	Mean per household	Per capita	Total	Unit	Mean per household	
All resources	98.1	82.7	82.7	98.1	71.2	357,803.1	1,484.7	329.9	357,803.1	lb	1,484.7	41.8
Salmon	86.5	32.7	30.8	82.7	25.0	12,174.7	50.5	11.2	4,381.2	ind	18.2	60.9
Summer chum salmon	67.3	26.9	23.1	63.5	13.5	2,062.3	8.6	1.9	510.9	ind	2.1	61.0
Fall chum salmon	1.9	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Chum salmon, run unknown	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	7.7	5.8	5.8	5.8	1.9	82.9	0.3	0.1	19.3	ind	0.1	174.3
Chinook salmon	32.7	23.1	19.2	19.2	9.6	1,079.9	4.5	1.0	77.1	ind	0.3	65.0
Pink salmon	32.7	23.1	23.1	11.5	15.4	8,931.5	37.1	8.2	3,769.1	ind	15.6	78.4
Sockeye salmon	9.6	3.8	3.8	5.8	0.0	18.2	0.1	0.0	4.7	ind	0.0	176.1
Unspecified salmon	15.4	0.0	0.0	15.4	3.8	0.0	0.0	0.0	0.0	ind	0.0	0.0
Nonsalmon fish	82.7	53.8	53.8	59.6	40.4	23,852.4	99.0	22.0	23,852.4	lb	99.0	51.0
Pacific herring	28.8	9.6	9.6	19.2	5.8	1,417.6	5.9	1.3	236.3	gal	1.0	97.7
Pacific herring roe, unspecified type	13.5	11.5	11.5	1.9	7.7	1,814.6	7.5	1.7	302.4	gal	1.3	103.4
Unspecified smelts	30.8	17.3	17.3	13.5	7.7	3,089.9	12.8	2.8	515.0	gal	2.1	163.2
Saffron cod	30.8	21.2	19.2	13.5	3.8	151.4	0.6	0.1	720.9	ind	3.0	142.3
Walleye pollock (whiting)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified flounders	17.3	13.5	13.5	3.8	5.8	311.9	1.3	0.3	283.5	ind	1.2	90.7
Pacific halibut	15.4	11.5	9.6	5.8	5.8	70.9	0.3	0.1	70.9	lb	0.3	176.1
Arctic lamprey	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Sculpins	1.9	1.9	1.9	0.0	1.9	0.0	0.0	0.0	0.0	ind	0.0	0.0
Stickleback (needlefish)	5.8	5.8	5.8	0.0	3.8	85.1	0.4	0.1	14.2	gal	0.1	130.2
Alaska blackfish	34.6	15.4	15.4	19.2	13.5	1,247.5	5.2	1.2	207.9	gal	0.9	79.0

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Table 2-9.–Page 2 of 6.

Resource	Percentage of households					Harvest weight (lb)			Harvest amount[a]			95% confidence limit (±) harvest
	Use %	Attempt %	Harvest %	Receive %	Give %	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Nonsalmon fish, continued												
Burbot	26.9	15.4	15.4	11.5	9.6	2,103.8	8.7	1.9	500.9	ind	2.1	93.4
Dolly Varden, unknown type	1.9	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Arctic grayling	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Northern pike	25.0	21.2	21.2	5.8	13.5	5,395.6	22.4	5.0	1,635.0	ind	6.8	64.9
Sheefish	17.3	9.6	9.6	7.7	3.8	675.7	2.8	0.6	122.9	ind	0.5	89.9
Rainbow trout	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Broad whitefish	30.8	19.2	19.2	13.5	11.5	1,542.4	6.4	1.4	482.0	ind	2.0	77.7
Bering cisco	42.3	25.0	25.0	19.2	21.2	3,607.0	15.0	3.3	2,576.4	ind	10.7	66.5
Least cisco	11.5	7.7	7.7	3.8	3.8	115.8	0.5	0.1	165.4	ind	0.7	113.7
Humpback whitefish	23.1	19.2	19.2	3.8	13.5	2,173.6	9.0	2.0	1,035.1	ind	4.3	123.2
Round whitefish	3.8	3.8	3.8	0.0	1.9	49.6	0.2	0.0	70.9	ind	0.3	176.1
Unspecified whitefishes	11.5	0.0	0.0	11.5	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Large land mammals	90.4	36.5	30.8	75.0	36.5	51,717.7	214.6	47.7	134.4	ind	0.6	57.5
Bison	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Black bear	1.9	5.8	0.0	1.9	1.9	0.0	0.0	0.0	0.0	ind	0.0	0.0
Brown bear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Caribou	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Moose	90.4	36.5	30.8	73.1	36.5	44,881.6	186.2	41.4	111.2	ind	0.5	52.6
Common muskox	1.9	1.9	1.9	1.9	1.9	6,836.1	28.4	6.3	23.2	ind	0.1	177.8
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	9.6	11.5	9.6	1.9	3.8	240.1	1.0	0.2	125.1	ind	0.5	87.4
Beaver	1.9	1.9	1.9	0.0	0.0	0.0	0.0	0.0	9.3	ind	0.0	177.8
Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Arctic fox	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 2-9.–Page 3 of 6.

Resource	Percentage of households					Harvest weight (lb)			Harvest amount[a]			95% confidence limit (±) harvest
	Use %	Attempt %	Harvest %	Receive %	Give %	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Small land mammals, continued												
Red fox	1.9	1.9	1.9	0.0	0.0	0.0	0.0	0.0	4.6	ind	0.0	177.8
Alaska hare	1.9	1.9	1.9	0.0	0.0	29.2	0.1	0.0	4.6	ind	0.0	177.8
Snowshoe hare	3.8	5.8	3.8	1.9	1.9	97.3	0.4	0.1	64.9	ind	0.3	154.0
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
Lynx	1.9	1.9	1.9	0.0	0.0	18.5	0.1	0.0	4.6	ind	0.0	177.8
Martens	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
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	3.8	3.8	3.8	0.0	0.0	20.9	0.1	0.0	27.8	ind	0.1	131.5
Porcupine	3.8	3.8	3.8	0.0	1.9	74.2	0.3	0.1	9.3	ind	0.0	124.5
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
Gray wolf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Wolverine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Marine mammals	82.7	34.6	34.6	63.5	34.6	231,986.6	962.6	213.9	742.3	ind	3.1	48.2
Bearded seal	40.4	28.8	28.8	17.3	25.0	52,056.0	216.0	48.0	115.7	ind	0.5	49.3
Ribbon seal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Ringed seal	53.8	32.7	32.7	30.8	28.8	24,726.6	102.6	22.8	433.8	ind	1.8	56.9
Spotted seal	15.4	11.5	11.5	3.8	5.8	3,615.0	15.0	3.3	24.1	ind	0.1	88.1
Unspecified seals	30.8	0.0	0.0	30.8	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Walrus	48.1	21.2	21.2	32.7	19.2	55,671.0	231.0	51.3	72.3	ind	0.3	61.6
Beluga whale	59.6	25.0	25.0	40.4	25.0	95,918.0	398.0	88.4	96.4	ind	0.4	52.0
Bowhead whale	3.8	0.0	0.0	3.8	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Birds and eggs	75.0	53.8	53.8	44.2	38.5	12,089.9	50.2	11.1	8,381.7	ind	34.8	53.2
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	9.6	9.6	9.6	0.0	3.8	54.3	0.2	0.1	24.6	ind	0.1	119.7
King eider	21.2	17.3	17.3	3.8	7.7	2,855.5	11.8	2.6	1,996.9	ind	8.3	94.5

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Table 2-9.–Page 4 of 6.

Resource	Percentage of households					Harvest weight (lb)			Harvest amount[a]			95% confidence limit (±) harvest
	Use %	Attempt %	Harvest %	Receive %	Give %	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Birds and eggs, continued												
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
Mallard	26.9	25.0	25.0	5.8	13.5	831.4	3.4	0.8	426.4	ind	1.8	70.4
Long-tailed duck	7.7	7.7	7.7	0.0	1.9	26.4	0.1	0.0	19.7	ind	0.1	167.5
Northern pintail	21.2	21.2	21.2	1.9	13.5	905.4	3.8	0.8	580.4	ind	2.4	61.4
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	9.6	7.7	7.7	1.9	0.0	4.4	0.0	0.0	4.9	ind	0.0	167.5
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	9.6	9.6	9.6	0.0	1.9	75.1	0.3	0.1	68.9	ind	0.3	145.1
Unspecified teals	13.5	13.5	13.5	0.0	5.8	173.9	0.7	0.2	334.4	ind	1.4	92.2
American wigeon	9.6	9.6	9.6	0.0	3.8	289.9	1.2	0.3	221.3	ind	0.9	123.9
Brant	36.5	23.1	23.1	17.3	11.5	2,213.3	9.2	2.0	368.9	ind	1.5	65.5
Unspecified Canada/ cackling geese	51.9	36.5	36.5	19.2	23.1	1,086.0	4.5	1.0	905.0	ind	3.8	45.3
Emperor goose	23.1	15.4	15.4	9.6	7.7	405.8	1.7	0.4	162.3	ind	0.7	93.7
Snow goose	7.7	9.6	7.7	0.0	0.0	19.7	0.1	0.0	4.9	ind	0.0	167.5
Greater white-fronted goose	28.8	25.0	25.0	5.8	15.4	1,522.3	6.3	1.4	359.0	ind	1.5	54.0
Unspecified swans	15.4	9.6	9.6	5.8	3.8	83.6	0.3	0.1	83.6	ind	0.3	140.5
Sandhill crane	19.2	15.4	15.4	5.8	3.8	991.5	4.1	0.9	118.0	ind	0.5	82.5
Unspecified shorebirds	9.6	9.6	9.6	0.0	3.8	14.8	0.1	0.0	147.6	ind	0.6	117.3
Unspecified loons	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 2-9.–Page 5 of 6.

Resource	Percentage of households					Harvest weight (lb)			Harvest amount[a]			95% confidence limit (±) harvest
	Use %	Attempt %	Harvest %	Receive %	Give %	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Birds and eggs, continued												
Unspecified seabirds	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified ptarmigans	19.2	21.2	19.2	1.9	7.7	165.3	0.7	0.2	236.1	ind	1.0	81.4
Unspecified duck eggs	23.1	17.3	17.3	5.8	9.6	53.5	0.2	0.0	356.5	ind	1.5	83.2
Unspecified goose eggs	25.0	11.5	11.5	13.5	3.8	139.4	0.6	0.1	516.4	ind	2.1	118.5
Unspecified swan eggs	15.4	13.5	13.5	1.9	5.8	46.5	0.2	0.0	73.8	ind	0.3	84.9
Unspecified small shorebird eggs	19.2	17.3	17.3	3.8	7.7	28.5	0.1	0.0	713.2	ind	3.0	72.0
Unspecified large shorebird eggs	9.6	7.7	7.7	1.9	1.9	5.9	0.0	0.0	147.6	ind	0.6	167.5
Unspecified gull eggs	11.5	11.5	11.5	0.0	5.8	82.6	0.3	0.1	275.4	ind	1.1	100.2
Unspecified loon eggs	9.6	9.6	9.6	0.0	3.8	4.4	0.0	0.0	24.6	ind	0.1	119.7
Unspecified tern eggs	13.5	11.5	11.5	1.9	5.8	10.6	0.0	0.0	211.5	ind	0.9	94.9
Marine invertebrates	36.5	26.9	25.0	17.3	17.3	1,474.9	6.1	1.4	1,474.9	lb	6.1	72.6
Unspecified clams	36.5	26.9	25.0	17.3	17.3	1,474.9	6.1	1.4	491.6	gal	2.0	72.6
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 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
Shrimps	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Vegetation	90.4	75.0	75.0	40.4	55.8	24,266.7	100.7	22.4	7,364.2	gal	30.6	38.4
Blueberry	48.1	42.3	42.3	7.7	19.2	1,002.2	4.2	0.9	250.5	gal	1.0	47.8
Lowbush cranberry	15.4	15.4	15.4	0.0	7.7	424.2	1.8	0.4	106.0	gal	0.4	88.5
Highbush cranberry	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 2-9.–Page 6 of 6.

Resource	Percentage of households					Harvest weight (lb)			Harvest amount[a]			95% confidence limit (±) harvest
	Use %	Attempt %	Harvest %	Receive %	Give %	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Vegetation, continued												
Crowberry	76.9	63.5	63.5	19.2	30.8	3,125.8	13.0	2.9	781.5	gal	3.2	38.0
Cloudberry	84.6	65.4	65.4	28.8	46.2	17,492.6	72.6	16.1	4,373.1	gal	18.1	42.6
Nagoonberry	23.1	23.1	23.1	0.0	5.8	491.8	2.0	0.5	123.0	gal	0.5	89.9
Wild rhubarb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Other beach greens	30.8	25.0	25.0	5.8	13.5	86.2	0.4	0.1	86.2	gal	0.4	63.3
Fiddlehead ferns	7.7	7.7	7.7	0.0	0.0	14.5	0.1	0.0	14.5	gal	0.1	128.9
Hudson's Bay (Labrador) tea	13.5	13.5	13.5	0.0	1.9	24.6	0.1	0.0	24.6	gal	0.1	88.8
Sourdock	26.9	21.2	21.2	5.8	9.6	294.0	1.2	0.3	294.0	gal	1.2	72.7
Wild celery	11.5	11.5	11.5	0.0	5.8	29.5	0.1	0.0	29.5	gal	0.1	104.7
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
Yarrows	1.9	1.9	1.9	0.0	0.0	2.3	0.0	0.0	2.3	gal	0.0	177.8
Other wild greens	15.4	13.5	13.5	3.8	1.9	60.3	0.3	0.1	60.3	gal	0.3	143.1
Unspecified mushrooms	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Stinkweed	19.2	15.4	15.4	5.8	7.7	29.5	0.1	0.0	29.5	gal	0.1	78.3
Punk	7.7	7.7	7.7	0.0	3.8	939.9	3.9	0.9	939.9	gal	3.9	149.4
Chaga	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Mousefoods	34.6	30.8	30.8	7.7	15.4	249.3	1.0	0.2	249.3	gal	1.0	59.3

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

Note Resources where the percentage using is greater than the combined received and harvest indicate use from resources obtained during a previous year.

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

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

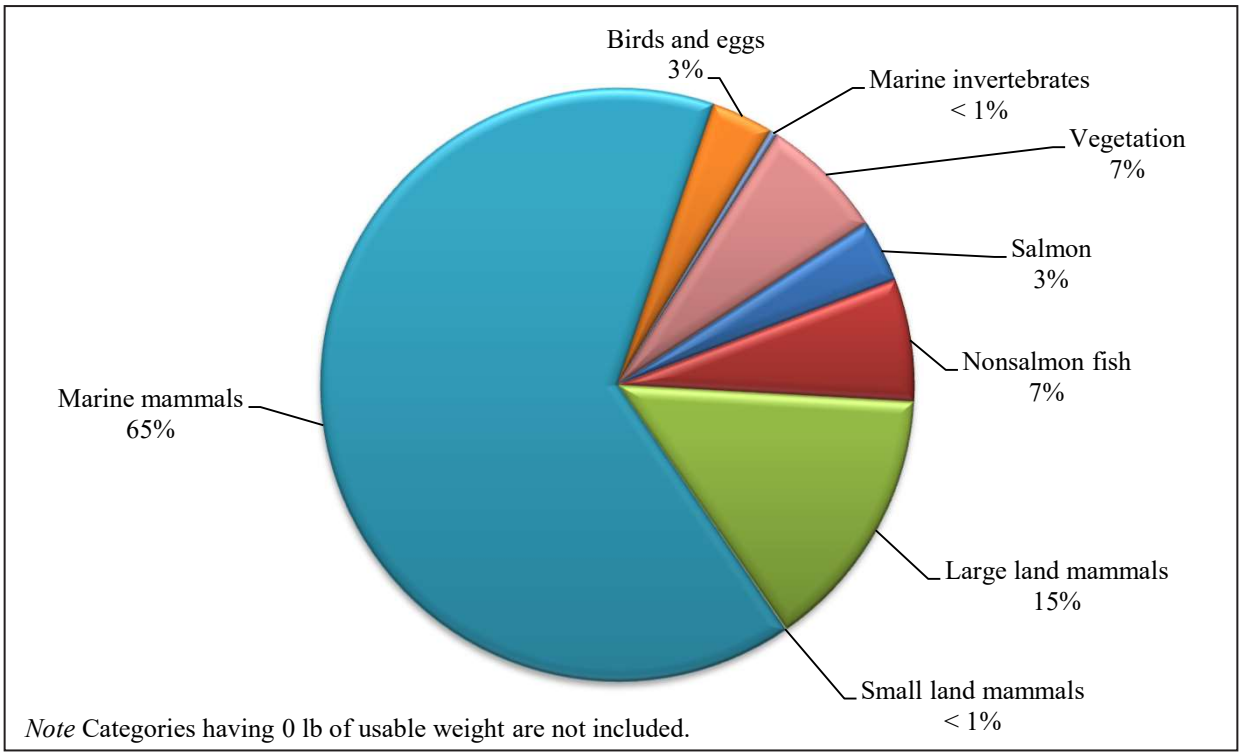


Figure 2-10.–Composition of harvest in pounds usable weight, by resource category, Hooper Bay, Alaska, 2021.

Table 2-10.–Top ranked resources used by households, Hooper Bay, Alaska, 2021.

Rank[a]	Resource	Percentage of households using.
1.	Moose	90.4%
2.	Cloudberry	84.6%
3.	Crowberry	76.9%
4.	Summer chum salmon	67.3%
5.	Beluga whale	59.6%
6.	Ringed seal	53.8%
7.	Unspecified Canada/cackling geese	51.9%
8.	Walrus	48.1%
9.	Blueberry	48.1%
10.	Bering cisco	42.3%

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.

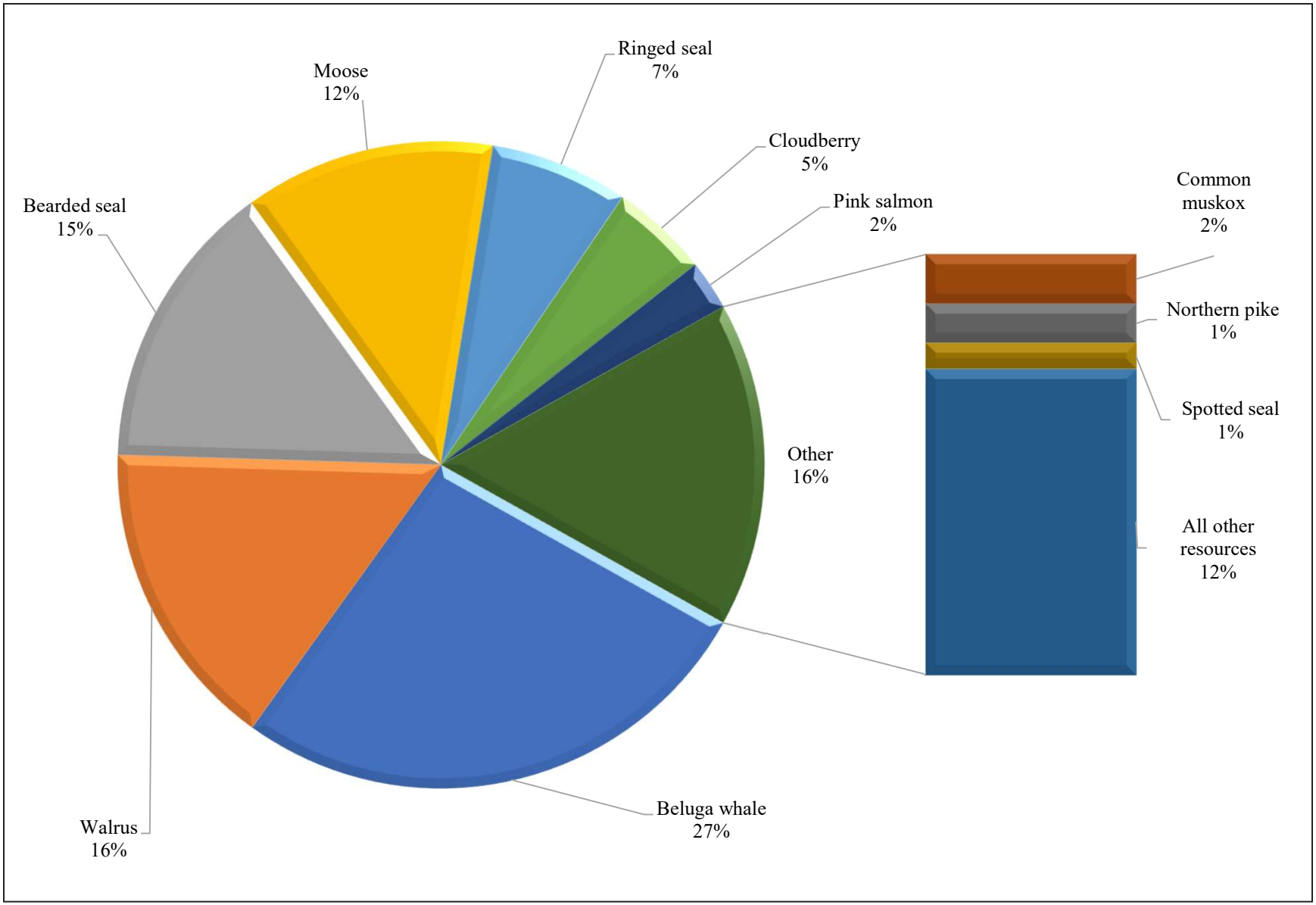


Figure 2-11.–Top resources harvested by percentage of total harvest in pounds usable weight, Hooper Bay, Alaska, 2021.

Salmon

In 2021, subsistence fisheries were closed to the harvest of Chinook and summer chum salmon. Fishers were allowed to target nonsalmon fish with 4-inch mesh gillnets and dip nets, and pink salmon were allowed to be retained. Despite the limited harvest opportunity, 87% of Hooper Bay households used salmon in 2021 (Table 2-9). One-third of households attempted to harvest salmon, and 31% were successful. One quarter of households gave salmon away, while 83% reported receiving salmon from other households. The most commonly used salmon species was summer chum salmon (67% of households), followed by Chinook (33%) and pink salmon (33%). About 10% of households used sockeye salmon and 15% used unspecified salmon; households did not harvest fish in these categories, these estimates may represent donated boxes of fish from commercial salmon fisheries in Bristol Bay and others.[7]

Hooper Bay households harvested an estimated 4,381 salmon (12,175 lb) in 2021 (Table 2-9). This amount equated to an average of 51 lb per household and 11 lb per capita of salmon. Figure 2-12 shows salmon harvest composition by edible weight. Of the total salmon harvest, 73% was pink salmon, 17% was summer chum salmon, 9% was Chinook salmon, and 1% was other salmon.

Key respondents described, in years prior to the fishery closures of 2021, harvesting summer chum salmon in large quantities (35,020 lb) and, when possible, harvesting Chinook salmon in smaller quantities (9,313 lb; Table 2-11). They prize Chinook salmon and take special care in processing them, being careful to use all parts of the fish but the intestines (01162022HPB1). In contrast, most people typically do not target pink salmon, locally known as "humpies". In 2021 key respondents felt they "had no choice" but to get pink salmon to use for making dry fish (01152022HPB1). In prior years, however, when other species were more abundant, Hooper Bay residents did not typically target pink salmon.

In 2021, Hooper Bay residents reported using set gillnets and dip nets to harvest their salmon. Setnets accounted for the majority of the harvest (12,164 lb) 73% of which was pink salmon (Table 2-12). Dip nets were used only for pink salmon and represented less than 1% of the harvest (Table 2-12; Table 2-13; Figure 2-13). Harvesters did not report using drift gillnets in 2021, and at least one key respondent said they unsuccessfully attempted to catch Chinook salmon with rod and reel (01002022HPB4).

Several key respondents said that chest freezers are common in Hooper Bay, but many residents still preserve their salmon using traditional methods (011162022HPB1; 01152022HPB1; 01002022HPB4; 01002022HPB5; 01162022HPB1). While some salmon is eaten fresh, the majority of it is dried on outdoor racks, then eaten throughout the winter. One key respondent described the significance of drying fish in Hooper Bay by saying, "and dry fish is like the staple. People freeze it—bags and bags and garbage bags full of dry fish. You know just, just and you use it through all the winter" (01002022HPB5).

Another popular preservation method is poke fish (01162022HPB1; 01002022HPB4; 011162022HPB1; 01002022HPB2). Traditionally, half-dry salmon strips are placed in a container made out of seal skin, called a seal poke. The fish would then be covered with seal oil and the container sealed for several months until other food ran out. Today, salmon is often preserved this way, but most people use 5-gallon buckets instead of seal skin pokes, and the seal oil is sometimes replaced with vegetable oil (01162022HPB1; 011162022HPB1).

Although residents have noticed a decrease in salmon numbers in recent years, 2021 was the first time that directed harvest of Chinook and summer chum salmon was prohibited[8] (01002022HPB5; 01152022HPB1; 01002022HPB3; 01002022HPB4; 01002022HPB2). Losing access to one of their most valued resources decreased the distribution of salmon within and beyond the community. In the past, a typical fishing household harvested 100 to 300 salmon, which would then be shared with other households (01152022HPB1;

7. Calista Corporation "Calista Sends 2,000 Lbs. of Salmon to Lower Yukon Communities" Accessed March 15, 2023. https://www.calistacorp.com/news/calista-sends-salmon-to-lower-yukon/

8. Deena M. Jallen, 2021, "2021 Yukon Area Summer Season Summary," Alaska Department of Fish and Game, Division of Commercial Fisheries, Fairbanks, Accessed December 15, 2022. http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/1225837847.pdf

01002022HPB2; 01002022HPB4; 01002022HPB1). With recent declines in Chinook and summer chum salmon and the resulting regulatory closures, the salmon that do get harvested by Hooper Bay residents do not last through the winter.

> And that's all we get now, but it's—unless I still have to share that with my family, with my extended family. This year was very—this year with the six fish I had, I had to really stretch those, because I really wanted them, and they're all gone now. I haven't had salmon in a long time, only the fish that those other, uh, those people they share us, you know, in other places, I see that difference between their fish, and our fish. Our fish are nice and oily, and their fish are dry. (01152022HPB1)

This respondent was referring to the donated fish from outside of the coastal district. The Coastal Villages Region Fund (CVRF) provided each household with a 45-lb box of salmon (01002022HPB4; 01212022HPB2; 01162022HPB1). [9] The Hooper Bay tribal council also reached out to Bristol Bay processing companies, who then donated salmon as well (0102022HPB1). While many recipients were grateful to have salmon, a few commented that the donated fish did not taste like the fish they were used to (01152022HPB1; 01002022HPB1).

Key respondents voiced their concerns over rising ocean temperatures and the effect it has on salmon populations (01162022HPB1; 01002022HPB4; 01002022HPB5). One respondent mentioned that in the past, elders would tell them that if the water was warm the salmon would be scarce (01002022HPB4). Respondents have also noticed that when the wind blows from the north, the salmon swim along the shore, but when the wind is from the south, the salmon swim further out (01002022HPB5; 01002022HPB4).

> Our ocean is extremely warm on the shoreline right over here… In the bay … Elders when they say, when the weather's so warm there's hardly any fish. No, especially when we're on south wind … Mainly fish comes in. South or from down here, instead of west. [West winds push salmon towards shore, more salmon in Hooper]. (01002022HPB4)

Key respondents also expressed concern over the eroding landscape: the bay has started to fill in because of the erosion, and people said they have had to put their nets in new locations and have not been catching as many salmon (01002022HPB1; 01002022HPB3).

Most households fished for salmon in the marine waters outside of the community of Hooper Bay, along Nuvok Spit, or in the waters of Hooper Bay (Figure 2-14). Key respondents described using ATVs to access set net sites on the beach or traveling by skiff around the spit to check their nets. According to mapping results and ethnographic interviews, Hooper Bay households also fished for salmon in Angyoyaravak Bay at the mouth of the Kashunuk River. Upriver search and harvest areas for salmon include the middle Kashunuk River and near Nashak Lake. Given the low survey response rate, households likely use more salmon fishing areas than were documented by this survey. Key respondents described trying new fishing locations during the last few years, as fishing restrictions and changes in salmon abundance made harvesting salmon more difficult. One person said they fished in the Kashunuk River, near the traditional fish camp locations of Chevak residents, and another described going to fish camp on the Aphrewn River with people from Chevak (01002022HPB4; 01002022HPB5).

9. Coastal Region Villages Fund, Press Release, "Alaska Organizations Partner to Move 22,500+ Pounds of Salmon from Bristol Bay to CVRF Communities," Accessed April 5, 2023. https://coastalvillages.org/wp-content/uploads/2021/09/Salmon-Donation-Press-Release.pdf.

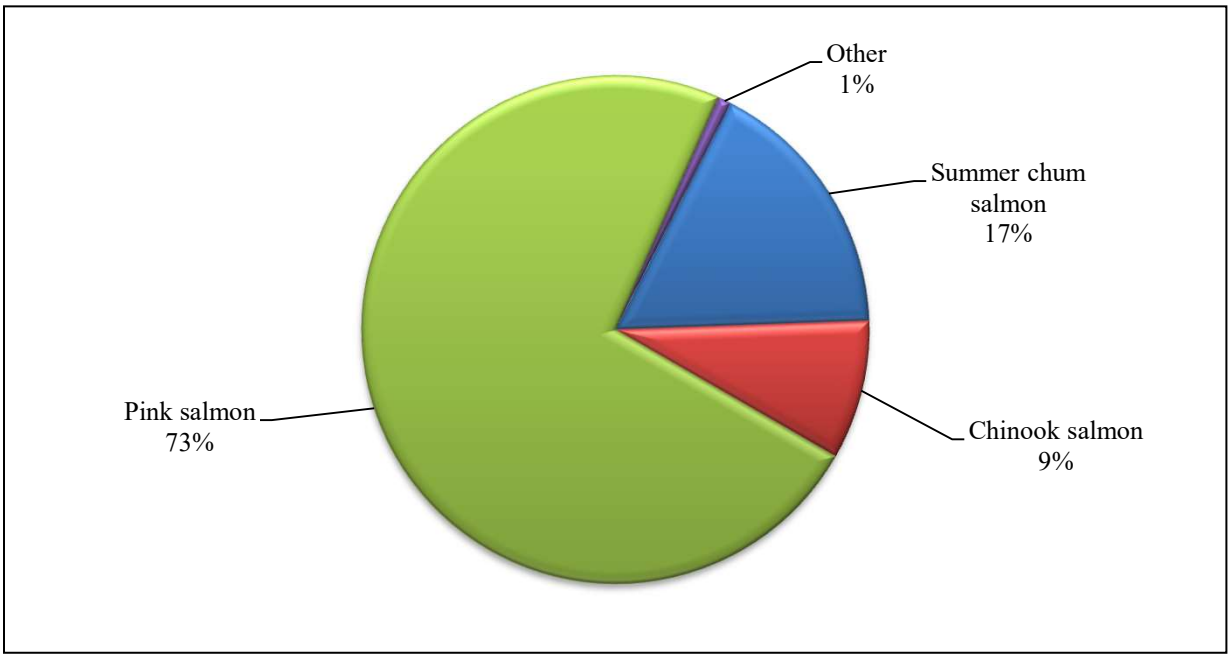


Figure 2-12.–Composition of salmon harvest in pounds usable weight, Hooper Bay, Alaska, 2021.

Table 2-11.–Estimated typical use of salmon, Hooper Bay, Alaska, 2021.

	Estimated *usual* harvest, 2021	
Resource	Number	Pounds
Chinook salmon	665.1	9,312.6
Summer chum salmon	8,676.0	35,020.1
Fall chum salmon	25.5	102.9
Sockeye salmon	0.0	0.0
Coho salmon	0.0	0.0
Pink salmon	301.3	713.9
Unspecified salmon	0.0	0.0

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

Table 2-12.–Estimated harvest of salmon by gear type and resource, Hooper Bay, Alaska, 2021.

	Removed from commercial catch		Subsistence methods															
			Drift gillnet		Set gillnet		Seine		Dip net		Other gear		Subsistence gear, any method		Rod and reel		Total	
Resource	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb
Salmon	**0.0**	**0.0**	**0.0**	**0.0**	**4,376.5**	**12,163.5**	**0.0**	**0.0**	**4.7**	**11.2**	**0.0**	**0.0**	**4,381.2**	**12,174.7**	**0.0**	**0.0**	**4,381.2**	**12,174.7**
Summer chum salmon	0.0	0.0	0.0	0.0	510.9	2,062.3	0.0	0.0	0.0	0.0	0.0	0.0	510.9	2,062.3	0.0	0.0	510.9	2,062.3
Fall 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	0.0	0.0	0.0	0.0	0.0	0.0
Chum salmon, run unknown	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	19.3	82.9	0.0	0.0	0.0	0.0	0.0	0.0	19.3	82.9	0.0	0.0	19.3	82.9
Chinook salmon	0.0	0.0	0.0	0.0	77.1	1,079.9	0.0	0.0	0.0	0.0	0.0	0.0	77.1	1,079.9	0.0	0.0	77.1	1,079.9
Pink salmon	0.0	0.0	0.0	0.0	3,764.4	8,920.3	0.0	0.0	4.7	11.2	0.0	0.0	3,769.1	8,931.5	0.0	0.0	3,769.1	8,931.5
Sockeye salmon	0.0	0.0	0.0	0.0	4.7	18.2	0.0	0.0	0.0	0.0	0.0	0.0	4.7	18.2	0.0	0.0	4.7	18.2
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	0.0	0.0	0.0	0.0	0.0	0.0

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

Table 2-13.–Estimated percentages of salmon harvest in pounds usable weight by gear type, resource, and total salmon harvest, Hooper Bay, Alaska, 2021.

Resource	Percentage base	Removed from commercial catch		Subsistence methods: Drift gillnet		Set gillnet		Seine		Dip net		Other gear		Subsistence gear, any method		Rod and reel		Total	
		No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb
Salmon	**Gear type**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**100.0%**	**100.0%**	**0.0%**	**0.0%**	**100.0%**	**100.0%**	**0.0%**	**0.0%**	**100.0%**	**100.0%**	**0.0%**	**0.0%**	**100.0%**	**100.0%**
	Resource	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**99.9%**	**99.9%**	**0.0%**	**0.0%**	**0.1%**	**0.1%**	**0.0%**	**0.0%**	**100.0%**	**100.0%**	**0.0%**	**0.0%**	**100.0%**	**100.0%**
	Total	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**99.9%**	**99.9%**	**0.0%**	**0.0%**	**0.1%**	**0.1%**	**0.0%**	**0.0%**	**100.0%**	**100.0%**	**0.0%**	**0.0%**	**100.0%**	**100.0%**
Summer chum salmon	Gear type	0.0%	0.0%	0.0%	0.0%	11.7%	17.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.7%	16.9%	0.0%	0.0%	11.7%	16.9%
	Resource	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	11.7%	16.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.7%	16.9%	0.0%	0.0%	11.7%	16.9%
Fall chum salmon	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Chum salmon, run unknown	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Coho salmon	Gear type	0.0%	0.0%	0.0%	0.0%	0.4%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.7%	0.0%	0.0%	0.4%	0.7%
	Resource	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.4%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.7%	0.0%	0.0%	0.4%	0.7%
Chinook salmon	Gear type	0.0%	0.0%	0.0%	0.0%	1.8%	8.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.8%	8.9%	0.0%	0.0%	1.8%	8.9%
	Resource	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	1.8%	8.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.8%	8.9%	0.0%	0.0%	1.8%	8.9%
Pink salmon	Gear type	0.0%	0.0%	0.0%	0.0%	86.0%	73.3%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	86.0%	73.4%	0.0%	0.0%	86.0%	73.4%
	Resource	0.0%	0.0%	0.0%	0.0%	99.9%	99.9%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	85.9%	73.3%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	86.0%	73.4%	0.0%	0.0%	86.0%	73.4%
Sockeye salmon	Gear type	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.1%	0.1%
	Resource	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.1%	0.1%
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%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

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

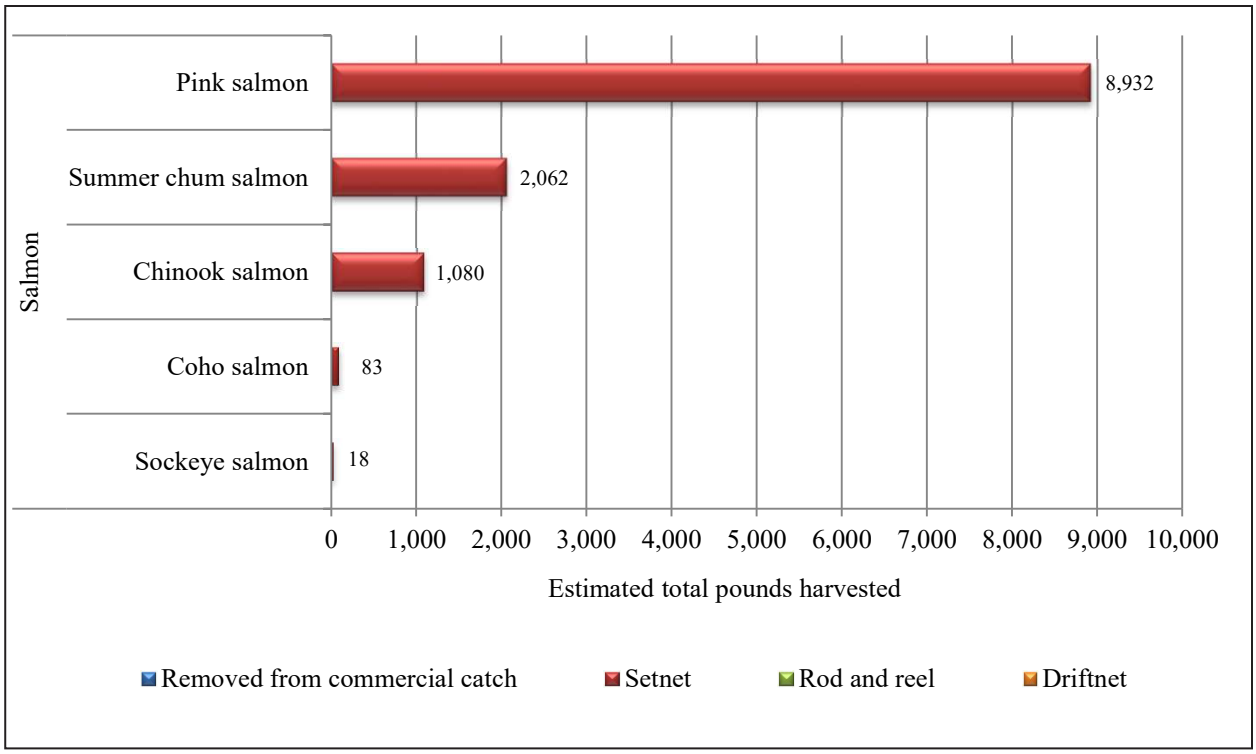


Figure 2-13.–Estimated harvest of salmon in pounds usable weight by gear type and resource, Hooper Bay, Alaska, 2021.

Nonsalmon Fish

In 2021, Hooper Bay residents harvested nearly twice as much nonsalmon fish as salmon (23,852 lb versus 12,175 lb respectively; Table 2-9). On a per capita basis, Hooper Bay residents harvested 22 lb of nonsalmon fish. Just over half of Hooper Bay households harvested nonsalmon fish, while a majority of the households (83%) reported using nonsalmon fish, indicating that many households receive nonsalmon fish through sharing. The most commonly used species were Bering cisco (42%), and Alaska blackfish (35%), which were harvested by 25% and 15% of households respectively.

In pounds of edible weight, pike made up the largest percent (23%) of the nonsalmon harvest (Figure 2-15). Several key respondents mentioned concern about the pike population, and the possible effects it may have on other species. In particular, respondents suggested that pike may be predating on young salmon rearing in the rivers (01182022HPB1; 01182022HPB1). These respondents have noticed an increase in pike numbers over the last few years.

Fishers in Hooper Bay caught the majority of their nonsalmon using rod and reel (11,483 lb; 48%). Residents also used set gillnets (4,676 lb; 20%), and nets set under the ice (4,534 lb; 19%) (Table 2-14; Table 2-15; Figure 2-16). Other gear used, such as drift gillnets, dip nets, and fish traps,[10] was used to harvest less than 15% of the total edible weight of nonsalmon fish caught in 2021. Though these data do not differentiate rod and reel used in open water from hook and line through the ice, Hooper Bay residents used both methods to target different species (011162022HPB1; 01002022HPB4). Key respondents said that they fished through holes in the ice for smelt and saffron cod (locally known as tomcod), while whitefish species were targeted with the nets set under ice.

As with many resources, Hooper Bay respondents expressed concern about the impact of the changing environment on the nonsalmon species. Their concerns were that rising water temperatures and erosion all

10. Legally known as fyke nets.



Figure 2-14.–Fishing and harvest locations of salmon, Hooper Bay, Alaska, 2021.

negatively affect the habitats of these species, and in some cases, lead to increased fish mortality or difficulty for fishers to access or catch them (01002022HPB3; 01152022HPB1). These climate-related changes affect not only harvesting households, but also those who can only access these resources through sharing. One respondent described this impact to their own household:

> After seeing plenty of these, when I was growing up, they became lesser, and lesser, and lesser, and lesser. … All the fish, every one of them became kind of scarce. The last time, in about how many years ago? The most fish we fished for another family was 300, for only them, so they could have fish for the wintertime. That's the most fish I get. I just—I think it was about 1970, something like that, and after that, it became less. I remember I used to make ten buckets of, um, fish to eat. Oiled fish, fish put in seal oil, there were two twenty gallons, ten gallons, and five gallons, so I could feed anyone I could during the winter. And now, right now, I make about only two. Two little ten gallons. (01152022HPB1)

Respondents reported harvesting nonsalmon fish in the Bering Sea, Kokechik Bay, and Hooper Bay. Residents also identified locations around the community, along the Kashunuk River, and near the Askinuk and Kusilvak mountains (Figure 2-17).

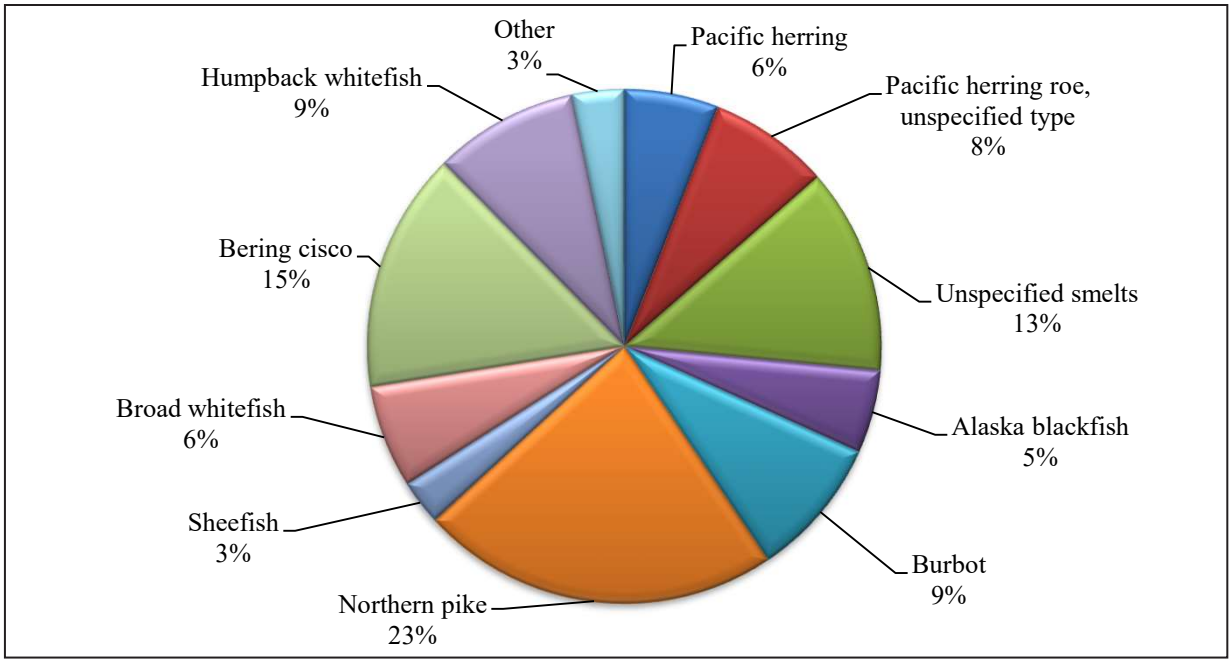


Figure 2-15.–Composition of nonsalmon fish harvest in pounds usable weight, Hooper Bay, Alaska, 2021.

Table 2-14.–Estimated harvest of nonsalmon fish by gear type and resource, Hooper Bay, Alaska, 2021.

			Subsistence methods																			
	Removed from commercial catch		Drift gillnet		Set gillnet		Trolling		Dip net		Net under ice		Fish trap		Other gear		Subsistence gear, any method		Rod and reel		Dip net		Total	
Resource	No.	Lb	No.	Lb	No.	Lb	No.	Lb.	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb.	No.	Lb
Nonsalmon fish	**0.0**	**0.0**	**9.3**	**28.8**	**2,288.4**	**4,675.8**	**571.3**	**202.0**	**1,928.0**	**4,533.7**	**170.1**	**1,020.7**	**387.5**	**1,908.2**	**5,354.5**	**12,369.2**	**3,585.1**	**11,483.2**	**8,939.6**	**23,852.4**	**0**	**0**	**8,940**	**23,852**
Pacific herring	0.0	0.0	0.0	0.0	236.3	1,417.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	236.3	1,417.6	0.0	0.0	236.3	1,417.6	0	0	236	1,418
Pacific herring roe, unspecified 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	302.4	1,814.6	302.4	1,814.6	0.0	0.0	302.4	1,814.6	170	0	302	1,815
Unspecified smelts	0.0	0.0	4.6	27.8	0.0	0.0	0.0	0.0	28.4	170.1	0.0	0.0	0.0	0.0	33.0	197.9	482.0	2,892.0	515.0	3,089.9	0	0	515	3,090
Saffron cod	0.0	0.0	4.6	1.0	0.0	0.0	557.1	117.0	4.7	1.0	0.0	0.0	0.0	0.0	566.5	119.0	154.4	32.4	720.9	151.4	0	0	721	151
Walleye pollock (whiting)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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 flounders	0.0	0.0	0.0	0.0	151.2	166.3	0.0	0.0	0.0	0.0	0.0	0.0	85.1	93.6	236.3	259.9	47.3	52.0	283.5	311.9	0	0	284	312
Pacific halibut	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	70.9	70.9	70.9	70.9	0	0	71	71
Arctic lamprey	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0	0
Sculpins	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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)	0.0	0.0	0.0	0.0	0.0	0.0	14.2	85.1	0.0	0.0	0.0	0.0	0.0	0.0	14.2	85.1	0.0	0.0	14.2	85.1	0	0	14	85
Alaska blackfish	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37.8	226.8	170.1	1,020.7	0.0	0.0	207.9	1,247.5	0.0	0.0	207.9	1,247.5	0	0	208	1,248
Burbot	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	39.7	0.0	0.0	0.0	0.0	9.5	39.7	491.5	2,064.1	500.9	2,103.8	0	0	501	2,104
Dolly Varden, unknown type	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	170	0	0	0
Arctic grayling	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0	0
Northern pike	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	31.2	0.0	0.0	0.0	0.0	9.5	31.2	1,625.6	5,364.4	1,635.0	5,395.6	0	0	1,635	5,396
Sheefish	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	122.9	675.7	0.0	0.0	0.0	0.0	122.9	675.7	0.0	0.0	122.9	675.7	0	0	123	676
Rainbow trout	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	9.5	30.2	0.0	0.0	467.8	1,497.0	0.0	0.0	0.0	0.0	477.3	1,527.3	4.7	15.1	482.0	1,542.4	0	0	482	1,542
Bering cisco	0.0	0.0	0.0	0.0	1,017.0	1,423.8	0.0	0.0	850.6	1,190.8	0.0	0.0	0.0	0.0	1,867.6	2,614.7	708.8	992.4	2,576.4	3,607.0	0	0	2,576	3,607
Least cisco	0.0	0.0	0.0	0.0	70.9	49.6	0.0	0.0	94.5	66.2	0.0	0.0	0.0	0.0	165.4	115.8	0.0	0.0	165.4	115.8	0	0	165	116
Humpback whitefish	0.0	0.0	0.0	0.0	732.6	1,538.5	0.0	0.0	302.4	635.1	0.0	0.0	0.0	0.0	1,035.1	2,173.6	0.0	0.0	1,035.1	2,173.6	0	0	1,035	2,174
Round whitefish	0.0	0.0	0.0	0.0	70.9	49.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	70.9	49.6	0.0	0.0	70.9	49.6	0	0	71	50
Unspecified whitefishes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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.

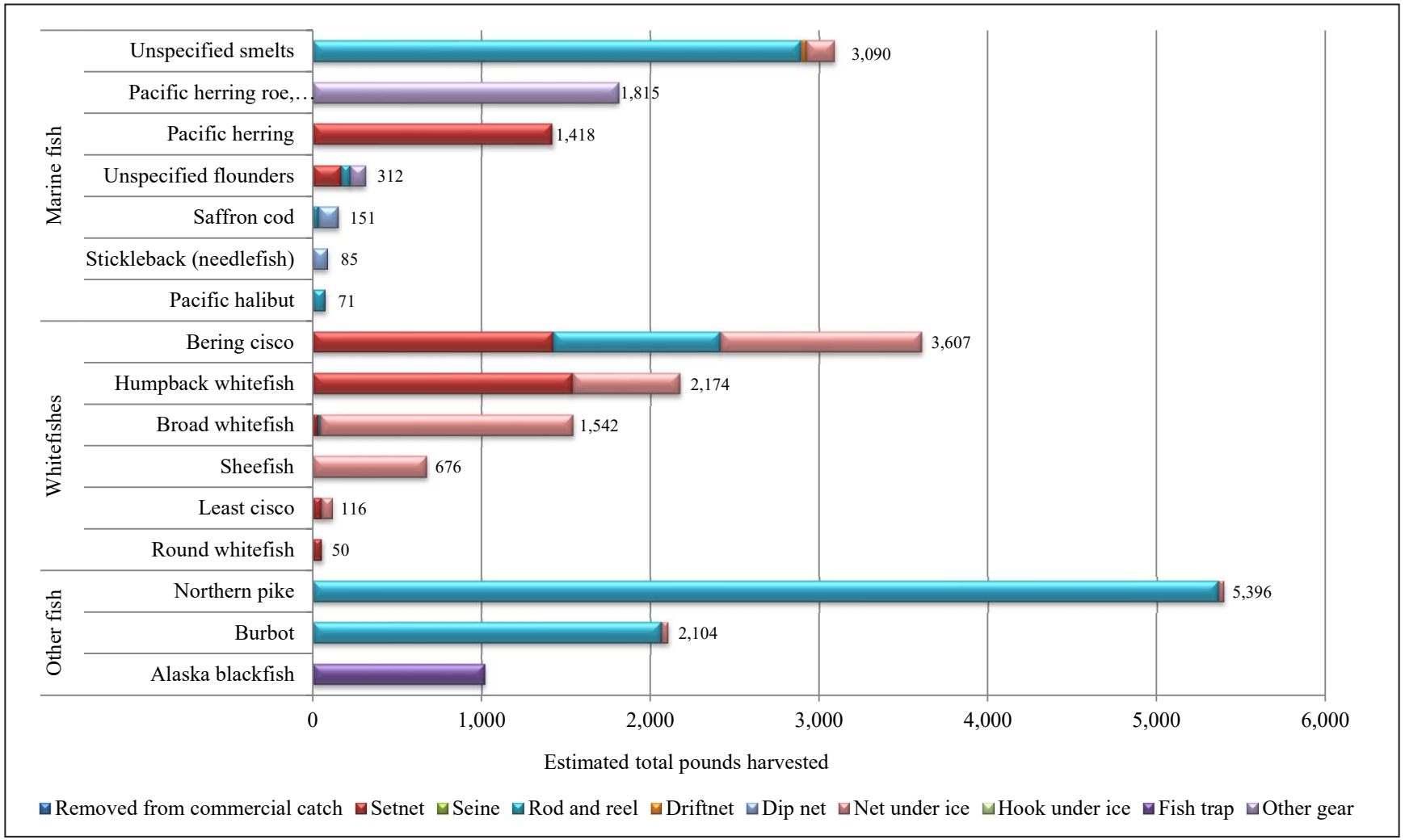


Figure 2-16.–Estimated harvest of nonsalmon fish in pounds usable weight by gear type and resource, Hooper Bay, Alaska, 2021.

Table 2-15.–Estimated percentages of nonsalmon fish harvest in pounds usable weight by gear type, resource, and total nonsalmon fish harvest, Hooper Bay, Alaska, 2021.

				Subsistence methods																	
		Removed from commercial catch		Drift gillnet		Set gillnet		Dip net		Net under ice		Fish trap		Other gear		Subsistence gear, any method		Rod and reel		Total	
Resource	Percentage base	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb
Nonsalmon fish	**Gear type**	**0.0%**	**0.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
	Resource	**0.0%**	**0.0%**	**0.1%**	**0.1%**	**25.6%**	**19.6%**	**6.4%**	**0.8%**	**21.6%**	**19.0%**	**1.9%**	**4.3%**	**4.3%**	**8.0%**	**59.9%**	**51.9%**	**40.1%**	**48.1%**	**100.0%**	**100.0%**
	Total	**0.0%**	**0.0%**	**0.1%**	**0.1%**	**25.6%**	**19.0%**	**6.4%**	**0.8%**	**21.6%**	**19.0%**	**1.9%**	**4.3%**	**4.3%**	**8.0%**	**59.9%**	**51.9%**	**40.1%**	**48.1%**	**100.0%**	**100.0%**
Pacific herring	Gear type	0.0%	0.0%	0.0%	0.0%	10.3%	30.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.4%	11.5%	0.0%	0.0%	2.6%	5.9%
	Resource	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	2.6%	5.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.6%	5.9%	0.0%	0.0%	2.6%	5.9%
Pacific herring roe, unspecified type	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%	78.0%	95.1%	5.6%	14.7%	0.0%	0.0%	3.4%	7.6%
	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%	100.0%	100.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.4%	7.6%	3.4%	7.6%	0.0%	0.0%	3.4%	7.6%
Unspecified smelts	Gear type	0.0%	0.0%	50.0%	96.6%	0.0%	0.0%	0.0%	0.0%	1.5%	3.8%	0.0%	0.0%	0.0%	0.0%	0.6%	1.6%	13.4%	25.2%	5.8%	13.0%
	Resource	0.0%	0.0%	0.9%	0.9%	0.0%	0.0%	0.0%	0.0%	5.5%	5.5%	0.0%	0.0%	0.0%	0.0%	6.4%	6.4%	93.6%	93.6%	100.0%	100.0%
	Total	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.3%	0.7%	0.0%	0.0%	0.0%	0.0%	0.4%	0.8%	5.4%	12.1%	5.8%	13.0%
Saffron cod	Gear type	0.0%	0.0%	50.0%	3.4%	0.0%	0.0%	97.5%	57.9%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	10.6%	1.0%	4.3%	0.3%	8.1%	0.6%
	Resource	0.0%	0.0%	0.6%	0.6%	0.0%	0.0%	77.3%	77.3%	0.7%	0.7%	0.0%	0.0%	0.0%	0.0%	78.6%	78.6%	21.4%	21.4%	100.0%	100.0%
	Total	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	6.2%	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	6.3%	0.5%	1.7%	0.1%	8.1%	0.6%
Walleye pollock (whiting)	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Unspecified flounders	Gear type	0.0%	0.0%	0.0%	0.0%	6.6%	3.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	22.0%	4.9%	4.4%	2.1%	1.3%	0.5%	3.2%	1.3%
	Resource	0.0%	0.0%	0.0%	0.0%	53.3%	53.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	30.0%	30.0%	83.3%	83.3%	16.7%	16.7%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	1.7%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	0.4%	2.6%	1.1%	0.5%	0.2%	3.2%	1.3%
Pacific halibut	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.0%	0.6%	0.8%	0.3%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	0.3%	0.8%	0.3%
Arctic lamprey	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

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Table 2-15.–Page 2 of 3.

		Subsistence methods																			
		Removed from commercial catch		Drift gillnet		Set gillnet		Dip net		Net under ice		Fish trap		Other gear		Subsistence gear, any method		Rod and reel		Total	
Resource	Percentage base	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb
Sculpins	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	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%	2.5%	42.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.7%	0.0%	0.0%	0.2%	0.4%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.4%	0.0%	0.0%	0.2%	0.4%
Alaska blackfish	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.0%	5.0%	100.0%	100.0%	0.0%	0.0%	3.9%	10.1%	0.0%	0.0%	2.3%	5.2%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	18.2%	18.2%	81.8%	81.8%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	1.0%	1.9%	4.3%	0.0%	0.0%	2.3%	5.2%	0.0%	0.0%	2.3%	5.2%
Burbot	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.9%	0.0%	0.0%	0.0%	0.0%	0.2%	0.3%	13.7%	18.0%	5.6%	8.8%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	1.9%	0.0%	0.0%	0.0%	0.0%	1.9%	1.9%	98.1%	98.1%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%	5.5%	8.7%	5.6%	8.8%
Dolly Varden, unknown type	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Arctic grayling	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Northern pike	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.7%	0.0%	0.0%	0.0%	0.0%	0.2%	0.3%	45.3%	46.7%	18.3%	22.6%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.6%	0.0%	0.0%	0.0%	0.0%	0.6%	0.6%	99.4%	99.4%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	18.2%	22.5%	18.3%	22.6%
Sheefish	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.4%	14.9%	0.0%	0.0%	0.0%	0.0%	2.3%	5.5%	0.0%	0.0%	1.4%	2.8%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	2.8%	0.0%	0.0%	0.0%	0.0%	1.4%	2.8%	0.0%	0.0%	1.4%	2.8%
Rainbow trout	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

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Table 2-15.–Page 3 of 3.

		Subsistence methods																			
		Removed from commercial catch		Drift gillnet		Set gillnet		Dip net		Net under ice		Fish trap		Other gear		Subsistence gear, any method		Rod and reel		Total	
Resource	Percentage base	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb
Broad whitefish	Gear type	0.0%	0.0%	0.0%	0.0%	0.4%	0.6%	0.0%	0.0%	24.3%	33.0%	0.0%	0.0%	0.0%	0.0%	8.9%	12.3%	0.1%	0.1%	5.4%	6.5%
	Resource	0.0%	0.0%	0.0%	0.0%	2.0%	2.0%	0.0%	0.0%	97.1%	97.1%	0.0%	0.0%	0.0%	0.0%	99.0%	99.0%	1.0%	1.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	5.2%	6.3%	0.0%	0.0%	0.0%	0.0%	5.3%	6.4%	0.1%	0.1%	5.4%	6.5%
Bering cisco	Gear type	0.0%	0.0%	0.0%	0.0%	44.4%	30.5%	0.0%	0.0%	44.1%	26.3%	0.0%	0.0%	0.0%	0.0%	34.9%	21.1%	19.8%	8.6%	28.8%	15.1%
	Resource	0.0%	0.0%	0.0%	0.0%	39.5%	39.5%	0.0%	0.0%	33.0%	33.0%	0.0%	0.0%	0.0%	0.0%	72.5%	72.5%	27.5%	27.5%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	11.4%	6.0%	0.0%	0.0%	9.5%	5.0%	0.0%	0.0%	0.0%	0.0%	20.9%	11.0%	7.9%	4.2%	28.8%	15.1%
Least cisco	Gear type	0.0%	0.0%	0.0%	0.0%	3.1%	1.1%	0.0%	0.0%	4.9%	1.5%	0.0%	0.0%	0.0%	0.0%	3.1%	0.9%	0.0%	0.0%	1.9%	0.5%
	Resource	0.0%	0.0%	0.0%	0.0%	42.9%	42.9%	0.0%	0.0%	57.1%	57.1%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.8%	0.2%	0.0%	0.0%	1.1%	0.3%	0.0%	0.0%	0.0%	0.0%	1.9%	0.5%	0.0%	0.0%	1.9%	0.5%
Humpback whitefish	Gear type	0.0%	0.0%	0.0%	0.0%	32.0%	32.9%	0.0%	0.0%	15.7%	14.0%	0.0%	0.0%	0.0%	0.0%	19.3%	17.6%	0.0%	0.0%	11.6%	9.1%
	Resource	0.0%	0.0%	0.0%	0.0%	70.8%	70.8%	0.0%	0.0%	29.2%	29.2%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	8.2%	6.5%	0.0%	0.0%	3.4%	2.7%	0.0%	0.0%	0.0%	0.0%	11.6%	9.1%	0.0%	0.0%	11.6%	9.1%
Round whitefish	Gear type	0.0%	0.0%	0.0%	0.0%	3.1%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	0.4%	0.0%	0.0%	0.8%	0.2%
	Resource	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.8%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	0.2%	0.0%	0.0%	0.8%	0.2%
Unspecified whitefishes	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

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



Figure 2-17.–Fishing and harvest locations of nonsalmon fish, Hooper Bay, Alaska, 2021.

Large Land Mammals

Most households in Hooper Bay used large land mammals during the study year (90%), although only 31% harvested large land mammals (Table 2-9). Residents harvested moose and muskoxen and had access to black bears through sharing. For moose, the percentage of households that received moose meat (73%) was twice the percentage that gave it (37%). In total, an estimated 111 moose were harvested, yielding 44,882 lb edible weight (186 lb per household, 41 lb per capita). Over half of these were harvested in September (59%), with the rest spread between February (8%), March (8%), August (5%), and October (8%) (Table 2-16). Of the total large land mammal harvest in 2021, muskoxen made up 13%, with an estimated 23 harvested (Table 2-9; Figure 2-18). About 2% of households attempted to, and were successful harvesting muskoxen, resulting in about 6,838 edible pounds (28 lb per household, 6 lb per capita).

Traditionally residents of Hooper Bay relied more on ocean resources such as beluga whales, seals, and salmon. Moose are a relatively new presence in the Hooper Bay area and became more prevalent in the 1990s:

> We go moose hunting every year. I've been going out moose hunting since 1984. On this day. I used to go close by. Where our, our, for five years. From '84, '85, '86, '87, '88, '89, '90. For seven years we skunk, you know, we thought we get moose. And by the time '95, '93, Yukon. Like Russian Mission or Marshall area. The uh, tundra, you know, lightning struck. (01002022HPB4)

The respondent explained that lightning-caused wildfires pushed moose out of the Interior to where they became easily accessible to Hooper Bay hunters, and another respondent explained that after a Big Lake fire in 1995, the moose population went up and they came closer to the coast.[11] More recently, residents have noticed an increase in the moose population in the region, along with changes to the environment that might contribute, such as an increase in willows around their berry camp (01152022HPB1). The availability of moose has also changed how people eat and harvest resources. The increasing moose population supplements the more traditional seal and fish diet, ensuring households have plenty.

In 2021 hunters followed the Kashunuk River up to the Yukon River looking for moose. They also followed the Yukon to below Mountain Village and up to Pilot Station. A spot near Nunavakanuk Lake was also identified (Figure 2-19).

Small Land Mammals/Furbearers

Use of small land mammals and furbearers was generally low among Hooper Bay households (10%), and few households shared their harvest (4%) (Table 2-9). Harvests of small land mammals were made up of snowshoe hares (40%), porcupines (31%), Alaska hares (12%), muskrats (9%), and lynx (8%) (Figure 2-20). Small numbers of red foxes and beavers were also harvested but were not used for food so were not included in Figure 2-19 (Figure 2-21). Respondents reported harvesting in February, March, May, July, September, and December (Table 2-17).

Only 10% of Hooper Bay households used small land mammals in 2021. Of the seven species harvested, only snowshoe hares (2%) and porcupines (2%) were given to other households. Beavers and red foxes were reported as used for fur only and not eaten (01002022HPB4).

Low sample size resulted in confidentiality concerns for the harvest locations of small land mammals. Although respondents in Hooper Bay were asked about where they harvested small land mammals in 2021, those results are not reported here to protect respondents' identities.

11 ADF&G Division of Subsistence household survey, 1/20/22.

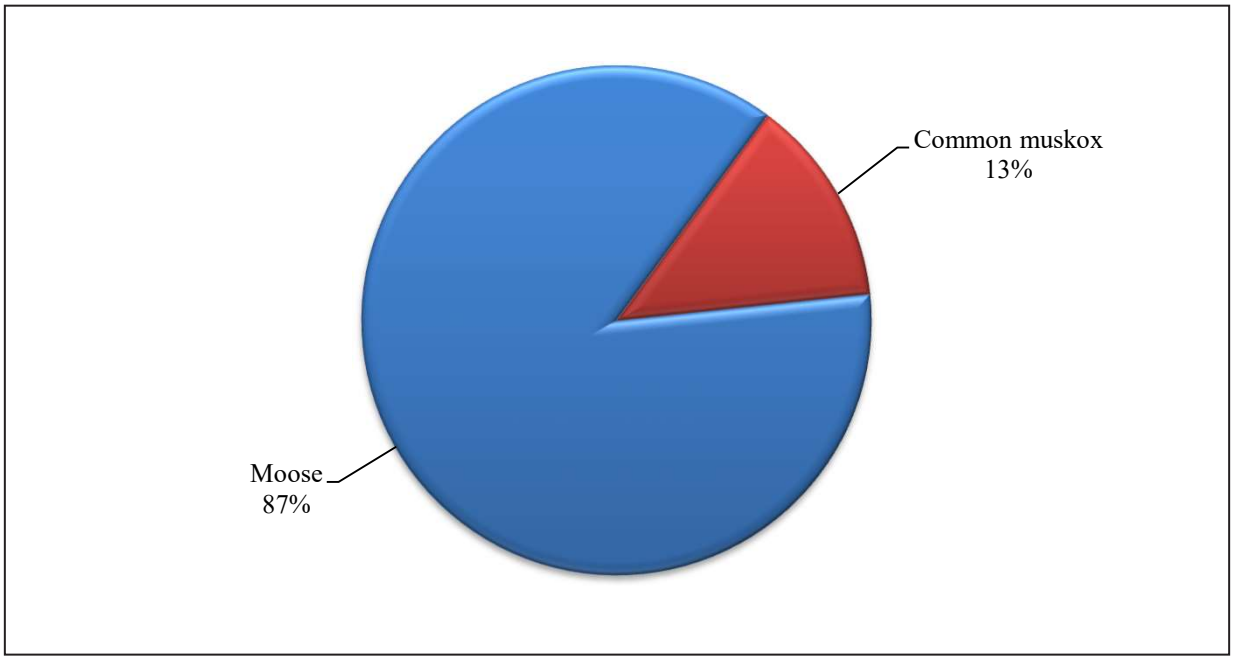


Figure 2-18.–Composition of large land mammal harvest in pounds usable weight, Hooper Bay, Alaska, 2021.

Table 2-16.–Estimated large land mammal harvests by month and sex, Hooper Bay, Alaska, 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**	**9.3**	**9.3**	**13.9**	**9.3**	**0.0**	**0.0**	**4.6**	**64.9**	**9.3**	**0.0**	**0.0**	**13.9**	**134.4**
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	0.0	0.0	0.0	**0.0**
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**
Caribou, male	0.0	0.0	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, 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**
Moose	0.0	9.3	9.3	0.0	0.0	0.0	0.0	4.6	64.9	9.3	0.0	0.0	13.9	**111.2**
Moose, male	0.0	9.3	9.3	0.0	0.0	0.0	0.0	4.6	46.3	9.3	0.0	0.0	0.0	**78.8**
Moose, female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.3	0.0	0.0	0.0	0.0	**9.3**
Moose, unknown sex	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.3	0.0	0.0	0.0	13.9	**23.2**
Common muskox	0.0	0.0	0.0	13.9	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**23.2**
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.

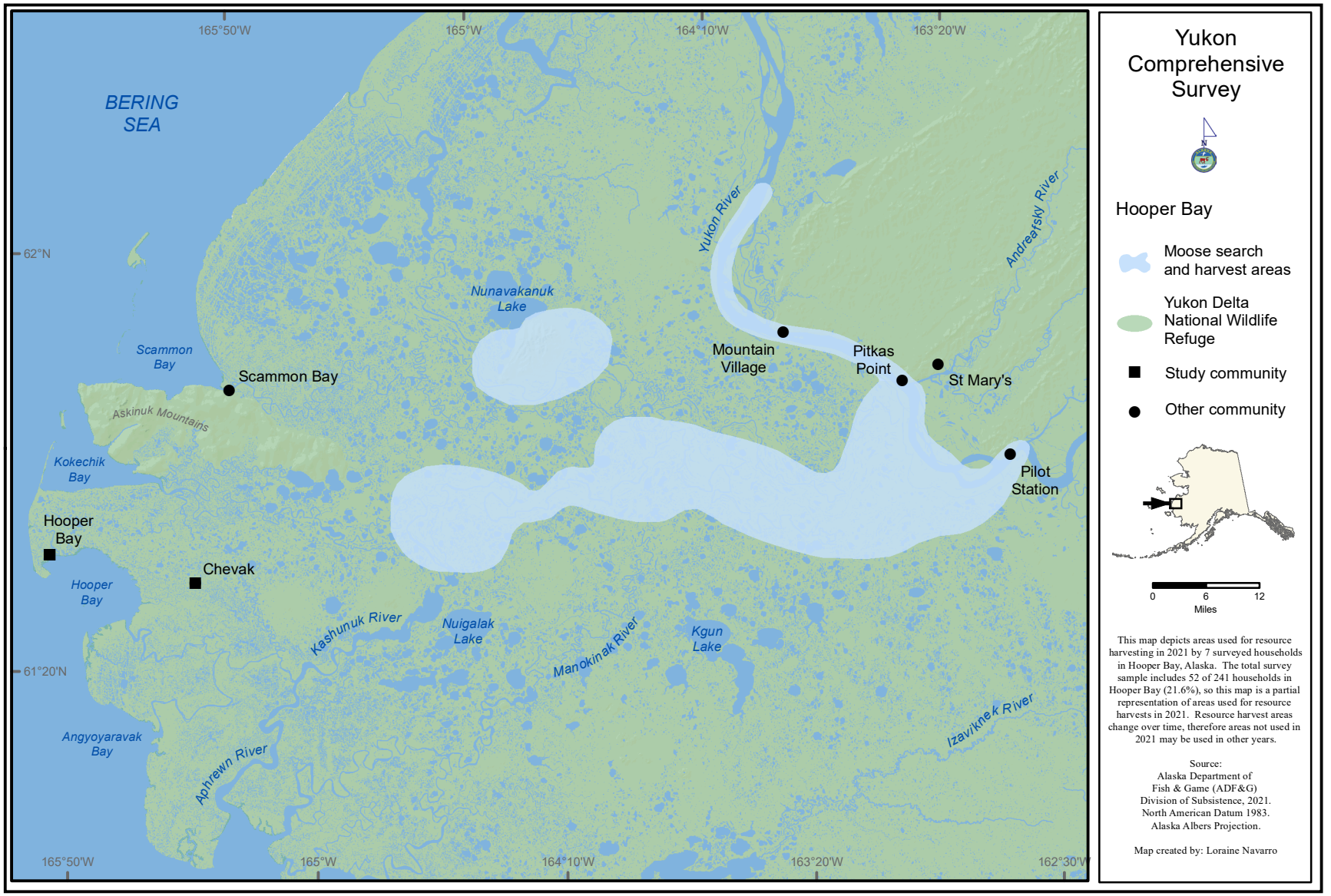


Figure 2-19.–Hunting locations of moose, Hooper Bay, Alaska, 2021.

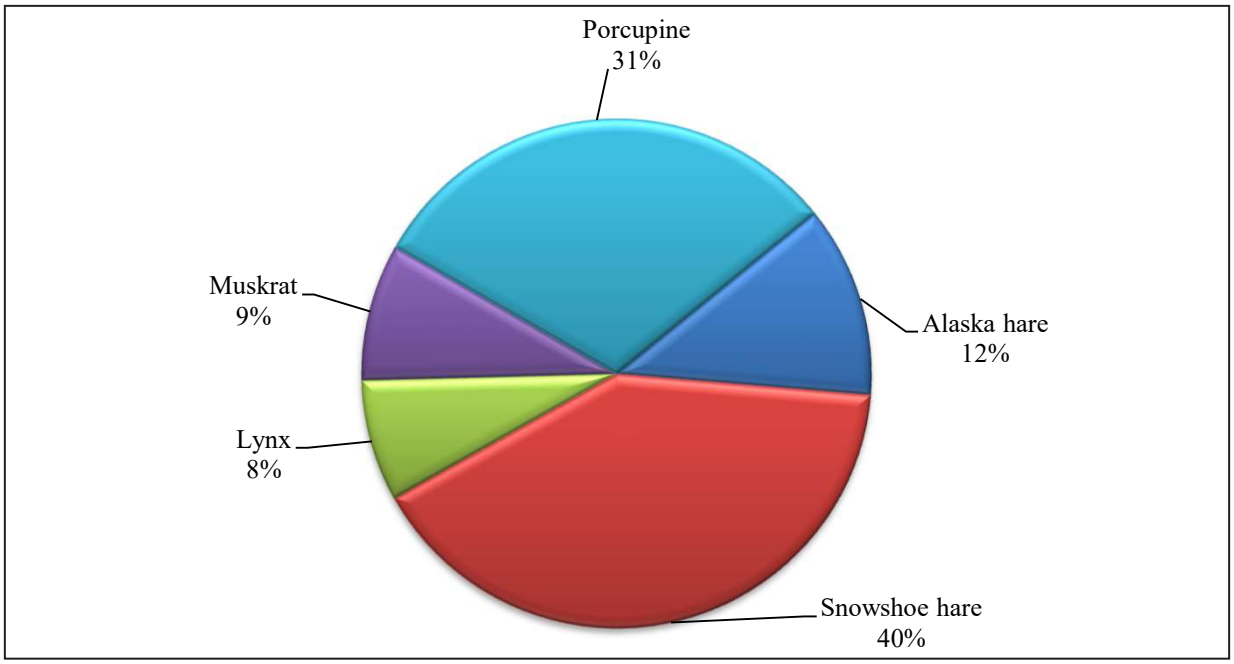


Figure 2-20.–Composition of small land mammal/furbearer harvest by individual animals harvested, Hooper Bay, Alaska, 2021.

Table 2-17.–Estimated small land mammal/furbearer harvests by month, Hooper Bay, Alaska, 2021.

Resource	Estimated harvest by month													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Unk	**Total**
All small land mammals	**0.0**	**37.1**	**32.4**	**0.0**	**18.5**	**0.0**	**9.3**	**0.0**	**13.9**	**0.0**	**0.0**	**9.3**	**4.6**	**125.1**
Beaver	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.3	0.0	0.0	0.0	0.0	**9.3**
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**
Arctic fox	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Red fox	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	0.0	**4.6**
Alaska hare	0.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**4.6**
Snowshoe hare	0.0	32.4	32.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**64.9**
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	0.0	**4.6**
Martens	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
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	18.5	0.0	9.3	0.0	0.0	0.0	0.0	0.0	0.0	**27.8**
Porcupine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	0.0	0.0	0.0	4.6	**9.3**
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**
Gray wolf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Wolverine	0.0	0.0	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.

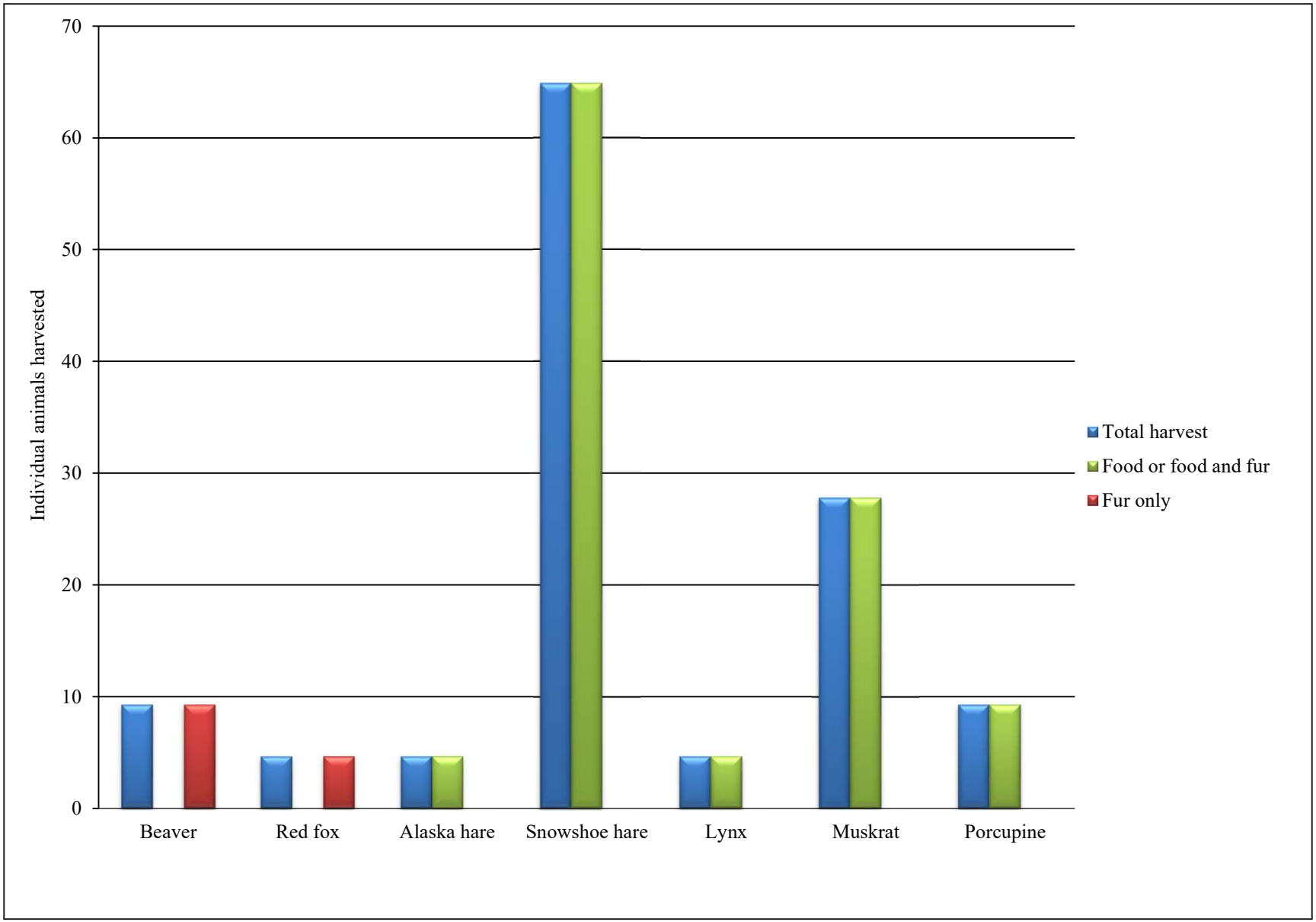


Figure 2-21.–Estimated small land mammal/furbearer harvests for fur and food only, Hooper Bay, Alaska, 2021.

Marine Mammals

In 2021, marine mammals, including seals and beluga whales, were important resources for Hooper Bay residents where 83% of households reported using marine mammals during the study year, and 63% of households received marine mammal resources (Table 2-9). The most commonly used marine mammal resources were beluga whale (60%), ringed seal (54%), and walrus (48%). Hooper Bay residents were highly successful in hunting marine mammals in 2021. Every household that attempted to harvest marine mammals was successful (35%Figure 2-8). A total of 231,987 lb of marine mammals were harvested in 2021. By edible weight, beluga whales made up the largest proportion of harvests (41%), followed by walruses (24%), bearded seals (22%), ringed seals (11%), and spotted seals (2%) (Figure 2-22). Households harvested the majority of marine mammals in March (14%), April (25%) and May (31%) (Table 2-18). July and December were the only months that households did not report harvesting marine mammals.

Over half of the households in Hooper Bay used beluga whales (60%), though only a quarter harvested them (Table 2-9). Forty percent of households received beluga and 25% gave beluga meat away. In total, 96 beluga whales were harvested in 2021, accounting for 95,918 lb (398 lb per household, 88 lb per capita). Beluga whales reliably pass by Hooper Bay each year in both spring and fall (011162022HPB1; 01002022HPB4). The hunters from multiple households join to hunt beluga whales, then split the harvest among themselves and neighbors.

> We go like two, three, at least three families, and we'll split it all evenly and split it, give it, uh, good equal amount for each household and store it away too. We share the catch of the belugas. So that's what we always do. Share, share the catch of the belugas. (01162022HPB1)

Three species of seals were harvested by Hooper Bay residents in 2021 (Table 2-9). The species used by most households was ringed seal (54%). Thirty-three percent of households attempted and were successful harvesting ringed seals; 29% shared with others, and 31% of households reported receiving ringed seals. About 434 ringed seals were harvested in 2021, for a total of 24,727 lb (103 lb per houehold, 23 lb per capita). While ringed seals are by far the most harvested, they only contribute 11% to the total marine mammal edible pounds (Figure 2-22). Beluga whales are first (41%), followed by bearded seals (22%).

Marine mammals make up the majority of the edible weight in Hooper Bay and are used to fill a number of roles. One respondent explained how he uses the bearded seals in particular for dry meat (01162022HPB1), and seal oil is also often used for preserving other foods:

> Poke fish, we put em in a five-gallon, ten gallon bucket and we add seal oil into it and that's what we make our poke fish out of. … We usually use uh, Wesson oil to uh, pour 'em in the bucket, but since I go out seal hunting around this time of the year, we just save it, save that seal oil up and, we just started using seals cause uh, it's a lot cheaper, we wouldn't, we wouldn't have to buy too much uh, Cris—no, not Crisco, but uh, Wesson oil. (01162022HPB1)

The respondent explained that about two seals fit in each bucket. Once they have filled a bucket with fish strips and oil it is stored in the cold ground or a smokehouse until they need it.

Some key respondents mentioned memories involving sea mammals and the important role they have played for generations by ensuring a source of food year round:

> Mm-hm. Yes, he brought home a sled load, and him and my mom, they worked on the seals, they didn't waste anything. We put the heads away in a cool place, and when we ran out of food, completely ran out of food. My mom cooked those heads, boiled those heads. And we ate those. Because by spring, we used to run out, we used to be—run out of food. (01152022HPB1)

Residents hunted for marine mammals within Hooper Bay, and an extensive area into the Bering Sea. They traveled north above Scammon Bay, and as far south as Tununak (Figure 2-23).

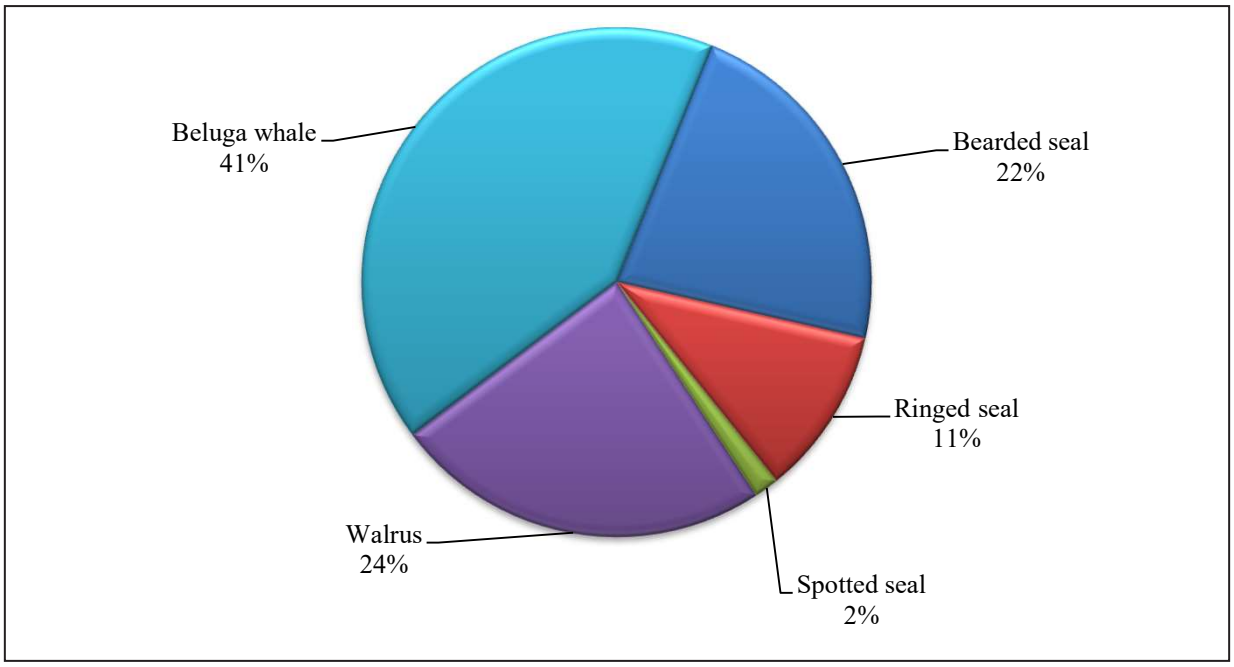


Figure 2-22.–Composition of marine mammal harvest in pounds usable weight, Hooper Bay, Alaska, 2021.

Table 2-18.–Estimated marine mammal harvests by month and sex, Hooper Bay, Alaska, 2021.

Resource	Estimated harvest by month													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Unk	**Total**
All marine mammals	**48.2**	**28.9**	**106.0**	**188.0**	**231.4**	**4.8**	**0.0**	**9.6**	**67.5**	**28.9**	**28.9**	**0.0**	**0.0**	**742.3**
Bearded seal	4.8	0.0	4.8	28.9	43.4	0.0	0.0	0.0	9.6	9.6	14.5	0.0	0.0	**115.7**
Bearded seal, male	4.8	0.0	4.8	4.8	33.7	0.0	0.0	0.0	0.0	0.0	9.6	0.0	0.0	**57.8**
Bearded seal, female	0.0	0.0	0.0	4.8	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**9.6**
Bearded seal, unknown sex	0.0	0.0	0.0	19.3	4.8	0.0	0.0	0.0	9.6	9.6	4.8	0.0	0.0	**48.2**
Ribbon seal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Ringed seal	43.4	28.9	67.5	144.6	101.2	0.0	0.0	0.0	24.1	9.6	14.5	0.0	0.0	**433.8**
Spotted seal	0.0	0.0	4.8	0.0	9.6	0.0	0.0	0.0	0.0	9.6	0.0	0.0	0.0	**24.1**
Unspecified seals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Walrus	0.0	0.0	28.9	14.5	28.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**72.3**
Beluga whale	0.0	0.0	0.0	0.0	48.2	4.8	0.0	9.6	33.7	0.0	0.0	0.0	0.0	**96.4**

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



Figure 2-23.–Hunting locations of marine mammals, Hooper Bay, Alaska, 2021.

Birds and Eggs

Birds and eggs were used by 75% of Hooper Bay residents (Table 2-9). Just over half of Hooper Bay households attempted to harvest birds and eggs. All 54% that attempted were successful, which could indicate relatively easy access to these resources; 44% of households received birds and eggs, and 38% gave them away. The most commonly used resources were unspecified Canada goose (52%), brants (37%), and greater white fronted goose (29%).

The total harvest of birds and eggs was 12,089 lb (50 lb per household; 11 lb per capita). The largest proportion of edible weight comprised king eider (24%), brant (18%), and greater white-fronted goose (13%; Table 2-9; Figure 2-24). The remainder of the resources included other birds and eggs, unspecified Canada goose, sandhill crane, norther pintail, mallard, American widgeon, and emperor goose, each of which contributed less than 10% of the total harvest weight. No households reported harvesting birds in the winter months (Table 2-19). Households harvested over half of their birds in spring (56%), 3% in summer, and 41% in the fall.

Years of observations have helped local hunters understand the habits of the animals they hunt. One key respondent shared their unique method of using trash bags in place of expensive swan decoys to hunt ducks:

> We use these white kitchen bags and we'll put trash bags and we went out to this big lake and—… Yeah, just kind of fill it up and then tie it and put it on a stick. And just stick, these lakes are shallow, but they're huge so just walk out here in waders and stick like four trash bags and throw duck decoys. 'Cause the ducks will always be trying to eat what the swans are digging up. (01002022HPB5)

Two respondents had concerns about human activities and how they interfere with the bird population (01212022HPB1; 01222022HPB1). Migratory birds are less likely to nest in areas with higher human activity. One respondent commented that the change in availability of birds may be related to the increased ATV activity in the area:

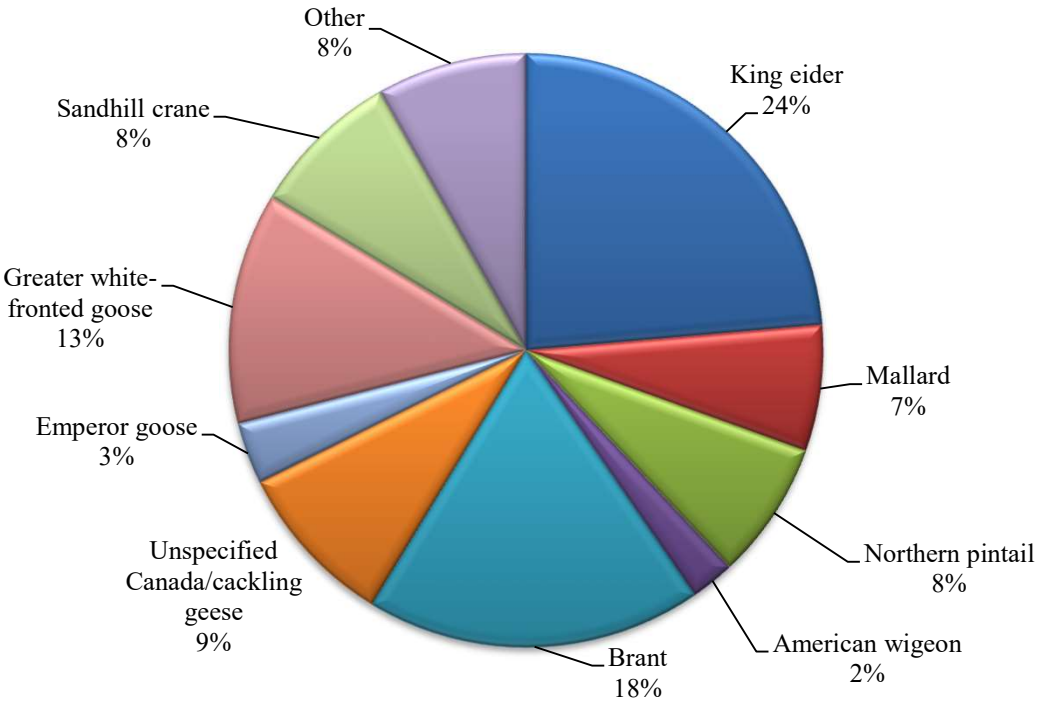
> They're [birds] pretty much everywhere, but nowadays because of all the ATV traffic on the tundra they're becoming fewer now. …And some areas, you know, where there's high traffic or lots of humps. ATV tracks, it's just dead silent, no birds, no nothing. Just the quiet, only swarms and swarms of mosquitoes in those areas. (01222022HPB1)

Harvest locations were split into three categories. Ducks and geese were harvested along the coast of Hooper Bay and further along the peninsula. Other birds were harvested throughout the peninsula, around the bay, and past Chevak. Eggs were collected in a couple of locations close to the community and along a section of the Keoklevik River (Figure 2-25).

Marine Invertebrates

In 2021, Hooper Bay households used 1,475 lb of unspecified species of clams, which were the only resource used in this category (Table 2-9). Clams were used by 37%, harvested by 25%, and given away by 17% of households in Hooper Bay. Most households that attempted to harvest (27%) were successful (25%).

Clam harvest was reported in two locations: along the coast of the Panowat Spit and the lower side of Kokechik Bay, and on the other side of the peninsula near the community (Figure 2-26).



Note The "other" category includes species providing less than 1.5% each to the per capita harvest.

Figure 2-24.–Composition of bird and bird egg harvest in pounds usable weight, Hooper Bay, Alaska, 2021.

Table 2-19.–Estimated bird harvests by season, Hooper Bay, Alaska, 2021.

Resource	Estimated harvest by season					
	Spring	Summer	Fall	Winter	Season unknown	**Total**
All birds	**3,369.1**	**211.5**	**2,477.3**	**0.0**	**4.9**	**6062.8**
Bufflehead	0.0	0.0	0.0	0.0	0.0	**0.0**
Common eider	9.8	0.0	14.8	0.0	0.0	**24.6**
King eider	1,996.9	0.0	0.0	0.0	0.0	**1,996.9**
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	19.7	0.0	406.7	0.0	0.0	**426.4**
Long-tailed duck	0.0	0.0	19.7	0.0	0.0	**19.7**
Northern pintail	59.0	0.0	521.3	0.0	0.0	**580.4**
Unspecified scaups	0.0	0.0	0.0	0.0	0.0	**0.0**
Black scoter	0.0	0.0	4.9	0.0	0.0	**4.9**
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	68.9	0.0	0.0	**68.9**
Unspecified teals	0.0	0.0	334.4	0.0	0.0	**334.4**
American wigeon	0.0	0.0	221.3	0.0	0.0	**221.3**
Brant	295.1	39.3	34.4	0.0	0.0	**368.9**
Unspecified canada/cackling geese	359.0	88.5	457.4	0.0	0.0	**905.0**
Emperor goose	73.8	83.6	4.9	0.0	0.0	**162.3**
Snow goose	0.0	0.0	4.9	0.0	0.0	**4.9**
Greater white-fronted goose	250.8	0.0	108.2	0.0	0.0	**359.0**
Unspecified swans	14.8	0.0	68.9	0.0	0.0	**83.6**
Sandhill crane	78.7	0.0	39.3	0.0	0.0	**118.0**
Unspecified shorebirds	0.0	0.0	147.6	0.0	0.0	**147.6**
Unspecified loons	0.0	0.0	0.0	0.0	0.0	**0.0**
Unspecified seabirds	0.0	0.0	0.0	0.0	0.0	**0.0**
Unspecified grouses	0.0	0.0	0.0	0.0	0.0	**0.0**
Unspecified ptarmigans	211.5	0.0	19.7	0.0	4.9	**236.1**

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

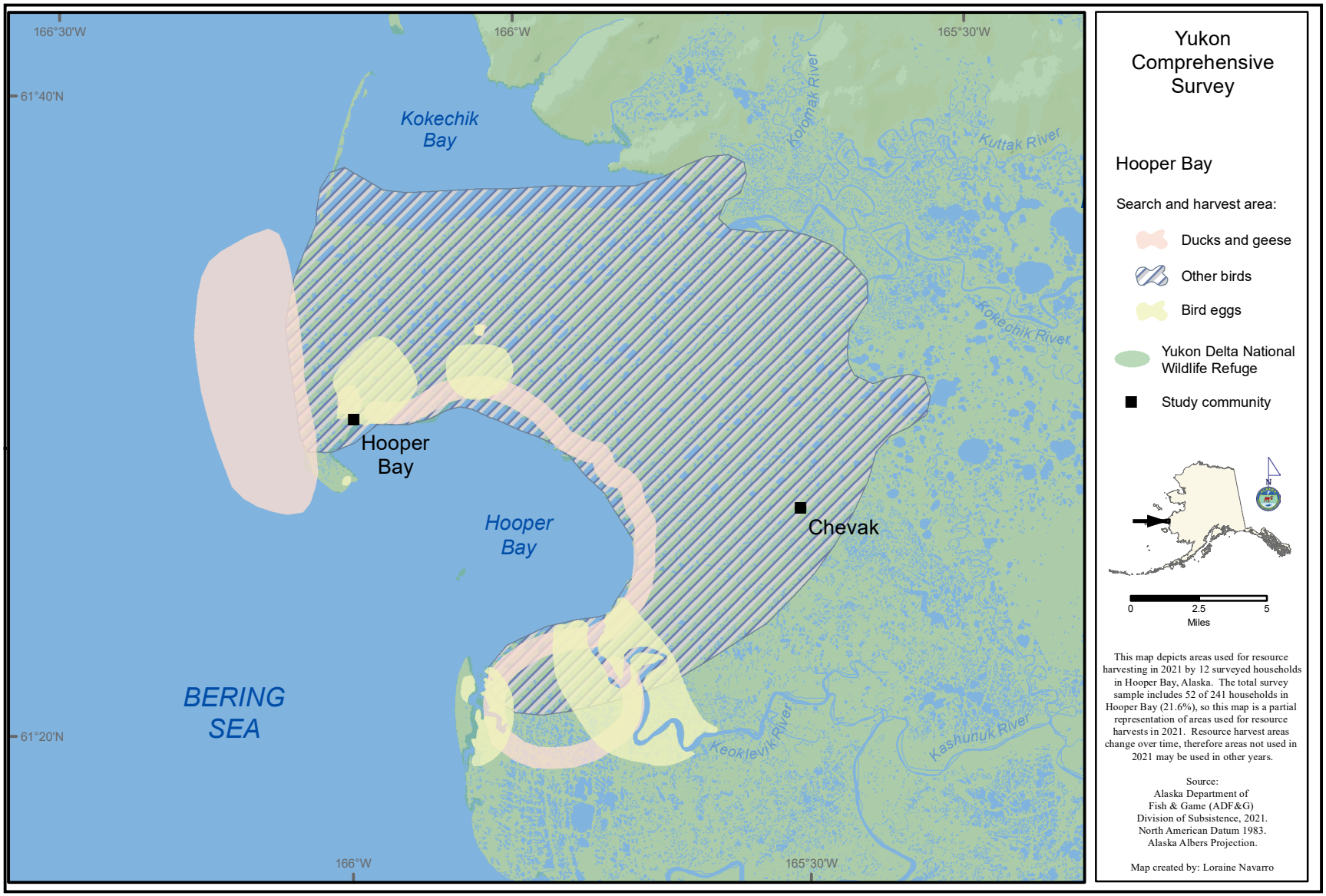


Figure 2-25.–Hunting and harvest locations of birds and bird eggs, Hooper Bay, Alaska, 2021.



Figure 2-26.–Search and harvest locations of marine invertebrates, Hooper Bay, Alaska, 2021.

Vegetation

More than any other resource category, residents of Hooper Bay households used vegetation (90%) and 75% harvested berries, greens, or both (Table 2-9). The total edible vegetation harvest amounted to 24,267 lb (101 lb per household, 22 lb per capita), and was composed of 93% berries, 4% mushrooms, and 3% other plants and greens (Figure 2-27; Table 2-9). In total, households harvested 17,493 lb (73 lb per household, 16 lb per capita) of cloudberries, 3,126 lb (13 lb per household, 3 lb per capita) of crowberries, and 1,002 lb (4 lb per household, 1 lb per capita) of blueberries. Other berries, such as highbush cranberries, lowbush cranberries, nagoonberries, and other plants were harvested in smaller quantities.

Of the households who responded to whether or not they used firewood to heat their homes, 31% did not use, and only 2% stated that 100% of their household's heat came from firewood (Table 2-20).

Around the end of salmon season, Hooper Bay residents spend about a week at berry camp (01162022HPB1). Most households pick enough to freeze and eat throughout the winter, and each household has a spot they return to each season:

> They're [berry camps are] all over. Nowadays they, people have their specific area where they go. … [We] used to go where my mom, and dad, went, thataway. Nowadays we have, and we go by Chevak, past Chevak, called Nariyauck. And we, or we only gather salmonberries. And I only gather salmonberries and blackberries.[12] (01152022HPB1)

The respondent explained that they now harvest about ten gallons a year, but when their kids were small the household would get closer to 70 gallons each summer. They also mentioned that some families gather close to 100 gallons at camp.

A natural indication of how productive the berry harvest will be is rainfall. One respondent explained that if there is not enough rainfall, then the berry plants dry out and the flower petals fall off before the berries can form (01222022HB1). If it is a rainy summer, then the berries themselves will be large, and the harvest amount high. Two respondents mentioned that land erosion has an impact on harvest (011162022HB1). There used to be several dunes near the community where people would go berry picking. Now there is only one, and residents must go elsewhere for their berries.

While berries were by far the most harvested resource in this category, residents harvested other plants and greens throughout the summer and fall for both food and medicine (01222022HB1). Some of the common ones were mousefoods (31% of households harvested; 249 lb total), sourdock (21%; 294 lb total), stinkweed (15%; 30 lb total), and Labrador tea (13%; 25 lb total). One key respondent described their use of stinkweed as a medicinal plant. "I just made some stinkweed. We use them for colds and boils and sores and everything" (01152022HPB1). The same respondent boils it and stores it in a cool place for preservation. The respondent uses the "whole plant" and goes on to explain that "the strongest ones are the ones that are, you know a lit—the little balls. The very strong ones, and I have, I have to let my boy get me from, not from the village, but from way back there, where they are stronger. They're strongest where our berry camp is. They're very potent from our berry camp."

Residents identified the entire peninsula as a harvest location. There are other, smaller areas spread out beyond Chevak, and another larger one above Nuigalak Lake (Figure 2-28).

12. Salmonberry is a regional name for cloudberry, and blackberry is a regional name for crowberry.

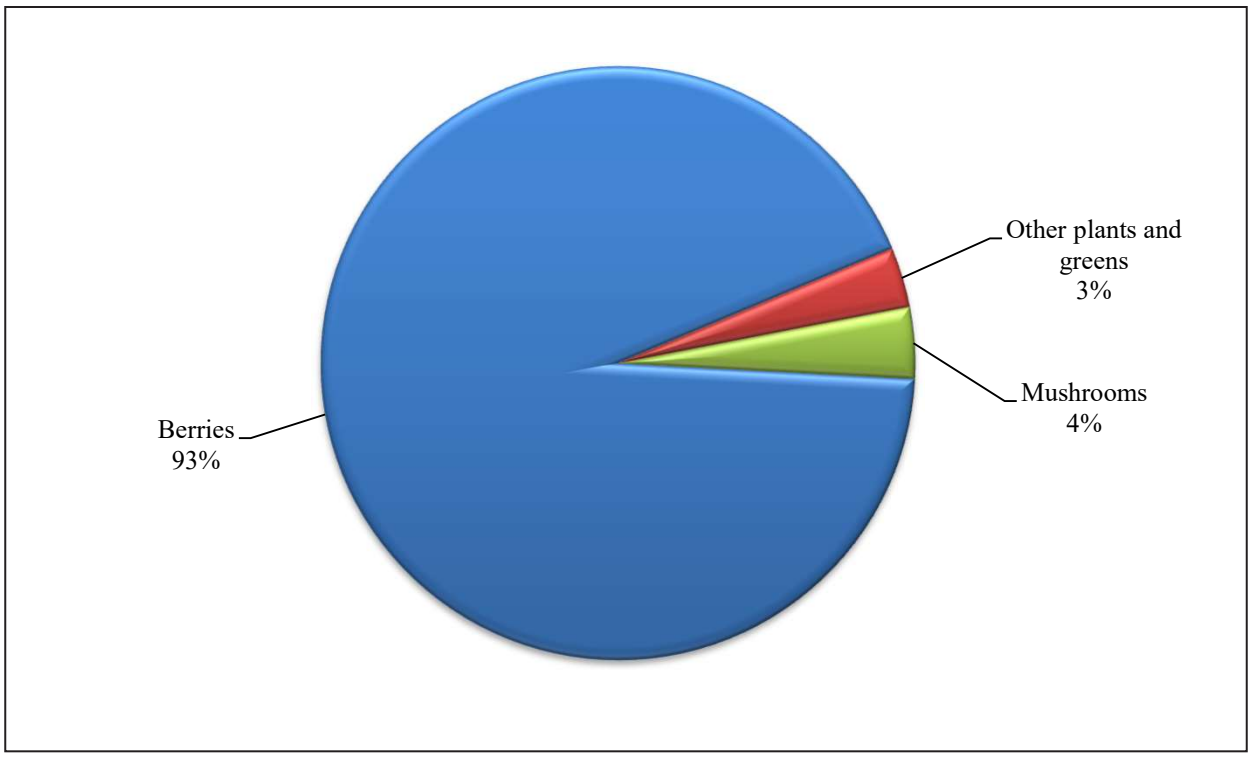


Figure 2-27.–Composition of vegetation harvest by type in pounds usable weight, Hooper Bay, Alaska, 2021.

Table 2-20.–Use of firewood for home heating, Hooper Bay, Alaska, 2021.

Percent of home heating from wood	Households	
	Number	Percent
0%	16	30.8%
1–25%	6	11.5%
26–50%	5	9.6%
51–75%	4	7.7%
76–99%	1	1.9%
100%	1	1.9%
Missing	19	36.5%

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

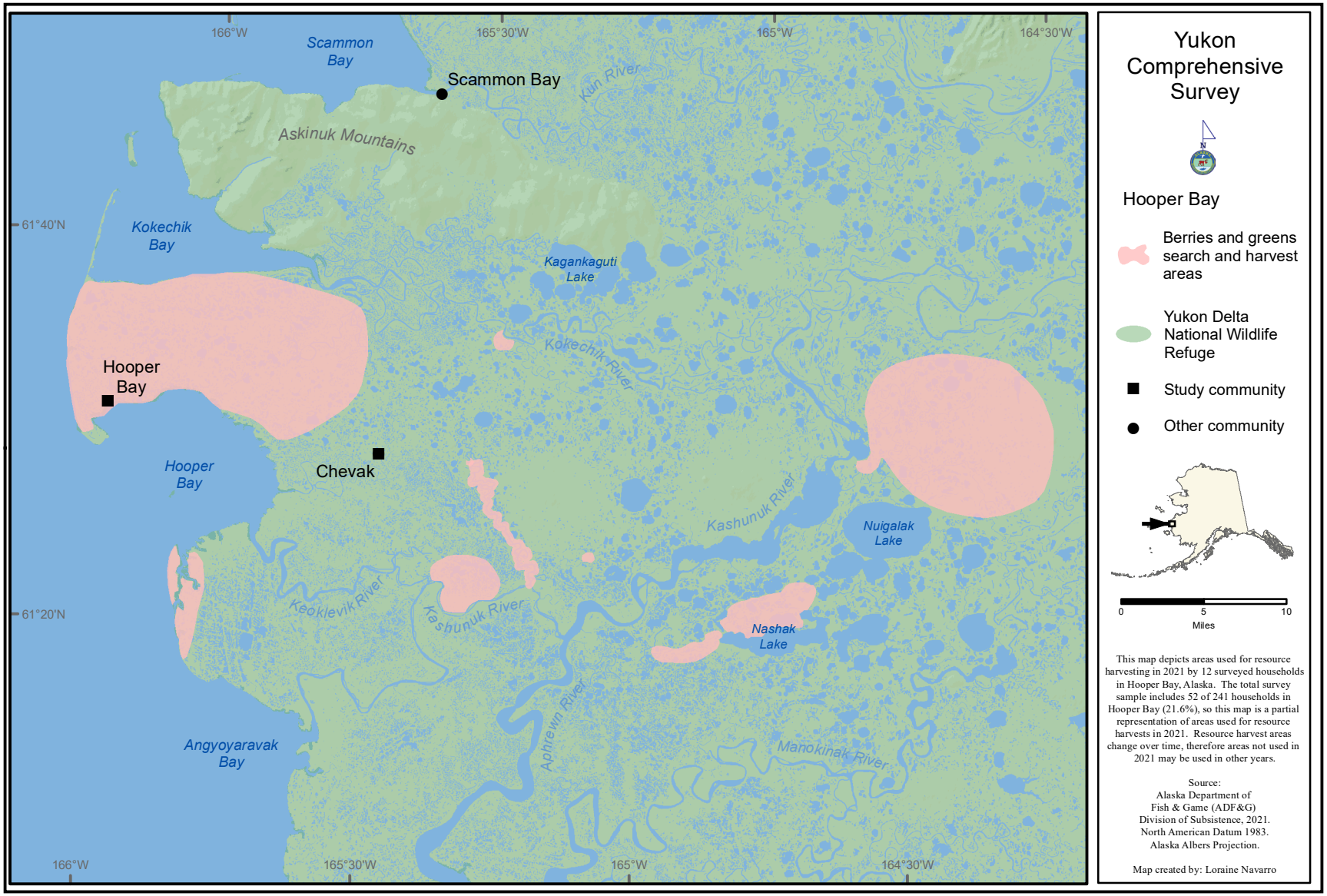


Figure 2-28.–Gathering and harvest locations of berries and greens, Hooper Bay, Alaska, 2021.

Comparing Harvests and Uses in 2021 with Previous Years

Harvest Assessments

Researchers asked respondents to assess their own harvests in two ways: whether they used more, less, or about the same amount of eight resource categories in 2021 as in recent years, and whether they got "enough" of each of the eight resource categories. 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. They were further asked whether they did anything differently (such as supplement with store-bought food or switch to a different subsistence resource) because they did not get enough. This section discusses responses to those questions.

Together, Table 2-21 and figures 2-29 and 2-30 provide a broad overview of sampled 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. The data presented here are not expanded to all households in Hooper Bay.

Nearly half of the responding households said they harvested less subsistence resources in 2021 compared to recent years. Forty-eight percent said they used less of all resource, while 72%, 55%, and 41% said they used less salmon, nonsalmon fish, and birds and eggs, respectively (Table 2-21; Figure 2-29). Of the households that reported using less salmon, 45% stated that there were less available, and 64% cited regulations as the reason (Table 2-22). Though a large percentage of responding households used less resources than in recent years, 60%, 57%, and 48% reported using the same amount of large land mammals, marine mammals, and vegetation, respectively (Table 2-21). Very few households reported harvesting more of any resource. Eight households (17%) said they harvested more vegetation than in recent years; 4 of those households cited increased availability of the resource, and 5 cited increased effort (Table 2-23).

Of 45 households that responded to questions about whether they got enough resources in 2021, 14 (31%) said they did not get enough of all resources (Table 2-24); 6 (43%) were majorly impacted by the shortage, and 4 (29%) were severely impacted. Twenty-five (61%) households said they did not get enough salmon, and for 10 (40%) households, this had a severe impact. When asked if there were any resources they needed more of, 11 households (21% of responses) said they needed more salmon in general, while 23 (44%) stated they needed more chum salmon, and 18 (35%) households needed more Chinook salmon (Table 2-25).

Overall, Hooper Bay residents used less salmon in 2021 than in past years due to the regulations prohibiting harvest. Households did not get enough salmon, and this significantly impacted the community, with most households wanting more salmon.

Harvest Data

Changes in the harvest of resources by Hooper Bay residents can also be discerned through comparisons with findings from other study years. Comprehensive subsistence harvest surveys have not previously been conducted in Hooper Bay, but resource-specific reports and data exist for seals and salmon. Quantitative harvest data, including per capita harvests of bearded and ringed seals and Chinook, chum, and pink salmon, are discussed below. Search and harvest areas for a wide range of species have also been previously documented and are described below in comparison to this study's results.

Previous salmon harvest data for Hooper Bay are available through annual postseason subsistence harvest surveys jointly administered by the Division of Commercial Fisheries and the Yukon River Drainage Fisheries Association (Figure 2-31). These data were first collected in 1992 and include most of the communities in the Yukon Management Area. Since 1992, total harvests by Hooper Bay households (including Chinook, summer chum, fall chum, coho, and pink salmon) have ranged from 2,500 to over 20,000 salmon, but have decreased steadily since 2010. Chinook salmon harvests have historically been relatively small, comprising less than 5% on average of the total subsistence salmon harvest. Prior to 2019, the proportion of harvest made up by summer chum salmon was 84% (1992 to 2018 average), and the summer chum harvest was

Table 2-21.–Changes in household uses of resources compared to recent years, Hooper Bay, Alaska, 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	52	52	49	94.2%	46	88.5%	42	80.8%	18	34.6%	42	80.8%
All resources	**52**	**46**	**46**	**100.0%**	**22**	**47.8%**	**19**	**41.3%**	**5**	**10.9%**	**0**	**0.0%**
Salmon	52	47	43	91.5%	34	72.3%	6	12.8%	3	6.4%	4	8.5%
Nonsalmon fish	52	44	40	90.9%	24	54.5%	10	22.7%	6	13.6%	4	9.1%
Large land mammals	52	48	47	97.9%	15	31.3%	29	60.4%	3	6.3%	1	2.1%
Small land mammals	52	46	5	10.9%	1	2.2%	2	4.3%	2	4.3%	41	89.1%
Marine mammals	52	44	37	84.1%	11	25.0%	25	56.8%	1	2.3%	7	15.9%
Birds and eggs	52	41	34	82.9%	17	41.5%	15	36.6%	2	4.9%	7	17.1%
Marine invertebrates	52	48	32	66.7%	9	18.8%	19	39.6%	4	8.3%	16	33.3%
Vegetation	52	46	44	95.7%	14	30.4%	22	47.8%	8	17.4%	2	4.3%

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

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

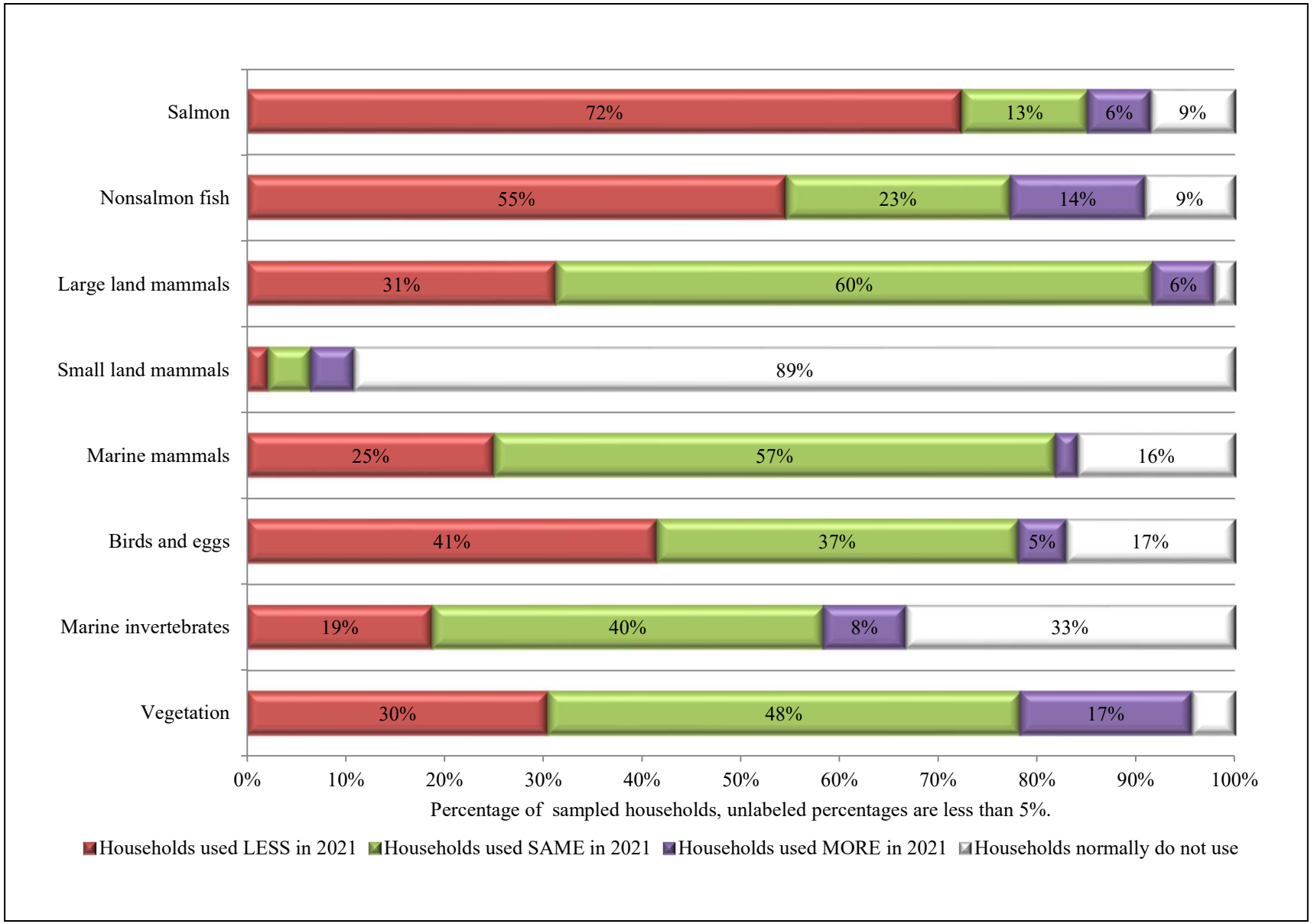


Figure 2-29.–Changes in household uses of resources compared to recent years, Hooper Bay, Alaska, 2021.

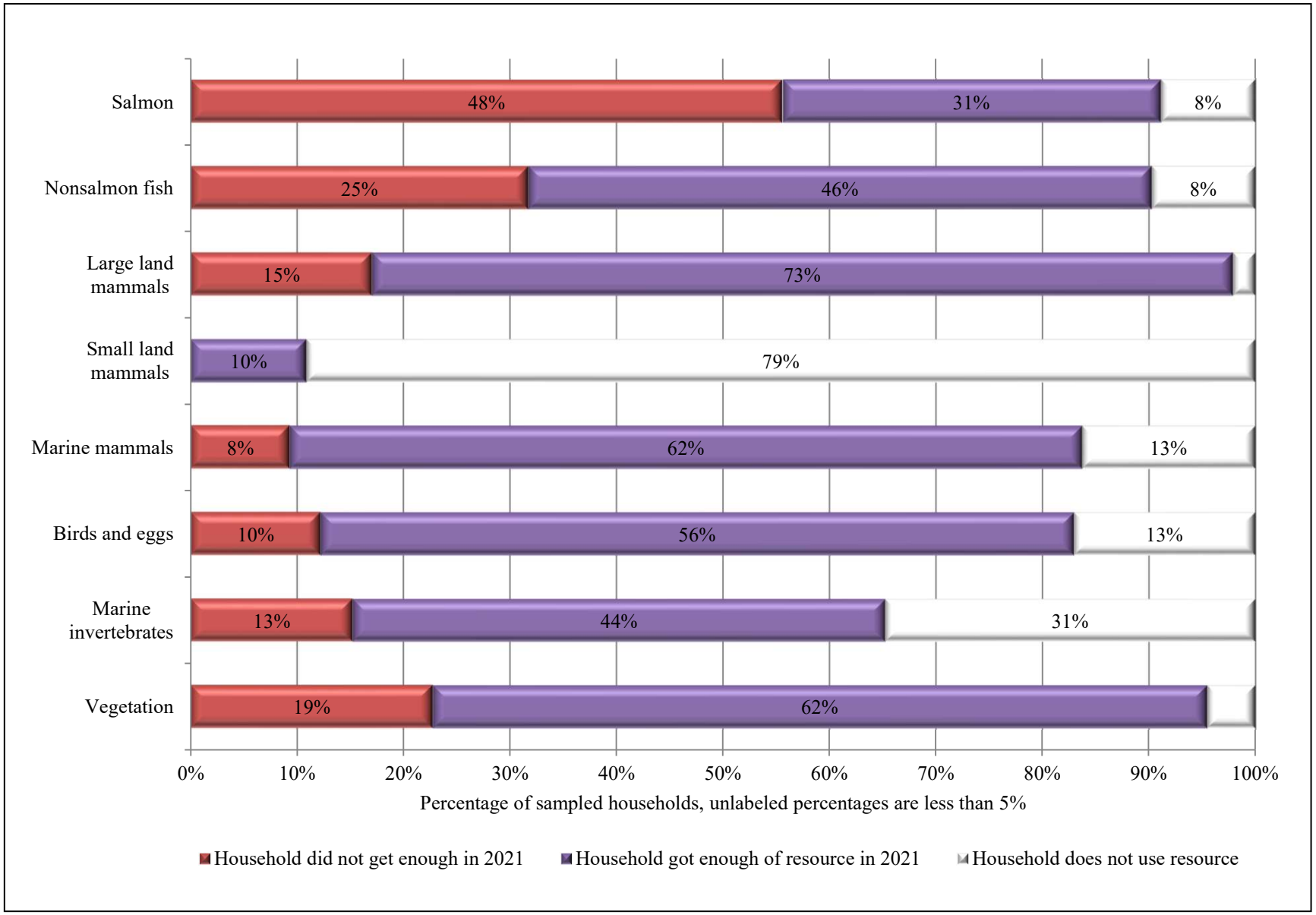


Figure 2-30.–Percentage of **sampled** households reporting whether they had enough resources, Hooper Bay, Alaska, 2021.

Table 2-22.–Reasons for less household uses of resources compared to recent years, Hooper Bay, Alaska, 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		Lack of effort	
			Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource	52	46	3	6.5%	26	56.5%	0	0.0%	5	10.9%	13	28.3%	20	43.5%
All resources	**46**	**19**	2	**10.5%**	6	**31.6%**	0	**0.0%**	1	**5.3%**	4	**21.1%**	2	**10.5%**
Salmon	47	33	2	6.1%	15	45.5%	0	0.0%	1	3.0%	6	18.2%	3	9.1%
Nonsalmon fish	44	23	2	8.7%	9	39.1%	0	0.0%	1	4.3%	2	8.7%	5	21.7%
Large land mammals	48	15	0	0.0%	1	6.7%	0	0.0%	1	6.7%	4	26.7%	7	46.7%
Small land mammals	46	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%	0	0.0%
Marine mammals	44	10	1	10.0%	0	0.0%	0	0.0%	1	10.0%	2	20.0%	4	40.0%
Birds and eggs	41	16	2	12.5%	4	25.0%	0	0.0%	0	0.0%	2	12.5%	6	37.5%
Marine invertebrates	48	9	2	22.2%	1	11.1%	0	0.0%	1	11.1%	0	0.0%	4	44.4%
Vegetation	46	13	2	15.4%	1	7.7%	0	0.0%	2	15.4%	0	0.0%	6	46.2%

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Table 2.22.–Continued.

Resource category	Valid responses[a]	Households reporting reasons for less use	Other reasons		Working/ no time		Regulations		Small/ diseased animals		Unsuccessful		Weather/ environment	
			Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource	52	46	3	7%	3	6.5%	21	45.7%	0	0.0%	8	17.4%	5	10.9%
All resources	**46**	**19**	**0**	**0%**	**1**	**5.3%**	**5**	**26.3%**	**0**	**0.0%**	0	**0.0%**	1	**5.3%**
Salmon	47	33	0	0%	0	0.0%	21	63.6%	0	0.0%	0	0.0%	1	3.0%
Nonsalmon fish	44	23	0	0%	0	0.0%	0	0.0%	0	0.0%	6	26.1%	2	8.7%
Large land mammals	48	15	0	0%	1	6.7%	0	0.0%	0	0.0%	2	13.3%	0	0.0%
Small land mammals	46	1	0	0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Marine mammals	44	10	0	0%	1	10.0%	0	0.0%	0	0.0%	0	0.0%	1	10.0%
Birds and eggs	41	16	2	13%	1	6.3%	0	0.0%	0	0.0%	0	0.0%	1	6.3%
Marine invertebrates	48	9	0	0%	1	11.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Vegetation	46	13	1	8%	1	7.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%

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Table 2.22.–Page 2 of 2.

Resource category	Valid responses[a]	Households reporting reasons for less use	Did not need		Equipment/ fuel expense		Used other resources		Competition	
			Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource	52	46	4	8.7%	1	2.2%	0	0.0%	0	0.0%
All resources	**46**	**19**	**1**	**5.3%**	**1**	**5.3%**	**0**	**0.0%**	**0**	**0.0%**
Salmon	47	33	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Nonsalmon fish	44	23	2	8.7%	0	0.0%	0	0.0%	0	0.0%
Large land mammals	48	15	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Small land mammals	46	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Marine mammals	44	10	1	10.0%	0	0.0%	0	0.0%	0	0.0%
Birds and eggs	41	16	0	0.0%	1	6.3%	0	0.0%	0	0.0%
Marine invertebrates	48	9	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Vegetation	46	13	1	7.7%	0	0.0%	0	0.0%	0	0.0%

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

a. Valid responses do not include households that did not provide any response and households reporting never using the resource.

Table 2-23.–Reasons for more household uses of resources compared to recent years, Hooper Bay, Alaska, 2021.

Resource category	Valid responses[a]	Households reporting reasons for more use	Family/Personal		Increased availability		Used other resources		Favorable weather		Received more		Needed more	
			Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource	52	18	0	0.0%	4	22.2%	1	5.6%	0	0.0%	6	33.3%	1	5.6%
All resources	**46**	**5**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**	**2**	**40.0%**	**0**	**0.0%**
Salmon	47	3	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2	66.7%	0	0.0%
Nonsalmon fish	44	6	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2	33.3%	0	0.0%
Large land mammals	48	3	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3	100.0%	0	0.0%
Small land mammals	46	2	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Marine mammals	44	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Birds and eggs	41	2	0	0.0%	1	50.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Marine invertebrates	48	4	0	0.0%	0	0.0%	1	25.0%	0	0.0%	1	25.0%	0	0.0%
Vegetation	46	8	0	0.0%	4	50.0%	0	0.0%	0	0.0%	0	0.0%	1	12.5%

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Table 2-23.–Continued.

Resource category	Valid responses[a]	Households reporting reasons for more use	Increased effort		Regulations		Traveled farther		More success		Had more time		Store-bought expense	
			Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource	52	18	7	38.9%	0	0.0%	0	0.0%	3	16.7%	1	5.6%	0	0.0%
All resources	**46**	**5**	**1**	**20.0%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**
Salmon	47	3	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Nonsalmon fish	44	6	1	16.7%	0	0.0%	0	0.0%	1	16.7%	0	0.0%	0	0.0%
Large land mammals	48	3	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Small land mammals	46	2	0	0.0%	0	0.0%	0	0.0%	2	100.0%	0	0.0%	0	0.0%
Marine mammals	44	1	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Birds and eggs	41	2	1	50.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Marine invertebrates	48	4	1	25.0%	0	0.0%	0	0.0%	0	0.0%	1	25.0%	0	0.0%
Vegetation	46	8	5	62.5%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%

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Table 2-23.–Page 2 of 2.

Resource category	Valid responses[a]	Households reporting reasons for more use	Got/ fixed equipment		Substitue for unavialable resource(s)		Had more help		Other	
			Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource	52	18	0	0.0%	2	11.1%	0	0.0%	2	11.1%
All resources	**46**	**5**	**0**	**0.0%**	**2**	**40.0%**	**0**	**0.0%**	**0**	**0.0%**
Salmon	47	3	0	0.0%	0	0.0%	0	0.0%	1	33.3%
Nonsalmon fish	44	6	0	0.0%	2	33.3%	0	0.0%	0	0.0%
Large land mammals	48	3	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Small land mammals	46	2	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Marine mammals	44	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Birds and eggs	41	2	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Marine invertebrates	48	4	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Vegetation	46	8	0	0.0%	0	0.0%	0	0.0%	1	12.5%

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

a. Valid responses do not include households that did not provide any response and households reporting never use.

Table 2-24.–Reported impact to households reporting that they did not get enough of a type of resource, Hooper Bay, Alaska, 2021.

		Households not getting enough _____ .				Impact to those not getting enough _____ .									
		Valid responses[a]		Did not get enough		No response		Not noticeable		Minor		Major		Severe	
Resource category	Sampled households	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
All resources	**52**	**45**	**86.5%**	**14**	**31.1%**	**2**	**14.3%**	**0**	**0.0%**	**2**	**14.3%**	**6**	**42.9%**	**4**	**28.6%**
Salmon	52	41	78.8%	25	61.0%	3	12.0%	1	4.0%	3	12.0%	8	32.0%	10	40.0%
Nonsalmon fish	52	37	71.2%	13	35.1%	1	7.7%	0	0.0%	4	30.8%	3	23.1%	5	38.5%
Large land mammals	52	46	88.5%	8	17.4%	1	12.5%	0	0.0%	3	37.5%	0	0.0%	4	50.0%
Small land mammals	52	5	9.6%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Marine mammals	52	36	69.2%	4	11.1%	1	25.0%	0	0.0%	1	25.0%	0	0.0%	2	50.0%
Birds and eggs	52	34	65.4%	5	14.7%	1	20.0%	0	0.0%	1	20.0%	2	40.0%	1	20.0%
Marine invertebrates	52	30	57.7%	7	23.3%	1	14.3%	0	0.0%	3	42.9%	2	28.6%	1	14.3%
Vegetation	52	42	80.8%	10	23.8%	1	10.0%	1	10.0%	4	40.0%	2	20.0%	2	20.0%

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

a. Does not include households failing to respond to the question and those households that never used the resource.

Table 2-25.–Resources of which sampled households reported needing more, Hooper Bay, Alaska, 2021.

Resource	Households needing	Percentage of households
All resources	2	3.8%
Fish	3	5.8%
Salmon	11	21.2%
Chum salmon, run unknown	15	28.8%
Summer chum salmon	8	15.4%
Coho salmon	2	3.8%
Chinook salmon	18	34.6%
Nonsalmon fish	1	1.9%
Pacific tomcod	2	3.8%
Saffron cod	1	1.9%
Alaska blackfish	1	1.9%
Whitefishes	6	11.5%
Broad whitefish	2	3.8%
Bering cisco	2	3.8%
Moose	7	13.5%
Marine mammals	1	1.9%
Seals	2	3.8%
Beluga whale	1	1.9%
Birds and eggs	1	1.9%
Ducks	1	1.9%
King eider	1	1.9%
Geese	3	5.8%
Snow goose	1	1.9%
Sandhill crane	1	1.9%
Bird eggs	1	1.9%
Marine invertebrates	1	1.9%
Clams	5	9.6%
Razor clam	1	1.9%
Vegetation	1	1.9%
Berries	5	9.6%
Lowbush cranberry	1	1.9%
Crowberry	1	1.9%
Nagoonberry	2	3.8%
Salmonberry	2	3.8%
Plants, greens, and mushrooms	3	5.8%
Sourdock	1	1.9%
Pallas buttercup	1	1.9%
Wild celery	1	1.9%

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Table 2-25.–Page 2 of 2.

Resource	Households needing	Percentage of households
Other wild greens	2	3.8%
Stinkweed	1	1.9%
Sea lovage	1	1.9%
Beach greens	1	1.9%

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

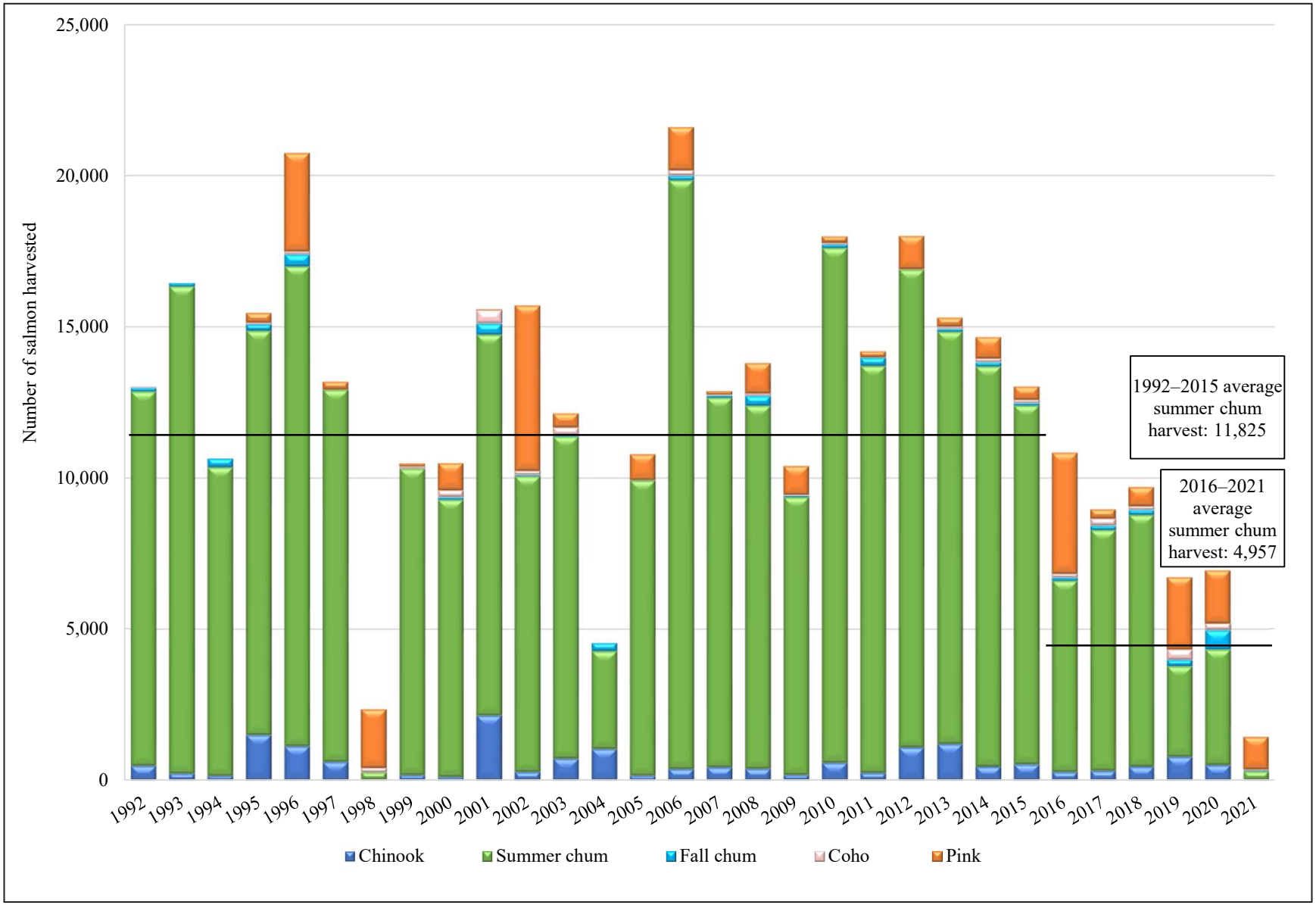


Figure 2-31.–Estimated historical subsistence salmon harvests, Hooper Bay, Alaska, 1992–2021.

lowest in 2021 at 20% of the total subsistence salmon harvest. Beginning in 2016, summer chum harvests began to decline, and the total harvest in 2021 was 290 fish. Pink salmon harvests have varied over time, often making up larger proportions of the harvest in even years.[13] However, in 2021, pink salmon made up 74% of the subsistence salmon harvest—an increase of 50% from 2020. The increase in the harvest of pink salmon observed by the postseason survey agrees with the harvest and use patterns for Hooper Bay documented in this study.

Quantitative data on seal harvests are available for Alaska Native households in Hooper Bay for the late 1990s. Coffing et al. (1999) surveyed a sample of Alaska Native households about their harvest and use of ice seals and sea lions. The percentages of Alaska Native households attempting to harvest and successfully harvesting bearded seals from February 1998 to January 1999 were 33% and 18%, respectively. This study found that 29% of households[14] attempted and 29% successfully harvested bearded seals in 2021, suggesting that harvesters are more successful, on average, now than they were in the late 1990s (Table 2-9). The estimated total harvest of bearded seals in 1998 was 21,109 lb, or 20 lb per capita. Our estimate of the total harvest of bearded seals in 2021 was 52,056 lb or 48 lb per capita. On a per-person basis, bearded seal harvests increased by 135% between 1998 and 2021.

Ringed seal harvests increased slightly between 1998 and 2021. Our study found that 33% of households attempted and 33% successfully harvested ringed seals, versus 59% attempting and 38% successfully harvesting in 1998 (Table 2-9). Similar to bearded seals, ringed seal hunters were generally more successful in 2021 than in 1998. Total edible weights of ringed seal were 22,176 lb (21 lb per capita) in 1998 and 24,727 lb (23 lb per capita) in 2021—an increase of 6% per capita. Although the reasons for increased success in bearded and ringed seal harvests are not known, the survey results indicate that at least one household harvested more marine mammals in 2021 than in previous years because of increased hunting effort. Ethnographic findings suggest that hunters must travel farther offshore during the shorter hunting season to successfully harvest seals, because the sea ice is now thinner and breaks up earlier due to warmer sea surface temperatures throughout the winter (01152022HPB1; 01002022HPB3). Hunters may be attempting to mitigate the effects of changing climate on the availability of seals by increasing their hunting effort. Key respondents reported traveling farther and hunting more frequently during shortened seasons and hunting during ice-free periods as well (01002022HPB2).

Current and Historical Harvest Areas

In the mid-1980s, the central Bering Sea was considered for development of offshore oil infrastructure. To document potential impacts to local subsistence practices, Stickney (1985) recorded detailed ethnography about the harvest and use of wild resources in Hooper Bay, including maps of search and harvest areas by species.

Search and harvest areas for subsistence resources documented by Stickney in 1985 and by this study in 2021 were similar, although notable differences exist. In 1985, Hooper Bay residents used several large areas to harvest small land mammals. Very few households harvested small land mammals in 2021, and in order to maintain confidentiality, these areas are not included in this report. Search and harvest areas for large land mammals differ between the two studies: Stickney noted that the area around Hooper Bay did not support large mammals such as moose. In the nearly 40 years since the study was published, moose have migrated into the Hooper Bay area in high abundance. Hooper Bay residents hunt moose approximately 40 miles east of the community. This area extends to the northeast, near Nunavakanuk Lake, and along the Kashunuk and lower Yukon rivers as far upstream as Pilot Station.

13. Pink salmon outmigrate without overwintering in fresh water, spend two years at sea, then return to spawn. Some stocks return in even years while others return in odd years; the majority of lower Yukon River stocks return in even years.

14. Only Alaska Native persons are legally allowed to harvest marine mammals under the Marine Mammal Protection Act. For this reason, we report only harvest—estimates of households using seals are not comparable between the two studies.

Local Comments and Concerns

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

Among Hooper Bay residents there is concern about the Chinook and summer chum salmon fishery closures. Several residents asked why they are included in the Yukon River management system when, for the most part, they believe that much of the salmon they harvest in rivers are not bound for the Yukon River. Respondents also questioned why coastal communities were restricted from subsistence fishing when the relatively small number of fish they harvest are unlikely to impact the fishery, but commercial fishermen outside of the Yukon Management Area are allowed to continue fishing.[15] Key respondents mentioned the negative impact this closure had on their sharing practices, with some not receiving the salmon they rely on.[16] Residents also want better communication from managers about closures and regulations because many were taken by surprise when the closure was announced.[17]

Respondents were concerned with climate change-related effects on their ability to harvest wild food.[18] First, marine mammals and fish are migrating past Hooper Bay earlier than usual because sea ice breakup occurs earlier and more quickly than in years past (01152022HPB1). Early breakup and snowmelt mean that animals may be present in the spring, but that hunters may not be able to safely travel to harvest them (01002022HPB2). Certain marine mammals, such as beluga whales, seals, and salmon are often pushed offshore by easterly winds, making it more difficult for hunters to find marine mammals, or in the case of salmon, impossible to catch without drift gillnet gear (01162022HPB1). Respondents noted that fall storms were changing subsistence practices through erosion of sand dunes on the Nuvuk Spit (01002022HPB3). The dunes are a common berry picking area, but several of them are now gone. Because the sediments from the dunes settle and fill in the shoreline around Hooper Bay, it has also become harder for residents to set their gillnets. Storms also cause marine invertebrates to float and wash ashore, making them easily harvestable for a short time until they resettle (01152022HPB1). Some resources such as berries and birds have become scarce near the community of Hooper Bay, so residents must look farther away from the community (01002022HPB5). Warmer freshwater temperatures have changed the migration patterns of salmon, and residents observed that fish seek cooler water by swimming lower in the channel rather than following the shoreline (01002022HPB1; 01002022HPB4; 01002022HPB5).

15. ADF&G Division of Subsistence household surveys, 1/18/22; 1/19/22.
16. ADF&G Division of Subsistence household surveys, 1/14/22; 1/18/22; 1/19/22.
17. ADF&G Division of Subsistence household surveys, 1/18/22; 1/19/22.
18. ADF&G Division of Subsistence household surveys, 1/14/222; 1/17/22; 1/18/22; 1/19/22; 1/20/22.

3. CHEVAK

This chapter summarizes findings from household surveys conducted in spring 2022, in Chevak, Alaska, including demographic characteristics, responses to harvest assessment questions, harvest estimates, employment, income, sharing of wild resources, and food security. Harvest numbers are expanded estimates. Results from this survey are available online in the ADF&G Community Subsistence Information System (CSIS). In addition to the comprehensive survey, 10 ethnographic interviews were conducted with 10 key respondents. The ethnographic interviews help to provide context for the quantitative data presented in this chapter. Findings from interviews, historical background information, and comparisons to earlier studies are presented throughout the chapter.

Community Background

The mainly Cup'ik community of Chevak (Cev'aq) is located in the Yukon-Kuskokwim (Y-K) Delta, along the Ninglikfak River, which flows into the Bering Sea at Hooper Bay (Figure 1-1). The community is approximately 140 miles northwest of Bethel, Alaska and 17 miles from the nearest community of Hooper Bay. Chevak is not connected to Alaska's road system, so one must travel by plane or boat to reach the community. Chevak sits around Chevak Lake, on a bluff overlooking the Ninglikfak River. The community is located within the Yukon Delta National Wildlife Refuge (YDNWR) in the subarctic coastal plain, surrounded by volcanic and other igneous formations, including the Askinuk Mountains to the north of the community (Brabets et al. 2000).

The Y-K Delta experiences a transitional climate with an annual mean temperature of 27° F and 15 to 20 inches of precipitation per year (Brabets et al. 2000). The proximity of the community to the Bering Sea renders the community subject to heavy winds and rain. Snowfall is typically about 60 inches per year; breakup usually occurs in June and freeze-up occurs in late October.[1] The subarctic tundra around Chevak includes marsh and tidal-flat habitats as well as numerous meandering streams and small rivers. Vegetation in the Chevak area comprises many sedges, lichens, grasses, mosses, and dwarf shrub species of birch and willow (Viereck and Little Jr. 1972).

Subsistence patterns are shaped by the coastal tundra environment and by its natural seasonal cycles. Chevak residents have access to several kinds of salmon: Chinook, summer chum, fall chum, and pink salmon are commonly harvested. Nonsalmon fish species in the area include herring, pike, burbot, various whitefish species, saffron cod (locally known as tomcod), blackfish, and smelts. Clams are commonly found along the tidal regions in Hooper Bay. Bearded seals, ringed seals, spotted seals, and beluga whales migrate along the coast offshore and occasionally enter the many rivers near Chevak. Some of the small land mammals available to residents include beavers, hares, porcupines, and red foxes, and residents of Chevak commonly hunt large land mammals, particularly moose. People also hunt several migratory waterfowl species such as ducks, geese, swans, and cranes during their spring and fall migrations and gather eggs during breeding season. Nonmigratory birds such as ptarmigans and spruce grouse are harvested year-round while the subarctic tundra provides abundant berries and edible greens.

Central Yup'ik people have lived on the Y-K Delta since long before the arrival of Euroamericans. Chevak residents identify as Cup'ik, or the Qissunamiut people. The word Cup'ik refers to both the distinct cultural group and their dialect of Central Yup'ik.[2] Before the arrival of Euroamericans, the Cup'ik people lived along the banks of the Kashunuk River, a southern tributary of the Yukon River. In the late 1800s, United States

1. Alaska Department of Commerce, Community, and Economic Development (ADCCED) Division of Community and Regional Affairs, Juneau. n.d. "Alaska Community Database Online: Community Information." Accessed December 12, 2022. https://dcra-cdo-dcced.opendata.arcgis.com
2. John Pingayak; University of Alaska Anchorage Institute of Social and Economic Research; Kashunamiut School District, Chevak, AK, 1998, "The Cup'ik People of the Western Tundra: A Curriculum." Accessed March 22, 2023. http://www.alaskool.org/projects/chevak/chevak/TheCupikPeople.htm

government census workers reported a village at the mouth of the Kashunuk River called "Qissunaq," and missionaries and traders began referring to the people as Qissunamiut, meaning "the people of Qissunaq" (Nelson 1899).

Across the Y-K Delta, small settlements of Central Yup'ik people moved seasonally, establishing themselves in semi-permanent locations where fish and animals were more accessible (Fienup-Riordan 1986). Similarly, in the past, Cup'ik people followed an annual round of subsistence practices that took place at seasonal camps and communities dedicated to the harvest of various subsistence resources. Cup'ik people eventually migrated across the Y-K Delta from the original site at Qissunaq to the area where Chevak is currently located. The name "Chevak" or "Cev'aq" means "the one that has broken through" and refers to sloughs between bends in the rivers and streams in the region that residents dug in order to increase accessibility for transportation and subsistence practices. The original site of the community, now referred to as "Old Chevak," was located on the north bank of the Keoklevik River, south of the contemporary site. Due to strong storms in the late 1940s that led to extreme tidal flooding, residents began relocating the community to its current location on the Ninglikfak River.[3] Residents continue to use "Old Chevak" as a location for fishing, bird hunting, and berry picking within their seasonal round of subsistence harvests.

A post office was established in "New Chevak" in 1951, and Chevak was incorporated as a second-class city in 1967.[4] The U.S. Bureau of Indian Affairs established a school in the community, but in the mid-1970s, the community petitioned for establishment as an Alaska regional educational attendance area school district, now called the Kashunamiut School District, with the goal to integrate traditional and cultural Cup'ik education within core subject content.[5] Also in the mid-1970s, two corporations were established under the Alaska Native Claims Settlement Act: the village corporation, Chevak Company,[6] and the regional Native corporation, Calista Corporation. The Yukon-Kuskokwim Health Corporation operates a community health clinic. Alaska Village Electric Cooperative provides electricity, and the city government maintains water distribution and wastewater treatment. The Western Alaska Community Development Quota (CDQ) Program was established by the U.S. Magnuson-Stevens Fishery Conservation and Management Act to allocate a portion of revenues from offshore fisheries to coastal communities. The local CDQ group, Coastal Villages Region Fund, supports development projects in Chevak through revenues from quota holdings in offshore fisheries in the Bering Sea.[7] Several small stores in town provide goods, including a grocery store and a hardware store managed by the city, as well as several family-run businesses, including two take-out style restaurants. Residents mainly use ATVs as transportation through the community and boats to reach harvest camps and nearby communities. The community is connected by a network of gravel roads and boardwalks between structures. Because the community is off the Alaska road system, Chevak residents travel to the regional hub of Bethel to access services, including jet transportation, freight and supply businesses, and a regional hospital.

Harvest Survey Results

Population Estimates and Demographic Information

This study sampled 92 households or 43% of eligible households (Table 1-3; Table 3-1). Expanding for the unsurveyed households, the estimated population of Chevak in 2021 was 1,070 residents in 214 households

3. United States Geological Survey. 2013. "Banding Together to Learn and Preserve." Accessed March 8, 2023. https://alaska.usgs.gov/products/pubs/2013/Banding_Together.pdf
4. Alaska Department of Commerce, Community, and Economic Development (ADCCED) Division of Community and Regional Affairs, Juneau. n.d. "Alaska Community Database Online: Community Information." Accessed December 12, 2022. https://dcra-cdo-dcced.opendata.arcgis.com
5. Chevak School, n.d. In Memory of Iggy Chayalkun. Accessed June 7, 2022. https://chevakschool.org/our-board/
6. Alaska Department of Commerce, Community, and Economic Development. Corporations, Business & Professional Licensing: Search Corporations Database. Accessed June 7, 2022. https://www.commerce.alaska.gov/cbp/main/search/entities
7. Coastal Villages Region Fund. What is CDQ? Accessed June 7, 2022. https://cvrf.org/what-is-cdq

Table 3-1.–Sample and demographic characteristics, Chevak, Alaska, 2021.

Characteristics	Community Chevak
Sampled households	92
Eligible households	214
Percentage sampled	43.0%
Sampled population	460
Estimated community population	1,070
Household size	
Mean	5.0
Minimum	1.0
Maximum	12.0
Age	
Mean	28.1
Minimum[a]	0.0
Maximum	90.0
Median	23
Length of residency	
Total population	
Mean	26.1
Minimum[c]	1.0
Maximum	91.0
Heads of household	
Mean	45.8
Minimum[c]	1.0
Maximum	91.0
Alaska Native	
Estimated households[b]	
Number	214.0
Percentage	100.00%
Estimated population	
Number	1,065.3
Percentage	99.6%

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

a. A minimum age of 0 (zero) is used for infants who are less than 1 year of age.

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

c. Residency length of 0 (zero) indicates residency of less than 1 year but more than 3 months.

(Table 3-2; Figure 3-1). The population was 99.5% Alaska Native, including 52% male and 48% female residents (tables 3-1 and 3-3; Figure 3-2).

Households ranged in size from one to 12 occupants, with a mean size of five occupants (Table 3-1). The average age during the study year was 28 and the average length of residency was 26 years. Most household heads (77%) reported Chevak as their birthplace, although several were from Hooper Bay (7%) and Newtok (2%; Table 3-4). Table 3-5 shows birthplaces of the population.

Figure 3-3 shows historical population estimates between 1970 and 2021. The figure shows decadal counts from the U.S. Census Bureau, annual estimates by the Alaska Department of Labor, and this study's estimate for 2021. Chevak has grown steadily from the population size of less than 400 reported in 1970, and the population has remained at or near 1,000 residents since about 2010. Differences between population and demographic estimates from this study and the U.S. Census likely result from variations in the sampling methods, timing of surveys, refusal rates, and definitions of residency.

Food Security, Employment, and Other Income

As explained in the Introduction, food security, employment, and other income data were not collected as part of this community study.

Summary of Harvest and Use Patterns

Individual Participation in the Harvesting and Processing of Wild Resources

Data on individual participation in harvesting and processing wild resources were not collected as part of this community study.

Harvest and Use of Wild Resources at the Household Level

Table 3-6 summarizes resource harvest and use characteristics for Chevak in 2021 at the household level. From January through December 2021, residents of Chevak harvested an estimated 229,538 lb edible weight of wild foods. This estimate represents a mathematical expansion to all households in the community based upon the harvests reported by the households of the sample. The average harvest per household was 1,073 lb, and the average harvest per person was 215 lb. During the study year, Chevak households on average harvested 12 and used 20 different types of wild resources. The maximum number of resources used by any household was 51. In addition, households gave away an average of seven kinds of resources. Overall, as many as 132 resources were available for households to harvest in the study area; this included species that survey respondents identified but were not asked about in the survey instrument.

Sharing of Wild Resources

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 recent study of 3,265 households in 66 rural Alaska communities found that about 33% of the households accounted for 76% of subsistence harvests (Wolfe et al. 2010). Although overall the set of very productive households was diverse, factors that were associated with higher levels of subsistence harvests included larger households with a pool of adult male labor, higher wage income, involvement in commercial fishing, and community location.

As shown in Figure 3-4, in the 2021 study year in Chevak, about 69% of the harvests of wild resources as estimated in pounds usable weight were harvested by 20% of the community's households. Further analysis of the study findings, beyond the scope of this report, might identify characteristics of the highly productive households in Chevak and Hooper Bay.

Table 3-2.–Population estimates, Chevak, Alaska, 2020 and 2021.

	Census (2020)	5-year American Community Survey (2017–2021)		This study (2021)	
		Estimate	Range[a]	Estimate	Range[b]
Total population					
Households	208	134.0	0 – 178	214.0	
Population	951	777.0	471 – 1,083	1,070.0	981 – 1,159
Alaska Native					
Population	927	611.0	449 – 773	1,065.3	1,065 – 1,065
Percentage	97.5%	78.6%	57.8% – 99.5%	99.6%	99.6% – 99.6%

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

Note Division of Subsistence household survey eligibility 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.

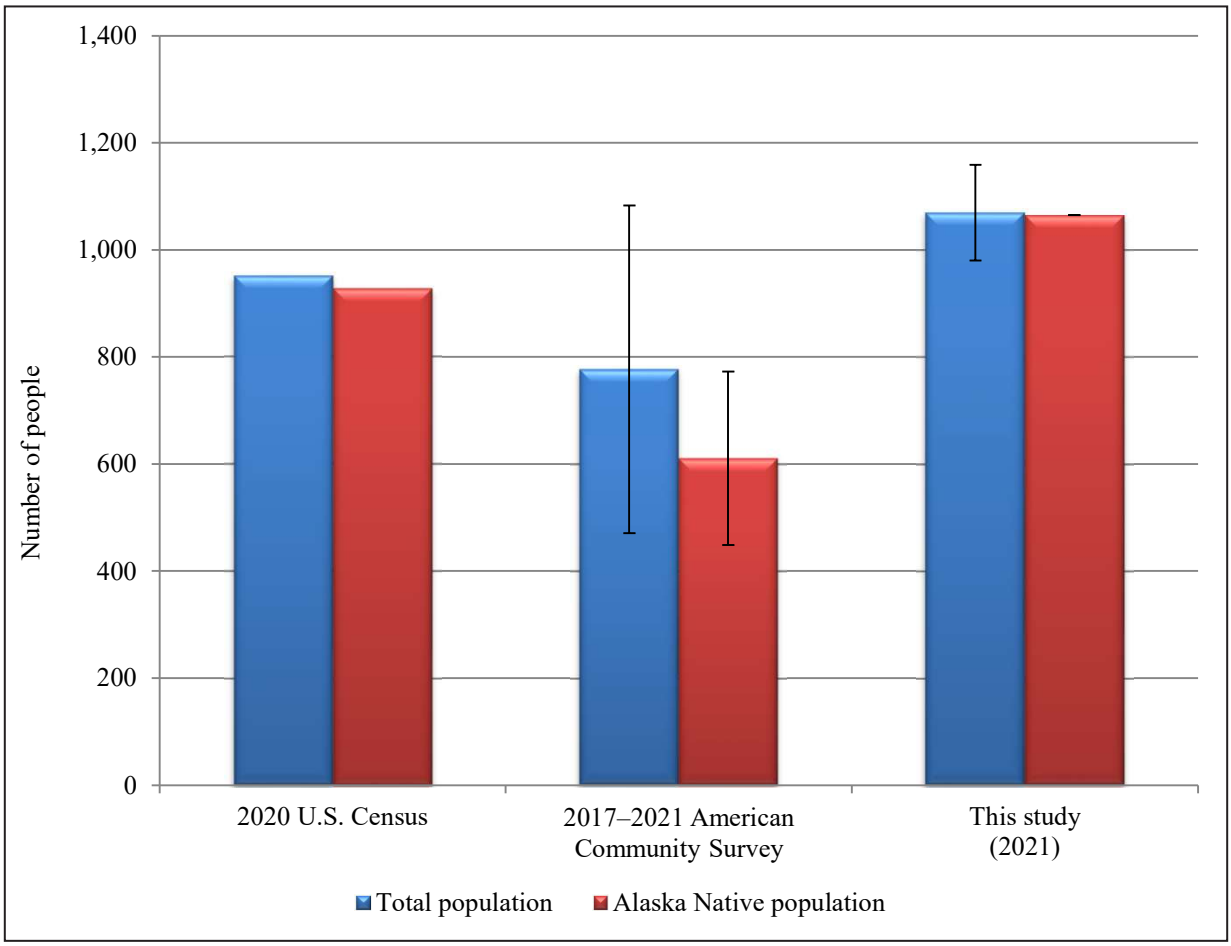


Figure 3-1.–Alaska Native and overall population estimates, Chevak, Alaska, 2020 and 2021.

Table 3-3.–Population profile, Chevak, Alaska, 2021.

	Male			Female			Total		
Age	Number	Percentage	Cumulative percentage	Number	Percentage	Cumulative percentage	Number	Percentage	Cumulative percentage
0–4	45.1	8.1%	8.1%	66.4	13.0%	13.0%	111.5	10.4%	10.4%
5–9	45.1	8.1%	16.2%	40.3	7.9%	20.8%	85.4	8.0%	18.4%
10–14	40.3	7.2%	23.4%	61.7	12.0%	32.9%	102.0	9.5%	27.9%
15–19	42.7	7.7%	31.1%	45.1	8.8%	41.7%	87.8	8.2%	36.1%
20–24	38.0	6.8%	37.9%	26.1	5.1%	46.8%	64.1	6.0%	42.1%
25–29	23.7	4.3%	42.1%	38.0	7.4%	54.2%	61.7	5.8%	47.9%
30–34	35.6	6.4%	48.5%	33.2	6.5%	60.6%	68.8	6.4%	54.3%
35–39	23.7	4.3%	52.8%	23.7	4.6%	65.3%	47.5	4.4%	58.8%
40–44	28.5	5.1%	57.9%	9.5	1.9%	67.1%	38.0	3.5%	62.3%
45–49	21.4	3.8%	61.7%	16.6	3.2%	70.4%	38.0	3.5%	65.9%
50–54	7.1	1.3%	63.0%	11.9	2.3%	72.7%	19.0	1.8%	67.6%
55–59	14.2	2.6%	65.5%	9.5	1.9%	74.5%	23.7	2.2%	69.8%
60–64	21.4	3.8%	69.4%	19.0	3.7%	78.2%	40.3	3.8%	73.6%
65–69	21.4	3.8%	73.2%	16.6	3.2%	81.5%	38.0	3.5%	77.2%
70–74	14.2	2.6%	75.7%	2.4	0.5%	81.9%	16.6	1.6%	78.7%
75–79	7.1	1.3%	77.0%	9.5	1.9%	83.8%	16.6	1.6%	80.3%
80–84	2.4	0.4%	77.4%	0.0	0.0%	83.8%	2.4	0.2%	80.5%
85–89	0.0	0.0%	77.4%	2.4	0.5%	84.3%	2.4	0.2%	80.7%
90–94	0.0	0.0%	77.4%	2.4	0.5%	84.7%	2.4	0.2%	80.9%
95–99	0.0	0.0%	77.4%	0.0	0.0%	84.7%	0.0	0.0%	80.9%
100–104	0.0	0.0%	77.4%	0.0	0.0%	84.7%	0.0	0.0%	80.9%
Missing	125.7	22.6%	100.0%	78.3	15.3%	100.0%	204.0	19.1%	100.0%
Total	**557.5**	**100.0%**	**100.0%**	**512.5**	**100.0%**	**100.0%**	**1,070.0**	**100.0%**	**100.0%**

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

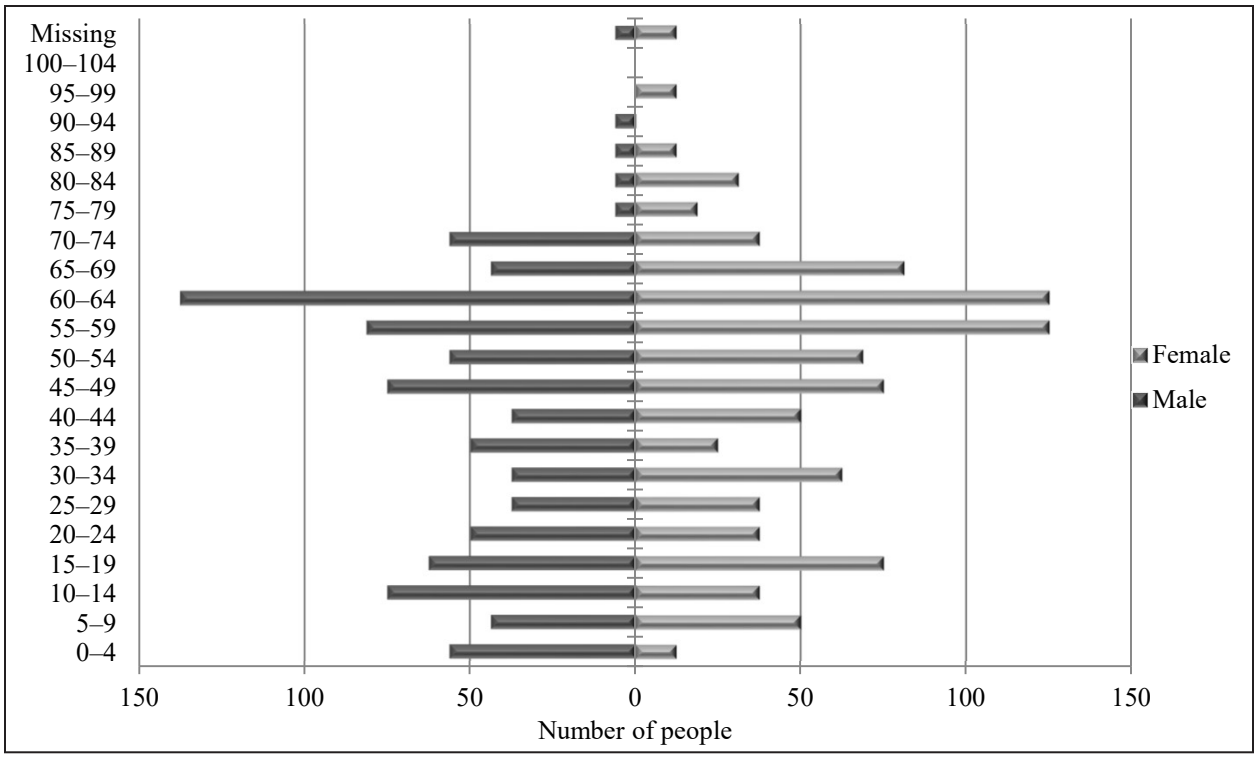


Figure 3-2.–Population profile, Chevak, Alaska, 2021.

Table 3-4.–Birthplaces of household heads, Chevak, Alaska, 2021.

Birthplace	Percentage
Anchorage	0.7%
Bethel	0.7%
Chevak	76.6%
Faribanks	0.7%
Hooper Bay	7.3%
Kodiak City	0.7%
Mountain Village	1.5%
Newtok	2.2%
Pilot Station	0.7%
Kodiak Island	0.7%
Yukon	0.7%
Uganik Bay	0.7%
Other U.S.	2.2%
Missing	4.4%

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, Chevak, Alaska, 2021.

Birthplace	Percentage
Anchorage	0.2%
Bethel	2.2%
Chevak	83.7%
Fairbanks	0.2%
Hooper Bay	2.6%
Kodiak City	0.2%
Kotzebue	0.2%
Mountain Village	0.9%
Newtok	0.7%
Pilot Station	0.2%
Kodiak Island	0.2%
Yukon	0.2%
Kenai Peninsula	0.2%
Uganik Bay	0.2%
Other U.S.	0.7%
Missing	7.4%

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.

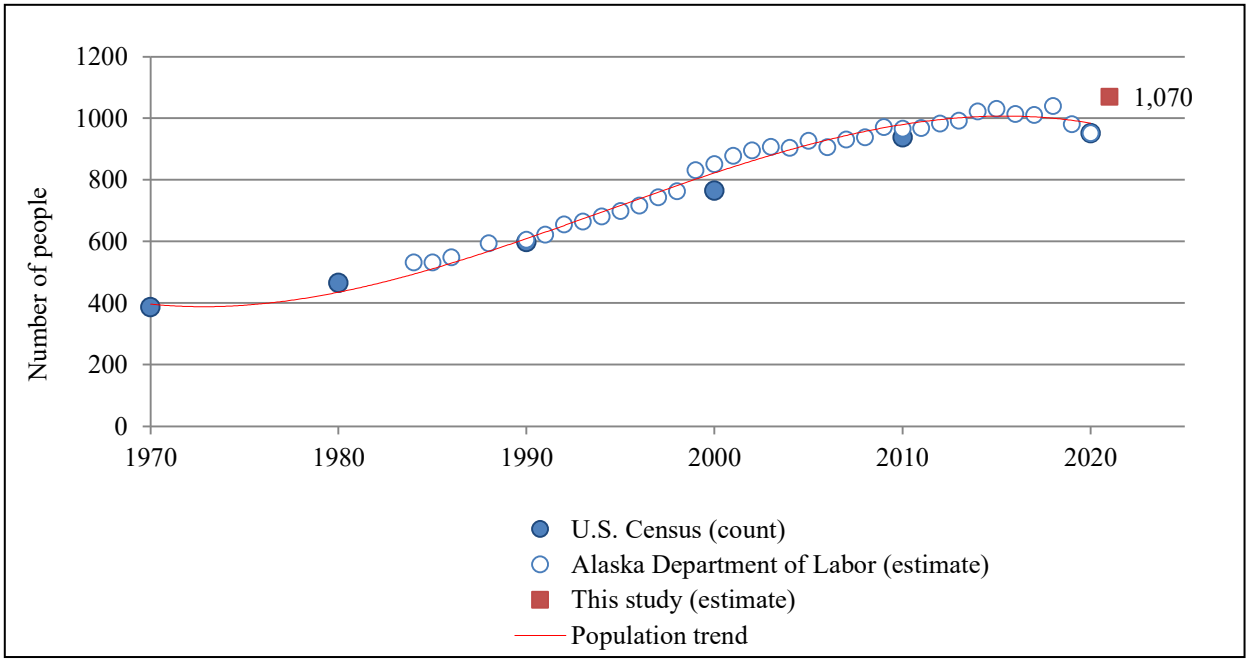


Figure 3-3.–Historical population estimates, Chevak, Alaska, 1970–2021.

Table 3-6.–Resource harvest and use characteristics, Chevak, Alaska, 2021.

Characteristic	
Mean number of resources used per household	**20.2**
Minimum	1
Maximum	51
95% confidence limit (±)	7.6%
Median	19.5
Mean number of resources attempted to harvest per household	**13.1**
Minimum	0
Maximum	49
95% confidence limit (±)	12.9%
Median	11.0
Mean number of resources harvested per household	**12.5**
Minimum	0
Maximum	49
95% confidence limit (±)	12.7%
Median	11.0
Mean number of resources received per household	**9.2**
Minimum	0
Maximum	31
95% confidence limit (±)	12.0%
Median	7.0
Mean number of resources given away per household	**6.6**
Minimum	0
Maximum	34
95% confidence limit (±)	19.9%
Median	3.0
Household harvest (pounds)	
Minimum	0
Maximum	10,522
Mean	1,072.6
Median	400.4
Total harvest weight (lb)	229,537.7
Community per capita harvest (lb)	214.5
Percentage using any resource	100.0%
Percentage attempting to harvest any resource	83.7%
Percentage harvesting any resource	83.7%
Percentage receiving any resource	97.8%
Percentage giving away any resource	66.3%
Number of households in sample	92
Number of resources asked about and identified voluntarily by respondents	132

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

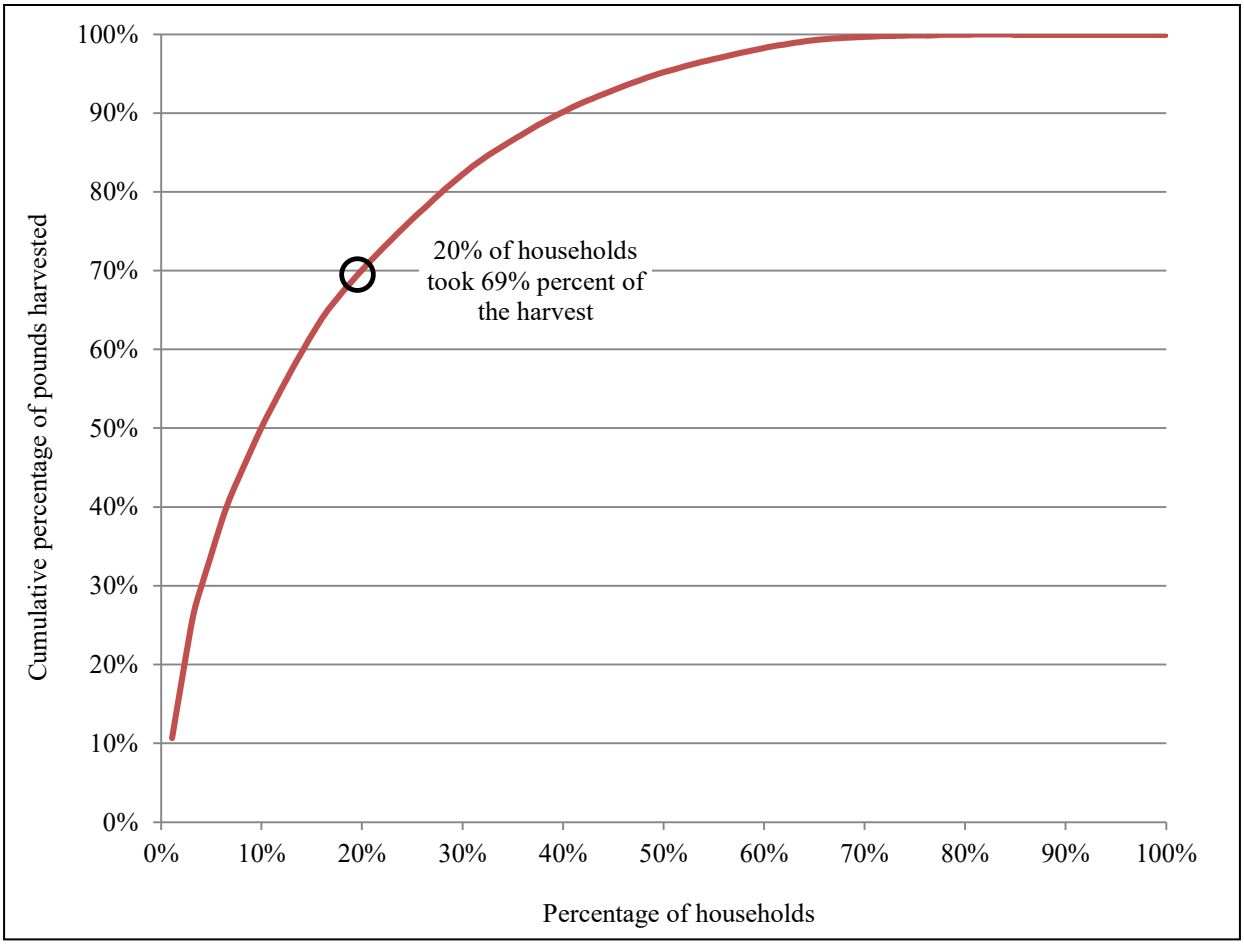


Figure 3-4.–Household specialization, Chevak, Alaska, 2021.

Harvest Quantities and Composition

Table 3-7 reports estimated wild resource harvests and uses by Chevak 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 C for conversion factors[8]). 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 nonlocal 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.

Households in Chevak were generally successful in harvesting local resources (Figure 3-5). For example, 83% of households attempted to harvest vegetation, and they all successfully harvested resources in this category. The same is true for other resource categories, indicating that harvests were, for the most part, not limited by the availability of resources. Figure 3-6 shows the composition of Chevak's harvest by resource category. Marine mammals made up the largest percentage of resources harvested by edible weight (41%), followed by large land mammals and nonsalmon fish (17% each). The remaining harvests were of salmon (9%), vegetation (8%), birds and eggs (8%), and small amounts of small land mammals and marine invertebrates. In a typical year, salmon would likely account for a much larger share of the harvest by edible weight.

Harvest and Use Characteristics by Resource Category

Table 3-8 lists the top ranked resources used by households and Figure 3-7 shows the species with the highest per capita harvests during the 2021 study year. The majority of Chevak households used berries, including cloudberries (95%), crowberries (76%), and blueberries (64%). Most households also used moose (87%), unspecified goose eggs (80%), and beluga whales (63%). In terms of edible pounds per person, moose and bearded seal each contributed 17% of the resources harvested, followed by beluga whales (15%), pink salmon (8%), herring (6%), cloudberries (5%), and ringed seals (5%).

Salmon

Chevak households were restricted from harvesting salmon in the subsistence fishery in 2021 to conserve Chinook salmon. However, salmon were still widely used (89% of households), whether they were harvested by household members (39%) or received from other households (76%; Table 3-7). Over a quarter of households reported giving salmon. The most commonly used specified salmon species in 2021 was pink salmon (referred to locally as "humpies;" 35% of households) and summer chum salmon (27%); 39% of households used "unspecified salmon." If the receiving household did not know the species of the fish they were given, it was recorded as unspecified salmon. This applied to several instances where survey respondents received boxes of processed salmon. Similarly, key informants reported receiving commercially processed boxes of sockeye salmon from Bristol Bay:

> Last summer, most of the, well, about 80% of the town, didn't catch any fish. But we were lucky that Yukon, Coastal Villages Region Fund bought some fish from Yukon for Scammon, Chevak, and Hooper Bay. And also, on the [tribal council] side, we had our administrator write letters to Bristol Bay fisherman. And they sent us some fish too. (01002022HPB1)

8. 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 3-7.–Estimated use and harvest of fish, game, and vegetation resources, Chevak, Alaska, 2021.

Resource	Percentage of households					Harvest weight (lb)			Harvest amount[a]			95% confidence limit (±) harvest
	Use %	Attempt %	Harvest %	Receive %	Give %	Total	Mean per household	Per capita	Total	Unit	Mean per household	
All resources	**100.0**	**83.7**	**83.7**	**97.8**	**66.3**	**229,537.7**	**1,072.6**	**214.5**	**229,537.7**	**lb**	**1,072.6**	**26.0**
Salmon	**89.1**	**41.3**	**39.1**	**76.1**	**26.1**	**21,279.0**	**99.4**	**19.9**	**8,365.7**	**ind**	**39.1**	**45.8**
Summer chum salmon	27.2	10.9	8.7	20.7	5.4	892.6	4.2	0.8	221.1	ind	1.0	77.9
Fall chum salmon	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Chum salmon, run unknown	1.1	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Coho salmon	6.5	4.3	2.2	5.4	3.3	151.6	0.7	0.1	35.3	ind	0.2	149.2
Chinook salmon	22.8	6.5	3.3	19.6	1.1	228.0	1.1	0.2	16.3	ind	0.1	92.6
Pink salmon	34.8	31.5	30.4	10.9	19.6	17,446.6	81.5	16.3	7,362.6	ind	34.4	51.9
Sockeye salmon	9.8	5.4	3.3	6.5	4.3	2,063.2	9.6	1.9	535.0	ind	2.5	130.9
Unspecified salmon	39.1	2.2	2.2	39.1	1.1	497.0	2.3	0.5	195.4	ind	0.9	143.6
Nonsalmon fish	**87.0**	**62.0**	**59.8**	**64.1**	**42.4**	**38,063.6**	**177.9**	**35.6**	**38,063.6**	**lb**	**177.9**	**32.1**
Pacific herring	53.3	34.8	34.8	27.2	23.9	12,702.4	59.4	11.9	2,117.1	gal	9.9	69.0
Pacific herring roe, unspecified type	16.3	4.3	4.3	13.0	6.5	732.8	3.4	0.7	122.1	gal	0.6	143.7
Unspecified smelts	39.1	21.7	20.7	18.5	16.3	3,783.6	17.7	3.5	630.6	gal	2.9	62.9
Saffron cod	16.3	14.1	7.6	8.7	3.3	286.6	1.3	0.3	1,364.8	ind	6.4	99.8
Walleye pollock (whiting)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified flounders	3.3	2.2	2.2	1.1	1.1	5.1	0.0	0.0	4.7	ind	0.0	150.0
Pacific halibut	19.6	9.8	9.8	9.8	7.6	139.6	0.7	0.1	139.6	lb	0.7	150.0
Arctic lamprey	1.1	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Sculpins	1.1	1.1	1.1	0.0	1.1	23.3	0.1	0.0	46.5	ind	0.2	150.0
Stickleback (needlefish)	4.3	2.2	2.2	2.2	2.2	62.8	0.3	0.1	10.5	gal	0.0	134.2
Alaska blackfish	51.1	25.0	25.0	29.3	15.2	1,906.2	8.9	1.8	317.7	gal	1.5	41.2

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Table 3-7.–Page 2 of 7.

Resource	Percentage of households					Harvest weight (lb)			Harvest amount[a]			95% confidence limit (±) harvest
	Use %	Attempt %	Harvest %	Receive %	Give %	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Nonsalmon fish, continued												
Burbot	21.7	12.0	12.0	10.9	9.8	1,905.1	8.9	1.8	453.6	ind	2.1	70.8
Dolly Varden, unknown type	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Arctic grayling	1.1	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Northern pike	34.8	20.7	20.7	14.1	14.1	4,697.8	22.0	4.4	1,423.6	ind	6.7	44.7
Sheefish	16.3	6.5	5.4	12.0	5.4	230.3	1.1	0.2	41.9	ind	0.2	76.1
Rainbow trout	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Broad whitefish	34.8	21.7	19.6	20.7	13.0	5,034.6	23.5	4.7	1,573.3	ind	7.4	91.4
Bering cisco	32.6	21.7	20.7	16.3	14.1	2,009.9	9.4	1.9	1,435.6	ind	6.7	42.0
Least cisco	12.0	10.9	10.9	2.2	5.4	506.4	2.4	0.5	723.4	ind	3.4	54.5
Humpback whitefish	34.8	29.3	26.1	14.1	16.3	3,657.2	17.1	3.4	1,741.5	ind	8.1	47.8
Round whitefish	3.3	3.3	1.1	3.3	0.0	3.3	0.0	0.0	4.7	ind	0.0	150.0
Unspecified whitefishes	15.2	7.6	7.6	9.8	6.5	376.8	1.8	0.4	232.6	ind	1.1	68.7
Unspecified nonsalmon fish	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	**89.1**	**30.4**	**27.2**	**73.9**	**28.3**	**37,955.6**	**177.4**	**35.5**	**70.5**	**ind**	**0.3**	**29.1**
Bison	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Black bear	2.2	1.1	0.0	2.2	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Brown bear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Caribou	2.2	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Moose	87.0	30.4	27.2	68.5	28.3	37,955.6	177.4	35.5	70.5	ind	0.3	29.1
Common muskox	6.5	0.0	0.0	6.5	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
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

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Table 3-7.–Page 3 of 7.

Resource	Percentage of households					Harvest weight (lb)			Harvest amount[a]			95% confidence limit (±) harvest
	Use %	Attempt %	Harvest %	Receive %	Give %	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Large land mammals, continued												
Unspecified large land mammals	1.1	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Small land mammals	**12.0**	**10.9**	**10.9**	**1.1**	**2.2**	**129.3**	**0.6**	**0.1**	**68.2**	**ind**	**0.3**	**95.0**
Beaver	3.3	3.3	3.3	0.0	0.0	94.1	0.4	0.1	4.7	ind	0.0	104.3
Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Arctic fox	2.2	2.2	2.2	0.0	0.0	0.0	0.0	0.0	2.4	ind	0.0	149.2
Red fox	3.3	3.3	3.3	0.0	1.1	0.0	0.0	0.0	4.7	ind	0.0	104.9
Alaska hare	1.1	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Snowshoe hare	3.3	3.3	3.3	0.0	0.0	17.6	0.1	0.0	11.8	ind	0.1	106.4
River otter	4.3	4.3	4.3	0.0	0.0	7.1	0.0	0.0	14.1	ind	0.1	148.3
Lynx	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Martens	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Mink	3.3	3.3	3.3	0.0	1.1	0.0	0.0	0.0	16.5	ind	0.1	129.4
Muskrat	2.2	2.2	2.2	0.0	0.0	10.6	0.0	0.0	14.1	ind	0.1	148.3
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
Gray wolf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Wolverine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Marine mammals	**88.0**	**38.0**	**33.7**	**75.0**	**34.8**	**94,288.5**	**440.6**	**88.1**	**369.2**	**ind**	**1.7**	**35.8**
Bearded seal	47.8	23.9	17.4	33.7	18.5	38,088.9	178.0	35.6	84.6	ind	0.4	42.6
Ribbon seal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Ringed seal	45.7	27.2	22.8	28.3	21.7	11,795.9	55.1	11.0	206.9	ind	1.0	37.0
Spotted seal	29.3	13.0	10.9	18.5	7.6	5,291.2	24.7	4.9	35.3	ind	0.2	60.1
Unspecified seals	31.5	2.2	1.1	30.4	5.4	392.7	1.8	0.4	2.3	ind	0.0	0.0

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Table 3-7.–Page 4 of 7.

Resource	Percentage of households					Harvest weight (lb)			Harvest amount[a]			95% confidence limit (±) harvest
	Use %	Attempt %	Harvest %	Receive %	Give %	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Walrus	31.5	5.4	3.3	28.3	5.4	3,621.5	16.9	3.4	4.7	ind	0.0	104.3
Beluga whale	63.0	15.2	12.0	53.3	16.3	35,098.4	164.0	32.8	35.3	ind	0.2	47.2
Bowhead whale	3.3	0.0	0.0	3.3	1.1	0.0	0.0	0.0	0.0	ind	0.0	0.0
Birds and eggs	**93.5**	**67.4**	**67.4**	**47.8**	**43.5**	**19,495.7**	**91.1**	**18.2**	**37,189.8**	**ind**	**173.8**	**33.8**
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	3.3	2.2	2.2	1.1	1.1	78.0	0.4	0.1	35.3	ind	0.2	148.4
King eider	7.6	4.3	4.3	3.3	1.1	191.7	0.9	0.2	134.0	ind	0.6	126.4
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	2.2	2.2	2.2	0.0	1.1	29.0	0.1	0.0	18.8	ind	0.1	148.4
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	27.2	17.4	17.4	9.8	9.8	606.8	2.8	0.6	311.2	ind	1.5	55.2
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	27.2	19.6	19.6	7.6	6.5	576.8	2.7	0.5	369.8	ind	1.7	43.3
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	3.3	2.2	2.2	1.1	1.1	10.3	0.0	0.0	9.4	ind	0.0	148.4
Unspecified teals	7.6	7.6	7.6	1.1	3.3	74.6	0.3	0.1	143.5	ind	0.7	81.0
American wigeon	5.4	5.4	4.3	1.1	1.1	117.1	0.5	0.1	89.4	ind	0.4	93.2
Unspecified ducks	2.2	2.2	2.2	0.0	0.0	33.9	0.2	0.0	27.9	ind	0.1	105.5
Brant	19.6	13.0	13.0	7.6	7.6	2,116.5	9.9	2.0	352.7	ind	1.6	100.0
Unspecified Canada/ cackling geese	59.8	37.0	37.0	25.0	19.6	1,005.6	4.7	0.9	838.0	ind	3.9	39.5
Emperor goose	21.7	14.1	14.1	8.7	5.4	723.1	3.4	0.7	289.3	ind	1.4	97.5

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Table 3-7.–Page 5 of 7.

Resource	Percentage of households					Harvest weight (lb)			Harvest amount[a]			95% confidence limit (±) harvest
	Use %	Attempt %	Harvest %	Receive %	Give %	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Birds and eggs, continued												
Snow goose	3.3	3.3	3.3	1.1	1.1	18.8	0.1	0.0	4.7	ind	0.0	104.3
Greater white-fronted goose	65.2	41.3	41.3	27.2	25.0	3,751.1	17.5	3.5	884.7	ind	4.1	26.3
Unspecified geese	1.1	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified swans	15.2	12.0	12.0	4.3	7.6	794.4	3.7	0.7	47.0	ind	0.2	49.3
Sandhill crane	23.9	19.6	18.5	5.4	10.9	908.7	4.2	0.8	108.2	ind	0.5	43.1
Unspecified shorebirds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified loons	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified seabirds	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified ptarmigans	34.8	23.9	22.8	12.0	9.8	370.4	1.7	0.3	529.1	ind	2.5	37.1
Unspecified other birds	2.2	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0
Unspecified duck eggs	43.5	34.8	34.8	9.8	17.4	950.6	4.4	0.9	6,337.4	ind	29.6	46.3
Unspecified goose eggs	80.4	62.0	62.0	25.0	31.5	3,942.6	18.4	3.7	14,602.4	ind	68.2	41.3
Unspecified swan eggs	21.7	17.4	17.4	5.4	5.4	193.5	0.9	0.2	307.2	ind	1.4	51.5
Crane eggs	2.2	1.1	1.1	1.1	1.1	31.0	0.1	0.0	93.0	ind	0.4	150.0
Unspecified small shorebird eggs	3.3	2.2	2.2	1.1	1.1	0.2	0.0	0.0	4.7	ind	0.0	148.4
Unspecified large shorebird eggs	3.3	3.3	3.3	1.1	0.0	2.6	0.0	0.0	65.8	ind	0.3	113.7
Unspecified gull eggs	20.7	17.4	17.4	4.3	10.9	2,863.4	13.4	2.7	9,544.5	ind	44.6	92.3
Unspecified loon eggs	3.3	2.2	2.2	1.1	1.1	4.2	0.0	0.0	23.5	ind	0.1	148.4
Unspecified tern eggs	4.3	3.3	3.3	2.2	2.2	100.9	0.5	0.1	2,018.4	ind	9.4	146.4
Unspecified eggs	2.2	2.2	1.1	1.1	0.0	0.0	0.0	0.0	0.0	ind	0.0	0.0

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Table 3-7.–Page 6 of 7.

Resource	Percentage of households					Harvest weight (lb)			Harvest amount[a]			95% confidence limit (±) harvest
	Use %	Attempt %	Harvest %	Receive %	Give %	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Marine invertebrates	**59.8**	**37.0**	**37.0**	**32.6**	**21.7**	**146.7**	**0.7**	**0.1**	**146.7**	**lb**	**0.7**	**43.4**
Unspecified clams	59.8	37.0	37.0	32.6	21.7	146.7	0.7	0.1	586.8	ind	2.7	43.4
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
Shrimps	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Vegetation	**95.7**	**82.6**	**82.6**	**41.3**	**44.6**	**18,179.2**	**84.9**	**17.0**	**5,667.1**	**gal**	**26.5**	**18.0**
Blueberry	64.1	53.3	53.3	16.3	18.5	1,059.2	4.9	1.0	264.8	gal	1.2	25.3
Lowbush cranberry	20.7	19.6	19.6	4.3	5.4	234.1	1.1	0.2	58.5	gal	0.3	65.9
Highbush cranberry	2.2	2.2	2.2	0.0	0.0	18.8	0.1	0.0	4.7	gal	0.0	149.2
Crowberry	76.1	63.0	63.0	22.8	25.0	3,022.6	14.1	2.8	755.6	gal	3.5	25.1
Cloudberry	94.6	80.4	79.3	27.2	41.3	12,177.7	56.9	11.4	3,044.4	gal	14.2	19.6
Nagoonberry	32.6	29.3	29.3	6.5	12.0	259.9	1.2	0.2	65.0	gal	0.3	45.5
Dogwood berry	1.1	1.1	1.1	0.0	0.0	9.3	0.0	0.0	2.3	gal	0.0	0.0
Wild rhubarb	3.3	2.2	2.2	1.1	1.1	2.4	0.0	0.0	2.4	gal	0.0	149.2
Fiddlehead ferns	7.6	7.6	7.6	0.0	0.0	28.0	0.1	0.0	28.0	gal	0.1	77.4
Hudson's Bay (Labrador) tea	45.7	40.2	40.2	6.5	6.5	123.8	0.6	0.1	123.8	gal	0.6	31.0
Sourdock	18.5	15.2	15.2	4.3	4.3	237.0	1.1	0.2	237.0	gal	1.1	99.1
Pallas buttercup	50.0	40.2	40.2	14.1	13.0	443.7	2.1	0.4	443.7	gal	2.1	42.4
Wild celery	9.8	9.8	9.8	1.1	3.3	23.8	0.1	0.0	95.0	gal	0.4	84.6
Wild parsley	3.3	3.3	3.3	0.0	1.1	18.8	0.1	0.0	18.8	gal	0.1	117.5
Yarrows	1.1	1.1	1.1	0.0	0.0	0.1	0.0	0.0	0.6	gal	0.0	150.0
Other wild greens	6.5	5.4	5.4	1.1	1.1	5.9	0.0	0.0	5.9	gal	0.0	89.1

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Table 3-7.–Page 7 of 7.

Resource	Percentage of households					Harvest weight (lb)			Harvest amount[a]			95% confidence limit (±) harvest
	Use %	Attempt %	Harvest %	Receive %	Give %	Total	Mean per household	Per capita	Total	Unit	Mean per household	
Unspecified mushrooms	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	gal	0.0	0.0
Stinkweed	30.4	25.0	25.0	6.5	2.2	123.8	0.6	0.1	123.8	gal	0.6	74.6
Punk	2.2	2.2	2.2	0.0	1.1	0.0	0.0	0.0	2.3	gal	0.0	0.0
Chaga	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	4.3	3.3	3.3	1.1	0.0	35.3	0.2	0.0	35.3	gal	0.2	110.7
Mousefoods	45.7	40.2	40.2	9.8	12.0	355.2	1.7	0.3	355.2	gal	1.7	58.0

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

Note Resources where the percentage using is greater than the combined received and harvest indicate use from resources obtained during a previous year.

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

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

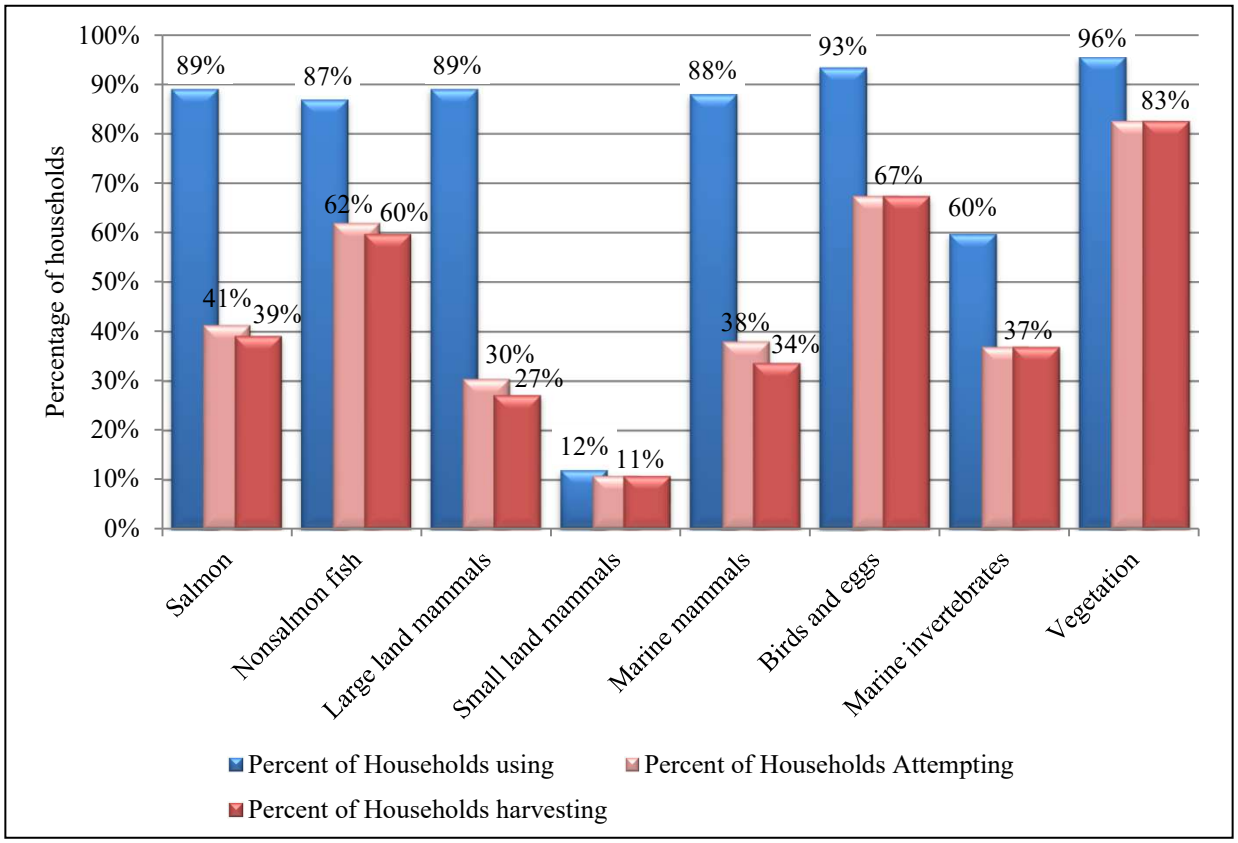


Figure 3-5.–Percentage of households using, attempting to harvest, and harvesting wild resources, by resource category, Chevak, Alaska, 2021.

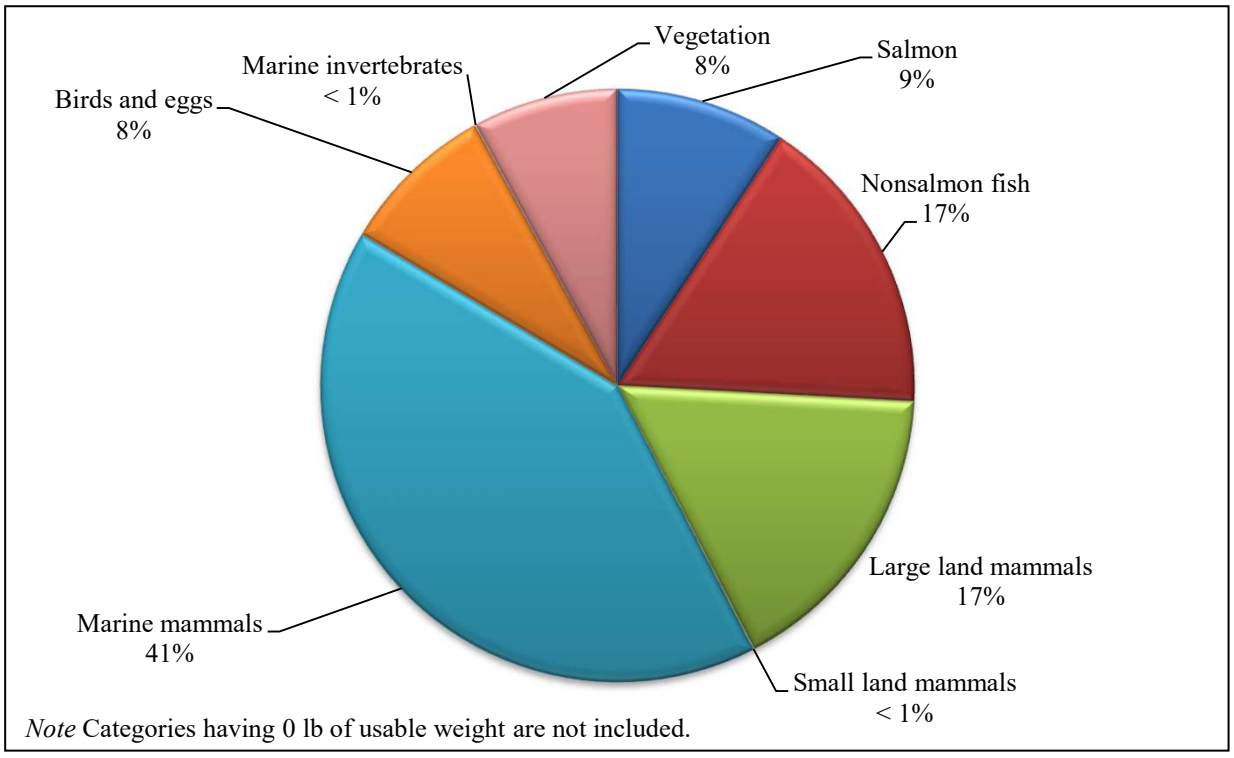


Figure 3-6.–Composition of harvest in pounds usable weight, by resource category, Chevak, Alaska, 2021.

Table 3-8.–Top ranked resources used by households, Chevak, Alaska, 2021.

Rank[a]	Resource	Percentage of households using.
1.	Cloudberry	94.6%
2.	Moose	87.0%
3.	Unspecified goose eggs	80.4%
4.	Crowberry	76.1%
5.	Greater white-fronted goose	65.2%
6.	Blueberry	64.1%
7.	Beluga whale	63.0%
8.	Unspecified Canada/cackling geese	59.8%
9.	Unspecified clams	59.8%
10.	Pacific herring	53.3%

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.

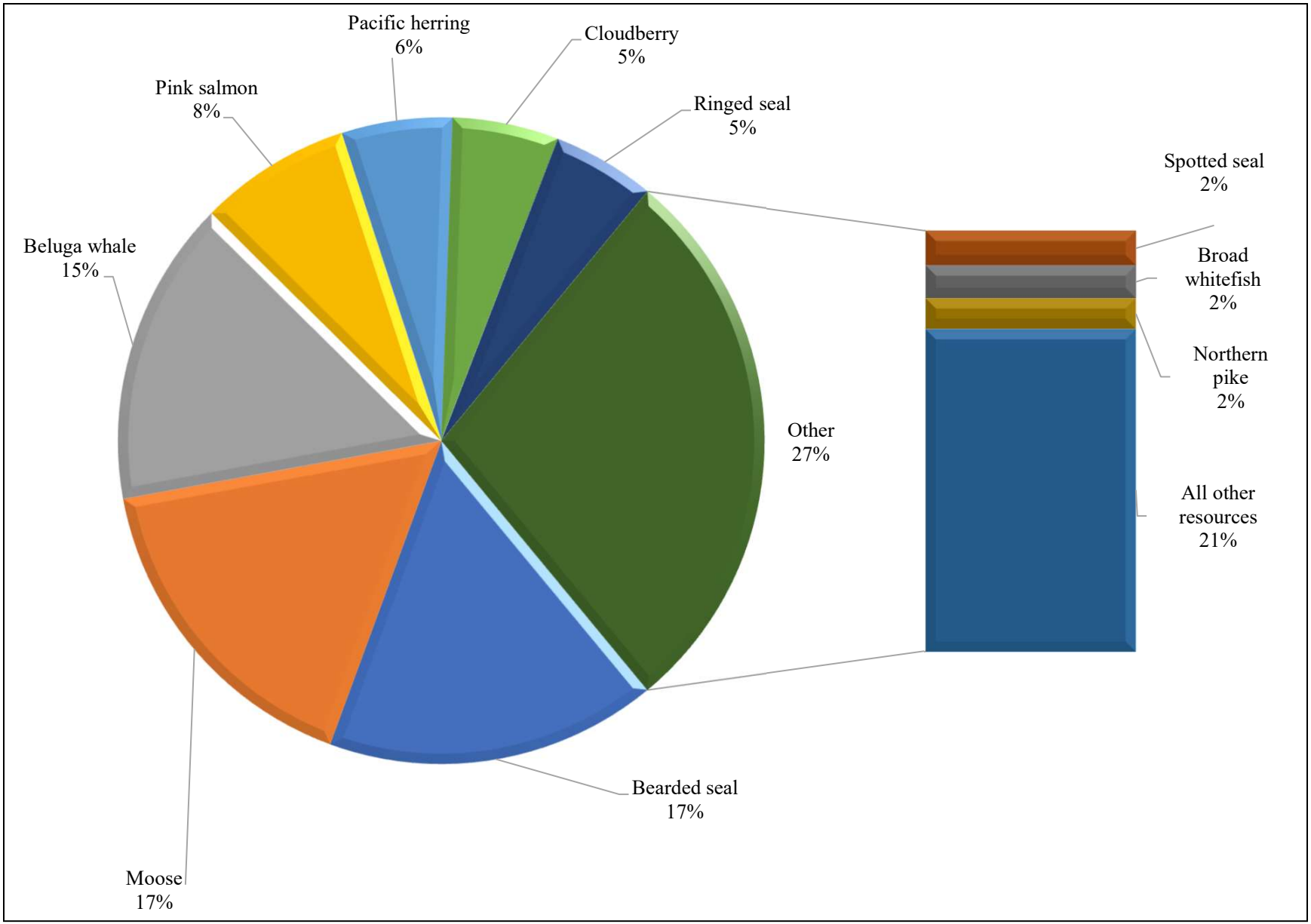


Figure 3-7.–Top resources harvested by percentage of total harvest in pounds usable weight, Chevak, Alaska, 2021.

In summer 2021, six Bristol Bay salmon processors donated Chinook and chum salmon in the round, which were delivered to Kwik'pak Fisheries in Emmonak for reprocessing and packaging. From there, fish were distributed to lower river communities.[9]

In total, Chevak households harvested an estimated 8,366 salmon (21,279 lb) in 2021 (Table 3-9). By weight, the salmon harvest was composed of pink (82%), sockeye (10%), summer chum (4%), unspecified (2%), and other salmon (2%; Figure 3-8). Figure 3-9 is a visual representation of salmon harvest weights by gear type. Chevak households used set gillnets to catch 96% of the salmon harvest by weight (Table 3-10). Households also used set gillnets to harvest pink salmon in 2021 (86% of set gillnet harvests by weight), while drift gillnets were primarily used to harvest sockeye salmon (97% of drift gillnet harvests by weight). All of the harvests of chum salmon (summer, fall, and unknown run), coho, Chinook, and pink salmon were taken by set gillnet.

Survey respondents were asked how much of each salmon species they usually harvest, and in total they reported usually harvesting 991 Chinook salmon, 9,556 summer chum salmon, 3,310 pink salmon, and smaller amounts of other kinds of salmon (Table 3-11). Chevak households adapted to the salmon fishery closures in 2021 by modifying the amounts of different species they harvested, their fishing locations, and their fishing practices. As noted above, a large majority of the 2021 harvest was pink salmon, which equated to an average of 82 lb of pink salmon per household (16 lb per person; Table 3-7). To protect spawning Chinook and chum salmon, ADF&G restricted the allowable gear types during the 2021 salmon season to gillnets with 4-inch or smaller mesh, dip nets, beach seines, handlines, hook and line attached to a rod or pole, and fish wheels.[10,11] Although many people own 4-inch mesh gillnets, they are not typically used to target salmon because they tend to catch smaller pink salmon. Pink salmon are not typically targeted when there are harvest opportunities for Chinook and chum salmon. One key respondent described using dip nets to harvest pink salmon and seeing others do the same (05042022VAK1). By using different, more selective gear types, Chevak fishers have modified their fishing practices to be able to harvest pink salmon and avoid harvesting Chinook and chum salmon during periods when conservation concerns limit access to these more desirable species.

In years with subsistence fishing opportunity, Chevak fishers travel to fish camps to harvest salmon. Figure 3-10 shows the locations that survey respondents reported using to fish for salmon. The majority of these areas were concentrated in the lower reaches of the Keoklevik, Kashunuk, and Aphrewn rivers, all of which are mouths of the Kashunuk River. Households also reported salmon fishing in smaller, terminal streams near the community, including sloughs connected to the Ninglikfak River. More distant salmon fishing locations include Hooper Bay, areas just outside the community of Hooper Bay, and a stretch of the Yukon River downstream of the confluence with the Andreafsky River.

Chevak households harvested just over 200 lb of Chinook salmon, for an average of 1 lb of fish per household (Table 3-7). Chinook salmon have always been a less abundant fish, but are prized, especially by elders.[12] A survey respondent, concerned about the lack of salmon, noted that Chinook salmon are used for special occasions, and are prepared into strips to last throughout the winter. As Chinook salmon runs have declined, people reported catching more precocious spawners (i.e., one- or two-year-old sexually mature fish), or "baby kings," in recent years: "Even back then, catch one or two, maybe three kings in the net too. But now it's just probably baby kings or once in a blue moon a king, right there" (05052022VAK5).

9. Bauman, M. July 21, 2021. Bristol Bay processors donate 25K lbs of frozen salmon to villages. The Cordova Times. https://www.thecordovatimes.com/2021/07/21/bristol-bay-processors-donate-25k-lbs-of-frozen-salmon-to-villages/
10. 5 AAC 01.220 Lawful gear and gear specifications.
11. Alaska Department of Fish & Game. 2021. Yukon Area Summer Season Summary. Advisory Announcement. October 26, 2021. Division of Commercial Fisheries. https://www.adfg.alaska.gov/static/applications/dcfnewsrelease/1344517999.pdf
12. Yukon River Drainage Fisheries Association inseason teleconference summary #6, July 12, 2022, Accessed March 24, 2023. https://yukonsalmon.org/2022-yukon-river-in-season-teleconference-summary-6/.

Because Chinook salmon are a special fish to the people of Chevak, many survey and key respondents were deeply frustrated that they were restricted from fishing for salmon. However, a key respondent expressed his willingness to forego harvests of Chinook salmon so that the fish might come back in abundance in the future:

> If we do things right, the fish will come back. It was proved in the Kuskokwim and other places [that] if we regulate, the fish will, you know, it's something to give up, but in time it'll be good, I think. (05052022VAK3)

In contrast to Chinook salmon, summer chum salmon were described as the abundant fish that sustained people and dog teams through the winter. Key respondents described making uqumaarrluk or "poke fish" by drying chum salmon on racks and storing them in containers with seal oil (05052022VAK5). Only 9% of households successfully harvested chum salmon; the harvest averaged 4 fish or 39 lb per household. One respondent noted that fishing closures, and fishing regulations more broadly, prevent harvesters from meeting their specific needs, which depend on their household's circumstances:

> [If I were making regulations,] I would let people fish and let them get exactly how much their family needs. Like for my family, there's one, two, three, four, five, six, and the extended family that will help, we get about 300 salmon, like chum salmon, and about 20 king salmon. That's it and we quit. We don't try and get like 3,000 or 2,000. We just get 300 and that's it, and then we stop. And every single family is like that. See that part too, State of Alaska or any regulator from the federal government cannot understand that portion of it…And here, my other neighbor over here, will do like a 120 all different, cut a different way, that's it. And there are twice as many people as there in that household. So, every household is different. And then my other neighbor on there is 60 and she says it's enough. And over here it's 75 salmon. (05042022VAK2)

Further, the closures have affected not only individual households, but also the food security of the community because of the extent to which people share salmon in Chevak, as a survey respondent described in their comments: "We depend on those fish for feeding ourselves and community members that are unable to fish for themselves."[13]

In addition to the change in salmon harvest opportunities in recent years, Chevak has had to adapt to the effects of changing climatic patterns on salmon runs. Salmon migrate differently now, as warmer water temperatures and south wind push them further offshore and northward faster. As a result of these weather trends, some Hooper Bay residents have started coming to the rivers near Chevak to harvest salmon, rather than from the spit outside of Hooper Bay. This practice is generally accepted by Chevak residents, despite the increased pressure on an already scarce resource, because local resources have long been shared between the communities (05042022VAK7). In freshwater habitats, key respondents also observed that salmon now migrate in the deepest part of the channel where the water temperatures are the lowest, which makes them more difficult to harvest (05062022VAK10).

Several Chevak residents raised concerns about the mismatch between regulations—specifically the fishery closure along the Yukon—and the migratory and spawning behaviors of salmon populations in the Chevak and Hooper Bay area as observed by local residents. Several survey and key respondents were frustrated that common salmon fishing rivers, such as the Keoklevik, Kashunuk, and Aphrewn rivers, are included in the Coastal District of the Yukon Management Area, because they have observed that the salmon they catch largely, if not entirely, spawn in rivers and lakes around Chevak rather than the Yukon River or its tributaries (05042022VAK2, 05042022VAK7, 05052022VAK1). A highly knowledgeable fisherman described this frustration and the lack of studies on the issue:

> [If] I were the commissioner, I'd ask for, like, millions of dollars to do these studies. And hire people like me that know these kind of things and sit down and

13 ADF&G Division of Subsistence household survey notes. May 3, 2022.

> talk about it, and this is how you guys should do it. I feel so sorry for the people of the Yukon because those Yukon people, the state regulators think that the people from Chevak, Hooper area are connected [to the Yukon], the fish are connected to the Yukon, but it's not, it's two different species of fish. (05042022VAK2)

He went on to explain in detail what he has learned about the different runs of salmon in his area:

> Right here. My camp. There are 17 species of fish. You name it, we have it… And then there's the salmon, the king salmon, there's chums, there's reds, there's humpies. Salmon are different. And then there's how many different kind of king salmons. There's three different kind of king salmons. That go to this one. It's the coloration that we [look] out for. There's three different kinds that go right here. There's, people say there's two different kind of king salmons that go right here. They don't catch the red colored king salmons right there. We do, we get it all the way until, like September, the red kings, the red colored. They're all beautiful red. (05042022VAK2)

Survey respondents also commented that they were disappointed, angry, confused, and frustrated by the salmon closure and emphasized how much people depend on salmon in the community.[14] A few were frustrated that while subsistence fishing was shut down, commercial fisheries in the South Alaska Peninsula Area that intercept salmon that are bound for Western Alaska were allowed to harvest salmon. Others criticized the waste of Chinook and chum salmon that are harvested as bycatch in offshore trawl fisheries in the Bering Sea.

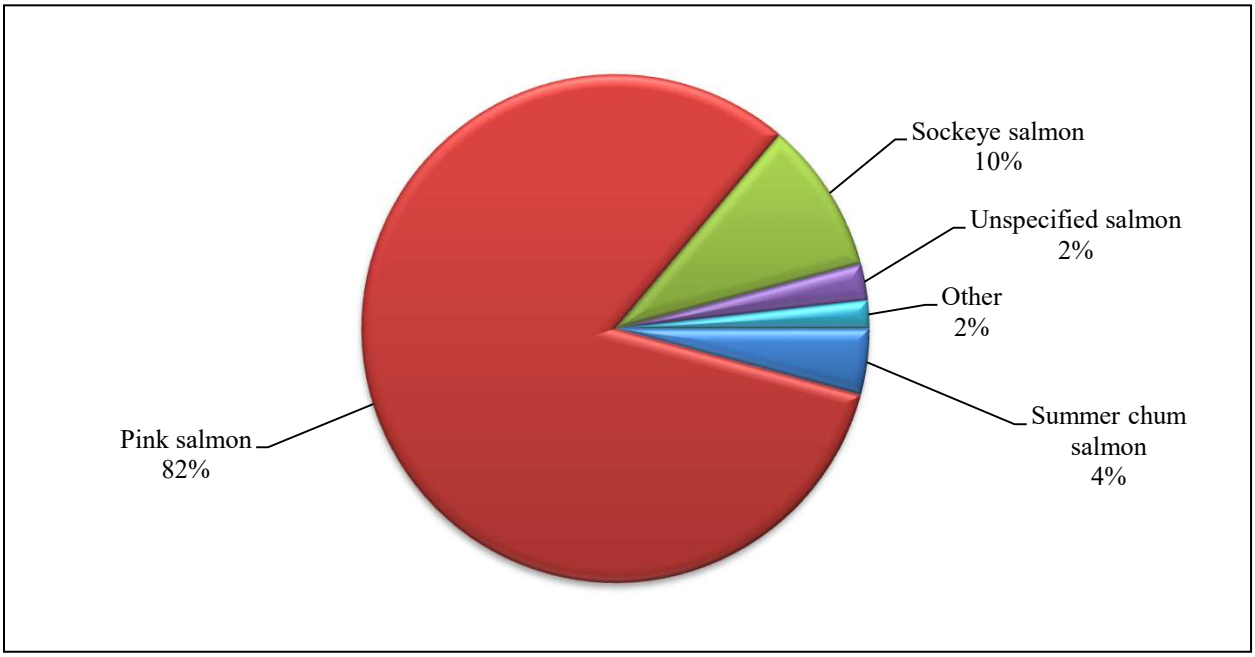


Figure 3-8.–Composition of salmon harvest in pounds usable weight, Chevak, Alaska, 2021.

14. ADF&G Division of Subsistence household survey notes. May 4, 2022; May 10, 2022.

Table 3-9.–Estimated harvest of salmon by gear type and resource, Chevak, Alaska, 2021.

	Removed from commercial catch		Subsistence methods															
			Drift gillnet		Set gillnet		Seine		Dip net		Other gear		Subsistence gear, any method		Rod and reel		Total	
Resource	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb
Salmon	**0.0**	**0.0**	**241.9**	**920.7**	**8,123.7**	**20,358.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**8,365.7**	**21,279.0**	**0.0**	**0.0**	**8,365.7**	**21,279.0**
Summer chum salmon	0.0	0.0	0.0	0.0	221.1	892.6	0.0	0.0	0.0	0.0	0.0	0.0	221.1	892.6	0.0	0.0	221.1	892.6
Fall 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	0.0	0.0	0.0	0.0	0.0	0.0
Chum salmon, run unknown	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	35.3	151.6	0.0	0.0	0.0	0.0	0.0	0.0	35.3	151.6	0.0	0.0	35.3	151.6
Chinook salmon	0.0	0.0	0.0	0.0	16.3	228.0	0.0	0.0	0.0	0.0	0.0	0.0	16.3	228.0	0.0	0.0	16.3	228.0
Pink salmon	0.0	0.0	0.0	0.0	7,362.6	17,446.6	0.0	0.0	0.0	0.0	0.0	0.0	7,362.6	17,446.6	0.0	0.0	7,362.6	17,446.6
Sockeye salmon	0.0	0.0	232.6	897.0	302.4	1,166.2	0.0	0.0	0.0	0.0	0.0	0.0	535.0	2,063.2	0.0	0.0	535.0	2,063.2
Unspecified salmon	0.0	0.0	9.3	23.7	186.1	473.3	0.0	0.0	0.0	0.0	0.0	0.0	195.4	497.0	0.0	0.0	195.4	497.0

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

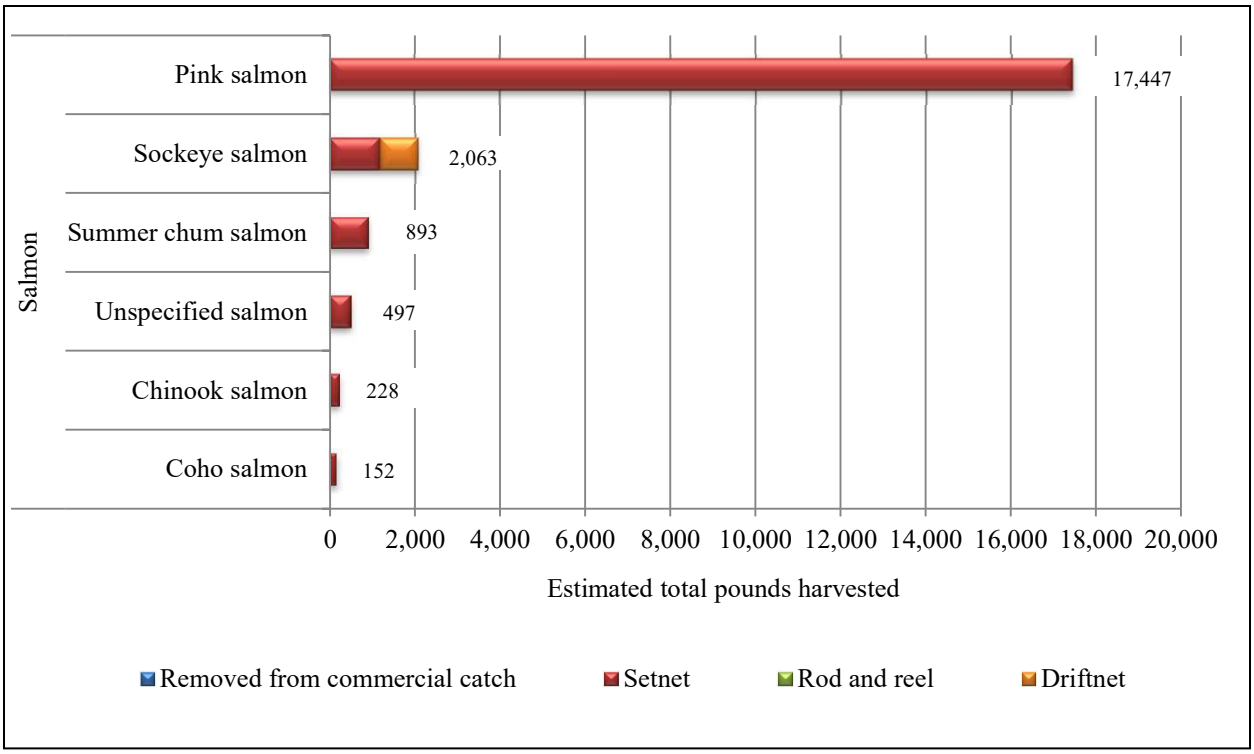


Figure 3-9.–Estimated harvest of salmon in pounds usable weight by gear type and resource, Chevak, Alaska, 2021.

Table 3-10.–Estimated percentages of salmon harvest in pounds usable weight by gear type, resource, and total salmon harvest, Chevak, Alaska, 2021.

Resource	Percentage base	Removed from commercial catch		Subsistence methods: Drift gillnet		Set gillnet		Seine		Dip net		Other Gear		Subsistence gear, any method		Rod and reel		Total	
		No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb
Salmon	**Gear type**	**0.0%**	**0.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**100.0%**	**100.0%**	**0.0%**	**0.0%**	**100.0%**	**100.0%**
	Resource	**0.0%**	**0.0%**	**2.9%**	**4.3%**	**97.1%**	**95.7%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**100.0%**	**100.0%**	**0.0%**	**0.0%**	**100.0%**	**100.0%**
	Total	**0.0%**	**0.0%**	**2.9%**	**4.3%**	**97.1%**	**95.7%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**100.0%**	**100.0%**	**0.0%**	**0.0%**	**100.0%**	**100.0%**
Summer chum salmon	Gear type	0.0%	0.0%	0.0%	0.0%	2.7%	4.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.6%	4.2%	0.0%	0.0%	2.6%	4.2%
	Resource	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	2.6%	4.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.6%	4.2%	0.0%	0.0%	2.6%	4.2%
Fall chum salmon	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Chum salmon, run unknown	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Coho salmon	Gear type	0.0%	0.0%	0.0%	0.0%	0.4%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.7%	0.0%	0.0%	0.4%	0.7%
	Resource	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.4%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.7%	0.0%	0.0%	0.4%	0.7%
Chinook salmon	Gear type	0.0%	0.0%	0.0%	0.0%	0.2%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	1.1%	0.0%	0.0%	0.2%	1.1%
	Resource	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.2%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	1.1%	0.0%	0.0%	0.2%	1.1%
Pink salmon	Gear type	0.0%	0.0%	0.0%	0.0%	90.6%	85.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	88.0%	82.0%	0.0%	0.0%	88.0%	82.0%
	Resource	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	88.0%	82.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	88.0%	82.0%	0.0%	0.0%	88.0%	82.0%
Sockeye salmon	Gear type	0.0%	0.0%	96.2%	97.4%	3.7%	5.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.4%	9.7%	0.0%	0.0%	6.4%	9.7%
	Resource	0.0%	0.0%	43.5%	43.5%	56.5%	56.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	2.8%	4.2%	3.6%	5.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.4%	9.7%	0.0%	0.0%	6.4%	9.7%
Unspecified salmon	Gear type	0.0%	0.0%	3.8%	2.6%	2.3%	2.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.3%	2.3%	0.0%	0.0%	2.3%	2.3%
	Resource	0.0%	0.0%	4.8%	4.8%	95.2%	95.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.1%	0.1%	2.2%	2.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.3%	2.3%	0.0%	0.0%	2.3%	2.3%

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

Table 3-11.–Estimated typical use of salmon, Chevak, Alaska, 2021.

	Estimated usual harvest, 2021	
Resource	Number	Pounds
Chinook salmon	990.9	13,875.3
Summer chum salmon	9,555.6	38,570.4
Fall chum salmon	100.0	403.7
Sockeye salmon	2,337.7	9,015.3
Coho salmon	2,037.7	8,757.9
Pink salmon	3,310.0	7,843.5
Unspecified salmon	756.0	1,922.9

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

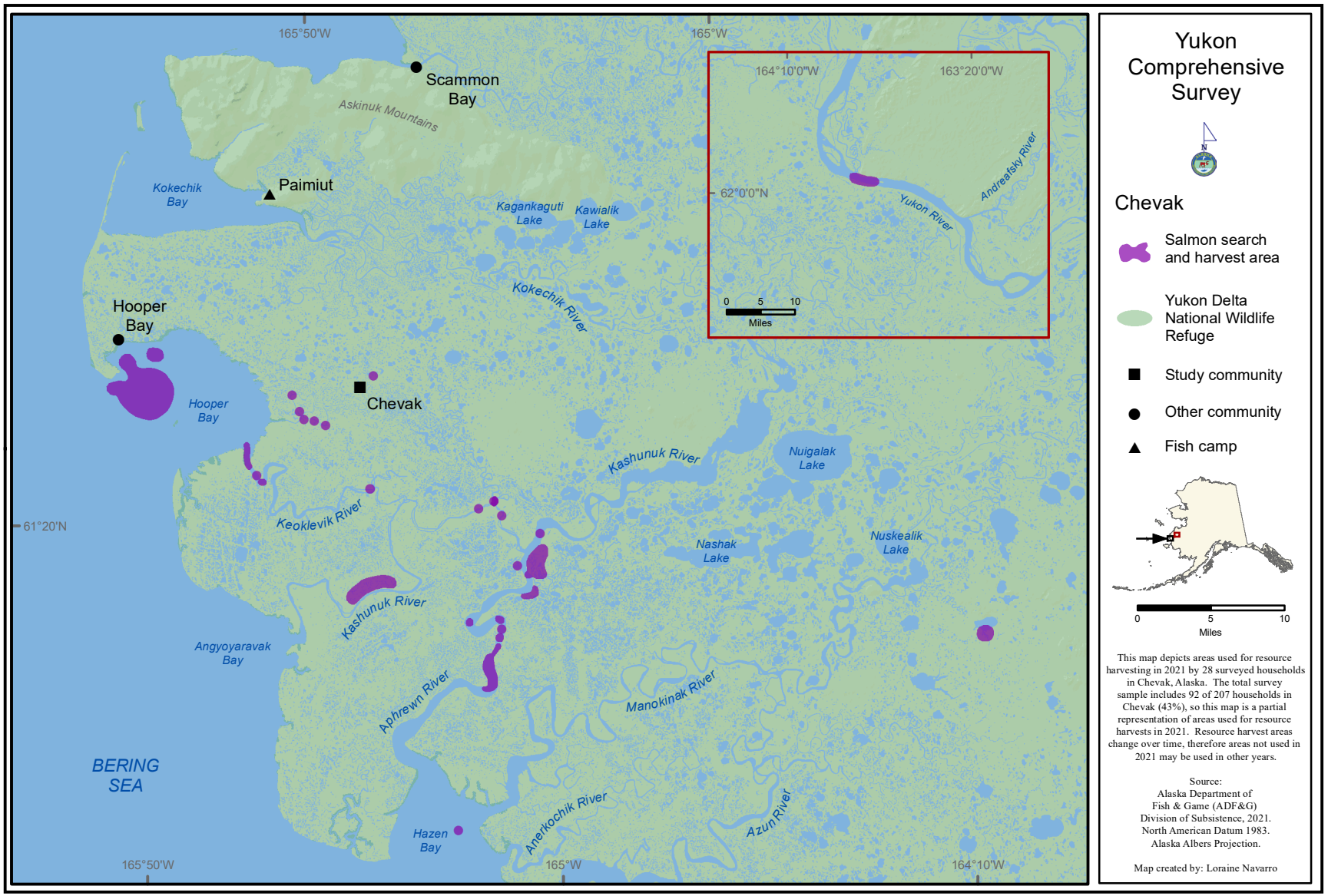


Figure 3-10.–Salmon fishing and harvest locations, Chevak, Alaska, 2021.

Nonsalmon Fish

Table 3-7 shows the percentages of households using, receiving, giving, attempting to harvest, and successfully harvesting nonsalmon fish. Nonsalmon fish were used by 87% of households in Chevak during the study year. A majority of households attempted to harvest (62%) and successfully harvested nonsalmon fish (60%). Most households received nonsalmon fish (64%), and many gave nonsalmon fish to other households (42%). During salmon subsistence fishing closures, ADF&G allowed the use of 4-inch-mesh gillnets for harvesting nonsalmon fish in the Coastal District.[15] By weight, Chevak households harvested more nonsalmon fish than salmon in 2021. However, interview and survey respondents did not describe harvesting more nonsalmon fish because of shortages of salmon (see Harvest Assessment for details).

Chevak households harvested an estimated total of 38,064 lb of nonsalmon fish. Herring comprised the largest proportion of nonsalmon fish by edible weight (34%; Figure 3-11). Broad whitefish (13%), pike (12%), humpback whitefish (10%), smelts (10%), blackfish, burbot, and Bering cisco (5% each), other fishes (4%), and unspecified herring roe (2%) accounted for the remainder of the nonsalmon fish harvests by edible weight.

Fishers in Chevak harvest nonsalmon fish using a variety of gear types (Table 3-12). Most nonsalmon fish were caught with set gillnet gear in open water (62% by weight). People also used gillnets under the ice (9%), fish traps (fyke nets; 3%), and drift gillnets (3%; Table 3-13). Figure 3-12 is a visual representation of the nonsalmon fish harvest weight by gear type. Fishers used gillnets to harvest herring and whitefish species, either in open water or under the ice, and rod and reel gear was mainly used to harvest smelts, pike, saffron cod, and burbot (locally known as lush). Pike and burbot were also caught in under-ice gillnets. Fishers vary in the extent to which they target nonsalmon fish. Some people take trips specifically to harvest nonsalmon fish, and some harvest them opportunistically by setting a net while they engage in other activities; for instance, picking berries or moose hunting (05052022VAK6).

Over half of households (53%) used herring during the study year, and just over a third of households harvested herring for a total of 12,702 lb (an average of 59 lb per household or 12 lb per capita; Table 3-7). People harvest herring with drift or set gillnets in the late spring, once local rivers are free of ice. In the last 15 to 20 years, herring have begun to enter rivers near Chevak on their northward migration, making it easier for Chevak residents to harvest them (05042022VAK7). Residents typically dry herring on fish racks covered by a tarp or roof and placed where the wind will accelerate drying (05042022VAK1). Key respondents in Chevak did not mention use of herring roe, although a few households (4%) did harvest 122 gallons of herring roe, and 16% of households used herring roe (Table 3-7).

More than half of households (51%) used blackfish during the study year (Table 3-7). Half as many households (25%) actually harvested blackfish, and the total harvest was 1,906 lb (9 lb per household, 2 lb per capita). Blackfish are harvested with commercially manufactured or homemade traps set in open water or under the ice, which are checked on a weekly basis (05042022VAK1). Although small, blackfish are highly abundant in lake outlets, sloughs, and rivers, especially near Chevak (01002022HPB4). Key respondents described fishing for blackfish, which are a preferred food of elders, and using blackfish as a survival food when other foods were not available in the late winter or early spring (01152022HPB1). Although only 4% of surveyed households used ninespine stickleback (locally known as needlefish), key respondents described ninespine stickleback as a food favored by elders and commonly sought when other foods were not available (05052022VAK10).

In 2021, 39% of Chevak households used smelts, 21% harvested smelts themselves, 16% gave smelts away, and 18% received smelts (Table 3-7). Fishers harvested a total of 3,784 lb (18 lb per household, 4 lb per capita). People harvest smelts in spring and sometimes in the fall, usually by jigging through the ice with a single or multiple hooks. Key respondents described smelts as a survival food because they can be eaten raw, unlike whitefishes that make people sick when eaten raw (05052022VAK10).

15. Alaska Department of Fish & Game. 2021. Yukon Area Summer Season Summary. Advisory Announcement. October 26, 2021. Division of Commercial Fisheries.

Whitefishes, combined, accounted for nearly 12,000 lb of edible weight (Table 3-7). Broad whitefish contributed the largest portion of the whitefish harvest (43%), followed by humpback whitefish (31%), Bering cisco (17%), least cisco (4%), and sheefish (2%). Roughly one third of households used broad whitefish (35%), Bering cisco (33%), and humpback whitefish (35%). People typically harvest whitefishes with gillnets set in the open water at the outlets of lakes or inside sloughs, and under the river ice when fish move into overwintering areas in deep pools or brackish water (05052022VAK10). Whitefishes may also be harvested using a qalu (dip net). One key respondent described a favorite memory of her father's qaluuq (dipnetting) technique:

> When first freeze-up of the river and it was safe to, safe to walk on it, our dads would make holes and put a big net in there, and they'd go walk and, you know, make noise. And they'd take out lots of whitefish. And [saffron cod]…And they make sound, the shovel against the ice, they would go toward that dip net. Like bringing the fish towards the dip net. (05052022VAK8)

Some fishers who target whitefishes—and also pike and burbot—travel to specific locations to set nets under the ice. They check the nets every few days throughout the winter, or until the ice is too thick. Previous studies, as well as key respondent interviews in this study, suggest that the streams surrounding the Kusilvak Mountains remain unfrozen well into winter, and although travel by snowmachine can be dangerous, this area is a preferred whitefish, pike, and burbot fishing location (0502022VAK10; Godduhn et al. 2020).

By weight, both pike and burbot were mostly harvested using hook and line gear (65% of pike, 83% of burbot) and to a lesser degree using set gillnets in open water (35% of pike, 16% of burbot; Table 3-13). Thirty-five percent of Chevak households used pike during 2021 (Table 3-7). The total harvest of pike was 4,698 lb (22 lb per household, 4 lb per capita). Just over one-fifth of households used burbot, and households reported harvesting 1,905 lb (9 lb per household, 2 lb per capita). Multiple key respondents have observed an increase in pike over the last 20 or so years. One person reasoned that the increase in beavers and the backwater habitats that they create has led to more pike (05052022VAK4). Another key respondent linked the increase in pike to the decline in Chinook salmon populations, citing pike predation on parr (young salmon in the freshwater residence stage):

> [An] old woman was talking about the trawlers and the, talking about the bycatch out in the ocean, and the waste of salmon, the waste of all those bottom fish, the waste of this one. But what she told me was, you know, these people haven't realized that one day I was walking up in the Yukon way, way upriver and I saw little tiny king salmon swimming like this and I moved the ground like that and it went away a little ways and a pike ate it. See those are the kind of thing the State of Alaska needs to also understand is the traditional knowledge of the Eskimo people that depend on the salmon. (05042022VAK2)

In 2021, 287 lb of saffron cod were harvested by 8% of Chevak households (Table 3-7). Although there are no previous studies to which this amount can be compared, the key respondent interviews suggest that this harvest was unusually low. A key respondent described the unusually low harvest of saffron cod as an indication that the climate is changing, rather than having a significant effect on food security:

> Less and less. Even saffron cods, too, man there's no more saffron cods around here. … They just, there's less of everything. Saffron cods, flounders, devilfish, saffron cods, and those are the main things that decreased. Mostly saffron cods, we either get them in the springtime, fall time, now there's hardly any, period. Period. Nothing. Not even this winter, too, on this river, too. Usually fish. Nothing this winter for smelts and saffron cods. … They mostly catch them up north right now, saffron cods. Because it's so warm…The river is warming up around here. 'Cause last year was the really worst conditions of fishing we ever had. (05042022VAK7)

Although the disappearance of saffron cod was concerning to survey respondents and key respondents, other nonsalmon fishes were widely available to and harvested by Chevak residents during the study year.

Figure 3-13 shows locations that Chevak households reported fishing for nonsalmon fishes. People reported harvesting marine nonsalmon fishes in the waters just outside of Hooper Bay, along the Nuvok Spit and areas in Hooper Bay. For freshwater species, fishers used the lower portions of the Keoklevik, Kashunuk, and Aphrewn rivers, including lakes and sloughs connected to each river. Other locations included lakes in the upper Kashunuk River drainage, a section of the Yukon River near the community of Mountain Village, and areas to the south of the Kusilvak Mountains draining into the Black River.

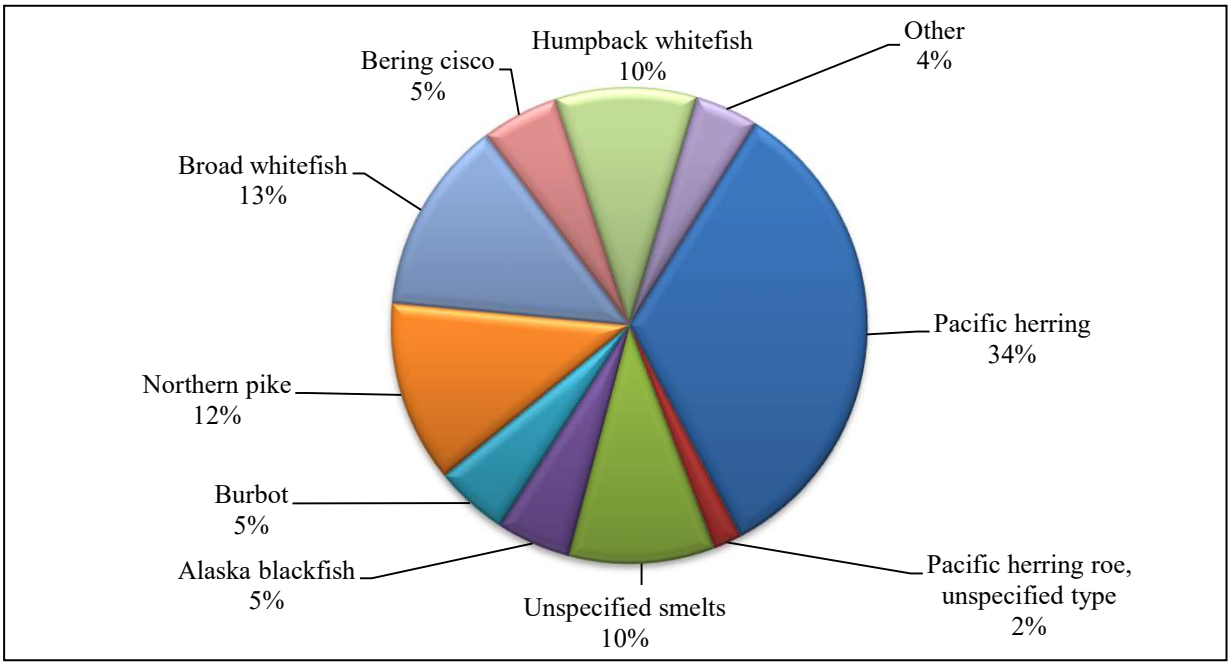


Figure 3-11.–Composition of nonsalmon fish harvest in pounds usable weight, Chevak, Alaska, 2021.

Table 3-12.–Estimated harvest of nonsalmon fish by gear type and resource, Chevak, Alaska, 2021.

			Subsistence methods																			
	Removed from commercial catch		Drift gillnet		Set gillnet		Dip net		Net under ice		Hook under ice		Fish trap		Other gear		Subsistence gear, any method		Rod and reel		Total	
Resource	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb
Nonsalmon fish	**0.0**	**0.0**	**230.3**	**989.8**	**7,228.2**	**23,488.4**	**9.3**	**55.8**	**1,423.6**	**3,343.5**	**139.6**	**139.6**	**191.7**	**1,150.3**	**12.8**	**66.7**	**9,235.4**	**29,234.0**	**3,148.2**	**8,829.6**	**12,383.6**	**38,063.6**
Pacific herring	0.0	0.0	32.6	195.4	1,958.9	11,753.3	0.0	0.0	123.3	739.7	0.0	0.0	0.0	0.0	2.3	14.0	2,117.1	12,702.4	0.0	0.0	2,117.1	12,702.4
Pacific herring roe, unspecified type	0.0	0.0	116.3	697.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	35.0	122.1	732.8	0.0	0.0	122.1	732.8
Unspecified smelts	0.0	0.0	0.0	0.0	23.5	141.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.5	141.0	607.1	3,642.7	630.6	3,783.6
Saffron cod	0.0	0.0	0.0	0.0	128.6	27.0	0.0	0.0	46.5	9.8	0.0	0.0	0.0	0.0	0.0	0.0	175.2	36.8	1,189.6	249.8	1,364.8	286.6
Walleye pollock (whiting)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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 flounders	0.0	0.0	0.0	0.0	4.7	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	5.1	0.0	0.0	4.7	5.1
Pacific halibut	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	139.6	139.6	0.0	0.0	0.0	0.0	139.6	139.6	0.0	0.0	139.6	139.6
Arctic lamprey	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sculpins	0.0	0.0	46.5	23.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	46.5	23.3	0.0	0.0	46.5	23.3
Stickleback (needlefish)	0.0	0.0	0.0	0.0	0.0	0.0	9.3	55.8	0.0	0.0	0.0	0.0	1.2	7.0	0.0	0.0	10.5	62.8	0.0	0.0	10.5	62.8
Alaska blackfish	0.0	0.0	0.0	0.0	73.7	442.0	0.0	0.0	0.0	0.0	0.0	0.0	190.5	1,143.3	2.3	14.0	266.5	1,599.2	51.2	307.0	317.7	1,906.2
Burbot	0.0	0.0	0.0	0.0	74.4	312.6	0.0	0.0	2.3	9.8	0.0	0.0	0.0	0.0	0.0	0.0	76.8	322.4	376.8	1,582.7	453.6	1,905.1
Dolly Varden, unknown type	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Arctic grayling	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Northern pike	0.0	0.0	0.0	0.0	497.8	1,642.7	0.0	0.0	2.3	7.7	0.0	0.0	0.0	0.0	0.0	0.0	500.1	1,650.4	923.5	3,047.4	1,423.6	4,697.8
Sheefish	0.0	0.0	0.0	0.0	20.9	115.1	0.0	0.0	20.9	115.1	0.0	0.0	0.0	0.0	0.0	0.0	41.9	230.3	0.0	0.0	41.9	230.3
Rainbow trout	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	1,217.4	3,895.8	0.0	0.0	355.9	1,138.9	0.0	0.0	0.0	0.0	0.0	0.0	1,573.3	5,034.6	0.0	0.0	1,573.3	5,034.6
Bering cisco	0.0	0.0	0.0	0.0	1,177.4	1,648.4	0.0	0.0	258.2	361.5	0.0	0.0	0.0	0.0	0.0	0.0	1,435.6	2,009.9	0.0	0.0	1,435.6	2,009.9
Least cisco	0.0	0.0	0.0	0.0	509.4	356.6	0.0	0.0	214.0	149.8	0.0	0.0	0.0	0.0	0.0	0.0	723.4	506.4	0.0	0.0	723.4	506.4
Humpback whitefish	0.0	0.0	34.9	73.3	1,357.7	2,851.2	0.0	0.0	348.9	732.7	0.0	0.0	0.0	0.0	0.0	0.0	1,741.5	3,657.2	0.0	0.0	1,741.5	3,657.2
Round whitefish	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	3.3	0.0	0.0	0.0	0.0	0.0	0.0	4.7	3.3	0.0	0.0	4.7	3.3
Unspecified whitefishes	0.0	0.0	0.0	0.0	183.8	297.7	0.0	0.0	46.5	75.4	0.0	0.0	0.0	0.0	2.3	3.8	232.6	376.8	0.0	0.0	232.6	376.8
Unspecified nonsalmon fish	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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.

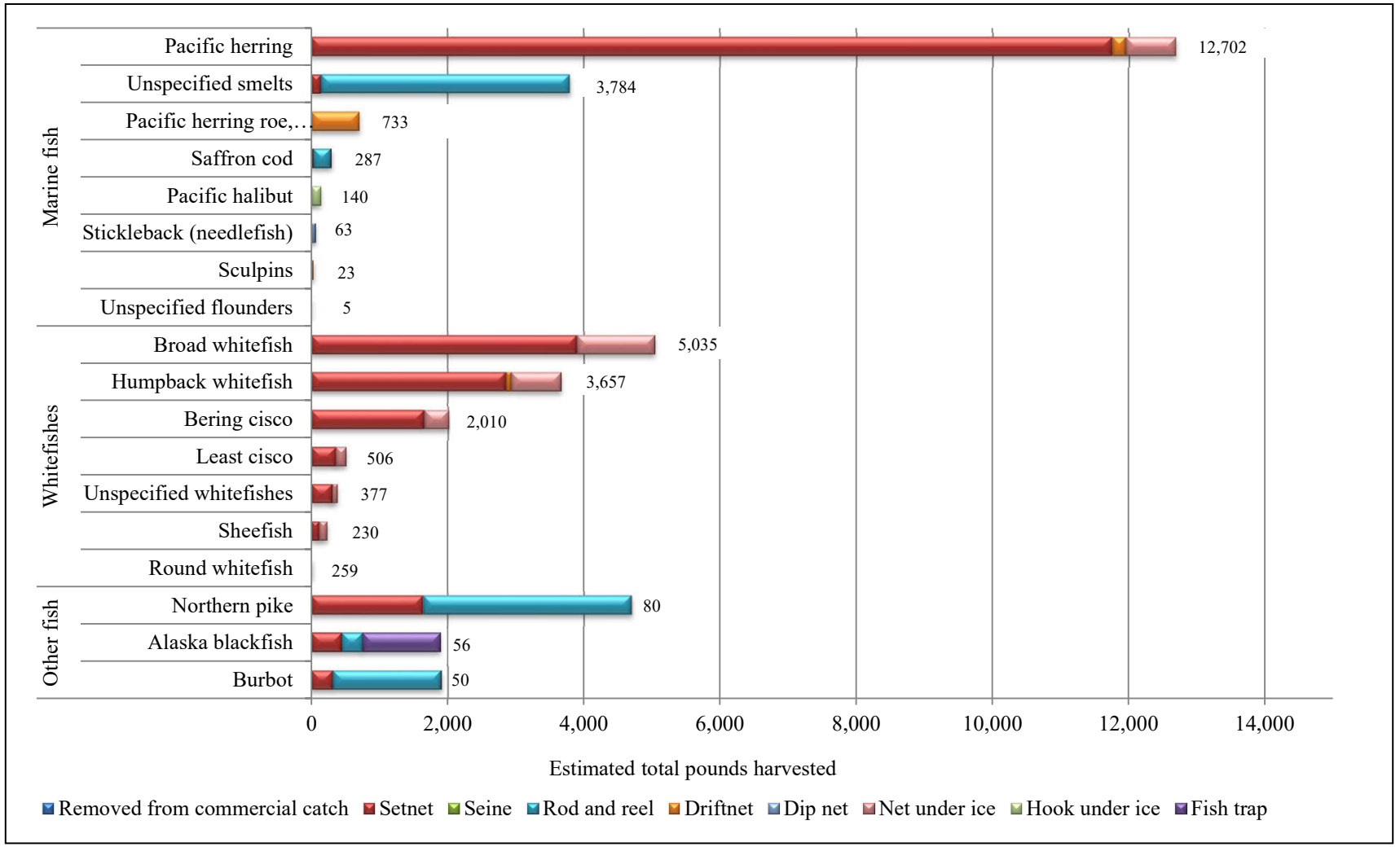


Figure 3-12.–Estimated harvest of nonsalmon fish in pounds usable weight by gear type and resource, Chevak, Alaska, 2021.

Table 3-13.–Estimated percentages of nonsalmon fish harvest in pounds usable weight by gear type, resource, and total nonsalmon fish harvest, Chevak, Alaska, 2021.

				Subsistence methods																			
		Removed from commercial catch		Drift gillnet		Set gillnet		Dip net		Net under ice		Hook under ice		Fish trap		Other gear		Subsistence gear, any method		Rod and reel		Total	
Resource	Percentage base	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb
Nonsalmon fish	**Gear type**	**0.0%**	**0.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
	Resource	**0.0%**	**0.0%**	**1.9%**	**2.6%**	**58.4%**	**61.7%**	**0.1%**	**0.1%**	**11.5%**	**8.8%**	**1.1%**	**0.4%**	**1.5%**	**3.0%**	**0.1%**	**0.2%**	**74.6%**	**76.8%**	**25.4%**	**23.2%**	**100.0%**	**100.0%**
	Total	**0.0%**	**0.0%**	**1.9%**	**2.6%**	**58.4%**	**61.7%**	**0.1%**	**0.1%**	**11.5%**	**8.8%**	**1.1%**	**0.4%**	**1.5%**	**3.0%**	**0.1%**	**0.2%**	**74.6%**	**76.8%**	**25.4%**	**23.2%**	**100.0%**	**100.0%**
Pacific herring	Gear type	0.0%	0.0%	14.1%	19.7%	27.1%	50.0%	0.0%	0.0%	8.7%	22.1%	0.0%	0.0%	0.0%	0.0%	18.2%	20.9%	22.9%	43.5%	0.0%	0.0%	17.1%	33.4%
	Resource	0.0%	0.0%	1.5%	1.5%	92.5%	92.5%	0.0%	0.0%	5.8%	5.8%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.3%	0.5%	15.8%	30.9%	0.0%	0.0%	1.0%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	17.1%	33.4%	0.0%	0.0%	17.1%	33.4%
Pacific herring roe, unspecified type	Gear type	0.0%	0.0%	50.5%	70.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	45.5%	52.5%	1.3%	2.5%	0.0%	0.0%	1.0%	1.9%
	Resource	0.0%	0.0%	95.2%	95.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.8%	4.8%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.9%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	1.0%	1.9%	0.0%	0.0%	1.0%	1.9%
Unspecified smelts	Gear type	0.0%	0.0%	0.0%	0.0%	0.3%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.5%	19.3%	41.3%	5.1%	9.9%
	Resource	0.0%	0.0%	0.0%	0.0%	3.7%	3.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.7%	3.7%	96.3%	96.3%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.2%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.4%	4.9%	9.6%	5.1%	9.9%
Saffron cod	Gear type	0.0%	0.0%	0.0%	0.0%	1.8%	0.1%	0.0%	0.0%	3.3%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	0.1%	37.8%	2.8%	11.0%	0.8%
	Resource	0.0%	0.0%	0.0%	0.0%	9.4%	9.4%	0.0%	0.0%	3.4%	3.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.8%	12.8%	87.2%	87.2%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	1.0%	0.1%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	0.1%	9.6%	0.7%	11.0%	0.8%
Walleye pollock (whiting)	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Unspecified flounders	Gear type	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	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 halibut	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	1.5%	0.5%	0.0%	0.0%	1.1%	0.4%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%	0.4%	0.0%	0.0%	0.0%	0.0%	1.1%	0.4%	0.0%	0.0%	1.1%	0.4%
Arctic lamprey	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

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Table 3-13.–Page 2 of 3.

				Subsistence methods																			
		Removed from commercial catch		Drift gillnet		Set gillnet		Dip net		Net under ice		Hook under ice		Fish trap		Other gear		Subsistence gear, any method		Rod and reel		Total	
Resource	Percentage base	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb
Sculpins	Gear type	0.0%	0.0%	20.2%	2.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.1%	0.0%	0.0%	0.4%	0.1%
	Resource	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.1%	0.0%	0.0%	0.4%	0.1%
Stickleback (needlefish)	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.6%	0.0%	0.0%	0.1%	0.2%	0.0%	0.0%	0.1%	0.2%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	88.9%	88.9%	0.0%	0.0%	0.0%	0.0%	11.1%	11.1%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%	0.0%	0.0%	0.1%	0.2%
Alaska blackfish	Gear type	0.0%	0.0%	0.0%	0.0%	1.0%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.4%	99.4%	18.2%	20.9%	2.9%	5.5%	1.6%	3.5%	2.6%	5.0%
	Resource	0.0%	0.0%	0.0%	0.0%	23.2%	23.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	60.0%	60.0%	0.7%	0.7%	83.9%	83.9%	16.1%	16.1%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.6%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%	3.0%	0.0%	0.0%	2.2%	4.2%	0.4%	0.8%	2.6%	5.0%
Burbot	Gear type	0.0%	0.0%	0.0%	0.0%	1.0%	1.3%	0.0%	0.0%	0.2%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	1.1%	12.0%	17.9%	3.7%	5.0%
	Resource	0.0%	0.0%	0.0%	0.0%	16.4%	16.4%	0.0%	0.0%	0.5%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.9%	16.9%	83.1%	83.1%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.6%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.8%	3.0%	4.2%	3.7%	5.0%
Dolly Varden, unknown type	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Arctic grayling	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Northern pike	Gear type	0.0%	0.0%	0.0%	0.0%	6.9%	7.0%	0.0%	0.0%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.4%	5.6%	29.3%	34.5%	11.5%	12.3%
	Resource	0.0%	0.0%	0.0%	0.0%	35.0%	35.0%	0.0%	0.0%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	35.1%	35.1%	64.9%	64.9%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	4.0%	4.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.0%	4.3%	7.5%	8.0%	11.5%	12.3%
Sheefish	Gear type	0.0%	0.0%	0.0%	0.0%	0.3%	0.5%	0.0%	0.0%	1.5%	3.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.8%	0.0%	0.0%	0.3%	0.6%
	Resource	0.0%	0.0%	0.0%	0.0%	50.0%	50.0%	0.0%	0.0%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.2%	0.3%	0.0%	0.0%	0.2%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.6%	0.0%	0.0%	0.3%	0.6%
Rainbow trout	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Broad whitefish	Gear type	0.0%	0.0%	0.0%	0.0%	16.8%	16.6%	0.0%	0.0%	25.0%	34.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	17.0%	17.2%	0.0%	0.0%	12.7%	13.2%
	Resource	0.0%	0.0%	0.0%	0.0%	77.4%	77.4%	0.0%	0.0%	22.6%	22.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	9.8%	10.2%	0.0%	0.0%	2.9%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.7%	13.2%	0.0%	0.0%	12.7%	13.2%

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Table 3-13.–Page 3 of 3.

		Subsistence methods																					
		Removed from commercial catch		Drift gillnet		Set gillnet		Dip net		Net under ice		Hook under ice		Fish trap		Other gear		Subsistence gear, any method		Rod and reel		Total	
Resource	Percentage base	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb	No.	Lb
Bering cisco	Gear type	0.0%	0.0%	0.0%	0.0%	16.3%	7.0%	0.0%	0.0%	18.1%	10.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	15.5%	6.9%	0.0%	0.0%	11.6%	5.3%
	Resource	0.0%	0.0%	0.0%	0.0%	82.0%	82.0%	0.0%	0.0%	18.0%	18.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	9.5%	4.3%	0.0%	0.0%	2.1%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.6%	5.3%	0.0%	0.0%	11.6%	5.3%
Least cisco	Gear type	0.0%	0.0%	0.0%	0.0%	7.0%	1.5%	0.0%	0.0%	15.0%	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.8%	1.7%	0.0%	0.0%	5.8%	1.3%
	Resource	0.0%	0.0%	0.0%	0.0%	70.4%	70.4%	0.0%	0.0%	29.6%	29.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	4.1%	0.9%	0.0%	0.0%	1.7%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.8%	1.3%	0.0%	0.0%	5.8%	1.3%
Humpback whitefish	Gear type	0.0%	0.0%	15.2%	7.4%	18.8%	12.1%	0.0%	0.0%	24.5%	21.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	18.9%	12.5%	0.0%	0.0%	14.1%	9.6%
	Resource	0.0%	0.0%	2.0%	2.0%	78.0%	78.0%	0.0%	0.0%	20.0%	20.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.3%	0.2%	11.0%	7.5%	0.0%	0.0%	2.8%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.1%	9.6%	0.0%	0.0%	14.1%	9.6%
Round whitefish	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	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%	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	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 whitefishes	Gear type	0.0%	0.0%	0.0%	0.0%	2.5%	1.3%	0.0%	0.0%	3.3%	2.3%	0.0%	0.0%	0.0%	0.0%	18.2%	5.7%	2.5%	1.3%	0.0%	0.0%	1.9%	1.0%
	Resource	0.0%	0.0%	0.0%	0.0%	79.0%	79.0%	0.0%	0.0%	20.0%	20.0%	0.0%	0.0%	0.0%	0.0%	1.0%	1.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%
	Total	0.0%	0.0%	0.0%	0.0%	1.5%	0.8%	0.0%	0.0%	0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	1.0%	0.0%	0.0%	1.9%	1.0%
Unspecified nonsalmon fish	Gear type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Resource	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	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.

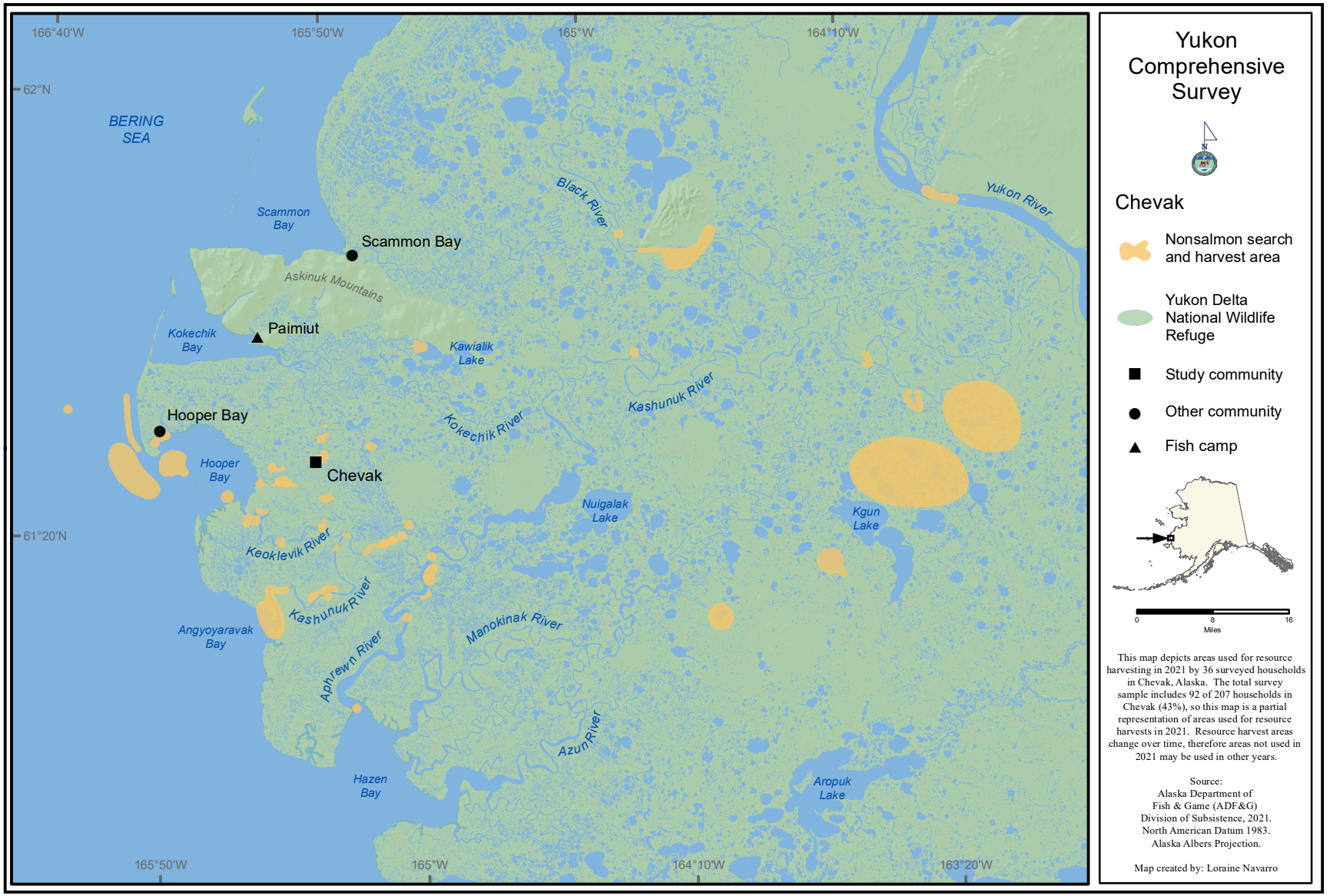


Figure 3-13.–Nonsalmon fishing and harvest locations, Chevak, Alaska, 2021.

Large Land Mammals

Most households in Chevak used large land mammals during the study year (89%), although just over a quarter harvested large land mammals (27%; Table 3-7). Chevak households harvested moose but received other large land mammals from households outside the community (Table 3-7). Unlike other resources, the percentage of households receiving moose (68%) was more than twice the percentage that reported giving moose (28%), indicating that a small number of households shared with many households, that moose was also received from outside the community, or some combination of both. In total, people harvested an estimated 71 moose, which yielded 37,956 lb of edible weight (177 lb per household, 35 lb per capita). Small percentages of households used other large land mammals, including muskoxen (7%), black bears (2%), and caribou (2%), all received from other sources.

During the study year, households had relatively high success rates for moose; 30% of households attempted and 27% successfully harvested one or more moose. When searching for moose, hunters travel by boats on river systems during the fall or by snowmachines during winter (05052022VAK6). Eighty percent of the moose harvested by Chevak hunters were taken during the month of September (Table 3-14). The remaining 20% were harvested in the winter months—January, February, and December—of 2021. Key respondents reported that during fall hunts, Chevak hunters sometimes base their hunting operations from a fish or berry camp, but others just camp on gravel bars or in their boats (05052022VAK6). Although most hunters search for moose within a few hours' boat ride from Chevak, some people reported traveling over 10 hours to the Yukon River near Pilot Station to search for moose (05092022VAK8). Hunters can take a few days to multiple weeks for moose hunting, depending on factors such as costs, time away from home or work, and preferred hunting strategy (i.e., day trips versus camping overnight).

Hunting areas for moose were concentrated in the Kashunuk, Keoklevik, and Ninglikfak rivers (Figure 3-14). Households reported hunting for moose near the community, down the Ninglikfak River, along the coast of Hooper Bay to the Keoklevik River, and upstream to its confluence with the Kashunuk River. From there, search and harvest areas widen to include nearby lakes and upstream of Nuigalak Lake to Kashunuk Slough near its connection to the Yukon River.

Moose are relatively new to the Chevak area, and people first started harvesting them in the 1990s. Wildfires in Interior Alaska have been pushing moose closer to the coast, so people are seeing more of them (01002022HPB4). One key respondent mentioned that he had recently observed over 20 moose at his camp on the Kashunuk River. A locally proposed harvest moratorium from YEAR to YEAR, according to key respondents, has contributed to high numbers of moose in the area. Since then, the number of moose in the Y-K Delta has steadily increased (05052022VAK10). A key respondent also described an increase in the local black bear population in his lifetime of nearly 70 years (05052022VAK4), while another observed that, because black bears are relatively new to the area, few people try to hunt for them (05052022VAK3).

Table 3-14.–Estimated large land mammal harvests by month and sex, Chevak, Alaska, 2021.

Resource	Estimated harvest by month													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Unk	**Total**
All large land mammals	**2.4**	**4.7**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**56.4**	**0.0**	**0.0**	**7.1**	**0.0**	**70.5**
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	0.0	0.0	0.0	**0.0**
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**
Caribou, male	0.0	0.0	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, 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**
Moose	2.4	4.7	0.0	0.0	0.0	0.0	0.0	0.0	56.4	0.0	0.0	7.1	0.0	**70.5**
Moose, male	2.4	2.4	0.0	0.0	0.0	0.0	0.0	0.0	42.3	0.0	0.0	0.0	0.0	**47.0**
Moose, female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.1	0.0	0.0	7.1	0.0	**14.1**
Moose, unknown sex	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	7.1	0.0	0.0	0.0	0.0	**9.4**
Common muskox	0.0	0.0	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.

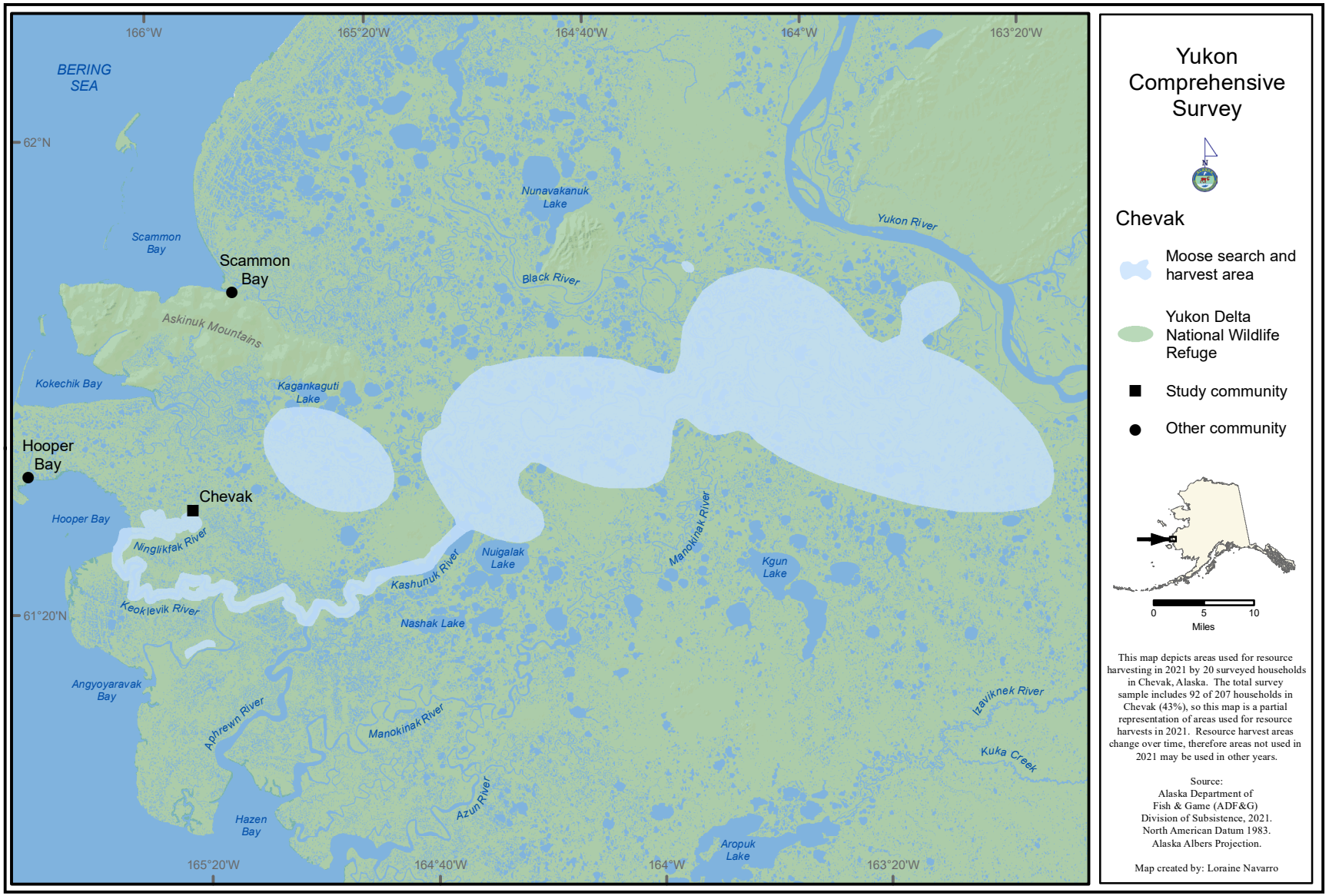


Figure 3-14.–Hunting locations of moose, Chevak, Alaska, 2021.

Small Land Mammals/Furbearers

Use of small land mammals and furbearers was generally low among Chevak households, and most households did not share what they harvested (Table 3-7). By number of animals, harvests of small land mammals were made up of mink (24%), river otters and muskrats (21% each), snowshoe hares (18%), beavers and red foxes (7% each), and Arctic foxes (3%; Figure 3-15). Hunters harvested all mink in February, all muskrats in May, and the majority of Arctic foxes, red foxes, and river otters in January (Table 3-15). Most snowshoe hares were harvested in February. Key respondent interviews indicated that since the early 1970s, beavers have been increasingly abundant in the Yukon River delta (05052022VAK4). A key respondent also noted that "[the] beavers came around, and then the pikes came around, did their thing and … the pikes, they ate up all the … least cisco" (05052022VAK4). Trapping used to be a common practice, but very few Chevak households trap small land mammals today (05052022VAK4). Figure 3-16 shows the numbers of small land mammals used for fur as well as those used for food. People harvested small land mammals mostly for fur only; exceptions included beavers, snowshoe hares, river otters, and muskrats, all of which were also used for food.

Figure 3-17 shows search and harvest areas for small land mammals. Chevak households reported using an area in the middle Kokechik River, to the southwest of Kagankaguti and Kawialik lakes. People also harvested small land mammals to the east of the community, just north of the confluence of the Keoklevik and Kashunuk rivers. Areas that appear to represent traplines were located directly south of Chevak, near the lower Keoklevik River, and northeast of the community paralleling the Kokechik River.

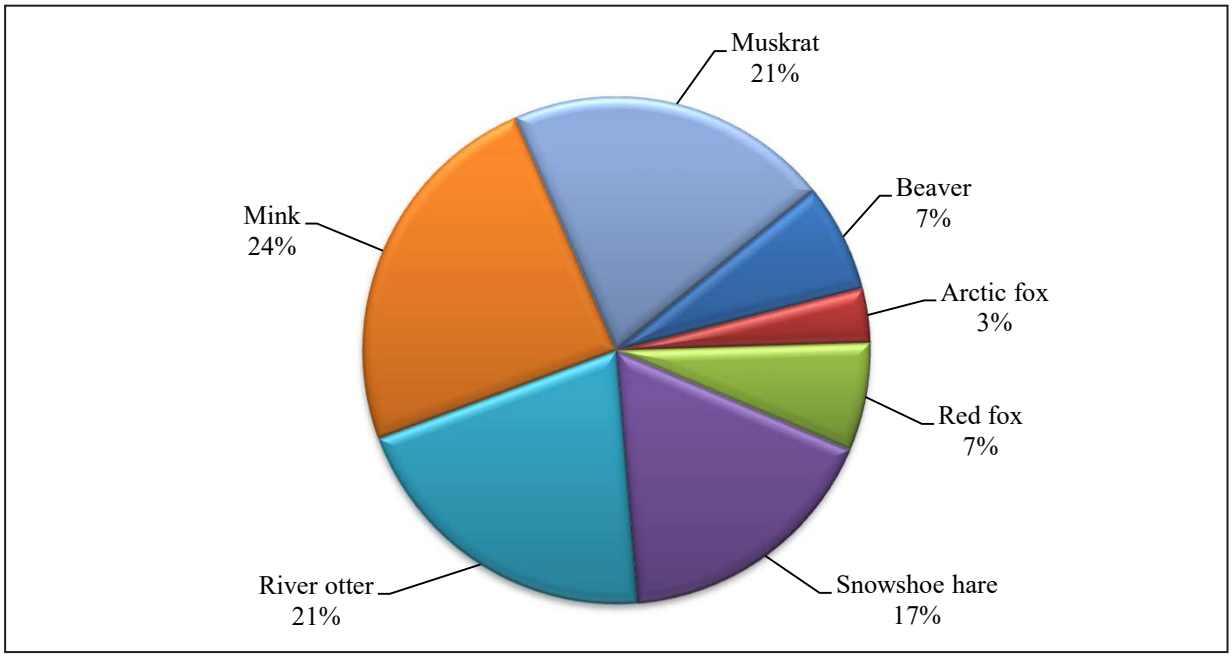


Figure 3-15.–Composition of small land mammal/furbearer harvest by individual animals harvested, Chevak, Alaska, 2021.

Table 3-15.–Estimated small land mammal/furbearer harvests by month, Chevak, Alaska, 2021.

Resource	Estimated harvest by month													Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Unk	
All small land mammals	**21.2**	**21.2**	**0.0**	**0.0**	**16.5**	**0.0**	**0.0**	**4.7**	**0.0**	**0.0**	**0.0**	**2.4**	**2.4**	**68.2**
Beaver	0.0	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	**4.7**
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**
Arctic fox	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**2.4**
Red fox	2.4	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	**4.7**
Alaska 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**
Snowshoe hare	4.7	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**11.8**
River otter	11.8	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	**14.1**
Lynx	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Mink	0.0	14.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	**16.5**
Muskrat	0.0	0.0	0.0	0.0	14.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**14.1**
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**
Gray wolf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Wolverine	0.0	0.0	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.

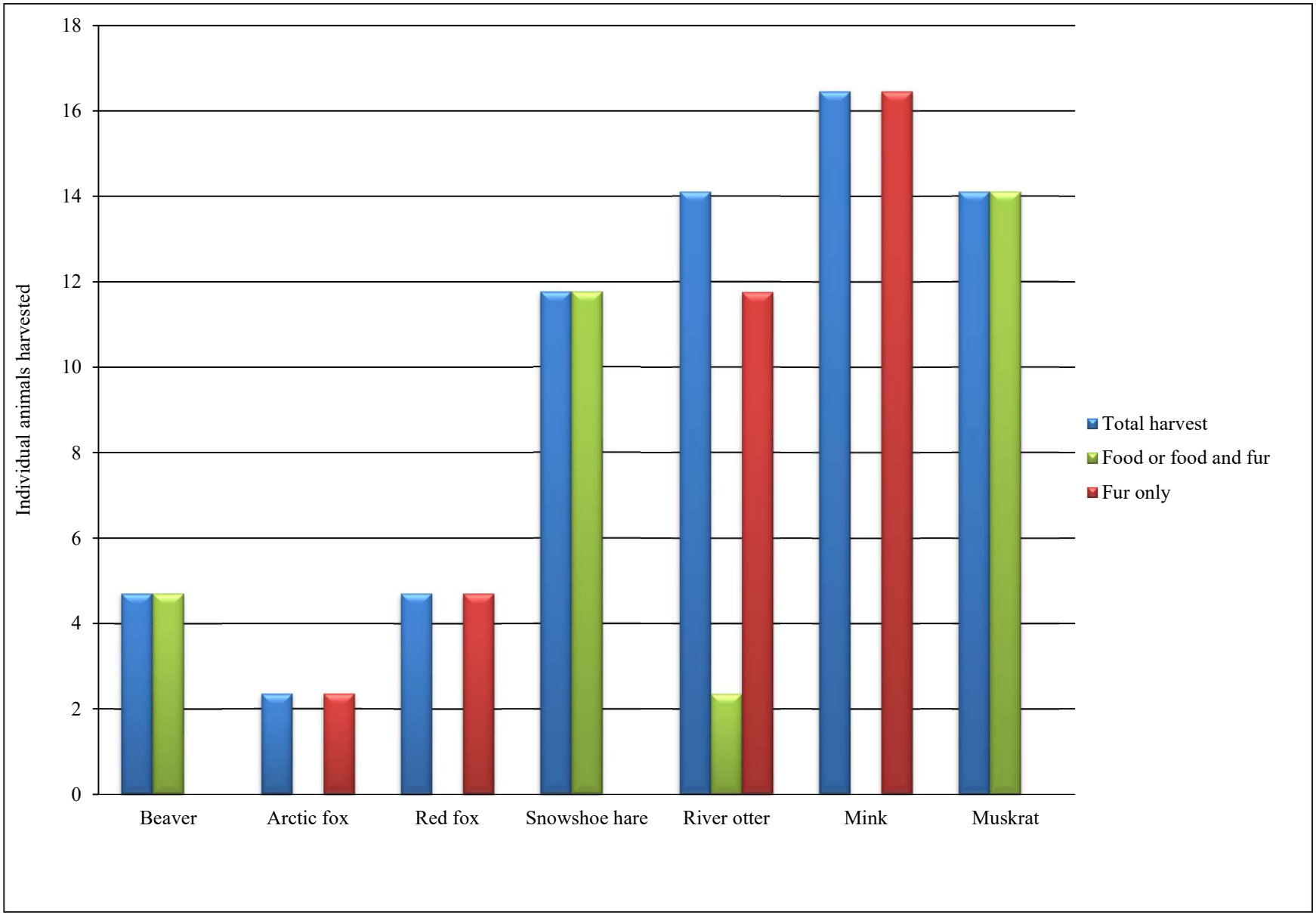


Figure 3-16.–Estimated small land mammal/furbearer harvests for fur and food only, Chevak, Alaska, 2021.

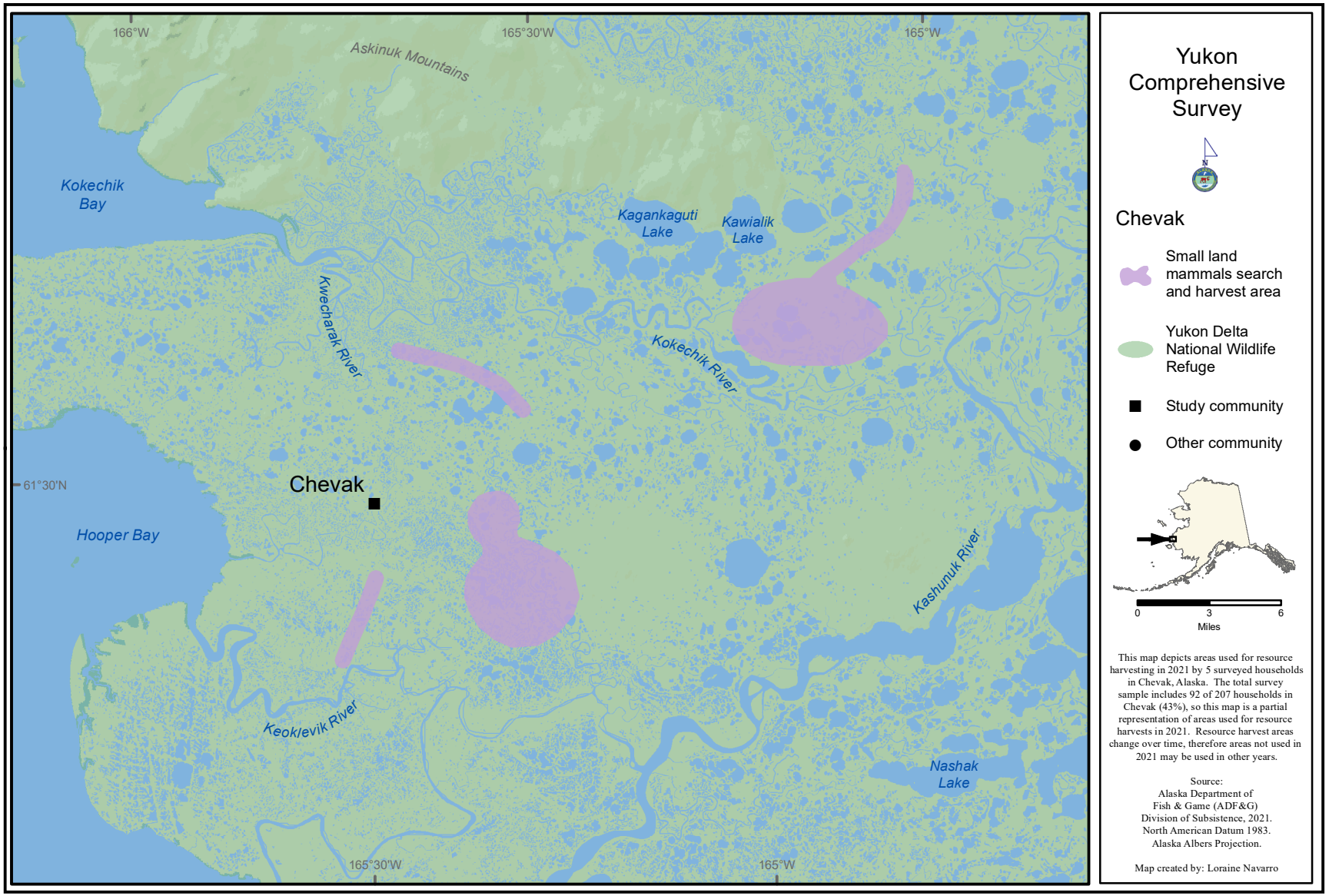


Figure 3-17.–Hunting and trapping locations of small land mammals, Chevak, Alaska, 2021.

Marine Mammals

Marine mammals, including seals and beluga whales, accounted for more wild food by weight (41%) for Chevak residents than any other resource category. Eighty-eight percent of households reported using marine mammals during the study year, and 75% of households received marine mammal resources from other households, indicating a high degree of sharing of marine mammal harvests (Table 3-7). The most commonly used marine mammal resources were beluga whale (63% of households), bearded seal (48%), and ringed seal (46%). Just under a third of households used walrus, but only 3% of Chevak households harvested walrus, indicating that for most households, walrus meat was mostly received through sharing. A total of 94,289 lb of marine mammals were harvested in 2021. By edible weight, bearded seals made up the largest proportion of harvests (40%), followed by beluga whales (37%), ringed seals (13%), spotted seals (6%), walrus (4%), and unspecified seals (<1%; Figure 3-18). Marine mammal search and harvest areas are shown in Figure 3-19. Hunters reported hunting for marine mammals up to 30 miles offshore in the Bering Sea, including Hooper Bay, Angyoyaravak Bay, and just south of Hazen Bay. Hunters also used the Ninglikfak, Keoklevik, and Kashunuk rivers to hunt for marine mammals.

A majority of households in Chevak used beluga whales (63%), although only 12% harvested them (Table 3-7). Fifty-three percent of households received beluga whales, and 16% gave beluga whale resources. The total harvest of beluga whales was 35,098 lb (164 lb per household, 33 lb per capita). However, the estimates from the survey were substantially higher (35 beluga whales) than the amount that key respondents recalled being harvested during the study year (about 5 whales). Households that successfully harvested beluga whales may have been overrepresented in the survey sample, resulting in an overestimate of the total number of beluga whales harvested in the community. Hunters harvested beluga whales primarily in May, but also to a lesser extent in March, April, and August through November (Table 3-16).

Nearly half of Chevak households (48%) used bearded seal in 2021, which was more than other seal species (Table 3-7). On average, people harvested 178 lb per household or 36 lb per capita in 2021, for a total of 38,089 lb. In interviews, key respondents described hunting bearded seals and other seals in a variety of ways: alone or in groups of two to six hunters, from a boat during the open water period, or on top of the ice during the winter (05052022VAK5). Unpredictable patterns of nearshore sea ice have made hunting from the ice more challenging in recent years (05042022VAK7). Bearded seal migration patterns and timing follow the extent of sea ice throughout the year, and because sea ice recedes earlier and more quickly, the temporal window for harvesting bearded seals shrinks. Just over a third of bearded seals were harvested in the month of April (36%), followed by September and October (22% and 25%, respectively; Table 3-16). When hunting from a boat during the open water period, a hunter generally seeks to wound the seal first so that it does not immediately sink (05052022VAK5). Hunters must use their judgment and skills to avoid losing a seal in the water. Bearded seals are much larger than other species of seal and are preferred for making seal oil. As described by a key respondent, Chevak residents make seal oil by placing large pieces of blubber in a five-gallon bucket and letting the oil render naturally at room temperature (05052022VAK3). Seal oil is used in numerous traditional food preparations, including *akutaq* (seal oil or whipped fat mixed with berries, sometimes with flaked fish) and *arumarrluk* (poke fish), both which are highly prized and nutritious foods: “seal oil is a big part of our diet. It’s just a good source of fat and omega-3 or something good. It’s something good about seal oil that gives you strength” (05052022VAK3).

Key respondents described ringed seals as smaller than bearded seals, but still preferred over ribbon seals or spotted seals (05092022VAK8). Chevak residents harvested over 200 ringed seals, for a total harvest of 11,796 lb—second to bearded seals in terms of harvest by edible weight (average 55 lb per household, 11 lb per capita). People commonly harvest ringed seals for food and for their skins, which are then used for making traditional clothing or art. A key respondent who shares her skins with dollmakers in Chevak said drying skins is challenging because of the dust from all-terrain vehicles, and because dogs tend to eat skins if they are left outside (05092022VAK8).

Although 32% of households used walrus in 2021, few households harvested walrus (3%; Table 3-7) but 28% of households received walrus from other households. In 2021, the total harvest of walrus was 3,622 lb, equating to 17 lb per household and 3 lb per capita. People harvested walrus in April and May

only (Table 3-19). Elders prize certain organs, but younger people generally eat only the skin and meat (05052022VAK4).

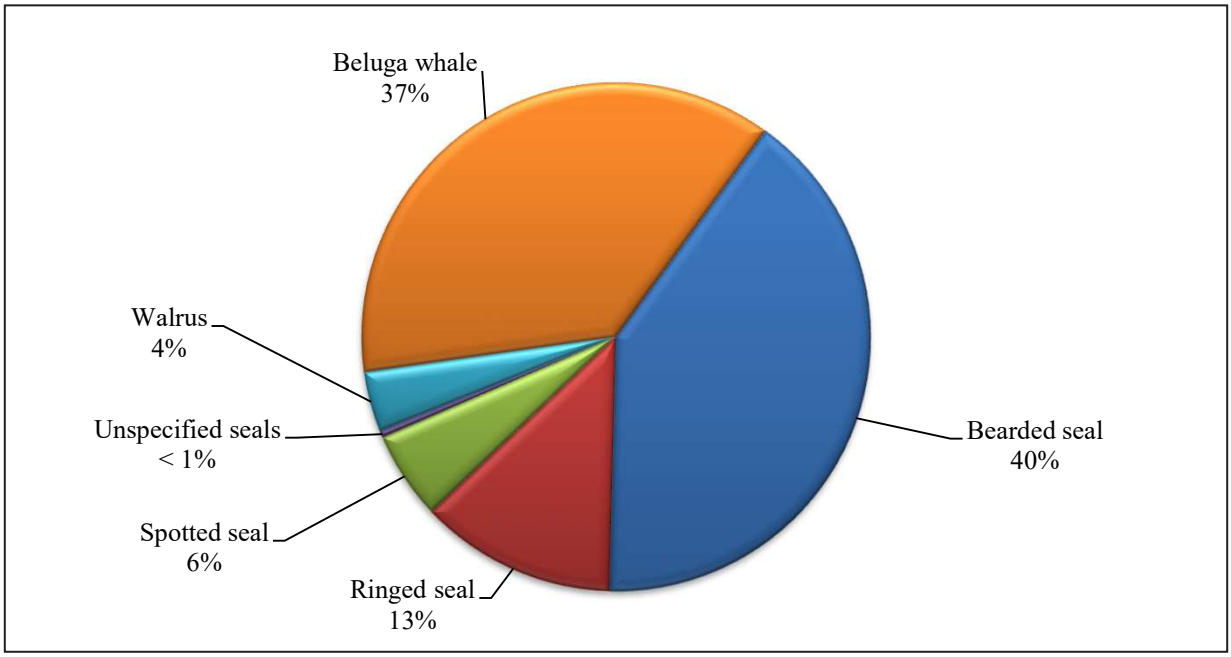


Figure 3-18.–Composition of marine mammal harvest in pounds usable weight, Chevak, Alaska, 2021.

Table 3-16.–Estimated marine mammal harvests by month and sex, Chevak, Alaska, 2021.

Resource	Estimated harvest by month													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Unk	**Total**
All marine mammals	**0.0**	**0.0**	**40.0**	**136.4**	**49.4**	**7.1**	**30.6**	**23.5**	**28.2**	**40.0**	**9.4**	**0.0**	**4.7**	**369.2**
Bearded seal	0.0	0.0	4.7	30.6	0.0	0.0	0.0	0.0	18.8	21.2	7.1	0.0	2.3	**84.6**
Bearded seal, male	0.0	0.0	4.7	23.5	0.0	0.0	0.0	0.0	14.1	14.1	0.0	0.0	0.0	**56.4**
Bearded seal, female	0.0	0.0	0.0	4.7	0.0	0.0	0.0	0.0	4.7	2.4	0.0	0.0	0.0	**11.8**
Bearded seal, unknown sex	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	4.7	7.1	0.0	2.3	**16.4**
Ribbon seal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Ringed seal	0.0	0.0	28.2	98.8	28.2	4.7	21.2	11.8	0.0	14.1	0.0	0.0	0.0	**206.9**
Spotted seal	0.0	0.0	4.7	0.0	2.4	2.4	9.4	7.1	7.1	0.0	0.0	0.0	2.4	**35.3**
Unspecified seals	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**2.3**
Walrus	0.0	0.0	0.0	2.4	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**4.7**
Beluga whale	0.0	0.0	2.4	2.4	16.5	0.0	0.0	4.7	2.4	4.7	2.4	0.0	0.0	**35.3**

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



Figure 3-19.–Hunting locations of marine mammals, Chevak, Alaska, 2021.

Birds and Eggs

Birds and eggs were used by 93% of households and were harvested by over two-thirds of households (Table 3-7). All households that attempted to harvest birds and eggs were successful, which indicates that birds and eggs are relatively accessible to Chevak residents. Just under half of households received (48%) birds and eggs, and 43% gave birds and eggs. The most commonly used bird resources were unspecified goose eggs (80% of households), greater white-fronted goose (65%), and unspecified Canada/cackling geese (60%).

The total harvest of birds and eggs was 19,496 lb, and the largest proportions of edible weight comprised unspecified goose eggs (20%), greater white-fronted geese (19%), unspecified gull eggs (15%), and brant (11%; Table 3-7; Figure 3-20). The remainder included other birds and eggs, such as ducks, sandhill cranes, swans, and ptarmigans, each of which contributed less than 10% to the total harvest by weight.

Chevak households used geese and goose eggs more commonly than they used other types of birds and eggs. In total, Chevak households harvested 3,943 lb of unspecified goose eggs and a similar edible weight of greater white-fronted geese (3,751 lb). Geese are commonly harvested in spring, and to a lesser extent during fall, as they migrate north and south, respectively (Table 3-17). A key respondent shared that even though he hunts waterfowl during both seasons, he hunts according to his taste preferences:

> The spring when they are flying here you could probably taste a difference [between the two seasons], right there, because, you know how the muscle, their muscle, as soon as they're flying here, there'll be quite a different taste [compared to] when they're fat and up, flying here to down states. (05052022VAK5)

The most common duck species used by Chevak households were mallards and northern pintails (27% each; Table 3-7). Less than 10% of households reported giving or receiving either species of duck. Table 3-17 shows bird harvests by month. Chevak hunters harvest ducks in the spring and fall, with the majority of harvest occurring in the fall. People also hunt for ducks while at fish camp (05052022VAK5) or out hunting another species:

> It's hunting. And all the migratory birds are going out and you come across a seal. You wouldn't mind getting a little bit of seal with your duck. Or geese. Or clams, whatever. I enjoy my foods. (05052022VAK3)

Chevak households harvested an estimated total of 8,090 lb of bird eggs. A large majority of households used eggs, but relatively few households received or shared eggs. Bird eggs are harvested in spring when the snow has melted, and nests are visible on the landscape. Key respondents described harvesting any kind of bird eggs that were available, and the survey results show that the largest harvests were of unspecified goose eggs (3,943 lb total), followed by unspecified gull eggs (2,863 lb total), and unspecified duck eggs (951 lb total). One key respondent described the abundance of birds and eggs on the flats outside of Chevak and Hooper Bay:

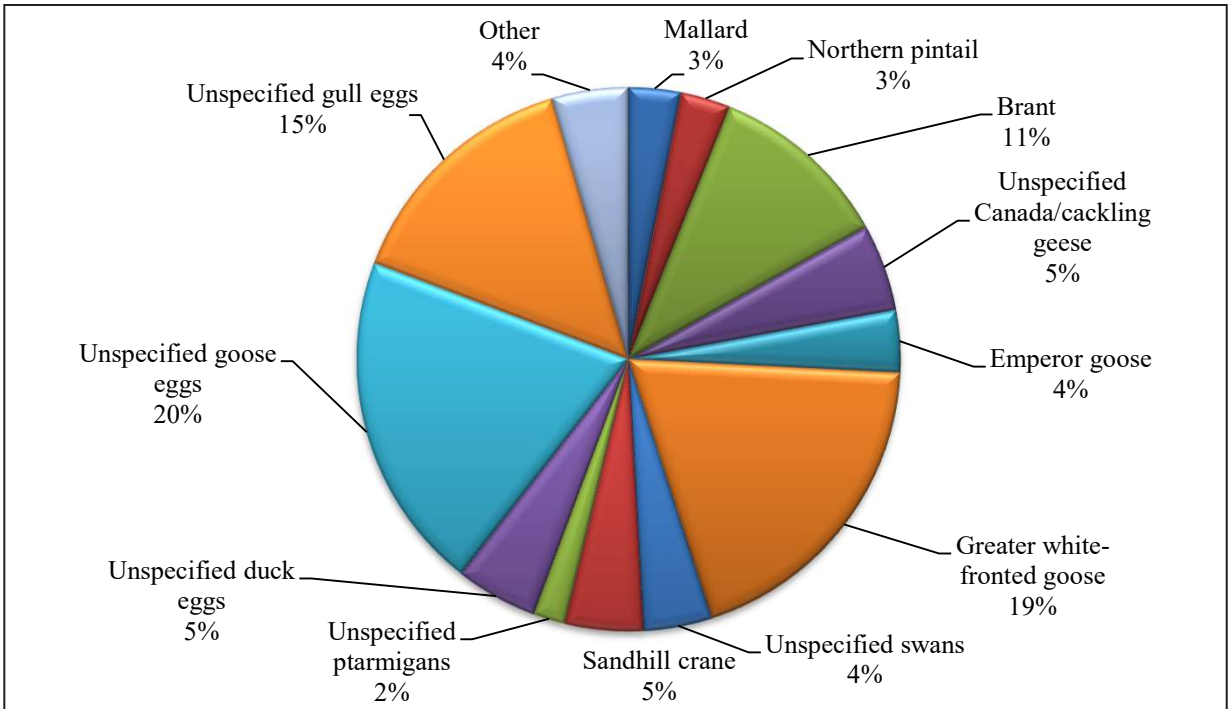
> Summertime, birds. 'Cause they're just, this area, nothing but birds there, I tell you …'Cause I tell you, man, just, when you are walking you can find eggs, eggs, eggs, eggs, eggs, eggs, eggs. One right next to each other. This whole area right here. This whole area right here. (05042022VAK7)

Most bird and egg harvesting areas are located within about 20 miles of the community of Chevak (Figure 3-21). During the data review meeting, a Chevak bird hunter explained that any location that is accessible by foot, snowmachine, or all-terrain vehicle is used for day trips to hunt birds or gather eggs. The survey data generally support this observation: Chevak households reported using a large area from north of Hooper Bay to south of Chevak, as far as the Aphrewn River. Households reported harvesting ducks, geese, and other birds, such as swans and cranes, in an area that extends from the Kashunuk River in the south, and along the Bering Sea coast from Angyoyaravak Bay to Kokechik Bay (Figure 3-21). Additional duck and goose search and harvest areas include the lakes bordering the lower Kokechik River, and the middle

Table 3-17.–Estimated bird harvests by season, Chevak, Alaska, 2021.

Resource	Estimated harvest by season					
	Spring	Summer	Fall	Winter	Season unknown	**Total**
All birds	**2,915.0**	**25.9**	**1,174.5**	**75.3**	**2.3**	**4,192.92**
Bufflehead	0.0	0.0	0.0	0.0	0.0	**0.0**
Common eider	35.3	0.0	0.0	0.0	0.0	**35.3**
King eider	134.0	0.0	0.0	0.0	0.0	**134.0**
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	18.8	0.0	0.0	**18.8**
Harlequin duck	0.0	0.0	0.0	0.0	0.0	**0.0**
Mallard	4.7	23.5	283.0	0.0	0.0	**311.2**
Long-Tailed duck	0.0	0.0	0.0	0.0	0.0	**0.0**
Northern pintail	94.1	0.0	263.9	11.8	0.0	**369.8**
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	9.4	0.0	0.0	**9.4**
Unspecified teals	4.7	0.0	138.7	0.0	0.0	**143.5**
American wigeon	28.2	0.0	61.1	0.0	0.0	**89.4**
Unspecified ducks	0.0	0.0	27.9	0.0	0.0	**27.9**
Brant	329.2	0.0	23.5	0.0	0.0	**352.7**
Unspecified canada/cackling geese	718.1	0.0	108.2	11.8	0.0	**838.0**
Emperor goose	275.1	0.0	14.1	0.0	0.0	**289.3**
Snow goose	4.7	0.0	0.0	0.0	0.0	**4.7**
Greater white-fronted goose	684.8	0.0	171.7	28.2	0.0	**884.7**
Unspecified geese	0.0	0.0	0.0	0.0	0.0	**0.0**
Unspecified swans	21.2	0.0	25.9	0.0	0.0	**47.0**
Sandhill crane	84.7	0.0	23.5	0.0	0.0	**108.2**
Unspecified shorebirds	0.0	0.0	0.0	0.0	0.0	**0.0**
Unspecified loons	0.0	0.0	0.0	0.0	0.0	**0.0**
Unspecified seabirds	0.0	0.0	0.0	0.0	0.0	**0.0**
Unspecified grouses	0.0	0.0	0.0	0.0	0.0	**0.0**
Unspecified ptarmigans	496.2	2.4	4.7	23.5	2.3	**529.1**

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



Note The "other" category includes species providing less than 1.5% each to the per capita harvest.

Figure 3-20.–Composition of bird and bird egg harvest in pounds usable weight, Chevak, Alaska, 2021.

Kokechik River, just north of Ingrisarak Mountain. Chevak households reported hunting for ptarmigans and grouses in an approximately 10-mile radius around the community.

To ensure a sustainable harvest, when gathering eggs, people typically leave one or two in the nest. Because eggs are generally plentiful, people observed that egg harvests are driven by household need and not availability. Two key respondents described their approach to collecting eggs, stating that some people freeze their bird eggs, but that it is common to also harvest just enough to eat them fresh (05092022VAK8).

Marine Invertebrates

Unspecified clams were the only resource used in this category (Table 3-7). Clams were used by 60%, harvested by 37%, received by 33%, and given away by 22% of households in Chevak. All households that attempted to harvest clams were successful, and they harvested a total of 147 lb of clams. Although clams are typically easy to harvest, over time clams have moved away from high-traffic areas near Chevak and Hooper Bay (05052022VAK10). Chevak households reported harvesting clams along the coasts of Hazen, Angyoyaravak, and Hooper bays. In Hooper Bay, clam search and harvest areas were both along the coast near the mouth of the Keoklevik River, and in the tidal flats just off the coast (Figure 3-22).

Vegetation

More households used vegetation than any other resource category (96%; Table 3-7). Similarly, more households harvested vegetation than any other resource category (83%). The total edible vegetation harvest amounted to 18,179 lb (85 lb per household,17 lb per capita) and was composed of 92% berries and 8% other plants (Figure 3-23). In total, households harvested 12,178 lb of cloudberries, 3,023 lb of crowberries, and 1,059 lb of blueberries. The mean household cloudberry harvest was 57 lb (11 lb per capita) or 14 gallons. For crowberries, households harvested on average 14 lb (3 lb per capita) or 4 gal. The mean household blueberry harvest was 5 lb (1 lb per capita) or just over 1 gal. People harvested other berries, such as highbush cranberries, lowbush cranberries, and nagoonberries, and other plants in smaller quantities.

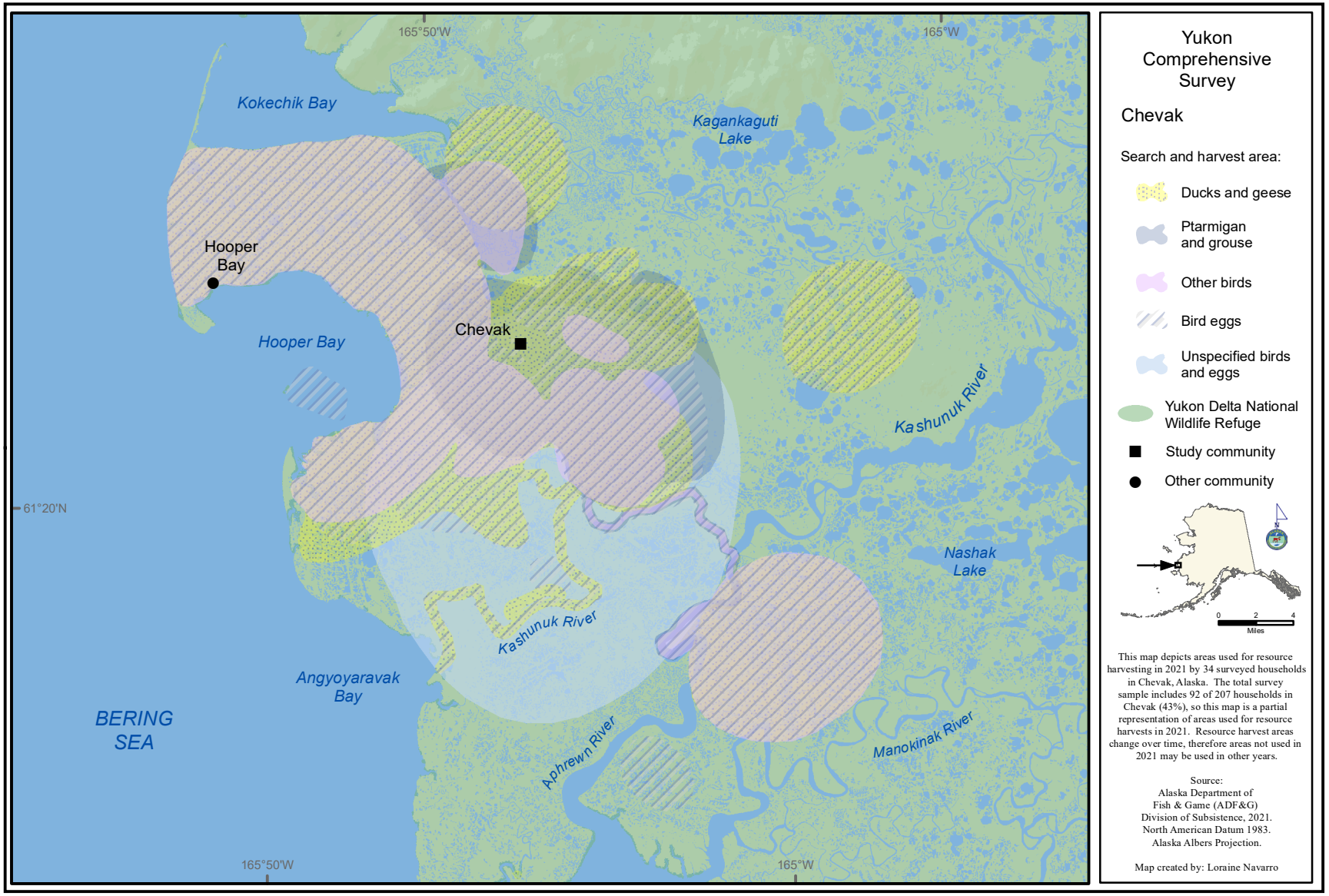


Figure 3-21.–Hunting and harvest locations of birds and eggs, Chevak, Alaska, 2021.



Figure 3-22.–Search and harvest locations of marine invertebrates, Chevak, Alaska, 2021.

Chevak residents described spending weeks at berry camps, which were often distant locations annually visited specifically to pick berries. One respondent explained that people determine whether or not berries were ready by sending someone to berry camp and noting whether bear sign is evident around berry patches (05052022VAK4). If bears are close, the berries are nearly ready. Camps are located throughout the area surrounding Chevak, and several camps are located on the Aphrewn and Manokinak rivers (05052022VAK10). Some key respondents reported primarily or solely harvesting berries at camp, while others transitioned to moose hunting or fall whitefish fishing from berry camp after the berries had been harvested (05092022VAK8). Berries are frozen in plastic bags and are used for making *akutaq* or other dishes.

Other plants that were commonly used include Pallas' buttercup (50% of households), Labrador tea (46%), mousefoods (46%), and stinkweed (30%). Total harvests of each plant were on the order of one hundred to several hundred gallons. Households may have harvested plants to a greater degree in the past, as explained by a key respondent (05052022VAK8):

> I don't even pick [ragwort] anymore…I see 'em, and we used to get 'em all the time when growing up. Mom would fill her grass baskets. But us, I see 'em, but I just ignore 'em…'Cause we have other [store-bought] vegetables we can have. … Before we had vegetables, yeah. Before we had hardly any vegetables, we used to love to pick those to go with the fish.

Many people collect mousefoods, and, as they do with bird eggs and birds, people typically leave some mousefood in the nest for the mouse (05092022VAK8).

Chevak residents use plants for food as well as medicinal and spiritual purposes. For example, people often burn dried Labrador tea to cleanse a room or building of bad energy (05062022VAK10). Others, such as, mousefoods and sourdock, are commonly added to soups. Roseroot is made into a salve for cuts, rashes, and impetigo (05092022VAK9). Just under half of households (46%) used firewood to heat their homes to some degree during the study year (Table 3-18).

Chevak households were asked about the areas from which they typically harvest vegetation (Figure 3-24). Berry and other vegetation search areas are grouped together. Survey respondents reported harvesting vegetation from a large area around Chevak that extends nearly to Hooper Bay, and to the west near the Kashunuk River. Additional harvest areas were located around the middle Kashunuk River, near Nuigalak Lake and further inland, as well as near the mouth of the Keoklevik River.

Comparing Harvests and Uses in 2021 with Previous Years

Harvest Assessments

Researchers asked respondents to assess their own harvests in two ways: whether they used more, less, or about the same amount of eight resource categories in 2021 as in recent years, and whether they got "enough" of each of the eight resource categories. 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. They were further asked whether they did anything differently (such as supplement with store-bought food or switch to a different subsistence resource) because they did not get enough. This section discusses responses to those questions.

Together, Table 3-19, Figure 3-25, and Figure 3-26 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. Where reasons are described below, the metric used is percentage of responses; households could list multiple reasons for harvesting more or less of a resource or choose not to give a reason.

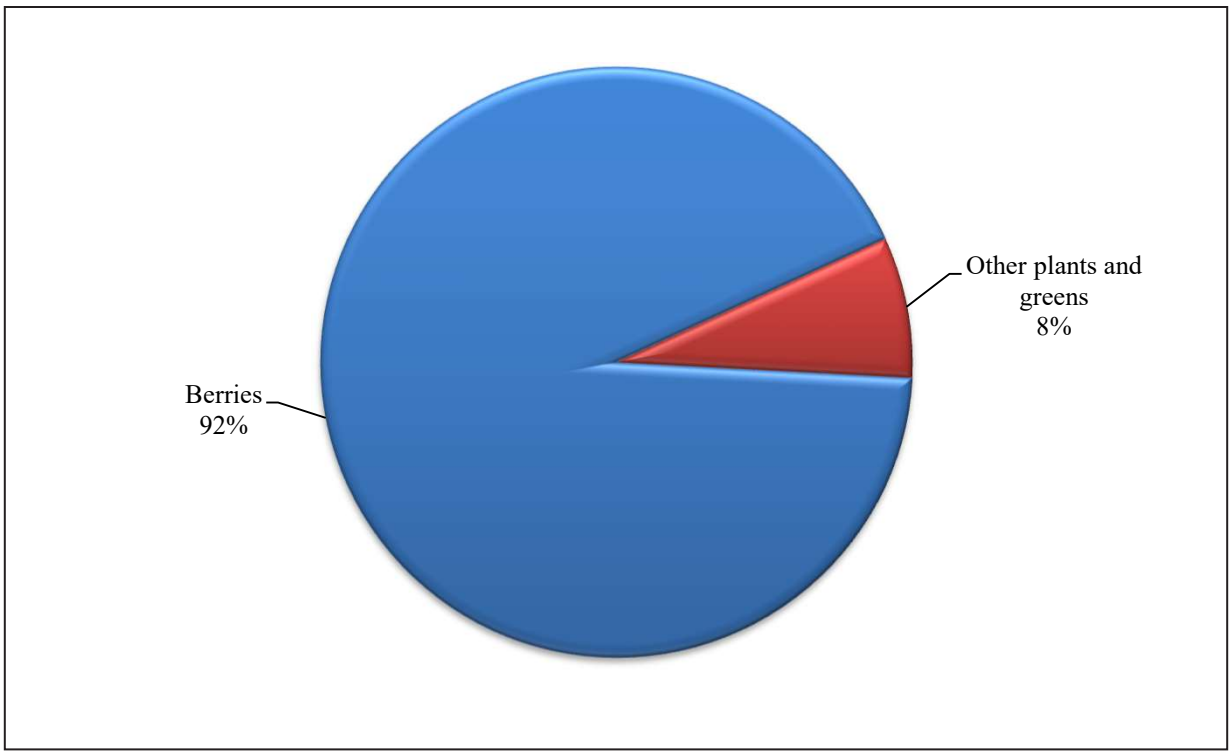


Figure 3-23.–Composition of vegetation harvest by type in pounds usable weight, Chevak, Alaska, 2021.

Table 3-18.–Use of firewood for home heating, Chevak, Alaska, 2021.

Percent of home heating from wood	Households	
	Number	Percent
0%	37	40.2%
1-25%	33	35.9%
26-50%	5	5.4%
51-75%	3	3.3%
76-99%	0	0.0%
100%	2	2.2%
Missing	12	13.0%

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

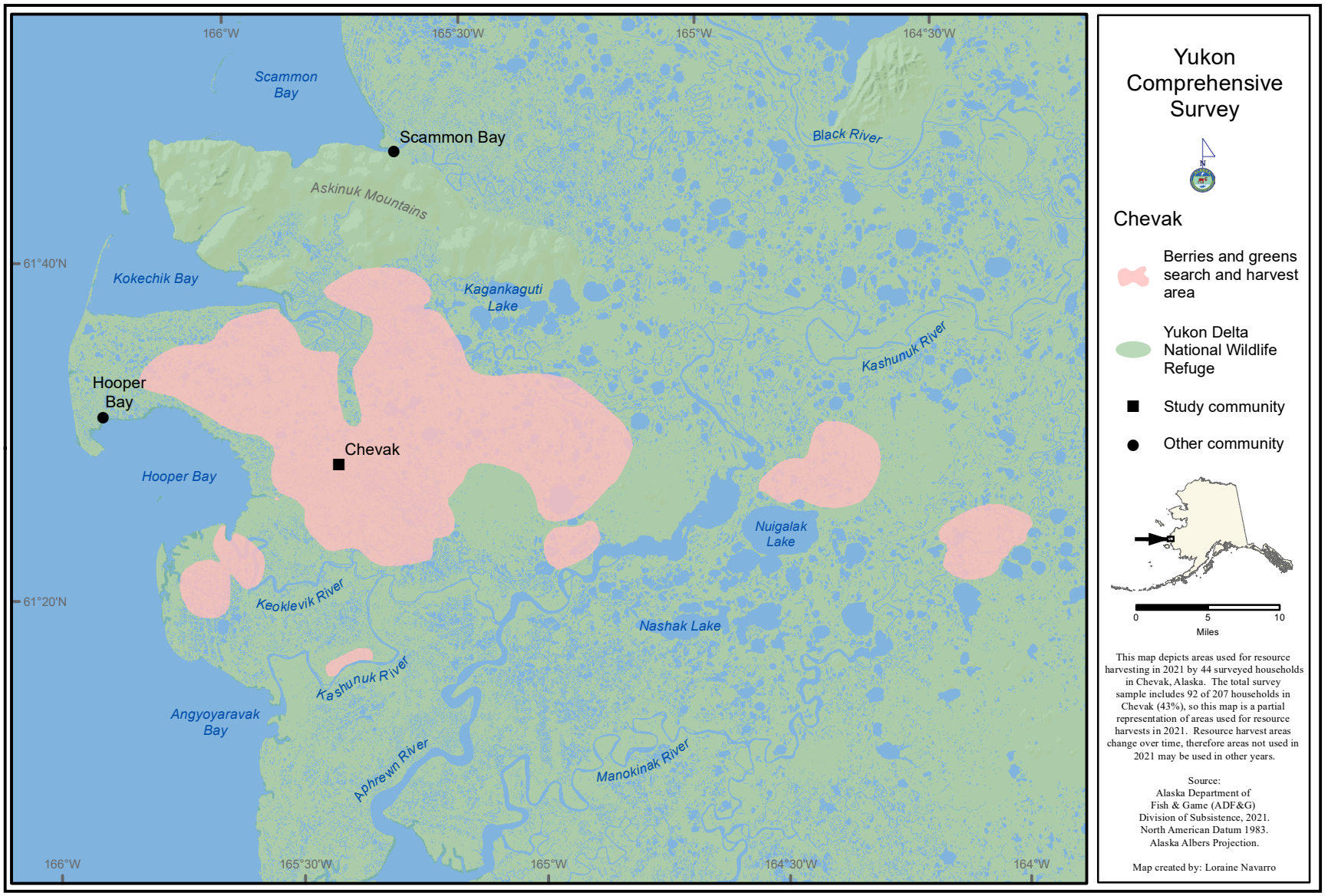


Figure 3-24.–Gathering and harvest locations of berries and greens, Chevak, Alaska, 2021.

Table 3-19.–Changes in household uses of resources compared to recent years, Chevak, Alaska, 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	92	92	92	100.0%	83	90.2%	86	93.5%	17	18.5%	83	90.2%
All resources	**92**	**91**	**91**	**100.0%**	**50**	**54.9%**	**40**	**44.0%**	**1**	**1.1%**	**0**	**0.0%**
Salmon	92	92	87	94.6%	64	69.6%	21	22.8%	2	2.2%	5	5.4%
Nonsalmon fish	92	92	81	88.0%	31	33.7%	47	51.1%	3	3.3%	11	12.0%
Large land mammals	92	91	84	92.3%	15	16.5%	62	68.1%	7	7.7%	7	7.7%
Small land mammals	92	90	11	12.2%	1	1.1%	8	8.9%	2	2.2%	79	87.8%
Marine mammals	92	90	81	90.0%	36	40.0%	41	45.6%	4	4.4%	9	10.0%
Birds and eggs	92	90	86	95.6%	25	27.8%	60	66.7%	1	1.1%	4	4.4%
Marine invertebrates	92	90	64	71.1%	19	21.1%	42	46.7%	3	3.3%	26	28.9%
Vegetation	92	91	88	96.7%	22	24.2%	63	69.2%	3	3.3%	3	3.3%

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

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

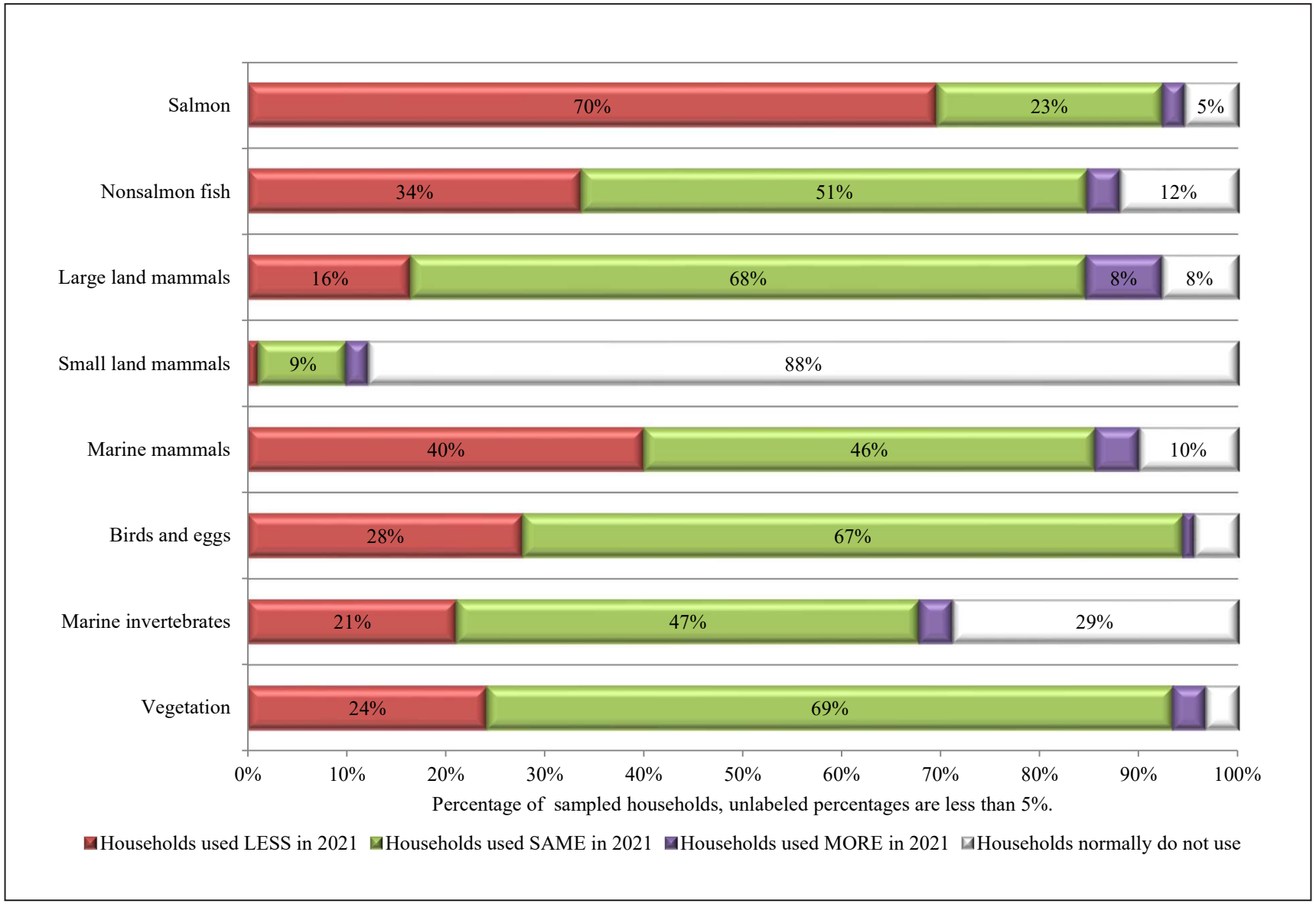


Figure 3-25.–Changes in household uses of resources compared to recent years, Chevak, Alaska, 2021.

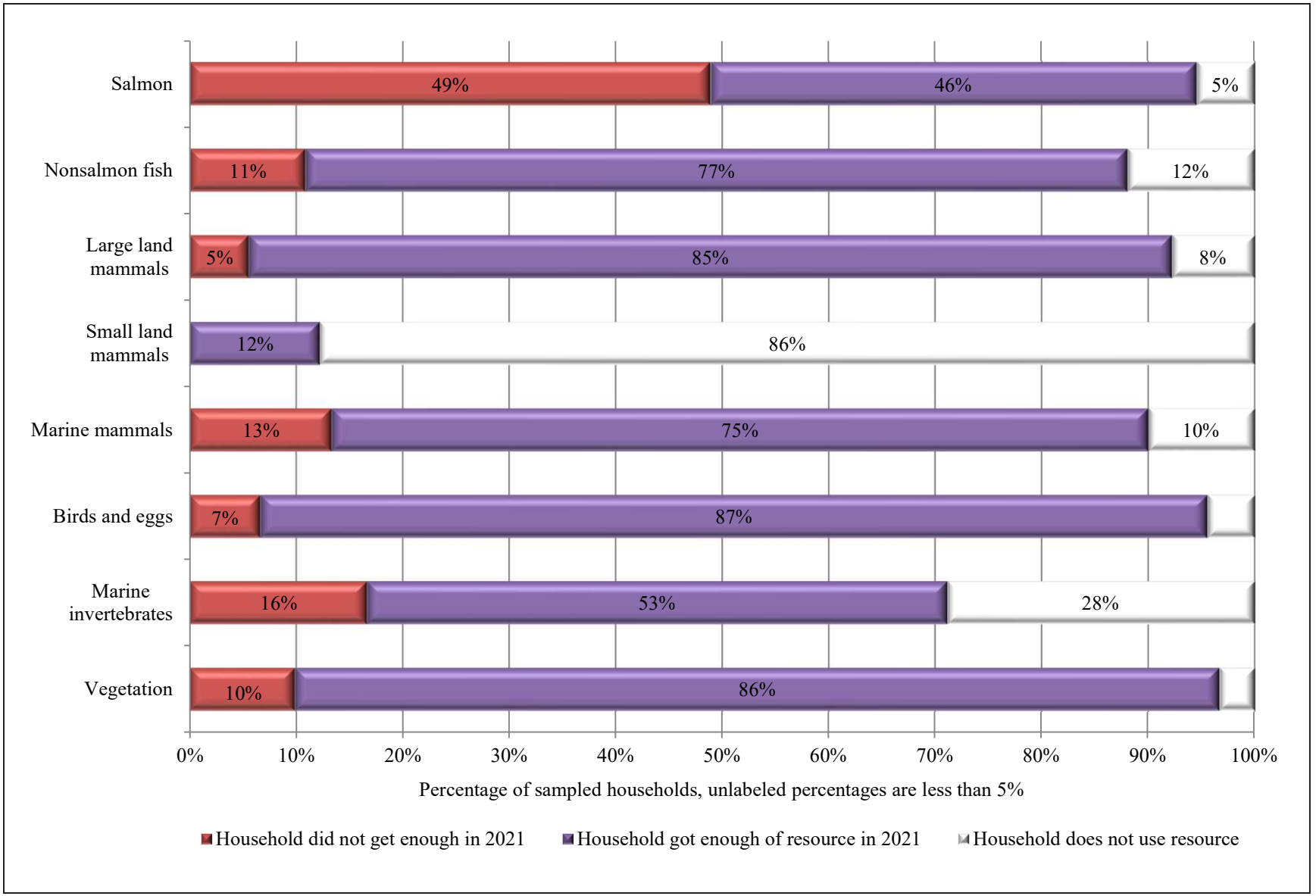


Figure 3-26.–Percentage of sampled households reporting whether they had enough resources, Chevak, Alaska, 2021.

Just over half of responding Chevak households said they harvested fewer subsistence resources in 2021 than compared to recent years (55%; Table 3-19). Figure 3-25 shows that responding households used less of several resource categories in 2021 than in years past, and that the category with the greatest decrease was salmon (70%). Of the 64 households that reported using less salmon in 2021 than in years past, 59 cited regulations as the reason (95% of 62 households that gave reasons; Table 3-20). Although many households used less resources overall in 2021, many used the same amount as in years past, including 67%, 68%, and 69% of households that said they used the same amount of birds and eggs, large land mammals, and vegetation, respectively (Table 3-19; Figure 3-25). Very few households reported using more of any resource category. An exception to this was seven households that reported using more large land mammals; four of those cited receiving more from others as the reason (Table 3-21).

Overall, 37 households said that they were not able to harvest enough subsistence resources, and 65% of those said that the shortages were "major" (Table 3-22). Forty-five households said they did not get enough salmon (52% of responses), and 69% of those households considered this impact to be "major." This was higher than the number of "not enough" responses for other resource categories. A key contributor to this finding was the subsistence salmon fishery closure, which prohibited retention of Chinook and chum salmon and only allowed the use of 4-inch or smaller mesh gillnets. Of surveyed households, 27% reported needing more salmon of any species, while 24% and 30% of surveyed households reported needing more chum and Chinook salmon, respectively (Table 3-23). Most households surveyed were satisfied with the amount of coho, pink, and sockeye salmon they got in 2021. Only 12% of those that responded to questions about getting enough of a resource category said that they did not get enough nonsalmon fish (Table 3-22). Of the 81 households responding to questions about marine mammals, 12 (15%) did not get enough, and 6 of those households (50%) said that the shortage was "major." Nearly a quarter of responding households (15 of 64) did not get enough marine invertebrates, but over half of those households considered the shortage of marine invertebrates to be minor (33%) or not noticeable (20%). Most households reported getting enough of other resource categories in 2021.

Harvest Data

Because this was the first comprehensive harvest survey completed in Chevak, there are no previous quantitative harvest data to compare to this study. However, some qualitative, resource-specific data exist for Chevak, such as data on berry harvests that were collected by Herman-Mercer et al. (2020). In that study, respondents from Hooper Bay, Chevak, Emmonak, and Kotlik were asked about changes to berry resources, harvest practices, and drivers of berry productivity. In Chevak, over half of respondents observed that cloudberries and crowberries now ripen earlier than they did a decade ago, Respondents also noted that they often have to travel farther to harvest berries relative to the past, and that the abundance of cloudberries and crowberries is affected by higher summer temperatures, low winter snowpack, disturbance by all-terrain vehicles, cold spring temperatures, and high wind events. However, fewer than 50% of Chevak respondents in the Herman-Mercer et al. study agreed that cloudberries were less available now than in the past. Similarly, most respondents in this survey reported harvesting the same amount of vegetation, which includes all berry species, in 2021 as in recent years. Of the households that did harvest less vegetation, a third cited reduced availability of vegetation as the reason (Table 3-20). Hupp et al.(2015) surveyed households across the state and found that in coastal subarctic areas, approximately one third of respondents harvested over 75 liters of cloudberries, which is roughly equivalent to 20 gal. This finding is consistent with the mean household harvest of cloudberries of 14 gal per household documented by this study.

Current and Historical Harvest Areas

Because this was the first comprehensive harvest survey completed in Chevak, there are no previous search and harvest area data to compare to this study.

Table 3-20.–Reasons for less household uses of resources compared to recent years, Chevak, Alaska, 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		Lack of effort	
			Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource	92	83	5	6.0%	27	32.5%	4	4.8%	9	10.8%	22	26.5%	16	19.3%
All resources	**91**	**48**	2	**4.2%**	5	**10.4%**	0	**0.0%**	6	**12.5%**	6	**12.5%**	6	**12.5%**
Salmon	92	62	0	0.0%	4	6.5%	1	1.6%	1	1.6%	4	6.5%	1	1.6%
Nonsalmon fish	92	31	0	0.0%	10	32.3%	0	0.0%	4	12.9%	7	22.6%	5	16.1%
Large land mammals	91	14	2	14.3%	0	0.0%	0	0.0%	2	14.3%	5	35.7%	1	7.1%
Small land mammals	90	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%
Marine mammals	90	35	0	0.0%	7	20.0%	0	0.0%	3	8.6%	15	42.9%	4	11.4%
Birds and eggs	90	23	1	4.3%	6	26.1%	0	0.0%	2	8.7%	4	17.4%	5	21.7%
Marine invertebrates	90	16	1	6.3%	2	12.5%	1	6.3%	1	6.3%	3	18.8%	2	12.5%
Vegetation	91	21	2	9.5%	7	33.3%	2	9.5%	1	4.8%	1	4.8%	4	19.0%

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Table 3-20.–Continued.

Resource category	Valid responses[a]	Households reporting reasons for less use	Unsuccessful		Weather/ environment		Other reasons		Working/ no time		Regulations		Small/ diseased animals	
			Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource	92	83	16	19.3%	11	13.3%	0	0%	12	14.5%	62	74.7%	0	0.0%
All resources	**91**	**48**	2	**4.2%**	4	**8.3%**	**0**	**0%**	**2**	**4.2%**	**32**	**66.7%**	**0**	**0.0%**
Salmon	92	62	1	1.6%	0	0.0%	0	0%	1	1.6%	59	95.2%	0	0.0%
Nonsalmon fish	92	31	5	16.1%	2	6.5%	0	0%	4	12.9%	0	0.0%	0	0.0%
Large land mammals	91	14	1	7.1%	0	0.0%	0	0%	3	21.4%	0	0.0%	0	0.0%
Small land mammals	90	1	0	0.0%	0	0.0%	0	0%	0	0.0%	0	0.0%	0	0.0%
Marine mammals	90	35	6	17.1%	1	2.9%	0	0%	0	0.0%	0	0.0%	0	0.0%
Birds and eggs	90	23	1	4.3%	0	0.0%	0	0%	3	13.0%	0	0.0%	0	0.0%
Marine invertebrates	90	16	1	6.3%	2	12.5%	0	0%	3	18.8%	0	0.0%	0	0.0%
Vegetation	91	21	1	4.8%	3	14.3%	0	0%	5	23.8%	0	0.0%	0	0.0%

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Table 3-20.–Page 2 of 2.

Resource category	Valid responses[a]	Households reporting reasons for less use	Did not need		Equipment/ fuel expense		Used other resources		Competition	
			Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource	92	83	3	3.6%	1	1.2%	2	2.4%	2	2.4%
All resources	**91**	**48**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**
Salmon	92	62	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Nonsalmon fish	92	31	0	0.0%	0	0.0%	0	0.0%	1	3.2%
Large land mammals	91	14	1	7.1%	0	0.0%	1	7.1%	0	0.0%
Small land mammals	90	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Marine mammals	90	35	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Birds and eggs	90	23	2	8.7%	0	0.0%	0	0.0%	0	0.0%
Marine invertebrates	90	16	0	0.0%	1	6.3%	1	6.3%	0	0.0%
Vegetation	91	21	0	0.0%	0	0.0%	0	0.0%	1	4.8%

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

a. Valid responses do not include households that did not provide any response and households reporting never using the resource.

Table 3-21.–Reasons for more household uses of resources compared to recent years, Chevak, Alaska, 2021.

Resource category	Valid responses[a]	Households reporting reasons for more use	Family/Personal		Increased availability		Used other resources		Favorable weather		Received more		Needed more	
			Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource	92	17	0	0.0%	3	17.6%	0	0.0%	0	0.0%	6	35.3%	1	5.9%
All resources	**91**	**1**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**
Salmon	92	2	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Nonsalmon fish	92	3	0	0.0%	1	33.3%	0	0.0%	0	0.0%	0	0.0%	1	33.3%
Large land mammals	91	7	0	0.0%	0	0.0%	0	0.0%	0	0.0%	4	57.1%	0	0.0%
Small land mammals	90	2	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Marine mammals	90	4	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2	50.0%	0	0.0%
Birds and eggs	90	1	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Marine invertebrates	90	2	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	50.0%	0	0.0%
Vegetation	91	3	0	0.0%	2	66.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%

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Table 3-21.–Continued.

Resource category	Valid responses[a]	Households reporting reasons for more use	Increased effort		Regulations		Traveled farther		More success		Had more time		Store-bought expense	
			Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource	92	17	5	29.4%	0	0.0%	1	5.9%	4	23.5%	1	5.9%	0	0.0%
All resources	**91**	**1**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**	**1**	**100.0%**	**0**	**0.0%**	**0**	**0.0%**
Salmon	92	2	1	50.0%	0	0.0%	0	0.0%	1	50.0%	0	0.0%	0	0.0%
Nonsalmon fish	92	3	0	0.0%	0	0.0%	1	33.3%	1	33.3%	0	0.0%	0	0.0%
Large land mammals	91	7	1	14.3%	0	0.0%	0	0.0%	2	28.6%	0	0.0%	0	0.0%
Small land mammals	90	2	2	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Marine mammals	90	4	0	0.0%	0	0.0%	0	0.0%	1	25.0%	0	0.0%	0	0.0%
Birds and eggs	90	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Marine invertebrates	90	2	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	50.0%	0	0.0%
Vegetation	91	3	2	66.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%

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Table 3-21.–Page 2 of 2.

Resource category	Valid responses[a]	Households reporting reasons for more use	Got/ fixed equipment		Substitue for unavialable resource(s)		Had more help		Other	
			Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Any resource	92	17	0	0.0%	2	11.8%	1	5.9%	0	0.0%
All resources	**91**	**1**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**
Salmon	92	2	0	0.0%	1	50.0%	0	0.0%	0	0.0%
Nonsalmon fish	92	3	0	0.0%	1	33.3%	0	0.0%	0	0.0%
Large land mammals	91	7	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Small land mammals	90	2	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Marine mammals	90	4	0	0.0%	0	0.0%	1	25.0%	0	0.0%
Birds and eggs	90	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Marine invertebrates	90	2	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Vegetation	91	3	0	0.0%	0	0.0%	0	0.0%	0	0.0%

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

a. Valid responses do not include households that did not provide any response and households reporting never use.

Table 3-22.–Reported impact to households reporting that they did not get enough of a type of resource, Chevak, Alaska, 2021.

		Households not getting enough _____ .				Impact to those not getting enough _____ .									
		Valid responses[a]		Did not get enough		No response		Not noticeable		Minor		Major		Severe	
Resource category	Sampled households	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
All resources	**92**	**91**	**98.9%**	**37**	**40.7%**	**0**	**0.0%**	**0**	**0.0%**	**7**	**18.9%**	**24**	**64.9%**	**6**	**16.2%**
Salmon	92	87	94.6%	45	51.7%	0	0.0%	0	0.0%	6	13.3%	31	68.9%	8	17.8%
Nonsalmon fish	92	81	88.0%	10	12.3%	0	0.0%	0	0.0%	6	60.0%	4	40.0%	0	0.0%
Large land mammals	92	83	90.2%	5	6.0%	0	0.0%	0	0.0%	2	40.0%	3	60.0%	0	0.0%
Small land mammals	92	11	12.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Marine mammals	92	81	88.0%	12	14.8%	0	0.0%	1	8.3%	5	41.7%	6	50.0%	0	0.0%
Birds and eggs	92	86	93.5%	6	7.0%	0	0.0%	1	16.7%	4	66.7%	1	16.7%	0	0.0%
Marine invertebrates	92	64	69.6%	15	23.4%	1	6.7%	3	20.0%	5	33.3%	4	26.7%	2	13.3%
Vegetation	92	88	95.7%	9	10.2%	1	11.1%	1	11.1%	5	55.6%	1	11.1%	1	11.1%

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

a. Does not include households failing to respond to the question and those households that never used the resource.

Table 3-23.–Resources of which sampled households reported needing more, Chevak, Alaska, 2021.

Resource	Households needing	Percentage of households
All resources	1	1.1%
Fish	1	1.1%
Salmon	25	27.2%
Chum salmon	22	23.9%
Summer chum salmon	19	20.7%
Coho salmon	8	8.7%
Chinook salmon	28	30.4%
Pink salmon	4	4.3%
Sockeye salmon	11	12.0%
Nonsalmon fish	1	1.1%
Pacific herring	3	3.3%
Smelts	1	1.1%
Saffron cod	4	4.3%
Whitefishes	6	6.5%
Broad whitefish	1	1.1%
Bering cisco	2	2.2%
Least cisco	2	2.2%
Humpback whitefish	2	2.2%
Round whitefish	1	1.1%
Moose	6	6.5%
Seals	3	3.3%
Bearded seal	8	8.7%
Ringed seal	4	4.3%
Spotted seal	7	7.6%
Unspecified seal oil	1	1.1%
Walrus	1	1.1%
Beluga whale	1	1.1%
Birds and eggs	1	1.1%
Ducks	1	1.1%
Geese	1	1.1%
Brant	1	1.1%
Swans	1	1.1%
Duck eggs	4	4.3%
Goose eggs	2	2.2%
Swan eggs	1	1.1%
Clams	15	16.3%
Berries	8	8.7%
Blueberry	1	1.1%
Crowberry	1	1.1%

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Table 3-22.–Page 2 of 2.

Resource	Households needing	Percentage of households
Cloudberry	2	2.2%
Plants, greens, and mushrooms	2	2.2%
Pallas buttercup	2	2.2%

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

Local Comments and Concerns

The following is a summary of local observations of wild resource populations and trends that were recorded during the surveys. Some households did not offer any additional information during the survey, 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.

A primary concern among survey participants was the closure of the subsistence Chinook and chum salmon fisheries for the entire 2021 season. Broadly, Chevak residents do not feel that they should be included in the Yukon Management Area, and that the salmon they harvest in the rivers nearby are not all destined for the Yukon River. They acknowledge that some salmon are migrating through these river-lake complexes to eventually spawn in the Yukon River or its tributaries, but they question why their small interception of salmon to feed themselves is prohibited while commercial interception of Yukon River-bound fish is allowed by commercial fisheries in state waters. Several participants also indicated a lack of communication between managers and Chevak residents with respect to fishery openings and closures. They further expressed frustration that traditional knowledge of salmon migration and spawning in the area do not receive enough consideration when managers decide whether to open fishing and in which areas.

Many respondents also expressed concern about climate change. This included effects on marine and freshwater conditions (e.g., earlier spring ice breakup, later fall freeze-up, warmer water temperatures) that in turn affect both people's ability to safely travel across the landscape in seasonally predictable ways and the timing of animal migrations that align with the historical seasonal round. For instance, in years with warmer sea surface temperatures and earlier ice retreat in the Bering Sea, seals, walrus, and beluga whales often pass by Hooper Bay more quickly than in years with later ice retreat and cooler water temperatures. In addition, more winter precipitation falls as rain rather than snow, leading to extremely low snowpack. Chevak seal hunters described leaving their boats parked on the ice near the community of Hooper Bay and traveling by snowmachine to reach their boats: a practice that is made more challenging during warmer, wetter winters with little snow. Erosion and storms have also changed the landscape near Chevak, so nearby hills and shorelines—sometimes where fish camps are sited—wash away more frequently. Not only have these changes interfered with the ability of local subsistence hunters and gatherers to access wild foods, but they have also disrupted the sharing of knowledge of the seasonal round and local landscape to younger generations. Respondents stated that because the weather is changing in unpredictable ways, they often do not know what to tell young people about how to relate weather observations to the timing and availability of local resources.

4. DISCUSSION AND CONCLUSIONS

The customary and traditional uses of wild resources provide the foundation of culture, social relations, spiritual fulfilment, nutrition, and economic security for the residents of Chevak and Hooper Bay. The survey and ethnographic data collected in this study show that harvests are diverse and that wild foods are widely distributed within and between Chevak and Hooper Bay and beyond. For all resource categories, a majority of households that attempted to harvest were successful. However, households in both communities were unable to harvest the Chinook and summer chum salmon in 2021 that are the foundation of traditional diets in the Y-K Delta.

This study was the first comprehensive subsistence harvest survey of these communities, and the information presented herein represents baseline levels of harvest and use of at least 132 and 124 resources in Chevak and Hooper Bay, respectively. The study year encompassed the first complete subsistence closure for Chinook and chum salmon in the Yukon Management Area (YMA) Coastal District, and as a result, many survey and key respondents shared their concerns over their continued access to these irreplaceable species. Although harvest opportunities in the Coastal District for Chinook salmon had previously been restricted through fishing time and gear-size restrictions (maximum 6-inch mesh), 2021 was the first year in which ADF&G also implemented conservation measures for summer chum salmon in the Coastal District. Given the unprecedented nature of this multispecies decline (Figure 4-1) and the fact that comprehensive harvest surveys have never been conducted in Hooper Bay or Chevak, quantitative data are not available to determine whether residents have altered their harvest patterns of nonsalmon species, or other terrestrial resources, to accommodate this loss of Chinook and summer chum salmon. However, the ethnographic data collected in this study show that subsistence practices are indeed shifting in response to regulatory and environmental pressures. Taken together, the survey and ethnographic results from this study centered on three key topics: 1) the harvest and use of a wide variety of marine and terrestrial resources, 2) climate change and its effects on the timing and predictability of environmental conditions and animal migration and abundance patterns, and 3) the 2021 closure of the subsistence fishery for Chinook and summer chum salmon and its effects on nutritional and cultural needs in the communities. These topics are described in detail below.

Residents of Hooper Bay and Chevak harvested and used a wide variety of resources. The availability of local resources has varied over time, but with the exception of salmon, wild foods are still largely accessible (01162022HPB1, 01152022HPB1, 01002022HPB5, 05042022VAK2). Key respondents did note that there were resources that were either low in abundance in 2021 (e.g., saffron cod, salmon) or difficult to harvest due to changes in migration patterns (e.g., marine mammals; 05052022VAK3, 05052022VAK4). The kinds of resources that are available to coastal communities—including marine mammals, marine invertebrates, herring eggs, many marine and freshwater fishes, and several species of migratory birds and eggs—are generally more diverse than those available to Yukon River communities where salmon and large land mammals often make up a large percentage of wild foods harvested and used. This diversity of resources may be linked to having close, year-round access to both marine and terrestrial environments for harvesting wild food. The balance of marine versus terrestrial resources may be shifting: key respondents noted that moose have recently become an important subsistence resource in Hooper Bay and Chevak (01002022HPB4).

Although Hooper Bay and Chevak households are still able to harvest many of their locally available resources, key respondents cited several environmental changes that have affected their subsistence harvest practices. As noted above, several key respondents mentioned that moose populations have grown significantly in the past 30 years, at least partly due to an increase in wildfires in the middle and upper portions of the Yukon River drainage that have pushed moose towards the Y-K Delta (01152022HPB1). This shift may have also affected populations of moose predators: key respondents in both communities reported that they see wolves and bears more frequently than in decades past (01152022HPB1, 01002022HPB1, 05052022VAK4). In addition to increases in terrestrial mammal populations, multiple key respondents observed that northern pike populations in lakes and rivers have increased over the past decade, although

it is unclear whether these increases are linked to climate change (05052022VAK10, 05052022VAK4, 01002022HPB5).

Precipitation amounts and wind directions have changed to such a degree that harvesters noticed differences in seasonal weather patterns and their effects on plants and animals. Changes in weather patterns, such as increased winter rainfall and decreased snowpack, negatively affect the size and abundance of many berry species (01222022HPB1). Fall storms have increased erosion along the spit near Hooper Bay and several of the sand dunes have eroded away where people used to collect vegetation and other wild foods (01162022HPB1, 01222022HPB1). Changes in seasonal wind directions have affected the migratory behavior of fish and marine mammal species. For instance, southerly winds force herring and saffron cod and their predators, such as seals and beluga whales, to move quickly north along the Bering Sea coast, leaving residents less time to harvest these species than in years with northerly winds (01002022HPB5). People also believe that north winds predict an abundance of salmon in June because salmon stay closer to shore as they migrate northward against the wind (05042022VAK2). Offshore winds in April and May from the east may also push the migratory pathways of fish and marine mammals further from marine setnet sites just outside of Hooper Bay (05052022VAK10, 01002022HPB4).

Among all topics, key respondents most frequently described environmental changes including warmer water and air temperatures in recent years. In particular, seasonal ice extent and timing of its retreat affects when and how hunters harvest seals, beluga whales, and walrus (05052022VAK4, 01002022HPB1). Thinner ice can make walrus and seal hunting more dangerous when animals are hauled out (01152022HPB1). Less ice overall can mean that animals move north past the communities during spring in search of ice needed for hauling out (01002022HPB2). In most years, Chevak and Hooper Bay residents no longer hunt seals from the ice in April, but rather in February or March. Less ice during winter can also mean earlier breakup in the nearshore and freshwater environments, shifting the time that people harvest Pacific herring and smelt to early or mid-May, rather than early June (01002022HPB4).

In addition to changes in animal behavior and harvest timing, travel by snowmachine is challenged by earlier breakup and later freeze-up due to warmer spring temperatures. Key respondents said that travel is more difficult in the spring now that breakup is earlier, and that ice conditions are not as seasonally predictable as they once were (01002022HPB4). Warmer temperatures are also affecting the riverine environment. Several key respondents believed that salmon migrate deeper in the channel during years with high freshwater temperatures, and a few thought that this change in migratory behavior has led to underestimation of fish passage along the Yukon River (05052022VAK4).

These climatic changes have implications for passing on knowledge to younger generations. Severe weather events and seasonal changes such as timing of ice-breakup have made it difficult to reliably predict animal behavior and to teach the methods of search and harvest that elders have practiced for generations. Elders that were interviewed for this study expressed concern that with these changes, and the concurrent loss of salmon fishing opportunities, teaching young people how to survive in the traditional way is becoming impossible (05052022VAK7, 01212022HPB1).

The final theme from this study centered on the concurrent declines in Chinook and chum salmon as experienced by residents of Hooper Bay and Chevak. Conservation measures such as gear restrictions, reduced fishing periods, and first-pulse protection[1] have been in place to protect Chinook salmon since the early 2000s in the mainstem Yukon River. In the Coastal District, harvests of Chinook and summer chum salmon have decreased significantly in the last several years due to low abundance, but restrictions in the district were uncommon prior to 2021.[2] The closure of the subsistence salmon fishery in 2021 meant

1. First-pulse protection is a management strategy that closes fishing as the first ‘pulse’ of Chinook salmon enters a district. These closures move upriver district by district to protect the first pulse from harvest.
2. S. R Ransbury., S. K. S. Decker, D. M. Jallen, C. M. Gleason, B. M. Borba, F. W. West, J. N. Clark, A. J. Padilla, H. J. Heniff and L. N. Forsythe, *In prep*. Yukon Management Area Annual Report, 2020. Alaska Department of Fish and Game, Fishery Management Report No. YY-XX, Anchorage.

that fishers harvested very few Chinook and summer chum salmon during the study period.[3] For several respondents, the closure was the first time in their memory that there were no harvest opportunities for Chinook and chum salmon (01162022HPB1, 01212022HPB1). In response, some households increased their harvest of pink salmon relative to what they harvested in recent years. However, the closures did not generally affect the harvest quantities of other resources: few survey respondents reported harvesting more of other resources because they were unable to get the salmon they needed in 2021.

For those that harvested their own salmon, many fishermen used selective gear types, such as dip nets. Those that owned 4-inch mesh gillnets targeted whitefish and pink salmon during the salmon closure, and any dead, incidentally caught Chinook or chum salmon were allowed to be retained. Some people reported already owning 4-inch mesh gillnets for whitefish, but others said that because they typically target salmon with larger mesh gillnets, they had to decide whether or not to purchase an additional, smaller mesh gillnet for pink salmon (05042022VAK1, 01002022HPB5). Fishers preferred to harvest larger broad whitefish and sheefish during summer, typically with 5-inch mesh gillnets (01162022HPB1, 01002022HPB2).

In addition to harvesting other salmon species, Hooper Bay and Chevak households were able to get salmon through exchanges with other households or communities, or donations of commercially processed salmon. Over three quarters of households in both communities received salmon,[4] and more than a quarter gave salmon away to other households. Most households gave pink and summer chum salmon. Community donations of Bristol Bay Chinook, chum, and sockeye salmon were organized by the regional Community Development Quota group, Coastal Villages Region Fund (01212022HPB1). In some instances, the quality of donated fish was reported to be poor due to freezer burn, but more often people said the fish just were not the species they were used to (01152022HPB1). Many expressed their appreciation for having some kind of salmon, even if it was not their preferred salmon (05042022VAK7, 01002022HPB4).

Not only did households in Hooper Bay and Chevak not get enough salmon in 2021, the fishery closure in 2021 had negative effects on social relations and community wellbeing. For instance, during the community data review meeting in Chevak, community members described an increase in theft from fishing sites, forcing some families to move their fishing sites outside of town.[5] Several key respondent interviews and survey comments highlighted a lack of trust in the department's knowledge of salmon presence, migratory behavior, and abundance and in their reasoning for closing the subsistence salmon fishery (05042022VAK7, 0502022VAK3). Not having enough salmon made it more difficult for residents of Hooper Bay and Chevak to practice traditional values like caring for elders, sharing with others, and passing on knowledge and skills to younger generations.[6]

In key respondent interviews, elders and experienced fishermen expressed their frustration with the closure and that their harvest of salmon for subsistence had never been restricted before 2021 (01162022HPB1). Different regions of the YMA may have experienced the 2021 closures very differently, depending on how recently the salmon declines began in different parts of the river. There appeared little understanding by respondents and community members at the data review meetings that the middle and upper river districts of the YMA had previously been closed to subsistence fishing to protect Chinook salmon for several years prior to 2021 (01002022HPB2, 0502022VAK3). For Coastal District residents, the closures were completely unanticipated, whereas in middle and upper river districts, these closures have been in effect to varying degrees for more than a decade. Whether or not they are new, the immediate effects of the closures on food security, and economic, social, and cultural well-being have been felt by all residents of the YMA.

As previously mentioned, part of the reason that Hooper Bay and Chevak were chosen for this study was related to community member and tribal council requests to the department for inclusion in salmon research. Some of these requests were linked to the belief that the Coastal District should not be considered part of the

3. During subsistence salmon closures, salmon caught incidentally while fishing for nonsalmon fish species may be retained.
4. Donations are included in the percentage of households that received salmon in 2021.
5. Community member at data review meeting held February 5, 2023, in Chevak.
6. Survey notes. May 4, 2022; May 10, 2022.

YMA. Key respondents in this study also expressed this belief, noting that the salmon stocks that Hooper Bay and Chevak residents target are not all Canadian-origin salmon (05042022VAK7, 05052022VAK5). The Yukon fishery management team—including ADF&G and US Fish and Wildlife staff—holds that the boundaries should remain unchanged because there is evidence that salmon migrating through the river systems in the Coastal District eventually spawn in tributaries to the Yukon and migrate to the Norton Sound and Kotzebue districts (e.g., Kervliet 1986, Brown and Eiler 2005). Additionally, fisheries in the Coastal District may be intercepting multiple stocks of salmon from the Norton Sound-Port Clarence and Kotzebue management areas that are also in decline. Further research is planned to collect stream-specific salmon presence and life history data, along with harvest and use information via household surveys.

Survey respondents were also frustrated that the bycatch of Chinook and chum salmon that occurs in Bering Sea trawl fisheries and interception of chum salmon by South Alaska Peninsula (known as "Area M") commercial salmon fisheries is considered acceptable at current levels, but directed subsistence fishing for culture and food security is not (01002022HPB2, 05042022VAK2). In February 2023, several proposals were submitted to the Alaska Board of Fisheries at the Alaska Peninsula/Aleutian Islands finfish meeting to limit the fishing time allowed in the Area M fisheries during June to reduce interception of AYK-bound chum salmon. The Board passed an amended version of these proposed regulatory changes by a 4-to-3 vote that reduced Area M purse seine fishing time by 42 hours during the month of June from 352 hours to 310 hours[7]. A 350,000 fish cap on chum salmon harvests by the Area M fishery was also added to the management plan, which would close the fisheries when reached.[8] As of this writing, the bycatch of chum salmon by the Bering Sea trawl fisheries is being discussed by the North Pacific Fishery Management Council. No chum salmon bycatch reduction measures have yet been proposed.

The percentage of Hooper Bay households that refused to participate in this study was higher than is typical for the division's comprehensive surveys. Reasons for the high refusal rate included distrust of and frustration with the department because of the salmon fishery closure in 2021, as well as the unintentional timing of the survey during a COVID-19 outbreak in the community. The estimates of harvest and use from this survey effort resulting from this smaller sample should be interpreted with caution and several caveats to the interpretation of the data are warranted. Bias in the harvest estimates could be introduced by a lower response rate from households that typically harvest and share resources that are typically harvested by a small number of households, such as marine or large land mammals. The more specialized the harvest of a particular resource is, the more likely it is that a small sample will fail to include a household that harvests the resource. This may have resulted in an underestimate of salmon, marine mammal, or large land mammal harvests. Another source of bias could be introduced by participating households' unwillingness to answer selected questions on the survey or to complete all survey pages, resulting in missing information and further decreasing the effective sample size for portions of the survey. In general, the small sample likely generated harvest and use estimates for which confidence intervals are larger than is typical for a comprehensive survey project.

Conclusions

While salmon declines have resulted in closures in other parts of the river for several years prior to this study, people living in Hooper Bay and Chevak grieved the loss of their staple food and cultural keystone species in 2021. It is too soon to know how the harvest and use of wild foods will change in response to continued fishery closures and the loss of salmon in these communities. However, Hooper Bay and Chevak rely on a diversity of relatively abundant, wild foods (with the notable exception of salmon), and most households were able to get the wild food they needed in 2021. In addition to salmon closures, key

7. Board of Fisheries Alaska Peninsula/Aleutian Islands Finfish meeting. February 20-27, 2023. RC 190. https://www.adfg.alaska.gov/static/regulations/regprocess/fisheriesboard/pdfs/2022-2023/peninsula/rcs/RC190_ADFG_for_Member_Jensen_Substitute_language_and_Calander_Proposal_136.pdf
8. Board of Fisheries Alaska Peninsula/Aleutian Islands finfish meeting. February 20-27, 2023. Preliminary summary of actions. https://www.adfg.alaska.gov/static/regulations/regprocess/fisheriesboard/pdfs/2022-2023/peninsula/Summary%20of%20Actions%20AreaM-Chignik%202023.pdf

respondents described numerous environmental changes that suggest an uncertain future for subsistence providers, though the overall effects on subsistence harvests are neither clearly positive nor negative. As shorter, drier winters and warmer, wetter summers change the behavior and abundance patterns of several key subsistence resources, these conditions will continue to challenge the passage of traditional knowledge to younger generations.

To address some of the concerns that survey and key respondents expressed in this study, managers and researchers should consider three recommendations. First, salmon harvest surveys such as the Yukon postseason survey should be conducted in person, in as many communities as possible. With the exception of 2020–2022, this is standard practice for postseason surveys. In addition, all communities should be included in the postseason salmon survey effort, even if some communities are not visited every year. Face-to-face interactions with community members are highly valuable in documenting concerns about resource management. Giving people the opportunity to be heard in their own communities, without the burden of travel and time away from home, is also an important step in building trust between the department and the public. Second, this study highlighted a fundamental difference in understanding of salmon presence, life histories, and migratory behavior between local residents and managers. For instance, a respondent described several runs of Chinook salmon and that some spawn in local rivers while others migrate up the Yukon River or continue north to Norton or Kotzebue sounds. Consultation with local fishers about salmon migration patterns near enumeration projects may suggest modification of sampling methods that could improve the accuracy of fish passage estimates. In addition, local, in-person effort to update databases, such as gaining nominations for the ADF&G Anadromous Waters Catalog, in communities near the many coastal streams and tributaries of the Yukon River may allow managers to offer increased nonsalmon fishing opportunities during times of Chinook and chum salmon conservation. Finally, Yukon River drainage residents now face multispecies salmon declines, but the degree to which people replace salmon by use of other species is currently not well understood. While conducting repeated comprehensive harvest surveys in each community is not practical, managers and researchers should expand their current efforts to document the levels of use and harvest of other species, particularly nonsalmon fish, in Yukon River drainage communities. Without accurate, timely information about the harvest of these important resources, their populations cannot be managed for sustained yield.

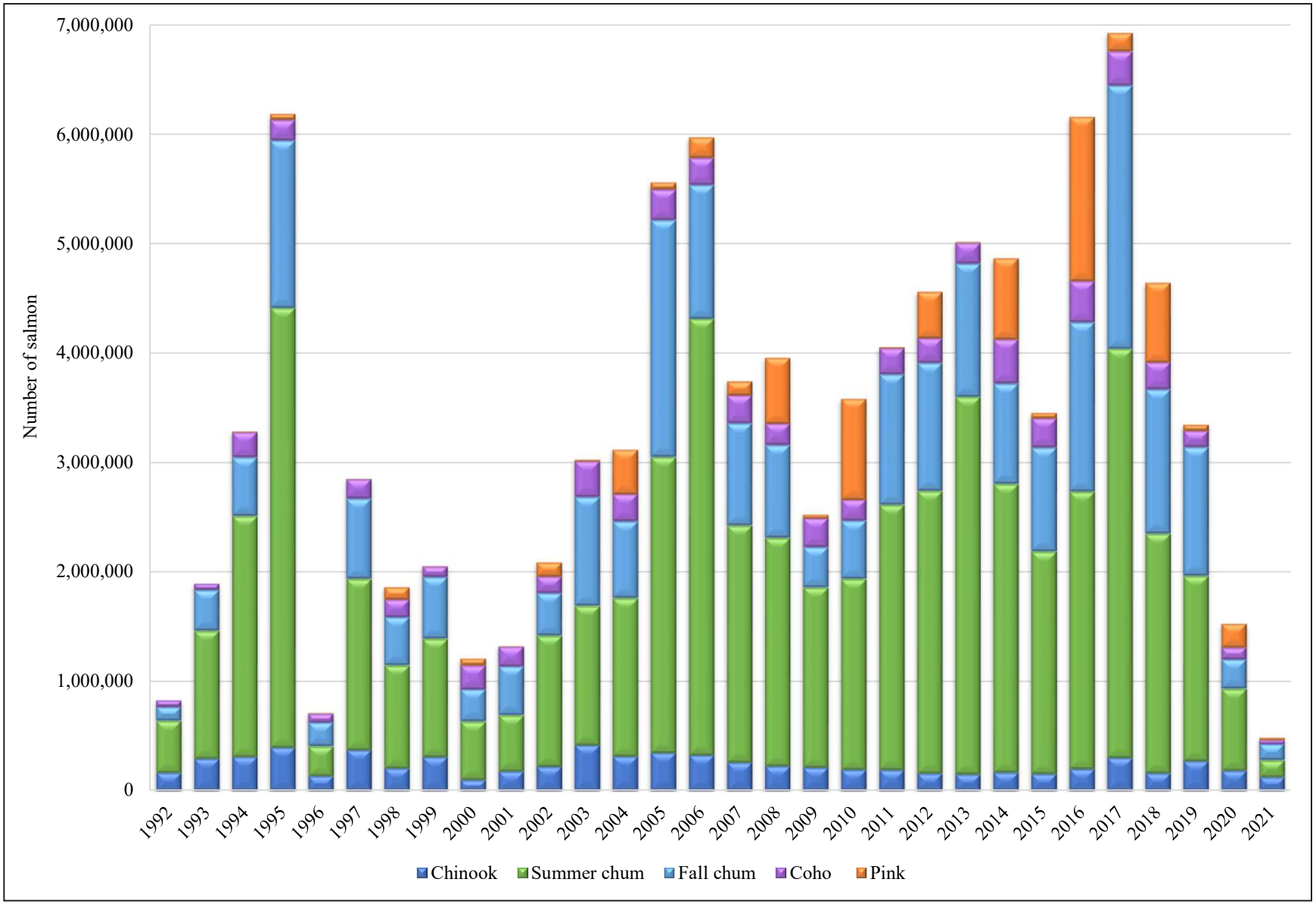


Figure 4-1.–Historical run size of salmon, Yukon River, 1992–2021.

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APPENDIX A:
SURVEY INSTRUMENT,
HOOPER BAY, ALASKA

COMPREHENSIVE WILD FOOD HARVEST SURVEY

HOOPER BAY, ALASKA

From January 1, 2021 to December 31, 2021

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: _____

INTERVIEWER 1: _____

INTERVIEWER 2: _____

INTERVIEW DATE: _____

START TIME: _____

STOP TIME: _____

DATA CODED BY: _____

DATA ENTERED BY: _____

SUPERVISOR: _____



COOPERATING ORGANIZATIONS

ADF&G
DIVISION OF SUBSISTENCE
1300 COLLEGE RD.
FAIRBANKS, AK 99701
907-328-6120

NATIVE VILLAGE OF HOOPER BAY
PO BOX 69
HOOPER BAY, AK 99604
907-758-4915

NATIVE VILLAGE OF PAIMIUT
PO BOX 240084
ANCHORAGE, AK 99534
907-561-0304

HOUSEHOLD MEMBERS

HOUSEHOLD ID

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

Last year, that is, between 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 Hooper Bay?
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							
PERSON 16	Y N		M F	Y N			
16							

PERMANENT HH MEMBERS: 01 **HOOPER BAY: 161**

HOUSEHOLD PARTICIPATION

HOUSEHOLD ID

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		LARGE LAND MAMMALS		SMALL LAND MAMMALS/ FURBEARERS		MARINE MAMMALS		MARINE INVERTEBRATES		BIRDS AND EGGS		PLANTS / BERRIES / WOOD	
	FISH FOR	PROCESS	GATHER	PROCESS	HUNT	PROCESS	HUNT / TRAP	PROCESS	HUNT	PROCESS	HUNT / 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														
PERSON 16	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
16														

PERMANENT HH MEMBERS: 01 **HOOPER BAY: 161**

RETAINED COMMERCIAL HARVESTS

HOUSEHOLD ID

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

2. During the last year (between January 1, 2021 and December 31, 2021),
did you, or members of your household PARTICIPATE in any commercial fishery?..... Y N

IF the answer to QUESTION 2 is NO, to to the *NEXT PAGE*.

IF the answer 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 to give to 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								
COHO (SILVER) SALMON	Y N	Y N	Y N				IND.	
112000001								
PINK (HUMPIES) SALMON	Y N	Y N	Y N				IND.	
114000001								
SOCKEYE (RED) SALMON	Y N	Y N	Y N				IND.	
115000001								
HERRING	Y N	Y N	Y N				GAL.	
120200001								
HALIBUT	Y N	Y N	Y N				LB.	
121800001								
CLAMS	Y N	Y N	Y N				GAL.	
500699001								
CRAB	Y N	Y N	Y N				IND.	
501099001								
LAMPREY	Y N	Y N	Y N				IND.	
122000001								

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

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

IF YES…. How many do you USUALLY harvest? (e.g. in the last 5 years)

Chinook.....	# CHINOOK
Summer Chum.....	# SUMMER CHUM
Fall Chum.....	# FALL CHUM
Coho.....	# PINK
Pink.....	# PINK
Sockeye.....	# SOCKEYE
Other _____	# OTHER?

2. During the last year (between 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, to to the *NEXT PAGE*.

IF the answer 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	SET GILL NET	DRIFT GILL NET	SEINE	DIP NET	ROD & REEL[3]	OTHER GEAR (specify type)	UNITS[4]	*# of those used just for dog food?*
CHINOOK SALMON *KING SALMON*	Y N	Y N	Y N	Y N	Y N						/	IND.	
113000000													
SUMMER CHUM	Y N	Y N	Y N	Y N	Y N						/	IND.	
111010000													
FALL CHUM	Y N	Y N	Y N	Y N	Y N						/	IND.	
111020000													
COHO SALMON	Y N	Y N	Y N	Y N	Y N						/	IND.	
112000000													
PINK SALMON *HUMPY*	Y N	Y N	Y N	Y N	Y N						/	IND.	
114000000													
SOCKEYE SALMON *RED SALMON*	Y N	Y N	Y N	Y N	Y N						/	IND.	
115000000													
UNKNOWN SALMON	Y N	Y N	Y N	Y N	Y N						/	IND.	
119000000													

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*
2 *"USE" includes harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*
3 *"ROD AND REEL" includes fish caught in open water with a hook and and a line attached to a rod or a pole. Jigging through the ice is "ice fishing."*
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 **HOOPER BAY: 161**

HARVEST SUMMARY: SALMON

HOUSEHOLD ID

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

IF LESS or MORE … X = do not use

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 salmon last year?	*… not noticable?* (0)	*… minor ?* (1)	*… major?* (2)	*… Severe?* (3)

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ASSESSMENTS OF SALMON: 66 **HOOPER BAY: 161**

HARVESTS: OTHER FISH

HOUSEHOLD ID

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 (between 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, to to the *NEXT PAGE*.

IF the answer 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	OPEN WATER SET GILL NET	OPEN WATER DRIFT GILL NET	UNDER ICE SET GILL NET	OPEN WATER JIGGING or ROD & REEL[3]	UNDER ICE JIGGING or ROD & REEL[3]	OTHER GEAR (specify type)	UNITS[4]	# of those used just for dog food?
						(number harvested by each gear type)					*amount / type*	*specify*	*amt.*
SHEEFISH *CIIQ*	Y N	Y N	Y N	Y N	Y N						/	IND.	
125600000													
HUMPBACK WHITEFISH *CINGIKEGGLIQ*	Y N	Y N	Y N	Y N	Y N						/	IND.	
126408000													
BROAD WHITEFISH *QAURTUQ/AKAKIIK*	Y N	Y N	Y N	Y N	Y N						/	IND.	
126404000													
BERING CISCO *IMARPINRAQ*	Y N	Y N	Y N	Y N	Y N						/	IND.	
126406040													
LEAST CISCO *IITULIQ*	Y N	Y N	Y N	Y N	Y N						/	IND.	
126406060													
ROUND WHITEFISH *CEV'EQ*	Y N	Y N	Y N	Y N	Y N						/	IND.	
126412000													
UNKNOWN WHITEFISH	Y N	Y N	Y N	Y N	Y N						/	IND.	
126499000													
TOM COD (SAFFRON COD) *CETURRNAQ*	Y N	Y N	Y N	Y N	Y N						/	IND.	
121010000													
SMELTS *QUSUUQ*	Y N	Y N	Y N	Y N	Y N						/	GAL.	
120499000													
BLACKFISH *CAN'GIIQ*	Y N	Y N	Y N	Y N	Y N						/	GAL.	
124600000													

…Continue on next page

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*
2 *"USE" includes harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*
3 *"ROD AND REEL" includes fish caught in open water with a hook and and a line attached to a rod or a pole. Jigging through the ice is " ice fishing."*
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

…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	OPEN WATER SET GILL NET	OPEN WATER DRIFT GILL NET	UNDER ICE SET GILL NET	OPEN WATER JIGGING or ROD & REEL[3]	UNDER ICE JIGGING or ROD & REEL[3]	OTHER GEAR (specify type)	UNITS[4]	# of those used just for dog food?
						(number harvested by each gear type)					*amount / type*	*specify*	*amt.*
PIKE *LUQRUUYAK*	Y N	Y N	Y N	Y N	Y N						/	IND.	
125500000													
LUSH (BURBOT) *MANIGGNAQ*	Y N	Y N	Y N	Y N	Y N						/	IND.	
124800000													
HERRING *IQALLUARPAK*	Y N	Y N	Y N	Y N	Y N						/	GAL.	
120200000													
HERRING ROE *MELUCUAQ*	Y N	Y N	Y N	Y N	Y N						/	GAL.	
120302000													
HALIBUT *NATERNARPAK*	Y N	Y N	Y N	Y N	Y N						/	LB.	
121800000													
STICKLEBACK (NEEDLEFISH) *QUARUQ*	Y N	Y N	Y N	Y N	Y N						/	GAL.	
123800000													
SCULPIN (DEVILFISH) *NIRTULII*	Y N	Y N	Y N	Y N	Y N						/	IND.	
123099000													
LAMPREYS *EEL*	Y N	Y N	Y N	Y N	Y N						/	IND.	
122000000													
FLOUNDER (FLATFISH) *NATERNAQ*	Y N	Y N	Y N	Y N	Y N						/	IND.	
121499000													
WALLEYE POLLOCK (WHITING)	Y N	Y N	Y N	Y N	Y N						/	IND.	
121012000													
DOLLY VARDEN	Y N	Y N	Y N	Y N	Y N						/	IND.	
125006990													

…Continue on next page

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*
2 *"USE" includes harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*
3 *"ROD AND REEL" includes fish caught in open water with a hook and and a line attached to a rod or a pole. Jigging through the ice is " ice fishing."*
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

…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	OPEN WATER SET GILL NET	OPEN WATER DRIFT GILL NET	UNDER ICE SET GILL NET	OPEN WATER JIGGING or ROD & REEL[3]	UNDER ICE JIGGING or ROD & REEL[3]	OTHER GEAR (specify type)	UNITS[4]	# of those used just for dog food?
						(number harvested by each gear type)					*amount / type*	*specify*	*amt.*
GRAYLING *CULUGPAUK*	Y N	Y N	Y N	Y N	Y N						/	IND.	
125200000													
RAINBOW TROUT *TALAARIK*	Y N	Y N	Y N	Y N	Y N						/	IND.	
126204000													
	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						/		
	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 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 harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*
3 *"ROD AND REEL" includes fish caught in open water with a hook and and a line attached to a rod or a pole. Jigging through the ice is "ice fishing."*
4 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

OTHER FISH: 06 **HOOPER BAY: 161**

HARVEST SUMMARY: OTHER FISH

HOUSEHOLD ID

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

IF LESS or MORE … X = do not use

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 other fish last year?

… not noticable?	*… minor ?*	*… major?*	*… Severe?*
(0)	*(1)*	*(2)*	*(3)*

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ASSESSMENTS OF OTHER FISH: 66 **HOOPER BAY: 161**

HARVESTS: MARINE INVERTEBRATES

HOUSEHOLD ID

1. Do you or members of your household USUALLY harvest marine invertebrates for subsistence, personal use, or sport? Y N

2. During the last year (between 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, to to the *NEXT PAGE*.

IF the answer 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 with ….

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 marine invertebrates caught commercially, or were not retained.

Read names below in blanks above	A USE	B REC	C GIVE	D TRY	E HAR	AMOUNT *(amt)*	Units[3] *specify*	COMMENTS *(text)*
KING CRAB *YUALE'RSAQ*	Y N	Y N	Y N	Y N	Y N		IND.	
501008990								
TANNER CRAB	Y N	Y N	Y N	Y N	Y N		IND.	
501012990								
MUSSELS	Y N	Y N	Y N	Y N	Y N		GAL.	
502099000								
CLAMS	Y N	Y N	Y N	Y N	Y N		GAL.	
500699000								
SHRIMP	Y N	Y N	Y N	Y N	Y N		GAL.	
503400000								
	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 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 harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*
3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

MARINE INVERTEBRATES: 08 **HOOPER BAY: 161**

HARVEST SUMMARY: MARINE INVERTEBRATES

HOUSEHOLD ID

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

IF LESS or MORE … X = do not use

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 marine invertebrates last year?

… not noticable?	*… minor ?*	*… major?*	*… Severe?*
(0)	*(1)*	*(2)*	*(3)*

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ASSESSMENTS OF MARINE INVERTEBRATES: 66 **HOOPER BAY: 161**

HARVESTS: LARGE LAND MAMMALS

HOUSEHOLD ID

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

2. During the last year (between 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, to to the *NEXT PAGE*.

IF the answer 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. How many were harvested in ….

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)*													*(specify)*	*(num.)*
MOOSE *TUNTUVAK*	Y N	Y N	Y N	Y N	Y N	M														IND.	
						F														IND.	
211800000						UNK														IND.	
211800001						1															
211800002						2															
211800009						-9															
CARIBOU *TUNTU*	Y N	Y N	Y N	Y N	Y N	M														IND.	
						F														IND.	
211000000						UNK														IND.	
211000001						1															
211000002						2															
211000009						-9															
BLACK BEAR *TAN'GERLIQ*	Y N	Y N	Y N	Y N	Y N															IND.	
210600000																					
BROWN BEAR *CARAYAK*	Y N	Y N	Y N	Y N	Y N															IND.	
210800000																					
MUSKOX *MAANKAAQ*	Y N	Y N	Y N	Y N	Y N															IND.	
212000000																					
DALL SHEEP	Y N	Y N	Y N	Y N	Y N															IND.	
212200000																					
BISON	Y N	Y N	Y N	Y N	Y N															IND.	
210400000																					
	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 harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*
3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

LARGE LAND MAMMALS: 10 **HOOPER BAY: 161**

HARVEST SUMMARY: LARGE LAND MAMMALS

HOUSEHOLD ID

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

IF LESS or MORE … X = do not use

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 large land mammals last year?

… not noticable?	*… minor ?*	*… major?*	*… Severe?*
(0)	*(1)*	*(2)*	*(3)*

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ASSESSMENTS OF LARGE LAND MAMMALS: 66 **HOOPER BAY: 161**

HARVESTS: SMALL LAND MAMMALS OR FURBEARERS

HOUSEHOLD ID

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 (between 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, to to the *NEXT PAGE*.

IF the answer 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. How many were harvested in ….

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	NUMBER USED FOR FOOD OR FOR FOOD & FUR	UNITS[3]
						(specify amount harvested per month)													*(amount)*	*specify*
BEAVER *PALUQTAQ*	Y N	Y N	Y N	Y N	Y N															IND.
220200000																				
SNOWSHOE HARE *MAQARUAQ*	Y N	Y N	Y N	Y N	Y N															IND.
221004000																				
ARCTIC HARE *QAYUQEGGLIQ*	Y N	Y N	Y N	Y N	Y N															IND.
221002000																				
PORCUPINE *ISSALUQ*	Y N	Y N	Y N	Y N	Y N															IND.
222600000																				
MUSKRAT *KANAQLAK*	Y N	Y N	Y N	Y N	Y N															IND.
222400000																				
GROUND SQUIRREL *QANGANAQ*	Y N	Y N	Y N	Y N	Y N															IND.
222802000																				
	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															

…Continue on next page

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

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

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

SMALL LAND MAMMALS OR FURBEARERS: 14 **HOOPER BAY: 161**

HARVESTS: SMALL LAND MAMMALS OR FURBEARERS

HOUSEHOLD ID

…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. How many were harvested in ….

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 FOR FOOD & FUR	UNITS[3]
						(specify amount harvested per month)													*(amount)*	*specify*
RED FOX *KAVIAQ*	Y N	Y N	Y N	Y N	Y N															IND.
220804000																				
LYNX *TERTULI*	Y N	Y N	Y N	Y N	Y N															IND.
221600000																				
RIVER OTTER *CUIGNILNGUQ*	Y N	Y N	Y N	Y N	Y N															IND.
221200000																				
MINK *IMARMIUTAQ*	Y N	Y N	Y N	Y N	Y N															IND.
222200000																				
ARCTIC FOX *ULIIQ*	Y N	Y N	Y N	Y N	Y N															IND.
220802000																				
WOLF *KEGLUNEQ*	Y N	Y N	Y N	Y N	Y N															IND.
223200000																				
WOLVERINE *TERIKANIAQ*	Y N	Y N	Y N	Y N	Y N															IND.
223400000																				
COYOTE *KAYU*	Y N	Y N	Y N	Y N	Y N															IND.
220400000																				
MARTEN *QAVCICUAQ*	Y N	Y N	Y N	Y N	Y N															IND.
222000000																				
	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 harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*
3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

SMALL LAND MAMMALS OR FURBEARERS: 14 **HOOPER BAY: 161**

HARVEST SUMMARY: SMALL LAND ANIMALS

HOUSEHOLD ID

If this household did NOT USE or HARVEST small land animals 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…*

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

IF LESS or MORE … X = do not use

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 small land mammals/furbearers last year?	*… not noticable?* (0)	*… minor ?* (1)	*… major?* (2)	*… Severe?* (3)

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ASSESSMENTS OF SMALL LAND ANIMALS: 66 **HOOPER BAY: 161**

HARVESTS: MARINE MAMMALS

HOUSEHOLD ID

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

2. During the last year (between 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, to to the *NEXT PAGE*.

IF the answer 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. How many were harvested in ….

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	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	UNKNOWN	UNITS[3]
						M/F	*(specify amount harvested per month)*													*(specify)*
BEARDED SEAL *MAKLAK*	Y N	Y N	Y N	Y N	Y N	M														IND.
						F														IND.
300802000						UNK														IND.
300802001						1														
300802002						2														
300802009						-9														
RINGED SEAL *NAYIQ*	Y N	Y N	Y N	Y N	Y N															IND.
300810000																				
SPOTTED SEAL *ISSURIQ*	Y N	Y N	Y N	Y N	Y N															IND.
300812000																				
RIBBON SEAL *QASRULEK*	Y N	Y N	Y N	Y N	Y N															IND.
300808000																				
UNKNOWN SEAL *(OR SEAL OIL)*	Y N	Y N	Y N	Y N	Y N															IND.
300899000																				
BELUGA WHALE *(OR WHITE MUKTUK)*	Y N	Y N	Y N	Y N	Y N															IND.
301602000																				
BOWHEAD WHALE *(OR BLACK MUKTUK)*	Y N	Y N	Y N	Y N	Y N															IND.
301606000																				
WALRUS *ASVEQ*	Y N	Y N	Y N	Y N	Y N															IND.
301400000																				
	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 harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*
3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

MARINE MAMMALS: 12 **HOOPER BAY: 161**

HARVESTS: BIRDS

HOUSEHOLD ID

1. Do you or members of your household USUALLY hunt for birds?..... Y N

2. During the last year (between 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, to to the *NEXT PAGE*.

IF the answer 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. How many were harvested in ….

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)
AMERICAN WIGEON *KATKEGGLIQ*	Y N	Y N	Y N	Y N	Y N						IND.
410236020											
TEAL *TENGESQAAQ*	Y N	Y N	Y N	Y N	Y N						IND.
410232990											
MALLARD *YUUKARPAK*	Y N	Y N	Y N	Y N	Y N						IND.
410214000											
NORTHERN PINTAIL *YUUKAQ*	Y N	Y N	Y N	Y N	Y N						IND.
410220000											
NORTHERN SHOVELER *CURCURPAK*	Y N	Y N	Y N	Y N	Y N						IND.
410230000											
BLACK SCOTER *KUKUMYARAK*	Y N	Y N	Y N	Y N	Y N						IND.
410228020											
SURF SCOTER *AKACAKAAYAK*	Y N	Y N	Y N	Y N	Y N						IND.
410228040											
WHITE-WINGED SCOTER *AKACAKAAYAK*	Y N	Y N	Y N	Y N	Y N						IND.
410228060											
BUFFLEHEAD (BUTTERBALL) *PUGTAQUTAYAGAQ*	Y N	Y N	Y N	Y N	Y N						IND.
410202000											
GOLDENEYE *ANARNISSAGAQ*	Y N	Y N	Y N	Y N	Y N						IND.
410210990											

…Continue on the next page

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*
2 *"USE" includes harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*
3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

BIRDS: 15 **HOOPER BAY: 161**

HARVEST SUMMARY: MARINE MAMMALS

HOUSEHOLD ID

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

IF LESS or MORE … X = do not use

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 marine mammals last year?

… not noticable?	… minor ?	… major?	… Severe?
(0)	(1)	(2)	(3)

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ASSESSMENTS OF MARINE MAMMALS: 66 **HOOPER BAY: 161**

HARVESTS: BIRDS

HOUSEHOLD ID

…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. How many were harvested in ….
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)
						(number killed in each season)					
SCAUP *KEP'ALEK*	Y N	Y N	Y N	Y N	Y N						IND.
410226990											
COMMON EIDER *METRAQ*	Y N	Y N	Y N	Y N	Y N						IND.
410206020											
KING EIDER *QENGALLEK*	Y N	Y N	Y N	Y N	Y N						IND.
410206040											
SPECTACLED EIDER *QAUGEQ/ACKILEK*	Y N	Y N	Y N	Y N	Y N						IND.
410206060											
STELLER'S EIDER *CAQAIRAQ*	Y N	Y N	Y N	Y N	Y N						IND.
410206080											
HARLEQUIN DUCK *CETUSKARAK*	Y N	Y N	Y N	Y N	Y N						IND.
410212000											
LONG-TAILED DUCK *AARRAANGIIQ*	Y N	Y N	Y N	Y N	Y N						IND.
410218000											
BLACK BRANT *NEQLERNAQ*	Y N	Y N	Y N	Y N	Y N						IND.
410402000											
CACKLING/CANADA GOOSE *TUUTANGAYAK*	Y N	Y N	Y N	Y N	Y N						IND.
410404990											
GREATER WHITE-FRONTED GOOSE *NEQLEQ*	Y N	Y N	Y N	Y N	Y N						IND.
410410000											
EMPEROR GOOSE *NACAULLER*	Y N	Y N	Y N	Y N	Y N						IND.
410406000											

…Continue on the next page

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*
2 *"USE" includes harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*
3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

BIRDS: 15 **HOOPER BAY: 161**

HARVESTS: BIRDS

HOUSEHOLD ID

…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. How many were harvested in ….
INCLUDE birds that members of this household gave away, are 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	January February March November December WINTER	April May June SPRING	July August SUMMER	September October FALL	Season of harvest unknown (number)	UNITS[3] (specify)
SNOW GOOSE *KANGUQ*	Y N	Y N	Y N	Y N	Y N						IND.
410408000											
SWAN *QUGYUK*	Y N	Y N	Y N	Y N	Y N						IND.
410699000											
SANDHILL CRANE *QUCILLGAQ*	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 *QANGQIIQ*	Y N	Y N	Y N	Y N	Y N						IND.
421804990											
LOON *QERQAUQ*	Y N	Y N	Y N	Y N	Y N						IND.
411216990											
SEABIRDS	Y N	Y N	Y N	Y N	Y N						IND.
411299000											
SHOREBIRDS *PUYUNGUAQ*	Y N	Y N	Y N	Y N	Y N						IND.
411099000											
	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 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 harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*
3 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

BIRDS: 15 **HOOPER BAY: 161**

HARVEST SUMMARY: BIRDS AND EGGS

HOUSEHOLD ID

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

IF LESS or MORE … X = do not use

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 birds and eggs last year?

… *not noticable?*	… *minor ?*	… *major?*	… *Severe?*
(0)	*(1)*	*(2)*	*(3)*

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ASSESSMENTS OF BIRDS AND EGGS: 66 **HOOPER BAY: 161**

HARVESTS: BIRD EGGS

HOUSEHOLD ID

1. Do you or members of your household USUALLY harvest bird eggs?..... Y N

2. During the last year (between 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, to to the *NEXT PAGE*.

IF the answer 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. How many were harvested with ….

INCLUDE bird eggs 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.

Read names below in blanks above	A USE	B REC	C GIVE	D TRY	E HAR	AMOUNT *(amt)*	Units[4] *specify*	COMMENTS *(text)*
DUCK EGGS *UUTEKI'INRAQ PEKSUQ*	Y N	Y N	Y N	Y N	Y N		IND.	
430200000								
GOOSE EGGS *LAGILINRAAT*	Y N	Y N	Y N	Y N	Y N		IND.	
430400000								
SWAN EGGS *QUGYINRAAT*	Y N	Y N	Y N	Y N	Y N		IND.	
430699000								
LOON EGGS	Y N	Y N	Y N	Y N	Y N		IND.	
431216990								
GULL EGGS *NARUYINRAAT*	Y N	Y N	Y N	Y N	Y N		IND.	
431212990								
TERN EGGS *NACALLNGAQ*	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			

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 harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*
4 *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 **HOOPER BAY: 161**

HARVESTS: PLANTS AND BERRIES (INCLUDING WOOD)

HOUSEHOLD ID

1. Do you or members of your household USUALLY harvest plants and berries (including wood)?..... Y N

2. During the last year (between 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, to to the *NEXT PAGE*.

IF the answer 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 harvesting 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 *(amt)*	Units[4] *specify*	COMMENTS *(text)*
CLOUD BERRY (SALMONBERRY) *ATSAQ*	Y N	Y N	Y N	Y N	Y N		GAL.	
601016000								
BLUEBERRY *CURAQ*	Y N	Y N	Y N	Y N	Y N		GAL.	
601002000								
CROWBERRY (BLACKBERRY) *TAN'GERPAK*	Y N	Y N	Y N	Y N	Y N		GAL.	
601007000								
LOW BUSH CRANBERRY *TUMAGGLIQ*	Y N	Y N	Y N	Y N	Y N		GAL.	
601004000								
HIGH BUSH CRANBERRY *KITNGIK*	Y N	Y N	Y N	Y N	Y N		GAL.	
601006000								
NAGOONBERRY *PUYURAQ*	Y N	Y N	Y N	Y N	Y N		GAL.	
601018000								
LABRADOR TEA *AYUK*	Y N	Y N	Y N	Y N	Y N		GAL.	
602018000								
STINKWEED *CAIGGLUK*	Y N	Y N	Y N	Y N	Y N		GAL.	
602044000								
SOURDOCK *KUAGGCIQ*	Y N	Y N	Y N	Y N	Y N		GAL.	
602028000								
WILD RHUBARB *ANGUKAQ*	Y N	Y N	Y N	Y N	Y N		GAL.	
602006000								
WILD PARSLEY *MECUQELUGGAQ*	Y N	Y N	Y N	Y N	Y N		GAL.	
602034000								

…Continue on the next page

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*
2 *"USE" includes harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*
4 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

PLANTS AND BERRIES (INCLUDING WOOD): 17 **HOOPER BAY: 161**

HARVESTS: PLANTS AND BERRIES (INCLUDING WOOD)

HOUSEHOLD ID

…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 for subsistence uses during the last year. How many were harvested with ….

INCLUDE plants and berries (including wood) that members of this household gave away, are 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.

Read names below in blanks above	A USE	B REC	C GIVE	D TRY	E HAR	AMOUNT *(amt)*	Units[4] *specify*	COMMENTS *(text)*
WILD CELERY *TARNAQ*	Y N	Y N	Y N	Y N	Y N		GAL.	
602032000								
FIDDLEHEAD FERNS *CETUGUAQ*	Y N	Y N	Y N	Y N	Y N		GAL.	
602014000								
MUSHROOMS	Y N	Y N	Y N	Y N	Y N		GAL.	
602040000								
CHAGA	Y N	Y N	Y N	Y N	Y N		GAL.	
602046040								
PUNK *KUMAKAQ*	Y N	Y N	Y N	Y N	Y N		GAL.	
602046010								
MUSKRAT CANDY *ANLLAQ*	Y N	Y N	Y N	Y N	Y N		GAL.	
602060000								
BEACH GREENS	Y N	Y N	Y N	Y N	Y N		GAL.	
602010000								
OTHER WILD GREENS	Y N	Y N	Y N	Y N	Y N		GAL.	
602038000								
	Y N	Y N	Y N	Y N	Y N			

FIREWOOD

	USE?	TRY TO HARVEST?	HARVEST?	RECEIVE?	GIVE AWAY?
FIREWOOD	Y N	Y N	Y N	Y N	Y N
604000000					

Please estimate the percentage of your household's heating needs in 2021 that came from firewood.

0%	1% - 25%	26% - 50%	51% - 75%	76% - 99%	100%
(0)	(1)	(2)	(3)	(4)	(5)

(circle one)

During the last year, did your household use any other kind of PLANTS AND BERRIES (INCLUDING WOOD)?..... 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 harvesting, processing, eating, trading, feeding to dogs, etc. "TRY" includes looking, hunting, fishing, or any attempt to get.*
4 *UNITS will differ by species and situation. Units may be pounds (lbs), individuals (ind), portions of individuals (1/4), buckets, sacks, tubs, etc.*

PLANTS AND BERRIES (INCLUDING WOOD): 17 **HOOPER BAY: 161**

HARVEST SUMMARY: PLANTS AND BERRIES

HOUSEHOLD ID

If this household did NOT USE or HARVEST plants and berries 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 plants, berries, and 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

IF LESS or MORE … X = do not use

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 plants and berries (including wood) last year?	*… not noticable?* (0)	*… minor ?* (1)	*… major?* (2)	*… Severe?* (3)

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ASSESSMENTS OF PLANTS AND BERRIES: 66 **HOOPER BAY: 161**

HARVEST SUMMARY: ALL RESOURCES

HOUSEHOLD ID

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 wild resources than in recent years? …….. X L S M

IF LESS or MORE … X = do not use

WHY was your use different? _____ 1

_____ 2

During the last year,[1]

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

If NO…

What KIND of wild resources did you need? _____

How would you describe the impact to your household of not getting enough wild resources last year? ……	*… not noticable?* (0)	*… minor ?* (1)	*… major?* (2)	*… Severe?* (3)

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ASSESSMENTS OF ALL RESOURCES: 66 **HOOPER BAY: 161**

FOOD SECURITY

HOUSEHOLD ID

The questions on this page have been asked all over the United States to find out if Americans have enough to eat. We would like to know if people in your community have enough to eat. I'd like you to think about all your household's food, both wild food and store-bought...

Which of these three statements best describes the food eaten in your household in the last 12 months…

(Circle one)

1 **STATEMENT 1**. We had enough of the kinds of food we wanted to eat……
2 **STATEMENT 2**. We had enough food, but not always the KIND of food we wanted to eat……
3 **STATEMENT 3**. Sometimes, or often, we did **NOT HAVE ENOUGH** food to eat……

1 2 3

HH1

If 2 or 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.** HH2

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 you worried 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.** HH4

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

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.** HH3

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.**

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.**

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: 201 **HOOPER BAY: 161**

FOOD SECURITY

HOUSEHOLD ID

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, were adults in the HH ever NOT EAT FOR A WHOLE DAY because there was not enough food?..... AD5 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

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

Starting with the first head of your household, what job or jobs did he or she have last year?

For each member of this household born before 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				WORK SCHEDULE[2]					
	Person code from page 2	What kind of work did he or she do in this job?	For whom did he or she work in this job?	In the past year, what months did he or she work in this job?	FULL TIME	PART TIME	SHIFT - FULL TIME	ON-CALL, VARIES	SHIFT - PART TIME	In the past year how much did hee or she earn in this job?
	(ID #)	*(job title [1])*	*(employer)*	*(circle each month worked)*	*(circle one)*					*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:*					

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

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 PFDs = $2,228
3 PFDs = $3,342
4 PFDs = $4,456
5 PFDs = $5,570
6 PFDs = $6,684
7 PFDs = $7,798
8 PFDs = $8,912
9 PFDs = $10,026
10 PFDs = $11,140
11 PFDs = $12,254

Regional corporations	*Dividend*
Village Corporation(s)	*Dividend*

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				

		Received? (circle one)		Total amount? (dollars)	
FAMILY & CHILD	TANF (say "tanif", used to be AFDC)	Y	N	$	/ YR
	2				
	CHILD SUPPORT	Y	N	$	/ YR
	15				
	FOSTER CARE	Y	N	$	/ YR
	41				
OTHER	FUEL VOUCHERS	Y	N	$	/ YR
	49				
	MEETING HONORARIA *(not per diem*)*	Y	N	$	/ YR
	50				
	STIMULUS CHECK *(economic impact payment)*	Y	N	$	/ YR
	51				
	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 =

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

OTHER INCOME: 24 **HOOPER BAY: 161**

COMMENTS

HOUSEHOLD ID

DO YOU HAVE ANY QUESTIONS, COMMENTS OR CONCERNS?

INTERVIEW SUMMARY: **DON'T FORGET TO FILL IN THE STOP TIME** _____

COMMENTS: 300 **HOOPER BAY: 161**

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APPENDIX B:
SURVEY INSTRUMENT,
CHEVAK, ALASKA

COMPREHENSIVE WILD FOOD HARVEST SURVEY

CHEVAK, ALASKA

From January 1, 2021 to December 31, 2021

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:	Chevak	83
INTERVIEWER 1:		
INTERVIEWER 2:		
INTERVIEW DATE:		
START TIME:		
STOP TIME:		
DATA CODED BY:		
DATA ENTERED BY:		
SUPERVISOR:		



Photo: *NOAA Fisheries*

COOPERATING ORGANZATIONS

ALASKA DEPARTMENT OF FISH AND GAME
1300 COLLEGE RD.
FAIRBANKS, AK 99701
907-328-6120

CHEVAK NATIVE VILLAGE
PO BOX 140
CHEVAK, AK 99563
907-858-7428

HH INFORMATION: 00 **CHEVAK: 83**

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 ALASKAN NATIVE?	In what YEAR was this person born?	Where were parents living when this person was born?	Total years person lived in Chevak?
ID #	*(circle)*	*(relation)*	*(circle)*	*(circle)*	*(year)*	*(AK city or state)*	*(year)*
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 **CHEVAK: 83**

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)
							(specify amount harvested per month)													
BEARDED SEAL *MAKLAK*	Y N	Y N	Y N	Y N	Y N	M														IND.
						F														IND.
300802000						UNK														IND.
300802001						1														
300802002						2														
300802009						-9														
RINGED SEAL *NAYIQ*	Y N	Y N	Y N	Y N	Y N															IND.
300810000																				
SPOTTED SEAL *ISSURIQ*	Y N	Y N	Y N	Y N	Y N															IND.
300812000																				
RIBBON SEAL *QASRULEK*	Y N	Y N	Y N	Y N	Y N															IND.
300808000																				
UNKNOWN SEAL *(OR SEAL OIL) UQUQ*	Y N	Y N	Y N	Y N	Y N															IND.
300899000																				
BELUGA WHALE *(OR WHITE MUKTUK)/CITUAQ*	Y N	Y N	Y N	Y N	Y N															IND.
301602000																				
BOWHEAD WHALE *(OR BLACK MUKTUK)*	Y N	Y N	Y N	Y N	Y N															IND.
301606000																				
WALRUS *KAUGPAK*	Y N	Y N	Y N	Y N	Y N															IND.
301400000																				
	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 **CHEVAK: 83**

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?*	*major?*	*severe?*
(0)	(1)	(2)	(3)

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ASSESSMENTS OF MARINE MAMMALS: 66 **CHEVAK: 83**

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 *TARYAQVAK*	Y N	Y N	Y N				IND.	
113000001								
CHUM (DOG) SALMON *QAVLUNAQ*	Y N	Y N	Y N				IND.	
111000001								
COHO (SILVER) SALMON	Y N	Y N	Y N				IND.	
112000001								
PINK (HUMPY) SALMON *CUQPEQ*	Y N	Y N	Y N				IND.	
114000001								
SOCKEYE (RED) SALMON *CAYAK*	Y N	Y N	Y N				IND.	
115000001								
HALIBUT *NATERNARPAK*	Y N	Y N	Y N				LB.	
121800001								
LAMPREY	Y N	Y N	Y N				IND.	
122000001								
LEAST CISCO *IITULIQ*	Y N	Y N	Y N				IND.	
126406061								
	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 retain any other kind of commercialy retained fish or marine invertebrate?..... 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.*
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.*

COMMERCIAL FISHING: 03 **CHEVAK: 83**

HARVESTS: NONSALMON

HOUSEHOLD ID HHID

1. Do you or members of your household USUALLY fish for nonsalmon 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 nonsalmon ?..... 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 nonsalmon ALL MEMBERS OF YOUR HOUSEHOLD got during the last year. How many were harvested with ….

INCLUDE nonsalmon 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	OPEN WATER SET GILL NET	OPEN WATER DRIFT GILL NET	UNDER ICE SET GILL NET	OPEN WATER JIGGING or ROD & REEL[3]	UNDER ICE JIGGING or 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*
SHEEFISH *CIIQ*	Y N	Y N	Y N	Y N	Y N						/	IND.	
125600000													
HUMPBACK WHITEFISH *CINGIKEGGLIQ*	Y N	Y N	Y N	Y N	Y N						/	IND.	
126408000													
BROAD WHITEFISH *QAURTUQ/AKAKIIK*	Y N	Y N	Y N	Y N	Y N						/	IND.	
126404000													
BERING CISCO *IMARPINRAQ*	Y N	Y N	Y N	Y N	Y N						/	IND.	
126406040													
LEAST CISCO *IITULIQ*	Y N	Y N	Y N	Y N	Y N						/	IND.	
126406060													
ROUND WHITEFISH *CEV'EQ*	Y N	Y N	Y N	Y N	Y N						/	IND.	
126412000													
UNKNOWN WHITEFISH *NAPTAQ*	Y N	Y N	Y N	Y N	Y N						/	IND.	
126499000													
TOM COD (SAFFRON COD) *CITEQTAQ*	Y N	Y N	Y N	Y N	Y N						/	IND.	
121010000													
SMELTS *QUSUUQ*	Y N	Y N	Y N	Y N	Y N						/	GAL.	
120499000													
BLACKFISH *CAN'GIIQ*	Y N	Y N	Y N	Y N	Y N						/	GAL.	
124600000													
PIKE *CUKVAQ*	Y N	Y N	Y N	Y N	Y N						/	IND.	
125500000													

… 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.*

OTHER FISH: 06 **CHEVAK: 83**

HARVESTS: NONSALMON

HOUSEHOLD ID HHID

IF this household did not USE or TRY TO HARVEST nonsalmon 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 nonsalmon ALL MEMBERS OF YOUR HOUSEHOLD got during the last year. How many were harvested with ….

INCLUDE nonsalmon 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	OPEN WATER SET GILL NET	OPEN WATER DRIFT GILL NET	UNDER ICE SET GILL NET	OPEN WATER JIGGING or ROD & REEL[3]	UNDER ICE JIGGING or 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*
LUSH (BURBOT) *MANIGGNAQ*	Y N	Y N	Y N	Y N	Y N						/	IND.	
124800000													
HERRING *IQALLUARPAK*	Y N	Y N	Y N	Y N	Y N						/	GAL.	
120200000													
HERRING ROE *ELLQUAT*	Y N	Y N	Y N	Y N	Y N						/	GAL.	
120302000													
HALIBUT *NATERNARPAK*	Y N	Y N	Y N	Y N	Y N						/	LB.	
121800000													
STICKLEBACK (NEEDLEFISH) *CUKILEK*	Y N	Y N	Y N	Y N	Y N						/	GAL.	
123800000													
SCULPIN (DEVILFISH) *KAYURRLUGAQ*	Y N	Y N	Y N	Y N	Y N						/	IND.	
123099000													
LAMPREYS *EEL*	Y N	Y N	Y N	Y N	Y N						/	IND.	
122000000													
FLOUNDER (FLATFISH) *NATERNAQ*	Y N	Y N	Y N	Y N	Y N						/	IND.	
121499000													
WALLEYE POLLOCK (WHITING) *KALAGAQ*	Y N	Y N	Y N	Y N	Y N						/	IND.	
121012000													
DOLLY VARDEN *IQALLUGPIK*	Y N	Y N	Y N	Y N	Y N						/	IND.	
125006990													
GRAYLING *CULUGPAUK*	Y N	Y N	Y N	Y N	Y N						/	IND.	
125200000													
RAINBOW TROUT *TALAARIK*	Y N	Y N	Y N	Y N	Y N						/	IND.	
126204000													

… 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.*

OTHER FISH: 06 **CHEVAK: 83**

HARVESTS: NONSALMON

HOUSEHOLD ID HHID

IF this household did not USE or TRY TO HARVEST nonsalmon 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 nonsalmon ALL MEMBERS OF YOUR HOUSEHOLD got during the last year. How many were harvested with ….

INCLUDE nonsalmon 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	OPEN WATER SET GILL NET	OPEN WATER DRIFT GILL NET	UNDER ICE SET GILL NET	OPEN WATER JIGGING or ROD & REEL[3]	UNDER ICE JIGGING or 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*
	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						/		
	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 nonsalmon?..... 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.*

OTHER FISH: 06 **CHEVAK: 83**

HARVEST SUMMARY: NONSALMON

HOUSEHOLD ID HHID

If this household DID NOT USE or HARVEST nonsalmon 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 nonsalmon…*

ASSESSMENTS: NONSALMON 120000000

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

During the last year,[1]

...Did your household use LESS, SAME, or MORE nonsalmon 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 nonsalmon?..... Y N

IF NO…

What KIND of nonsalmon did you need? _____

_____

_____

How would you describe the impact to your household of not getting enough last year?

not noticable?	*minor?*	*major?*	*severe?*
(0)	(1)	(2)	(3)

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ASSESSMENTS OF NONSALMON: 66 **CHEVAK: 83**

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

IF YES… How many do you USUALLY harvest?

Chinook….....	# CHINOOK
Summer Chum….....	# SUMMER CHUM
Fall Chum….....	# FALL CHUM
Coho….....	# COHO
Pink….....	# PINK
Sockeye….....	# SOCKEYE
Other _____	# OTHER

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	SET GILL NET	DRIFT GILL NET	SEINE	DIP NET	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*
CHINOOK (KING) SALMON *TARYAQVAK*	Y N	Y N	Y N	Y N	Y N						/	IND.	
113000000													
SUMMER CHUM *QAVLUNAQ*	Y N	Y N	Y N	Y N	Y N						/	IND.	
111010000													
FALL CHUM	Y N	Y N	Y N	Y N	Y N						/	IND.	
111020000													
COHO (SILVER) SALMON	Y N	Y N	Y N	Y N	Y N						/	IND.	
112000000													
PINK (HUMPY) SALMON *CUQPEQ*	Y N	Y N	Y N	Y N	Y N						/	IND.	
114000000													
SOCKEYE (RED) SALMON *CAYAK*	Y N	Y N	Y N	Y N	Y N						/	IND.	
115000000													
UNKNOWN SALMON	Y N	Y N	Y N	Y N	Y N						/	IND.	
119000000													

… continue with assessments questions on the 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.*

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?*	*major?*	*severe?*
(0)	(1)	(2)	(3)

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ASSESSMENTS OF SALMON: 66 **CHEVAK: 83**

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
KING CRAB *YUALE'RSAQ*	Y N	Y N	Y N	Y N	Y N		IND.	
501008990								
TANNER CRAB	Y N	Y N	Y N	Y N	Y N		IND.	
501012990								
MUSSELS *QAPILAAQ*	Y N	Y N	Y N	Y N	Y N		GAL.	
502099000								
CLAMS *APAKUSSUTAQ*	Y N	Y N	Y N	Y N	Y N		GAL.	
500699000								
SHRIMP *CUNGARALUKVAK*	Y N	Y N	Y N	Y N	Y N		GAL.	
503400000								
	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 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.*

SALMON: 04 **CHEVAK: 83**

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?*	*major?*	*severe?*
(0)	(1)	(2)	(3)

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ASSESSMENTS OF MARINE INVERTEBRATES: 66 **CHEVAK: 83**

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)*
MOOSE *TUNTUVAK*	Y N	Y N	Y N	Y N	Y N	M														IND.	
						F														IND.	
211800000						UNK														IND.	
211800001						1															
211800002						2															
211800009						-9															
CARIBOU *TUNTU*	Y N	Y N	Y N	Y N	Y N	M														IND.	
						F														IND.	
211000000						UNK														IND.	
211000001						1															
211000002						2															
211000009						-9															
BLACK BEAR *TAN'GERLIQ*	Y N	Y N	Y N	Y N	Y N															IND.	
210600000																					
BROWN BEAR *CARAYAK*	Y N	Y N	Y N	Y N	Y N															IND.	
210800000																					
MUSKOX *MAANKAAQ*	Y N	Y N	Y N	Y N	Y N															IND.	
212000000																					
DALL SHEEP	Y N	Y N	Y N	Y N	Y N															IND.	
212200000																					
BISON	Y N	Y N	Y N	Y N	Y N															IND.	
210400000																					
	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 **CHEVAK: 83**

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?*	*major?*	*severe?*
(0)	(1)	(2)	(3)

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ASSESSMENTS OF LARGE LAND MAMMALS: 66 **CHEVAK: 83**

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)														
BEAVER *PALUQTAQ*	Y N	Y N	Y N	Y N	Y N															IND.
220200000																				
SNOWSHOE HARE *MAQARUAQ*	Y N	Y N	Y N	Y N	Y N															IND.
221004000																				
ARCTIC HARE *QAYUQEGGLIQ*	Y N	Y N	Y N	Y N	Y N															IND.
221002000																				
PORCUPINE *ISSALUQ*	Y N	Y N	Y N	Y N	Y N															IND.
222600000																				
MUSKRAT *KANAQLAK*	Y N	Y N	Y N	Y N	Y N															IND.
222400000																				
GROUND SQUIRREL *QANGANAQ*	Y N	Y N	Y N	Y N	Y N															IND.
222802000																				
RED FOX *KAVIAQ*	Y N	Y N	Y N	Y N	Y N															IND.
220804000																				
LYNX *TERTULI*	Y N	Y N	Y N	Y N	Y N															IND.
221600000																				
RIVER OTTER *CINKAT*	Y N	Y N	Y N	Y N	Y N															IND.
221200000																				
MINK *IMARMIUTAQ*	Y N	Y N	Y N	Y N	Y N															IND.
222200000																				
ARCTIC FOX *ULIIQ*	Y N	Y N	Y N	Y N	Y N															IND.
220802000																				

… 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 **CHEVAK: 83**

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)*	
WOLF *KEGLUNEQ*	Y N	Y N	Y N	Y N	Y N															IND.
223200000																				
WOLVERINE *TERIKANIAQ*	Y N	Y N	Y N	Y N	Y N															IND.
223400000																				
COYOTE *KAYU*	Y N	Y N	Y N	Y N	Y N															IND.
220400000																				
MARTEN *QAVCICUAQ*	Y N	Y N	Y N	Y N	Y N															
222000000																				
	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															
	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.*

SMALL LAND MAMMALS OR FURBEARERS: 14 **CHEVAK: 83**

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 #N/A

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?*	*major?*	*severe?*
(0)	(1)	(2)	(3)

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ASSESSMENTS OF SMALL LAND MAMMALS/FURBEARERS: 66 **CHEVAK: 83**

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 WINTER	Season of harvest unknown	Units[3]
						(specify amount harvested per season)				*(number)*	*(specify)*
COMMON EIDER *ANGIQVAK*	Y N	Y N	Y N	Y N	Y N						IND.
410206020											
KING EIDER *METRAQ*	Y N	Y N	Y N	Y N	Y N						IND.
410206040											
SPECTACLED EIDER *QAUGEQ/ACKILEK*	Y N	Y N	Y N	Y N	Y N						IND.
410206060											
STELLER'S EIDER *CAQAIRAQ*	Y N	Y N	Y N	Y N	Y N						IND.
410206080											
HARLEQUIN DUCK *CETUSKARAK*	Y N	Y N	Y N	Y N	Y N						IND.
410212000											
LONG-TAILED DUCK *AARRAANGIIQ*	Y N	Y N	Y N	Y N	Y N						IND.
410218000											
BLACK BRANT *NEQLERNAQ*	Y N	Y N	Y N	Y N	Y N						IND.
410402000											
CACKLING/CANADA GOOSE *TUUTANGAYAK*	Y N	Y N	Y N	Y N	Y N						IND.
410404990											
GREATER WHITE-FRONTED GOOSE *NEQLEQ*	Y N	Y N	Y N	Y N	Y N						IND.
410410000											
EMPEROR GOOSE *NACAULLER*	Y N	Y N	Y N	Y N	Y N						IND.
410406000											
SNOW GOOSE *KANGUQ*	Y N	Y N	Y N	Y N	Y N						IND.
410408000											
SWAN *QUGYUK*	Y N	Y N	Y N	Y N	Y N						IND.
410699000											

… 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 **CHEVAK: 83**

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 WINTER	Season of harvest unknown	Units[3]
						(specify amount harvested per season)				*(number)*	*(specify)*
AMERICAN WIGEON *KATKEGGLIQ*	Y N	Y N	Y N	Y N	Y N						IND.
410236020											
TEAL *TENGESQAAQ*	Y N	Y N	Y N	Y N	Y N						IND.
410232990											
MALLARD *IYUKAQ*	Y N	Y N	Y N	Y N	Y N						IND.
410214000											
NORTHERN PINTAIL *YUUKAQ*	Y N	Y N	Y N	Y N	Y N						IND.
410220000											
NORTHERN SHOVELER *CURCURPAK*	Y N	Y N	Y N	Y N	Y N						IND.
410230000											
BLACK SCOTER *KUKUMYARAK*	Y N	Y N	Y N	Y N	Y N						IND.
410228020											
SURF SCOTER *AKACAKAAYAK*	Y N	Y N	Y N	Y N	Y N						IND.
410228040											
WHITE-WINGED SCOTER *AKACAKAAYAK*	Y N	Y N	Y N	Y N	Y N						IND.
410228060											
BUFFLEHEAD (BUTTERBALL) *PUGTAQUTAYAGAQ*	Y N	Y N	Y N	Y N	Y N						IND.
410202000											
GOLDENEYE *ANARNISSAGAQ*	Y N	Y N	Y N	Y N	Y N						IND.
410210990											
SCAUP *KEP'ALEK*	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 **CHEVAK: 83**

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 WINTER	Season of harvest unknown	Units[3]
						(specify amount harvested per season)				*(number)*	*(specify)*
SANDHILL CRANE *QUCILLGAQ*	Y N	Y N	Y N	Y N	Y N						IND.
410802000											
GROUSE *ELCIAYULI*	Y N	Y N	Y N	Y N	Y N						IND.
421802990											
PTARMIGAN *AQEYGGIQ*	Y N	Y N	Y N	Y N	Y N						IND.
421804990											
LOON *TUNUCILLEK*	Y N	Y N	Y N	Y N	Y N						IND.
411216990											
SEABIRDS	Y N	Y N	Y N	Y N	Y N						IND.
411299000											
SHOREBIRDS *PUYUNGUAQ*	Y N	Y N	Y N	Y N	Y N						IND.
411099000											
	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 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 **CHEVAK: 83**

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
DUCK EGGS *UUTEKI'INRAQ PEKSUQ*	Y N	Y N	Y N	Y N	Y N		IND.	
430200000								
GOOSE EGGS *LAGILINRAAT*	Y N	Y N	Y N	Y N	Y N		IND.	
430400000								
SWAN EGGS *QUGYINRAAT*	Y N	Y N	Y N	Y N	Y N		IND.	
430699000								
LOON EGGS	Y N	Y N	Y N	Y N	Y N		IND.	
431216990								
GULL EGGS *NARUYINRAAT*	Y N	Y N	Y N	Y N	Y N		IND.	
431212990								
TERN EGGS *NACALLNGAQ*	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 **CHEVAK: 83**

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
CLOUD BERRY (SALMONBERRY) *AQEVYIK*	Y N	Y N	Y N	Y N	Y N		GAL.	
601016000								
BLUEBERRY *CURAQ*	Y N	Y N	Y N	Y N	Y N		GAL.	
601002000								
CROWBERRY (BLACKBERRY) *KAVLAKUAREQ*	Y N	Y N	Y N	Y N	Y N		GAL.	
601007000								
LOW BUSH CRANBERRY *QUUNARLIARAQ*	Y N	Y N	Y N	Y N	Y N		GAL.	
601004000								
HIGH BUSH CRANBERRY *KITNGIK*	Y N	Y N	Y N	Y N	Y N		GAL.	
601006000								
NAGOONBERRY (RASPBERRY) *PUYURNIQ*	Y N	Y N	Y N	Y N	Y N		GAL.	
601018000								
LABRADOR TEA *AYUK*	Y N	Y N	Y N	Y N	Y N		GAL.	
602018000								
STINKWEED (WORMWOOD) *CAIGGLUK*	Y N	Y N	Y N	Y N	Y N		GAL.	
602044000								
SOURDOCK *AATUNAQ*	Y N	Y N	Y N	Y N	Y N		GAL.	
602028000								
WILD RHUBARB *ANGUKAQ*	Y N	Y N	Y N	Y N	Y N		GAL.	
602006000								
WILD PARSLEY *MECUQELUGGAQ*	Y N	Y N	Y N	Y N	Y N		GAL.	
602034000								
WILD CELERY *IKIITUQ*	Y N	Y N	Y N	Y N	Y N		GAL.	
602032000								

… 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.*

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?*	*major?*	*severe?*
(0)	(1)	(2)	(3)

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ASSESSMENTS OF BIRDS AND EGGS: 66 **CHEVAK: 83**

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
FIDDLEHEAD FERNS *CETUGUAQ*	Y N	Y N	Y N	Y N	Y N		GAL.	
602040000								
MUSHROOMS *PALURUTAQ*	Y N	Y N	Y N	Y N	Y N		GAL.	
602046040								
CHAGA	Y N	Y N	Y N	Y N	Y N		GAL.	
602046010								
PUNK *KUMAKAQ*	Y N	Y N	Y N	Y N	Y N		GAL.	
602060000								
MUSKRAT CANDY *ANLLAQ*	Y N	Y N	Y N	Y N	Y N		GAL.	
602029000								
PALLAS BUTTERCUP *KAPUUKARAQ*	Y N	Y N	Y N	Y N	Y N		GAL.	
602010000								
BEACH GREENS *ITGAARALET*	Y N	Y N	Y N	Y N	Y N		GAL.	
602038000								
OTHER WILD GREENS (SPECIFY)	Y N	Y N	Y N	Y N	Y N		IND.	
	Y N	Y N	Y N	Y N	Y N		IND.	

FIREWOOD

	USE?	TRY TO HARVEST?	HARVEST?	RECEIVE?	GIVE AWAY?
FIREWOOD	Y N	Y N	Y N	Y N	Y N
604000000					

Please estimate the percentage of your household's heating needs in 2021 that came from firewood.

0%	1% - 25%	26% - 50%	51%-75%	76%-99%	100%
(0)	(1)	(2)	(3)	(4)	(5)

(circle one)

During the last year, did your household use any other kind of plants and berries (including wood)?..... 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: PLANTS AND BERRIES

HOUSEHOLD ID HHID

If this household DID NOT USE or HARVEST plants and berries 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 plants and berries…*

ASSESSMENTS: PLANTS AND BERRIES 600000000

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

During the last year,[1]

...Did your household use LESS, SAME, or MORE plants and berries 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?..... Y N

IF NO…

What KIND of plants and berries did you need? _____

_____

_____

How would you describe the impact to your household of not getting enough last year?

not noticable?	*minor?*	*major?*	*severe?*
(0)	(1)	(2)	(3)

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ASSESSMENTS OF PLANTS AND BERRIES: 66 **CHEVAK: 83**

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?*	*major?*	*severe?*
(0)	(1)	(2)	(3)

1 *"LAST YEAR" means between January 1, 2021 and December 31, 2021.*

ASSESSMENTS OF ALL RESOURCES: 66 **CHEVAK: 83**

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 **CHEVAK: 83**

APPENDIX C:
KEY RESPONDENT INTERVIEW PROTOCOL

Comprehensive Subsistence Survey Ethnographic Protocol

Part 1. Demographic Information

In the beginning of each interview, I recommend asking some basic demographic questions:

1. name
2. year/location born
3. parents names and where from?
4. how long has respondent been hunting/fishing?

Then, it is often useful to take the seasonal round approach when doing interviews and let people answer the questions below through the structure of a description of the parts of the seasonal round that they participate in. That way, you can also document seasonal camps used in the past or currently used by respondent. **[Keep in mind that you do not have to do it this way, but the species sections below are ordered by a seasonal round. Skip around if that works better for you and your respondent.]**

Beginning in the spring with bird hunting…

Part 2. Migratory Bird hunting

1. Please describe your current migratory bird hunting practices:

a. what are the primary species you try to get every year? Do you collect eggs (which kinds?)

b. who do you hunt with year to year? How is this determined?

c. if you are successful, what do you do with the birds – how do you distribute/share it?

d. How do you preserve/process your harvest?

e. how do you feel the different bird populations are doing right now? Why do you think the population is declining/increasing? Are the different bird species healthy?

f. Are there environmental factors that contribute to changes in bird migrations and hunting? (changing weather patterns, changing habitat, etc)

g. are younger people learning to hunt birds? If so, how do they do that? How did you learn?

h. can you show us where you hunt now (or in the last 5 years?) what about the last 10 or 20 years? Have those areas changed at all?

i. are there any rules about hunting or the treatment of birds during hunting/harvest?

j. native names for birds or other aspects of bird hunting? Do you remember any traditional stories about birds or bird hunting in your village?

k. are there any natural seasonal indicators that you use to know when the birds will come?

Part 3. Non-salmon fishing – ask questions for each species (households are likely to harvest multiple species. While we want to document all species they harvest, the most important species to cover will be: whitefish [differentiate species if possible], sheefish, and pike. If a household heavily harvests another species, document that as much as possible.**)**

1. Please describe your current non-salmon fishing practices:

a. which species do you harvest? Timing of that harvest (for each species)?

b. do you fish with other people? How is this determined?

c. what are the primary means you use to harvest different species of non-salmon? (gear type by species?)

d. what do you do with the non-salmon you harvest – how do you distribute/share it?

e. are younger people learning to fish? If so, how do they do that? How did you learn?

f. how do you feel the non-salmon population is doing right now? Why do you think the population is declining/increasing? Are the non- salmon healthy?

g. Have your fishing areas changed at all? (map changes in area – currently and 10-20 years ago)

h. if there are changes to your fishing areas, what explains those changes? (environmental conditions, personal circumstances, traditional areas, changes in the fish population, regulations, etc)

i. Are there environmental factors that contribute to changes in non-salmon fishing? (weather, river conditions, etc)

g. which parts of the fish do you use? How do you preserve/process these parts?

h. are there any rules about fishing or the treatment of fish/nets during fishing?

i. native names for non- salmon species or other aspects of fishing? Do you remember any traditional stories about non-salmon species or fishing in your village?

Part 4. Salmon fishing

1. Please describe your current salmon fishing practices:

a. do you fish with other people? How is this determined?

b. which species do you harvest? Timing of that harvest?

c. what are the primary means you use to harvest salmon? (gear type by species?)

d. what do you do with the salmon you harvest – how do you distribute/share it?

e. which parts of the salmon do you use? How do you preserve/process these parts?

f. how do you feel the salmon population is doing right now? Why do you think the population is declining/increasing? Are the salmon healthy?

g. Have your fishing areas changed at all? (map changes in area – currently and 10-20 years ago)

h. if there are changes to your fishing areas, what explains those changes? (environmental conditions, personal circumstances, traditional areas, changes in the fish population, regulations, etc)

i. Are there environmental factors that contribute to changes in salmon fishing? (weather, river conditions, etc)

j. many people say that the elders used observations of the environment (changes in the land or water, weather, other animals' behavior) to know when salmon were coming and how many might come. Do you remember any of these 'natural indicators'?

k. are younger people learning to fish? If so, how do they do that? How did you learn?

l. are there any rules about fishing or the treatment of fish/nets during fishing?

m. native names for salmon species or other aspects of fishing? Do you remember any traditional stories about salmon or fishing in your village?

Part 5. Moose hunting

1. Please describe your current moose hunting practices

a. who do you hunt with year to year? How is this determined?

b. if you are successful, what do you do with the moose – how do you distribute/share it?

c. which parts of the moose do you use? How do you preserve/process these parts?

d. how do you feel the moose population is doing right now? Why do you think the population is declining/increasing (e.g. predation concerns, hard winters, good habitat, etc?)? Are the moose healthy?

e. Are there environmental factors that contribute to changes in moose hunting? (weather, river conditions, etc)

f. are younger people learning to hunt? If so, how do they do that? How did you learn?

g. can you show us where you hunt now (or in the last 5 years?) what about the last 10 or 20 years? Have those areas changed at all?

h. are there any rules about hunting or the treatment of moose or other animals during moose hunting/harvest?

i. native names for moose or other aspects of moose hunting? Do you remember any traditional stories about moose or moose hunting in your village?

Part 6. Other large game hunting (brown bear, black bear, caribou)

1. Please describe your current big game hunting practices (for each…)

a. who do you hunt with year to year? How is this determined?

b. if you are successful, what do you do with the bear/caribou – how do you distribute/ share it?

c. which parts of the bear/caribou do you use? How do you preserve/process these parts?

d. how do you feel the bear/caribou population is doing right now? Why do you think the population is declining/increasing? Are they healthy?

e. can you show us where you hunt now (or in the last 5 years?) what about the last 10 or 20 years? Have those areas changed at all?

f. Are there environmental factors that contribute to changes in bear/caribou hunting? (weather, river conditions, winter conditions, migratory routes (caribou), etc)

g. are younger people learning to hunt? If so, how do they do that? How did you learn?

h. are there any rules about hunting or the treatment of bear/caribou or other animals during moose hunting/harvest?

i. native names for bear/caribou or other aspects of bear/caribou hunting? Do you remember any traditional stories about bear/caribou or bear/caribou hunting in your village?

Part 7. Trapping

1. Please describe your current trapping practices:

a. do you trap with anyone else? How is this determined?

b. how do you 'hold' your trapline? From whom (if anyone) did you get it/take it over?

c. are younger people learning to trap? If so, how do they do that? How did you learn?

d. what species do you trap? Why?

e. how do you feel the population of the animals you trap is doing right now? Why do you think the population is declining/increasing? Are the species you trap healthy?

f. can you show us where you trap now (or in the last 5 years?) what about the last 10 or 20 years? Have those areas changed at all?

g. Are there environmental factors that contribute to changes in trapping? (changing weather, snow pack, river conditions, etc)

APPENDIX D:
CONVERSION FACTORS, HOOPER BAY, ALASKA

The following table presents the conversion factors used in determining how many pounds were harvested of each resource surveyed. For instance, if respondents reported harvesting 3 gal of rainbow smelt, the quantity would be multiplied by the appropriate conversion factor (in this case 6.0) to show a harvest of 18 lb of rainbow smelt.

Resource name	Reported units	Conversion factor
Chum salmon, run unknown	Individual	4.0364
Chum salmon, run unknown [CF retention]	Individual	4.0364
Chum salmon, run unknown [CF retention]	Gallons	6.0000
Summer chum salmon	Individual	4.0364
Fall chum salmon	Individual	4.0364
Coho salmon	Individual	4.2980
Coho salmon [CF retention]	Individual	4.2980
Chinook salmon	Individual	14.0025
Chinook salmon [CF retention]	Individual	14.0025
Pink salmon	Individual	2.3696
Pink salmon [CF retention]	Individual	2.3696
Sockeye salmon	Individual	3.8564
Sockeye salmon [CF retention]	Individual	3.8564
Sockeye salmon [CF retention]	Gallons	6.0000
Unspecified salmon	Individual	2.7789
Unspecified salmon [CF retention]	Individual	2.7789
Pacific herring	Gallons	6.0000
Pacific herring [CF retention]	Gallons	6.0000
Pacific herring roe, unspecified type	Gallons	6.0000
Unspecified smelts	Gallons	6.0000
Saffron cod	Individual	0.2100
Saffron cod	Pounds	1.0000
Walleye pollock (whiting)	Individual	1.4000
Unspecified flounders	Individual	1.1000
Pacific halibut	Pounds	1.0000
Pacific halibut [CF retention]	Pounds	1.0000
Arctic lamprey	Individual	0.6000
Arctic lamprey [CF retention]	Individual	0.6000
Sculpins	Individual	0.5000
Stickleback (needlefish)	Gallons	6.0000
Alaska blackfish	Gallons	6.0000
Burbot	Individual	4.2000
Dolly Varden, unknown type	Individual	3.3000
Arctic grayling	Individual	0.9000
Northern pike	Individual	3.3000
Sheefish	Individual	5.5000

-continued-

Conversion factors.–Page 2 of 4.

Resource name	Reported units	Conversion factor
Rainbow trout	Individual	1.4000
Broad whitefish	Individual	3.2000
Bering cisco	Individual	1.4000
Least cisco	Individual	0.7000
Humpback whitefish	Individual	2.1000
Round whitefish	Individual	0.7000
Unspecified whitefishes	Individual	9.9308
Bison	Individual	450.0000
Black bear	Individual	100.0000
Brown bear	Individual	86.0000
Caribou	Individual	136.0000
Moose	Individual	538.0000
Common muskox	Individual	295.0000
Dall sheep	Individual	104.0000
Beaver	Individual	20.0000
Coyote	Individual	0.0000
Arctic fox	Individual	0.0000
Red fox	Individual	0.0000
Alaska hare	Individual	6.3000
Snowshoe hare	Individual	1.5000
River otter	Individual	3.0000
Lynx	Individual	4.0000
Martens	Individual	0.0000
Mink	Individual	0.0000
Muskrat	Individual	0.7500
Porcupine	Individual	8.0000
Arctic ground squirrel	Individual	0.5000
Gray wolf	Individual	0.0000
Wolverine	Individual	0.0000
Bearded seal	Individual	450.0000
Ribbon seal	Individual	101.0000
Ringed seal	Individual	57.0000
Spotted seal	Individual	150.0000
Unspecified seals	Individual	140.1681
Walrus	Individual	770.0000
Beluga whale	Individual	995.0000
Bowhead whale	Individual	0.0000
Bufflehead	Individual	1.0000
Common eider	Individual	2.2100

-continued-

Conversion factors.–Page 3 of 4.

Resource name	Reported units	Conversion factor
King eider	Individual	1.4300
Spectacled eider	Individual	2.4300
Steller's eider	Individual	1.0000
Unspecified goldeneyes	Individual	1.5400
Harlequin duck	Individual	0.5000
Mallard	Individual	1.9500
Long-tailed duck	Individual	1.3400
Northern pintail	Individual	1.5600
Unspecified scaups	Individual	0.9000
Black scoter	Individual	0.9000
Surf scoter	Individual	0.9000
White-winged scoter	Individual	2.2900
Northern shoveler	Individual	1.0900
Unspecified teals	Individual	0.5200
American wigeon	Individual	1.3100
Brant	Individual	6.0000
Unspecified Canada/cackling geese	Individual	1.2000
Emperor goose	Individual	2.5000
Snow goose	Individual	4.0000
Greater white-fronted goose	Individual	4.2400
Unspecified swans	Individual	1.0000
Sandhill crane	Individual	8.4000
Unspecified shorebirds	Individual	0.1000
Unspecified loons	Individual	5.4400
Unspecified seabirds	Individual	5.4400
Unspecified grouses	Individual	0.7000
Unspecified ptarmigans	Individual	0.7000
Unspecified duck eggs	Individual	0.1500
Unspecified goose eggs	Individual	0.2700
Unspecified swan eggs	Individual	0.6300
Unspecified small shorebird eggs	Individual	0.0400
Unspecified large shorebird eggs	Individual	0.0400
Unspecified gull eggs	Individual	0.3000
Unspecified loon eggs	Individual	0.1800
Unspecified tern eggs	Individual	0.0500
Unspecified clams	Gallons	3.0000
Unspecified clams [CF retention]	Gallons	3.0000
Unspecified king crabs	Individual	2.3000
Unspecified tanner crabs	Individual	1.6000

-continued-

Conversion factors.–Page 4 of 4.

Resource name	Reported units	Conversion factor
Unspecified crabs [CF retention]	Individual	2.1000
Unspecified mussels	Gallons	1.5000
Shrimps	Gallons	2.0000
Blueberry	Gallons	4.0000
Blueberry	Quarts	1.0000
Lowbush cranberry	Gallons	4.0000
Highbush cranberry	Gallons	4.0000
Crowberry	Gallons	4.0000
Crowberry	Quarts	1.0000
Cloudberry	Gallons	4.0000
Nagoonberry	Gallons	4.0000
Wild rhubarb	Gallons	1.0000
Other beach greens	Gallons	1.0000
Other beach greens	Quarts	0.2500
Fiddlehead ferns	Gallons	1.0000
Hudson’s Bay (Labrador) tea	Gallons	1.0000
Sourdock	Gallons	1.0000
Wild celery	Gallons	1.0000
Wild celery	Quarts	0.2500
Wild parsley	Gallons	1.0000
Yarrows	Gallons	1.0000
Yarrows	Quarts	0.2500
Other wild greens	Gallons	1.0000
Unspecified mushrooms	Gallons	1.0000
Stinkweed	Gallons	1.0000
Punk	Gallons	1.0000
Chaga	Gallons	1.0000
Mousefoods	Gallons	1.0000
Mousefoods	Quarts	0.2500
Wood	Cords	0.0000

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

APPENDIX E:
CONVERSION FACTORS, CHEVAK, ALASKA

The following table presents the conversion factors used in determining how many pounds were harvested of each resource surveyed. For instance, if respondents reported harvesting 3 gal of rainbow smelt, the quantity would be multiplied by the appropriate conversion factor (in this case 6.0) to show a harvest of 18 lb of rainbow smelt.

Resource name	Reported units	Conversion factor
Summer chum salmon	Individual	4.0364
Fall chum salmon	Individual	4.0364
Chum salmon, run unknown	Individual	4.0364
Chum salmon, run unknown [CF retention]	Gallons	4.0364
Coho salmon	Individual	4.2980
Coho salmon [CF retention]	Individual	4.2980
Chinook salmon	Individual	14.0025
Chinook salmon [CF retention]	Individual	14.0025
Pink salmon	Individual	2.3696
Pink salmon	Gallons	6.0000
Pink salmon [CF retention]	Individual	2.3696
Sockeye salmon	Individual	3.8564
Sockeye salmon [CF retention]	Individual	3.8564
Unspecified salmon	Individual	2.5436
Unspecified salmon	Individual	2.5436
Pacific herring	Individual	0.1800
Pacific herring	Pounds	1.0000
Pacific herring	Gallons	6.0000
Pacific herring roe, unspecified type	Pounds	1.0000
Pacific herring roe, unspecified type	Gallons	6.0000
Pacific herring roe, unspecified type	Quarts	1.5000
Pacific herring roe, unspecified type	Plastic bag (shopping bag)	15.0000
Unspecified smelts	Individual	0.1800
Unspecified smelts	Gallons	6.0000
Saffron cod	Individual	0.2100
Saffron cod	Gallons	6.0000
Walleye pollock (whiting)	Individual	1.4000
Unspecified flounders	Individual	1.1000
Pacific halibut	Individual	20.5614
Pacific halibut	Pounds	1.0000
Pacific halibut [CF retention]	Pounds	1.0000
Arctic lamprey	Individual	0.6000
Arctic lamprey [CF retention]	Individual	0.6000
Sculpins	Individual	0.5000
Stickleback (needlefish)	Gallons	6.0000
Stickleback (needlefish)	Quarts	1.5000
Alaska blackfish	Individual	0.0700

-continued-

Conversion factors.–Page 2 of 5.

Resource name	Reported units	Conversion factor
Alaska blackfish	Pounds	1.0000
Alaska blackfish	Gallons	6.0000
Alaska blackfish	Quarts	1.5000
Alaska blackfish	Plastic bag (shopping bag)	15.0000
Burbot	Individual	4.2000
Burbot	Pounds	1.0000
Dolly Varden, unknown type	Individual	3.3000
Arctic grayling	Individual	0.9000
Northern pike	Individual	3.3000
Sheefish	Individual	5.5000
Rainbow trout	Individual	1.4000
Broad whitefish	Individual	3.2000
Bering cisco	Individual	1.4000
Bering cisco	Gallons	6.0000
Least cisco	Individual	0.7000
Least cisco [CF retention]	Individual	0.7000
Humpback whitefish	Individual	2.1000
Round whitefish	Individual	0.7000
Unspecified whitefishes	Individual	1.6200
Unspecified nonsalmon fish	Individual	1.0000
Bison	Individual	450.0000
Black bear	Individual	100.0000
Brown bear	Individual	86.0000
Caribou	Individual	136.0000
Moose	Individual	538.0000
Common muskox	Individual	295.0000
Dall sheep	Individual	104.0000
Unspecified large land mammals	Individual	1.0000
Beaver	Individual	20.0000
Coyote	Individual	0.0000
Arctic fox	Individual	0.0000
Red fox	Individual	0.0000
Alaska hare	Individual	6.3000
Snowshoe hare	Individual	1.5000
River otter	Individual	3.0000
Lynx	Individual	4.0000
Martens	Individual	0.0000
Mink	Individual	0.0000
Muskrat	Individual	0.7500
Porcupine	Individual	8.0000

-continued-

Conversion factors.–Page 3 of 5.

Resource name	Reported units	Conversion factor
Arctic ground squirrel	Individual	0.5000
Gray wolf	Individual	0.0000
Wolverine	Individual	0.0000
Bearded seal	Individual	450.0000
Ribbon seal	Individual	101.0000
Ringed seal	Individual	57.0000
Spotted seal	Individual	150.0000
Unspecified seals	Individual	168.8052
Walrus	Individual	770.0000
Beluga whale	Individual	995.0000
Bowhead whale	Individual	0.0000
Bufflehead	Individual	1.0000
Common eider	Individual	2.2100
King eider	Individual	1.4300
Spectacled eider	Individual	2.4300
Steller's eider	Individual	1.0000
Unspecified goldeneyes	Individual	1.5400
Harlequin duck	Individual	0.5000
Mallard	Individual	1.9500
Long-tailed duck	Individual	1.3400
Northern pintail	Individual	1.5600
Unspecified scaups	Individual	0.9000
Black scoter	Individual	0.9000
Surf scoter	Individual	0.9000
White-winged scoter	Individual	2.2900
Northern shoveler	Individual	1.0900
Unspecified teals	Individual	0.5200
American wigeon	Individual	1.3100
Unspecified ducks	Individual	1.2150
Brant	Individual	6.0000
Unspecified Canada/cackling geese	Individual	1.2000
Emperor goose	Individual	2.5000
Snow goose	Individual	4.0000
Greater white-fronted goose	Individual	4.2400
Unspecified geese	Individual	3.5880
Unspecified swans	Individual	16.8900
Sandhill crane	Individual	8.4000
Unspecified shorebirds	Individual	0.1000
Unspecified loons	Individual	5.4400
Unspecified seabirds	Individual	5.4400

-continued-

Conversion factors.–Page 4 of 5.

Resource name	Reported units	Conversion factor
Unspecified grouses	Individual	0.7000
Unspecified ptarmigans	Individual	0.7000
Unspecified other birds	Individual	2.4760
Unspecified duck eggs	Individual	0.1500
Unspecified duck eggs	Gallons	32.0000
Unspecified goose eggs	Individual	0.2700
Unspecified goose eggs	Gallons	13.8800
Unspecified goose eggs	Quarts	3.4700
Unspecified swan eggs	Individual	0.6300
Unspecified swan eggs	Gallons	5.6000
Crane eggs	Individual	0.3333
Unspecified small shorebird eggs	Individual	0.0400
Unspecified large shorebird eggs	Individual	0.0400
Unspecified gull eggs	Individual	0.3000
Unspecified gull eggs	Gallons	36.3333
Unspecified gull eggs	Quarts	9.0833
Unspecified loon eggs	Individual	0.1800
Unspecified tern eggs	Individual	0.0500
Unspecified tern eggs	Quarts	21.1750
Unspecified eggs	Individual	0.0000
Unspecified eggs	Gallons	0.0000
Unspecified clams	Individual	0.2500
Unspecified clams	Gallons	3.0000
Unspecified clams	Quarts	0.7500
Unspecified clams	Plastic bag (shopping bag)	7.5000
Unspecified king crabs	Individual	2.3000
Unspecified tanner crabs	Individual	1.6000
Unspecified mussels	Gallons	1.5000
Shrimps	Gallons	0.0000
Blueberry	Gallons	4.0000
Blueberry	Quarts	1.0000
Lowbush cranberry	Gallons	4.0000
Lowbush cranberry	Quarts	1.0000
Highbush cranberry	Gallons	4.0000
Crowberry	Gallons	4.0000
Crowberry	Quarts	1.0000
Cloudberry	Gallons	4.0000
Cloudberry	Quarts	1.0000
Nagoonberry	Gallons	4.0000
Nagoonberry	Quarts	1.0000

-continued-

Conversion factors.–Page 5 of 5.

Resource name	Reported units	Conversion factor
Nagoonberry	Pints	0.5000
Dogwood berry	Gallons	4.0000
Wild rhubarb	Gallons	1.0000
Fiddlehead ferns	Gallons	1.0000
Fiddlehead ferns	Quarts	0.2500
Fiddlehead ferns	Plastic bag (shopping bag)	2.5000
Hudson's Bay (Labrador) tea	Gallons	1.0000
Hudson's Bay (Labrador) tea	Quarts	0.2500
Hudson's Bay (Labrador) tea	Plastic bag (shopping bag)	2.5000
Hudson's Bay (Labrador) tea	Pints	0.1250
Sourdock	Gallons	1.0000
Sourdock	Quarts	0.2500
Sourdock	Plastic bag (shopping bag)	2.5000
Pallas buttercup	Gallons	1.0000
Pallas buttercup	Quarts	0.2500
Pallas buttercup	Plastic bag (shopping bag)	2.5000
Pallas buttercup	Pints	0.1250
Pallas buttercup	Cup	0.0625
Wild celery	Individual	2.0000
Wild celery	Gallons	0.2500
Wild celery	Plastic bag (shopping bag)	2.5000
Wild celery	Pints	0.1250
Wild parsley	Gallons	1.0000
Yarrows	Gallons	0.2500
Yarrows	Quarts	0.2500
Other wild greens	Gallons	1.0000
Other wild greens	Quarts	0.2500
Unspecified mushrooms	Gallons	1.0000
Stinkweed	Gallons	1.0000
Stinkweed	Quarts	0.2500
Stinkweed	Plastic bag (shopping bag)	2.5000
Punk	Pounds	0.0000
Punk	Gallons	0.0000
Chaga	Gallons	0.0000
Beach greens	Gallons	1.0000
Mousefoods	Gallons	1.0000
Mousefoods	Quarts	0.2500
Mousefoods	Plastic bag (shopping bag)	2.5000
Mousefoods	Pints	0.1250
Wood	Cords	0.0000

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

APPENDIX F:
COMMUNITY REPORT SUMMARY,
HOOPER BAY, ALASKA

Hooper Bay

Subsistence Harvests in 2021

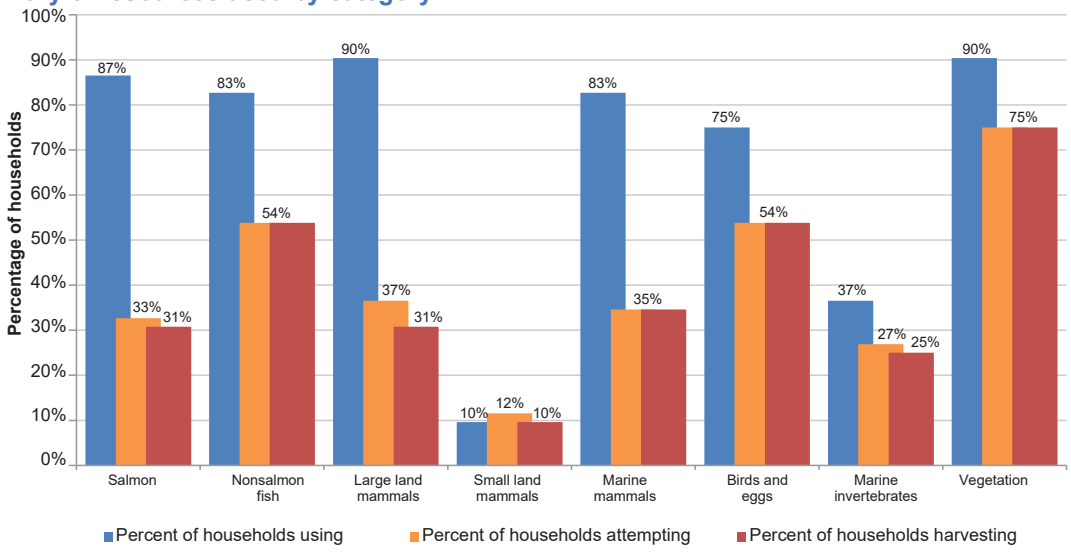
This document summarizes the results of research on subsistence harvests and uses of wild resources



The goal of this project was to document the current harvests and uses of wild foods in Hooper Bay. With the support of the Hooper Bay Tribal Council, researchers from the Alaska Department of Fish and Game (ADF&G) the Division of Subsistence provided a comprehensive subsistence survey to households throughout Hooper Bay. In January 2022, researchers surveyed 52 households (22%). Fieldwork began just prior to a Covid-19 outbreak, so surveyors did not go door-to-door. Staff and local research assistants conducted 12 interviews with current residents of Hooper Bay. Respondents were asked about their harvest and use of wild fish, birds, land and marine animals, and plant resources in 2021. The survey also collected information on search and harvest areas, giving and receiving wild food, income and employment, and whether or not households got enough of a resource category during the study year.

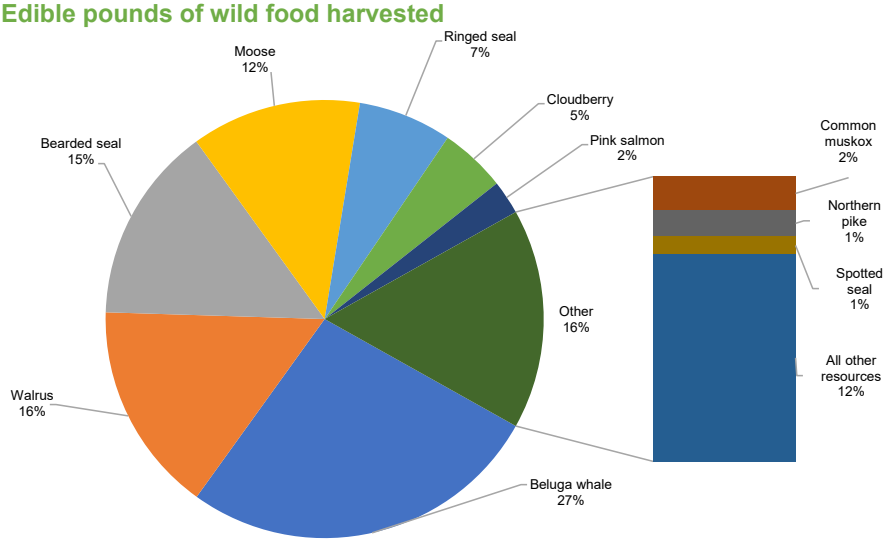
Hooper Bay residents rely heavily on harvesting wild food, including hunting, fishing, and gathering various resources to provide for the community. This is the first time that the Division of Subsistence has collected comprehensive subsistence harvest survey data in Hooper Bay. This important information about the community's subsistence needs and practices can help residents of Hooper Bay, tribal organizations, governmental agencies, and nongovernmental associations in their planning and decision-making processes. These data will help provide a baseline for the community to which future data will be compared.

Summary of resources used by category



Overall, **48% of Hooper Bay residents hunted, fished, trapped, or gathered wild foods in 2021** and **47% worked to process those resources.** The figure above shows each resource category that Hooper Bay residents used and the percentage of households attempting to harvest, harvesting, and using each category.

Edible pounds of wild food harvested



The figure to the left shows the amount of edible weight of subsistence food that was harvested in 2021. Beluga whale (27%), walrus (16%), bearded seal (15%), moose (16%), and ringed seal (7%) made up over two thirds of all resources harvested. Over 17,493 lb of cloudberries were harvested in 2021, accounting for 5% of the total edible weight.

Sharing of Resources: In 2021, **17% of Hooper Bay households harvested 72% of all resources consumed within the community.** This shows that active hunters and fishers provide a lot of wild food to less active households. On average across all rural Alaska communities, about 30% of households provide 70% of the wild food harvested.

Local Concerns

- Several households expressed shock and concern over the lack of fishing opportunities for Chinook and summer chum salmon in 2021.
- Key respondents said that not being able to put away salmon is especially hard on elders, who rely on sharing to get wild food.
- Residents observed that there has been a decline in the availability of some marine species, such as tomcod, and an increase in the moose population.
- Respondents noted that sand dunes near Hooper Bay have eroded, freshwater temperatures have increased, and ice breakup has shifted earlier in the spring.

Harvest Areas

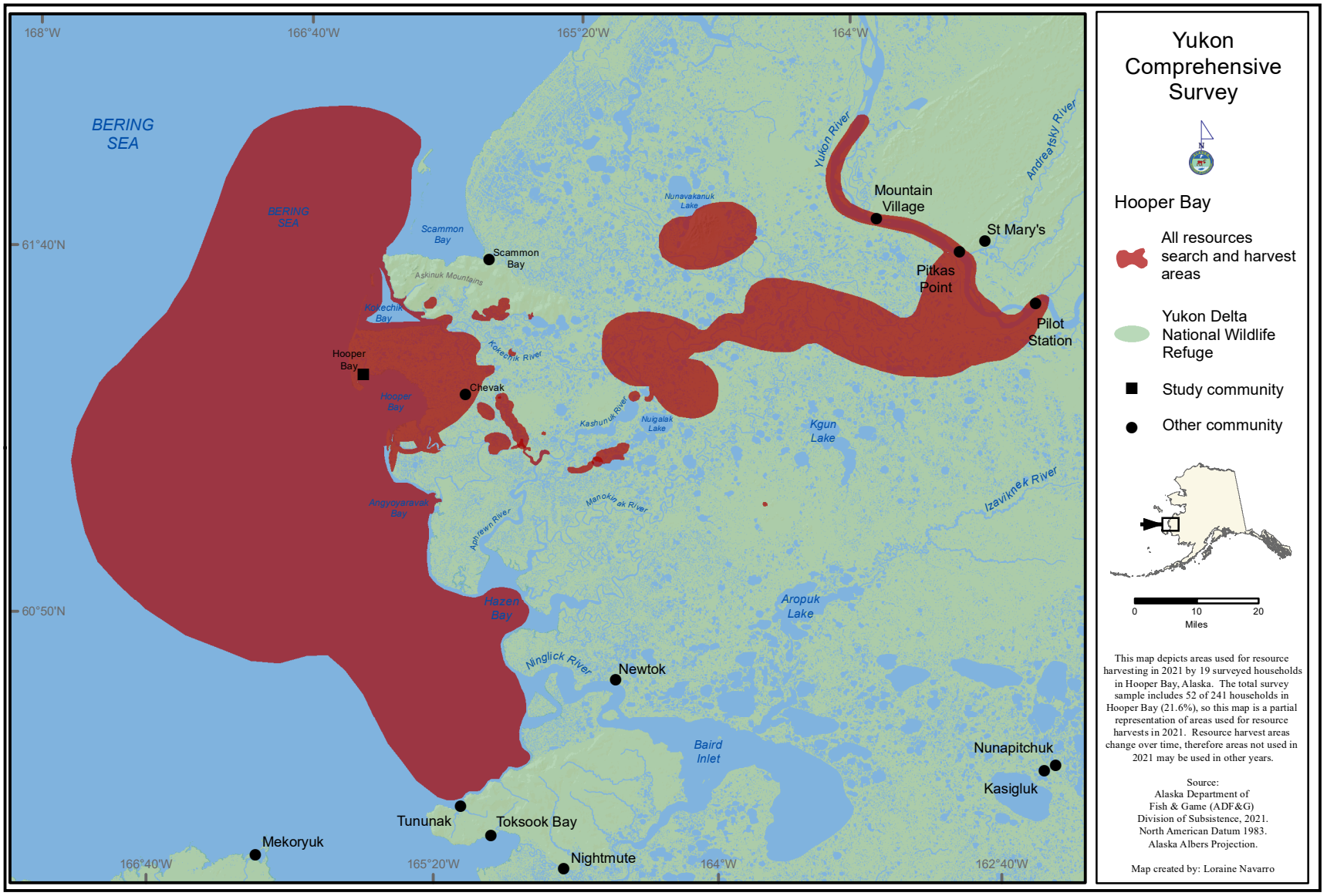
- Salmon fishing areas were concentrated near Hooper Bay, along the Nuvuk Spit and in Hooper and Angyoyaravak bays.
- Hooper Bay residents harvested marine fish from areas up to 40 miles offshore in the Bering Sea, and freshwater fish from areas near Paimiut, the Kokechik and Kashunuk rivers, and the Black River near the Kusilvak mountains.
- Moose hunting areas included the upper portions of the Kashunuk River, and the Yukon River downstream of Mountain Village to Pilot Station.

"[The fishery closure] was hard for the community, for this the whole village of Hooper Bay that it just gave us a really big struggle of fishing, so. We only cut pinks and humpies this last year, and, it gave us a few fish, and we just got, catch what we can last year, and put away." – Hooper Bay resident

Where can I find this information? The Division of Subsistence has published a technical report on the findings of this survey, which you can find at:

www.adfg.alaska.gov/techpap/TPXXX.pdf

This report will also be available at the Hooper Bay Tribal Council office.


168°W
166°40'W
165°20'W
164°W
162°40'W
61°40'N
60°50'N
BERING SEA
BERING SEA
Scammon Bay
Scammon Bay
Askinuk Mountains
Kokechik Bay
Kokechik River
Hooper Bay
Hooper Bay
Hooper Bay
Chevak
Kashunuk River
Nuigalak Lake
Nunavakanuk Lake
Yukon River
Andreafsky River
Mountain Village
St Mary's
Pitkas Point
Pilot Station
Kgun Lake
Izavikn̄ek River
Manokinak River
Angyoyaravak Bay
Aprirewn River
Hazen Bay
Aropuk Lake
Ninglick River
Newtok
Baird Inlet
Nunapitchuk
Kasigluk
Tununak
Toksook Bay
Mekoryuk
Nightmute
Yukon Comprehensive Survey
Hooper Bay
All resources search and harvest areas
Yukon Delta National Wildlife Refuge
Study community
Other community
0
10
20
Miles
This map depicts areas used for resource harvesting in 2021 by 19 surveyed households in Hooper Bay, Alaska. The total survey sample includes 52 of 241 households in Hooper Bay (21.6%), so this map is a partial representation of areas used for resource harvests in 2021. Resource harvest areas change over time, therefore areas not used in 2021 may be used in other years.
Source:
Alaska Department of Fish & Game (ADF&G)
Division of Subsistence, 2021.
North American Datum 1983.
Alaska Albers Projection.
Map created by: Loraine Navarro

ADF&G Division of Subsistence
Jesse Coleman
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Fairbanks, AK 99701

Conclusions

- Hooper Bay relies on a diversity of abundant wild foods. With the exception of salmon, most households were able to get the wild food they needed in 2021.
- Key respondents most frequently described environmental changes including warmer water and air temperatures in recent years.
- In addition to salmon closures, key respondents described numerous environmental changes that suggest an uncertain future for subsistence providers, though the overall effects on subsistence harvests are neither clearly positive nor negative.
- Giving people the opportunity to be heard in their own communities, without the burden of travel and time away from home, is an important step in building trust between the department and the public.
- This study highlighted differences in understanding of salmon presence, life histories, and migratory behavior between local residents and managers. Filling these data gaps by working with coastal communities is the focus of ongoing work by ADF&G.

Please conact our staff if you have any questions

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This project was financially supported by the Yukon River Salmon Treaty Implementation Fund.

Quyana! Thank you again from the Division of Subsistence for the responses provided by Hooper Bay residents and the help of the Hooper Bay Tribal Council. We are grateful for the opportunity to visit your community and learn from you through this project.

ADF&G complies with OEO requirements as posted at http://www.adfg.alaska.gov/index.cfm?adfg=home.oeostatement.

APPENDIX G:
COMMUNITY REPORT SUMMARY, CHEVAK, ALASKA

Chevak

Subsistence Harvests in 2021

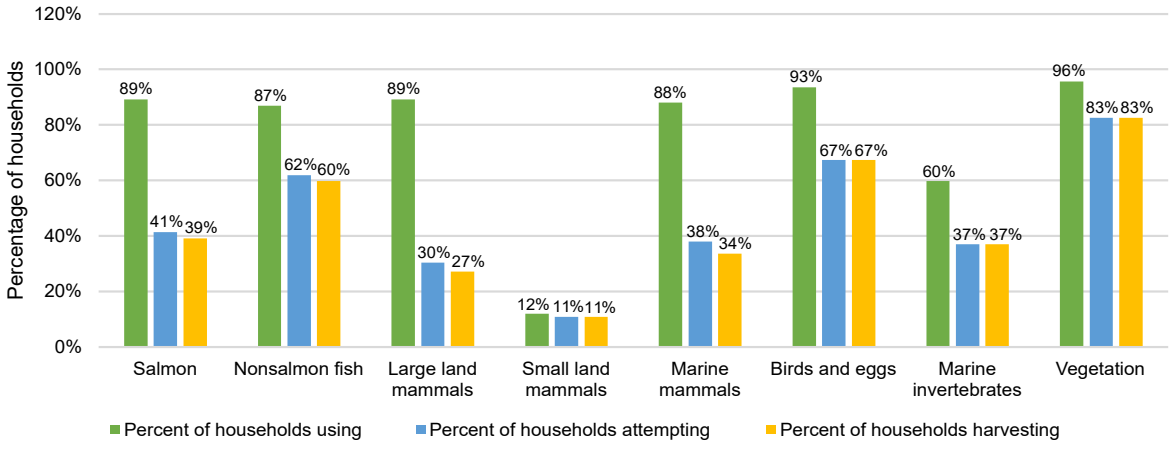
This document summarizes the results of research on subsistence harvests and uses of wild resources



The goal of this project was to document the current harvests and uses of wild foods in Chevak. With the support of the Chevak Traditional Council researchers from the Alaska Department of Fish and Game (ADF&G) provided the comprehensive subsistence surveys to households throughout Chevak. Researchers surveyed 92 households (43%) in May 2022. In addition to harvest information, the survey collected information on search and harvest areas, giving and receiving wild food, income and employment, and whether or not households got enough of a resource category during the study year. Staff and local research assistants conducted nine interviews with current residents of Chevak, including elders and active subsistence providers. Respondents described their harvest and use of wild fish, birds, land and marine animals, and plant resources in 2021.

Chevak residents rely heavily on harvesting wild food: hunting, fishing, and gathering various resources to provide for the community. This is the first time that the Division of Subsistence has collected comprehensive subsistence harvest survey data in Chevak. This important information about the community's subsistence needs and practices can help residents of Chevak, tribal organizations, governmental agencies, and nongovernmental associations in their planning and decision-making processes. These data will help provide a baseline for the community to which future data will be compared.

Summary of resources used by category



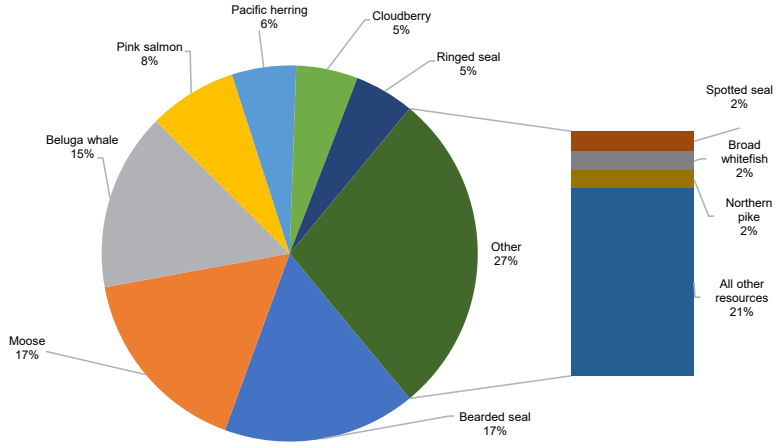
Most households that attempted to harvest wild food were successful. The figure above shows each resource category that Chevak residents used and the percent of households that attempted to harvest, successfully harvested, and used each category in 2021.

Where can I find this information? The Division of Subsistence has published a technical report on the findings of this survey, which you can find at:

www.adfg.alaska.gov/techpap/TPXXX.pdf

This report will also be available at the Chevak Traditional Council office.

Edible pounds of wild food harvested



The figure above shows the edible pounds of wild food by species harvested by Chevak households in 2021. From January through December 2021, **residents of Chevak harvested an estimated 229,538 pounds edible weight of wild foods.** The average harvest per household was 1,037 lb, and the average amount per person was 215 lb.

In total, Chevak **residents used 20 different types of wild resources** in 2021. The greatest number of resources used by a single household was 51. Half of the edible weight of wild foods that Chevak residents harvested consisted of bearded seal, moose, and beluga. **Marine mammals made up the largest percentage of resources harvested by edible weight** (41%), followed by large land mammals and nonsalmon fish (17% each). In a typical year, salmon would likely account for a much larger share of the harvest by edible weight. The most commonly used salmon species in 2021 was pink salmon (35% of households) and summer chum salmon (27%). In terms of edible pounds per person, moose and bearded seal each contributed 17% of the resources harvested, followed by beluga whale (15%), pink salmon (8%), herring (6%), cloudberries (5%), ringed seal (5%). In Chevak, 20% of the community's households harvested about 69% of the harvests of wild resources as estimated in pounds usable weight.

Local Concerns

- Environmental changes have created a major concern because of the effects they have had on accessing lands and waters for harvesting wild food.
- Severe weather events and seasonal changes such as timing of ice-breakup have made it difficult to reliably predict animal behavior.
- The closure of the salmon fishery in 2021 shocked and concerned Chevak residents.

Harvest Areas

- Chevak residents reported searching for wild resources in 2021:
- Chevak residents traveled extensively around Chevak, Hooper Bay, and up to the delta and mainstem Yukon for all resources.
- Residents did most resource gathering by boat along the Kashunuk and Aphrewn rivers, located south of Chevak, where residents traveled the rivers to scout for various large land mammals.
- Many families reported traveling to berry camps located away from the community of Chevak.

"For us as Natives, it's important to fish. We need that fish, because you can only catch a moose in only certain time of the year. When it's—the hunting season's open for that. Falltime, springtime, or during the winter sometime from January to March. But you know fish—when you catch that fish, we store it away. Because I remember when we used to store away to those seal—sealskin…Yeah, just imagine putting all that—cut up the fish, and put seal oil in there, close it for the winter. That's what they'd survive on." – Chevak resident


Yukon Comprehensive Survey
Chevak
All resources search and harvest area
Yukon Delta National Wildlife Refuge
Study community
Other community
0
10
20
Miles
This map depicts areas used for resource harvesting in 2021 by 50 surveyed households in Chevak, Alaska. The total survey sample includes 92 of 207 households in Chevak (43%), so this map is a partial representation of areas used for resource harvests in 2021. Resource harvest areas change over time, therefore areas not used in 2021 may be used in other years.
Source:
Alaska Department of Fish & Game (ADF&G) Division of Subsistence, 2021.
North American Datum 1983.
Alaska Albers Projection.
Map created by: Loraine Navarro
167°W
166°W
165°W
164°W
163°W
62°N
61°20'N
60°40'N
BERING SEA
Scammon Bay
Askinuk Mountains
Kokechik Bay
Hooper Bay
Chevak
Angyoyaravak Bay
Aphrewn River
Kokechik River
Black River
Nunavakanuk Lake
Yukon River
Mountain Village
St Mary's
Pitkas Point
Kashunuk River
Nuigalak Lake
Kgun Lake
Manokinak River
Izaviknek River
Azun River
Kuka Creek
Aropuk Lake
Hazen Bay
Ninglick River
Newtok
Baird Inlet

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Conclusions

- Chevak relies on a diversity of abundant wild food. With the notable exception of salmon, most households were able to get the wild food they needed in 2021.
- Key respondents most frequently described environmental changes including warmer water and air temperatures in recent years.
- The subsistence salmon fishery closure in 2021 prevented many households from being able to harvest and put away the Chinook and summer chum salmon that they typically rely on. Some households harvested and processed pink salmon, and donations of other kinds of salmon were distributed to households.
- In addition to salmon closures, key respondents described numerous environmental changes that suggest an uncertain future for subsistence providers, though the overall effects on subsistence harvests are neither clearly positive nor negative.
- This study highlighted differences in understanding of salmon presence, life histories, and migratory behavior between local residents and managers. Filling these data gaps by working with coastal communities is the focus of ongoing work by ADF&G.

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