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RC 3

Customary and Traditional Use Worksheet, Black Bears, Game Management Units 12, 19, 20, 21, 24, and 25 (Interior Alaska)

Prepared by

Alaska Department of Fish and Game,

Division of Subsistence

for the February - March 2008 Fairbanks Board of Game meeting

March 2008

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 following reports by the Division of Subsistence. All others, including deviations from definitions listed below, are noted in the text at first mention, as well as in the titles or footnotes of tables, and in figure or figure captions.

Weights and measures (metric)

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

Weights and measures (English)

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

Time and temperature

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

Physics and chemistry

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

General

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

Measures (fisheries)

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

Mathematics, statistics

all standard mathematical signs, symbols and abbreviations	
alternate hypothesis	HA
base of natural logarithm	e
catch per unit effort	CPUE
coefficient of variation	CV
common test statistics	(F, t, $\chi 2$,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)	log2, etc.
minute (angular)	'
not significant	NS
null hypothesis	HO
percent	%
probability	P
probability of a type I error (rejection of the null hypothesis when true)	α
probability of a type II error (acceptance of the null hypothesis when false)	β
second (angular)	"
standard deviation	SD
standard error	SE
variance	
population	Var
sample	var

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ABSTRACT

This worksheet was prepared for the Alaska Board of Game (Board) as background for consideration of changes to the harvest regulations for black bears (*Ursus americanus*) in the Interior Region of Alaska. This worksheet presents the 8 criteria that the Board is required to consider under Joint Board of Fisheries and Game regulations (5 AAC 99.010) in order to identify wildlife stocks that are customarily and traditionally taken or used by Alaska residents for subsistence uses.

Key words: Black bears, *Ursus americanus*, Interior Region, Board of Game.

INTRODUCTION

At its meeting in February - March 2008, the Alaska Board of Game will consider Proposals 8, 56, 75, 78, 79, 83, 99, and 100, which address the harvest of black bears in Game Management Units (GMUs) 12, 19, 20, 21, and 24.

Under the Alaska subsistence law (AS 16.05.258(a)), the Board of Game is required to identify the game stocks or portions of stocks that are customarily and traditionally taken or used for subsistence (a "C&T finding"). This worksheet provides background information on noncommercial harvests and uses of black bears in the Interior Region. The information is organized according to the 8 criteria for identifying customary and traditional uses as defined in the Joint Board of Fisheries and Game Subsistence Procedures (5 AAC 99.010). This information may be supplemented during public testimony and board deliberations.

Most of the harvest and use data reported in this worksheet derive from systematic household surveys conducted by the Alaska Department of Fish and Game (ADF&G) Division of Subsistence.

This worksheet is reprinted (with minor edits and style updates) from the worksheet presented to the Alaska Board of Game for its 1998 meeting in RC1. This information, as well as a Microsoft PowerPoint presentation was also included as RC2 Tab 10 for the Board's November 2007 meeting. This information includes the worksheet presented to the Board during its 1991 meeting as Appendix A, as well as the information presented to the Board during its March 1990, March 1991, and January 1993 meetings.

The Board made a positive C&T finding for black bears in Game Management Unit 25 and established an Amount Necessary for Subsistence at its March 2002 meeting (RC 160). The C&T worksheet adopted by the Board in 2002 is included in this report as Appendix B.

THE EIGHT CRITERIA

CRITERION 1.

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.

Historically, black bears have been harvested by residents of the Interior of Alaska as an important source of meat, fat, and fur. Today, black bears remain an important subsistence resource. In several communities, over 1/3 of the households successfully harvested black bears (Table 1), according to recent Division of Subsistence surveys.

In communities within or near spruce woodlands, such as Lime Village, Stony River, Sleetmute, Chuathbaluk, Hughes, Huslia, Galena, Minto, and Tanacross, to name a few, hunting and use of black bears is a well-established pattern. In other communities, black bears are most often taken opportunistically when targeting other animals, such as moose or small game, but their use is common. Most residents familiar with the use of black bears report that they have harvested black bears in regularly-hunted areas as long as elders in their communities can recall, and can recount stories of uses by previous generations (e.g., Charn1ey 1984; Kari 1983, 1985). Historical sources from the 19th century mention use of bears by residents of this region.

CRITERION 2.

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

Black bears are hunted primarily in the spring, fall, and early winter. In areas within or near black bear habitat, black bear hunting commences after bears begin venturing from their dens in April, and extends through May, or when the salmon fishing season starts. Black bears are a notable resource in these areas, often being the only large animal reasonably available during late winter, when food stores are depleted.

In the fall, from late August through October, black bears are hunted in conjunction with or incidental to moose and caribou. The quality of black bear flesh is often mentioned as a factor in the timing of targeted hunting. The flesh of black bears is considered best, fat and palatable, in the fall and early winter, when the bears have been feeding primarily on berries. However, food stores are often diminished in the spring, and any fresh meat is welcome. Also, immediately after hibernation in the spring, black bears have some fat for a short period of time.

CRITERION 3.

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

Black bears are either specifically sought after, or harvested incidental to other activities such as fishing or hunting for moose or waterfowl. Hunters typically access hunting areas by river boat in the summer and fall, and by snowmachine in the winter. Near some communities, walking to harvest areas is common, such as in the Kuskokwim area where residents hike to the mountains for bear hunting. Black bears are often attracted to fish camps during the summer months, when fish are processed and stored. In the upper Kuskokwim (GMU 19D) area, fish scraps are sometimes placed on distant sand bars in an effort to divert bears from the fish processing area. Occasionally, these bears are intentionally taken, although such bears are considered less desirable for human consumption due to the flavor of their meat at that time of year.

Black bear hunting often occurs immediately after the moose hunting season, particularly if hunters were not successful in harvesting a moose. In some areas, notably the middle Kuskokwim communities, black bears were often hunted at the same time as berry picking or moose hunting activities.

Hunters take note of grass piles and other likely denning sites in the fall. In the winter, the dens are located by examining the areas for scratch marks and bits of fur on trees. Black bear hunters typically use large caliber rifles, such as a 30-.06 or .270-caliber. In Chuathbaluk, Sleetmute, Lime Village, and Stony River, wire snares have been set in or near smokehouses in recent years to capture troublesome bears.

In the past, taking bears from dens was more common and was generally an activity in which several hunters participated. Taking bears from their dens ("denning") is still commonly practiced today. Denning sites are checked for signs of occupancy in the late fall. Many hunters know from the size of the den and nearby bear signs if the den is occupied by a single animal or by a female with cubs; they then avoid taking the females. Once found, a bear is shot either through a hole in the top of the den, or through the entrance. Sometimes the bear is driven out of the den, by smoke or by prodding with a spear (Upper Tanana and Anvik), then shot. Occasionally, the entrance is blocked in order to slow the exit of the bear.

Historical accounts from the Anvik area describe hunters bracing the spear and allowing the animal to run into it. Knowledge of precisely where to strike the bear was essential. Osgood (1958) offers this perspective on the use of spears by Anvik residents:

> The fundamental purpose of such bear hunting is to gain prestige. Probably only three or four men out of a hundred would dare to kill a bear with a lance.

Nelson (1983) describes the importance of den hunting to Native residents along the Koyukuk River (GMU 24):

> Koyukon men are thoroughly dedicated to den hunting—it is the truest test of their outdoor skills and a fundamental part of their masculine identity. The hunt is often undertaken by pairs or groups; and if it is successful a ceremonial feast or "bear party" is held afterward, so it also has important social value for men (women are excluded by strict taboo). Den hunting is a significant source of food for the village—for example, men from Huslia take ten to thirty bears this way each fall.

In the Upper Tanana area, one variation on harvesting the bear after it exited the den was to have two strong men pinch the bear between two poles while their companions killed the bear with clubs or spears.

Kuskokwim (GMU 19D) hunters reported dragging the bear carcass away from the den before butchering it in an effort to maintain the productivity of the den. Stevens Village residents (GMU 25) also reported that they thoroughly cleaned the den to help ensure its use in the following year.

The harvest of bears that were found swimming in the water was described in the Kuskokwim area (GMU 19). A noose was looped around its neck and the animal pulled to shore. This method was reportedly used in the Lime Village area as late as the 1950s. It was also reported that bears that were in the water were also taken by spear in the Upper Tanana (GMU 12).

The practice of using bait stations to attract and harvest black bears was found among bear hunters in Tok. Other documented historical methods of harvest include using dead falls and snares. The use of snares was reported in several areas. For example, people in the Anvik area (GMU 21) set snares along a tree that was felled at an incline. Fish entrails and eggs were used as bait to attract the bears and were placed in a birch bark basket tied to the upper end of the tree. The name of this snaring method, *deoako'n,* literally means "fish guts up in the air."

Other historical methods include shooting black bears with bows and arrows or lacing bait with coiled baleen, which expanded and ruptured their digestive tracts. Dogs were also sometimes used to track black bears or find dens.

CRITERION 4.

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.

Each community typically hunts black bears in areas known to be productive. In many cases, areas used to hunt black bears are similar to those used to hunt moose and both activities often occur together. Information specific to black bear hunting areas does not exist for most communities; depiction of black bear hunting areas is often combined with brown bear or moose hunting areas.

Lime Village residents hunt moose, caribou, and black bears in river flats throughout their land use area. They hunt moose intensively along the Stony River and its side streams, including the Stink River and Hungry Creek. They also use Caribou Snare Creek and other streams that drain into Tundra Lake. Can Creek is an important hunting ground for both moose and black bears (Kari 1983).

Stony River residents hunt black bears along the Kuskokwim River about 70 miles upstream and 20 miles downstream of the village, as well as along the Swift and Stony rivers and their tributaries, and along the Tatlawiksuk, Holitna, and Big rivers (Kari 1985). Chuathbaluk residents have hunted black bears along the Kuskokwim River from just downstream of their community upstream to McGrath. Areas along the Aniak, Holokuk and Oskawalik rivers, as well as the lower tributaries of the Holitna River also have been hunted (Charnley 1984).

Sleetmute hunters primarily use the Holitna drainage to hunt black bears, along with the lower reaches of the George River (Charnley 1984).

Kwethluk hunters (from GMU 18) have used the Holokuk River drainage, especially since the 1940s, to hunt black bears. Inclusive areas comprise the Kuskokwim River as far upstream as McGrath and the Holitna River upstream to its headwaters (Coffing 1991).

Tuluksak residents (from GMU 18) have hunted bears along the Kuskokwim River from the village upriver to the mouth of the Holitna River, as well as in a few areas near the Johnson River, between the Yukon and Kuskokwim rivers. Tributaries of the Kuskokwim River between the village and the Holitna River have also been hunted for bears. These include the Tuluksak River drainage upstream to the Risher Dome area; Bogus and Ophir creeks and the area around Whitefish Lake; the Aniak River approximately 10 miles upstream of the Kolmakof and Holokuk rivers; the Holitna River upstream as far as Kashegelok; and the first 10 river miles of the Hoholitna River (Andrews and Peterson 1983).

Nunapitchuk residents (from GMU 18) hunt black bears at the same time as moose. They hunt north and east of their village, upstream to the headwaters of the Pikmiktalik, Kvichavak, and Johnson rivers, including adjacent lakes and tributaries. They sometimes portage from the Johnson River to the Yukon River and hunt along the Yukon River as far upstream as Paimiut Slough. They also hunt along the Kuskokwim River as far upriver as the Stony River, 320 miles distant (Andrews 1989).

Black bear hunting areas used by Russian Mission residents (from GMU 18) include the Yukon River corridor from Ohogamiut upstream to the outlet of the Bonasila River; the lower reaches of the Bonasila River; and the Innoko River upstream to its confluence with the Shageluk River. Northern and eastern hills along the north bank of the Yukon River were hunted as well. Areas along the lower Atchuelinguk River are recent additions to regular black bear hunting areas, with hunting in that area occurring while residents are at their fish camps.

CRITERION 5.

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

Black bears provide an important source of meat, fat, and fur. Depending on the particular custom, bear meat is eaten in the household in the context of community celebrations or during feasts for special occasions, such as the "bear party" practiced along the Koyukuk River. Valuable parts, such as the ribs and hind quarters, are saved for potlatches.

Butchering practices follow culturally-established beliefs and values. In many communities, the skull is left in the field, either buried, as is the practice along the Kuskokwim River, or hung upon a small tree near the kill, or burned in a clean fire, as is the practice along the Koyukuk River. In any case, it is not brought back to the village in order to show proper respect toward the animal. The hunter cuts the eyes of the bear so that its spirit can not see a possible violation of butchering taboos.

Black bears are butchered in the field and processed like other large game. The meat is shared with relatives, especially if fresh meat has been scarce. Some sources report patterns of butchering and sharing that are dependent upon the number in the hunting party, who made the kill, and the age of the hunters. The meat is prepared in many ways: frozen, dried, smoked, or canned for later use, or cooked by boiling, frying, broiling, barbecuing, or roasting. In some communities, the fat is rendered so as to be used in cooking and in making "Native ice cream." The choicest parts, such as hindquarters or organs (heart, kidneys, and intestines) are often given to elders. If the meat has to be transported some distance, or if return to the village is not imminent, the meat may be dried in the field in order to decrease its weight and prevent spoilage.

Bear skins are used in the Tanana area (GMU 20) for ruffs, mukluks, and cabin bedding. Their use to insulate doors is described in the Yukon Flats area (GMU 25). In Koyukuk River communities, precautions are taken to ensure that bears hides do not come in contact with young women.

CRITERION 6.

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.

Athabascan tradition attributes great spiritual power to the bear. There is an elaborate set of beliefs and values surrounding their harvest and use, and bear meat is often proscribed for women. For example, residents in Koyukuk River villages (GMU 24) follow proscriptions on who may eat bears, what portions may be eaten, how they are prepared, uses of the inedible parts, such as claws and skulls, and the ways to refer to bears.

An example is the "bear party" practiced along the Koyukuk River (GMU 24). It is held in the forest, away from the village, and may be attended only by men as a way of showing proper respect to the animal after its death. In Allakaket, bear parties include cooking meat from the head, neck, feet, and backbone; dancing; and singing special bear songs.

The knowledge of the medicinal uses of bear grease and other bear parts have been handed down, but are generally not in use today.

As with many subsistence activities, teaching young men how to track, hunt, and butcher black bears, and young women how to process and preserve bear meat and other products, is through participant observation. Children are included in many activities, and are expected to show interest and eventually participate in the activities depending upon their ages and skills. Most hunting is done in family-based groups, so learning and proficiency is observed and monitored.

CRITERION 7.

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.

Black bear meat is widely shared within and between communities, particularly when it is the only fresh meat available during lean times, such as late winter. Certain parts, such as the hindquarters, heart, and kidneys, are normally given to elders.

Bear meat is often considered a specialty food and served at funeral and memorial potlatches (e.g. Minto, where the backbone, ribs and brisket are served). The fat and meat from fall hunts is served at community-wide meals often held during Christmas Day and New Year's Eve (e.g. Minto).

The common pattern in the Native use of black bear meat is that only the men and the elder women should eat it. This pattern is perhaps less observed in the Kuskokwim area. In Minto, the limbs of harvested black bears apparently merit special attention as they are reportedly cut into three pieces and each piece given to a different household.

CRITERION 8.

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

Black bears are one of several large game species used for food by residents of these GMUs. Although the number harvested annually is less than those of moose or caribou, black bears are an important food source, particularly in late spring and early summer.

In some parts of these GMUs, nonlocal foods and equipment are often very costly, and the means of generating cash are not widely available. Residents of these communities harvest a large variety and considerable amounts of local fish and game resources, including all species of Pacific salmon (*Oncorhynchus* spp.); several species of whitefish (*Prosopium* or *Coregonus* spp.); northern pike (*Esox lucius*); burbot (*Lota lota*); Alaska blackfish (*Dallia pectoralis*); smelt (*Thaleichthys pacificus*); trout (*O. mykiss* or *Salveliuns* spp); Arctic lampreys (*Lampetra japonica*); moose (*Alces alces*); caribou (*Rangifer tarandus*); black bears; brown bears (*U. arctos*); hares (*Lepus* spp.); ptarmigan (*Lagopus* spp.) porcupines (*Erethizon dorsatum*); grouse (various spp.); numerous species of waterfowl; furbearers, such as beavers (*Castor canadensis*), mink (*Mustela vison*), river otters (*Lutra canadensis*), muskrats (*Ondatra zibethicus*), wolverines

(*Gulo gulo*), wolves (*Canus lupus*), red foxes (*Vulpes vulpes*), lynx (*Lynx canadensis*), and martens (*Martes americana*); as well as many plants and berries.

Much of the wild resources harvested are salmon and freshwater fish. However, communities further inland depend more heavily on land mammals, such as black bears. Kari (1983) reported that Lime Village residents prefer fresh animal meat as a staple over fish and birds. Caribou, moose, and beaver provided the most meat for Lime Village residents; in some years, black bears may have equaled beavers in pounds consumed.

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TABLES AND FIGURES

Table 1. – Black bear harvests, Interior Region.

Community	Year	Percentage of households harvesting	Estimated total number harvested	Per capita harvest (lbs.)
Allakaket	1982	37	23	9
Anderson	1987	7	10	4
Beaver	1985	10	10	4
Bettles	1982	25	3	5
Dot Lake	1987	8	1	1
Fort Yukon	1987	31	150	7
Galena	1985	18	36	5
Healy	1987	2	7	1
Hughes	1982	53	17	11
Huslia	1983	37	41	32
McGrath	1984	n/a	15	2
McKinley Park	1987	2	1	0.8
Minto	1984	20	16	16
Nikolai	1984	n/a	6	3
Northway	1987	9	10	2
Stevens Village	1984	40	17	19
Tanacross	1987	4	3	1
Tanana	1987	14	38	28
Tok	1987	8	40	2

Source: ADF&G Division of Subsistence survey data.

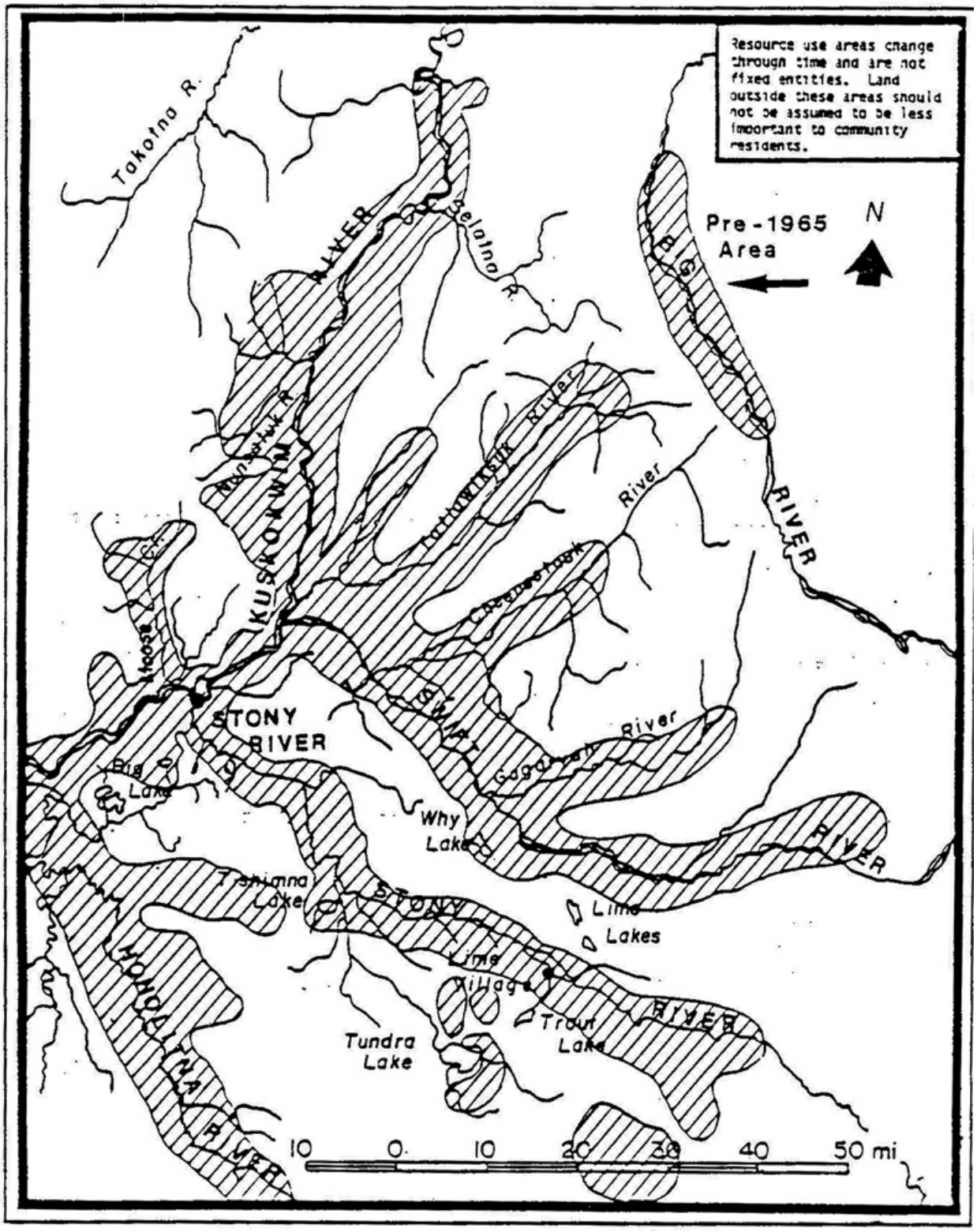

Figure 1. – Areas used for black bear hunting during the lifetimes of Stony River residents as reported in 1983 -1984.

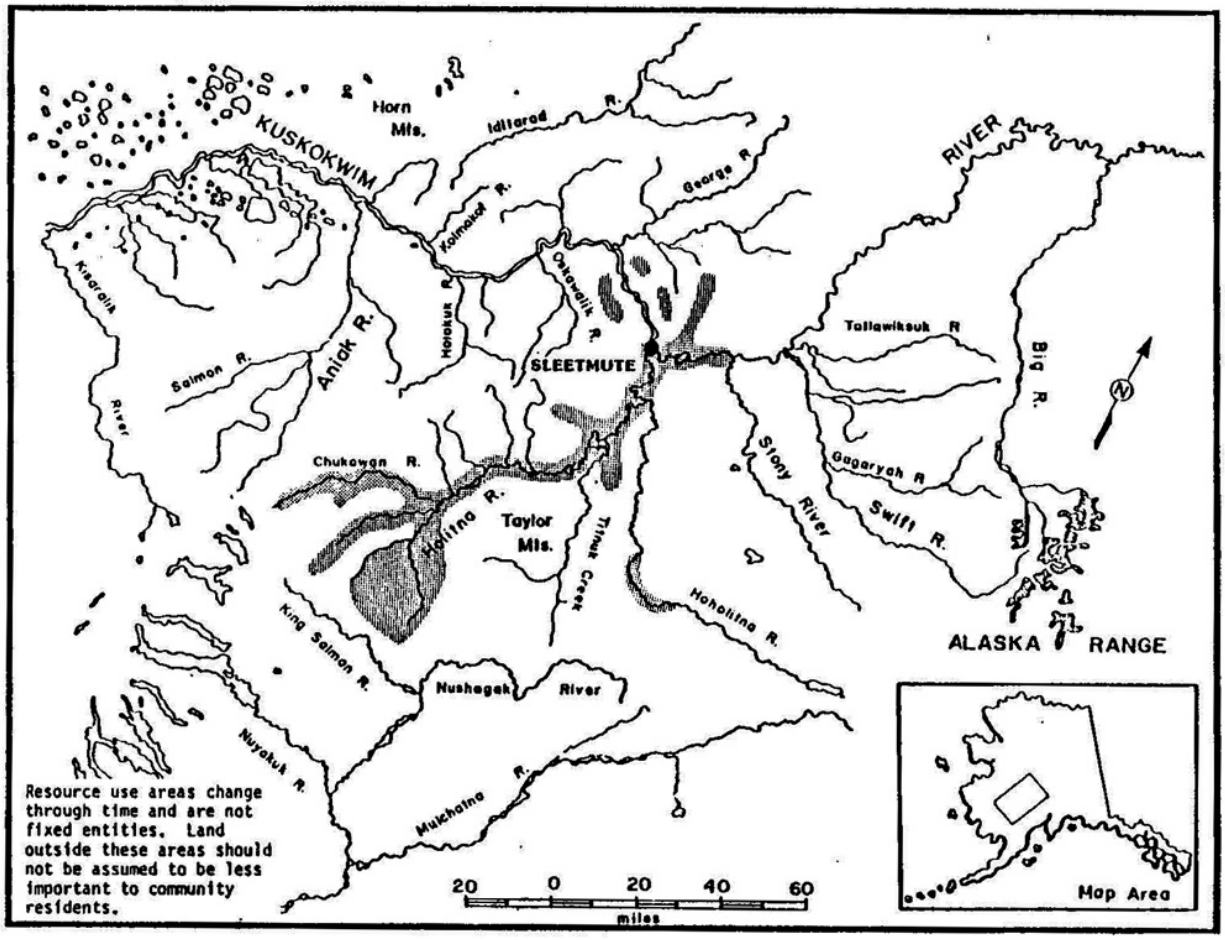

Figure 2. – Areas used by Sleetmute residents for hunting bear prior to the use of snow machines.

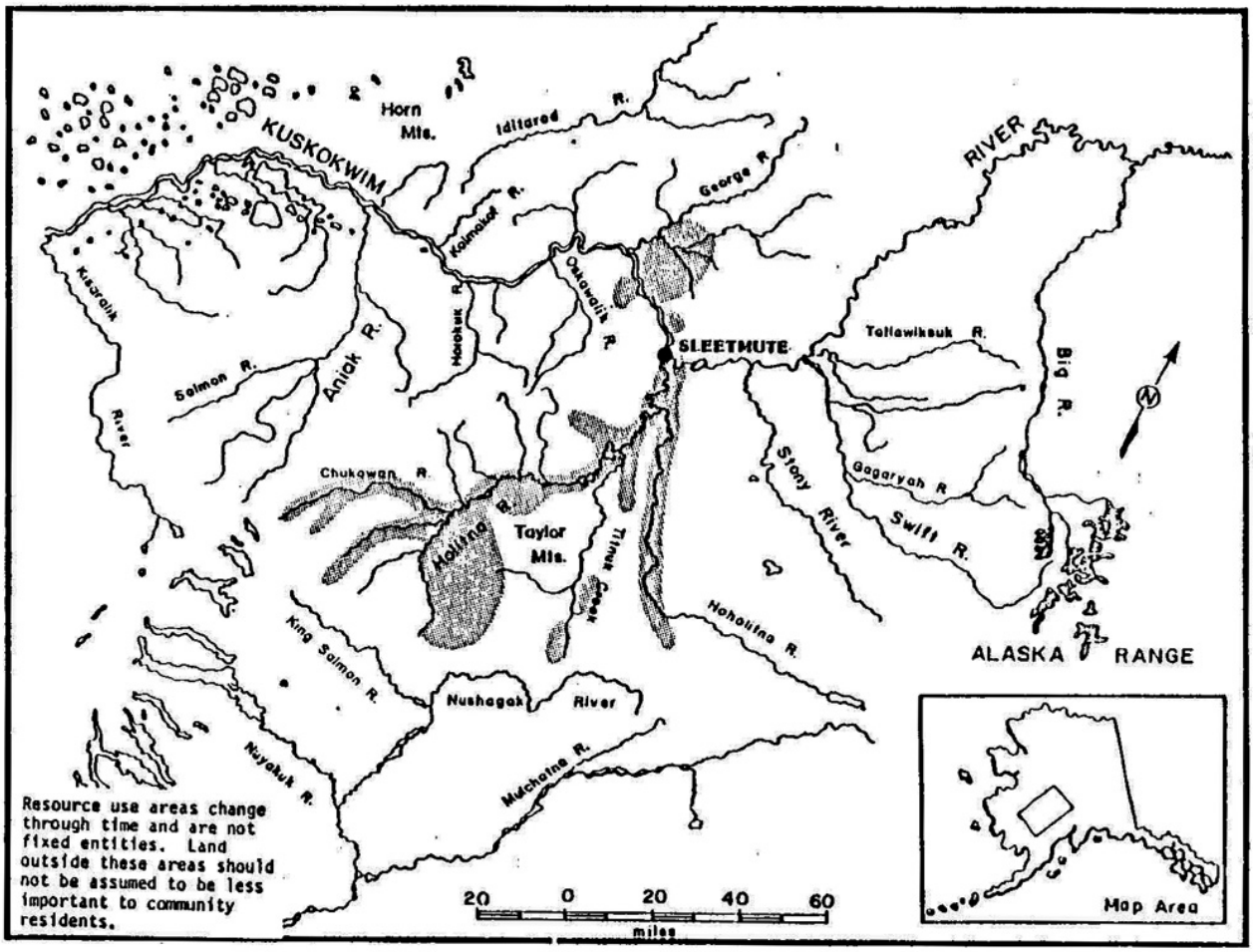

Figure 3. – Areas used by Sleetmute residents for hunting bear since the use of snow machines through 1983.

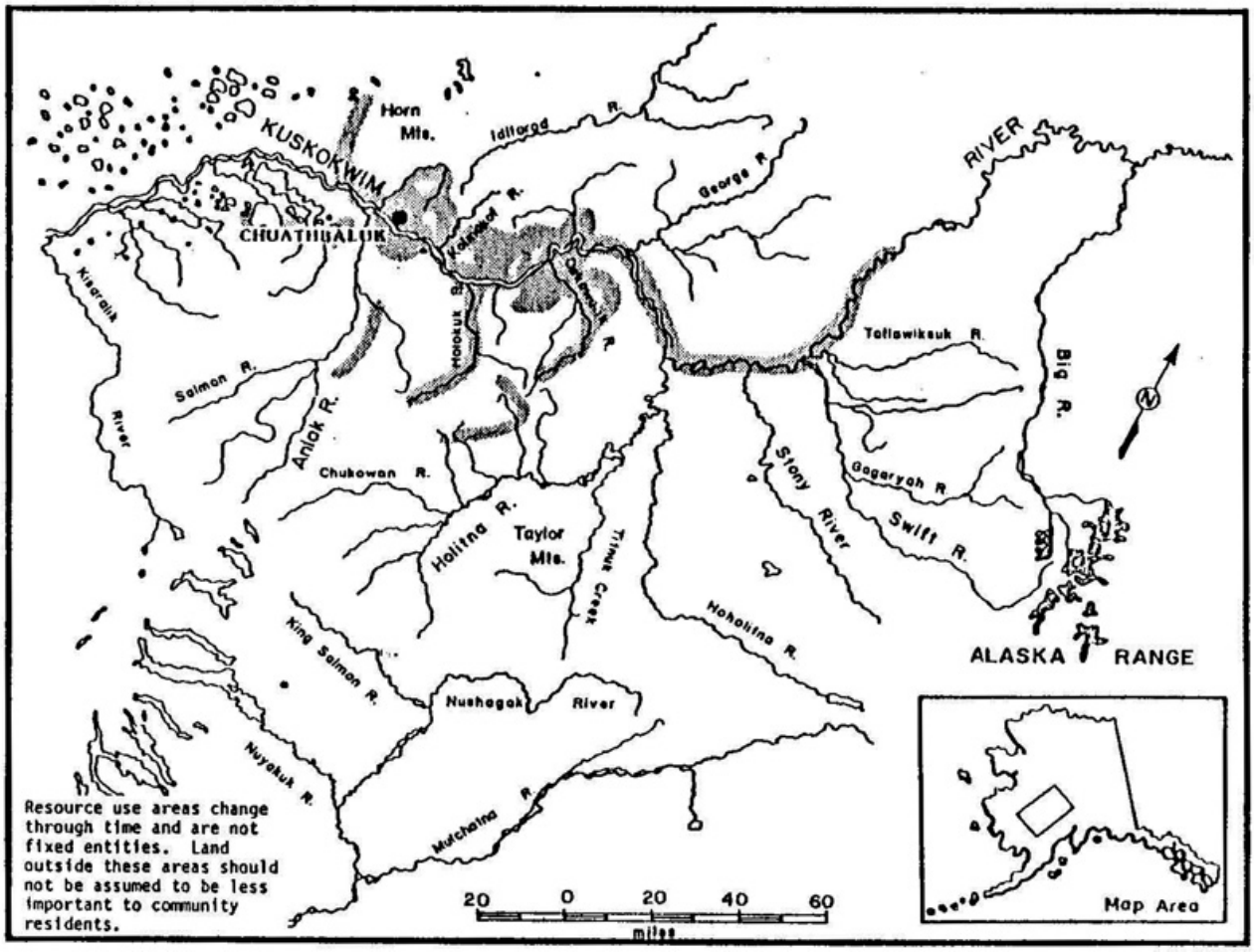

Figure 4. – Areas used by Chuathbaluk residents for hunting bear since moving to Chuathbaluk through 1983.

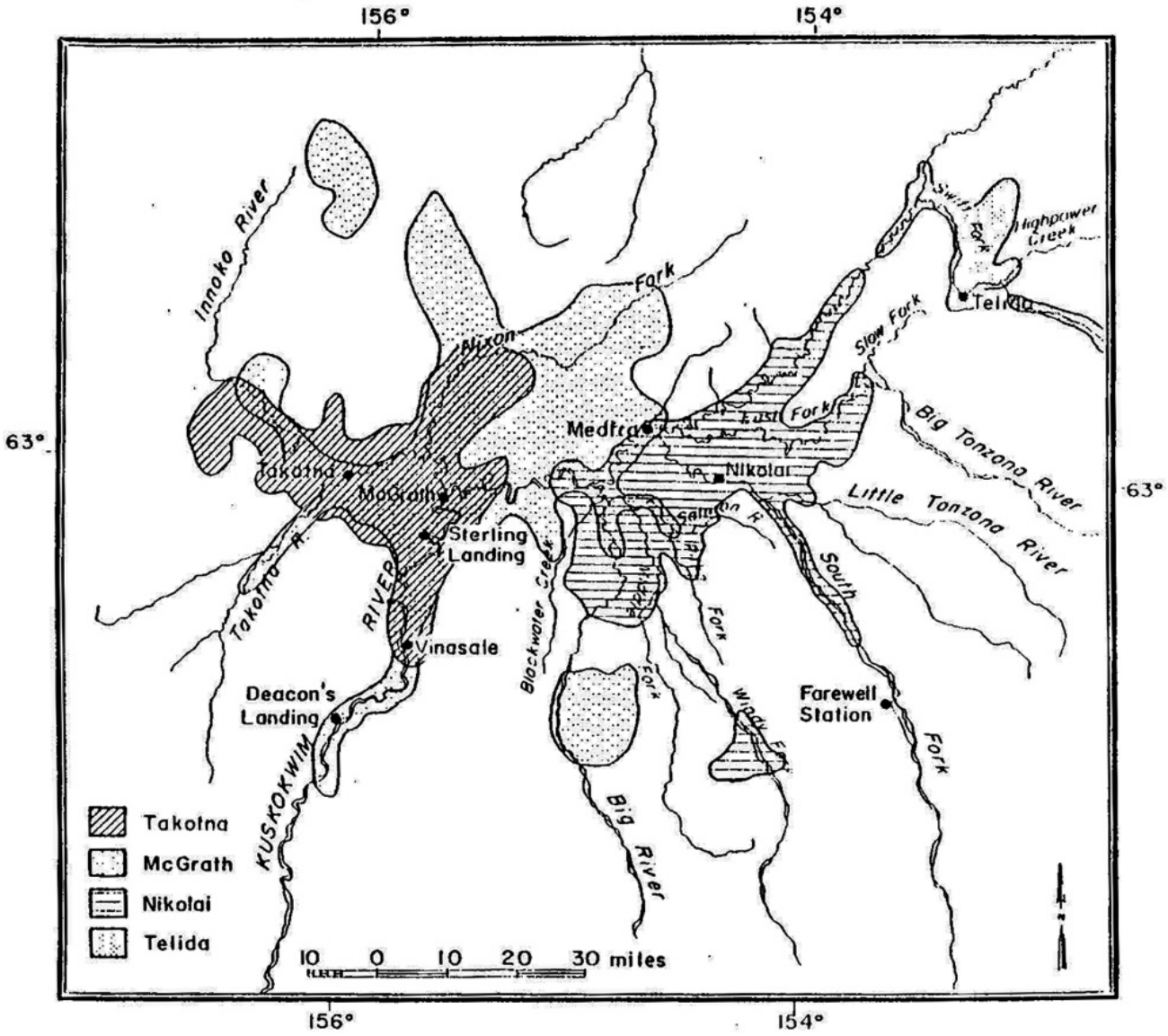

Figure 5. – Areas used by Nikolai, Telida, Takotna, and McGrath black and brown bear hunters, 1967-1983.

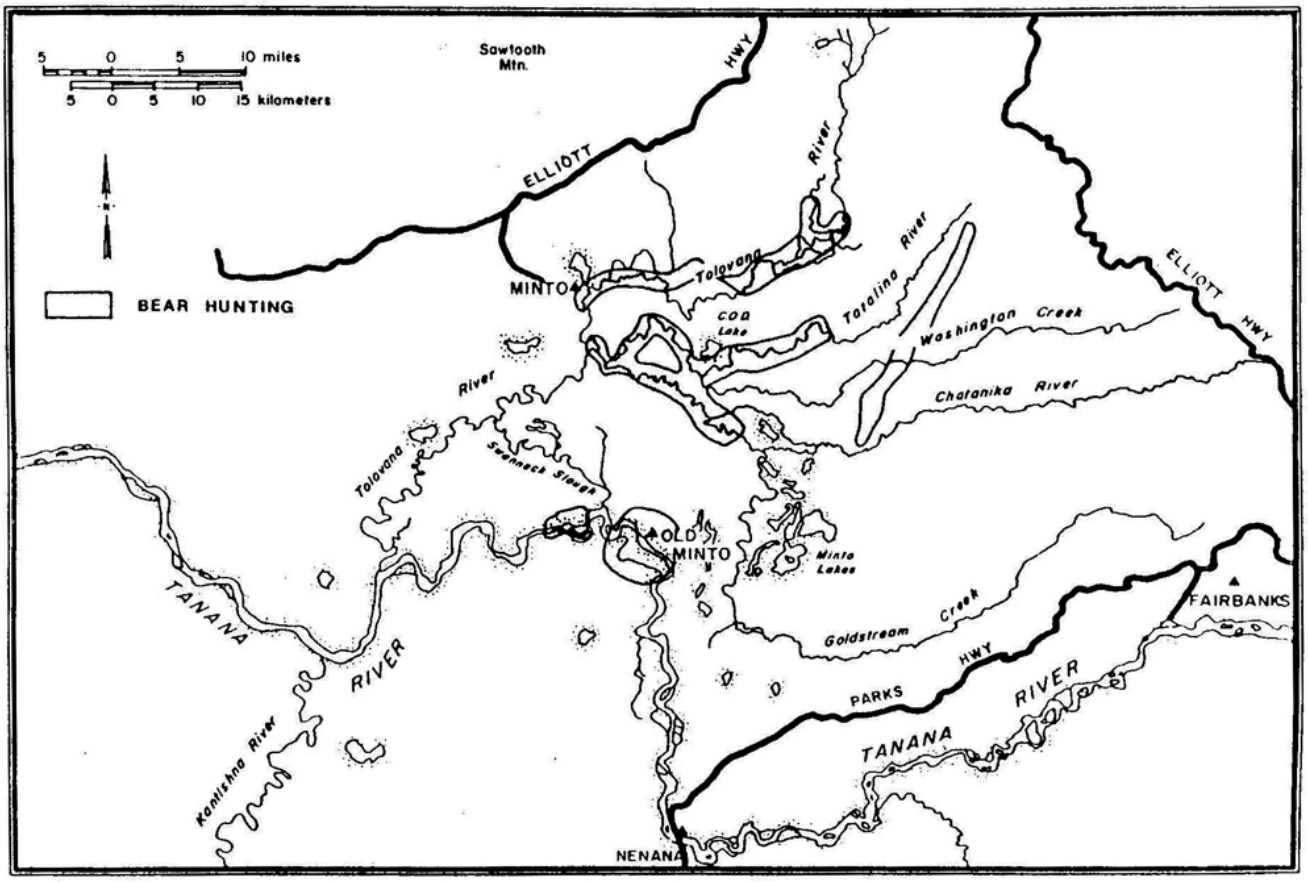

Figure 6. – Minto bear hunting areas, 1960-1984.

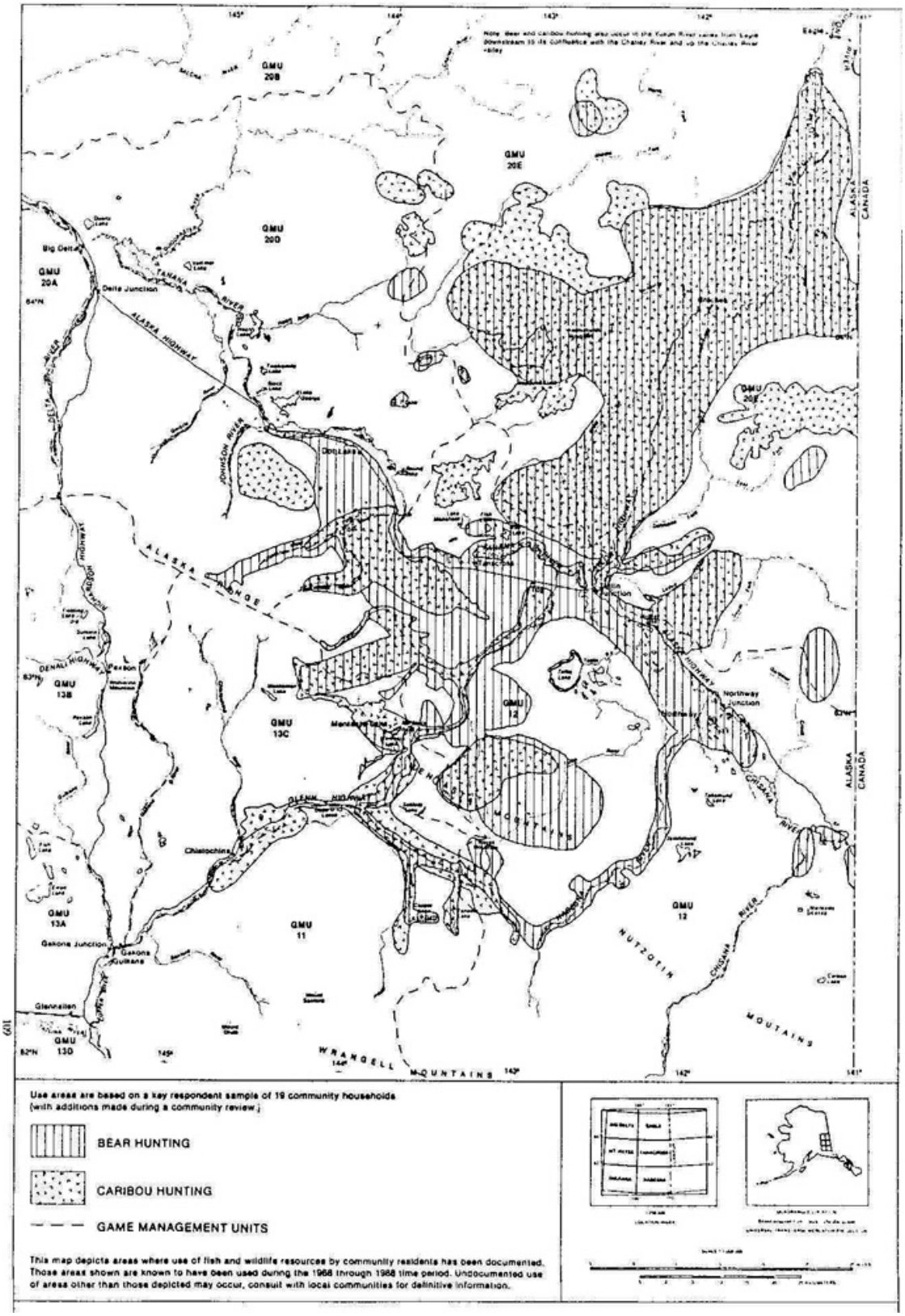

Figure 7. – Tok bear and caribou hunting areas, 1968-1988.

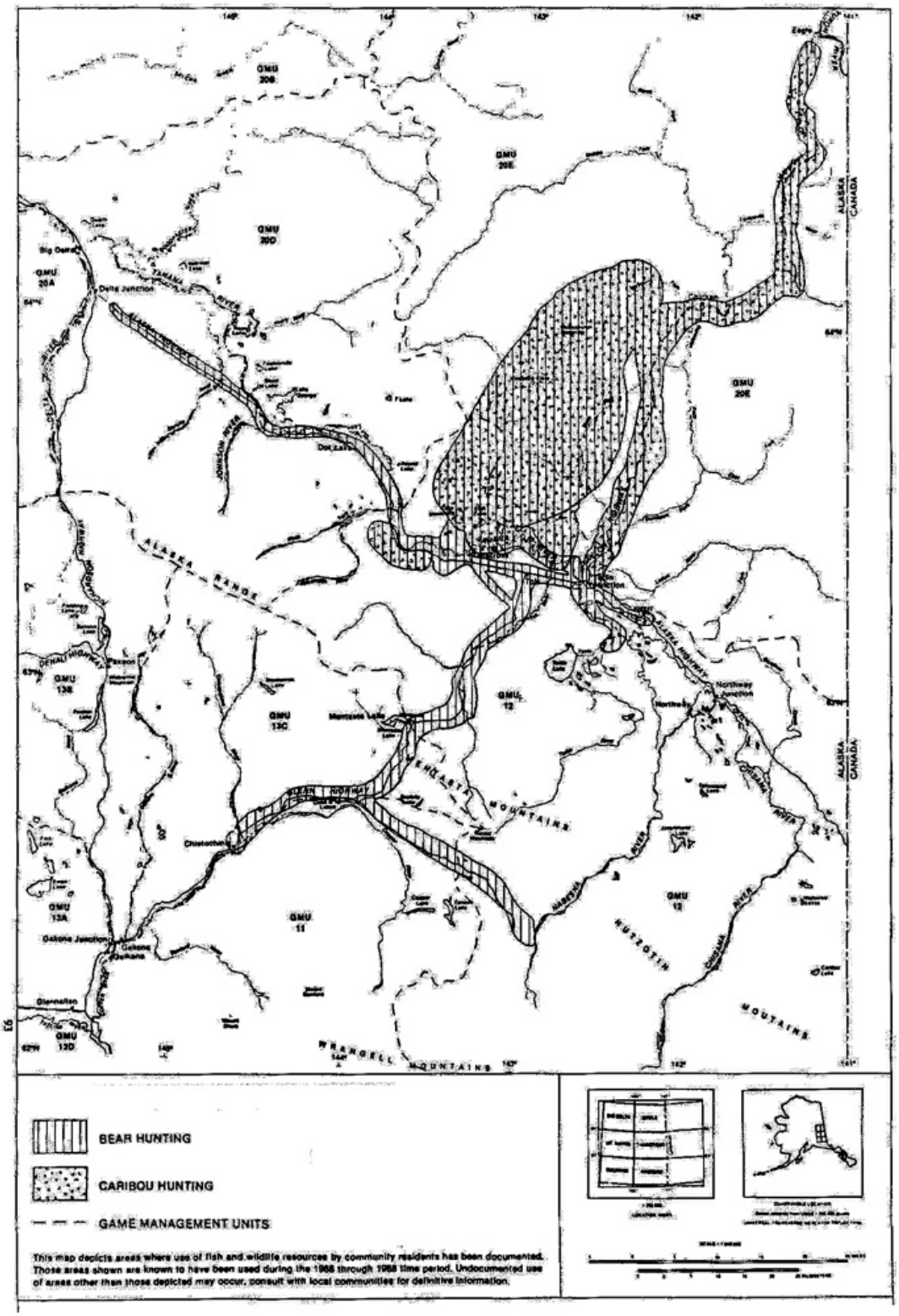

Figure 8. – Tanacross bear and caribou hunting areas, 1968-1988.

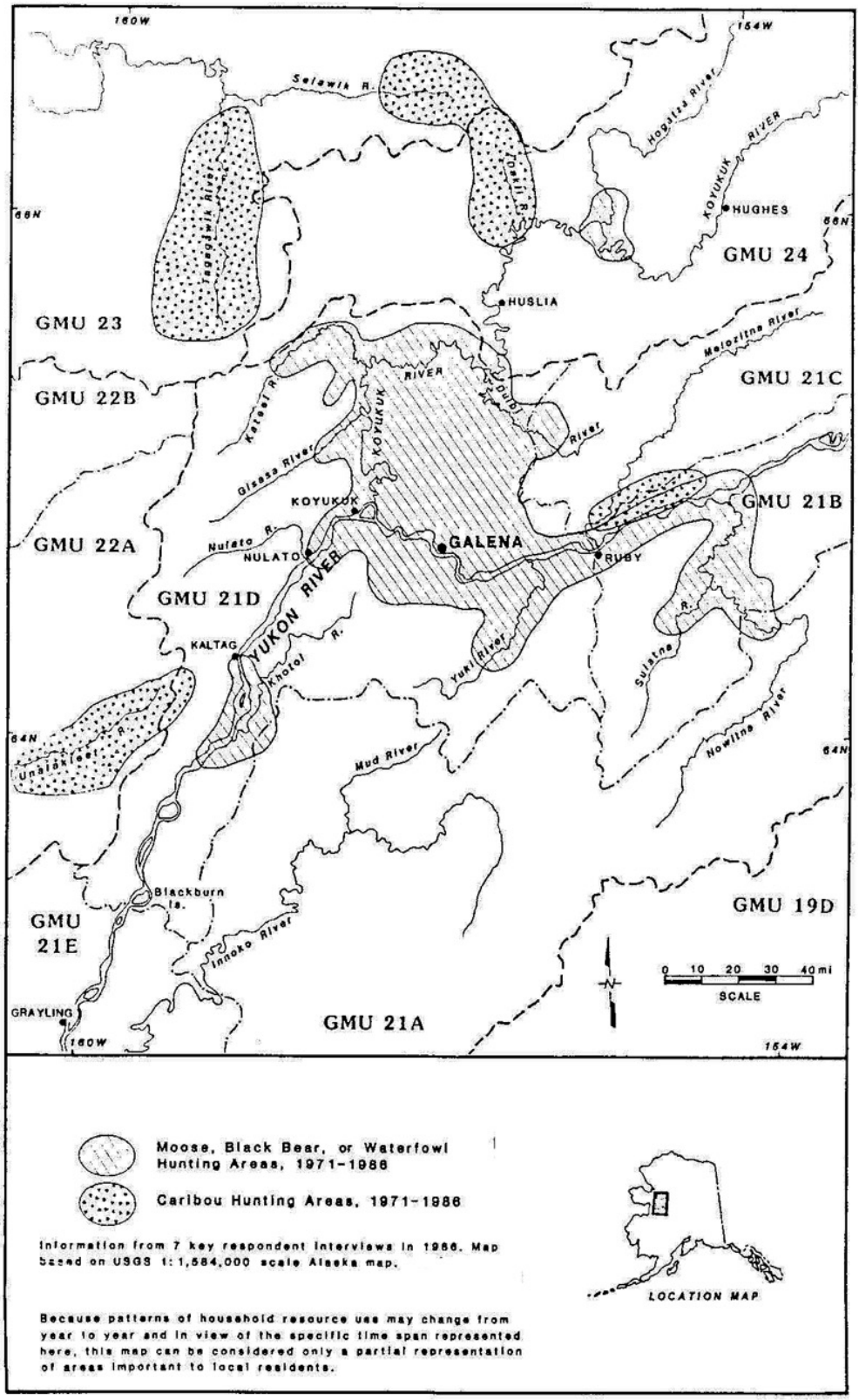

Figure 9. – Galena moose, black bear, waterfowl, and caribou hunting areas, 1971-1986.

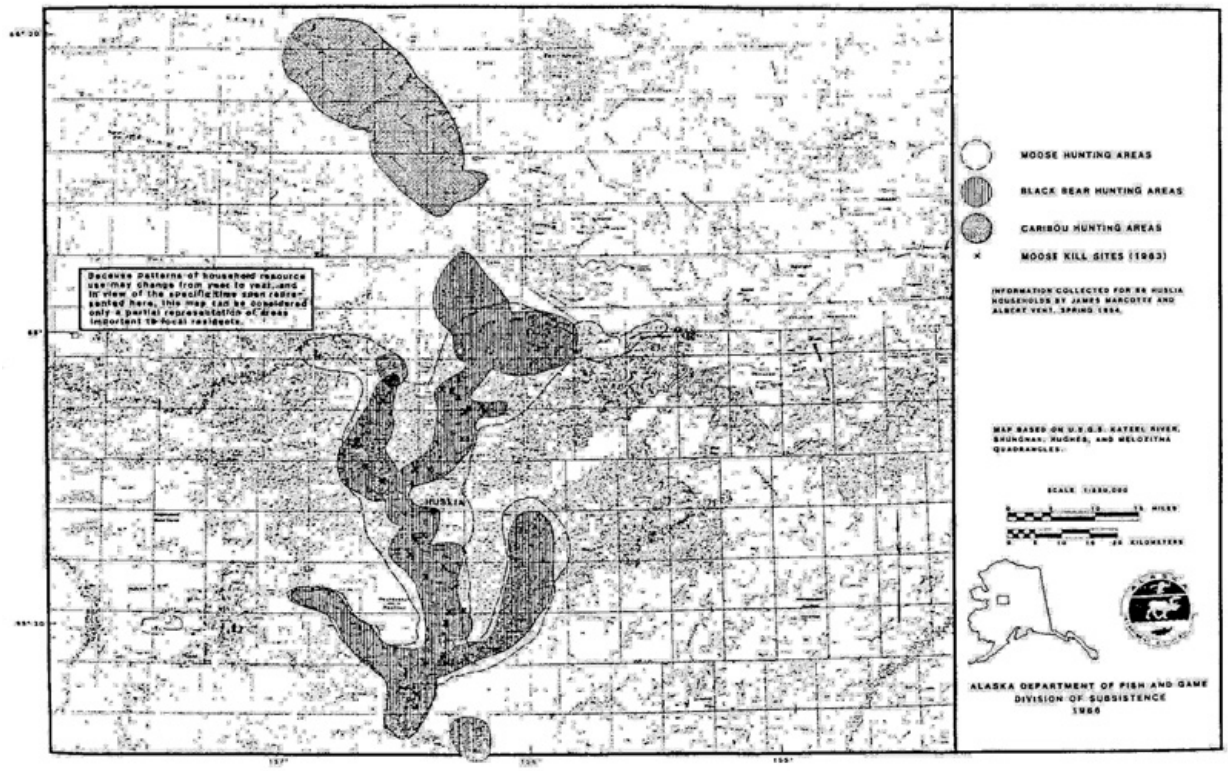

Figure 10. – Huslia moose, black bear, and caribou hunting areas, 1981-1983.

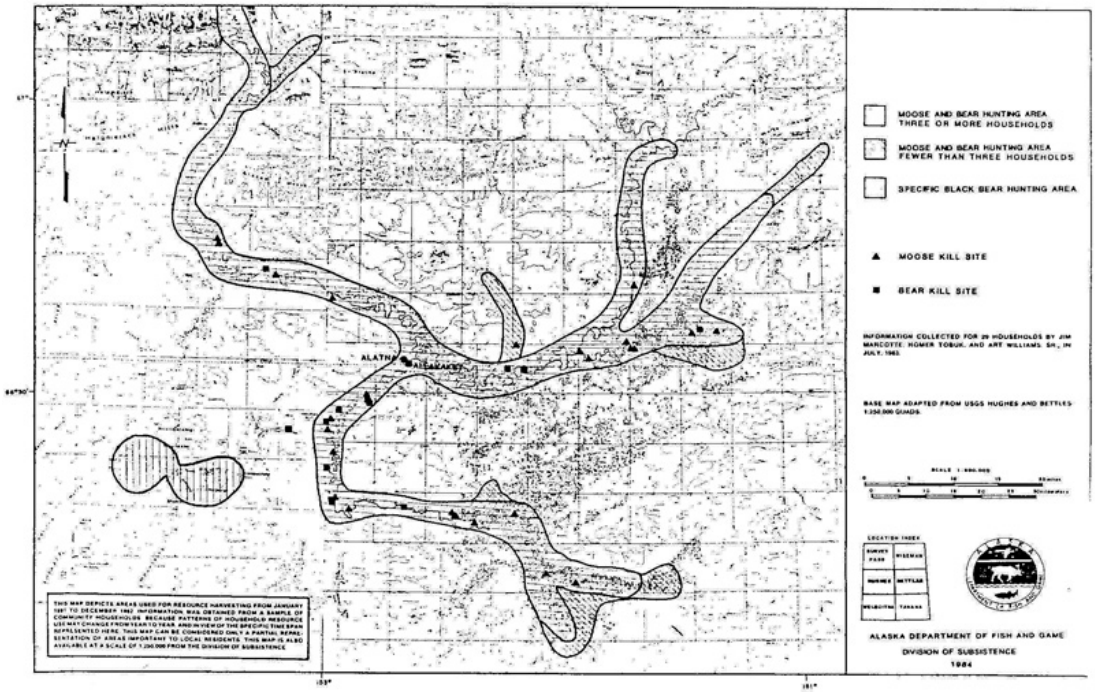

Figure 11. – Areas used for moose and black bear hunting by residents of Allakaket and Alatna, January 1981-December 1982.

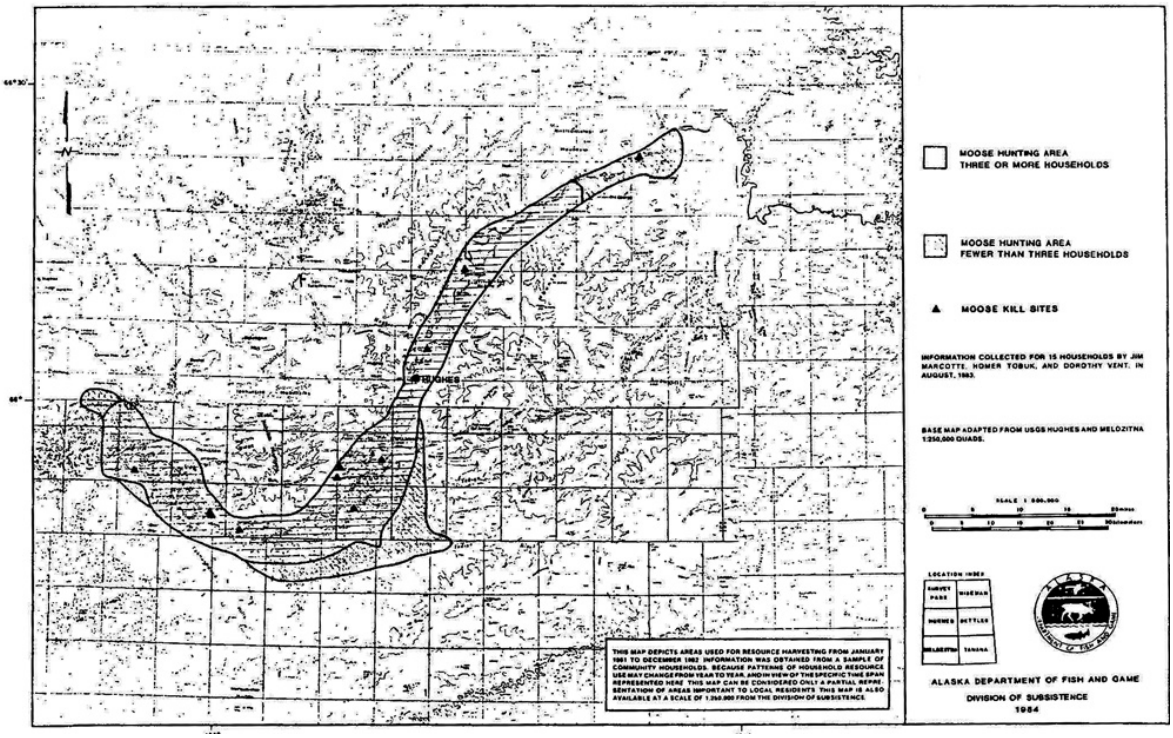

Figure 12. – Areas used for moose hunting by residents of Hughes, January 1981-December 1982.

APPENDIXES

Appendix A – C&T Worksheet presented to the Alaska Board of Game in 1991.

EIGHT CRITERIA WORKSHEET, BOARD OF GAME, MARCH 1991

SPECIES: BLACK BEAR

GMU/SUBUNIT: GMUs 18, 19, 21E

RURAL COMMUNITIES USING THE SPECIES

Akiakchak, Akiak, Aniak, Atmautluak, Bethel, Chuathbaluk, Crooked Creek, Kwethluk, Lime Village, Lower Kalskag, Marshall, Mountain Village, Nunapitchuk, Pilot Station, Pitka's Point, Quinhagak, Red Devil, Russian Mission, Sleetmute, Stony River, St. Mary's, Tuluksak, and Upper Kalskag. Possible uses by Alakanuk, Emmonak, Goodnews Bay, Kasigluk, Kotlik, Napaskiak, Oscarville, Platinum, and Sheldon Point.

1. LENGTH AND CONSISTENCY OF USE (long-term, consistent, excluding interruptions by circumstances beyond the user's control)

In communities with or near spruce woodlands, such as Lime Village, Stony River, Sleetmute, Chuathbaluk, Kwethluk, Russian Mission, Marshall, and St.Mary's, to name a few, hunting and use of black bear is a well established pattern. In other communities, black bear are most often taken opportunistically when targeting other animals, such as moose, or small game, but its use is common. Most residents familiar with the use of black bear report that they have caught black bear in regularly hunted areas as long as elders in their communities can recall, and can recount stories of uses by previous generations (cf. Coffing, in prep.; Charnley 1984; Kari 1983, 1987). Historical sources from the 18th century mention use of bear by residents of this region.

2. SEASONALITY (recurring in specific seasons of each year)

Black bear are hunted primarily in the spring, fall, and early winter. In areas with or near black bear habitat, black bear hunting commences after bear begin venturing from their dens, in April and extends through May, until fishing season starts. They are a notable resource in these areas, often being the only large animal reasonably available when food stores are depleted, in late winter. In the fall, from late August through October, black bear are hunted in conjunction with or incidental to moose and caribou hunting. The quality of black bear flesh is often mentioned as a factor in time of targeted hunting. Immediately after hibernation in the spring, black bear have some fat for a short period of time. However, food stores are often diminished at this time of year, and any fresh meat is welcome. The flesh of black bear is considered best in the fall and early winter, when they have been feeding primarily on berries. It is fat and tasty then.

Communities near good black bear habitat, such as Russian Mission, Lime Village, Stony River, Chuathbaluk, and Sleetmute occasionally employ den-hunting throughout the winter, particularly when food supplies run low. Although this is more common reason for brown bear kills, defense-of-life-and-property kills of black bear do occur, especially throughout fish camp season.

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3. MEANS AND METHODS OF HARVEST (efficient, economic, conditioned by local circumstances)

Black bear are hunted by snowmachine or dog team in late winter and early spring, and by boat in the fall, typically with large caliber rifles (30'06, .270). In some areas, notably the middle Kuskokwim communities, black bear were hunted on foot, often in conjunction with berry picking. Hunters note grass piles in the fall to determine where dens may be. In the winter, the area is searched for scratch marks and bits of fur on trees to locate dens, if the bear is to be dispatched while still in the den. It is either shot while still in the den or aggravated until it charges out, and then is shot. Otherwise, hunters canvass the area in late winter to track and hunt newly emerged bears. In the fall, black bear hunting often occurs along with moose hunting or immediately after moose season, particularly if they were not successful in harvesting a moose. In Chuathbaluk, Sleetmute, Lime Village, and Stony River, wire snares have been set in or near smokehouses in recent years to capture troublesome bears.

Other means of catching black bear which are no longer practiced, include spearing or shooting them with bows and arrows, smoking them out of dens, snaring them or capturing them in deadfall traps, lassoing and drowning them while they swam, or baiting them with coiled baleen which ruptured their innards. Dogs were sometimes used to track black bear or find dens.

4. GEOGRAPHIC AREAS (near or reasonably accessible from the user's residence)

Each community typically hunts black bear in usually productive areas. In many cases, areas used to hunt black bear are similar to those used to hunt moose, since both activities often occur together. Detailed information on black bear hunting areas does not exist for most communities; depiction of black bear hunting areas is often combined with brown bear or moose hunting areas.".

Lime Village residents hunt "moose, caribou, and black bear in flats throughout their land use area. They hunt moose intensively along the Stony River and its side streams including Stink River and Hungry Creek. They also use Caribou Snare Creek and other streams that drain into Tundra Lake. Can Creek is an important hunting ground for both moose and black bear." (Kari 1983:32).

Stony River residents hunt black bear about 70 miles along the Kuskokwim River above and 20 miles below the village, as well as along the Swift and Stony River, their tributaries, and along the Tatlawiksuk, Holitna, and Big rivers (Kari 1985:80). Chuathbaluk residents have hunted black bear along the Kuskokwim River from just below their community up almost to McGrath. Areas along the Aniak, Holokuk, Oskawalik rivers, as well as the lower tributaries of the Holitna River have also been hunted (Charnley 1984:235-238).

Sleetmute hunters primarily use the Holitna drainage to hunt black bears, along with the lower reaches of the George River (Charnley 1984:235, 240).

Kwethluk hunters have gone along the Holokuk River drainage, especially since the 1940s to hunt black bears. Inclusive areas extend up the Kuskokwim River as far as McGrath and up the Holitna River to its headwaters (Coffing, in prep).

Tuluksak residents have hunted bear along the Kuskokwim River from the village upriver to the mouth of the Holitna River, as well as a few areas in the upper Johnson River, between the Yukon and Kuskokwim rivers. Tributaries of the Kuskokwim River between the village and the Holitna River have also been hunted for bear. These include the Tuluksak River drainage up to the Risher Dome area; Bogus and Ophir Creeks and the area around Whitefish Lake; the Aniak River; approximately 10 miles up the Kolmakof and Holokuk rivers; the Holitna River up to Kashegelok, and roughly 10 miles up the Hoholitna River (Andrews and Peterson 1987).

Nunapitchuk residents hunt black bear incidentally to moose hunting. They hunt north and east of their village up the Pikmiktalik, Kvichavak, and Johnson rivers to their headwaters and adjacent lakes and tributaries. They sometimes portage from the Johnson River to the Yukon River and hunted along the Yukon River up to Paimiut Slough. They also hunt along the Kuskokwim River as far upriver as Stony River, which is 320 miles distant (Andrews 1989: 327-329).

Areas used by Russian Mission residents to hunt black bear include the Yukon River corridor from Ohogamiut up to the outlet of the Bonasila River; the lower reaches of the Bonasila River; and the Innoko River up to its confluence with the Shageluk River. Hills along the north bank of the Yukon River to the north and east of the village were hunted as well. Areas along the lower Atchuelinguk River were recent additions to regular black bear hunting areas; hunting in that area occurred while at fish camp.

5. MEANS OF HANDLING, PREPARING, PRESERVING, AND STORING (traditionally used by past generations, but not excluding recent technological advances)

Many sources report traditional respectful behavior toward bears in general. The skull is buried in the field, rather than taken back to risk disrespectful treatment, such as dogs gnawing on it, or someone sitting on it. First kills are distributed throughout the community for good luck.

Black bear is commonly butchered in the field and processed like other large game. The meat is shared with relatives, especially if fresh meat has been scarce, frozen, dried and smoked, or canned for later use, and cooked by boiling, frying, broiling, barbecuing, or roasting. Some sources report patterns of butchering and sharing depending upon the number in the hunting party, who made the kill, the age of the hunters. Choicest parts, such as hind quarters, or organs (heart, kidneys, and intestines) often are given to elders. If the meat has to be transported some distance by packing, or return to the village is not imminent, the meat may be dried in the field to decrease its weight and prevent spoilage. In some communities, the fat is rendered to be used in cooking and making "native ice cream".

Black bear hides are used for rugs, mattresses, boot uppers or soles, mittens, caps, and trimmings on boots. Dried black bear gall is steeped in hot water to make a medicinal drink by Lime Village residents.

Bear hides were traditionally used as door covers, and bear gut used to make raincoats, and summer coats, as well as stretched to make drums heads. These uses are no longer common.

6. INTERGENERATIONAL TRANSMISSION OF KNOWLEDGE, SKILLS, VALUES AND LORE (handed down between generations)

As with many subsistence activities, teaching young men how to track, hunt, and butcher black bear, and young women how to process and preserve bear meat and handle its products, is through participant observation. Children are included in many activities, and are expected to show interest and eventually participate in the activities depending upon their age and acquired skill. Most hunting is done in family-based groups, so learning and proficiency is observed and monitored.

7. DISTRIBUTION AND EXCHANGE (customary trade, barter, and gift giving within a definable community of persons)

As mentioned above, first kills are distributed throughout the community to ensure future good luck. Black bear meat is shared widely within and between communities, particularly if it is the only fresh meat in typically lean times, such as late winter. Certain parts, such as hindquarters, heart, and kidneys, are normally given to elders.

8. DIVERSITY OF RESOURCES IN AN AREA; ECONOMIC, CULTURAL, SOCIAL, AND NUTRITIONAL ELEMENTS (wide diversity, substantial elements of a subsistence user's life)

In this region, imported foods and equipment are often very costly and means of generating cash are not widely available. Residents of these communities harvest a large variety and considerable amounts of local fish and game resources, including all species of Pacific salmon; several species of whitefish, pike, burbot, blackfish, smelt, trout, and Arctic lamprey; moose, caribou, black and brown bear, hare, ptarmigan, porcupine, grouse, and numerous species of waterfowl; furbearers, such as beaver, mink, otter, muskrat, wolverine, wolf, fox, lynx, and marten; as well as many plants and berries. Much of the wild resources harvested is comprised of salmon and freshwater fish. However, communities further inland depend more heavily on land mammals, such as black bear. Kari (1983) reported that Lime Village residents prefer fresh animal meat as a staple over fish and birds. Caribou, moose, and beaver provided the most meat for Lime Village residents; in some years, black bear may have equalled beaver in pounds consumed.

INFORMATION SOURCES

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Technical Paper No. 53. Middle Kuskokwim Food Survey II. (1981) Alice Stickney.

Technical Paper No. 80. Land Use and Economy of Lime Village. (1983) Priscilla R. Kari.

Technical Paper No. 81. Human Ecology of Two Central Kuskokwim Communities: Chuathbaluk and Sleetmute. (1984) Susan Charnley.

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Technical Paper No. 89. Subsistence-Based Economies in Coastal Communities of Southwest Alaska. (1984) Robert J. Wolfe, et al.

Technical Paper No. 108. Wild Resource Use and Economy of Stony River village. (1985) Priscilla R. Kari.

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Technical Paper No. 177. The Akulmiut: Territorial Dimensions of a Yup'ik Eskimo Society. (1989) Elizabeth F. Andrews.

Subsistence Study (on file): Atmautluak, Marshall, and Lower Kalskag (1984) Nunam Kitlutsisti.

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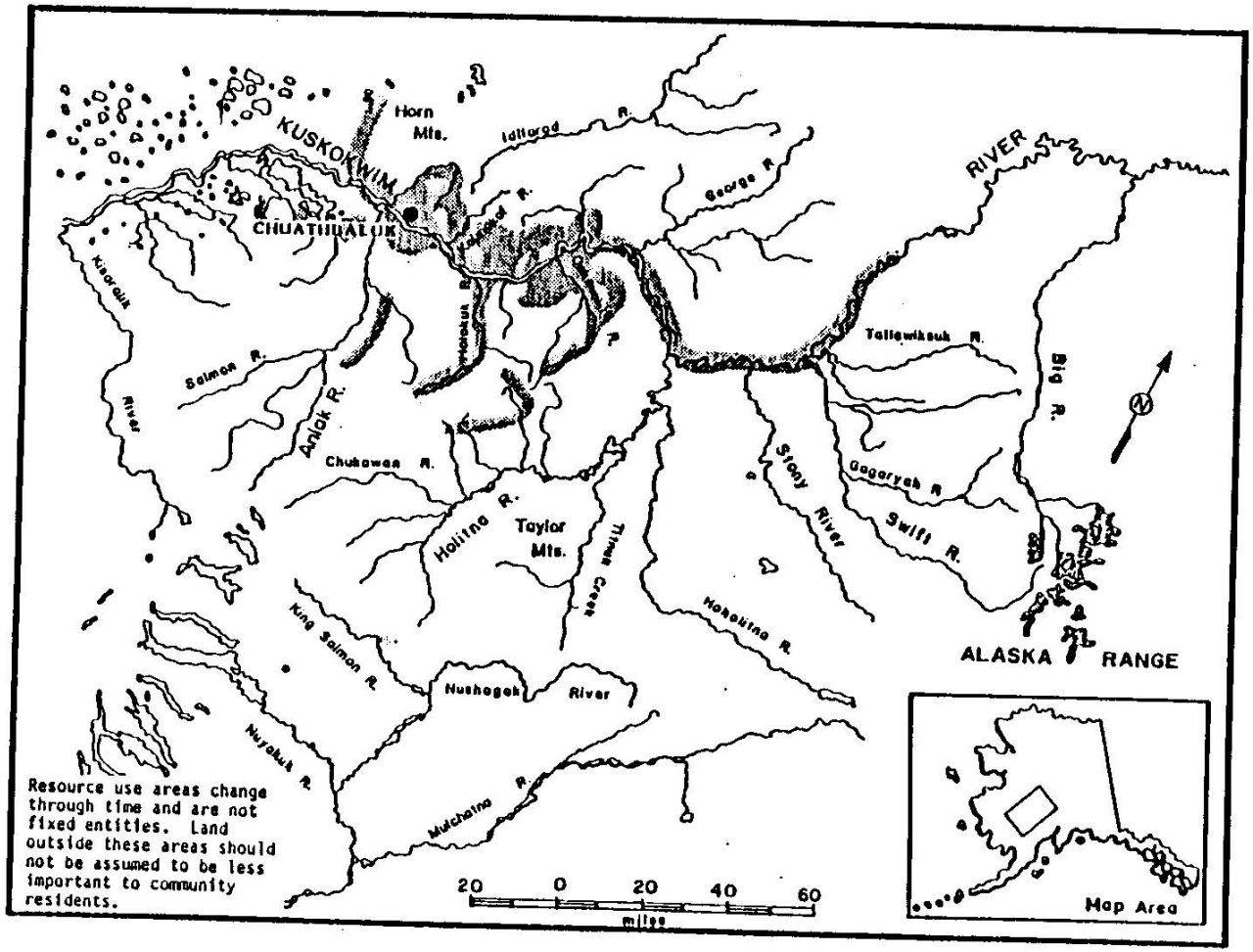

Fig. 64. Areas used by Chuathbaluk residents for hunting bear since moving to Chuathbaluk through 1983.

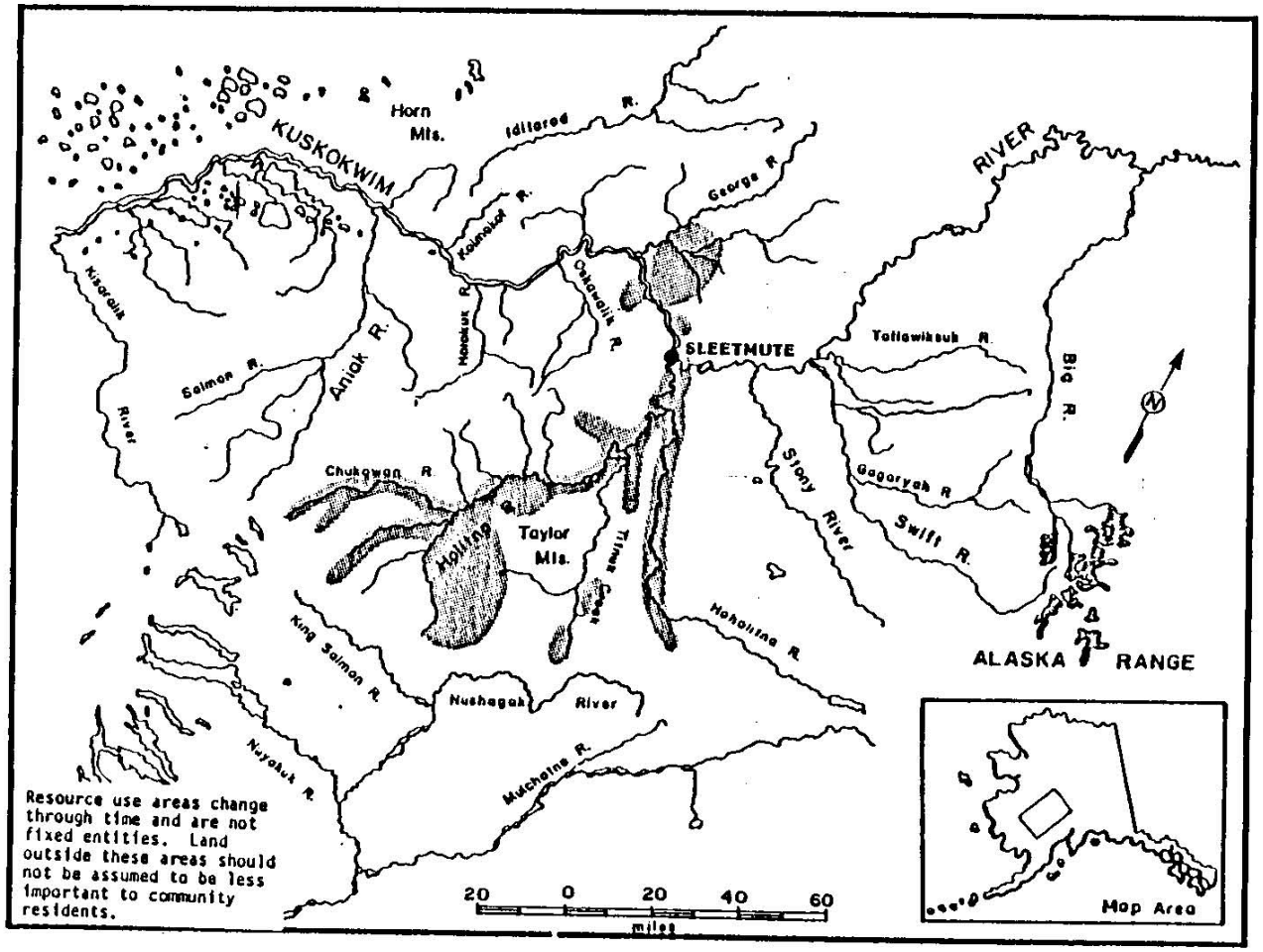

Fig. 66. Areas used by Sleetmute residents for hunting bear since the use of snowmachines through 1983.

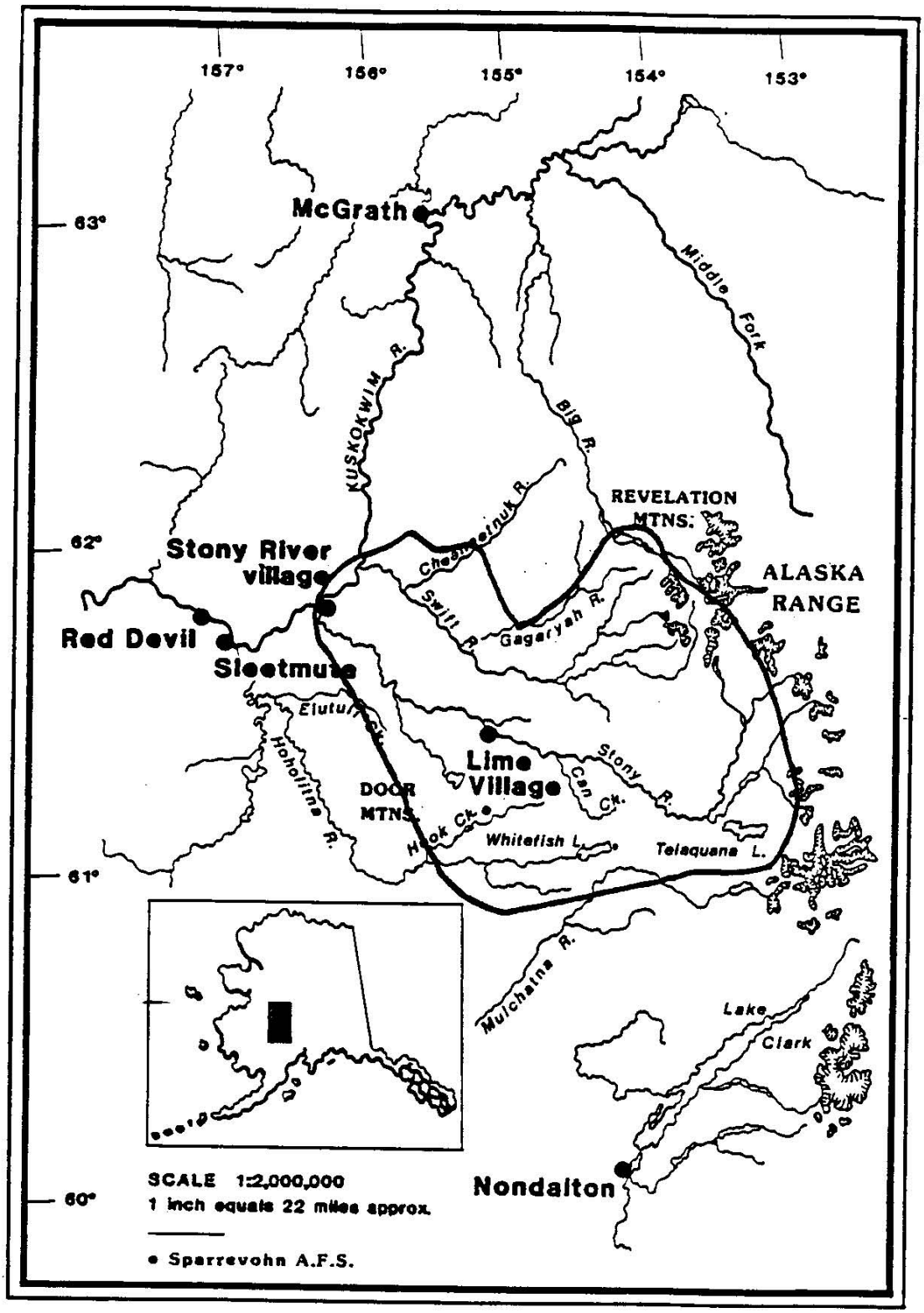

Figure 1. Lime Village: the local and regional area

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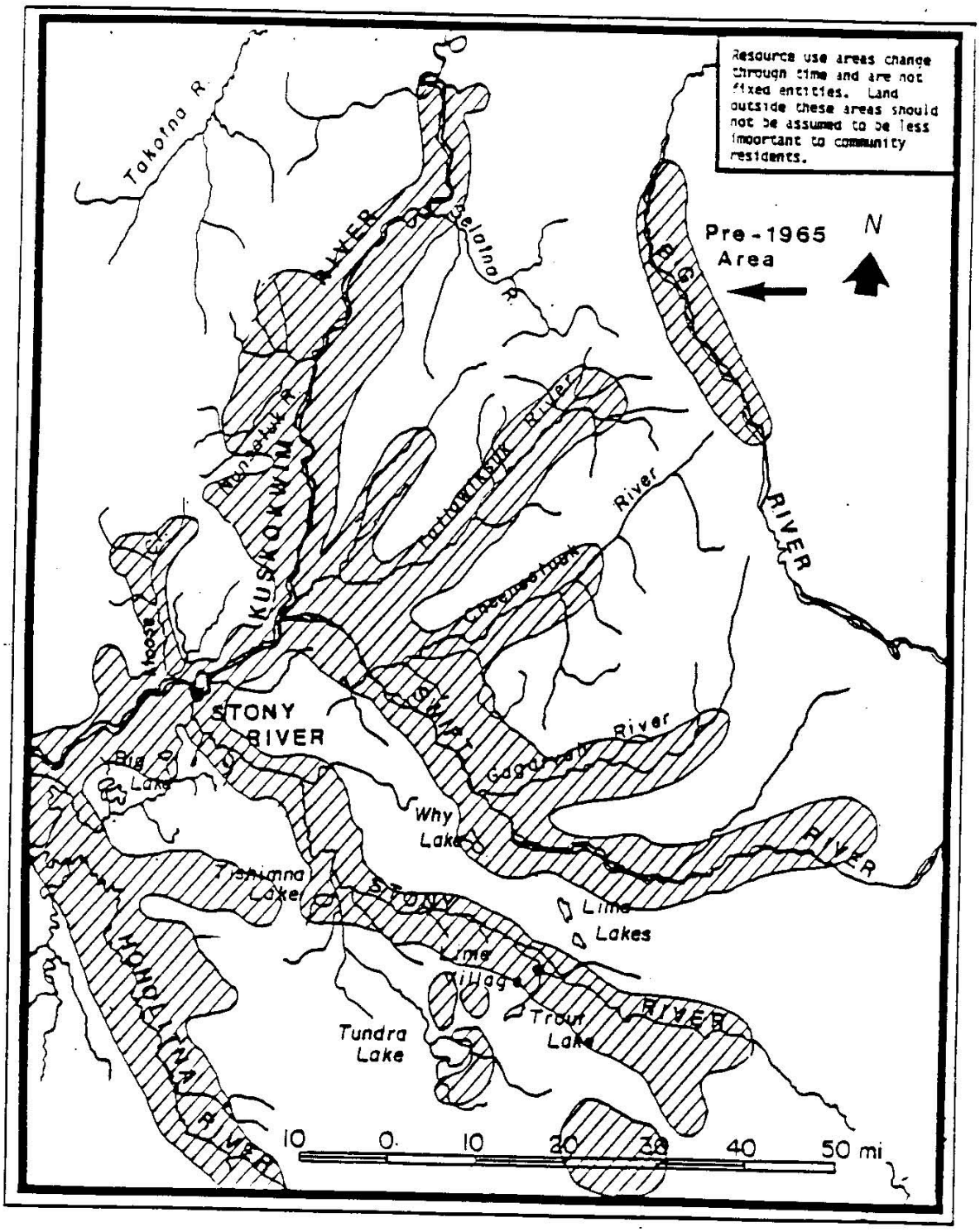

Fig. 5. Areas used for black bear hunting during the lifetimes of Stony River residents as reported in 1983-84.

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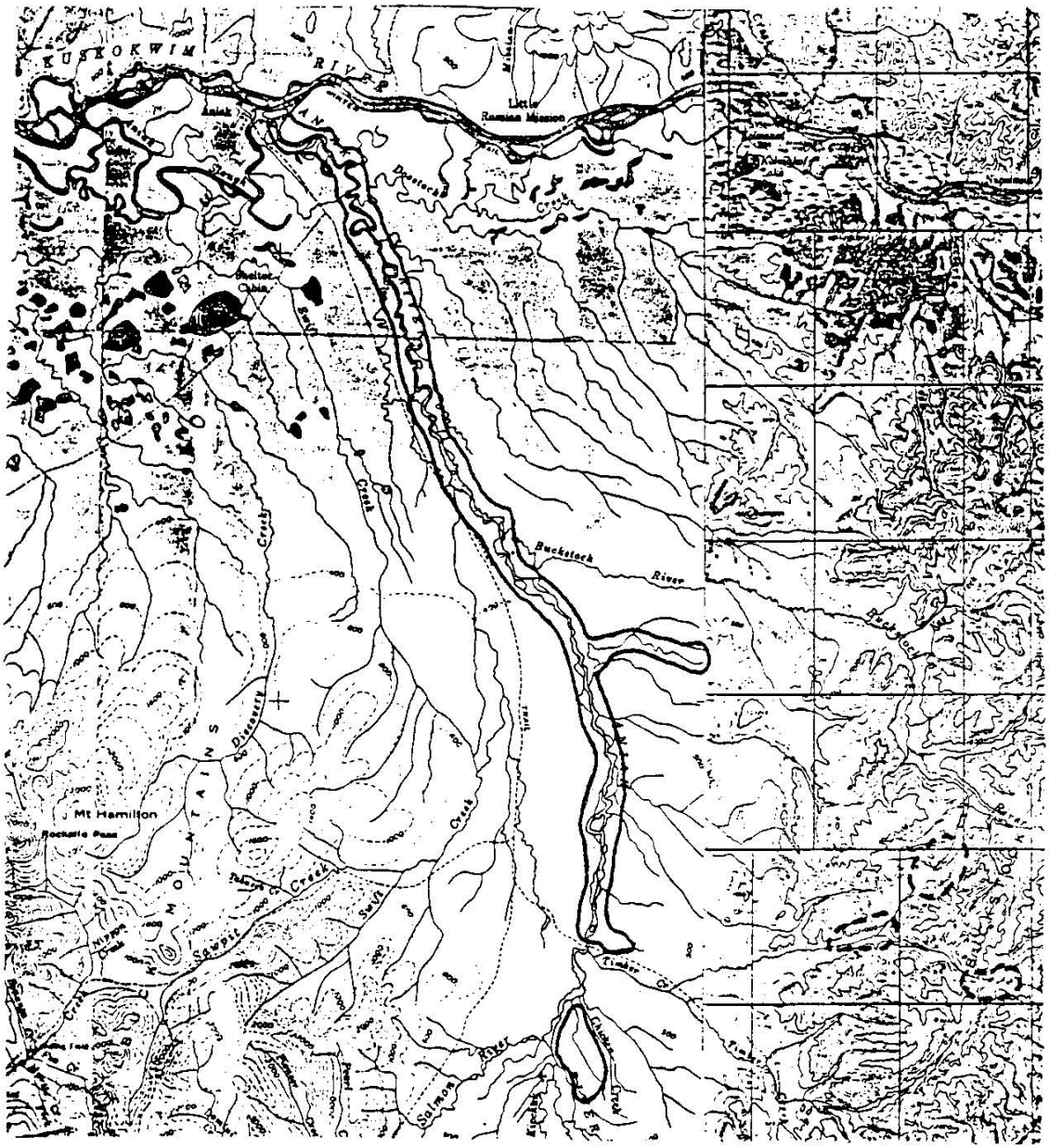
Note: This map was compiled during 1982 from a sample of community residents, so it may be a partial representation of areas used by community members for fishing, hunting, trapping and gathering. Use areas change through time and are not fixed entities. Land outside use areas should not be assumed to be of relative less importance to community members.

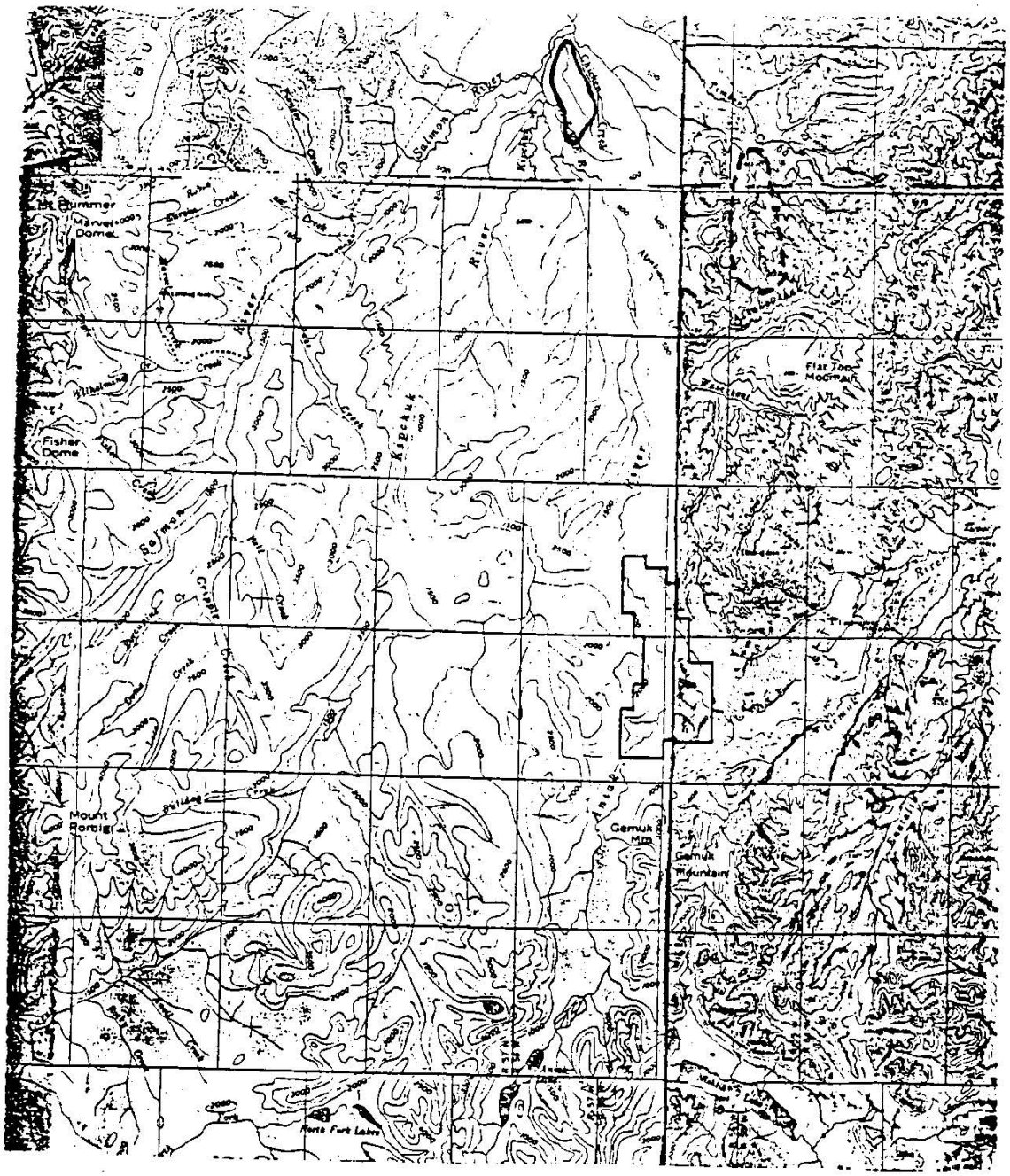


Map 6. Bear and Caribou Hunting Areas within the Aniak River Drainage of Residents of Aniak (n=17)

-- Bear Hunting Areas

-- Caribou Hunting Areas

Note: This map was compiled during 1982 from a sample of community residents, so it may be a partial representation of areas used by community members for fishing, hunting, trapping and gathering. Use areas change through time and are not fixed entities. Land outside use areas should not be assumed to be of relative less importance to community members.



Map 7. Bear and Caribou Hunting Areas Within the Aniak River Drainage of Residents of Aniak (n=17)

-- Bear Hunting Areas

-- Caribou Hunting Areas

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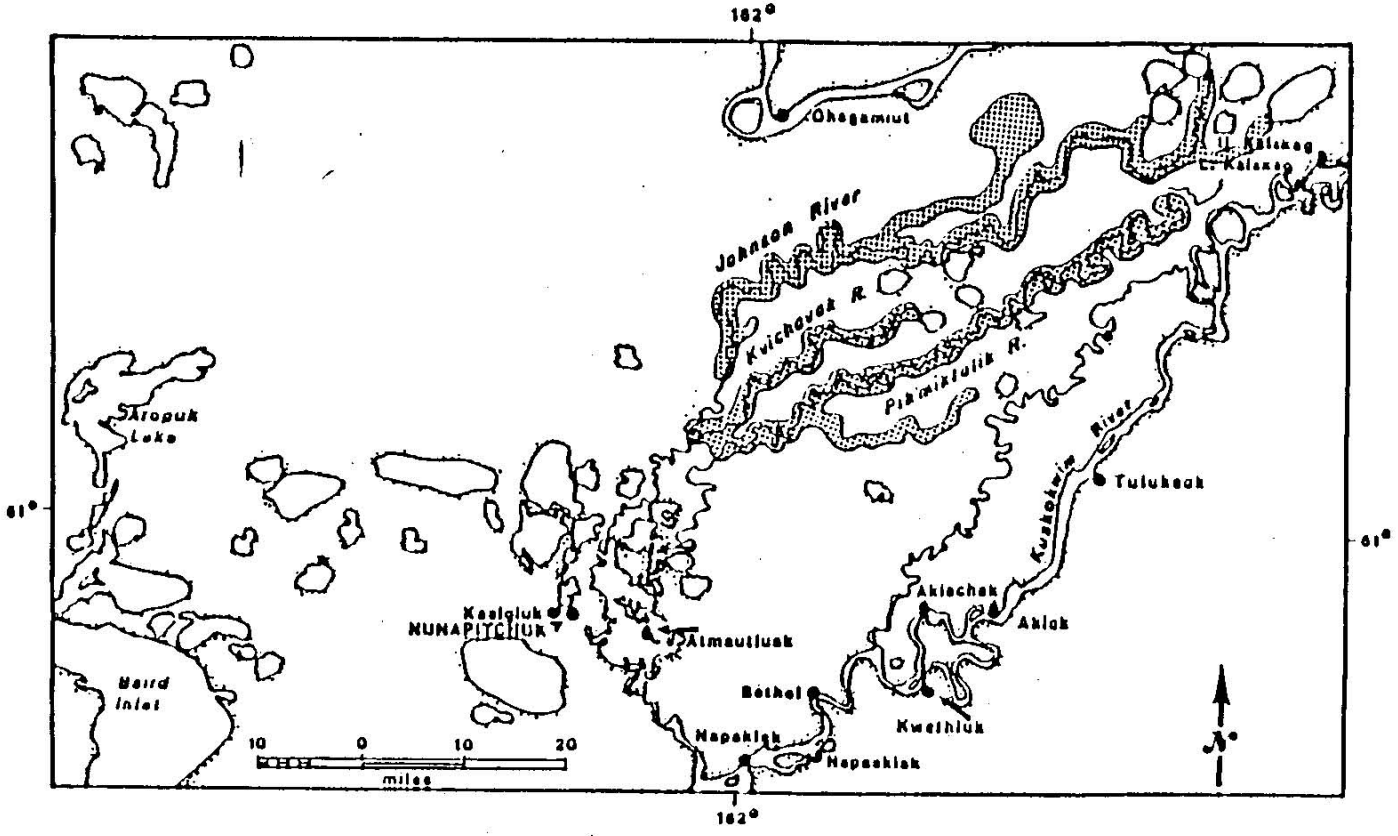

Fig. 39. Moose and bear hunting areas (shaded) used by Nunapitchuk residents, 1983. (Data taken from a sample of households.)

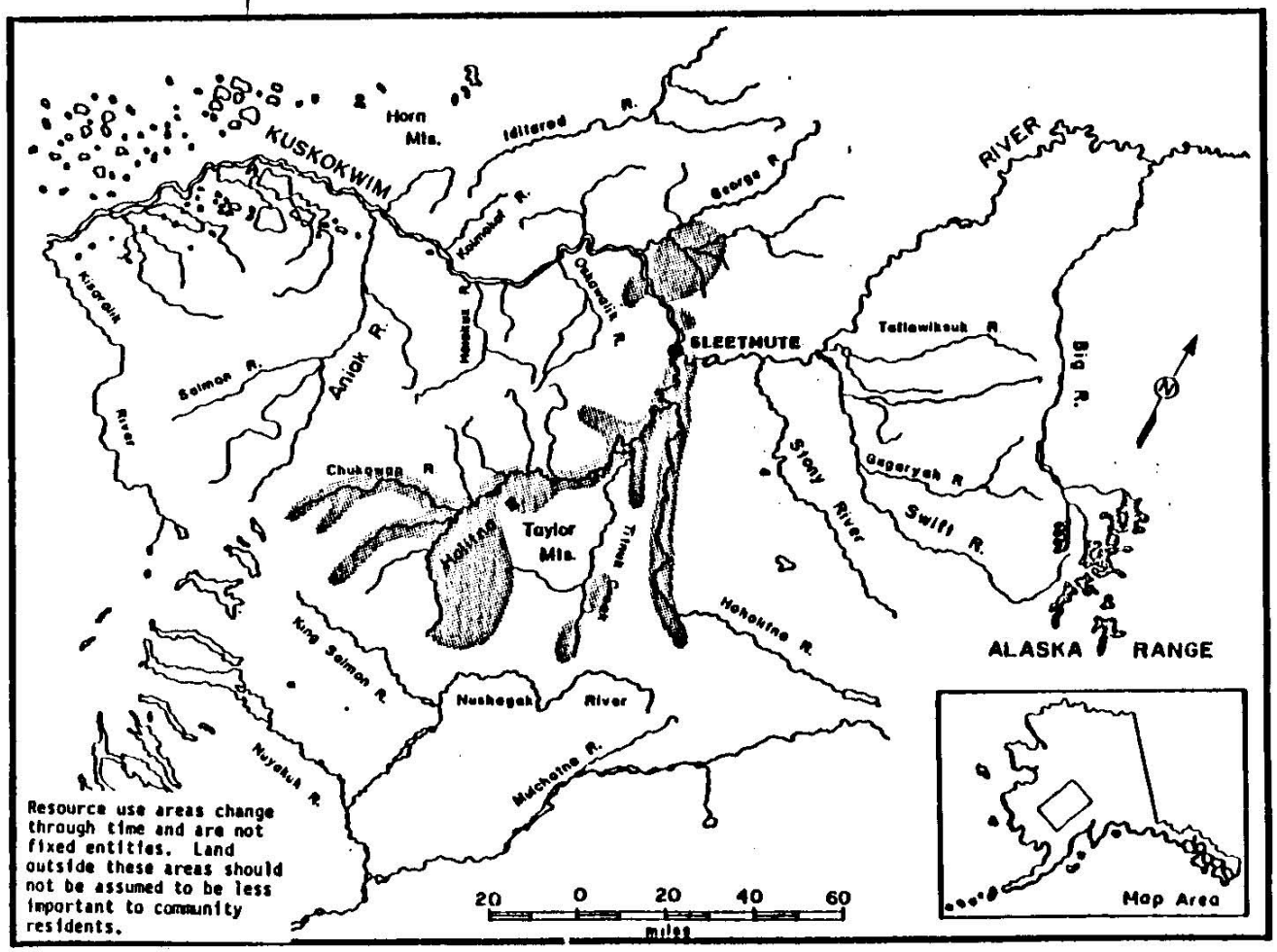

Fig. 66. Areas used by Sleetmute residents for hunting bear since the use of snowmachines through 1983.

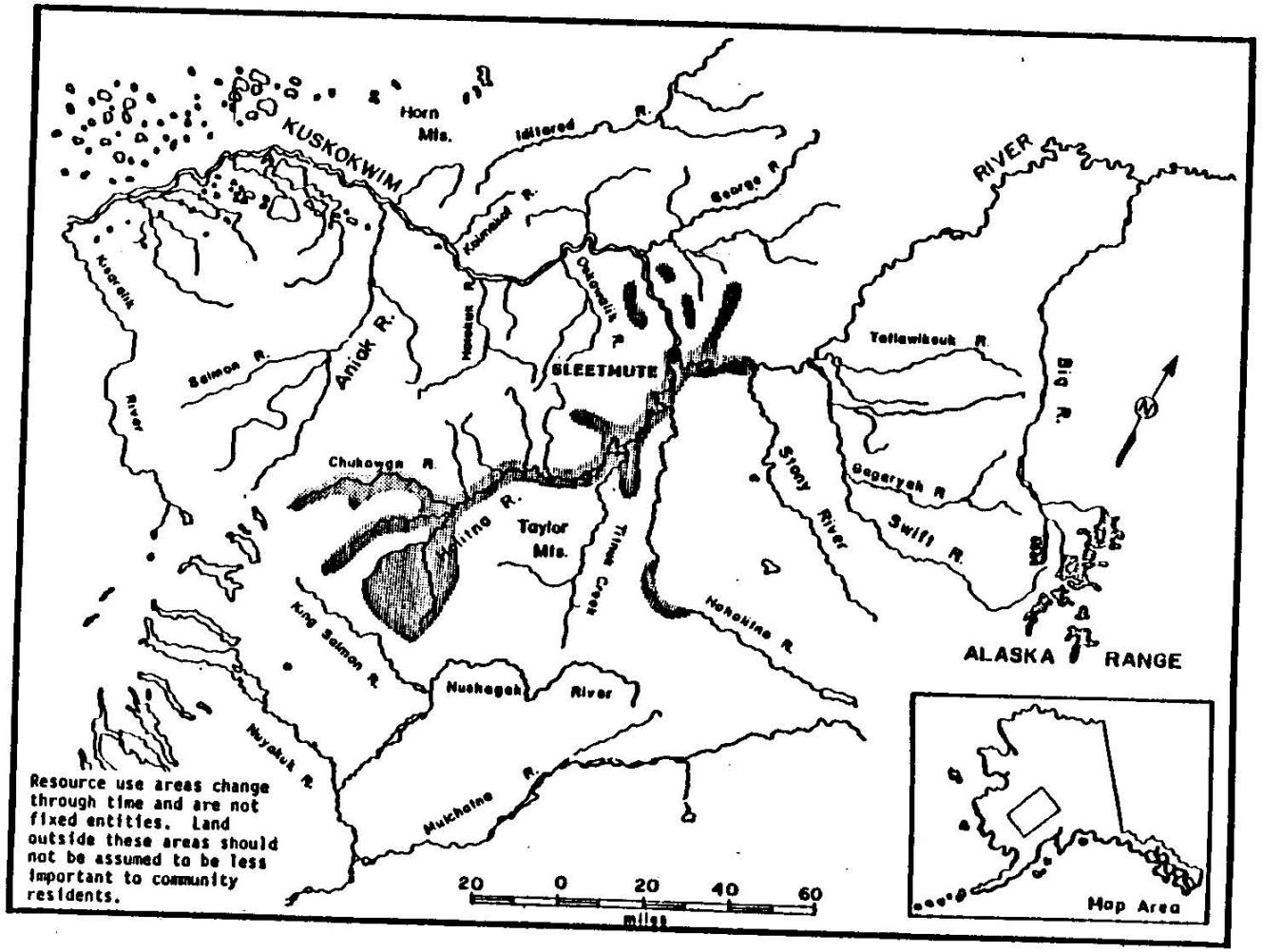

Fig. 65. Areas used by Sleetmute residents for hunting bear prior to the use of snowmachines.

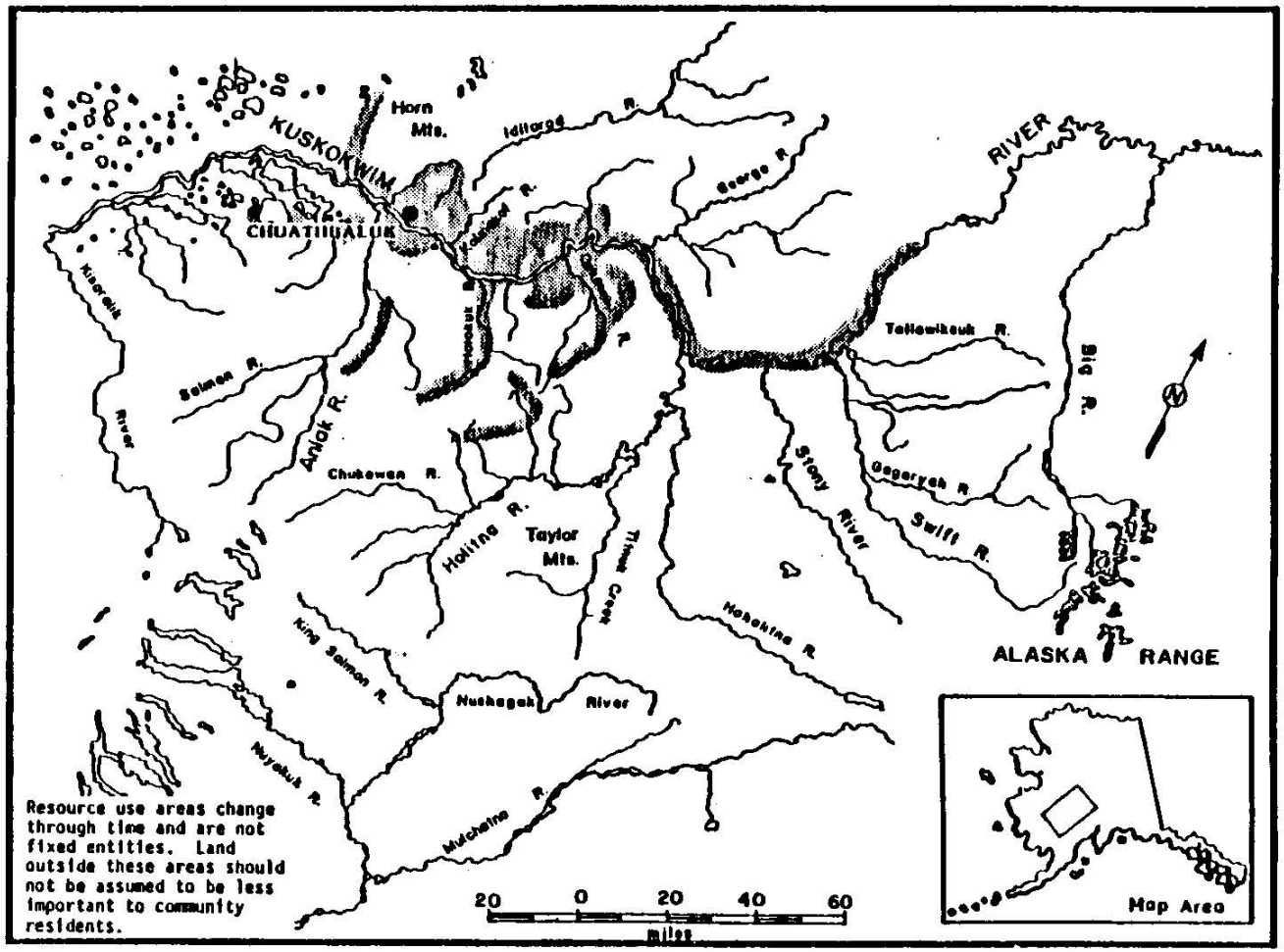

Fig. 64. Areas used by Chuathbaluk residents for hunting bear since moving to Chuathbaluk through 1983.

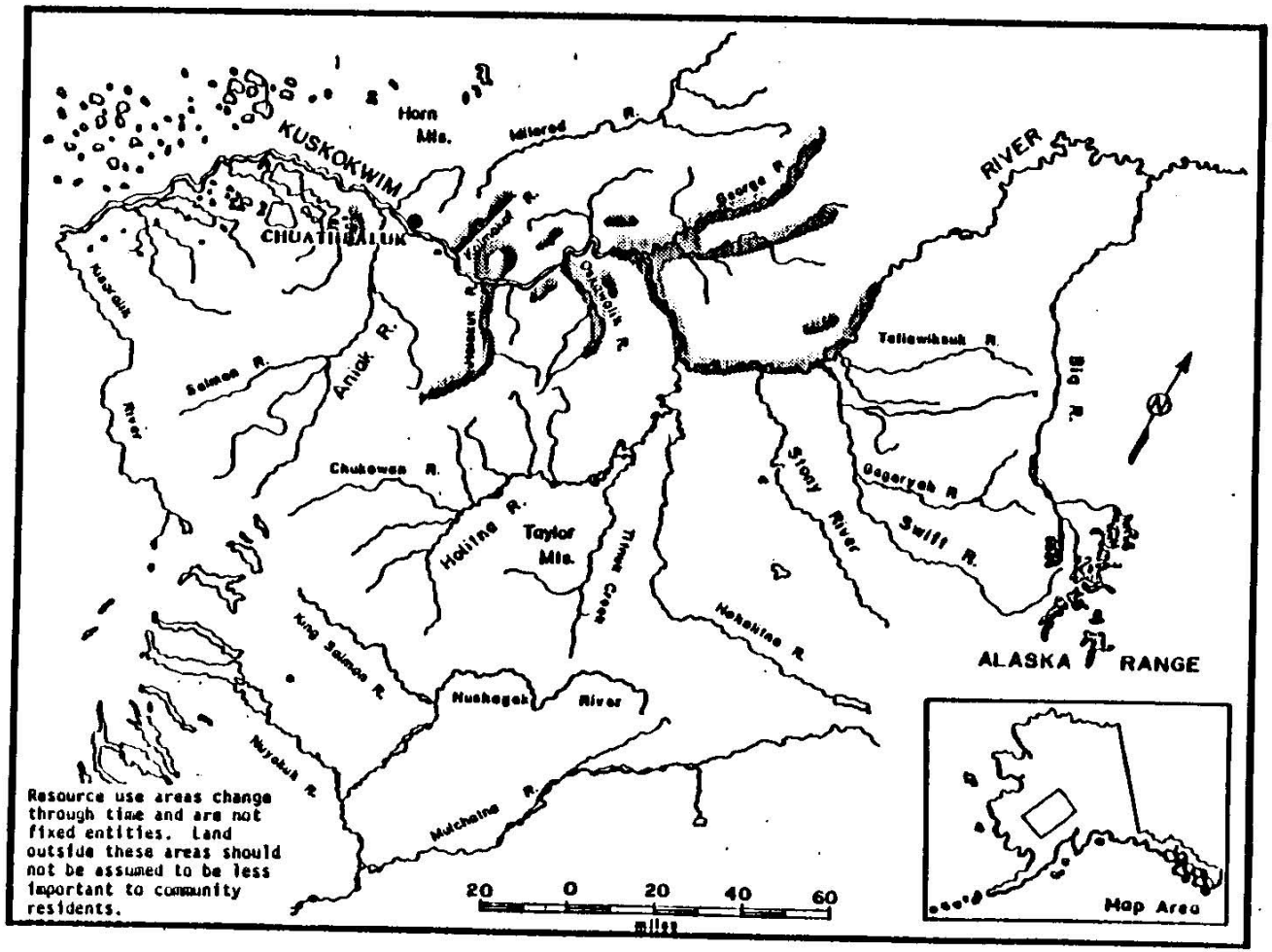

Fig. 63. Areas used by Chuathbaluk residents for hunting bear prior to moving to Chuathbaluk.

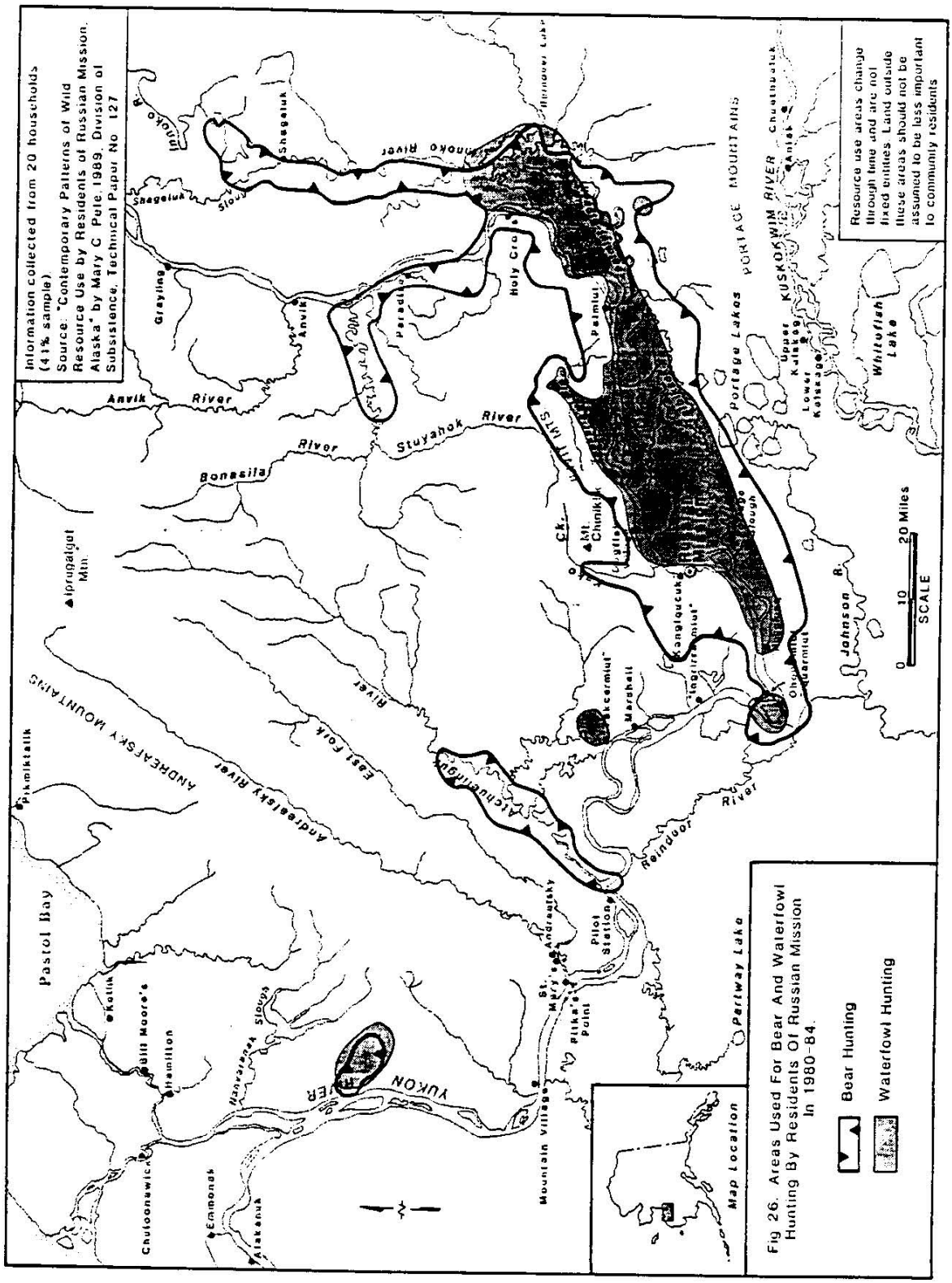

Fig 26. Areas Used For Bear And Waterfowl Hunting By Residents Of Russian Mission In 1980-84.

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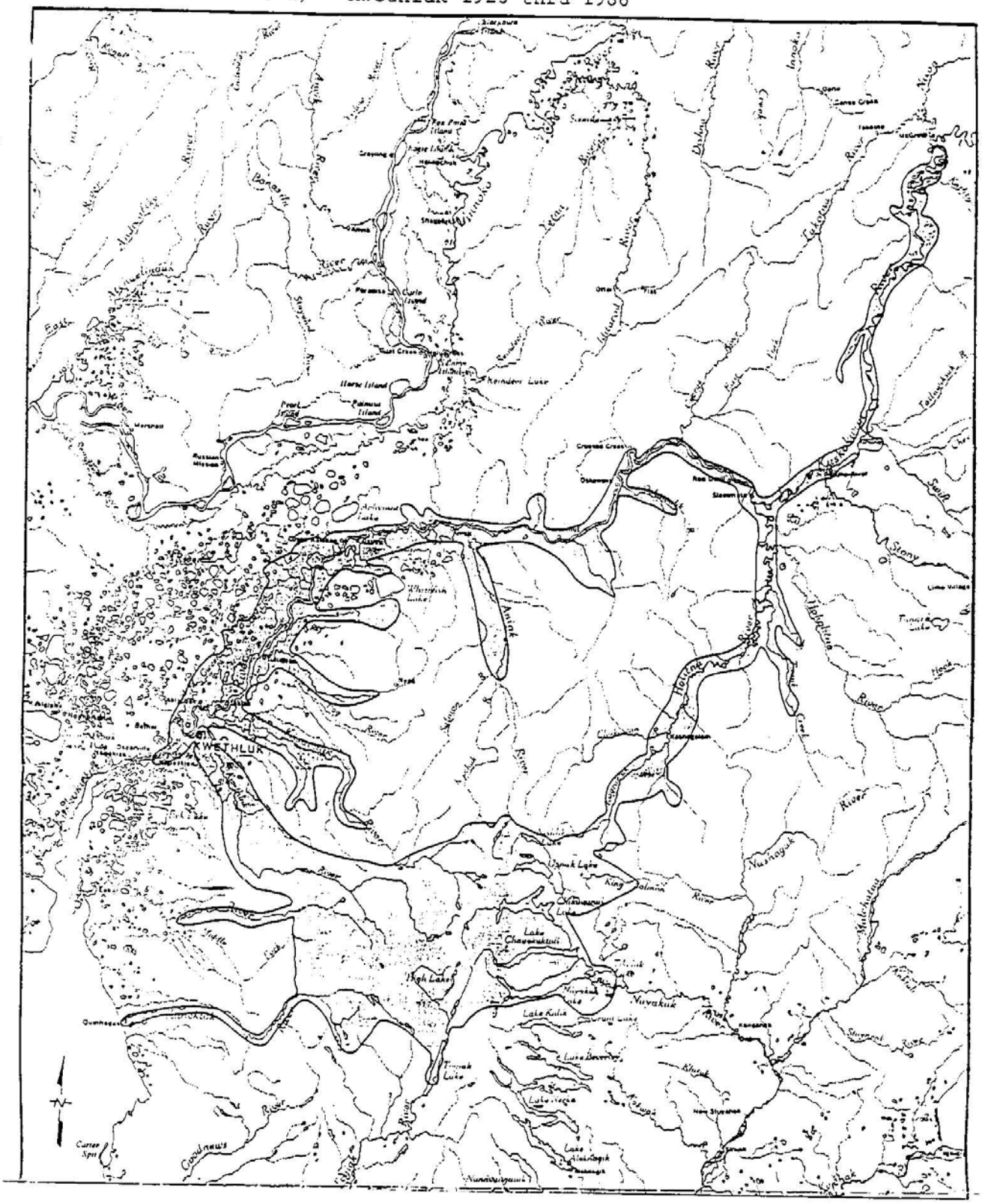
BEAR (Black and Brown) Kwethluk 1920 thru 1936



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Appendix B. – C&T finding for black bears, GMU 25.

Customary & Traditional Use Summary
GMU 25

Prepared by Division of Subsistence

Alaska Department of Fish and Game

MARCH 17, 2002 (RECORD COPY 160)

C&T Finding: Positive (March 17, 2002 finding; ANS: 150 – 250 black bears)

Criterion 1: Length and Consistency of Use

A long-term consistent pattern of non-commercial 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.

Black bear have been a valued source of food and fur in interior Alaska from the prehistoric period to present (Hosley 1981; Osgood 1970). Among Gwich'in[1] Athabascans residing in the Upper Yukon-Porcupine river area of Alaska (GMU 25), various longstanding cultural traditions and beliefs surrounding the proper use and treatment of harvested bears speaks to the length and consistency of black bear use (Caulfield 1983; Cruikshank 1986; Nelson 1973; Peter 1981; Slobodin 1981). Historical sources from the early contact period in the 19th century mention use of bears by residents of the region (Schwatka 1900). Today, black bear continue to be an important and commonly harvested subsistence resource in all Yukon Flats communities with the exception of Arctic Village (where they are rarely found). Subsistence studies show that it is not uncommon for 30 to 40% of the households in Yukon Flats communities to be involved in the hunting and harvesting of black bears (ADF&G 2000; Sumida 1988, 1989; Sumida and Andersen 1990).

Criterion 2: Seasonality

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

In GMU 25, black bear are hunted primarily in the spring, fall and early winter (cf. Caulfield 1983; Nelson 1973; Sumida 1988, 1989; Sumida and Andersen 1990). In areas within or near black bear habitat, black bear hunting commences after bears begin to emerge from their dens in April and extends through May. They are a notable resource in this area, often being the only large animal available at a time when winter food stores have been depleted and fresh meat is welcome. In the fall, from late August through October, black bear are hunted in conjunction with or incidental to moose and caribou hunting. The quality of black bear flesh is often mentioned as a factor in the timing of the harvest. Immediately after emerging from dens in the spring, black bear have some fat for a short period of time. The flesh of

[1] Gwich'in is now the commonly accepted spelling, replacing Kutchin.

black bear is considered best in the fall and early winter when they have been feeding primarily on berries and when they have built up a thick layer of fat in preparation for the winter hibernation. Den hunting ("denning") of black bears is still practiced; using this method, the harvest of bears continues through October into November (Caulfield 1983; Nelson 1973; Sumida 1988, 1989; Sumida and Andersen 1990).

Criterion 3: Means and Method 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.

Traditional and historic methods of taking black bear include the use of spears, bow and arrow, deadfalls, snares, rifles, and the use of nooses to take swimming bears (Hadleigh-West 1959, 1963; McKennan 1965; Nelson 1973; Osgood 1970; VanStone 1974). Dogs were sometimes used to track bears or locate dens. Today, bears are commonly taken with large caliber rifles, or sometimes with snares (Nelson 1973).

Black bears are either specifically sought or harvested in conjunction with other harvesting activities (i.e. moose or caribou hunting). Bears are often taken along river's edge after breakup near muskrat and fish camps. Hunters typically access hunting areas by riverboat, ATVs, snowmobiles, or on foot. Black bears are also harvested by taking bears from the den. Known denning sites are checked for signs of occupancy in the late fall. Many hunters know from the size of the den and signs around it if a single animal or a female with cubs occupies it. Once an occupied den is located, the bear is either shot through a hole in the top of the den or through the entrance. Sometimes the bear is disturbed and shot upon exiting the den. Occasionally the entrance is blocked to slow the bears exit. Bears taken in their den are typically butchered away from the den site to maintain the productivity of the den and ensure its use by bear the following year (Nelson 1973; Sumida 1988, 1989).

Black bears are often attracted to fish camps during the summer months when fish are being processed and stored. In major fishing areas fish scraps are sometimes placed on sand bars away from the fish cutting site in an effort to divert bears away from the processing area. Occasionally these bears are intentionally taken, although such bears are considered less desirable for human consumption due to the flavor of the meat at that time of year (Nelson 1973; Sumida 1988, 1989).

Criterion 4: Geographic Areas

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

Community use areas for black bear tend to fall into two categories; 1) specific near-community areas where black bear hunting is known to be productive at specific times of year, and 2) river corridor areas where fishing and moose hunting activities take place and black bear are hunted in conjunction with or incidental to these other activities. Residents familiar with the use of black bear report that they have caught black bear in regularly hunted areas as long as elders in their communities can recall and can recount stories of uses by previous generations. Hunting areas for black bear have been mapped for many individual communities (Caulfield 1983; Sumida 1988, 1989; Sumida and Andersen 1990).

Criterion 5: Means of Handling, Preparing, Preserving, and Storing

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

Black bear provides an important source of meat, fat, and fur. Depending on particular customs, bear meat is eaten in the household, in the context of community gatherings, or in special celebrations.

Black bear are commonly butchered in the field and processed like other large game. The meat is shared with relatives, especially if fresh meat has been scarce. The meat is frozen, dried, smoked, or canned for

later use. The meat is also made into dry-meat, by cutting thin strips of meat and allowing it to air dry. Preparation is typically by boiling, frying, broiling, barbecuing, or roasting. Black bear fat is highly valued, and is often rendered into bear grease or tallow. The grease is then used for cooking, making "Native ice cream" (a mixture of berries, sugar and fat, and sometimes dried fish). Bear fat is also eaten with dry meat or dried fish. Bear fat is often shared with other households, and especially elders.

Some sources report patterns of butchering and sharing depending upon the number in the hunting party, who made the kill, and the age of the hunters. Choicest parts such as hindquarters, or organs (heart, kidneys, and intestines) often are given to elders. If the meat has to be transported some distance by packing, or return to the village is not imminent, the meat may be dried in the field to decrease its weight and prevent spoilage.

Bear skins are sometimes used for ruffs, mukluks, mitts, and camp or cabin bedding. The furs are also used as insulation around doors (cf. Nelson 1973). Black bear is considered the most waterproof of skins (Sumida 1988, 1989).

Criterion 6: Intergenerational Transmission of Knowledge, Skills, Values, 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.

Gwich'in Athabascan tradition attributed great spiritual power to the bear; there is an elaborate set of beliefs and values surrounding their harvest and use (Caulfield 1983; Cruikshank 1986; Mishler 1995; Nelson 1973; Peter 1981). For example, residents in some villages follow rules that prescribe who may eat bear, what portions may be eaten how it is prepared, what should be done with the inedible parts such as the claws and skull, and proper ways of referring to or speaking about bears (Nelson 1973).

As with many subsistence activities, teaching young men how to track, hunt, and butcher black bear, and young women how to process and preserve bear meat and handle its products is accomplished through participation in these activities with those more experienced. Children are included in many activities and are expected to show interest and eventually participate in the activities depending upon their age and acquired skill. Most hunting is done in family-based groups, so the learning and proficiency of younger participants is observed and monitored.

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.

Black bear meat is typically shared widely within hunting parties, families, communities, and even between communities. It is often a small number of select hunters that are involved in the hunting of bear and provide bear meat to a large proportion of the households in the community. Bear fat is highly prized, and commonly shared between households.

Certain prized black bear parts such as hindquarters, and organ meats are often given to elders, as is fat. Bear is often considered a specialty food and served at special communal gatherings. Traditional beliefs in some interior regions restrict the eating of bear meat to men and elderly women and these beliefs tend to limit or structure the sharing and distribution practices for this resource.

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.

Black bear is just one of a whole list of wild resources that are typically harvested for subsistence uses by GMU 25 residents. As a large game animal that is widely distributed throughout the interior and has relatively liberal hunting seasons and bag limits, it often ranks among the top resources harvested by hunters in terms of pounds of meat per household. Other major resources harvested for subsistence in the interior include, salmon, moose, caribou, whitefish, pike, burbot, a variety of small game, waterfowl, plants and berries (ADF&G 2000).

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