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Customary and Traditional Use Worksheet: Black Bear—GMU 9

Prepared by

Alaska Department of Fish and Game

Division of Subsistence

January 2025

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

Symbols and Abbreviations

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

Weights and measures (metric)

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

Weights and measures (English)

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

Time and temperature

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

Physics and chemistry

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

General

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

Measures (fisheries)

fork length	FL
mideye-to-fork	MEF
mideye-to-tail-fork	METF
standard length	SL
total length	TL

Mathematics, statistics

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

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INTRODUCTION

BACKGROUND

At its 2025 Central & Southwest regulatory meeting, the Alaska Board of Game (board) will consider Proposals 2 and 3 regarding the use of bait for black bear hunting in Game Management Unit (GMU) 9, 11, 13, 14B, 14C, 16, and 17. Alaska statute 16.05.258(a) *Subsistence use and allocation of fish and game* (state subsistence law) requires that the board identify game populations, or portions of populations, that are customarily and traditionally taken or used for subsistence. The board applies the Joint Board of Fisheries and Game criteria at 5 AAC 99.010 *Boards of fisheries and game subsistence procedures* (generally known as "the eight criteria") when making customary and traditional use (C&T) determinations. The board has made C&T determinations for black bear in all units under consideration, outside of the Anchorage-Kenai-MatSu Nonsubsistence Area, except for GMU 9. Typically, prior to creating regulations for a resource in a given management area, the board must first determine whether the resource is customarily and traditionally used for subsistence and hence, whether AS 16.05.258 applies. This worksheet contains background information on noncommercial harvests and uses of black bear in GMU 9 (Figure 1) to assist the board in making a customary and traditional use determination for this unit. The information is organized according to the eight criteria and may be supplemented by written and oral public testimony during the board meeting.

The Division of Subsistence first prepared a customary and traditional use worksheet for black bears in GMUs 17 and 9 in 1990. No action was taken on a finding in those units until 1994, at which time the board made a negative C&T finding for black bears in GMU 17 but did not take action on GMU 9. The board earlier found that there are customary and traditional uses of brown bear in subunits 9B and 9E.

Black bears, *Ursus americanus*, occur over most of the forested areas of Alaska, and may be found from sea level to alpine areas, depending on the season of the year. Black bears inhabit portions of GMU 9; they are currently not found south of the Lake Iliamna area.[1] There are 25 communities and 5 subunits in GMU 9. According to department biologists, black bear occur in subunits 9A and 9B, but not in subunits 9C, D, or E. Populations in these communities range from 1 permanent resident in Ivanof Bay to 757 residents in King Cove and most are predominantly Alaska Native. The division has conducted comprehensive harvest and use studies in each of these communities at least once between 1981 and 2023. The harvest and use of black bear documented in each community is presented in Table 1.

1. Alaska Department of Fish and Game, "Black bear range map." Accessed January 8, 2025. https://www.adfg.alaska.gov/index.cfm?adfg=huntingmaps.blackbearrange

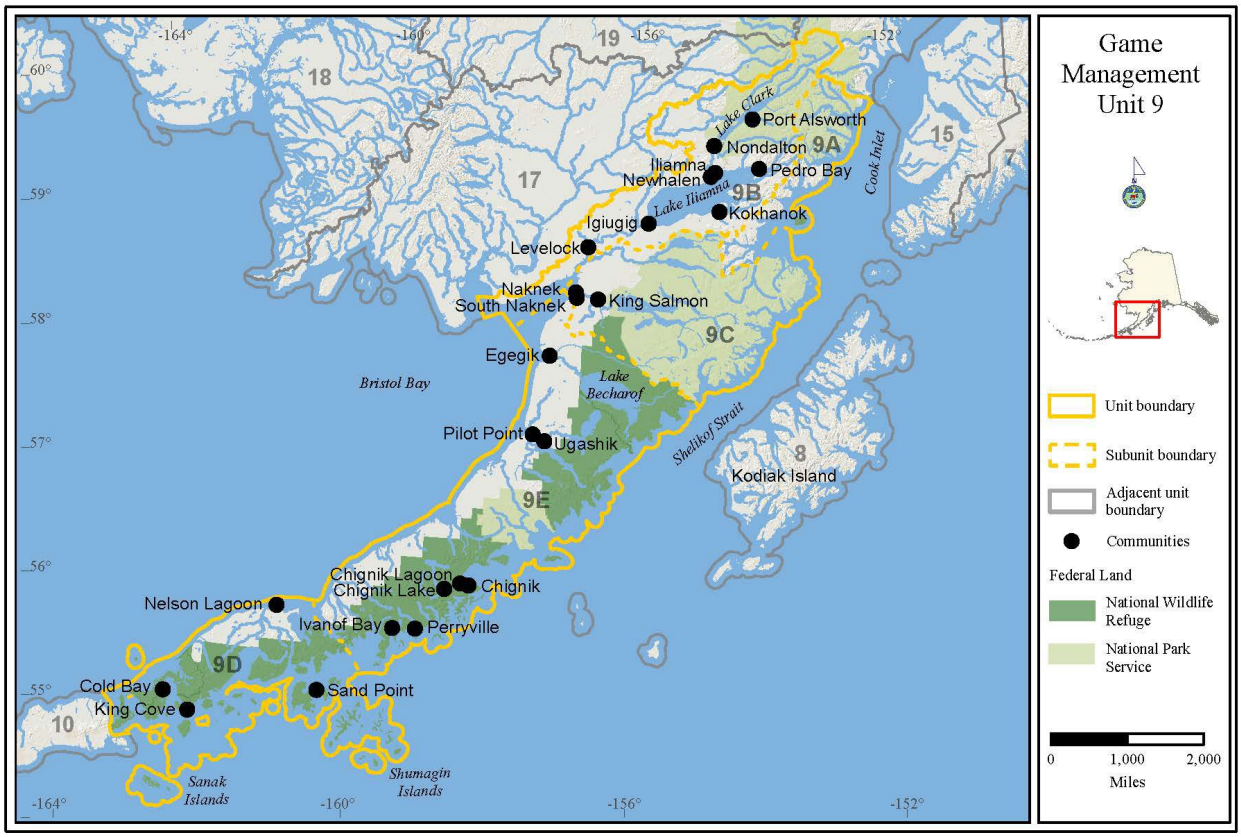


Figure 1.–Game Management Unit 9.

THE EIGHT CRITERIA

CRITERION 1. LENGTH AND CONSISTENCY OF USE

A long term consistent pattern of noncommercial taking, use, and reliance on the fish stock or game population that has been established over a reasonable period of time of not less than one generation, excluding interruption by circumstances beyond the user's control such as unavailability of the fish or game caused by migratory patterns.

Traditionally, black bear were hunted for food and raw materials by the lliamna and Lake Clark Dena'ina Athabaskans in present-day GMU 9B (Townsend 1981:626). Osgood (1937) noted hunting for brown and black bear among the Dena'ina during his fieldwork in the 1930s.

Black bear are presently a valued source of meat within their range in GMU 9. While historically both brown and black bears were hunted and consumed, more recently local hunters in the Lake Clark – Iliamna Lake region have expressed a preference for black bear for meat. In Nondalton, a hunter reported, "We will go out of our way to find" a black bear (Holen et al. 2005). In the 1980s, Ellanna and Balluta (1992) conducted fieldwork in Nondalton and documented the harvest and use of black bears contemporarily and also historically through interviews with local respondents. They found that the inland Dena'ina considered the hunting of large game in general, including brown and black bears, to be the most prestigious of harvesting activities, despite the fact that other resources, such as salmon, tended to provide more food by weight and was a more reliably available resource (Ellanna and Balluta 1992:27).

There are 2 sources of harvest data available to the board: household surveys conducted in specific communities in specific years and the hunter reporting system. Table 1 contains information from division household harvest surveys on black bear use by residents of GMU 9 communities. Most of the documented harvests are from the communities around Lake Clark and upper Iliamna Lake in GMU 9B. However, the use of black bears has also been documented in communities with no harvest or presence of black bears, such as those in subunits 9D and 9E. In the study years where data are available (1973–2021), the estimated use of black bear by GMU 9 communities has ranged from 0% to 61% of households and an estimated 3% to 52% of households have reported hunting black bear. During this same timeframe, estimated community harvests have ranged from 0 bears in a study year to 18 bears. Table 2 reports the harvest black bear by subunit as enumerated on harvest tickets by any hunter. For years 2009 through 2023, an average of 5 black bears were reported harvested from GMU 9 annually. The majority of these were harvested from subunit 9A (3 bears on average annually) followed by subunit 9B (2 bears on average annually). The harvest reporting system likely underestimates participation and harvests of black bear by residents of local GMU 9 communities. Table 3 presents the number of hunters and the black bear harvest by residency of hunter for GMU 9 from the same data source. From 2009–2023, an average of 11 nonresident hunters hunted black bear in GMU 9 with a total annual average harvest of 2 bears, and an average of 9 resident hunters hunted with a total annual average harvest of 2 bears. There was little difference in the number of black bears harvested per successful hunter between resident and nonresident hunters.

Table 1.–Estimated harvest and use of black bears by communities of GMU 9.

			Estimated percentage of households					Estimated harvest				
Subunit	Community	Study Year	Using	Trying	Harvesting	Giving	Receiving	Total (ind)	95% +/-	Total (lb)	mean harvest (lb)/HH	Per capita (lb)
9B	Iliamna	1991	21.7%	4.3%	4.3%	8.7%	17.4%	1	100%	76	2.5	0.8
		2001	9.5%	9.5%	4.8%	4.8%	9.5%	1	104%	77	2.8	0.9
		2004	7.7%	7.7%	0.0%	7.7%	7.7%	0	0%	0	0.0	0.0
	Kokhanok	1992	5.6%	5.6%	2.8%	0.0%	2.8%	2	50%	126	3.2	0.7
		2005	2.9%	2.9%	0.0%	0.0%	0.0%	0	0%	0	0.0	0.0
		2022	0.0%	3.8%	0.0%	0.0%	0.0%	0	0%	0	0.0	0.0
	Levelock	2001	11.8%	23.5%	0.0%	0.0%	11.8%	0	0%	0	0.0	0.0
		2005	14.3%	7.1%	7.1%	7.1%	7.1%	1	113%	78	4.1	2.3
	Newhalen	1991	11.5%	7.7%	7.7%	7.7%	3.8%	2	50%	143	4.5	0.9
		2001	20.6%	11.8%	5.9%	5.9%	14.7%	3	54%	200	5.1	1.3
		2004	16.0%	12.0%	8.0%	8.0%	8.0%	2	18%	143	4.6	1.1
	Nondalton	1973			24.0%			10		960	32.0	6.2
		1981			32.0%			17		1658	47.4	8.3
		1983		28.6%	23.8%		0.0%	18	66%	1800	33.3	6.4
		2001	60.6%	51.5%	36.4%	36.4%	39.4%	18	23%	984	24.6	6.5
		2004	42.1%	26.3%	13.2%	13.2%	34.2%	5	5%	328	7.6	2.0
		2021	27.6%	13.8%	10.3%	13.8%	17.2%	4	69%	152	4.0	1.5
	Pedro Bay	1982		5.9%	0.0%		5.9%	0		0	0.0	0.0
		2001	5.3%	5.3%	0.0%	5.3%	5.3%	0	0%	0	0.0	0.0
		2004	5.6%	0.0%	0.0%	0.0%	5.6%	0	0%	0	0.0	0.0
	Port Alsworth	1983		7.7%	0.0%		0.0%	0		0	0.0	0.0
		2001	15.0%	25.0%	5.0%	5.0%	10.0%	1	112%	0	0.0	0.0
		2004	27.3%	27.3%	4.5%	9.1%	18.2%	1	116%	79	2.6	0.7
		2021	11.4%	8.6%	2.9%	5.7%	11.4%					
9D	King Cove	2016	1.1%	0.0%	0.0%	0.0%	1.1%	0		0	0.0	0.0
9E	Port Heiden	2016	3.4%	0.0%	0.0%	0.0%	3.4%	0		0	0.0	0.0

Source ADF&G CSIS for 1981–2016; Gasbarro and Utermohle (1975) for 1973.

Table 2.–Total harvest ticket reported harvest of black bear in subunits of GMU 9, 2009–2023.

Year	09A	09B	09C	09D	09E	09Z	GMU 09 Overall
2009	6	7	1	0	0	0	14
2010	4	10	0	0	0	0	14
2011	2	6	0	0	0	0	8
2012	6	3	0	0	0	0	9
2013	4	0	1	0	0	0	5
2014	1	1	0	0	0	0	2
2015	6	3	0	0	0	0	9
2016	1	0	0	0	0	0	1
2017	6	1	0	0	0	0	7
2018	2	0	0	0	0	0	2
2019	2	1	0	0	0	0	3
2020	4	7	0	0	0	1	12
2021	8	0	0	0	0	0	8
2022	1	1	0	0	0	0	2
2023	2	1	0	0	0	0	3
10-year average (2014–2023)	3.3	1.5	0.0	0.0	0.0	0.1	4.9
Historical average (2009–2023)	3.7	2.7	0.1	0.0	0.0	0.1	6.6

Source Alaska Department of Fish and Game, Division of Wildlife Conservation, Winfonet, Accessed 12/04/2024.

Table 3.–Reported resident and nonresident black bear hunting success and harvest rates in GMU 9, 2009–2023.

	Nonresident				Alaska resident			
Year	Hunters	Harvest	Success rate	Take per successful hunter	Hunters	Harvest	Success rate	Take per successful hunter
2009	11	7	64%	1.0	18	7	39%	1.2
2010	9	5	56%	1.0	12	9	75%	1.1
2011	16	3	19%	1.0	10	5	50%	1.3
2012	3	2	67%	1.0	18	7	39%	1.4
2013	9	2	22%	1.0	5	3	60%	1.5
2014	11	1	9%	1.0	6	1	17%	1.0
2015	15	3	20%	1.5	16	6	38%	1.2
2016	3	0	0%	–	6	1	17%	1.0
2017	8	2	25%	1.0	8	5	63%	1.3
2018	4	0	0%	–	5	2	40%	1.0
2019	6	2	33%	1.0	4	1	25%	1.0
2020	18	11	61%	1.1	6	1	17%	1.0
2021	21	5	24%	1.0	10	3	30%	1.5
2022	17	1	6%	1.0	5	1	20%	1.0
2023	19	1	5%	1.0	7	2	29%	1.0
10-year average (2014–2023)	12.2	2.6	21%	1.1	7.3	2.3	32%	1.1
Historical average (2009–2023)	11.3	3.0	26%	1.1	9.1	3.6	40%	1.1

Source Alaska Department of Fish and Game, Division of Wildlife Conservation, Winfonet, Accessed 12/04/2024.

Note records with unknown residency are assumed non-resident. This includes a single black bear harvested in 2015 and 3 harvested in 2010.

CRITERION 2. SEASONALITY

A pattern of taking or use recurring in specific seasons of each year.

Currently, there is no closed season for black bears in GMU 9. Traditionally, black bears were hunted most frequently in the fall time and also in the spring (Behnke 1982:27; Evanoff 2010; Morris 1986:54). Holen et al. (2005) reported that black bears in Bristol Bay are valued and will be taken whenever they can be found. Hunters harvest black bears both opportunistically when hunters are in the field looking for moose or caribou, as well as specifically targeting black bear during their fall hunting trips.

According to research by Ellanna and Balluta (1992), in Nondalton, bears were often harvested during fall hunting trips. Small groups of related family members would travel by boat to the northeastern shore of Lake Clark to set up fall hunting camps. These camps were situated to access the high country for caribou, moose, and black bear hunting in September. The availability of black bear was one of the factors considered when determining where to set up camp. Hunters looked for black bear in the open, high country as the bears foraged for berries. While at winter camps engaged in trapping activities, hunters would sometimes harvest black bears from their dens (Ellanna and Balluta 1992; Evanoff 2010). Holen et al. (2005) found that spring hunting still occurred in the mountains, but fall hunting took place along rivers and lakes before freeze up. Fall bears are hunted for their fat and meat, while in the springtime they are hunted for meat only. Spring meat is characterized as “tender” (Holen et al. 2005) During recent fieldwork in Nondalton, respondents spoke of bear hunting occurring in the fall and in the

spring.[2] One respondent expressed a preference for fall bears, stating, "And it's this time of the year when the berries are good, because their meat, it tastes just like what they're eating. So, you get a black bear that's been eating blueberries and blackberries for three, four weeks, that is gonna be some nice, sweet meat" (NNL01). Another respondent shared when to hunt spring and fall bears:

> Well, that's the only time you could get them 'cause, right now if you, uh, soon as the grass start getting like this tall, and, uh, leaves on the brushes start getting, like, big as your ear or whatever, their taste gets strong from eating the green. … The only time they are good is in the, uh, right after they get out of their den and before they start eating too much green, in the springtime. And then when they're good again is late in the fall again, they get good again late in the fall, like, uh, September month. (NNL04)

According to the most recent surveys conducted in Port Alsworth and Nondalton for study year 2021, black bears were harvested in April and in September (Nondalton) and November (Port Alsworth). Table 4 presents reported black bear harvests from all reporting hunters, by month. Hunters reported harvesting black bears between April and October. The most bears were taken in May, followed by June and September.

Table 4.–Harvest of black bear by month for GMU 9, 2009–2023.

Year	Apr	May	Jun	Jul	Aug	Sep	Oct	Missing
2009	0	1	2	0	0	1	0	0
2010	0	0	0	0	0	1	0	0
2011	1	2	0	0	3	1	0	0
2012	0	5	0	0	1	3	0	0
2013	0	1	0	0	3	0	1	0
2014	0	1	0	0	0	1	0	0
2015	0	3	4	0	1	1	0	0
2016	0	0	0	0	1	0	0	0
2017	0	5	0	0	0	2	0	0
2018	0	0	1	0	1	0	0	0
2019	0	0	1	0	0	1	0	0
2020	0	4	2	0	1	3	0	2
2021	0	5	1	0	0	0	2	0
2022	0	1	0	0	0	1	0	0
2023	0	2	1	0	0	0	0	0
10-year average (2014–2023)	0.0	2.1	1.0	0.0	0.4	0.9	0.2	0.2
Historical average (2009–2023)	0.1	2.0	0.8	0.0	0.7	1.0	0.2	0.1

Source Alaska Department of Fish and Game, Division of Wildlife Conservation, Winfonet, Accessed 12/04/2024.

2. ADF&G Division of Subsistence, 2024, key respondent interviews, Nondalton.

CRITERION 3. MEANS AND METHODS OF HARVEST

A pattern of taking or use consisting of methods and means of harvest that are characterized by efficiency and economy of effort and cost.

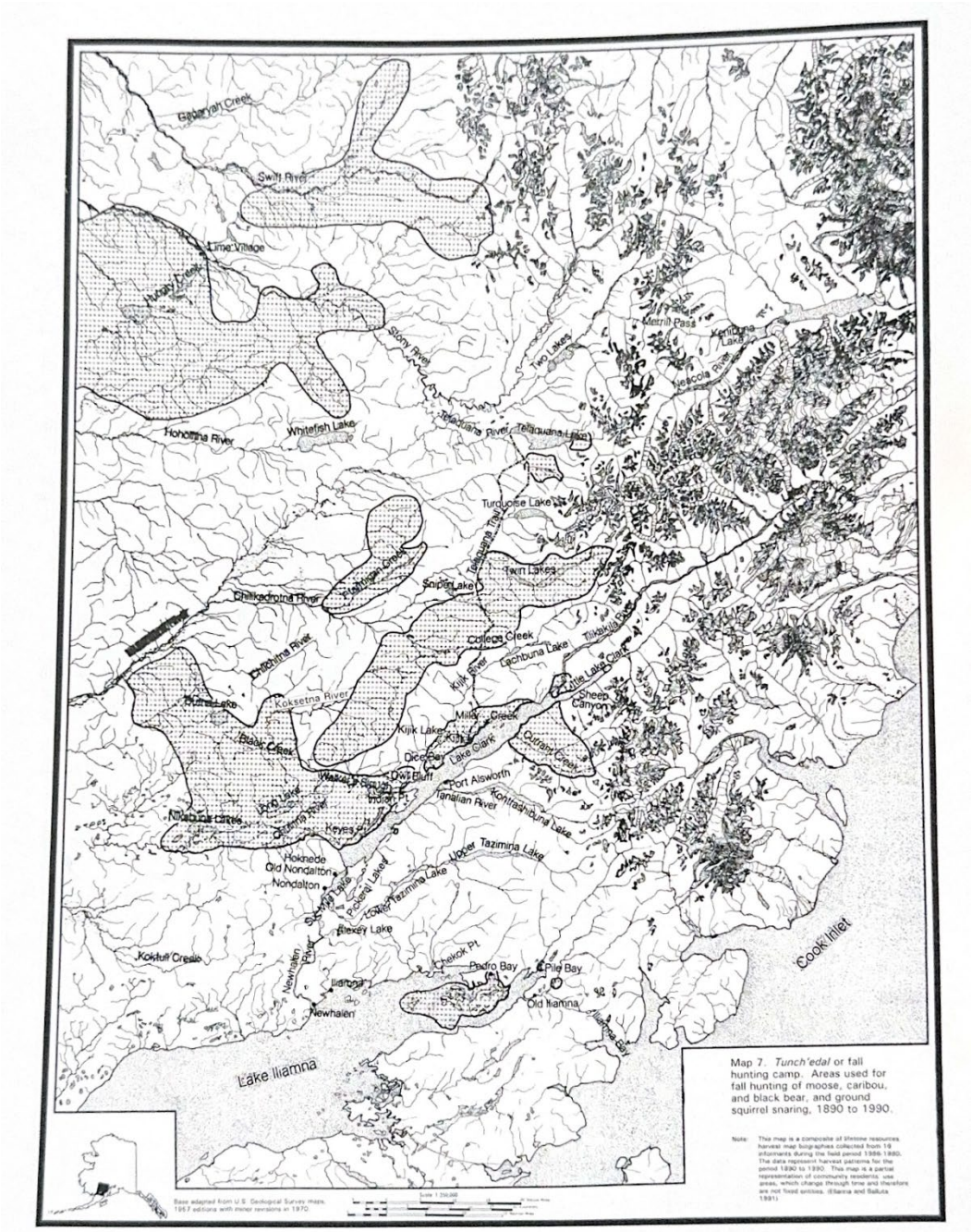
Ellanna and Balluta (1992) reported that traditionally hunters would hunt bears while at fall hunting camp while also hunting moose and caribou. Hunters would travel by boat, then hike to a predetermined camp location. Bears were taken with spears in open country, while swimming across mountain rivers, and elders remembered black bears being taken in their dens while people were at their winter camps trapping beaver (Ellanna and Balluta 1992; Evanoff 2010). When hunters pursued bears in their dens, they would block off the entrance, dig a hole towards the top of the den, and spear the bear as it emerged through that hole. Osgood (1937) also reported Dena'ina harvesting bears from their dens in the winter or early spring. In addition to hunting hibernating bears, Osgood (1937) discusses the use of dogs for bear hunting among the Dena'ina as well as snares and deadfalls. In an interview with Priscilla Kari in 1981, Pete Bobby of Lime Village described the use of ał, a deadfall or trap for black bear, that was used in Kijik, Nondalton, and other inland Dena'ina villages (Evanoff 2010).

Today, firearms are used to harvest black bear. Black bears are often harvested opportunistically while fall caribou or moose hunting. Some hunters specifically target bears in the springtime. Depending on the time of year and weather, hunters use boats, snowmachines, ATVs, and hiking to access bear hunting locations. There is documentation of the use of bait for black bear harvest (Evanoff 2010; Osgood 1937).

CRITERION 4: GEOGRAPHIC AREAS

The area in which the noncommercial long-term and consistent pattern of taking, use, and reliance upon the fish stock or game population has been established.

Ellanna and Balluta (1992) documented the use of fall hunting camps on the northeastern shore of Lake Clark. Holen et al. (2005) documented black bear hunting along rivers and lakes. Figure 2 is a map from Balluta and Ellanna (1992) displaying hunting areas from 1890–1990. Figure 3 is a map of contemporary search and harvest areas by residents of GMU 9 communities from 2001 through 2023. Both maps document hunting activity in GMUs 9, 17 and 19 and show similar extents of activity to the north and west of Lake Clark. The more contemporary spatial data show hunting activity farther south than was documented during the earlier years. Hunting was not documented south of Iliamna Lake in Figure 2, while Figure 3 shows hunting areas extending along the shores of Iliamna Lake and south around the community of Levelock.



Map 7. *Tunch'edal* or fall hunting, 1890-1990. Areas depicted in this map were used for hunting moose, caribou, and black bears in the fall. Ground squirrels were also snared, principally by women.

Figure 2.–Hunting areas for moose, caribou, and black bears in the fall, Nondalton, 1890–1990 (Ellanna and Balluta 1992).

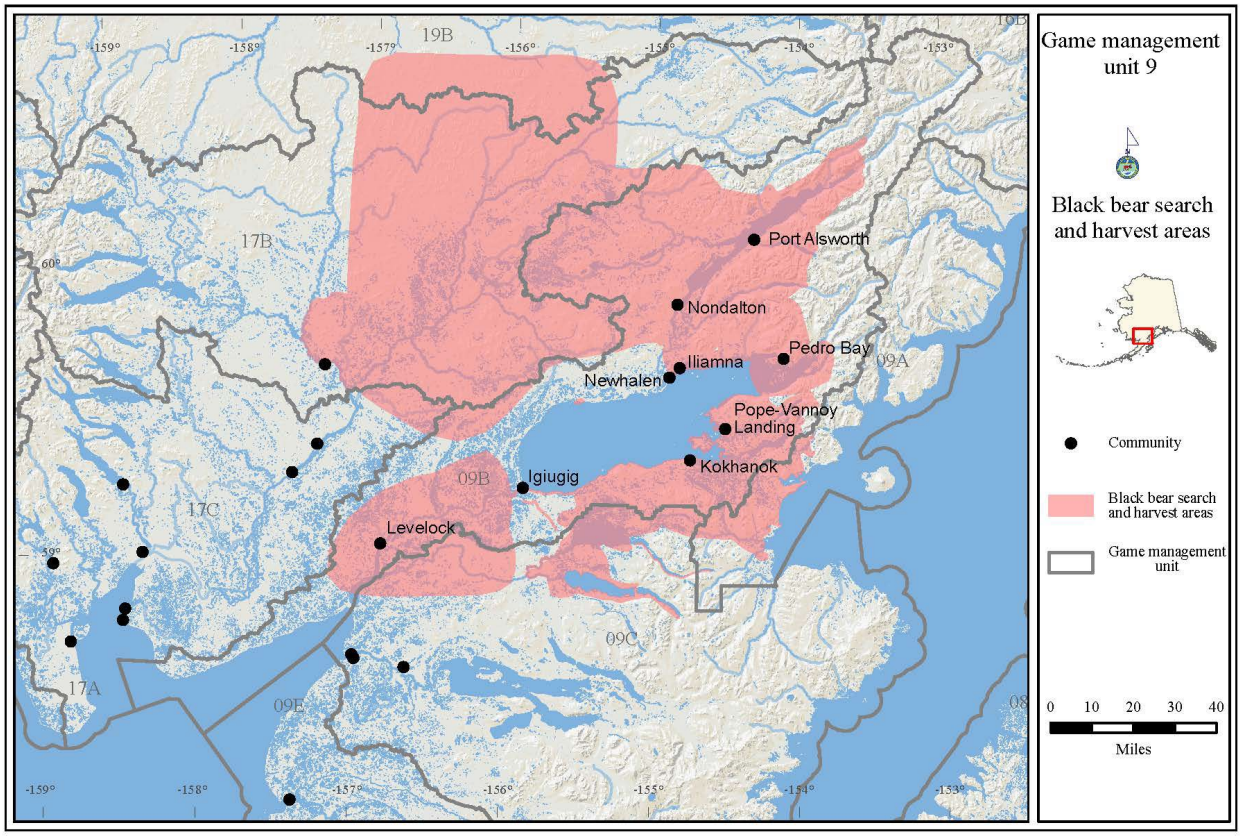


Figure 3.–Black bear search and harvest areas, GMU 9 communities, 2001–2023

CRITERION 5: MEANS OF HANDLING, PREPARING, PRESERVING, AND STORING

A means of handling, preparing, preserving, and storing fish or game that has been traditionally used by past generations, but not excluding recent technological advance where appropriate.

Most of a harvested bear is used. Traditionally, bear meat was eaten fresh or hung and dried. In Nondalton, women would do most of the cutting, hanging, and smoking of game meat, including bears (Ellanna and Balluta 1992). When families left their fall camp location, they would cache the meat until it was cold enough, then return when transportation was easier. Currently, black bear meat is frozen, or eaten fresh, most often boiled or roasted.

Bear fat (of either species) is highly valued. Bear fat is boiled slowly with a little bit of water. The rendered fat was traditionally stored in cleaned bear stomachs, and contemporarily in glass jars or metal cans. Bear fat was and is used as a condiment, similar to butter or seal oil in some communities. Fat was also used to preserve berries and for cooking. Historically, bear intestines were cleaned, inflated, cut, and dried to be turned into waterproof raincoats (Ellanna and Balluta 1992). Bear intestines were also considered the most useful raw material for windows prior to the importation of glass. Bear stomachs were used to store bear grease or fish oil, and they were sometimes inflated and used as drag floats by hunters harvesting large game in the water.

CRITERION 6. INTERGENERATIONAL TRANSMISSION OF KNOWLEDGE, SKILLS, VALUE, AND LORE

A pattern of taking or use that includes the handing down of knowledge of fishing or hunting skills, values, and lore from generation to generation.

Hunting of large game in Bristol Bay communities is usually done within multi-generational family groups and with partners. Most residents of Bristol Bay villages are Alaska Natives who have lived in the region all their lives. Ellanna and Balluta (1992) describe the composition of traditional fall hunting camps, which were used to harvest large game, including black bears. Unlike summer fishing camps, fall hunting camps were relatively small, usually consisting of one or two extended nuclear families. Often the families would be a man and his brother, along with their families. The men would make 2- or 3-day trips from camp. The strongest and healthiest member of the families, as well as young children, would leave the village for fall camp. During interviews with Bristol Bay bear hunters in 1991, most described hunting with partners who were also their relatives.

As with brown bears, people speak about black bears with respect, including using special, respectful names.[3] One interview respondent in Nondalton in 2023 spoke of the respect they show for black bears, "I just like, when you shoot a black bear. You just thank him, and you take his eyeballs out, and you bury it, because you don't want him to see what we're doing with it. Showing respect that we have respect for that" (NNL 02+03)

CRITERION 7. DISTRIBUTION AND EXCHANGE

A pattern of taking, use, and reliance where the harvest effort or products of that harvest are distributed or shared, including customary trade, barter, and gift-giving.

Subsistence resources are commonly shared in the Bristol Bay region. For subsistence resources in general, not all households participate equally in the harvest of resources, though most households do use a variety of subsistence resources. Distribution networks allow for efficiency in production and access to resources that a household does not harvest (Wolfe and Ellanna 1983). The reciprocal sharing of resources is a primary characteristic of subsistence economies. In Alaska Native communities, while the practice of sharing resources is often conducted through complex kinship responsibilities, it can also extend to unrelated households to strengthen relationships and foster community health by supporting those in need (Brown et al. 2017). Obtaining and sharing subsistence foods remains one of the primary means through which Alaska Native people maintain their cultural connections to their home communities and express their cultural identities (Lee 2002). During a sharing study in Bristol Bay and Alaska Peninsula communities, Hutchinson-Scarbrough et al. (2020) described contemporary sharing traditions that fit within long-recognized descriptions of sharing by subsistence hunting, fishing, and gathering communities through Alaska. Most of the documented sharing was generalized reciprocity, which as one Chignik Lagoon respondent described it is "what comes around goes around." In this study, respondents characterized sharing as core to their identities. Sharing occurred between households within and between the study communities as well as with farther flung communities such as Anchorage. Sharing wild resources was also a component of community events and celebrations.

Table 1 contains information on sharing of black bear harvests for communities in GMU 9 based on household harvest surveys. Even in communities where few or no households harvested black bears, a higher percentage of households used bear because of sharing that occurs within and between communities.

3. Molly Chythlook, ADF&G Division of Subsistence, 1991, Notes based on interviews with bear hunters from Aleknagik and Koliganek. Files, ADF&G Division of Subsistence, Dillingham and Anchorage.

CRITERION 8. DIVERSITY OF RESOURCES IN AN AREA; ECONOMIC, CULTURAL, SOCIAL, AND NUTRITIONAL ELEMENTS

A pattern that includes taking, use, and reliance for subsistence purposes upon a wide diversity of fish and game resources and that provides substantial economic, cultural, social, and nutritional elements of the subsistence way of life.

Subsistence harvests in all communities of the Bristol Bay region are relatively large and diverse and are an important component of the region's mixed economy. Department research from 1987 through 2023 in GMU 9 communities documented average annual household harvests of wild foods that ranged from 315 lb in Port Alsworth and 442 lb in Egegik to 2,240 lb in Ivanof Bay and 2,794 lb in Newhalen (Fall 2006; Fall et al. 1995; 2006; Holen et al. 2011; Jones and Cunningham 2020; Krieg et al. 2009; Sill et al. 2022).[4] During the most recent study year in Port Alsworth and Nondalton (2021), households used over 63 different species of fish, wildlife and plants in Nondalton and more than 55 in Port Alsworth. The mix of resources harvested and used depends upon species availability in each community's harvest and use area. Figure 4 is an example of an annual seasonal cycle of subsistence activities of the Inland Dena'ina from 1890 to 1990, which serves to demonstrate the diversity of resources upon which area residents depend.

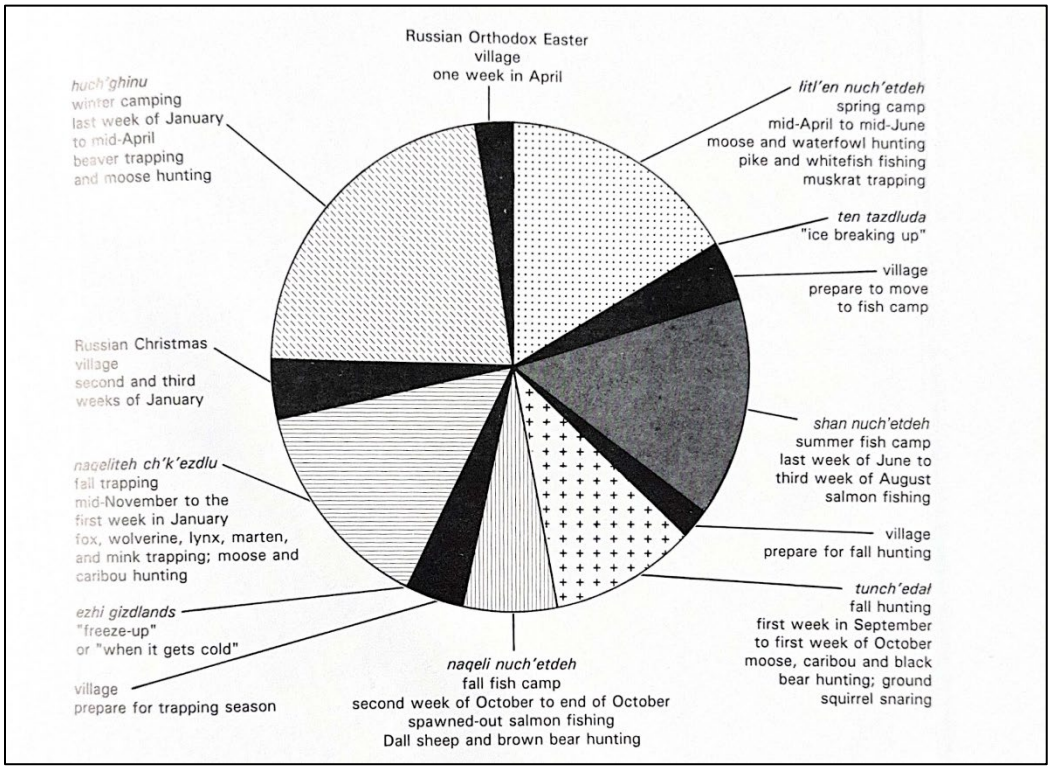


Figure 4.–Seasonal round of Inland Dena'ina (Ellanna and Balluta 1992).

4. See also ADF&G Division of Subsistence, Community Subsistence Information System (CSIS). https://www.adfg.alaska.gov/sb/CSIS/

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