

THE USE OF COPPER RIVER SALMON AND OTHER
WILD RESOURCES BY UPPER TANANA COMMUNITIES,
1983-1984

by
Terry L. Haynes, Martha Case, James A. Fall,
Libby Halpin, and Michelle Robert

Technical Paper No. 115

Alaska Department of Fish and Game
Division of Subsistence
Fairbanks, Alaska

November 1984

TABLE OF CONTENTS

	<u>Page</u>
List of Figures	iii
List of Tables	iv
Acknowledgments	v
Introduction	1
Purpose	1
Regional Setting	2
Upper Tanana - Ahtna Athabaskan Relations	7
Methodology	9
Tanacross	11
Community Profile	11
Methodology	12
Socioeconomic Characteristics	12
Levels of Participation and Seasonal Round	13
Uses of Copper River Salmon	17
Tetlin	20
Community Profile	20
Methodology	23
Socioeconomic Characteristics	23
Levels of Participation and Seasonal Round	24
Uses of Copper River Salmon	27
Northway	28
Community Profile	28
Methodology	30
Socioeconomic Characteristics	30
Levels of Participation and Seasonal Round	31
Uses of Copper River Salmon	34
Tok	36
Community Profile	36
Methodology	37
Socioeconomic Characteristics	38
Levels of Participation and Seasonal Round	39
Uses of Copper River Salmon	42
Discussion	44
Summary	48
References Cited	49

LIST OF FIGURES

		<u>Page</u>
Figure 1.	Location of Upper Tanana communities in eastern interior Alaska	3
Figure 2.	Seasonal round of resource harvesting activities for selected species of a sample of Tanacross residents, September 1983 through August 1984	15
Figure 3.	Location of Upper Tanana and Copper River Basin communities discussed in this report	18
Figure 4.	Seasonal round of resource harvesting activities for selected species by a sample of Tetlin residents, June 1983 through May 1984	25
Figure 5.	Seasonal round of resource harvesting activities for selected species by a sample of Northway residents, June 1983 through May 1984	33
Figure 6.	Seasonal round of resource harvesting activities for selected species by a sample of Tok permittees, October 1983 through September 1984 ...	40
Figure 7.	Percent of Upper Tanana households that harvested, received, and used Copper River Salmon in 1983 or 1984	45
Figure 8.	Mean annual household harvests in pounds of edible resources for Tanacross and Tok, by resource category, 1983-84	47

LIST OF TABLES

		<u>Page</u>
Table 1.	Characteristics of sampled Upper Tanana households	10
Table 2.	Percent of Upper Tanana households who participated in resource harvesting activities during a recent 12-month period, 1983-84	14
Table 3.	Locations of fishwheels and dipnetting sites used by Upper Tanana households, 1983 and 1984	19
Table 4.	Use of Copper River salmon by Upper Tanana households, 1983-84	21

ACKNOWLEDGMENTS

The authors extend their appreciation to the residents of Northway, Tanacross, Tetlin, and Tok for participating in this study. We especially thank the Upper Tanana-Fortymile Fish and Game Advisory Committee, the Tanana Chiefs Conference Subregional Office, and the village councils of Tanacross, Tetlin, and Northway for endorsing the study plan and providing assistance in data collection. Research in Tetlin was conducted in cooperation with the Tetlin National Wildlife Refuge. Special thanks to Bob Wolfe, Lee Stratton, and Dan Foster for their contributions. The first author assumes responsibility for any errors of fact or interpretation contained in this report.

INTRODUCTION

At its February 1984 meeting, the Alaska Board of Fisheries determined that the uses of Copper River salmon by residents of Dot Lake qualified as subsistence uses. The Board also determined that the uses of Copper River salmon by residents of four additional Upper Tanana communities (Northway, Tanacross, Tetlin, and Tok) probably were subsistence uses, based on limited information showing their similarities to uses at Dot Lake. However, since the information on salmon use patterns of these four communities was incomplete and only suggestive of a customary and traditional use pattern, the Board directed the Division of Subsistence to provide more substantive information for consideration when regulations governing the Copper River salmon fishery were reconsidered.

Data presented in this report indicate that residents of Tanacross, Tetlin, Northway, and Tok actively harvest a variety of wild resources throughout the year. The harvest of Copper River salmon is a common activity during the summer months and has occurred for many years. Copper River salmon is used by many households and contributes significantly to the diet. Additionally, the use of Copper River salmon has cultural and social meaning to families in all Upper Tanana communities.

PURPOSE

This report provides background information designed to assist the Board of Fisheries in identifying customary and traditional uses of the Copper River salmon fishery. Information is derived from the available

ethnographic literature and on the basis of fieldwork conducted in Tanacross, Tetlin, Northway, and Tok in 1984. Historical, social, and demographic data are presented for each community, followed by an examination of contemporary resource use patterns and uses of the Copper River salmon fishery.

REGIONAL SETTING

The Upper Tanana region extends eastward along the Tanana River from Dot Lake to the Canadian Border, north to the Fortymile River, and west to the Alaska Range (Fig. 1). These boundaries correspond with the territory inhabited for many years by Northern Athabaskan Indian bands who shared a common dialect and were linked by kinship. Distinctions between the Upper Tanana and neighboring Athabaskans, however, are not as obvious as these bonds might imply. For example, Athabaskan bands of Interior Alaska have been viewed as part of a cultural continuum "whose microcultures differ only in minor details from those of their immediate neighbors" (McKenna 1959:98), or as "villages related to one another and becoming more and more dissimilar as the distances or difficulties in communication increase" (Guedon 1974:21).

The Upper Tanana bands were linked to neighboring groups through kinship and/or trade relationships. Intermarriage occurred most frequently with the Ahtna in the Copper River Basin. With the Kluane Lake Indians in nearby Yukon Territory, the Upper Tanana engaged in warfare and commerce long before the contact period in eastern interior Alaska. Finally, some trade and intermarriage is reported with the Han

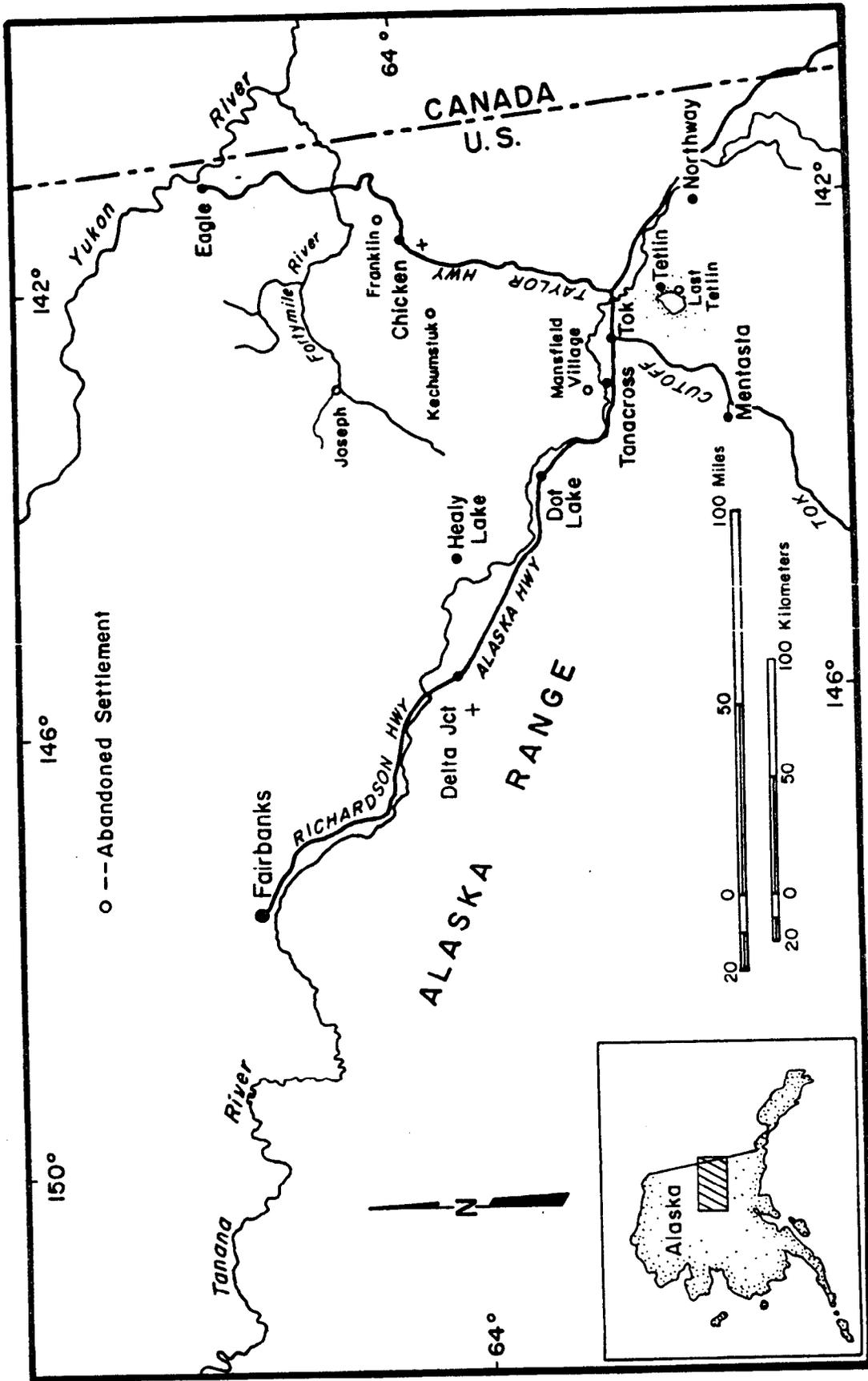


Fig. 1. Location of Upper Tanana communities in eastern interior Alaska.

Indians at Eagle and Dawson, and with the Tanana Indians as far west as Minto. Each of these groups retains a separate identity today, although traditional practices, ceremonial activities, and Native issues often unite them as a single group having common interests and goals (Haynes 1984).

The earliest contacts between non-Natives and the Upper Tanana bands may date back to the mid-1800s at trading posts along the Yukon River (McKenna 1959; Osgood 1971). The traders, Harper and Bates, traveled overland from Eagle to a site on the Tanana River near Tanacross in 1874, and are thought to have been the first non-Natives to travel in the Upper Tanana region (Pitts 1972). Gold was discovered on the Fortymile River in 1882 (Grauman 1977), and by 1887 the Fortymile Gold Rush had attracted hundreds of prospectors to the Fortymile River and its tributaries, primarily between Franklin Gulch and the Canadian Border (Buteau 1967). Farther south in the Upper Tanana region, Lieutenant Henry T. Allen's military expedition descended the Tanana River in 1885 and spent several days there in seasonal Native camps at Last Tetlin, Tetlin, and Mansfield (Allen 1887).

The gold rush led to establishment in 1899 of the Fort Egbert Military Reservation outside Eagle City. Soldiers from the fort constructed sections of the Washington-Alaska Military and Cable Telegraph System (WAMCATS) from Eagle City to Valdez between 1900 and 1903. Small outposts were established at Kechumstuk (now an abandoned village) and Tanana Crossing (near present-day Tanacross), and staffed by soldiers until 1910 (Grauman 1977; Mitchell 1982).

Prior to the short-lived Chisana Gold Stampede in 1913, traders had established small posts near the contemporary communities of Tanacross,

Tetlin, and Northway. They remained the few non-Native residents of the study area until the early 1940s. Then came World War II, and in the span of only a few years airfields were built at Northway and Tanacross, and the Alaska Highway had bisected the heart of the Upper Tanana region. By the early 1950s, the community of Tok was established near the site of a road construction camp, and additional roads had been built linking the Upper Tanana region to Eagle and the Copper River Basin.

The gold rushes, highway construction, and other related development activities dramatically altered the traditional Native economy and areas utilized for resource procurement. For example, big game hunting intensified near the gold mining settlements and large areas were cleared of trees to facilitate mining activities. The Alaska Highway and other roads crossed traplines and disrupted caribou migration routes. Finally, as people became more involved in the fur trade, they settled in permanent communities and increasingly concentrated their activities near these settlements.

Simeone (1982) has described the traditional annual cycle of Upper Tanana subsistence activities. His description is based on the seasonal round in Mansfield Village-Tanacross, but resembles that practiced by other Upper Tanana bands:

...the Upper Tanana people were restricted in their fishing to the late spring and early summer runs of whitefish. There were no salmon on the upper Tanana River. By mid-July the fishing was over and the Upper Tanana moved to the hills to intercept the late summer migration of caribou.

The caribou came in great herds spreading over the land like a brown stain, each animal following another until their paths were cut a foot deep into the ground. This was a time of plenty for the Upper Tanana and enough meat had to be harvested to see them through the winter months. Like the

Ingalik and Han, the Upper Tanana used fences to guide the caribou into corrals which held them for slaughter. One fence was described as "a long snare fence extending six miles...which also served as a drift fence. At one end of the fence was a pole corral 510 feet long into which the caribou were detoured. It had an opening 30 feet wide at one end, to admit the animal and a pocket at the other end where the killing took place" (Murie 1973). To kill the animals the Indians used a knife fastened to a pole and speared them through the fence.

Every part of the animals was used: the meat was cut into strips and dried, the intestines were filled with fat, to be used later, and the skins were used for clothing. Even the foreleg and hoof were hung up and dried in case of later need. After the hunting was finished, both men and women gathered blueberries, cranberries, rosehips and roots all of which were mixed with grease and stored in birch bark containers.

In early fall, rabbit drives were started, the men and boys driving the rabbits toward a line of snares handled by women and old people. The meat and skins were equally important as the skins were woven into winter clothes and sleeping robes. For those Upper Tanana whose hunting territory included mountains, Dall sheep were caught using snares, the meat being dried and the skins used for clothing.

In October or November another caribou hunt was started after the large herds had split up and were scattered. Meat from this hunt provided fresh meat for the winter, being frozen rather than dried, and supplemented small game and the supplies of berries, roots, dried meat and fish. Historically moose were not always plentiful and therefore not as important as caribou.

After the caribou hunt the Upper Tanana gathered into small groups to settle down for the cold short days of winter. By later winter and early spring, food supplies were running low and the men were out constantly hunting for any type of game. April and May brought long days and warmth for the people who eagerly awaited the spring caribou migration and abundance of fresh meat. When the caribou had passed it was time to move back to the lakes and fresh water streams to hunt ducks, muskrats, geese, swans, and cranes. It was also a time to gather wild rhubarb and wait for the first runs of whitefish (Simeone 1982: 14-15).

Excellent descriptions of the traditional annual cycle of harvest activities for each of the Upper Tanana bands also are provided by McKennan (1959) and Guedon (1974).

UPPER TANANA - AHTNA ATHABASKAN RELATIONS

There are numerous historical and ethnographic references documenting the long-term relationships between the Upper Tanana Athabaskans and their Ahtna neighbors in the adjoining Copper River Basin. De Laguna and McClellan (1981:653-654) and Guedon (1974:65-76) found among both groups many similarities in their matrilineal clans, which traditionally served as the basis for social organization and continue to be important in the context of cultural and ceremonial activities. Inter-marriage between the Upper Tanana and Ahtna was not uncommon and has contributed to the strong ties observed today between families and communities in both regions. Traditional potlatches serve as one vehicle for expressing these strong linkages today (De Laguna and McClellan 1981:660).

In the late eighteenth century, the Ahtna served as middlemen in the trade network linking the Upper Tanana and other Interior Alaska Natives with the Russians and coastal Native groups. McKennan (1959) and Guedon (1974) note that travel between the two regions was facilitated by a series of trails which connected communities and seasonal camps. It is possible that some trade occurred at Batzulnetas, where Lieutenant Henry T. Allen reported seeing several Upper Tanana Natives when he passed through that now-abandoned Copper River village in 1885 (Allen 1887).

In view of the historical relationships between the Upper Tanana and Ahtna Athabaskans, it is not surprising to find similarities in the areas they sometimes used for harvesting fish and wildlife resources. Vitt's (1971) Upper Tanana informants reported hunting for caribou at the Mentasta caribou fence in the early 1900s.

This was followed in the month of August by moose hunting, often with the people of Mansfield Lake or with the people from Ketchumstuk [sic] in the Chicken area, or at times with the Tetlin people at Ladue Hill. People related by affinal and blood ties from Suslota and Batzulnetas often went together with members of the Mentasta group. These hunting groups wandered over a large tract of land extending as far as Nabesna, Chisana, and the headwaters of the White River... (Vitt 1971:67).

Strong (1976), who conducted research in the Copper Basin in the early 1970s, reports that Mentasta residents formerly traveled 100 miles northeast to Kechumstuk during the fall, early winter, and spring to harvest caribou. Since moose occurred infrequently in the Copper River valley prior to the 1930s, people from Mentasta often hunted them in the Little Tok River drainage. Residents of Batzulnetas made similar hunting trips to the Upper Nabesna River area. In times of extreme hunger, Strong's informants reported that people from the Upper Copper River and Upper Tanana region harvested freshwater fish from Ewan Lake west of Gulkana and at another lake either near the Tazlina River or between Tazlina Lake and Klutina Lake. As a final example of inter-village cooperation between the two regions, Strong notes that people from Tanacross/Mansfield Lake, Tetlin, Northway/Nabesna, and Chisana fished for salmon in the Upper Copper River area when food resources in their own area were poor. In Strong's words,

...a network existed over a wide region for sharing of food resources, and this network was particularly active in years when there was a shortage of food in one of the regions (Strong 1976:74).

Guedon (1974:52) reports that, around 1915, the Kechumstuk-Mansfield population responded to a resource shortage by moving temporarily to the Mentasta-Suslota and Nabesna areas.

Reckord (1983) writes that Tetlin, Tok, and Tanacross people all participated actively in salmon fishing at Chistochina during the summer of 1977, a year in which salmon were particularly abundant. She views salmon as being especially important for activating social ties between Upper Tanana and Copper River people. While this may be true, salmon is equally if not more important to the Upper Tanana people for nutritional and economic reasons. In return, Copper River Basin residents obtain food resources otherwise not readily available to them.

METHODOLOGY

Data presented in this report are derived from a review of the published literature and from fieldwork conducted between June and October 1984 (Table 1). Information on contemporary patterns of wild resource use was collected through systematic interviews with a sample of households in Northway, Tanacross, Tetlin, and Tok. Table 1 summarizes selected characteristics of the sampled households in each of the four study communities. Time constraints and limitations on field staff required certain variations in the data collection procedures employed in each community. The procedures utilized in each community are presented in the findings below.

TABLE 1. CHARACTERISTICS OF SAMPLED
UPPER TANANA HOUSEHOLDS.

	Tanacross	Tetlin	Northway	Tok Permittees
Community Population	118 ²	107 ²	334 ¹	589 ² -881 ³
Occupied Households	30	28	88 ¹	192 ² -366 ³
Mean Household Size	3.9	3.8	3.8	2.4-3.1
Type of Sample	Opportunistic	All Households	Quota 1984	Permittees
Sample Size	15(50%)	20(71%)	15(17%)	64(17-33%)
Sample Household Size				
Range	3-8	1-8	1-9	1-6
Mean	4.7	5.4	6.0	3.4
Age of Household Head				
Range	30-71	25-86	33-55	20-66 ⁴
Mean	46.0	56.4	45.1	40.0 ⁴
Years of Residence in Community, Household Head				
Range	9-71	11-86	6-55	.5-30 ⁴
Mean	40.2	49.9	33.5	9.5 ⁴
Months Employed in Past Year, Household Head:				
Range	0-12	0-12	0-12	0-12 ⁴
Mean	4.6	1.9	5.0	7.1 ⁴

¹ Department of Community and Regional Affairs Census, 1/1/84.

² 1980 U.S. Census.

³ Tok Public Health Center, 1983 estimates.

⁴ Date presented for permittee, who is not always household head.

TANACROSS

Community Profile

The community of Tanacross is located on the west bank of the Tanana River, 12 miles northwest of Tok and 1 mile from the Alaska Highway. Many early residents relocated from Mansfield Village, located about six miles northwest of Tanacross, while others originally resided at Kechumstuk, Last Tetlin, and in the Copper River Valley. Some families moved from Mansfield Village to "Tanana Crossing" in 1912, when Bishop Rowe established St. Timothy's Episcopal Mission on the north side of the Tanana River, near buildings used previously by mail carriers and the U.S. Signal Corps during operation of the WAMCATS telegraph line between 1902 and 1910. A trading post opened near the mission in 1912. The population expanded when a school opened at "Tanana Crossing" in 1932.

An airfield was built across the river from the community in the mid-1930s and was blacktopped in 1942 for use as an emergency airport during World War II. Thousands of military troops were deployed through the Tanacross airfield, with community residents serving as volunteer scouts and providing supportive services to the Army. The original community was located on a floodplain and experienced recurring problems with water contamination. In conjunction with a government housing program, most residents relocated to the present community site in the early 1970s. Most buildings in the old community were destroyed or damaged by a fire in 1979 (Darbyshire and Associates 1980).

The predominately Native population of Tanacross has fluctuated over the years, ranging from 101 persons in 1920 (a figure thought to be low by local residents), to 80 in 1930, 135 in 1940, 102 in 1960, 84 in 1970, and 118 in 1981 (Darbyshire and Associates 1980; Haynes 1984).

Methodology

Interviews were conducted with adult members of 15 households in Tanacross in September 1984 (Table 1). These households comprise an opportunistic sample and represent approximately 50 percent of all households occupied at the time of the study. The survey sought information about resources used and harvest activities for the period September 1983 to August 1984. Specific questions pertained to local participation in the Copper River salmon fishery during the 1984 season and to uses of Copper River salmon harvested in previous years or obtained in other ways.

Socioeconomic Characteristics

Tanacross households contacted for this survey ranged in size from three to eight members (mean, 4.7), and included several instances of grandparents, parents, and grandchildren occupying the same house. Heads of household ranged from 30 to 71 years of age (mean, 46.0 years), and had resided in the community an average of 40.2 years (range, 9-71 years). Of the 15 households surveyed, 14 indicated having relatives in Copper River Basin communities, including Mentasta, Chistochina, Gulkana, Tazlina, Kenny Lake, Copper Center, and Glennallen. One current

resident and the parents or grandparents of several other respondents originally lived in the Copper River Basin.

Heads of household worked an average of 4.6 months in the year preceding the survey, including 2 who worked 12 months and 4 who did not work at all. Few opportunities for full-time employment are available in Tanacross, and many adults either work seasonally or at part-time jobs. Several residents commute to Tok, where job opportunities are more numerous, particularly during the summer.

Levels of Participation and Seasonal Round

Although the contemporary cycle of resource harvest activities in Tanacross differs markedly from the historic pattern reported by Guedon (1974) and Simeone (1982), hunting, fishing, and gathering wild resources remains important today both for cultural and economic reasons. As is shown in Table 2, the harvest of ten different resource categories was attempted by 50 percent or more of the sampled households during a recent 12-month period in 1983-84. Resource categories sought most often included moose (93 percent); ptarmigan/grouse, hare, and whitefish (80 percent); berries (73 percent); wood (67 percent); ducks, porcupine and other plants (60%); and furbearers other than muskrat and beaver (53%). Salmon fishing was attempted by 47 percent of the sampled households.

Fishing with nets for whitefish, pike, and sucker occurs primarily in June and July at Lake Mansfield, where many families have cabins from which they base seasonal harvest activities (Fig. 2). Grayling are taken occasionally during the spring and summer by rod and reel.

TABLE 2. PERCENT OF UPPER TANANA HOUSEHOLDS WHO PARTICIPATED IN RESOURCE HARVESTING ACTIVITIES DURING A RECENT 12-MONTH PERIOD, 1983-84.*

	Tanacross (N = 15)	Tetlin (N = 20)	Northway (N = 15)	Tok Permittees (N = 64)
Time Period	9/83-8/84	6/83-5/84	6/83-5/84	10/83-9/84
Resource Category				
Moose	93	85	87	73
Caribou	40	10	20	56
Bear	13	15	13	31
Dall sheep	0	0	0	11
Ptarmigan/grouse	80	65	47	70
Ducks	67	85	60	19
Geese	0	35	20	5
Hare	80	85	60	38
Porcupine	60	25	20	3
Muskrat	7	70	73	9
Beaver	13	10	33	3
Other furbearers	53	50	67	22
Berries	73	85	87	75
Other plants	60	85	87	52
Wood	67	85	80	75
Whitefish	80	85	87	20
Grayling	13	65	67	63
Lingcod/burbot	7	70	67	29
Northern pike	47	85	80	33
Sucker	33	40	40	3
Trout	0	0	7	19
Salmon	47	20	33	87
No. Resource Categories per Household				
Range	5-14	0-17	3-19	1-20
Mean	9.3	11.9	11.3	7.9

* The percentages presented refer to the portion of the sample populations that attempted to harvest each resource, and not necessarily persons who were successful in their efforts.

RESOURCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
MOOSE	---					---	---		xxx			---
CARIBOU								xxx	xxx			
BEAR						---	xxx	---	---			
SHEEP								xxx				
HARE	xxx	xxx			---	---	---	---	---	---	xxx	xxx
PORCUPINE						---	xxx	xxx	xxx	---	---	
MUSKRAT		xxx	xxx									
BEAVER			xxx	xxx								
MARTEN	xxx	xxx	---								xxx	xxx
MINK	xxx										xxx	xxx
FOX	xxx	xxx	---								xxx	xxx
LYNX	xxx	xxx	---								xxx	xxx
WOLF	xxx	xxx	---								xxx	xxx
WOLVERINE	xxx	xxx	---								xxx	xxx
COYOTE	xxx	xxx										xxx
OTTER	xxx	xxx										xxx
GEESE									xxx			
DUCKS					---		---	---	xxx			
PTARMIGAN/ GROUSE	---			---	---	---		---	xxx	---	---	---
WHITEFISH						xxx	xxx	---	---	---	---	---
PIKE/"PICKLE"						xxx	xxx	---	xxx	xxx	---	---
SUCKER						xxx	xxx	---				
GRAYLING				xxx	---	---	---	---				
LINGCOD											xxx	xxx
SALMON						xxx	xxx					
BERRIES						---	xxx	xxx	xxx			
OTHER PLANTS				---	xxx	xxx	xxx	xxx	xxx			
WOOD	---	---	---	---	---	---	---	xxx	xxx	xxx	xxx	xxx

xxx Usual period of harvest

--- Occasional harvest effort

Fig. 2. Seasonal round of resource harvesting activities for selected species by a sample of Tanacross residents, September 1983 through August 1984.

Several residents travel to other communities during the year to harvest fish with relatives and friends. For example, in 1983-84, six households harvested Copper River salmon in June and July, one fished for salmon at Nenana, another caught small pike (called "pickle") in Tetlin in the fall, and one fished for lingcod and pike at Healy Lake in November and December.

Berries and other plants are taken from April through September, including blueberries, cranberries, raspberries, rosehips, rhubarb, mushrooms, edible roots, spruce roots, and birch bark. Plant gathering areas are accessed by river boat, highway vehicle, or by walking. Firewood is collected primarily in the fall and winter months and transported by truck or snowmachine.

Some households (40%) hunted for caribou along the Taylor Highway during the fall season and sometimes participate in the winter hunt, although most families focus on moose hunting in September. Moose are sought along the road system as far away as Dot Lake, Mentasta, and Northway, in the Tanana River corridor, and at Lake Mansfield. An occasional nuisance black or brown bear is taken during the summer and early fall, but Tanacross residents rarely hunt for them. Ducks, ptarmigan, and grouse are hunted primarily in September, and taken occasionally at other times of the year. None of the sampled households hunted for geese during the 12-month period examined in this study.

Porcupine are seen infrequently in the summer and early fall and are harvested opportunistically. Hare are available throughout the year, but normally snared or hunted in the winter during furbearer trapping season. Tanacross trappers focus on marten, fox, lynx, wolf, and wolverine, although an occasional otter, coyote, and beaver is

taken. Snowmachines are used to access trapping areas. Muskrats are not currently found near the community, so few residents make an effort to harvest them.

Uses of Copper River Salmon

Six of the 15 Tanacross households contacted had fished for Copper River salmon in 1984, and 5 others had within the past 10 years. Of those fishing in 1984, two used fishwheels at Slana belonging to friends, one used an in-laws' wheel at Chistochina, and three fished with wheels owned by friends or relatives at Copper Center (Fig. 3 and Table 3).

Arrangements sometimes were made in advance to use a friend's or relative's fishwheel, but in other instances less planning was involved. Tanacross fishing households generally stayed overnight with the fishwheel owner at fishcamps or with other friends at their homes. Exceptions include those who fished at Slana, to which day trips were made, and those who could not be gone from home more than a day. Fish sometimes were processed at the harvest site but just as often packed in ice and transported fresh back to Tanacross. Salmon was either canned, smoked, or frozen for later use. Since many families exchange local resources with Copper Basin residents for salmon during other times of the year few households made more than one or two fishing trips during the summer.

The 6 fishing households reported a total harvest of 270 salmon, ranging from 10 to 90 per household, and averaging 45 per household (Table 4). The number of years these households had fished for Copper

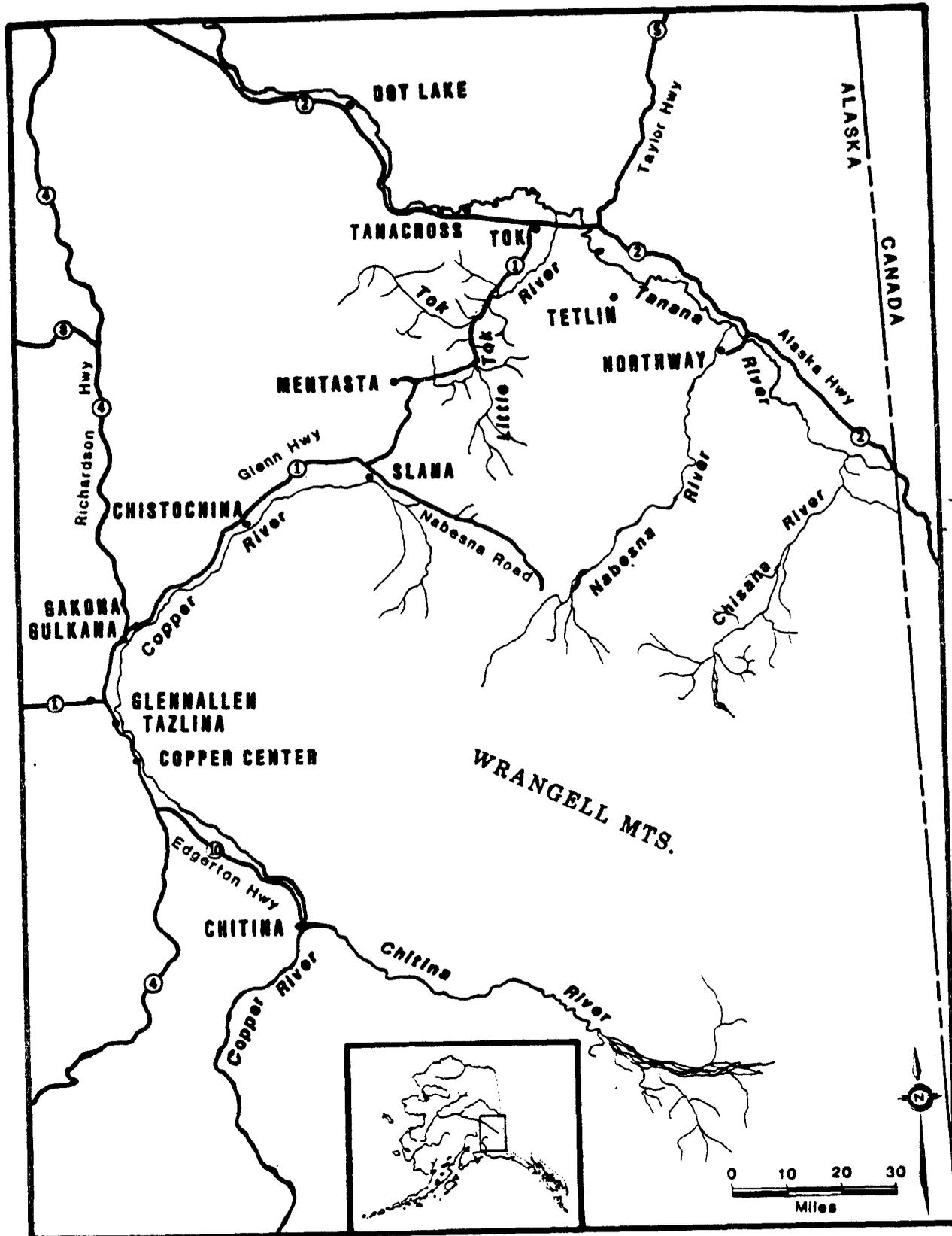


Fig. 3. Location of Upper Tanana and Copper River Basin communities discussed in this report.

TABLE 3. LOCATIONS OF FISHWHEELS AND DIPNETTING SITES
USED BY UPPER TANANA RESIDENTS, 1983 AND 1984.

Fishwheel Site	Tanacross ¹	Tetlin ²	Northway ²	Tok Permittees ¹	Total
Slana	2	0	1	46	49
Chistochina, Old Village	0	0	0	1	1
Chistochina	1	0	0	0	1
Sanford River	0	0	0	0	0
Gakona	0	0	0	0	0
Gulkana	0	0	0	0	0
Copperville	0	0	0	1	1
Tazlina	0	1	0	0	1
Copper Center	3	2	4	0	9
Kenny Lake	0	0	0	0	0
Tonsina River	0	0	0	0	0
Chitina Airport	0	0	0	0	0
Chitina Bridge	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>1</u>
Subtotal	6	3	5	49	63
Chitina (dipnetting)	<u>0</u>	<u>0</u>	<u>0</u>	<u>5</u>	<u>5</u>
Total	6	3	5	54	68

¹ 1984 Season
² 1983 Season

River salmon was not clearly delineated, but a long-term pattern of use is suggested in respondents' comments, such as,

I've fished there since 1950,two years before I got married. My folks went way before me. They've always gone there. (56-year-old female)

[We've fished there] from time immemorial. Even my grandfather and them used to go down there every year for salmon. (37-year-old female)

All nine non-fishing households and two fishing households received some Copper River salmon in 1984 from either local or Copper River households. Tanacross households who harvested Copper River salmon distributed between 10 and 40 percent of their total catch to neighbors, relatives, elderly persons, or other community residents unable to fish for themselves. Tanacross households also received salmon from households in Chistochina, Gakona, Copper Center, Tok, and Tetlin. In exchange for salmon received, some residents gave (or reportedly will give at some point during the year) moose, caribou, ducks, dried whitefish, porcupine, berries, or beadwork. Exchanges between Tanacross and Copper River households sometimes occurred in the context of ceremonial activities.

TETLIN

Community Profile

Located on the banks of the Tetlin River, about midway between Tetlin Lake and the Tanana River, the community of Tetlin lies 15 miles south of Tetlin Junction and 20 miles southeast of Tok. It is the only Upper Tanana community under consideration in this study that is not

TABLE 4. USE OF COPPER RIVER SALMON BY UPPER TANANA HOUSEHOLDS 1983-1984.

	Tanacross	Tetlin	Northway	Tok Permittees
Fishing Season	1984	1983	1983	1984
Households surveyed	15	20	15	64
Households that fished for Copper River salmon	6(40%)	3(15%)	5(33%)	54(84%)
Households that received Copper River salmon	11(73%)	14(70%)	11(73%)	10(16%)
Households that used Copper River salmon	15(100%)	15(75%)	14(93%)	59(92%)
Gear type used				
Fishwheel	6	3	5	49
Dipnet	0	0	0	5
Harvest levels				
Range	10-90	10-60	10-200	0-205
Mean	45	35	79.5	39
Total Reported Harvest	270	105	missing*	2,079
Years of participation				
Range	3-34+	missing	3-20	1-20+
Mean	missing	missing	7.2	6.3+

* Total reported harvest unavailable; range and mean based on four of the five survey households

connected by public road to the Alaska Highway, although residents periodically use a service road built in 1981 for travel to Tok and other highway communities. Athabaskan Indian settlements near Tetlin originally were semi-permanent hunting and fishing camps occupied seasonally. An influx of prospectors to the region during the Chisana Gold Stampede in 1913 led to establishment of a trading post near Tetlin between 1913-1920. As early as 1921, an Athabaskan-speaking furbuyer from Dawson City was making periodic trips to Tetlin.

Natives from nearby Last Tetlin relocated to the present community site in the 1920s, after the traders Newton and Hajdukovich opened trading posts there. A school was established in 1923, and from 1931 until 1983 was operated by the Bureau of Indian Affairs. Mail delivery began by boat from Big Delta in 1926 and then by aircraft following construction of a landing strip in 1946. The Tetlin Indian Reserve was established in 1930 by Federal Executive Order. Unlike other Native communities in the region, Tetlin elected to acquire surface and subsurface rights to its land when reserve status was revoked following passage of the Alaska Native Claims Settlement Act in 1971 (Darbyshire and Associates 1980).

More than 100 persons resided in Tetlin area in 1885 (Guedon 1974). McKennan (1959) counted 62 residents in 1929 at Tetlin and Last Tetlin. Since then, the predominantly Native population has numbered 85 in 1940, 122 in 1960, 114 in 1970, and 121 in 1981 (Haynes 1984).

Methodology

A researcher employed by the U.S. Fish and Wildlife Service conducted a household survey in Tetlin from mid-June through mid-August 1984, utilizing a modified version of an interview questionnaire developed by the Alaska Department of Fish and Game, Division of Subsistence, for use in the Northway study. The researcher resided in the community throughout the two-month study period and used participant observation techniques in addition to the survey. With the assistance of a local bilingual resident, interviews were conducted with an adult member in 20 of 28 occupied households. A selection of data from the study are presented in this report.

Socioeconomic Characteristics

Twenty of the 28 occupied households in Tetlin participated in this survey (see Table 1). As shown in Table 1, households had an average of 5.4 members, ranging from 1 to 8 persons. Heads of households ranged from 25 to 86 years of age, with a mean of 56.4 years, and had resided in the community an average of 49.9 years (range, 11-86 years). Three of the households included in the sample consisted of elderly persons inactive in resource harvesting activities. Consequently, the average age of the household head is significantly higher than that noted for other Upper Tanana communities. Two heads of household and an adult member of a third household were born and raised in the Copper River Basin and came to Tetlin as young adults.

Household heads worked an average of 1.9 months in the year preceding the survey, ranging from 0 to 12 months. The average increases slightly to 2.8 months if persons 65 years of age and older are excluded. This low average reflects the relative unavailability of employment opportunities in Tetlin. Only four households reported incomes greater than \$5,000 in the year preceding the survey.

Levels of Participation and Seasonal Round

Tetlin households engage in a wide variety of resource harvesting activities throughout the year, including the harvesting of freshwater fish, salmon, large and small game animals, furbearers, berries, other edible plants, and wood (Fig. 4). Only salmon and caribou are harvested outside the area readily accessible from the community. Table 2 shows the participation rates of Tetlin households in resource harvesting pursuits. During a recent 12-month period in 1983-84, 13 resource categories were pursued by 50 percent or more of all households. The highest participation rates were for moose, ducks, hare, whitefish, northern pike, berries, other plants, and firewood (85% of all households).

Fishing for whitefish occurs from June through September with gillnets and dipnets, and is an activity based from the community or seasonal camps (Fig. 4). Suckers often are taken incidentally in the nets. Rod and reel fishing for grayling and pike also takes place during the summer. Birch bark and spruce roots are obtained in June, when these materials can be efficiently procured. They are used in making baskets, cradleboards, and other craft items. Mushrooms,

RESOURCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
MOOSE							---	---	xxx			---
CARIBOU*												
HARE	xxx	xxx	---	---	---	---	---	---	xxx	xxx	xxx	xxx
PORCUPINE							xxx	xxx	xxx	xxx		
MUSKRAT		---	xxx	xxx	xxx	---						
FOX	---	---	---								xxx	xxx
LYNX	xxx	xxx	xxx								xxx	xxx
MARTEN	---	---									xxx	xxx
MINK	xxx	xxx									xxx	xxx
BEAVER			xxx									
WOLVERINE	xxx	xxx	xxx								xxx	xxx
WOLF												
COYOTE	xxx	xxx	xxx								xxx	xxx
GEESE				---	---			---	xxx	---		
DUCKS			---	---	---		---	---	xxx	---		
PTARMIGAN/ GROUSE	---	---	xxx	---	---	---	---	---	xxx	xxx	xxx	xxx
WHITEFISH						xxx	xxx	xxx	xxx			
LINGCOD/BURBOT										xxx	xxx	
GRAYLING							xxx	xxx	---			
PIKE	---		---		---	xxx	xxx	xxx	xxx	---	xxx	---
SUCKER									xxx			
"PICKLE"	---								---	xxx	xxx	---
SALMON						xxx	xxx					
BERRIES					---	xxx	xxx	xxx	xxx			
OTHER PLANTS					---	xxx	xxx	xxx	xxx	---		
WOOD	xxx	xxx	xxx	---	---	---	---	---	xxx	xxx	xxx	xxx

*Seasonality not reported

xxx Usual period of harvest

--- Occasional harvest effort

Fig. 4. Seasonal round of resource harvesting activities for selected species by a sample of Tetlin residents, June 1983 through May 1984.

berries, and other edible plants are actively sought throughout the summer and early autumn. Logs are cut near the community and used to build or repair caches and smokehouses. Some residents travel to the Copper River Basin to fish for salmon in June and July.

Waterfowl and moose are taken occasionally late in the summer, normally when potlatches are held and community residents are obligated to feed many out-of-town visitors. These activities intensify during the month of September. Trips normally are made by boat or within walking distance of Tetlin. Hare and grouse are harvested near the community in September and October. Much of the fall harvest is processed and cached for winter use.

After freeze-up in late October, fishing for pike, "pickle" (young pike), and lingcod involves many community households. Pike are taken with a metal hook attached to a long wooden pole through the ice. Lingcod are harvested with a hand-held line and hook. Some fish is eaten fresh, although much of it is frozen for winter consumption.

Trapping begins early in November and continues through March. Residents trap in areas associated with their families, normally within a 20-mile radius of the community. Species trapped include beaver, marten, mink, weasel, wolverine, otter, lynx, fox, coyote, and wolf. Snaring for hare and hunting for grouse and ptarmigan occur during the late fall and winter, often in conjunction with trapping. Firewood is gathered throughout the year but predominantly during the winter. Hunters occasionally harvest caribou, but this currently is not a major activity because caribou usually are not readily accessible from the community.

Trapping effort subsides in March and shifts to muskrat hunting. Muskrat is a valued food item and the fur is an important income source to some households. As is the case with furbearer trapping areas, the community recognizes the rights of families to trap muskrats in lakes associated with their traplines. Following break-up in late April, muskrat are taken by hunters using boats. Ducks and geese are harvested occasionally during spring and eaten fresh.

Uses of Copper River Salmon

Three of the 20 Tetlin households surveyed fished for Copper River salmon in 1983 (Table 4). Two used fishwheels belonging to friends at Copper Center and one had access to an in-law's wheel at Tazlina (Table 3). One of these households has fished in the Copper River Basin for at least 17 years, and in 1983 offered the fishwheel owner muskrat and dried whitefish in exchange for using his wheel. Harvest levels by Tetlin residents in 1983 ranged from 10 to 60 salmon, and averaged 35 per fishing household. Some salmon were shared with other community residents. Non-fishing households frequently obtained salmon directly from residents of the Copper Basin and other communities.

Fourteen households (70 percent) reported having received Copper River salmon in 1983 (Table 4). Several examples illustrate the types of exchanges occurring in 1983:

Case A: One household received between five and ten salmon from a cousin in Dot Lake who fished in the Copper Basin.

Case B: Another family received ten salmon from relatives in Tazlina, Gulkana, and Gakona, and had permission to use a fishwheel at Copper Center.

Case C: One Tetlin resident exchanged dried whitefish with a cousin in Gulkana for a few salmon.

Case D: A woman in Northway used a cousin's fishwheel at Gulkana, and gave two salmon to her married daughter in Tetlin, who in turn gave her mother moose meat and whitefish. This familial exchange has occurred for about ten years, essentially since the daughter married and moved to Tetlin.

Case E: Another Tetlin household received 25 salmon from a cousin in Tazlina. The respondent's grandfather used to walk from Last Tetlin to Mentasta to obtain dried salmon from his sister. Members of this family have received Copper River salmon for 30 to 40 years.

As is the case in other Upper Tanana communities, the exchange of wild resources between Tetlin and other communities occurs throughout the year. Salmon also is commonly received in the context of potlatches held in Upper Tanana and Copper River communities. Respondents often did not specify the number of years they had received Copper River salmon, which accounts for the information missing in Table 4. Instead, they considered the use of Copper River salmon an important dimension of their ongoing relationship with their neighbors to the south. At least three Tetlin households include an adult member who was born and raised in the Copper River Basin. These types of connections help to explain the strong ties observed between Tetlin and some Copper Basin communities, both currently and aboriginally (cf. Regional Setting).

NORTHWAY

Community Profile

Northway is the second largest community in the Upper Tanana region and lies 50 miles southeast of Tok and 42 miles from the Canadian

Border. Residents generally consider the community to include the area served by the Walter Northway School. This encompasses four population clusters: (1) households located between Mileposts 1252 and 1266 on the Alaska Highway, corresponding to school district boundaries; (2) the airport community, seven miles southwest of Milepost 1264 on the east bank of Nabesna Slough; (3) households situated between the junction at Milepost 1264 and the airport community; and (4) the Native village, which is two miles beyond the airport between Skate Lake and the Nabesna River.

The area around Northway was historically the site of seasonal encampments of Athabaskan Indian bands engaged in resource harvesting activities near Scottie and Gardiner creeks, and the Chisana, Nabesna, and Tanana rivers. Initial contacts with white people date back to the late 1800s, during periodic trips to trading posts along the Yukon River. Traders entered the region around 1912 and by the early 1920s had established posts at Gardiner Creek and along the Nabesna River. Nabesna Village, the first settlement in the area, relocated across the Nabesna River from its original location in the early 1940s. The village name was changed to Northway to honor the village chief who had adopted the surname of a river boat captain who traded in the area in the early 1900s (Darbyshire and Associates 1980).

McKenna (1959) counted about 100 persons living in the Northway area in the late 1920s, nearly all of whom were Natives. This figure remained constant until construction of the Alaska Highway and an airfield during World War II attracted newcomers to the area. The population has since risen steadily, from 196 in 1950, to 230 in 1970, and 393 in 1981 (Haynes 1984).

Methodology

Data collection in Northway occurred during June and early July 1984, with a follow-up visit made in October. Interviews were conducted with 15 households identified by local leaders and key respondents as being among the most active resource harvesting households in Northway. Households from each of the four population clusters comprising the community are represented (Table 1). Additional information was provided by key respondents knowledgeable of the community's historic and contemporary resource utilization patterns. Inquiries focused on the harvest and use of fish and wildlife resources during the period June 1983 through May 1984. A Northway resident fluent in the local Athabaskan dialect assisted the researcher with interviews conducted in Native households. Resource use area maps also were prepared, focusing on harvest areas used during the past ten years.

Socioeconomic Characteristics

Background characteristics of the Northway households represented in this study may or may not be typical of the community at large, since the participants were selected because of their active involvement in resource harvesting activities. Sample households ranged in size from 1 to 9 members (mean, 6.0), and included both Native and non-Native families. Heads of household ranged in age from 33 to 55 years, with an average of 45.1 years. They had resided in the community an average of 33.5 years, ranging from 6 to 55 years.

Household heads were employed an average of 5.0 months during the year preceding data collection. Four did not work at all and 3 held full-time jobs for all 12 months. Although Northway is the second largest community in the Upper Tanana region, employment opportunities are limited and usually occur seasonally or on a part-time basis.

At least four adult males in Northway, including two in the study population, were originally from the Copper River Basin. Several households had relatives in Mentasta, Nabesna, Copper Center, Chitina, Gulkana, and Chistochina. Others indicated being related as members of the same clans as some Copper River residents. As one respondent stated,

Probably the main reason Northway people associate with Copper River peoples is because they are the same tribe. We know how to act with them.

Levels of Participation and Seasonal Round

The sampled Northway households engaged in a wide range of resource harvesting activities throughout the year, many of which are long-standing traditional practices (Fig. 5). This description of the annual cycle is derived from a seventeen percent sample of Northway households and may not be characteristic of the entire community. More than half the sampled households, however, pursued 12 or more resource harvesting activities between June 1983 and May 1984 (Table 2). As is shown in Table 2, participation was highest in harvesting moose, whitefish, berries, and other plants (87 percent); northern pike and wood (80 percent); muskrat (73 percent); other furbearers, lingcod, and grayling (67 percent); and ducks and hare (60 percent).

The late spring and summer months are devoted primarily to fishing and plant gathering (Fig. 5). Whitefish are taken with gillnets and dipnets in June in rivers and lakes near the community. Grayling and pike are caught with rod and reel. Some residents travel to the Copper River region to fish for king and red salmon in June and July. Edible plants, such as wild rhubarb and mushrooms, are gathered, along with birch bark and spruce roots for use in making crafts. Black bear are occasionally harvested. Beginning in July and August, berries are picked as the different species ripen.

Waterfowl and moose are hunted in the fall, with road vehicles and river boats used to access hunting areas. Some residents travel up the Taylor Highway to hunt Fortymile caribou in both the fall and winter seasons. Cranberries and rosehips are picked after the first frost, "sweet roots" are dug, and firewood is cut. Grouse are hunted along river banks and near the roadway, primarily as a separate activity but sometimes in conjunction with moose and waterfowl hunting. Pike and lingcod are taken through the ice after freeze-up in October and November. Snares are set for hare. Some muskrats are harvested.

Furbearer trapping begins in November and continues through February for most species, with beaver and muskrat taken as late as March and April. Major activities during the winter also include firewood collecting, snaring for hare, fishing through the ice for lingcod, and grouse and ptarmigan hunting.

By March and April, prior to break-up, most fishing and trapping has ended. Muskrat and beaver are trapped in April, and muskrat hunting continues even after the pushups are submerged in the open lakes and rivers. Birch bark is collected after the sap has begun to flow.

RESOURCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
MOOSE									xxx			
CARIBOU	xxx	---										xxx
BEAR						---		---	---			
HARE	xxx	xxx	xxx	---	---	---	---	---	---	xxx	xxx	xxx
PORCUPINE				xxx								
MUSKRAT	---	xxx	xxx	xxx	xxx	---			---	---	xxx	---
BEAVER	---	xxx	xxx	xxx							xxx	---
MARTEN	xxx	xxx									xxx	xxx
LYNX	xxx	xxx	---								xxx	xxx
FOX	xxx	xxx									xxx	xxx
MINK	xxx	xxx									xxx	xxx
WOLVERINE	xxx	xxx	---								xxx	xxx
OTTER	xxx	xxx	---	---							xxx	xxx
WOLF	xxx	xxx	xxx								xxx	xxx
COYOTE	---											---
GEESE									xxx	---		
DUCKS									xxx	xxx	---	---
PTARMIGAN/ GROUSE	---	---	---					---	xxx	xxx	---	---
CRANES									---			
WHITEFISH						xxx	xxx	xxx	xxx			
PIKE					xxx	xxx	xxx	xxx	xxx	---	---	
GRAYLING					xxx	xxx	xxx	xxx	xxx	---	---	
LINGCOD	---	xxx	---	---	---			---	---	xxx	xxx	xxx
SUCKER					---	xxx	xxx	xxx	xxx			
TROUT	---											
SALMON						xxx	xxx					
BERRIES						---	xxx	xxx	xxx			
OTHER PLANTS				---	xxx	xxx	xxx	xxx	xxx			
FIREWOOD	xxx	xxx	xxx	xxx	---	---	---	---	xxx	xxx	xxx	xxx

xxx Usual period of harvest

--- Occasional harvest effort

Fig. 5. Seasonal round of resource harvesting activities for selected species reported by a sample of Northway residents, June 1983 through May 1984.

Boats, motors, and nets are prepared for a new season, and once again the first nets are set for whitefish. Grayling and pike are taken as early in summer as allowed by water conditions.

Uses of Copper River Salmon

Five of the 15 sampled Northway households fished for Copper River salmon in 1983 (Table 4). Thirteen had fished there at least once since 1980. All five fishing households used fishwheels in 1983, and one also fished for king salmon on the Gulkana River with rod and reel. One respondent and a friend from Tok owned a fishwheel at Slana, while the others used gear belonging to friends or relatives living in the Copper River Basin (Table 3). The 1983 harvest levels averaged 79.5 salmon per household and ranged from 10 to 200 salmon. Two households reported exchanging resources with fishwheel owners at intervals during the year, with dried whitefish, muskrat, and berries being given in return for dried salmon. The 1983 salmon fishing households had fished an average of 7.2 years in the Copper River Basin, ranging from 3 to more than 20 years. All fishing households reported giving salmon to friends, relatives, and other local residents.

Case A: One Northway family, consisting of a husband, wife, and two teenage children, fished for salmon at Slana in 1983. The family made only 1 fishing trip in 1983, and caught about 65 red salmon and 1 king salmon. The wife and children processed the salmon at home, then the husband and son smoked the salmon for 8 hours in cold smoke after soaking it in brine. Most of the salmon was canned. Some of the salmon was given to local families unable to travel to the Copper River Basin to fish for themselves.

Nine of the 15 households surveyed received Copper River salmon in 1983, ranging from a few to 30 fish. Five obtained salmon from

relatives or friends in Northway, one from local friends and relatives in Tok, two from both Northway and Copper River residents, and one from friends and relatives in Copper Center. Households had received Copper River salmon for an average of at least 20 years. In return, recipients gave jams, jellies, berries, ducks, whitefish, and muskrats. These exchanges occurred throughout the year, at potlatches, or when residents visited or were visited by Copper River Basin families. Resource exchanges generally involved those items not readily available in the Copper River Basin. For example, one Northway resident allowed a brother from Copper Center to hunt muskrats in his traditional use area near Northway.

Limited data are available concerning salmon fishing by Northway residents for the years 1981-82 and 1984. A survey conducted by local residents in 1983 in cooperation with the Tetlin National Wildlife Refuge identified at least ten Native households that fished for salmon either in 1981 or 1982. In October 1984, nine Northway households were interviewed who fished for Copper River salmon in 1984. These households harvested 330 salmon at three different fishwheel sites. One household also caught 20 salmon with a dipnet. Northway residents also indicated that Copper River residents had brought salmon for use at a funeral potlatch held in Northway in August, 1984.

TOK

Community Profile

Tok is located at the junction of the Alaska Highway and Tok Cutoff to the Glenn Highway, about 90 miles from the Canadian Border and 205 miles southeast of Fairbanks. Residents generally consider Tok to extend north to the Tanana River, 12 miles east to Tetlin Junction, 23 miles south to Mile 102 on the Tok Cutoff, and 7 miles west to the former Bureau of Land Management Fortymile Resource Area headquarters. The community originated as an Alaska Road Commission (ARC) camp during construction of the Alaska Highway and Tok Cutoff between 1942 and 1946. Tok was established as a presidential townsite in 1946, and by 1950 several businesses and private residences dotted the landscape north of the road camp. As early as 1947, a school operated from a room in an ARC building to provide education to the small but growing population.

The Tok economy has long been based on service provision to tourists and other highway travelers, although it also has emerged as a regional center for surrounding smaller communities. Tok houses state agencies and administrative offices for private and government funded programs. From 1947 to 1971, the U.S. Customs offices were located in Tok. A pump station was constructed west of Tok in the mid-1940s during construction of the Haines-to-Fairbanks 8-inch fuel pipeline. In 1976, the U.S. Coast Guard established a LORAN-C (Long Range Aids to Navigation) station near Tok, which transmits radio navigation signals for air and marine traffic in the Gulf of Alaska. Tok is not incorporated as a municipality under state law; consequently, quasi-governmental functions

are performed by local voluntary organizations, special interest groups, and nonprofit corporations (Darbyshire and Associates 1980).

The population of Tok and vicinity has risen steadily since 1950, when 104 residents were counted. This figure rose to 305 in 1960, 577 in 1970, and an estimated 881 persons in 1981. State land disposals near Tok have contributed to this rapid growth. The population peaks during the summer when seasonal employment opportunities attract non-local residents to the area (Haynes 1984). Alaska Natives constituted an estimated 14 percent of the Tok population in 1979 (Darbyshire and Associates 1980).

Methodology

A survey focusing on resource harvesting activities for the period October 1983 through September 1984 was administered to 64 Tok respondents in September and October. Respondents comprised a 77 percent sample of individuals who obtained a Copper River subsistence salmon fishwheel or dipnet permit for the 1984 season. Because of this selection procedure, the Tok study population differs considerably from household samples in each of the other Upper Tanana communities. Caution must be exercised when using the Tok data to describe general community resource utilization patterns, or for making comparisons with the other three study communities.

Socioeconomic Characteristics

Permit data obtained from the Division of Commercial Fisheries indicated that 83 Tok residents received subsistence permits for the 1984 Copper River salmon fishery, including 78 fishwheel and 5 dipnet permits. Interviews were conducted with 64 permit holders (77 percent). Five had moved away, 13 could not be contacted or were unavailable, and in a household with 2 permittees only one was interviewed. Fifty-four of the 64 respondents fished for Copper River salmon in 1984, 49 with fishwheels and 5 using dipnets (Table 1). Permit holders ranged from 20 to 66 years of age (mean, 40 years), and had resided in Tok from 6 months to 30 years (mean, 9.5 years).

Permittee households had an average of 3.4 members, ranging from 1 to 6 persons. In the 12 months preceding the survey, 24 permittees (37 percent) had worked at full-time jobs, 30 (47 percent) were employed fewer than 12 months, and 10 (16 percent) had not worked at all. The sample of permittees worked an average of 7.1 months. Those working less than full-time averaged 5.2 months. More than one adult was employed in 36 permittee households, and in three households no adults had worked during the preceding 12 months. Although employment opportunities are more numerous in Tok than in surrounding communities, many jobs are seasonal in nature and oriented toward the trade and construction projects. Cold weather during the long winter months also brings construction activity to a standstill.

Levels of Participation and Seasonal Round

Tok permittees and their households harvested a variety of wild resources in and outside the Upper Tanana region throughout the year. Survey data for the period October 1983 through September 1984 indicates that eight resource categories were pursued by 50 percent or more of the sampled households (Table 2). Table 2 shows that species sought most frequently by Tok permittees between October 1983 and September 1984 included salmon (87 percent); wood and berries (75 percent); moose (73 percent); ptarmigan or grouse (70 percent); grayling (63 percent); caribou (56 percent); and other plants (52 percent).

Fishing through the ice for burbot and pike begins during the winter and continues into spring (Fig. 6). As the ice melts during breakup, rod and reel fishing begins for grayling, rainbow trout, and lake trout. Sucker and whitefish are taken occasionally. Rod and reel fishing continues throughout the summer. Most of these freshwater species can be found in lakes or streams of the Tanana drainage, and are accessed by boat or highway vehicles. Tok residents travel outside the area for salmon, since the few chums that reach the upper Tanana River in the early fall are in poor condition and considered unfit for human consumption. Most salmon fishing occurs in the Copper River Basin during July and August, although a few residents occasionally fish for salmon on the Yukon River or in coastal Alaska.

Berries and a variety of other plants are obtained from June through October, including raspberries, blueberries, cranberries, rosehips, currants, edible roots, rhubarb, wild greens such as strawberry spinach and fireweed, and several varieties of mushrooms. Areas

RESOURCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
MOOSE								---	xxx			
CARIBOU		---						xxx	xxx		xxx	xxx
BEAR				---	xxx	---	---	xxx	---			
DALL SHEEP								xxx	---			
HARE	xxx	xxx	xxx	---		---	---	xxx	xxx	xxx	xxx	xxx
PORCUPINE									---			
GEESE									xxx	xxx		
DUCKS									xxx	xxx		
PTARMIGAN/ GROUSE	---	---						xxx	xxx	xxx	xxx	---
MUSKRAT			---		---			---	---	---	---	
BEAVER*												
MARTEN	xxx	xxx									xxx	xxx
MINK	xxx	xxx									xxx	xxx
FOX	xxx	xxx									xxx	xxx
LYNX	xxx	xxx	---								xxx	xxx
WOLF	xxx	xxx	---								xxx	xxx
WOLVERINE	xxx	xxx	---								xxx	xxx
COYOTE	xxx	xxx	---								xxx	xxx
OTTER	xxx	xxx	---								xxx	xxx
WHITEFISH						---	xxx	---	---	xxx		
PIKE		---	---		xxx	xxx	xxx	xxx	xxx	---		
SUCKER						---		---	---	---		
GRAYLING				---	xxx	xxx	xxx	xxx	xxx	---		
BURBOT/LINGCOD	xxx	---	---	---								
TROUT						xxx	xxx	xxx				
SALMON					---	xxx	xxx	---		---	---	---
BERRIES							xxx	xxx	xxx	---		
OTHER PLANTS						xxx	xxx	xxx	xxx	---		
WOOD	xxx											

* Information on seasonality missing

xxx Usual period of harvest

--- Occasional harvest effort

Fig. 6. Seasonal round of resource harvesting activities for selected species by a sample of Tok permittees, October 1983 through September 1984.

in which these species are most abundant usually are accessed by highway vehicle, although some edible plants occur within walking distance of one's home.

In conjunction with these plant gathering activities, big game hunting dominates the fall months among Tok residents. Moose, caribou, and Dall sheep are taken in the surrounding area, either along the road system or in places accessed by airplane, boat, or off-road vehicles. An unusually heavy snowfall in August 1984 affected sheep and caribou hunting in the region, and led to an emergency closure of the Fortymile caribou season in Game Management Unit 20E. Black bear are taken in both the spring and fall. One respondent hunted outside the Upper Tanana region for deer in 1984, and several others have traveled to coastal Alaska to do so in previous years. Another resident obtained a drawing permit for the Delta bison hunt in 1984.

Ducks and geese also are hunted in September and October, normally in areas accessed by boat. Ptarmigan and grouse hunting are common pursuits, with these species often being taken opportunistically during hunting trips or in the context of other outdoor activities. Fishing tapers off in the fall, although grayling are still taken by rod and reel, and whitefish are speared as they move to deeper water for the winter. Some residents travel to Delta Junction in November and December to harvest spawned out chum salmon for use as dog food.

Most furbearer trapping activity occurs from November through February, and focuses on marten, mink, fox, lynx, wolf, wolverine, coyote, otter, and beaver. Squirrel and weasel are sometimes taken incidentally. Hare are hunted throughout the year and snared during the winter months, although the major harvest occurs during the fall.

Muskrats are taken primarily during the fall but occasionally hunted in the spring.

Uses of Copper River Salmon

As was noted above, 54 of the 64 permit holders surveyed fished for Copper River salmon in 1984, and nine of the remaining ten had fished in one or more of the previous three years. All but five used fishwheels, including nine fishwheels located at Slana (46 permittees), and one each at Old Chistochina Village (one permittee), Copperville (one permittee), and Chitina (one permittee) (Table 3). At least five used fishwheels owned by residents of Chistochina, Slana, Glennallen, or Copper Center. Slana is by far the most frequently used fishing site for Tok residents, primarily because it is most accessible and one of the few areas not already heavily utilized by Copper River Basin residents. An increase in number of Tok permit holders in 1984 may be attributable in part to the fact that permits were issued for the first time last summer at the Department of Fish and Game office in Tok.

Ten Tok permittees either owned or co-owned a fishwheel. The other permittees often assisted the owner in building or repairing the wheel, or in transporting it to the fishwheel site. In other cases, they either were invited to use the wheel or scheduled a time to use the wheel when it otherwise would not be in use. Fishwheel owners generally were most concerned that the wheel be checked every day, that the users obtained a permit, and that salmon harvested be used for human consumption and not wasted. More than half the permittees used a fishwheel on

three or more occasions in 1984, generally during single-day or overnight trips, and spent an average of 5.5 days fishing.

Case A: This Tok household has fished for Copper River salmon for eight years. In 1984, the household head assisted a friend in moving and setting up a fishwheel in the Copper River Basin. The owner then gave this household permission to use his fishwheel. The family, consisting of husband, wife, and 2 children, fished for 1 day and caught 3 king salmon and 11 red salmon. The wife and her parents processed and canned the salmon. This household normally shares some of its fish with friends in the community, but did not catch enough salmon to meet its own needs in 1984.

Permit holders had fished for Copper River salmon from 1 to more than 35 years (mean, 6.8 years). Thirteen (20 percent) fished for the first time during the 1984 season, two (3 percent) began in 1958, and eight others (12 percent) were less specific but said they had fished for Copper River salmon "all their lives."

The 54 permittees who fished reported a total harvest of 2,077 salmon, ranging from 0 to 205, and averaging 39 per household (Table 4). Two permittees were unsuccessful, five caught fewer than ten salmon, and three harvested 100 or more. Of the 2,077 salmon harvested, only 53 salmon were taken with dipnets and 6 by rod and reel. Twenty-two permittees for whom data are available distributed 241 salmon (range 2-50, mean, 12) to friends, relatives, and community organizations. A total of 38 permittees said they had exchanged salmon for other resources in previous years. Most distribution occurred within the community, although permittees with friends and relatives in the Copper River Basin and other Upper Tanana communities continue to exchange resources with them during the year. Fish heads and tails were sometimes given to community residents for use as dog food or trapping bait.

Ten permit holders received some salmon in 1984, ranging from 1 to 30 fish, and 33 others had been given salmon in the past. Recipients were often persons who caught very few salmon or were unable to fish in 1984.

DISCUSSION

In the Division of Subsistence study of Dot Lake, Martin (1983) discussed the historic ties between residents of that Upper Tanana community and those in the Copper River Basin. Copper River salmon was found to be a highly valued wild food resource in Dot Lake and, in conjunction with other fish harvested locally, ranked second to moose as a contributor to the household diet. Nearly all salmon used by Dot Lake families was obtained in the Copper River for several reasons: the region was nearby and easily accessible; fishing there did not require expensive gear and usually involved using a fishwheel belonging to relatives in Copper River Basin; and kinship ties between Dot Lake and Copper River Basin residents facilitated the distribution and exchange of locally-harvested resources between areas where those resources were not available (Martin 1983:80-85).

This current study has found similar patterns of resource use in the Upper Tanana communities of Tanacross, Tetlin, Northway, and Tok. Salmon is an important wild food resource in many households, and is harvested most often by fishwheel in the Copper River Basin (Fig. 7). Fishing households in Tanacross, Tetlin, and Northway generally used fishwheels owned by relatives or close family friends in Copper River Basin communities, while Tok permittees in 1984 fished most often at

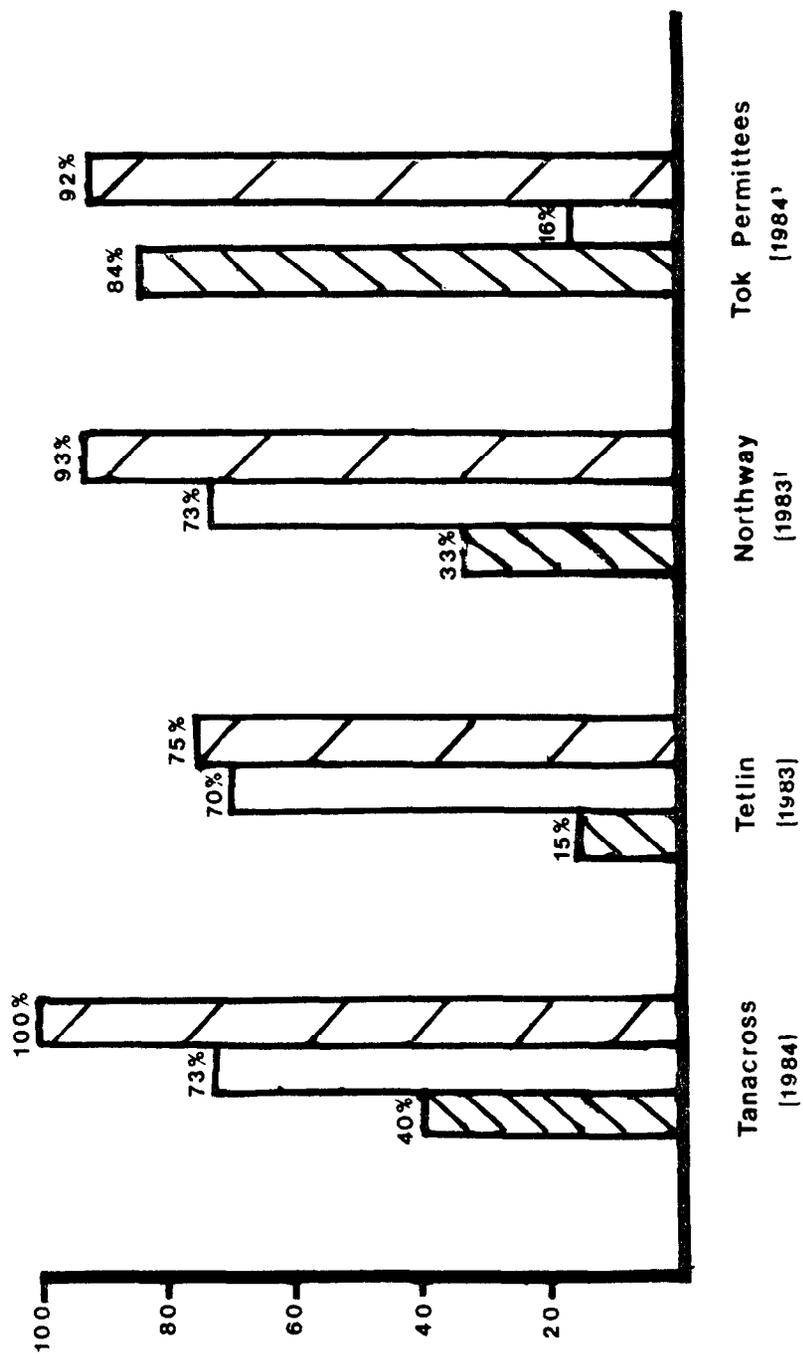
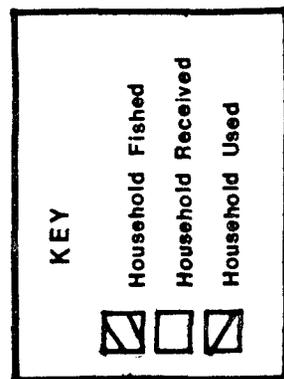


Fig. 7 Percent of Upper Tanana Households That Harvested, Received and Used Copper River Salmon in 1983 or 1984.



Slana with their own wheels or those of other Tok residents. Very few residents fished for king salmon with rod and reel on the Gulkana River or dipnetted at Chitina, and salmon were occasionally taken on the Yukon River or in coastal Alaska. These harvests are insignificant when compared to the total number of salmon taken by fishwheel in the Copper River Basin. For example, survey results indicate that of the 2,077 Copper River salmon harvested by Tok permittees in 1984, only 53 were taken by dipnet and 6 by rod and reel.

Most households contacted for this study participate in a range of resource harvesting activities in the Upper Tanana region (Figs. 2, 4, 5, 6). Upper Tanana households attempted to harvest, on the average, from between 8 to 12 of 22 wild resource categories used most commonly in the region. Copper River salmon comprised one of these resources harvested. As illustrated in Figure 8, Copper River salmon constituted 19 percent and 33 percent by weight of a household's total annual wild resource harvest in the Tanacross and Tok permittees sample, respectively. Harvested resources are frequently shared with other households, both within and outside of the Upper Tanana region.

Fishing households generally make single-day or overnight trips to harvest Copper River salmon. The duration of fishing trips depends upon the distance to the fishwheel site, the time available for fishing, the relationship of the fishing household to the fishwheel owner, and the intended method of processing and preserving the salmon. Salmon may be smoked and dried at the fishwheel site, or packed in ice and processed at home before being smoked, dried, canned, or frozen for later use.

KEY:
 BG Big Game
 SG Small Game
 and Birds
 P Plants
 OF Other Fish
 CRS Copper River
 Salmon

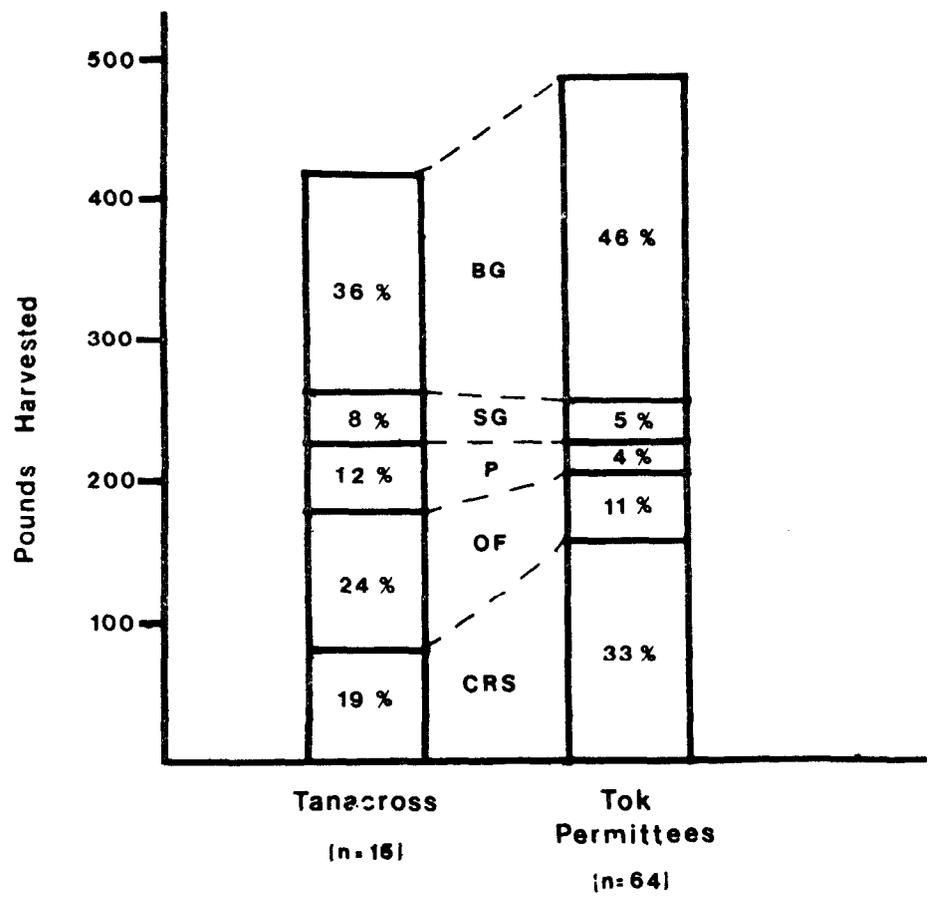


Fig. 8. Mean annual household harvests in pounds of edible resources for Tanacross and Tok, by resource category, 1983-84

SUMMARY

Data presented in this report indicate that fish and wildlife resources are important in the local economies of households in Tanacross, Tetlin, Northway, and Tok. Although the seasonal round of harvest activities and primary geographic areas utilized have changed over the years, there was historically and continues to be a great deal of interaction between Copper River Basin and Upper Tanana communities. Martin (1983) reported similar findings in her study of Dot Lake, a fifth Upper Tanana community that was not examined in the present study.

A high proportion of community households contacted for this study either harvested, received, or used Copper River salmon in 1983 or 1984. Fishing households most often used fishwheels at Slana (the site most accessible and nearest to the Upper Tanana region) or in other Copper River Basin communities with whom the users had long-term kin or friendship ties. Few salmon were taken by dipnets or rod and reel in 1983 or 1984. Fishing households frequently shared their catch with other families in the region, although some exchange occurred throughout the year between Upper Tanana and Copper River Basin households. Salmon sometimes is processed at the harvest site, but often packed in ice and taken home, where it is then eaten fresh or preserved for later use. Copper River salmon not only constitutes a reasonably high proportion of the wild resources harvested and utilized by Upper Tanana households, but also provides important cultural and social values to many families.

REFERENCES CITED

- Allen, Henry T.
1887 Report of an Expedition to the Copper, Tanana, and Koyukuk Rivers, in the Territory of Alaska, in the Year 1885. Washington, D.C.: U.S. Government Printing Office.
- Darbyshire and Associates
1980 Socioeconomic Community Profiles: A Background for Planning (Tanacross, Tetlin, Northway, and Tok). Prepared for Northwest Alaska Pipeline Company, Fairbanks, Alaska.
- De Laguna, Frederica, and Catherine McClellan
1981 Ahtna. In Handbook of North American Indians, Vol. 6: Subarctic, June Helm, Vol. Ed. PP. 641-663. Washington, D.C.: Smithsonian Institution.
- Fall, James A., and Lee Stratton
1984 The Harvest and Use of Copper River Salmon: A Background Report. Division of Subsistence Technical Paper No. 96. Juneau: Alaska Department of Fish and Game.
- Grauman, Melody Webb
1977 Yukon Frontiers: Historic Resource Study of the Proposed Yukon-Charley National River. Anthropology and Historic Preservation, Cooperative Park Service Unit, Occasional Paper No. 8. Fairbanks: University of Alaska.
- Cuedon, Marie-Francoise
1974 People of Tetlin, Why are You Singing? Mercury Series, Ethnology Division, Paper No. 9. Ottawa: National Museums of Canada.
- Haynes, Terry L.
1984 Rural Aging and the Use of Social Supports in the Upper Tanana Region, Alaska. Ph.D. Dissertation in Medical Anthropology. University of California, San Francisco and Berkeley.
- Martin, Gayle
1983 Use of Natural Resources by the Residents of Dot Lake, Alaska. Division of Subsistence Technical Paper No. 19. Juneau: Alaska Department of Fish and Game.
- McKenna, Robert A.
1959 The Upper Tanana Indians. Yale University Publications in Anthropology, No. 55. New Haven, Connecticut.
- Mitchell, William L.
1982 The Opening of Alaska. Lyman L. Woodman, ed. Anchorage: Cook Inlet Historical Society.

- Murie, Olaus J.
1973 Journeys to the Far North. New York: Alfred Knopf.
- Osgood, Cornelius
1971 The Han Indians. Yale University Publications in Anthropology,
No. 74. New Haven, Connecticut.
- Pitts, Roger S.
1972 The Changing Settlement Patterns and Housing Types of the Upper
Tanana Indians. Unpublished M.A. Thesis. Fairbanks: University of
Alaska.
- Reckord, Holly
1983 That's the Way We Live: Subsistence in the Wrangell-St. Elias
National Park and Preserve. Anthropology and Historic Preservation,
Cooperative Park Studies Unit, Occasional Paper No. 34. Fairbanks:
University of Alaska.
- Simeone, William E.
1982 A History of Alaskan Athapaskans. Anchorage: Alaska Historical
Commission.
- Stratton, Lee
1982 The Dipnet and Fishwheel Fisheries of the Copper River, 1982.
Division of Subsistence Technical Paper No. 37. Juneau: Alaska
Department of Fish and Game.
- Strong, B. Stephen
1976 Historical Sequence of the Patterns of Production of Ahtna
Athabaskan Indians of the Upper Copper Valley, Alaska: The Develop-
ment of Capitalism in Alaska. Unpublished Ph.D. Dissertation in
Anthropology. Montreal: McGill University.
- Vitt, Ramon B.
1971 Hunting Practices of the Upper Tanana Athapaskans. Unpublished
M.A. Thesis. Fairbanks: University of Alaska.