FISH AND GAME HARVEST AND USE IN THE MIDDLE SUSITNA BASIN

The Results of a Survey of Residents of the Road-Connected Areas of Game Management Units 14B and 16A, 1986

by

James A. Fall and Dan J. Foster

Technical Paper No. 143

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

April, 1987

ABSTRACT

This report presents the results of research conducted by the Division of Subsistence, Alaska Department of Fish and Game, in 1986 on patterns of wild resource use by residents of the portion of the Matanuska-Susitna Borough in Game Management Units 14B and 16A (called the Middle Susitna Basin in the report). This research is part of a multi-component project which is examining the role of wild resource harvests in dispersed settlements in southcentral Alaska. In July and August 1986, division researchers interviewed 134 households in the road-connected portion of the study area, in four sampling areas: Parks Highway (30 interviews), Talkeetna (68), Trapper Creek (19), and Upper Petersville Road (17). This is a 31 percent sample of the approximately 429 year-round households living along roads in the Middle Susitna Basin. Because very few interviews were conducted with the approximately 33 non-road connected households, this population is not discussed in the report, nor do the report's conclusions necessarily pertain to these households.

The population of the study area in August 1986 was approximately 1,314, 93 percent of which could be reached by roads. The two major population concentrations were the Talkeetna Townsite and Trapper Creek. The rest of the population was dispersed along the Parks Highway, the Talkeetna Spur Road, and the Petersville Road. Almost all the interviewed household heads had been born outside the study area, and their average length of residence in the Middle Susitna Basin was 12 years.

The cash economy of the study area has developed around the Parks Highway transportation corridor. This road was completed between

Anchorage and Fairbanks in 1971. In 1986, businesses were oriented towards serving highway travelers, as well as recreationists who arrive in the area for sport fishing, hunting, skiing, hiking, camping, and mountaineering. State, federal, and local governments also supplied a large segment of the local jobs. Sixty one percent of all the sampled adults were employed for at least one month in 1985-86. The average length of employment for employed adults was 9.7 months. Year-round employment in the study area was the norm for the majority of these adults.

In the 12 month study period in 1985-86, 94 percent of the sampled households used at least one kind of wild fish, game, or plant resource. The average number of resources used was almost seven. Salmon was the most commonly used resource category (81.3 percent of the sample), followed by plants (80.6 percent), non-salmon freshwater fish (62.7 percent), and game (56.0 percent). In addition, 92.5 percent of the households attempted to harvest wild foods, and 88.1 percent were successful. The average number of resources harvested per household was 4.91. Of the four sub-samples, the Upper Petersville Road group was the most involved in the harvest and use of wild foods, and the Parks Highway group was the least involved.

The per capita harvest of wild foods for the entire sample was 70.1 pounds edible weight. Salmon comprised the largest portion, 41.4 percent. Almost all of the salmon were taken with rod and reel under sport fishing regulations; there were no local subsistence or personal use net fisheries. Game, mostly moose, made the next largest contribution, 33.4 percent of the total, followed by freshwater fish (8.1 percent), plants (6.3 percent), marine fish (5.7 percent), edible furbearers (2.4 percent),

birds (1.8 percent), and marine invertebrates (.9 percent). One half of the households harvested less than 50 pounds of wild resources, while 4.5 percent took over 1000 pounds of wild foods. The Upper Petersville Road sample had the highest per capita harvest, 167 pounds, followed by Trapper Creek (66 pounds), Parks Highway (58 pounds), and Talkeetna (55 pounds).

The report concludes that in 1986 the cash economy of the Middle Susitna Basin along the highway corridor was oriented around providing goods and services to visitors from other parts of southcentral Alaska. Many residents of the area participated in non-commercial hunting and fishing as well. For most households, harvest quantities were lower than those recorded for less accessible parts of the Cook Inlet basin, such as Tyonek (272 pounds per capita) or the Upper Yentna River (Skwentna) area (178 pounds per capita). Harvest levels in the Middle Susitna Basin sample were comparable to those reported for communities on the road system of the Kenai Peninsula such as Kenai, Ninilchik, and Homer.

CONTENTS

LIST OF TABLES.....ii
LIST OF FIGURES.....iv
ACKNOWLEDGEMENTS.....v

CHAPTER 1: INTRODUCTION.....1
STUDY BACKGROUND.....1
DATA COLLECTION METHODS.....4
Literature Review.....4
Household Survey.....4
Department of Fish and Game Records.....8
Data Analysis.....8

CHAPTER 2: HISTORY, DEMOGRAPHY, AND CASH ECONOMY.....9
HISTORY.....9
DEMOGRAPHY.....11
LOCAL CASH ECONOMY.....15
Employment.....15
Income.....25
Businesses and Services.....26

CHAPTER 3: WILD RESOURCE HARVEST AND USE.....30
LEVELS OF PARTICIPATION.....30
HARVEST LEVELS.....36
SHARING AND RECEIVING.....47
HARVEST AND USE PATTERNS BY RESOURCE CATEGORY.....50
Salmon.....50
Freshwater Fish.....53
Marine Fish.....55
Marine Invertebrates.....57
Game.....58
Birds.....60
Furbearers.....61
Plants.....62

CHAPTER 4: DISCUSSION.....64

REFERENCES CITED.....71
APPENDICES.....73

LIST OF TABLES

TABLE 1. ESTIMATED STUDY AREA POPULATION AND SAMPLE SIZE, MIDDLE SUSITNA BASIN.....7

TABLE 2. HISTORIC POPULATION DATA, STUDY AREA.....12

TABLE 3. DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE, MIDDLE SUSITNA BASIN, 1986.....16

TABLE 4. EMPLOYMENT STATUS OF ADULTS, BY COMMUNITY, MIDDLE SUSITNA BASIN, AUGUST 1986.....17

TABLE 5. EMPLOYMENT CHARACTERISTICS OF SAMPLE AREAS, MIDDLE SUSITNA BASIN, 1985-86.....19

TABLE 6. LOCATION OF JOBS HELD BY SAMPLED EMPLOYED ADULTS, MIDDLE SUSITNA BASIN, 1985-86.....21

TABLE 7. PERCENTAGE OF JOBS BY OCCUPATIONAL TYPE, MIDDLE SUSITNA BASIN, 1985-86.....22

TABLE 8. PERCENTAGE OF JOBS BY EMPLOYER TYPE, MIDDLE SUSITNA BASIN, 1985-86.....24

TABLE 9. RESOURCE HARVEST AND USE CHARCTERISTICS OF THE STUDY SAMPLES, MIDDLE SUSITNA BASIN, 1985-86.....31

TABLE 10. LEVELS OF HOUSEHOLD HARVEST AND USE OF WILD RESOURCES, ENTIRE MIDDLE SUSITNA BASIN, AUGUST 1985 -- JULY 1986.....33

TABLE 11. HOUSEHOLD PARTICIPATION IN HARVEST AND USE OF RESOURCE CATEGORIES, BY COMMUNITY, MIDDLE SUSITNA BASIN.....37

TABLE 12. LEVELS OF HOUSEHOLD HARVEST AND USE OF WILD RESOURCES, PARKS HIGHWAY SAMPLE, AUGUST 1985 -- JULY 1986.....38

TABLE 13. LEVELS OF HOUSEHOLD HARVEST AND USE OF WILD RESOURCES, TALKEETNA SAMPLE, AUGUST 1985 -- JULY 1986.....40

TABLE 14. LEVELS OF HOUSEHOLD HARVEST AND USE OF WILD RESOURCES, TRAPPER CREEK SAMPLE, AUGUST 1985 -- JULY 1986.....42

TABLE 15. LEVELS OF HOUSEHOLD HARVEST AND USE OF WILD RESOURCES, UPPER PETERSVILLE ROAD SAMPLE, AUGUST 1985 -- JULY 1986....44

TABLE 16. COMPOSITION OF RESOURCE HARVESTS BY CATEGORY, ENTIRE MIDDLE SUSITNA BASIN SAMPLE, 1985-86.....46

TABLE 17. SALMON HARVEST BY GEAR TYPE, ENTIRE MIDDLE SUSITNA BASIN SAMPLE, 1985-86.....52

TABLE 18. COMPOSITION OF COMMUNITY RESOURCE HARVESTS BY CATEGORY, MIDDLE SUSITNA BASIN, 1985-86.....54

TABLE 19. COMPARISON OF LEVELS OF PARTICIPATION IN RESOURCE HARVEST ACTIVITIES, UPPER COOK INLET COMMUNITY SAMPLES.....65

TABLE 20. PERCENTAGE OF SAMPLED HOUSEHOLDS IN TYONEK, WESTERN SUSITNA BASIN, AND MIDDLE SUSITNA BASIN HARVESTING 12 WILD RESOURCES.....66

LIST OF FIGURES

Figure 1. The Study Area, Middle Susitna Basin.....2

Figure 2. Sampling Areas, Middle Susitna Basin.....5

Figure 3. Population Distribution within the Study Area.....14

Figure 4. Percentage of Sampled Households Using, Attempting to Harvest, and Harvesting Eight Categories of Wild Resources, Middle Susitna Basin, 1985-86.....32

Figure 5. Household Harvests of Wild Fish and Game Resources, Pounds Edible Weight, Entire Middle Susitna Basin Sample..48

Figure 6. Household Harvests of Wild Fish and Game Resources, by Community, Middle Susitna Basin.....49

Figure 7. Per Capita Non-Commercial Fish and Game Harvests, Cook Inlet Basin Communties.....68

Acknowledgements

The authors wish to thank Division of Subsistence employees Lee Stratton and Pat Stredicke, who conducted many of the interviews within the study area. Bob Walker, the division's biometrician, assisted with data analysis, and Bob Wolfe, research director, provided many important suggestions for both the research design and the final report.

Also, we thank the Matanuska-Susitna Borough for allowing us to use their records for sample selection, and Trapper Creek resident Fred Agree, for voluntarily helping with the research in the Petersville Road area. Most of all, we thank the many people of the Talkeetna and Trapper Creek areas who took the time to answer all of our questions.

CHAPTER 1

INTRODUCTION

STUDY BACKGROUND

This report presents the results of research conducted by the Division of Subsistence, Alaska Department of Fish and Game, on patterns of wild resource use by residents of the portion of the Matanuska-Susitna Borough in Game Management Units 14B and 16A, called the Middle Susitna Basin in this report (Fig. 1). Although no incorporated communities exist within this area, two "census designated places" are recognized by federal and state censuses. These are Montana Creek and Talkeetna. Most of the rest of the population lives along the Parks Highway, the Talkeetna Spur Road, and the Petersville Road. Besides the data on hunting, fishing, and gathering, the report also contains information on population and settlement patterns, employment, services and businesses in the area, and other demographic and economic data for the road-connected area.

The research conducted in this area in 1986 is part of a multi-component project which is examining the role of wild resource harvests in dispersed settlements in the southcentral Alaska, especially in areas recently settled as a result of state or federal land disposal programs. The GMU 14B and 16A area was selected as the focus of the first phase of this research. This area generally has a dispersed settlement pattern and has been the location of numerous land disposals in the 1970s and 1980s.

In addition, this phase of the research on dispersed settlements was designed to supply information to the Alaska State Boards of Fisheries and Game on the hunting and fishing patterns and economy of Game Management Units

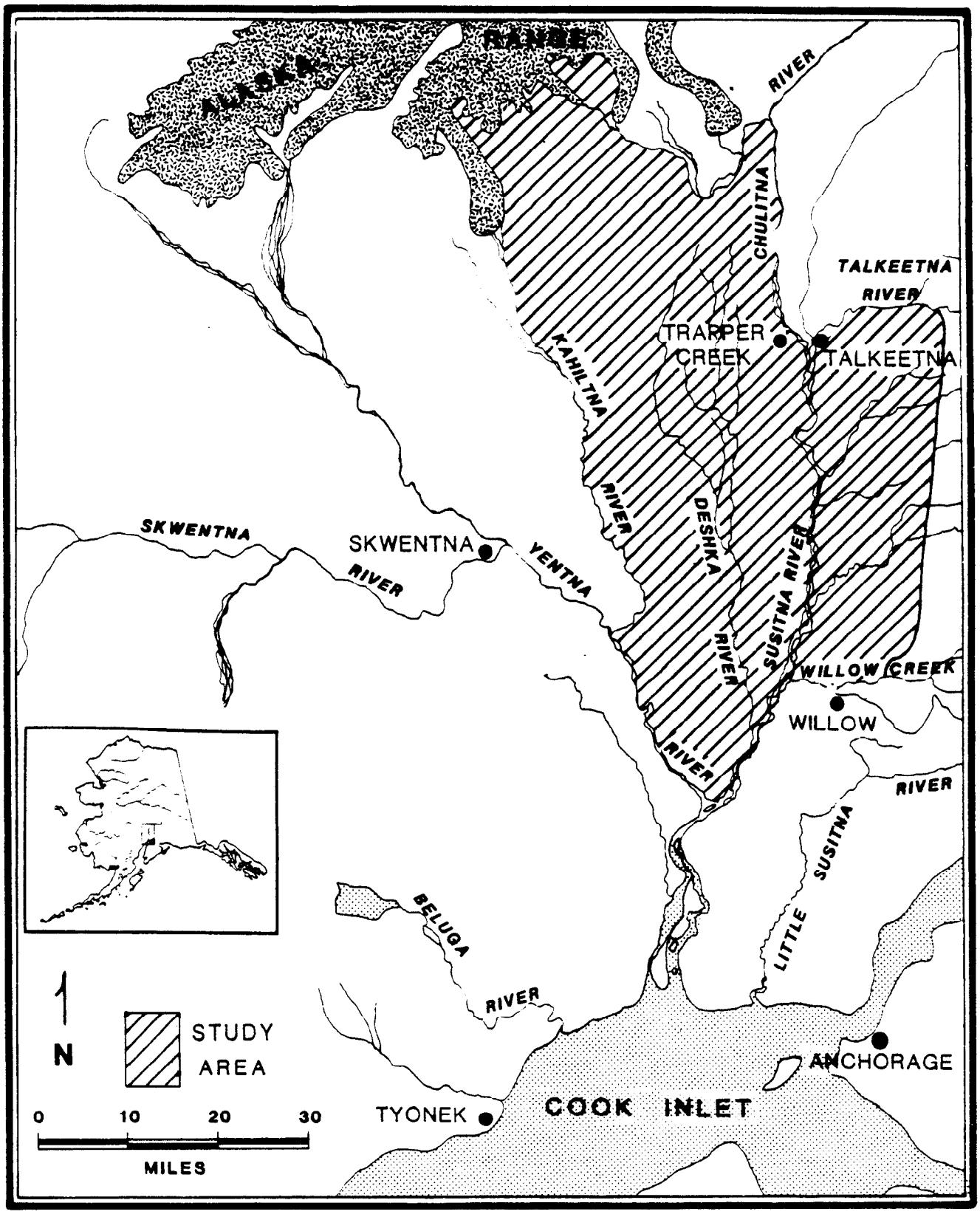


Figure 1. The Study Area, Middle Susitna Basin.

14B and 16A. Under the provisions the state subsistence statute, the Joint Boards must determine which areas of state are rural. Rural areas are defined as those areas of the state where non-commercial, customary and traditional harvests of fish and game are a principal characteristic of the economy. Some of the data needed to make such a determination are presented in this report.

For the study area, specific research objectives of this phase of the research included:

(a) Estimates of population size;

(b) Maps of population distribution;

(c) Estimates of the number of businesses; and

(d) Estimates of the annual harvests of moose, caribou, sheep, and fish by study area residents using ADF&G records.

For a sample of the year-round residents of the study area, the objectives of the research were:

(a) Estimates of fish, game, and plant harvests for a 12 month study period from August 1985 through July 1986;

(b) Estimates of the level of participation in hunting and fishing activities by household members;

(c) Demographic data on household size, ethnicity, age, and length of residency in the study area;

(d) Employment patterns for each adult in the sample, including number of months employed during the study period and the location of cash employment; and

(e) Estimates of household monetary incomes.

DATA COLLECTION METHODS

Literature Review

Before field data collection began, the researchers examined published and unpublished sources on the population and economy of the study area (e.g. Matanuska-Susitna Borough 1985). An important source of information is the series of reports prepared in early 1984 by Frank Orth and Associates (1984 a, b, c, d, e) on the demography and economy of Talkeetna and Trapper Creek. These documents also contain limited data on resource use patterns.

Household Survey

The primary method of data collection was a survey of a sample of the study population using a questionnaire (Appendix A). Questions on resource harvest and use, household employment patterns, and demography were included on the form. The surveys were conducted in respondents' homes by three division researchers, mostly between July 21 and August 26, 1986.

Because no complete and reliable list of year-round households in the study area was available, the researchers used the following procedures for selecting interview samples. The borough supplied from its tax assessment records, a list of all parcels of land within the study area with improved structures on them. Then, for three sub-areas along the road system, random samples were drawn from this list. These areas were (Fig. 2):

(1) Parks Highway: from Willow Creek north to the intersection of the Parks Highway with the Talkeetna Spur Road;

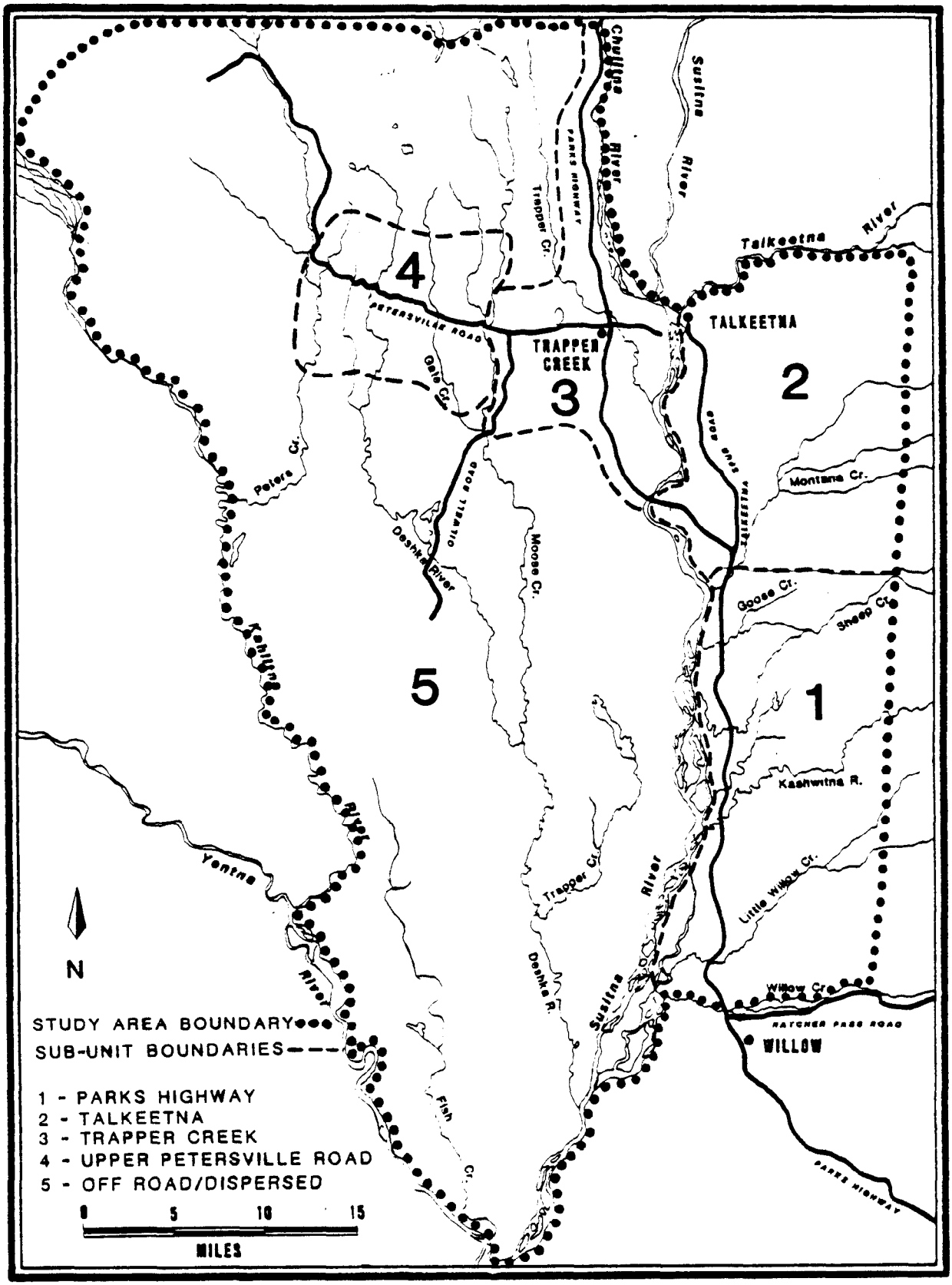


Figure 2. Sampling Areas, Middle Susitna Basin.

(2) Talkeetna: the Talkeetna Spur Road, the Talkeetna Townsite, and the short section of the Parks Highway between the Spur Road intersection and the Susitna River bridge; and

(3) Trapper Creek: the Parks Highway from the Susitna River bridge to the Chulitna River bridge, and the first seven miles of the Petersville Road to the Moose Creek Lodge, including the Oil Well Road.

The researchers collected data on a sample of 287 parcels in these areas. They determined that 125 parcels were occupied year-round (Table 1). Interviews were conducted with 117 of these full-time, resident households. This sample represents about 23 percent of the households in the Parks Highway area, 32 percent in Talkeetna as defined in this study, and 32 percent in Trapper Creek.

A different sampling method was employed in a fourth sub-area, called the Upper Petersville Road, which included households along this road from Milepost 7 (Moose Creek) to the Forks Roadhouse at Milepost 19. Because of the large number of parcels in this area, the small number of year-round residents, and the relatively more remote settlement pattern of this population, the researchers attempted to locate and interview all the permanent households in this sampling area. Assisted by several key respondents, the researchers compiled a list of 24 year-round households, 17 of which (71 percent) were interviewed.

The fifth sampling area consisted of that part of the study area inaccessible by road. Again based on several key respondent interviews, the researchers estimated that there were 33 households living off the road system in the study area in August 1986. These households were dispersed in areas north of the Petersville Road, along the Deshka River (Kroto Creek), and

TABLE 1. ESTIMATED STUDY AREA POPULATION AND SAMPLE SIZE, MIDDLE SUSITNA BASIN.

	PARKS HIGHWAY	TALKEETNA	TRAPPER CREEK	UPPER PETERSVILLE ROAD	OFF ROAD DISPERSED
NUMBER OF PARCELS WITH IMPROVED STRUCTURES	384	451	115	----	----
NUMBER OF PARCELS FOR WHICH DATA WERE COLLECTED	97	152	38	----	----
NUMBER OF YEAR-ROUND OCCUPIED PARCELS CONTACTED	33	72	20	24	33
OCCUPANCY RATE	34%	47.4%	52.6%	----	----
NUMBER OF REFUSALS	3	4	1	0	0
COMPLETED INTERVIEWS	30	68	19	17	3
ESTIMATED TOTAL NUMBER OF HOUSEHOLDS	131	214	60	24	33
PERCENT INTERVIEWED	22.9%	31.8%	31.7%	70.8%	9.1%
AVERAGE HOUSEHOLD SIZE	2.80	2.84	3.16	2.53	2.67
ESTIMATED POPULATION SIZE	367	608	190	61	88

around several lakes in the area. Lack of time and difficulty of access prevented the researchers from contacting most of these households. Only three were interviewed. Because of this inadequate sample size, these are not included in the data summaries which follow.

Department of Fish and Game Records

Alaska Department of Fish and Game (ADF&G) harvest tickets and permit return data were examined for caribou, moose, and sheep to estimate the reported harvests of these big game species by the study area population for the reporting year 1985-1986. These reported harvests were then compared to the survey data results. In addition, information on the number of road and train-killed moose used by residents of the study area was obtained from the Division of Fish and Wildlife Protection.

Data Analysis

All survey data were coded for computer analysis with the SPSS (Statistical Package for the Social Sciences) program. Harvest data in numbers of animals or fish were converted into pounds edible weight using standard conversion factors (Appendix B) to estimate the mean household and per capita non-commercial resource production for the study year. Participation in resource use activities was operationalized in several ways for each household, including per capita harvest in pounds, number of kinds resources used, number of resources attempted to harvest, and number of resources harvested. Jobs and employers were classified according to categories used by the Alaska Department of Labor. These are defined in Appendix C.

CHAPTER 2

HISTORY, DEMOGRAPHY, AND CASH ECONOMY

HISTORY

At the time of European exploration of the Cook Inlet region in the late 18th and 19th centuries, two regional bands of Athapaskan Indians occupied the study area. The first, the Dashq'eht'ana, were a Dena'ina (Tanaina) -speaking people with a territory centered around their villages on the lower Deshka River (Kroto Creek) and the middle Susitna River. The Dashq'eht'ana traveled in the fall to the western Talkeetna Mountains and as far north as the Tokositna River drainage in the Alaska Range to hunt caribou, moose, sheep, and small game. They brought their catches back to the villages, where they remained most of the winter. In spring, these Dena'ina established fish camps near their village sites, where they harvested and processed large quantities of king, sockeye, and silver salmon. Dried salmon were stored at the villages. Because of the rich salmon runs and game resources, the Deshka River had a relatively dense aboriginal population, perhaps 400-500 or more (Fall 1981:196-198).

The second group, the Dghelay Teht'ana ("Mountain People") where a mixed band of Ahtna and Dena'ina speakers who lived in the Talkeetna Mountains, generally northwest of the Dashq'eht'ana. The Dghelay Teht'ana did not maintain permanent villages, but traveled throughout much of the year in search of game. They established fish camps on the Talkeetna River in spring and summer to harvest salmon. The population of this band was always quite small, and probably never exceeded 100 people (Kari 1977).

The population of both groups was severely reduced by epidemic diseases in the 19th and early 20th centuries. As a result, most of the Dashq'eht'ana villages were abandoned by about 1918. One family remainded at the mouth of Kroto Creek until the 1930s, however. Descendents of the Dashq'eht'ana live in Tyonek, Montana Creek, and Anchorage today. The Dghelay Teht'ana began settling at Talkeetna in the 1910s. This group was devastated by the influenza eqidemic of 1918. Survivors remained in Talkeetna, or moved to Kroto Creek, Montana Creek, or Anchorage.

Although the Russians established trading posts on Cook Inlet, they never penetrated deeply into the Susitna Basin. Effective non-Native exploration began in the 1880s and especially 1890s when American prospectors entered the area. The Alaska Commercial Company founded Susitna Station, south of the study area, as a supply center in the 1890s. Major gold mining activities took place in the Willow Creek mining district in the Talkeetna Mountains, established in the late 1890s. The mines were supplied through Knik and later Wasilla. The Cache Creek District in the Peters Creek and Cache Creek basins dates from about 1905. Supplies reached this area from Susitna Station along the Yentna River and its tributaries. There were about 100 miners in this district by 1911. Most left the area in winter (Cole 1982).

Settlement patterns in the area changed radically with the construction of the Alaska Railroad through the Susitna Basin from 1915-1923. Talkeetna replaced Susitna Station as the main supply center for the Susitna Basin. Other small settlements, such as Montana Creek, arose along the railroad. In 1918, a 42 mile sled road and summer trail was constructed from Talkeetna to the Cache Creek District. This was the forerunner of the Petersville Road. By 1922, this trail had been transformed into a wagon road as far as Moose Creek. The wagon road was extended to the mining area by the end of that

decade. Talkeetna flourished as a supply center, a railroad station, and a retirement home for former miners (Cole 1982). By 1939, however, airplanes had replaced ground transport as the major means of supplying the remote areas in winter. Most trails were abandoned and except for the railroad corridor and the mining district in summer, the area was inhabited only by a few trappers (Cole 1982).

In 1964, the Talkeetna Spur Road linked Talkeetna by road to Wasilla and Anchorage. The construction of the Parks Highway, completed between Anchorage and Fairbanks in 1971, again changed settlement patterns in the study area. Businesses arose along the road to serve travelers, and state and local government land disposals placed much of the property along the road corridor into private hands. Consequently, the area's population increased. The 1970s saw more land disposals in remote, off-road locations, although most of this property remains unoccupied. The recent history of the area has seen the continued development of services oriented towards highway travelers and the resident population. In addition, recreational activities have brought economic development to the area. For example, Talkeetna has become the center for mountaineering in Denali National Park. Sport fishing, hunting, hiking, and cross-country skiing are other recreational pursuits that bring people into the area and support local businesses.

DEMOGRAPHY

Historical population data for the study area are presented in Table 2. As noted, Talkeetna was the only major population center in the study area until the construction of the Parks Highway and land disposal programs.

During the study period, the vast majority of the study area's population

TABLE 2. HISTORIC POPULATION DATA, STUDY AREA.

	1920	1930	1939	1950	1960	1970	1980	1983	1984	1986
MONTANA	--	--	--	--	39	33	40	54	67	--
TALKEETNA	70	89	136	106	76	182	264	281	441	608
TRAPPER CREEK	--	--	--	--	--	--	--	196	--	190
OTHER	--	--	--	--	--	--	--	--	--	516
TOTAL										1,314

Sources: Rollins 1978, for 1920-1970; Orth 1983a, c, for 1983; Alaska Department of Labor 1985, for 1980 and 1984; Alaska Department of Fish and Game, Division of Subsistence, for 1986.

lived along the road system. The distribution of this population is shown in Figure 3. The researchers estimate that in August 1986 there were approximately 462 households with a population of 1,314 living in GMUs 14B and 16A. Of these households, 93 percent could be reached by highway (Table 1).

The two major concentrations of population in the study area in 1986 were the Talkeetna townsite at the end of the 14.5 mile long Talkeetna Spur Road, and Trapper Creek, at the junction of the Petersville Road and the Parks Highway. The former is an unincorporated community located where the Susitna, Talkeetna, and Chulitna rivers join. Talkeetna's population was 264 in 1980, 281 in 1983, and 441 in 1984. The division estimates that in 1986, the population of the Talkeetna townsite and the area along the Talkeetna Spur Road was 608 in 214 households (Table 1).

Trapper Creek is an unincorporated community. Research conducted in 1983 estimated that 196 people lived in the area defined as Trapper Creek and Upper Petersville Road in this study (Orth 1984a). The division estimates that the population of the Trapper Creek sampling area was 190 in 60 households in August 1986 (Table 1). The Upper Petersville Road area contained about 24 households and 61 people (Table 1).

Most of the rest of the population in the study area was dispersed along the Parks Highway from the Willow Creek bridge to the Talkeetna Spur Road. This is called the Parks Highway sample in this study. Included within this sampling area is the census designated place of Montana Creek, which by itself had a population of 67 in 1984. The division estimates that 367 people lived in 131 households in this area in 1986 (Table 1).

Finally, there were about 33 year-round households located off the road system within the study area in 1986, with an estimated population of 88. These remote households were located on lakes or along rivers and creeks where

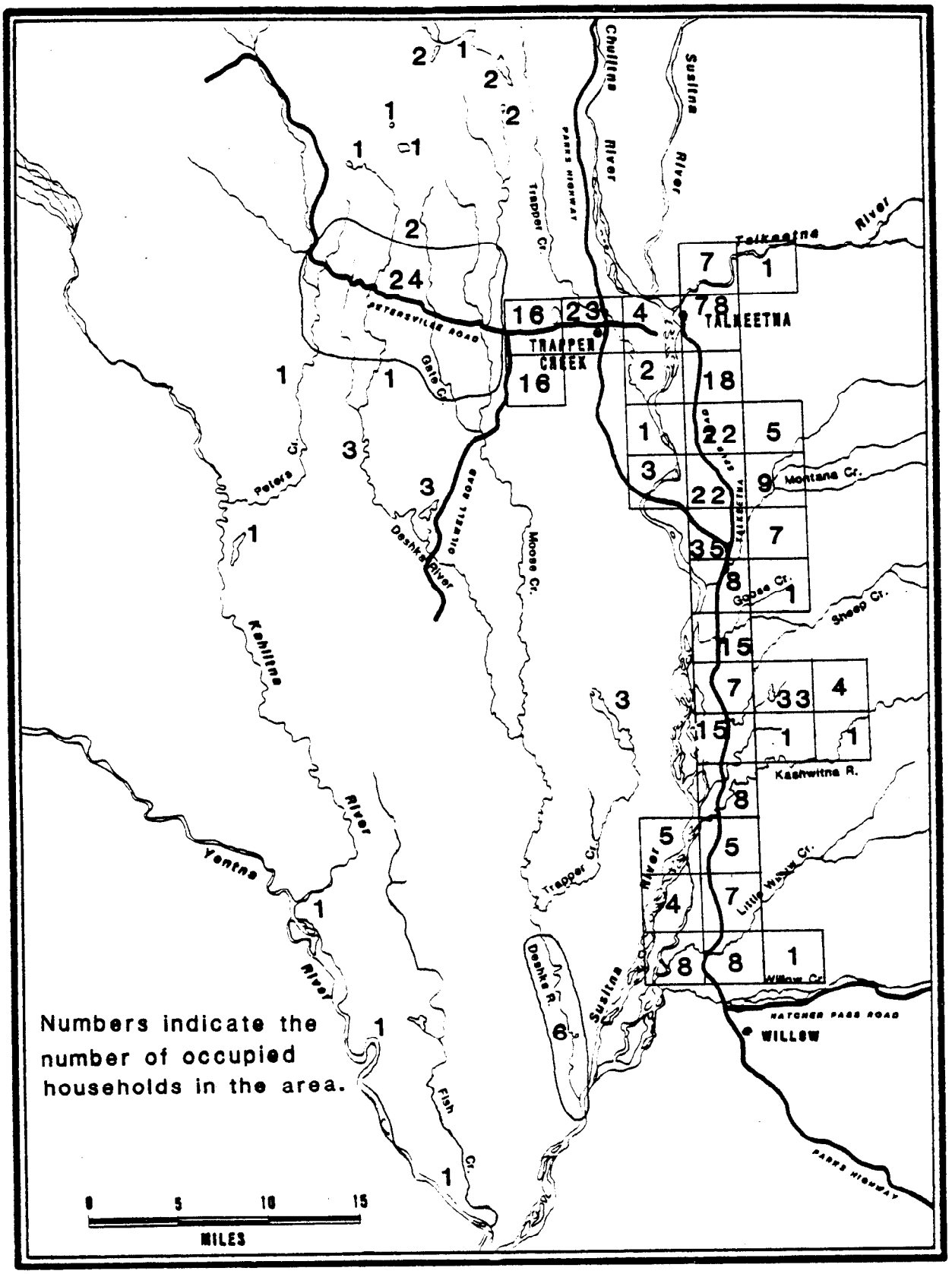


Figure 3. Population Distribution within the Study Area.

state land disposals have occurred (Table 1, Fig. 3).

As shown in Table 3, the study area's population was mostly non-Native in 1986. Nine percent of the sampled households contained at least one Alaska Native, and 8.4 percent of the population of the sampled household was Native. The Upper Petersville Road area had the largest percentage of Alaska Natives, 20.9, while Trapper Creek had the lowest with 3.3 percent.

Table 3 also shows that in 19.4 percent of the households, the household head or spouse was born in Alaska. This was highest in the upper Petersville Road area (35.3 percent) and lowest in the Parks Highway sample (13.3 percent). Of the total population of the sampled households, 32.1 percent was born in Alaska.

Overall, the sampled households had lived in the study area for a relatively short time. The average length of residency for household heads or spouse was 12 years. About 13.5 percent of the sampled households had lived in the study area for two years or less, 32.3 percent five years or less, and 52.6 percent ten years or less. Almost nineteen (18.7) percent of the households had been in the area more than 20 years. The Parks Highway sample had the longest mean length of residency, 15.2 years, and the Upper Petersville Road sample had the lowest, 5.5 years.

LOCAL CASH ECONOMY

Employment

Table 4 reports the employment status of each adult member of the surveyed households in August 1986. An adult was defined as any person 18 years of age or older. In the entire sample, 53.5 percent of the adults were

TABLE 3. DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE, MIDDLE SUSITNA BASIN, 1986.

STATUS	TOTAL SAMPLE	PARKS HIGHWAY	TALKEETNA	TRAPPER CREEK	UPPER PETERSVILLE ROAD
NUMBER OF HOUSEHOLDS	134	30	68	19	17
PERCENT OF ESTIMATED TOTAL HOUSEHOLDS	29.0%	22.9%	31.8%	31.7%	70.8%
POPULATION OF SAMPLE	380	84	193	60	43
AVERAGE HOUSEHOLD SIZE	2.84	2.80	2.84	3.16	2.53
PERCENT OF HOUSEHOLDS WITH ALASKA NATIVE PRESENT	9.0%	6.7%	7.4%	5.3%	23.5%
PERCENT OF TOTAL POPULATION ALASKA NATIVE	8.4%	10.7%	6.2%	3.3%	20.9%
PERCENT OF HOUSEHOLDS WITH HEAD OF HOUSEHOLD OR SPOUSE BORN IN ALASKA	19.4%	13.3%	17.6%	21.1%	35.3%
PERCENT OF TOTAL POPULATION BORN IN ALASKA	32.1%	26.2%	32.6%	33.3%	39.5%
AVERAGE LENGTH OF RESIDENCY IN AREA, HEAD OF HOUSEHOLD OR SPOUSE IN YEARS	12.0 yrs	15.2 yrs	12.8 yrs	9.7 yrs	5.5 yrs

TABLE 4. EMPLOYMENT STATUS OF ADULTS, BY COMMUNITY, MIDDLE SUSITNA BASIN, AUGUST 1986[a]

STATUS	TOTAL SAMPLE N=254 Ad.	PARKS HIGHWAY N=59 Ad.	TALKEETNA N=130 Ad.	TRAPPER CREEK N=36 Ad.	UPPER PETERSVILLE ROAD N=29 Ad.
EMPLOYED/SELF EMPLOYED	53.5	39.0	60.8	58.3	44.8
UNEMPLOYED-ACTIVE[b]	7.5	13.6	2.3	11.1	13.8
UNEMPLOYED-INACTIVE[b]	5.5	15.3	2.3	2.8	3.4
RETIRED	14.2	18.6	13.1	13.9	10.3
DISABLED	1.6	0.0	1.5	5.6	0.0
HOMEMAKER	14.2	13.6	14.6	8.3	20.7
STUDENT	2.4	0.0	4.6	0.0	0.0
MISSING	1.2	0.0	.8	0.0	6.9

[a] An adult was defined as any person 18 years of age or older.

[b] Unemployed-active includes individuals not holding jobs, but seeking employment in August 1986. Unemployed-inactive were people who had no job and were not seeking employment.

N = Number of Adults (Ad.)

either employed or self employed, and 13 percent were unemployed. In addition, 14.2 percent were retired, 14.2 percent were homemakers, and the rest were full-time students or disabled. The Talkeetna area had the highest percentage of employed adults, 60.8 percent, and the lowest percentage of unemployed adults, 4.6 percent. Conversely, the Parks Highway sample had the lowest percentage of employed adults, 39.0 percent, and the highest percentage of adults who were unemployed, 28.9 percent. This sample also had the highest percentage of retired adults, 18.6 percent. The Trapper Creek area was quite similar to the Talkeetna area in its percentage of employed adults, 58.3 percent, but had a higher level of unemployed people, 13.9 percent. The Upper Petersville Road sample fell between the extremes, with 44.8 percent of the adults employed and 17.2 percent unemployed.

As shown in Table 5, 154 adults in the sample (60.6 percent of the 254 adults in the sample) were employed for at least one month during the study period. These 154 individuals held a total of 188 jobs, 1.2 per person. The average number of months of employment per employed adult was 9.7 months, while the average for household heads was 7 months. Of the employed adults, 62 percent were employed year-round, and year-round employment was the norm for the majority for employed adults in every sub-sample except the Parks Highway. Most employed adults held one job with 12 month employment, but some worked two jobs in order to be employed the full year.

Seasonal employment patterns were not uncommon for sampled employed adults; 35 percent of the working adults held jobs for nine months or less during the study period. This is indicative of the seasonal nature of some of the jobs available in the study area. For example, in 1983 twelve businesses in Trapper Creek reported that they employed a total of 28 people in the summer, but only 16 in the winter (Orth 1983b:8). Seasonal employment was

TABLE 5. EMPLOYMENT CHARACTERISTICS OF SAMPLE AREAS, MIDDLE SUSITNA BASIN, 1985-86.

	TOTAL SAMPLE	PARKS HIGHWAY	TALKEETNA	TRAPPER CREEK	UPPER PETERS-VILLE ROAD
NUMBER OF ADULTS EMPLOYED DURING PART OF STUDY YEAR[a]	154/254	29/59	85/130	23/36	17/29
PERCENT OF TOTAL ADULTS, EMPLOYED DURING STUDY YEAR	60.6%	49.2%	65.4%	63.9%	58.6%
NUMBER OF JOBS HELD BY EMPLOYED ADULTS	188	35	106	27	20
AVERAGE NUMBER OF JOBS HELD PER EMPLOYED ADULT	1.22	1.21	1.24	1.17	1.18
AVERAGE NUMBER OF MONTHS EMPLOYED PER EMPLOYED ADULT	9.7	8.1	10.2	9.4	9.9
PERCENT OF EMPLOYED ADULTS THAT WERE EMPLOYED YEAR-ROUND	62%	41%	68%	61%	71%
AVERAGE NUMBER OF MONTHS EMPLOYED, ALL HOUSEHOLD HEADS	7.0	5.0	8.0	6.6	6.5
INCOME, 1978[b]	--	--	$12,621	$12,880	--
INCOME, 1979[c]	--	--	$22,832	--	--
INCOME, 1981[b]	--	--	$16,357	$17,708	--
INCOME, 1982[b]	--	--	$16,929	$15,334	--
HOUSEHOLD INCOME[d] 1985-86	$20,449	$13,012	$21,147	$28,253	$14,933

[a]Excluding those classed as disabled, homemakers, students, or retired for the entire 12 month study period. Includes any adult working for at least one month during the study period. An adult was defined as any person 18 years of age or older.

[b]Average taxable incomes per return. Source: Alaska Department of Revenue 1985.

[c]Mean household income. Source: US Bureau of the Census 1980.

[d]These represent minimum cash incomes for those surveyed households that supplied income data. Sample size: Parks Highway, 10; Talkeetna, 53; Trapper Creek, 11; Upper Petersville Road, 6; Total, 58.

also common in Talkeetna in 1983, where 29 business employed 147 people in the summer, and 72 in the winter (Orth 1983d:8). Employment in the local, state, and federal governments (including schools) had a seasonal pattern as well in Talkeetna and Trapper Creek in 1983. In Talkeetna, 16 government jobs were available in the summer, and 30 in the winter. In Trapper Creek, there were 11 summer jobs with government employers and 14 in the winter (Orth 1983e:6).

Most jobs (71.8 percent) held by adults in the sample were located within the study area (Table 6). "Other Alaska" (9 percent) was the next most common location, followed by other Matanuska-Susitna Borough communities (8.0 percent), Anchorage (6.9 percent), and the North Slope (2.7 percent). Only in the Parks Highway sample did a substantial portion of the jobs (40.1 percent) occur outside the study area. Most of these were located in other Matanuska - Susitna communities such as Willow, Wasilla, or Palmer.

Table 7 reports the kinds of jobs held by the sampled adults during the 12 month study period. The most common occupational type was professional, technical, and managers, representing 22.3 percent of all the jobs. This included such occupations as teachers, engineers, lawyers, and pilots, and was the leading occupational category in all the sub-samples except the Parks Highway.

Second in importance were occupations which involved providing services, such as hotel workers and restaurant workers, and police officers. They accounted for 16.0 percent of all the jobs, and were particularly important in the Parks Highway and Talkeetna areas. People involved in machine trades, such as operating heavy equipment, and structural workers such as carpenters and electricians, accounted for 22.3 percent of all the jobs. These occupations were especially significant in the Park Highway sample, where they together accounted for 34.3 of all employment.

TABLE 6. LOCATION OF JOBS HELD BY SAMPLED EMPLOYED ADULTS, MIDDLE SUSITNA BASIN, 1985-86.

LOCATION	TOTAL SAMPLE N=188 jobs	PARKS HIGHWAY N=35 jobs	TALKEETNA N=106 jobs	TRAPPER CREEK N=27 jobs	UPPER PETERSVILLE ROAD N=20 jobs
STUDY AREA	71.8	57.1	76.4	70.4	75.0
OTHER MATANUSKA-SUSITNA VALLEY	8.0	25.7	.9	14.8	5.0
ANCHORAGE	6.9	8.6	8.5	0.0	5.0
NORTH SLOPE	2.7	0.0	3.8	3.7	0.0
OTHER ALASKA	9.0	2.9	10.4	7.4	15.0
OTHER[a]	1.1	2.9	0.0	3.7	0.0
MISSING	.5	2.9	0.0	0.0	0.0

[a]Includes "statewide"

TABLE 7. PERCENTAGE OF JOBS BY OCCUPATIONAL TYPE, MIDDLE SUSITNA BASIN, 1985-86.

	TOTAL SAMPLE N=188 jobs	PARKS HIGHWAY N=35 jobs	TALKEETNA N=106 jobs	TRAPPER CREEK N=27 jobs	UPPER PETERSVILLE ROAD N=20 jobs
PROFESSIONAL, TECHNICAL, MANAGERS	22.3	5.7	27.4	22.2	25.0
CLERICAL AND SALES	12.8	5.7	16.0	14.8	5.0
SERVICES	16.0	25.7	15.1	11.1	10.0
AGRICULTURE, FISHERIES, FORESTRY	8.1	0.0	6.6	11.1	25.0
MACHINE TRADES	13.8	28.6	10.4	11.1	10.0
BENCHWORK	.5	0.0	0.9	0.0	0.0
STRUCTURAL	8.5	5.7	6.6	18.5	10.0
RECREATION	5.3	8.6	5.7	0.0	5.0
MOTOR FREIGHT AND TRANSPORTATION	5.9	8.6	5.7	3.7	5.0
PACKAGING AND MATERIALS HANDLING	.5	0.0	0.9	0.0	0.0
MINING	1.1	2.9	0.9	0.0	0.0
MISC. LABOR	3.2	5.7	0.9	7.4	5.0
CRAFTS, ARTIST	.5	2.9	0.0	0.0	0.0
MISSING	1.6	0.0	2.8	0.0	0.0

Clerical and sales positions, including clerks, secretaries, and sales people, accounted for 12.8 percent of the jobs in the entire sample. They were most important in the more concentrated population centers of Talkeetna and Trapper Creek, and least important along the Upper Petersville Road.

Occupations connected to agriculture, forestry, and fisheries made up 8.1 percent of the total jobs. Examples of such occupations held by sampled households include trappers, loggers, dog handlers, and commercial fishermen. This category was especially important in the Upper Petersville Road sample, where 25 percent of the jobs were in natural resources occupations. Closely related to this category were recreation-based occupations, such as guides. They accounted for 5.3 percent of the jobs, mostly in Talkeetna and along the Parks Highway.

The jobs held by the adults in the sampled households were also classified by employer type. This illustrates the role of various kinds of commercial-industrial sectors in the local economy. As shown in Table 8, retail trade, with 25.5 percent of the jobs, was the dominant employer type in the sample overall, as well as in three of the four sub-samples. This reflects the economic importance of the highway corridor to the area, as these jobs were found in lodges, service stations, motels, and stores. Only the Upper Petersville Road, with a single retail establishment, was relatively underrepresented in this employer category.

Jobs provided by local, state, and federal government employers made up the second most significant portion of the positions held by sampled households, with 21.3 percent overall. Relatively, government jobs played the greatest role in Trapper Creek (37 percent) and lowest in Talkeetna (17.0 percent). Local government, because of the presence of three public schools, supplied over half the government employment in the study area.

TABLE 8. PERCENTAGE OF JOBS BY EMPLOYER TYPE, MIDDLE SUSITNA BASIN, 1985-86.

	TOTAL SAMPLE N=188 jobs	PARKS HIGHWAY N=35 jobs	TALKEETNA N=106 jobs	TRAPPER CREEK N=27 jobs	UPPER PETERSVILLE ROAD N=20 jobs
AGRICULTURE, FISHERIES, FORESTRY	8.0	0.0	6.6	11.1	25.0
MINING	2.7	2.9	3.8	0.0	0.0
CONSTRUCTION	14.9	22.9	10.4	14.8	25.0
MANUFACTURING	1.1	0.0	1.9	0.0	0.0
TRANSPORTATION, COMMUNICATIONS, UTILITIES	13.3	5.7	19.8	7.4	0.0
WHOLESALE TRADE	.5	2.9	0.0	0.0	0.0
RETAIL TRADE	25.5	31.4	24.5	29.6	15.0
FINANCE, INSURANCE, REAL ESTATE	1.1	0.0	1.9	0.0	0.0
SERVICES	5.9	0.0	9.4	0.0	5.0
FEDERAL GOVERNMENT	4.3	8.6	2.8	7.4	0.0
STATE GOVERNMENT	5.3	2.9	3.8	7.4	15.0
LOCAL GOVERNMENT	11.7	8.6	10.4	22.2	10.0
OTHER	4.8	14.3	2.8	0.0	5.0
MISSING	1.1	0.0	1.9	0.0	0.0

Positions in the construction industry also made up a noteworthy portion of the employment opportunities, 14.9 percent. Jobs with construction businesses were most important in the Upper Petersville Road (25 percent of all jobs) and Parks Highway (22.9 percent) samples.

Transportation, communications, and utilities employers provided 13.3 percent of the jobs held by the sampled adults. Most of these jobs were held by residents of Talkeetna, where they accounted for 19.8 percent of the total employment.

Employers in agriculture, forestry, and commercial fishing, including trappers and loggers, accounted for 8.0 percent of the jobs. This employment type was most prominent in the Upper Petersville Road area, where, with 25 percent of the total, it tied with construction as the type providing the most jobs during the study period.

Income

Table 5 reports average taxable incomes for Talkeetna and Trapper Creek for 1978, 1979, 1981, and 1982. The 1986 survey also collected data on cash income procured for each job held by sampled adults during the study year. The results are presented in Table 5. These data are limited because many respondents declined to report cash incomes. Also, the figures are minimums for the reporting households, because some of these held other jobs for which income was not reported. For the entire sample, the mean household income was $20,449 (58 households). Trapper Creek households reported the highest household incomes, $28,253, and the Parks Highway sample the lowest, $13,012.

Businesses and Services

In August 1986, the approximately 131 households within the Parks Highway sample area were dispersed between Milepost 71.4 (the bridge over Willow Creek) and Milepost 98 near the junction with Talkeetna Spur Road. The Parks Highway is maintained year-round by the state. There was no single commercial or population center along this stretch of road. Rather, businesses, mostly oriented towards motorists or visiting recreationists, were spaced along the highway. Commercial businesses in this area in August 1986 included two lodges providing meals, lodging, auto services, and retail sales; three other small restaurants/snack shops; a general store and trailer park; two boat launch and private camping grounds; at least one separate gift shop; a video rental store; a lumber mill; an air service; and a miniature golf course. There was also a church. Children in this area attended school either in Willow or Talkeetna.

Talkeetna was the most developed commercial center in the study area. The Talkeetna townsite itself is situated at the end of the Talkeetna Spur Road, 14.5 miles from the Parks Highway. However, state land disposals have led to the development of businesses and residences along the Spur Road as well as on the Parks Highway near the road junction. This entire area was included in the Talkeetna sampling area in this study and had a population of about 608 in 214 households in 1986.

Talkeetna is accessible year-round by road and railroad. Because of its location near productive fishing areas, hiking and skiing trails, and the Talkeetna Mountains and Alaska Range, Talkeetna has developed as a center for recreational activities in the Susitna Valley. Prominent among the business enterprises in the town are air taxi services, river boat services, and

mountaineering and guiding services that specialize in Mt. McKinley climbs. The town's Chamber of Commerce sponsers an annual "Miners' Day Celebration" in May, a "Moose Dropping Festival" in July, and weekend cross-country ski meets and dog sled races during the winter. The Talkeetna Historical Society operates an historical museum. Also, there are three public camp grounds in the town.

A business survey conducted in Talkeetna in late 1983 (Orth 1984c) identified 32 businesses in the Talkeetna Townsite. These included ten (31.3 percent) services such as restaurants and lodges; seven in transportation (e.g. air taxis, river boat operators), communication, and utilities (21.8 percent); three construction businesses (9.4 percent); and two others in wholesale trade (3.1 percent) and finance/real estate (3.1 percent). The number and kinds of businesses present in Talkeetna in 1986 were similar to these earlier findings. There were five motels, six restaurants, two automobile service stations, several clothing and gift shops, grocery stores, and several others oriented towards river rafting or sport fishing. Alascom (tele-communications) operated an earth station near the town.

In addition, there were several businesses along the Spur Road or the Parks Highway near the road junction, including a lodge with a gas station and liquor store, a cafe, a gift shop, a lumber yard, a saloon, an auto repair shop, a video rental store, a yarn shop, and an excavating service.

Also, the borough, state, and federal governments play a prominent role in Talkeetna's economy. In 1986, the Matanuska-Susitna Borough operated an elementary school in Talkeetna and the Susitna Valley High School on the Parks Highway near the Spur Road, as well as the community school and the library. The only state agencies in Talkeetna were the Department of Transportation, responsible for road maintenance, and the Alaska Railroad. Federal agencies

included the U.S. Postal Service, the Federal Aviation Authority, and the National Weather Service. In addition, the National Park Service, Denali National Park, operated a ranger station in Talkeetna during the mountaineering season.

Trapper Creek is centered around the junction of the Petersville Road with the Parks Highway. The Petersville Road extends 40 miles to the Cache Creek mining district. This road is usually maintained by the state in the summer as far as Milepost 19 and in winter as far as Milepost 14, the bridge over Kroto Creek. Beyond this, the road is not maintained and is closed in winter. The Oil Well Road extends south six miles from Milepost 6 on the Petersville Road to Moose Creek. There is no bridge across this steam. Households along Oil Well Road to Moose Creek and the lower Petersville Road were included in the Trapper Creek sample.

A business survey conducted in Trapper Creek in 1983 identified 12 businesses. One third were services, another third were in retail trade, and there was one each in natural resources (a trapper), construction, transportation, and manufacturing (a toy shop). A video rental store had joined the list in 1986. Most of these businesses were small; seven had sales volumes under $50,000 in 1983. The decline in population and visitors in the winter were cited as a major constraint on business (Orth 1983b:11).

There were five sources of employment in the public sector in Trapper Creek during the study period. These were the Trapper Creek Elemetary School, the Trapper Creek Community School, the Alaska Department of Public Safety (State Troopers), the Alaska Department of Transportation (highway maintenance camp), and the U.S. Postal Service.

Within the Upper Petersville Road area, the only business in 1986 was the Forks Roadhouse at Milepost 19. This business included a bar, restaurant, and

rooms. Sport fishermen, seasonal hunters, and other recreational users of this area provided the bulk of the business for this roadhouse.

CHAPTER 3

WILD RESOURCE HARVEST AND USE

LEVELS OF PARTICIPATION

In the 12 month study period in 1985-1986, 94 percent of the sample of 134 households in the Middle Susitna Basin used at least one wild fish, game, or plant resource (Table 9). The average number of resources used per household was 6.93, with a range from 0 to 35. As shown in Figure 4, salmon was the resource category used by the most sampled households (81.3 percent), followed by plants (80.6 percent), non-salmon freshwater fish (62.7 percent), game (56.0 percent), birds (33.6 percent), marine fish (32.1 percent), marine invertebrates (17.2 percent), and furbearers (9.7 percent). The most commonly used species during the study period were berries (75.4 percent), silver salmon (59.0 percent), king salmon (54.5 percent), rainbow trout (49.3 percent), and moose (47.8 percent) (Table 10).

During the study period, 92.5 percent of the sampled households attempted to harvest at least one fish, game, or plant resource. The mean number of resources that were sought was 6.47 per household (Table 9). By resource category, the most households attempted to harvest plants (79.1 percent), followed by salmon (67.9 percent), freshwater fish (57.5 percent), game (44.8 percent), birds (35.8 percent), marine fish (11.2 percent), furbearers (10.4 percent) and marine invertebrates (8.2 percent) (Fig. 4). More specifically, 74.6 percent of the sample sought berries, 49.3 percent fished for rainbow trout, 47.8 fished for king salmon, 40.3 percent sought other plants, and 38.1 percent hunted moose (Table 10).

TABLE 9. RESOURCE HARVEST AND USE CHARACTERISTICS OF THE STUDY SAMPLES, MIDDLE SUSITNA BASIN, 1985-86.

	TOTAL SAMPLE	PARKS HIGHWAY	TALKEETNA	TRAPPER CREEK	UPPER PETERSVILLE ROAD
	N=134 HH's	N=30 HH's	N=68 HH's	N=19 HH's	N=17 HH's
MEAN NUMBER OF RESOURCES USED PER HOUSEHOLD	6.93	5.37	7.07	7.16	8.82
MEAN NUMBER OF RESOURCES ATTEMPTED HARVEST PER HOUSEHOLD	6.47	5.33	6.66	6.95	7.18
MEAN NUMBER OF RESOURCES HARVESTED PER HOUSEHOLD	4.91	4.03	5.00	5.17	5.82
MEAN NUMBER OF RESOURCES RECEIVED	2.42	1.60	2.51	2.68	3.18
MEAN NUMBER OF RESOURCES GIVEN AWAY	1.37	.73	1.65	1.16	1.65
MEAN HOUSEHOLD HARVEST, POUNDS	198.90	162.70	156.25	207.27	423.06
COMMUNITY PER CAPITA HARVEST IN POUNDS[a]	70.10	58.11	55.05	65.64	167.26
HOUSEHOLD PER CAPITA HARVEST IN POUNDS[a]	74.04	53.63	57.91	83.83	163.61
PERCENT USING ANY RESOURCE	94.0	86.7	94.1	100.00	100.00
PERCENT ATTEMPTING HARVEST OF ANY RESOURCE	92.5	90.0	91.2	100.00	94.1
PERCENT HARVESTING ANY RESOURCE	88.1	83.3	85.3	100.0	94.1
PERCENT RECEIVING ANY RESOURCE	70.1	56.7	69.1	89.5	76.5
PERCENT GIVING AWAY ANY RESOURCE	45.5	33.3	50.0	63.2	29.4

[a] Community per capita harvest equals the total resource harvest in pounds edible weight divided by the number of people in each sample. Household per capita harvest is computed by dividing each household's harvest by its size, and then averaging across households for each sample.

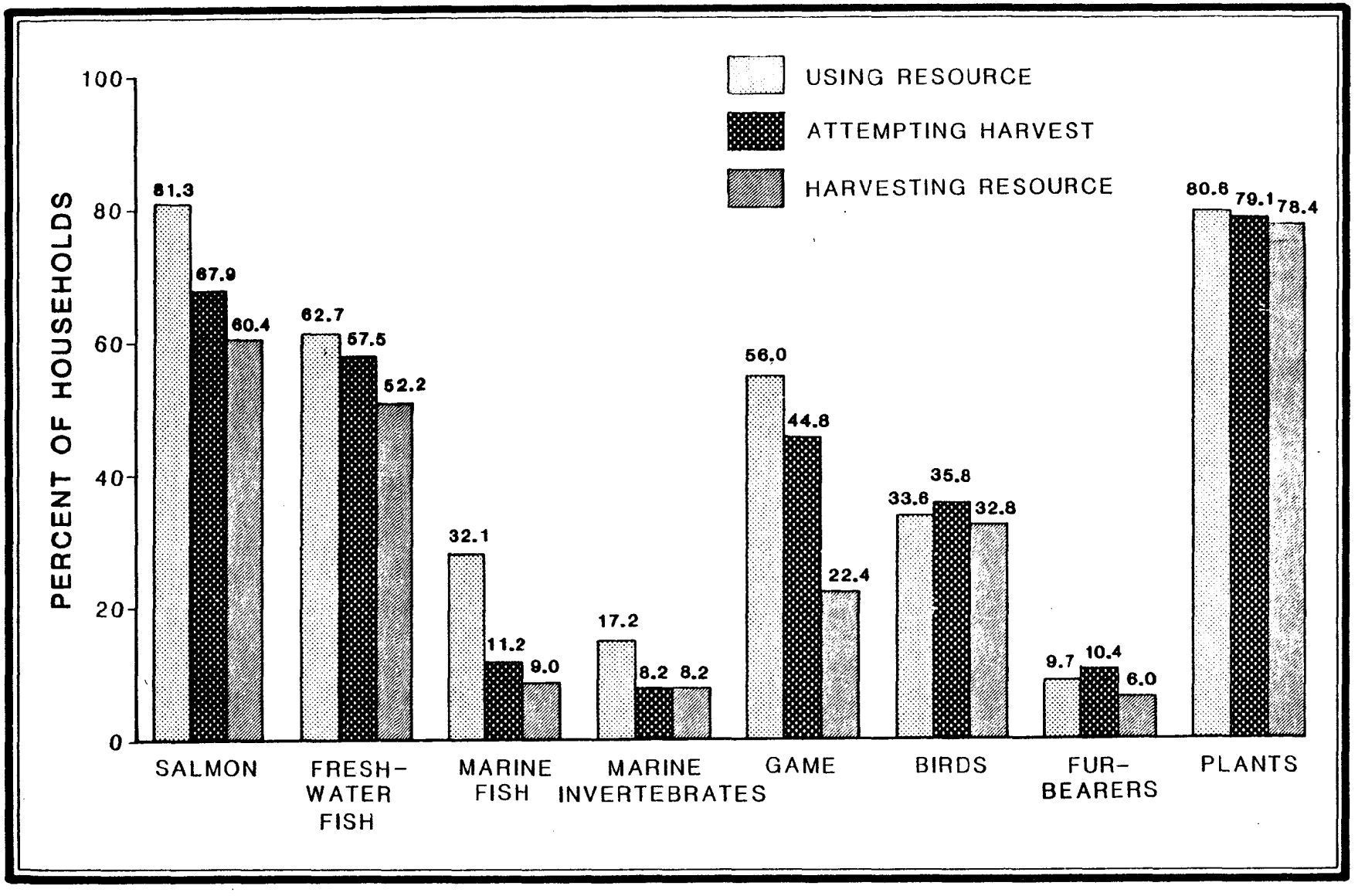


Figure 4. Percentage of Sampled Households Using, Attempting to Harvest, and Harvesting Eight Categories of Wild Resources, Middle Susitna Basin, 1985-86.

TABLE 10. LEVELS OF HOUSEHOLD HARVEST AND USE OF WILD RESOURCES, ENTIRE MIDDLE SUSITNA BASIN SAMPLE[a], AUGUST 1985 - JULY 1986.

Species	Percent of Households Using	Percent of Households Attempting Harvest	Percent of Households Harvesting	Mean Household Harvest, Numbers	Mean Household Harvest, Pounds	Percent of Households Receiving Resource	Percent of Households Giving Resource
King Salmon	54.5	47.8	35.1	1.72	31.03	27.6	17.9
Red Salmon	39.6	32.8	25.4	2.48	9.91	15.7	9.7
Pink Salmon	28.4	26.9	21.6	3.19	6.39	9.0	8.2
Chum Salmon	18.7	20.1	15.7	.55	3.31	3.7	3.0
Silver Salmon	59.0	53.0	47.8	5.22	31.30	20.1	17.9
Land Locked Silver S.	3.0	3.7	3.0	.34	.34	0.0	0.0
Rainbow Trout	49.3	49.3	43.3	5.33	7.99	11.2	7.5
Lake Trout	7.5	12.7	6.0	.86	1.29	1.5	2.2
Dolly Varden	23.9	26.1	20.1	1.88	1.88	5.2	5.2
Grayling	32.1	35.1	29.1	3.60	2.88	4.5	3.7
Burbot	10.4	14.9	8.2	.66	1.66	2.2	1.5
Northern Pike	1.5	5.2	0.0	0.00	0.00	1.5	0.0
Whitefish	5.2	10.4	5.2	.27	.27	0.0	.7
Char	.7	.7	.7	.09	.13	0.0	0.0
Cut Throat Trout	.7	0.0	0.0	0.00	0.00	.7	0.0
Sheefish	.7	0.0	0.0	0.00	0.00	.7	0.0
Halibut	28.4	11.2	6.7	.61	10.49	22.4	4.5
Flounder	2.2	2.2	2.2	.13	.63	0.0	0.0
Cod	2.2	1.5	.7	.02	.04	1.5	0.0
Hooligan	4.5	2.2	2.2	.60	.15	2.2	.7
Herring	.7	0.0	0.0	0.00	0.00	.7	0.0
Red Snapper	1.5	0.0	0.0	0.00	0.00	1.5	0.0
Razor Clams	6.7	4.5	4.5	4.55	1.14	3.0	1.5
Other Clams	5.2	2.2	2.2	1.38	.35	3.0	0.0
King Crab	3.0	.7	.7	.02	.03	2.2	0.0
Tanner Crab	2.2	.7	.7	.03	.05	1.5	.7
Dungeness Crab	2.2	1.5	.7	.05	.03	.7	0.0
Shrimp	3.0	.7	.7	1.49	.02	2.2	0.0
Freshwater Clams	.7	.7	.7	.08	.01	0.0	0.0
Abalone	.7	0.0	0.0	0.00	0.00	.7	0.0
Mussels	1.5	1.5	1.5	8.06	.04	0.0	0.0

[a]Entire study area sample = 134 households.

-Continued-

TABLE 10. CONTINUED

Species	Percent of Households Using	Percent of Households Attempting Harvest	Percent of Households Harvesting	Mean Household Harvest, Numbers	Mean Household Harvest, Pounds	Percent of Households Receiving Resource	Percent of Households Giving Resource
Moose	47.8	38.1	8.2	.09	44.78	37.3	9.0
Caribou	15.7	7.5	6.0	.10	13.58	9.7	3.0
Sheep	1.5	0.0	0.0	0.00	0.00	1.5	0.0
Goat	0.7	0.0	0.0	0.00	0.00	.7	0.0
Black Bear	9.0	7.5	3.0	.03	1.73	6.0	.7
Brown Bear	.7	.7	0.0	0.00	0.00	.7	0.0
Bison	1.5	0.0	0.0	0.00	0.00	1.5	0.0
Deer	6.7	2.2	2.2	.09	3.81	5.2	.7
Elk	1.5	.7	.7	.01	1.68	.7	.7
Harbor Seal	.7	.7	0.0	0.00	0.00	.7	0.0
Porcupine	1.5	.7	.7	.01	.03	.7	0.0
Snowshoe Hare	8.2	8.2	8.2	.57	.85	0.0	0.0
Bowhead Whale	.7	0.0	0.0	0.00	0.00	.7	0.0
Belukha Whale	.7	0.0	0.0	0.00	0.00	.7	0.0
Ducks	5.2	5.2	4.5	.60	.91	.7	.7
Geese	1.5	2.2	.7	.04	.11	0.0	.7
Spruce Grouse	33.6	34.3	32.8	3.90	1.95	1.5	3.0
Ptarmigan	13.4	15.7	10.4	1.19	.59	3.7	1.5
Beaver	7.5	9.7	6.0	.44	3.85	1.5	1.5
Muskrat	1.5	2.2	1.5	1.87	.93	0.0	.7
Land Otter	1.5	2.2	.7	.02	0.00	0.0	0.0
Mink	2.2	4.5	2.2	.22	0.00	0.0	.7
Marten	3.0	5.2	3.0	.17	0.00	0.0	.7
Wolverine	.7	1.5	0.0	0.00	0.00	0.0	0.0
Wolf	0.0	.7	0.0	0.00	0.00	0.0	0.0
Coyote	.7	3.0	.7	0.01	0.00	0.0	0.0
Fox	3.7	6.7	3.0	.17	0.00	0.0	.7
Lynx	.7	.7	0.0	0.00	0.00	.7	0.0
Parka Squirrel	1.5	2.2	1.5	.12	0.00	0.0	.7
Marmot	0.0	.7	0.0	0.00	0.00	0.0	0.0
Berries	75.4	74.6	74.6	9.40	9.40	15.7	20.9
Other Plants	41.8	40.3	39.6	3.23	3.23	6.0	6.7

Households that successfully harvested at least one resource during the 12 month study period comprised 88.1 percent of the sample. The average number of resources harvested per household was 4.91, with a range from 0 to 22 (Table 9). The most commonly harvested wild resource category was plants (78.4 percent), followed by salmon (60.4 percent), freshwater fish (52.2 percent), birds (32.8 percent), game (22.4 percent), marine fish (9.0 percent), marine invertebrates (8.2 percent), and furbearers (6.0 percent) (Figure 4). For the entire sample, berries (74.6) was the most widely harvested resource. Other species harvested by over 30 percent of the sample were silver salmon (47.8 percent), rainbow trout (43.3 percent), other plants (39.6 percent), king salmon (35.1 percent), and spruce grouse (32.8 percent). Moose were taken by 8.2 percent of the sampled households.

Of four sample areas, the Upper Petersville Road households evidenced the greatest degree of involvement in fishing, hunting, and gathering activities. For example, 100 percent of the Upper Petersville Road households used wild resources during the study period, with an average number of 8.82 resources used (Table 9). In comparison, 86.7 percent of the Parks Highway sample used wild resources, for an average of 5.37 per household, and 94.1 percent of the sampled Talkeetna households used wild foods with an average of 7.07 per household. For Trapper Creek, 100 percent of the households used wild resources and the sampled households used an average 7.16 resources during the 12 month study period.

All of the sampled Trapper Creek households attempted to harvest wild foods and 100.0 percent were successful. These households on average harvested 5.17 kinds of resources. Upper Petersville Road households were the next most active harvesters. About 94 percent of this sample hunted, fished, or gathered wild foods, and 94 percent were successful harvesters. These

households attempted to harvest an average of 7.18 resources, and actually took 5.82 types of wild foods. These measures were slightly lower for the Parks Highway and Talkeetna samples, as shown in Table 9.

There was not a great deal of difference between the samples in the kinds of resources harvested and used (Tables 11-15). For all four, plants and salmon were the most commonly used resource categories, usually followed by freshwater fish and game. Birds were unusually important in the Upper Petersville Road sample. Plants and salmon were the most commonly harvested categories for each sub-group. In most cases, the categories used and harvested the least were marine invertebrates and furbearers.

HARVEST LEVELS

For the entire sample, the mean household harvest of wild food for the 12 month study period was about 199 pounds edible weight. The per capita harvest was 70.1 pounds (Table 9). Salmon comprised the largest portion of the harvest, 41.4 percent, with an average household harvest of 82.3 pounds. Game made the next largest contribution of 66.5 pounds per household, 33.4 percent of the total. Next came freshwater fish (16.1 pounds, 8.1 percent), plants (12.6 pounds, 6.3 percent), marine fish (11.3 pounds, 5.7 percent), edible furbearers (4.8 pounds, 2.4 percent), birds (3.6 pounds, 1.8 percent), and finally marine invertebrates (1.7 pounds, .9 percent) (Table 16). Specific resources contributing the most to the sample's harvest were moose (44.8 pounds per household), silver salmon (31.3 pounds), king salmon (31.0 pounds), caribou (13.6 pounds), halibut (10.5 pounds), and red salmon (9.9 pounds) (Table 10).

TABLE 11. HOUSEHOLD PARTICIPATION IN HARVEST AND USE OF RESOURCE CATEGORIES, BY COMMUNITY, MIDDLE SUSITNA BASIN, 1985-86.

	PARKS HIGHWAY N=30			TALKEETNA N=68			TRAPPER CREEK N=19			PETERSVILLE RD. N=17		
	Percent Used	Percent Attempt	Percent Harvest	Percent Used	Percent Attempt	Percent Harvest	Percent Used	Percent Attempt	Percent Harvest	Percent Used	Percent Attempt	Percent Harvest
SALMON	66.7	63.3	53.3	79.4	63.2	57.4	94.7	84.2	68.4	100.0	76.5	76.5
FRESHWATER FISH	46.7	40.0	40.0	64.7	58.8	55.9	73.7	73.7	63.2	70.6	64.7	47.1
MARINE FISH	26.7	6.7	3.3	29.4	11.8	10.3	47.4	21.1	15.8	35.3	5.9	5.9
MARINE INVERTEBRATES	13.3	10.0	10.0	17.6	7.4	7.4	15.8	10.5	10.5	23.5	5.9	5.9
GAME	53.3	53.3	30.0	54.4	36.8	19.1	52.6	52.6	10.5	70.6	52.9	35.3
BIRDS	30.0	30.0	30.0	27.9	33.8	29.4	36.8	31.6	31.6	58.8	58.8	52.9
FURBEARERS	3.3	10.0	3.3	10.3	7.4	5.9	5.3	5.3	0.0	23.5	29.4	17.6
PLANTS	66.7	66.7	63.3	83.8	80.9	80.9	89.5	89.5	89.5	82.4	82.4	82.4

TABLE 12. LEVELS OF HOUSEHOLD HARVEST AND USE OF WILD RESOURCES, PARKS HIGHWAY SAMPLE[a], AUGUST 1985-JULY 1986.

Species	Percent of Households Using	Percent of Households Attempting Harvest	Percent of Households Harvesting	Mean Household Harvest, Numbers	Mean Household Harvest, Pounds	Percent of Households Receiving Resource	Percent of Households Giving Resource
King Salmon	56.7	56.7	43.3	1.57	28.20	16.7	13.3
Red Salmon	26.7	23.3	20.0	2.07	8.27	6.7	6.7
Pink Salmon	23.3	23.3	20.0	2.30	4.60	6.7	6.7
Chum Salmon	16.7	23.3	16.7	.97	5.80	3.3	0.0
Silver Salmon	36.7	36.7	33.3	2.30	13.80	13.3	13.3
Land Locked Silver S.	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Rainbow Trout	43.3	36.7	36.7	1.87	2.80	10.0	6.7
Lake Trout	3.3	3.3	3.3	.17	.25	0.0	0.0
Dolly Varden	20.0	16.7	16.7	1.53	1.53	6.7	0.0
Grayling	33.3	26.7	26.7	2.07	1.65	6.7	0.0
Burbot	3.3	0.0	0.0	0.00	0.00	3.3	0.0
Northern Pike	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Whitefish	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Char	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Cut Throat Trout	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Sheefish	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Halibut	16.7	6.7	0.0	0.00	0.00	16.7	0.0
Flounder	3.3	3.3	3.3	.10	.50	0.0	0.0
Cod	3.3	0.0	0.0	0.00	0.00	3.3	0.0
Hooligan	10.0	3.3	3.3	1.00	.25	6.7	0.0
Herring	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Red Snapper	3.3	0.0	0.0	0.00	0.00	3.3	0.0
Razor Clams	6.7	3.3	3.3	7.47	1.87	3.3	0.0
Other Clams	6.7	3.3	3.3	2.00	.50	3.3	0.0
King Crab	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Tanner Crab	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Dungeness Crab	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Shrimp	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Freshwater Clams	3.3	3.3	3.3	.33	.04	0.0	0.0
Abalone	3.3	0.0	0.0	0.00	0.00	3.3	0.0
Mussels	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Moose	30.0	40.0	6.7	.07	33.33	20.0	6.7
Caribou	13.3	6.7	6.7	.20	26.00	6.7	3.3
Sheep	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Goat	3.3	0.0	0.0	0.00	0.00	3.3	0.0
Black Bear	13.3	13.3	6.7	.07	3.87	6.7	0.0

[a] Parks Highway sample area = 30 households.

-Continued-

TABLE 12. CONTINUED

Species	Percent of Households Using	Percent of Households Attempting Harvest	Percent of Households Harvesting	Mean Household Harvest, Numbers	Mean Household Harvest, Pounds	Percent of Households Receiving Resource	Percent of Households Giving Resource
Brown Bear	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Bison	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Deer	10.0	6.7	6.7	.23	9.92	6.7	3.3
Elk	3.3	3.3	3.3	.03	7.50	0.0	3.3
Harbor Seal	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Porcupine	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Snowshoe Hare	6.7	6.7	6.7	.07	.10	0.0	0.0
Bowhead Whale	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Belukha Whale	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Ducks	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Geese	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Spruce Grouse	30.0	30.0	30.0	2.27	1.13	0.0	0.0
Ptarmigan	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Beaver	3.3	10.0	3.3	.20	1.75	0.0	0.0
Muskrat	0.0	3.3	0.0	0.00	0.00	0.0	0.0
Land Otter	0.0	3.3	0.0	0.00	0.00	0.0	0.0
Mink	3.3	6.7	3.3	.07	0.00	0.0	0.0
Marten	3.3	6.7	3.3	.07	0.00	0.0	0.0
Wolverine	0.0	3.3	0.0	0.00	0.00	0.0	0.0
Wolf	0.0	3.3	0.0	0.00	0.00	0.0	0.0
Coyote	0.0	6.7	0.0	0.00	0.00	0.0	0.0
Fox	0.0	6.7	0.0	0.00	0.00	0.0	0.0
Lynx	0.0	3.3	0.0	0.00	0.00	0.0	0.0
Parka Squirrel	0.0	3.3	0.0	0.00	0.00	0.0	0.0
Marmot	0.0	3.3	0.0	0.00	0.00	0.0	0.0
Berries	56.7	56.7	56.7	6.90	6.90	3.3	10.0
Other Plants	40.0	40.0	40.0	2.13	2.13	0.0	0.0

TABLE 13. LEVELS OF HOUSEHOLD HARVEST AND USE OF WILD RESOURCES, TALKEETNA SAMPLE[a], AUGUST 1985-JULY 1986.

Species	Percent of Households Using	Percent of Households Attempting Harvest	Percent of Households Harvesting	Mean Household Harvest, Numbers	Mean Household Harvest, Pounds	Percent of Households Receiving Resource	Percent of Households Giving Resource
King Salmon	54.4	50.0	32.4	1.07	19.32	30.9	23.5
Red Salmon	47.1	41.2	29.4	2.84	11.35	19.1	13.2
Pink Salmon	32.4	29.4	20.6	1.47	2.94	11.8	10.3
Chum Salmon	23.5	25.0	19.1	.62	3.71	4.4	5.9
Silver Salmon	55.9	52.9	47.1	4.12	24.71	16.2	20.6
Land Locked Silver S.	5.9	7.4	5.9	.68	.68	0.0	0.0
Rainbow Trout	48.5	47.1	42.6	3.84	5.76	11.8	7.4
Lake Trout	13.2	22.1	10.3	1.62	2.43	2.9	4.4
Dolly Varden	33.8	41.2	30.9	2.59	2.59	4.4	10.3
Grayling	22.1	29.4	23.5	1.60	1.28	0.0	4.4
Burbot	14.7	22.1	11.8	1.03	2.57	2.9	2.9
Northern Pike	0.0	8.8	0.0	0.00	0.00	0.0	0.0
Whitefish	4.4	13.2	4.4	.32	.32	0.0	1.5
Char	1.5	1.5	1.5	.18	.25	0.0	0.0
Cut Throat Trout	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Sheefish	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Halibut	26.5	11.8	7.4	.91	11.22	20.6	5.9
Flounder	2.9	2.9	2.9	.21	1.03	0.0	0.0
Cod	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Hooligan	4.4	2.9	2.9	.74	.18	1.5	1.5
Herring	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Red Snapper	1.5	0.0	0.0	0.00	0.00	1.5	0.0
Razor Clams	5.9	4.4	4.4	2.57	.64	2.9	1.5
Other Clams	1.5	1.5	1.5	.07	.02	0.0	0.0
King Crab	4.4	1.5	1.5	.03	.07	2.9	0.0
Tanner Crab	4.4	1.5	1.5	.06	.09	2.9	1.5
Dungeness Crab	4.4	2.9	1.5	.09	.06	1.5	0.0
Shrimp	5.9	1.5	1.5	2.94	.03	4.4	0.0
Freshwater Clams	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Abalone	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Mussels	1.5	1.5	1.5	7.06	.04	0.0	0.0
Moose	48.5	30.9	5.9	.06	29.41	36.8	8.8
Caribou	20.6	8.8	5.9	.07	9.56	13.2	2.9
Sheep	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Goat	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Black Bear	7.4	1.5	0.0	0.00	0.00	7.4	0.0

[a] Talkeetna sample = 68 households.

-Continued-

TABLE 13. CONTINUED

Species	Percent of Households Using	Percent of Households Attempting Harvest	Percent of Households Harvesting	Mean Household Harvest, Numbers	Mean Household Harvest, Pounds	Percent of Households Receiving Resource	Percent of Households Giving Resource
Brown Bear	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Bison	2.9	0.0	0.0	0.00	0.00	2.9	0.0
Deer	8.8	1.5	1.5	.07	3.13	7.4	0.0
Elk	1.5	0.0	0.0	0.00	0.00	1.5	0.0
Harbor Seal	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Porcupine	1.5	0.0	0.0	0.00	0.00	1.5	0.0
Snowshoe Hare	8.8	8.8	8.8	.85	1.28	0.0	0.0
Bowhead Whale	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Belukha Whale	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Ducks	4.4	4.4	4.4	.21	.31	1.5	0.0
Geese	0.0	1.5	0.0	0.00	0.00	0.0	0.0
Spruce Grouse	27.9	30.9	29.4	2.90	1.45	0.0	2.9
Ptarmigan	13.2	17.6	11.8	.81	.40	2.9	1.5
Beaver	7.4	7.4	5.9	.43	3.73	2.9	1.5
Muskrat	1.5	1.5	1.5	2.94	1.47	0.0	0.0
Land Otter	1.5	1.5	1.5	.03	0.00	0.0	0.0
Mink	1.5	1.5	1.5	.35	0.00	0.0	0.0
Marten	1.5	1.5	1.5	.06	0.00	0.0	0.0
Wolverine	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Wolf	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Coyote	1.5	2.9	1.5	.02	0.00	0.0	0.0
Fox	4.4	4.4	2.9	.10	0.00	0.0	0.0
Lynx	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Parka Squirrel	1.5	1.5	1.5	.09	0.00	0.0	0.0
Marmot	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Berries	80.9	79.4	79.4	10.78	10.78	25.0	26.5
Other Plants	36.8	35.3	33.8	3.45	3.45	5.9	5.9

TABLE 14. LEVELS OF HOUSEHOLD HARVEST AND USE OF WILD RESOURCES, TRAPPER CREEK SAMPLE[a], AUGUST 1985-JULY 1986.

Species	Percent of Households Using	Percent of Households Attempting Harvest	Percent of Households Harvesting	Mean Household Harvest, Numbers	Mean Household Harvest, Pounds	Percent of Households Receiving Resource	Percent of Households Giving Resource
King Salmon	57.9	42.1	36.8	2.11	37.90	31.6	10.5
Red Salmon	36.8	21.1	15.8	1.74	6.95	21.1	10.5
Pink Salmon	31.6	31.6	31.6	4.32	8.63	5.3	0.0
Chum Salmon	10.5	10.5	10.5	.11	.63	0.0	0.0
Silver Salmon	84.2	73.7	63.2	9.26	55.58	36.8	21.1
Land Locked Silver S.	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Rainbow Trout	57.9	68.4	57.9	4.63	6.95	5.3	5.3
Lake Trout	0.0	5.3	0.0	0.00	0.00	0.0	0.0
Dolly Varden	5.3	5.3	0.0	0.00	0.00	5.3	0.0
Grayling	57.9	68.4	57.9	6.00	4.80	5.3	5.3
Burbot	0.0	10.5	0.0	0.00	0.00	0.0	0.0
Northern Pike	0.0	5.3	0.0	0.00	0.00	0.0	0.0
Whitefish	15.8	21.1	15.8	.63	.63	0.0	0.0
Char	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Cut Throat Trout	5.3	0.0	0.0	0.00	0.00	5.3	0.0
Sheefish	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Halibut	47.4	21.1	15.8	.90	31.90	31.6	10.5
Flounder	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Cod	5.3	10.5	5.3	.11	.26	0.0	0.0
Hooligan	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Herring	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Red Snapper	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Razor Clams	5.3	5.3	5.3	3.16	.79	0.0	5.3
Other Clams	10.5	5.3	5.3	6.32	1.58	5.3	0.0
King Crab	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Tanner Crab	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Dungeness Crab	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Shrimp	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Freshwater Clams	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Abalone	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Mussels	5.3	5.3	5.3	31.58	.16	0.0	0.0
Moose	52.6	52.6	5.3	.05	26.32	52.6	5.3
Caribou	10.5	5.3	5.3	.05	6.84	5.3	0.0
Sheep	10.5	0.0	0.0	0.00	0.00	10.5	0.0
Goat	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Black Bear	5.3	10.5	0.0	0.00	0.00	5.3	0.0

[a] Trapper Creek sample = 19 households.

-Continued-

TABLE 14. CONTINUED

Species	Percent of Households Using	Percent of Households Attempting Harvest	Percent of Households Harvesting	Mean Household Harvest, Numbers	Mean Household Harvest, Pounds	Percent of Households Receiving Resource	Percent of Households Giving Resource
Brown Bear	0.0	5.3	0.0	0.00	0.00	0.0	0.0
Bison	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Deer	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Elk	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Harbor Seal	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Porcupine	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Snowshoe Hare	5.3	5.3	5.3	.53	.79	0.0	0.0
Bowhead Whale	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Belukha Whale	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Ducks	5.3	5.3	5.3	.79	1.18	0.0	0.0
Geese	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Spruce Grouse	36.8	31.6	31.6	3.90	1.95	5.3	5.3
Ptarmigan	15.8	21.1	10.5	.37	.18	5.3	0.0
Beaver	0.0	5.3	0.0	0.00	0.00	0.0	0.0
Muskrat	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Land Otter	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Mink	0.0	5.3	0.0	0.00	0.00	0.0	0.0
Marten	0.0	5.3	0.0	0.00	0.00	0.0	0.0
Wolverine	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Wolf	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Coyote	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Fox	0.0	5.3	0.0	0.00	0.00	0.0	0.0
Lynx	5.3	0.0	0.0	0.00	0.00	5.3	0.0
Parka Squirrel	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Marmot	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Berries	84.2	84.2	84.2	9.47	9.47	10.5	21.1
Other Plants	47.4	42.1	42.1	3.79	3.79	15.8	15.8

TABLE 15. LEVELS OF HOUSEHOLD HARVEST AND USE OF WILD RESOURCES, UPPER PETERSVILLE ROAD SAMPLE[a], AUG 1985-JUL 1986

Species	Percent of Households Using	Percent of Households Attempting Harvest	Percent of Households Harvesting	Mean Household Harvest, Numbers	Mean Household Harvest, Pounds	Percent of Households Receiving Resource	Percent of Households Giving Resource
King Salmon	47.1	29.4	29.4	4.18	75.18	29.4	11.8
Red Salmon	35.3	29.4	29.4	2.59	10.35	11.8	0.0
Pink Salmon	17.6	17.6	17.6	10.41	20.82	5.9	11.8
Chum Salmon	11.8	5.9	5.9	.06	.35	5.9	0.0
Silver Salmon	82.4	58.8	58.8	10.24	61.41	29.4	11.8
Land Locked Silver S.	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Rainbow Trout	52.9	58.8	41.2	18.18	27.27	17.6	11.8
Lake Trout	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Dolly Varden	11.8	5.9	5.9	1.77	1.77	5.9	0.0
Grayling	41.2	35.3	23.5	11.59	9.27	17.6	5.9
Burbot	17.6	17.6	17.6	1.12	2.79	0.0	0.0
Northern Pike	11.8	0.0	0.0	0.00	0.00	11.8	0.0
Whitefish	5.9	5.9	5.9	.12	.12	0.0	0.0
Char	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Cut Throat Trout	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Sheefish	5.9	0.0	0.0	0.00	0.00	5.9	0.0
Halibut	35.3	5.9	5.9	.18	2.17	29.4	0.0
Flounder	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Cod	5.9	0.0	0.0	0.00	0.00	5.9	0.0
Hooligan	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Herring	5.9	0.0	0.0	0.00	0.00	5.9	0.0
Red Snapper	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Razor Clams	11.8	5.9	5.9	8.82	2.21	5.9	0.0
Other Clams	11.8	0.0	0.0	0.00	0.00	11.8	0.0
King Crab	5.9	0.0	0.0	0.00	0.00	5.9	0.0
Tanner Crab	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Dungeness Crab	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Shrimp	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Freshwater Clams	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Abalone	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Mussels	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Moose	70.6	47.1	23.5	.29	147.06	52.9	17.6
Caribou	5.9	5.9	5.9	.12	15.29	5.9	5.9
Sheep	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Goat	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Black Bear	11.8	17.6	11.8	.12	6.82	0.0	5.9

[a] Upper Petersville Road sample = 17 households.

TABLE 15. CONTINUED

Species	Percent of Households Using	Percent of Households Attempting Harvest	Percent of Households Harvesting	Mean Household Harvest, Numbers	Mean Household Harvest, Pounds	Percent of Households Receiving Resource	Percent of Households Giving Resource
Brown Bear	5.9	0.0	0.0	0.00	0.00	5.9	0.0
Bison	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Deer	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Elk	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Harbor Seal	5.9	5.9	0.0	0.00	0.00	5.9	0.0
Porcupine	5.9	5.9	5.9	.06	.27	0.0	0.0
Snowshoe Hare	11.8	11.8	11.8	.35	.53	0.0	0.0
Bowhead Whale	5.9	0.0	0.0	0.00	0.00	5.9	0.0
Belukha Whale	5.9	0.0	0.0	0.00	0.00	5.9	0.0
Ducks	17.6	17.6	11.8	3.06	4.59	0.0	5.9
Geese	11.8	11.8	5.9	.30	.88	0.0	5.9
Spruce Grouse	58.8	58.8	52.9	10.82	5.41	5.9	5.9
Ptarmigan	35.3	29.4	23.5	5.71	2.85	11.8	5.9
Beaver	23.5	23.5	17.6	1.41	12.35	0.0	5.9
Muskrat	5.9	5.9	5.9	2.94	1.47	0.0	5.9
Land Otter	5.9	5.9	0.0	0.00	0.00	0.0	0.0
Mink	5.9	11.8	5.9	.18	0.00	0.0	5.9
Marten	11.8	17.6	11.8	1.00	0.00	0.0	5.9
Wolverine	5.9	5.9	0.0	0.00	0.00	0.0	0.0
Wolf	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Coyote	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Fox	11.8	17.6	11.8	.94	0.00	0.0	5.9
Lynx	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Parka Squirrel	5.9	5.9	5.9	.59	0.00	0.0	5.9
Marmot	0.0	0.0	0.0	0.00	0.00	0.0	0.0
Berries	76.5	76.5	76.5	8.18	8.18	5.9	17.6
Other Plants	58.8	58.8	58.8	3.65	3.65	5.9	11.8

TABLE 16. COMPOSITION OF RESOURCE HARVESTS BY CATEGORY, ENTIRE MIDDLE SUSITNA BASIN SAMPLE, 1985-86.

CATEGORY	MEAN HOUSEHOLD HARVEST, POUNDS	COMMUNITY PER CAPITA HARVEST, POUNDS	PERCENT OF TOTAL HARVEST
SALMON	82.3	29.0	41.4
FRESHWATER FISH	16.1	5.7	8.1
MARINE FISH	11.3	4.0	5.7
MARINE INVERTEBRATES	1.7	0.6	.9
GAME	66.5	23.4	33.4
BIRDS	3.6	1.3	1.8
FURBEARERS	4.8	1.7	2.4
PLANTS	12.6	4.5	6.3
TOTAL	198.9[a]	70.1[a]	100.0

[a] Due to rounding, the sums of the columns do not exactly match the actual mean household harvest and per capita harvest.

There were considerable differences between sampled households in terms of resource harvests (Fig. 5). For example, half the households harvested less than 50 pounds of wild foods during the study period. Relatively high harvesters, those who took over 500 pounds of wild resources, comprised nine percent of the sample.

With a per capita harvest of 167.3 pounds, the Upper Petersville Road sample produced about 155 percent more wild food per person than the Trapper Creek sample (65.6 pounds). The Talkeetna sample had the lowest per capita harvest, 55.1 pounds, and the Parks Highway sample was the second lowest with 58.1 pounds per person (Table 9).

As with the sample overall, each subsample contained a majority of relatively low harvesters, and a few households which took over 1,000 pounds of fish, game, and wild plants (Fig. 6). Households which harvested 50 pounds or less made up half of the Parks Highway sample, 52.9 percent of the Talkeetna respondents, 42.1 percent of the Trapper Creek sample, and 47.1 of the sampled Upper Petersville Road residents. The contrast between low and high harvesters was most evident in the Upper Petersville Road area, where three households (17.6 percent of the sample) accounted for 79.6 percent of the total harvest for that sub-area.

SHARING AND RECEIVING

Of the entire sample, 70.1 percent received at least one wild fish, game, and plant resource during the 12 month study period in 1985-1986. Forty four percent received at least one resource other than moose. The average number of resources received was 2.42, with a range of 0 to 17 (Table 9). Moose was, by far, the most commonly received resource; 37.3 percent of the sample

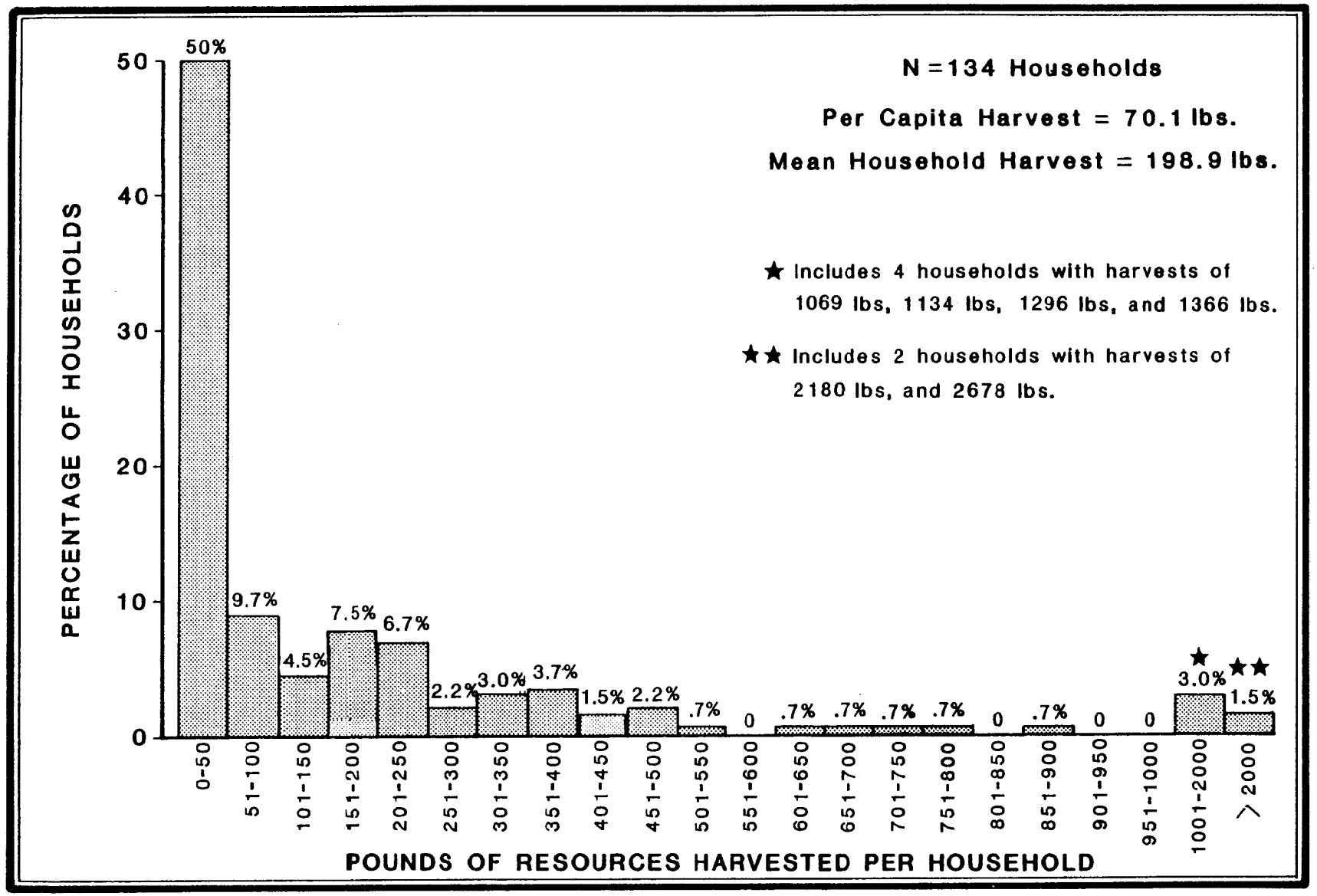


Figure 5. Household Harvests of Wild Fish and Game Resources, Pounds Edible Weight, Entire Middle Susitna Basin Sample.

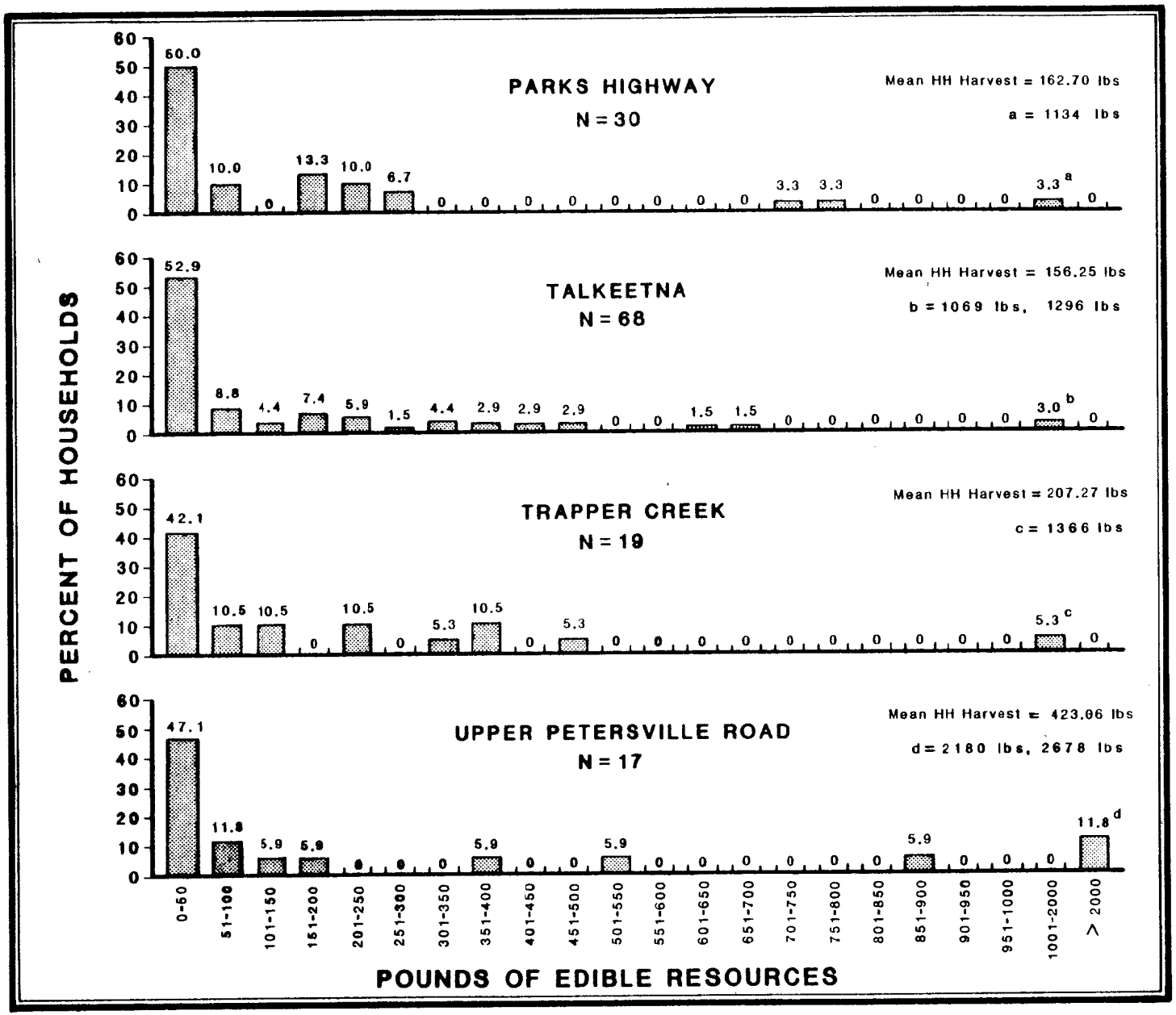


Figure 6. Household Harvests of Wild Fish and Game Resources, by Community, Middle Susitna Basin.

received moose meat from others in the study year. Besides moose, the most often received wild foods were king salmon (27.6 percent), halibut (22.4 percent), silver salmon (20.1 percent), red salmon (15.7 percent), and berries (15.7 percent).

About 45.5 percent of the sample gave wild resources to other households. The number of types of resources given ranged from 0 to 18, with an average of 1.37. Only three resources were distributed to others by more than 10 percent of the sample. These were berries (20.9 percent), king salmon (17.9 percent), and silver salmon (17.9 percent). Nine percent of the households gave away moose meat, and 64 percent of the successful moose hunting households shared their moose with others.

HARVEST AND USE PATTERNS BY RESOURCE CATEGORY

Salmon

Salmon was the most widely used wild resource among the sampled households in 1985-1986, with 81.3 percent using at least one species of salmon during the 12 month study period. Also, salmon was second only to plants in the percentage of the sample attempting to harvest (67.9 percent) and successfully harvesting (60.4 percent) this resource category. All five species of Alaskan salmon were used and harvested by the sample. Silver salmon was the most commonly used (59 percent) and harvested (47.8 percent) species, followed, in descending order of frequency of use and harvest, by king salmon (54.5 percent use, 35.1 percent harvest), red salmon (38.6 percent use, 25.4 percent harvest), pink salmon (28.4 percent use, 21.6 percent harvest), and chum salmon (18.7 percent use, 15.7 percent harvest)(Table 10).

During the study year, all the salmon fisheries in the study area operated under sport fishing regulations. Rod and reel was the only legal gear for salmon fishing under these rules. The nearest non-recreational, non-commercial net salmon fisheries available to the area residents were on the Kenai Peninsula (near Kenai, 272 miles by road) or the Copper River at Chitina (about 300 miles by road from Talkeetna). Thus, it is not surprising that the overwhelming majority of the sampled households who harvested salmon took their fish with rod and reel under sport fishing regulations. Of all the salmon harvested by the sample during the 12 month study period, 90.7 percent were taken with rod and reel. Rod and reel harvests accounted for 96.1 percent of the king salmon, 97.0 percent of the pinks, 97.3 percent of the chums, and 96.6 percent of the silvers. Red salmon was the only species for which a gear type other than red and reel produced a substantial harvest. Although most of the reds (65.1 percent) were taken by sport fishing, five sampled households (3.7 percent) used dip nets for reds, accounting for 28.9 percent of the reported take of this species. A few households used non-commercial set nets to take salmon or removed salmon from their commercial catches. No sampled households reported using fishwheels (Table 17).

As shown in Table 16, salmon comprised 41.4 percent of the total mean household harvest in pounds edible weight. The average harvest of salmon per household was 82.3 pounds. This represents the largest contribution of any resource category to the household total. The per capita harvest of salmon for the sample was 29.0 pounds. Silver salmon and king salmon, each with a household average of about 31 pounds, together made up 76 percent of the salmon harvest by weight. Next was red salmon (9.9 pounds per household, 12 percent of salmon harvest), and chum salmon (3.3 pounds, 4 percent). A few households reported their harvests of land-locked silver salmon separate from

TABLE 17. SALMON HARVEST BY GEAR TYPE, ENTIRE MIDDLE SUSITNA BASIN SAMPLE 1985-86.[a]

GEAR TYPE	KING SALMON		RED SALMON		PINK SALMON		CHUM SALMON		SILVER SALMON	
	Percent of Sample Harvesting	Percent of Catch	Percent of Sample Harvesting	Percent of Catch	Percent of Sample Harvesting	Percent of Catch	Percent of Sample Harvesting	Percent of Catch	Percent of Sample Harvesting	Percent of Catch
ROD AND REEL	34.3%	96.1%	20.9%	65.1%	20.9%	97.0%	15.0%	97.3%	46.3%	96.6%
DIP NET	.7%	0.9%	3.7%	28.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
FISHWHEEL	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
NON-COMMERCIAL SET GILLNET	.7%	1.7%	0.0%	0.0%	.7%	3.0%	0.0%	0.0%	.7%	1.7%
REMOVED FROM COMMERCIAL CATCH	1.5%	1.3%	.7%	6.0%	0.0%	0.0%	.7%	2.7%	.7%	1.7%

[a] N = 134 households

the sea-run silvers. Overall, 3 percent of the sampled households said they used and harvested land locked silvers, for a mean household harvest of .34 pounds (Table 10).

Salmon was the most widely used and harvested resource category in each of the sub-samples (Table 11). Also, salmon contributed the greatest number of edible pounds to the average household harvests in Talkeetna and Trapper Creek, and was second only to game in the Parks Highway and Upper Petersville Road samples (Table 18). Mean household harvests of salmon were highest among Upper Petersville Road residents at 168.1 pounds edible weight. Average household harvests for other samples were 109.7 pounds in Trapper Creek, 62.7 pounds for Talkeetna, and 60.7 pounds for the Parks Highway area (Table 18). In all the areas, silver salmon and king salmon ranked the highest in degree of use and harvest (Tables 12-15).

Freshwater Fish

Overall, the sample reported using ten kinds of freshwater fish during the study period. About 63 percent of the households used at least one kind of fish from this category, 57.5 percent fished for freshwater species, and 52.2 percent harvested these fish. This made freshwater fish the third most widely used and harvested category of wild resource, after plants and salmon (Fig. 4). All of these species were taken with rod and reel under sport fishing regulations.

By far, the most widely used and harvested freshwater fish resource was rainbow trout. Almost half the sample used (49.3 percent) and fished for (49.3 percent) this species, and 43.3 percent harvested rainbows. Grayling were the next most popular, with 32.1 percent of the households using them,

TABLE 18. COMPOSITION OF COMMUNITY RESOURCE HARVESTS IN POUNDS BY CATEGORY, MIDDLE SUSITNA BASIN, 1985-86.

	PARKS HIGHWAY N=30		TALKEETNA N=68		TRAPPER CREEK N=19		UPPER PETERSVILLE RD. N=17	
	Mean Harvest Per Household, Pounds	Percent of Total Harvest	Mean Harvest Per Household, Pounds	Percent of Total Harvest	Mean Harvest Per Household, Pounds	Percent of Total Harvest	Mean Harvest Per Household, Pounds	Percent of Total Harvest
SALMON	60.7	37.3%	62.7	40.1%	109.7	52.9%	168.1	39.7%
FRESHWATER FISH	6.2	3.8%	15.2	9.7%	12.4	6.0%	41.2	9.7%
MARINE FISH	.8	.5%	12.4	7.9%	32.2	15.5%	2.2	.5%
MARINE INVERTEBRATES	2.4	1.5%	1.0	.6%	2.5	1.2%	2.2	.5%
GAME	80.7	49.6%	43.4	27.8%	33.9	16.4%	170.0	40.2%
BIRDS	1.1	.7%	2.2	1.4%	3.3	1.6%	13.7	3.2%
FURBEARERS	1.8	1.1%	5.2	3.3%	0.0	0.0%	13.8	3.3%
PLANTS	9.0	5.5%	14.2	9.1%	13.3	6.4%	11.8	2.8%
TOTAL EDIBLE	162.7		156.3		207.3		423.1	

35.1 percent fishing for grayling, and 29.1 percent harvesting this species. Next came Dolly Varden, with 20.1 percent harvesting dollies. The only other freshwater species used by over ten percent of the sample was burbot (10.4 percent used). The other reported species, lake trout, northern pike, whitefish, char, cut throat trout, and sheefish, were used by 7.5 percent or less of the sample (Table 10).

During the 12 month study period, the sampled households harvested an average of 16.1 pounds of freshwater fish (Table 16), principally rainbow trout (5.3 pounds, 33 percent of the total freshwater fish harvest) and grayling (3.6 pounds, 22 percent). Dolly Varden and grayling made up most of the rest of this freshwater fish harvest.

There was a notable difference between the Parks Highway sample and the Upper Petersville Road sample regarding the role of freshwater fish in the average household harvest of wild foods (Table 18). The Parks Highway households harvested an average of 6.2 pounds, 3.8 percent of their total harvest. In contrast, the Upper Petersville Road households harvested an average of 41.2 pounds of freshwater fish, 9.7 percent of the total harvest. The other samples were between these two extremes, with Trapper Creek households averaging a harvest of 12.4 pounds of freshwater fish (6.0 percent of the total) and Talkeetna households taking 15.2 pounds (9.7 percent). Rainbow trout were the most commonly harvested and used freshwater fish species in each area, followed by grayling and Dolly Varden.

Marine Fish

Except for hooligan, the closest sources of marine fish for study households were lower Cook Inlet (about 340 miles by road from Talkeetna) and

Prince William Sound (172 miles by road and railroad). Therefore, it is not surprizing that this category was not used as much as locally obtainable fish and game. Nevertheless, 32.1 percent of the sampled households reported that they used marine fish during the study period. (This excludes foods purchased in stores or from commercial fishermen.) As only nine percent of the sample harvested this resource category, it is evident that successful fishermen shared their catches with others (Fig. 4). Indeed, 24 percent of the households said they received marine fish from others during the study period. About half of the successful harvesters of marine fish gave at least a portion of their harvests away.

The only marine fish species used by more than one quarter of the households was halibut, with 28.4 percent of the households using halibut, 11.2 percent fishing for halibut, and 6.7 harvesting halibut. Flounder (2.2 percent), cod (2.2 percent), red snapper (1.5 percent), and herring (.7 percent) were used by very few households (Table 10).

Hooligan was the other marine species used by area households. Hooligan could be taken with dip nets in Turnagain Arm, about 160 miles by road from Talkeetna. Only 4.5 percent of the households used hooligan, and 2.2 percent fished for and caught this species. Harvest quantities were very low (Table 10).

Overall, the sampled households averaged a harvest of 11.3 pounds of marine fish. This was 5.7 percent of the total harvest (Table 16). Halibut made up 93 percent of the total catch of marine fish.

Trapper Creek households were the most involved in the use and harvest of marine fish, with 47.4 percent of the sample using this category, and 15.8 percent harvesting marine fish. Almost all of this harvest was halibut. Very few households in the other areas harvested marine fish. Use was highest in

the Upper Petersville Road sample (35.3 percent) and Talkeetna (29.4 percent), and lowest in the Parks Highway sample (26.7 percent)(Table 11). Most of these households received halibut from successful harvesters.

Marine Invertebrates

Except for the very rarely used freshwater clam (harvested and used by one household), marine invertebrate species were not available locally to study area households. The nearest harvest areas for marine invertebrates were the lower Cook Inlet around Clam Gluch for razor clams (280 miles by road), and Kachemak Bay for clams, crab, and shrimp (340 miles). With the exception of furbearers, marine invertebrates were the least used (17.2 percent of the sample) and harvested (8.2 percent) of any resource category (Fig. 4). The average household harvest of marine invertebrates was 1.7 pounds, only .9 percent of the total amount of wild resources taken during the study year (Table 16).

Razor clams were the most widely used (6.7 percent) and harvested (4.5 percent) marine invertebrate. They accounted for 67 percent of the marine invertebrate catch by weight. Other marine invertebrates used by sampled households were other clams (5.2 percent), king crab (3 percent), shrimp (3 percent), tanner crab (2.2 percent), dungeness crab (2.2 percent), mussels (1.5 percent), and abalone (.7 percent)(Table 10). No more than three households harvested any of these resources. There were no notable differences regarding marine invertebrate use and harvest between the four samples.

Game

Over half (56.0 percent) of the sampled households used at least one species of game (excluding birds and edible furbearers, which are discussed separately) during the study period. Game was the fourth most widely used category, after salmon, plants, and freshwater fish. Almost 45 percent of the households hunted game, with half of these (22.4 percent of the total) successfully harvesting at least one species of game (Fig. 4). The average household harvest of game was 66.5 pounds, representing 33.4 percent of the harvest total of sampled households. Thus, game was second only to salmon in its contribution to fish and game harvests in the study area. The per capita harvest of game was 23.4 pounds (Table 16).

By far, moose was the most widely used big game species, used by 47.8 percent of the households. Over 38 percent of the households hunted moose. Of these hunting households, 21.6 percent were successful. Thus, 8.2 percent of all the sampled households took a moose in the 1985-1986 study year. The average household harvest of moose was 44.8 pounds, 15.8 pounds per capita (Table 10).

According to Alaska Department of Fish and Game records, study area residents reported harvesting 45 moose in 1985-86 from GMUs 14, 16, and 13E. Of these, 17 were taken by Trapper Creek residents, 15 by Talkeetna hunters, and 13 by other study area residents. Expanded to the entire study area population, division survey results suggest a total harvest of 32 +/- 16 moose (at the 95 percent confidence level) by area residents.

About 37 percent of the sampled households reported receiving moose meat from others, the most for any resource. There were two kinds of sources for this meat, successful moose hunters and road and train kills.

Other big game species were used infrequently by the sampled households. Caribou did not inhabit the study area in 1985-1986, but 7.5 percent hunters of the households hunted caribou. Most of these probably hunted the Nelchina caribou herd east and north of Talkeeetna and Trapper Creek. Permit data maintained by ADF&G show a reported harvest of 31 caribou from the Nelchina herd by study area hunters in 1985-86. Of these, 22 were taken by Talkeetna residents, three by Trapper Creek hunters, and six by other area residents.

Overall, 6 percent of the sampled households harvested caribou, for an average household harvest of 13.6 pounds. About 16 percent of the sample used caribou meat during the study period; 9.7 percent of the households received caribou meat as gifts (Table 10).

Black bear are common in the study area, but were hunted by only 7.5 percent of the sample. Three percent of the households harvested black bear, and 9.0 percent used black bear meat. In addition, a few households received gifts of brown bear and bison meat, but no sampled household harvested these species. No sampled households harvested sheep or mountain goats. ADF&G records show a harvest of two sheep by study area residents in GMU 14 in 1985-86. Two sampled households (1.5 percent) used sheep meat received as gifts, and one used mountain goat. One sampled household traveled to Kodiak Island and harvested an elk, while 2.2 percent of the households harvested deer, either on Kodiak Island or Prince William Sound. About seven percent of the sample used deer meat (Table 10).

No sampled households harvested marine mammals during the study year. Under federal law, these species may only be harvested by Alaska Natives. The nearest area to the study area inhabited by marine mammals is upper Cook Inlet. One household received gifts of harbor seal, belukha whale, and bowhead whale (Table 10).

A few households used small game. Snowshoe hare were used by 8.2 percent of the households and also harvested by 8.2 percent. Harvests averaged less than one pound for the entire sample. One household harvested a porcupine, and two used porcupine meat (Table 10).

The highest mean household harvests (170.0 pounds) of game were reported by the Upper Petersville Road sample, where game made up 40.2 percent of the total harvest, the greatest of any resource category. Game species assumed an even greater relative importance within the Parks Highway sample, where the household average of 80.7 pounds represented almost half the harvest. Game harvests were 43.4 pounds per household among Talkeetna households (28.2 percent of the total) and were lowest for Trapper Creek, at 33.9 pounds, 16.4 percent of the reported take of wild foods (Table 18).

Birds

About one third (33.6 percent) of the sampled households used at least one species of bird during the study period. Even more, 35.8 percent hunted birds, and 32.8 percent harvested birds (Fig. 4). For the entire sample, the average household harvest of birds was 3.6 pounds (1.3 pounds per capita), about 1.8 percent of the total harvest (Table 16).

By far, spruce grouse, which are very common in the area, were the most widely used (33.6 percent of the sample), hunted (34.3 percent), and harvested (32.8 percent) species of bird. The average household harvest was about two pounds. Ptarmigan were the second most significant bird resource, with 11.9 percent using ptarmigan, 15.7 percent hunting them, and 10.4 percent harvesting them. About five percent of the households used ducks, with 5.2 percent hunting ducks, and 4.5 percent harvesting them. Finally, only two

households (1.5 percent) used geese, with 2.2 percent of the sample hunting geese and one household (.7 percent) harvesting them (Table 10).

Of the four sub-areas within the sample, the Upper Petersville Road households used and harvested the most birds. Almost 60 percent of that sample used and hunted birds, with over half (52.9 percent) harvesting them (Table 11). The average household harvest of 13.7 pounds was over three times the average for the entire sample. Spruce grouse made up 40 percent of this harvest, and ducks an additional 34 percent. About one third of the households in the other sample areas used birds, and about 30 percent of the households in these areas harvested birds (Table 11). Average household harvests were relatively low, with Trapper Creek the highest at 3.3 pounds, followed by Talkeetna with 2.2 pounds, and the Parks Highway sample with 1.1 pounds (Table 18).

Furbearers

Relatively few sampled households used, hunted, trapped, or harvested furbearers during the study period. About 10 (9.7) percent of the sample used furbearers, the lowest of any resource category, while 10.4 percent attempted to harvest furbearers, the lowest percentage except for marine invertebrates. Six percent of the households harvested furbearers, again the lowest of any resource category. The meat of edible furbearers comprised 2.4 percent of the average household harvest of wild foods. The sample averaged a harvest of 4.8 pounds of edible furbearers per household, which was lower than any other category except birds and marine invertebrates (Table 16).

Beaver was the species of furbearer used by the most households, 7.5 percent. About ten percent of the sample attempted to trap beaver, and six

percent of the households were successful. The average household harvest of beaver, 3.85 pounds, represented 80 percent of the total meat used from edible furbearers by the sampled households. Other edible furbearers used or harvested by the sample were muskrat (1.5 percent used, 1.5 percent harvested) and parka squirrel (1.5 percent used, 1.5 percent harvested). Other species of furbearers harvested by the sample included fox (3 percent harvested), marten (3 percent), mink (2.2 percent), coyote (.7 percent), and land otter (.7 percent). No household harvested wolverine, wolf, lynx, or marmot (Table 10).

The Upper Petersville road sample differed from the other three areas in its overall involvement in furbearer use and harvest. Over 29 percent of the sample attempted to harvest furbearers, compared to ten percent of the Parks Highway sample, the next highest percentage. In addition, 17.6 percent of the Upper Petersville Road sample harvested furbearers, compared to 5.9 percent for Talkeetna, 3.3 percent for Parks Highway, and none in Trapper Creek (Table 11). The Upper Petersville Road sample's average household harvest of 13.8 pounds of edible furbearers, 90 percent of which was beaver, was also by far the highest among the four areas (Table 18).

Plants

Almost 81 percent of the sample used wild plants during the study period. This resource category was thus second only to salmon in extent of use. In addition, more households attemped to harvest (79.1 percent) and successfully harvested (78.4 percent) wild plants than any other category (Fig. 4). The mean household harvest of plants was 12.6 pounds, 6.3 percent of the total harvest (Table 16).

Berries were the most frequently harvested and used wild plants, with 75.4 percent of the households using berries and 74.6 percent harvesting them. The average household harvest of berries was 9.4 pounds (Table 10). Harvest quantities were not collected for particular species, but the kinds most frequently mentioned by interviewed households included blueberries, cranberries, and raspberries.

Plants other than berries were used by 41.8 percent of the households and harvested by 39.6 percent. Although specific data on kinds of plants were not collected, respondents mentioned numerous types, including fiddlehead ferns, rosehips, and mushrooms. The average household harvest of other plants was 3.2 pounds (Table 10).

Plants were a commonly harvested and used resource in all of the four sample areas. Trapper Creek households reported the greatest degree of involvement, with 89.5 percent of the sampled households there using and harvesting plants. The Parks Highway sample had the lowest level of involvement, with 66.7 percent using plants, and 63.3 harvesting plants (Table 11). Average household harvests of wild plants and berries were highest among Talkeetna households (average of 14.2 pounds per household), and lowest for the Parks Highway sample (9 pounds per household)(Table 18).

CHAPTER 4

DISCUSSION

As shown in Chapter 3, most sampled households in the Middle Susitna Basin study area (94 percent) used at least one wild fish, game, or plant resource during the 12 month study period in 1985-86. In addition, 92.5 percent attempted to harvest at least one resource, and 88.1 percent were successful harvesters (Table 9). Table 19 compares participation in resource harvesting activities in the sample area households with reported levels of participation in samples from other upper Cook Inlet communities, including Tyonek, the Western Susitna (Upper Yentna-Alexander Creek) area (GMU 16B), Palmer-Wasilla, and Anchorage. Participation in resource harvest activities such as any hunting, moose hunting, trapping, freshwater fishing, and plant gathering were higher in the study area sample than among sampled households in the larger communities of Palmer, Wassila, and Anchorage in 1978. However, the study area households were less active hunters than residents in Tyonek and the Western Susitna Basin. On the other hand, study area households were equally or more involved in freshwater ("sport") fishing and berry picking.

Table 20 compares the study area sample with Tyonek and the Western Susitna Basin in terms of the percentage of households harvesting 12 kinds of wild resources. Study area households were less involved in harvesting king and red salmon than the other two areas, but were more involved than Tyonek households in rainbow trout and Dolly Varden harvesting. Except for spruce grouse, fewer households in the study area harvested game than in the other two areas. Moose is especially noteworthy; this species was taken by 35 percent of the households in Tyonek, half the Western Susitna households, but only eight percent in the study area.

TABLE 19. COMPARISON OF LEVELS OF PARTICIPATION IN RESOURCE HARVEST ACTIVITIES, UPPER COOK INLET COMMUNITY SAMPLES.

	TYONEK	WESTERN SUSITNA BASIN GMU 16B	MIDDLE SUSITNA BASIN GMU 16A/14B	PALMER/ WASILLA	ANCHORAGE
PERCENT HUNTING[a]	69	76	44.8	39.3	18.7
PERCENT MOOSE HUNTING	69	76	38.1	21.4	13.2
PERCENT WATER-FOWL HUNTING[b]	49	32	5.2	10.7	6.9
PERCENT TRAPPING[c]	8	38	10.4	0.0	1.3
PERCENT NON-COMMERCIAL MARINE FISHING[d]	82[e]	NA	11.2	32.1	26.6
PERCENT FRESHWATER FISHING	15	66[f]	57.5	33.3	39.9
PERCENT PLANT/BERRY GATHERING	64	66[g]	79.1	53.6	42.2

[a] Moose for Tyonek, Western Susitna Basin

[b] Ducks for Tyonek, Western Susitna Basin, and GMU 16A/14B

[c] Beaver for GMU 16B

[d] Does not include salmon fishing for GMU 16A/14B

[e] Subsistence salmon/Cook Inlet

[f] Rainbow Trout

[g] Berries

Sources: Fall, Foster, and Stanek 1984; Stanek and Foster 1986; Clark and Johnson 1981.

TABLE 20. PERCENTAGE OF SAMPLED HOUSEHOLDS IN TYONEK, WESTERN SUSITNA BASIN, AND MIDDLE SUSITNA BASIN, HARVESTING 12 WILD RESOURCES

	TYONEK	WESTERN SUSITNA BASIN	MIDDLE SUSITNA BASIN
KING SALMON	78%	74%	35%
RED SALMON	54%	38%	25%
SILVER SALMON	43%	70%	48%
RAINBOW TROUT	13%	60%	43%
DOLLY VARDEN	11%	14%	20%
MOOSE	35%	50%	8%
BLACK BEAR	0%	28%	3%
SPRUCE GROUSE	24%	42%	33%
PORCUPINE	14%	10%	1%
DUCKS	36%	24%	5%
BEAVER	7%	38%	6%
BERRIES	64%	66%	75%

Source: Fall, Foster, and Stanek 1984; Stanek and Foster 1986.

Figure 7 compares per capita harvests of wild resources of samples from several Cook Inlet region communities. The figure shows that except for the Upper Petersville Road sample, the per capita harvests of the Middle Susitna Basin sample overall and the three other subsamples were much lower than those reported for the GMU 16B communities of Tyonek, Alexander Creek, and Skwentna/Upper Yentna. These communities are more remote than the study area households, have less employment opportunities, and, as just noted, have a greater percentage of their households harvesting major species such as moose and salmon. On the other hand, the study area sample's per capita wild resource harvest fell within the range of those reported for the Kenai Peninsula communities of Kenai, Ninilchik, and Homer. These two areas share several demographic and economic characteristics, including a large percentage of households which have moved to the communities in the last few years, a relatively diversified economic base, and an employment pattern characterized by many household heads holding year-round jobs (Reed 1985).

An exception to the relatively low per capita harvests within the study area was the Petersville Road sample. These households' per capita harvest of 167 pounds was more than twice as high as others in the study area and exceeded reported harvests for Kenai Peninsula communities as well. About 18 percent of this sample (three households) of 17 households accounted for 80 percent of the harvest. These high harvesters were all recent arrivals to the study area who had acquired lands through settlement entry programs. They may have been developing resource use patterns similar to those found in the more remote Western Susitna Basin, but the success of these households in establishing resource use traditions in this newly settled area is not certain at this time.

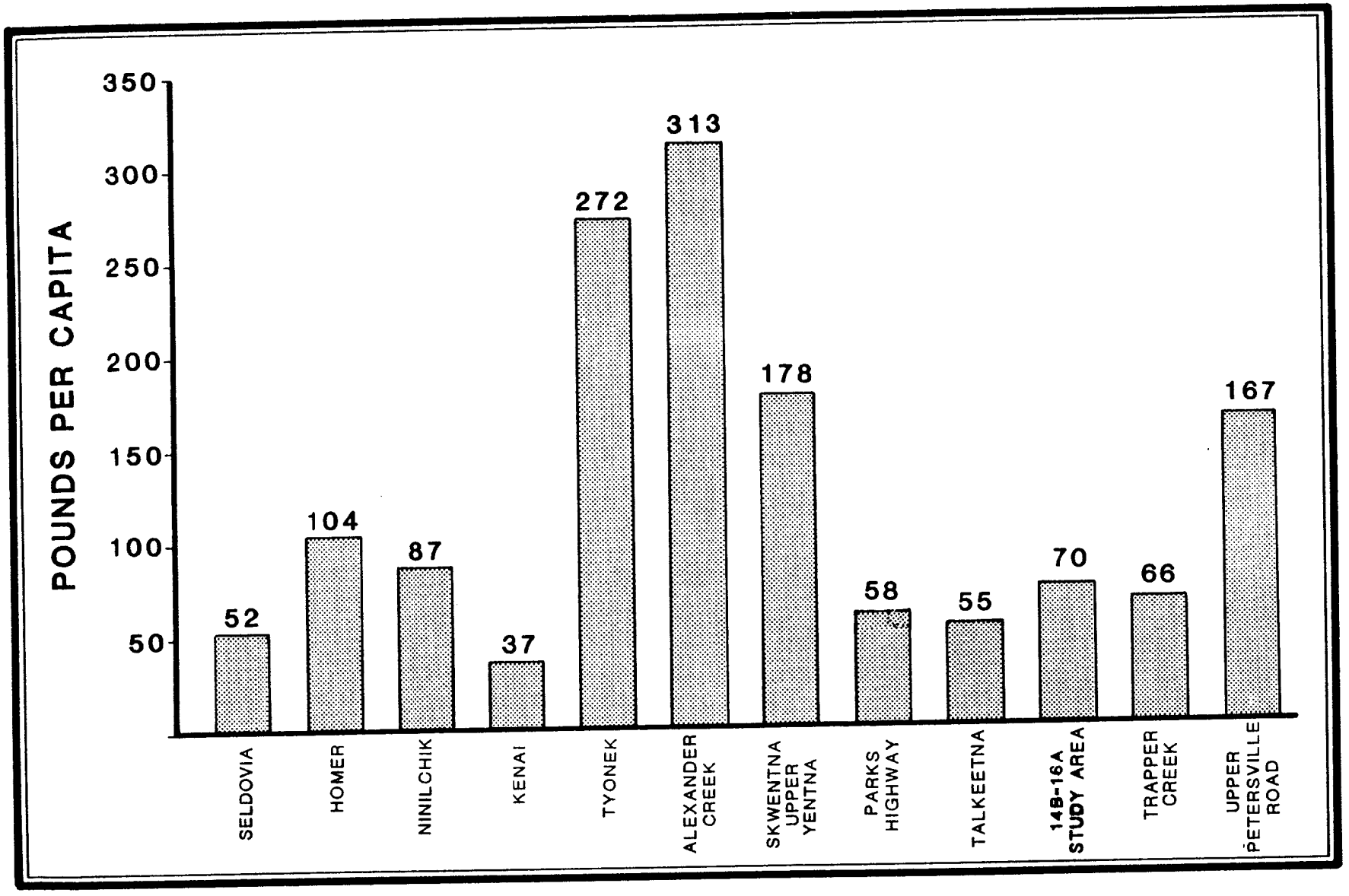


Figure 7. Community Per Capita Non-Commercial Fish and Game Harvests, Cook Inlet Basin Communities.

Also, the non-road connected households in the study area (mostly GMU 16A) which were not adequately sampled during the first phase of this research, may resemble the population of the Western Susitna Basin much more closely than any of the road-connected samples discussed in this report. For example, many of these households lack electricity and are isolated for much of the year due to poor travel conditions. Employment opportunities are scarse and seasonal. Future research with these households could clarify the role of wild resource harvests in this portion of GMU 16A.

In summary, the sampled households in the road-connected part of the study area were, overall, actively involved in hunting, fishing, and gathering activities during the study period. This is perhaps in part a result of the hunting and, especially, sport fishing opportunities available to residents of this part of the Susitna River Basin. Many of the people who have moved to the Middle Susitna Basin area from other Alaska communities or from outside the state have been attracted by the availability of local fish and game resources. For those households, such opportunities compensate for the less convenient access to goods and services than is found in the more densely populated part of the Matanuska-Susitna Borough to the south or in Anchorage (cf. Reed 1985 on Kenai Peninsula communities).

On the other hand, non-commercial resource harvests in the study area were, with the exception of a small percentage of the sampled households, substantially lower than those reported for more isolated communities in southcentral Alaska. This suggests that hunting and fishing contribute less to the diet of most households in this part of the state than in areas where alternatives to fish and game are less available or prohibitively expensive. Although the cash economy of the communities in Talkeetna, Trapper Creek, and the other road-connected parts of the Middle Susitna Basin is less diverse

than that of Palmer, Wasilla, or Anchorage due to the distance from these population centers, employment opportunities are available to most households in government, services, and retail trades. This is largely a consequence of the area's location in a major transportation corridor and the development of the tourism industry to serve the growing population of southcentral Alaska. There was more seasonality to employment patterns in the study area than in communities to the south, but year-round employment was the most common type among the sampled households.

In short, during the study period, the cash economy along the road system of Middle Susitna Basin area was oriented towards providing goods and services to visitors from other parts of southcentral Alaska. Many households participating in this economy also hunted and fished. With the exception of a few households, harvest quantities were similar to those recorded for communities along the road system of the Kenai Peninsula, such as Kenai, Ninilchik, and Homer. These harvests were substantially lower than those reported in the more remote areas of the Western Susitna Basin or western Cook Inlet.

REFERENCES CITED

Alaska Department of Fish and Game
1985 Alaska Habitat Management Guide. Southcentral Region, Volume II: Distribution, Abundance, and Human Use of Fish and Wildlife. Division of Habitat. Juneau.

Alaska Department of Labor
1985 Alaska Population Overview. Administrative Services Division. Juneau.

Alaska Department of Revenue
1985 Federal Income Taxpayer Profile 1978, 1981, 1982 by Alaska Community and Income Level and Filing Status. Juneau.

Clark, R.N. and D.R. Johnson
1981 Selected Findings of the Alaska Public Survey, 1979. US Forest Service. Seattle.

Cole, Terrence M.
1982 Historical Survey of the Talkeetna/Susitna River Drainages. In Cultural Resource Assessment: Talkeetna -- Lower Susitna River Basin, Southcentral Alaska. Glenn Bacon, editor, pp. 72-103. Report to the USDA, Soil Conservation Service. Fairbanks: Alaskarctic

Fall, James A.
1981 Patterns of Upper Inlet Tanaina Leadership, 1741-1918. Ph.D. Dissertation. University of Wisconsin-Madison.

Fall, James A., Dan J. Foster, and Ronald T. Stanek
1984 The Use of Fish and Wildlife Resources in Tyonek Alaska. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 105. Juneau.

Frank Orth and Asociates, Inc.
1984a Trapper Creek Household Survey Report. Document 1107, Susitna Hydroelectric Project. Anchorage: Alaska Power Authority.

1984b Trapper Creek Business Survey Report. Document 1108, Susitna Hydroelectric Project. Anchorage: Alaska Power Authority.

1984c Talkeetna Household Survey Report. Document 1109, Susitna Hydroelectric Project. Anchorage: Alaska Power Authority.

1984d Talkeetna Business Survey Report. Document 1110, Susitna Hydroelectric Project. Anchorage: Alaska Power Authority.

1984e Public Sector Survey. Document 1113, Susitna Hydroelectric Project. Anchorage: Alaska Power Authority.

Kari, James
1977 Linguistic Diffusion Between Tanaina and Ahtna. International Journal of American Linguistics 43(4):274-289.

Matanuska-Susitna Borough
1985 Community Profile. Palmer.

Reed, Carolyn E.
1985 The Role of Wild Resource Use in Communities of the Central Kenai Peninsula and Kachemak Bay, Alaska. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 106. Juneau.

Rollins, A.M.
1978 Census Alaska: Number of Inhabitants 1792-1970. University of Alaska-Anchorage.

Stanek, Ronald T. and Dan J. Foster
1986 Historical and Contemporary Trapping in the Western Susitna Basin. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 134. Juneau.

United States Bureau of the Census
1980 Census of Population and Housing, 1980. Summary Tape File 3A.

APPENDIX A

SUSITNA BASIN RESOURCE USE

Sample_____ Interviewer_____

Household ID #_____ Date_____

HELLO, MY NAME IS _____ AND I AM CONDUCTING A SURVEY FOR THE ALASKA DEPARTMENT OF FISH AND GAME. THE QUESTIONS ARE ABOUT THIS HOUSEHOLD'S HUNTING AND FISHING ACTIVITIES, AND ITS EMPLOYMENT PATTERNS. THE SURVEY WILL TAKE ABOUT ____ TO ____ TO COMPLETE. I NEED TO TALK TO SOMEONE OVER AGE 18 WHO KNOWS ABOUT THIS HOUSEHOLD'S HUNTING AND FISHING ACTIVITIES. IS THAT YOU?

FIRST, I WOULD LIKE TO ASK SOME QUESTIONS ABOUT THE CHARACTERISTICS OF THIS HOUSEHOLD.

1. HOUSEHOLD INFORMATION

ID	M/F	AGE	RESIDENT OF PARENT WHEN YOU WERE BORN	YEAR MOVED TO THIS COMMUNITY	ETHNICITY
1 HEAD					
2 HEAD					
3					
4					
5					
6					
7					
8					
9					
10					

NEXT, I WOULD LIKE TO ASK SOME QUESTIONS ABOUT YOUR HOUSEHOLD'S FISHING ACTIVITIES. IN THE 12 MONTH PERIOD FROM AUGUST 1985 THROUGH JULY 1986, WHEN WE ASK "DID YOU USE A RESOURCE?" WE MEAN DID YOUR FAMILY EAT IT, SERVE IT, OR OTHERWISE USE IT IN YOUR HOME.

2. First, did this household use SALMON in 1985-86?

_____ yes _____ no

3. Second, how many household members fished for SALMON in 1985-86?

_____

4. SALMON HARVEST AND USE INFORMATION

				Harvest #s by Gear Type							
	Used?		Attempt Harvest?		Rod and	Dip	Fish-	Set-		Give Away?		Receive?	
Species	Yes	No	Yes	No	Reel	net	wheel	net	Other	Yes	No	Yes	No
King Salmon													
Red Salmon													
Pink Salmon													
Chum Salmon													
Silver Salmon													

5. Did this household use FRESHWATER FISH in 1985-86?

_____ yes _____ no

6. How many household members fished for FRESHWATER FISH in 1985-86?

_____

7. FRESHWATER FISH HARVEST AND USE INFORMATION

Species	Use? Yes	Use? No	Attempt harvest? Yes	Attempt harvest? No	Harvest in numbers	Give away? Yes	Give away? No	Receive? Yes	Receive? No
Rainbow Trout									
Lake Trout									
Dolly Varden									
Grayling									
Burbot									
Pike									
Whitefish									
Other									
Other									

8. Did this household use MARINE FISH in 1985-86?

_____ yes _____ no

9. How many household members fished for MARINE FISH in 1985-86?

_____

10. MARINE FISH HARVEST INFORMATION

Species	Use? Yes	Use? No	Attempt harvest? Yes	Attempt harvest? No	Harvest in numbers	Give away? Yes	Give away? No	Receive? Yes	Receive? No
Halibut									
Flounder									
Cod									
Hooligan					gal				
Herring					gal				
Herring Roe on Kelp					gal				
Other									
Other									

11. Did this household use MARINE INVERTEBRATES in 1985-86?

_____ yes _____ no

12. How many household members fished for MARINE INVERTEBRATES in 1985-86?

_____

13. HARVEST AND USE INFORMATION ON MARINE INVERTEBRATES

Species	Use? Yes	Use? No	Attempt harvest? Yes	Attempt harvest? No	Harvest in numbers	Give away? Yes	Give away? No	Receive? Yes	Receive? No
Razor clams									
Other clams									
King Crab									
Tanner Crab									
Dungeness Crab									
Shrimp									
Other									
Other									

NOW, I WOULD LIKE TO ASK A SERIES OF QUESTIONS ABOUT HUNTING.

14. Did this household use game in 1985-86? _____ yes _____ no

15. How many household members hunted in 1985-86? _____

16. GAME HARVEST USE AND INFORMATION

Species	Use? Yes	Use? No	Attempt harvest? Yes	Attempt harvest? No	Harvest in numbers	Give away? Yes	Give away? No	Receive? Yes	Receive? No
Moose									
Caribou									
Sheep									
Goat									
Black Bear									
Brown Bear									
Bison									
Deer									
Elk									
Harbor Seal									
Porcupine									
Hare									
Other									

17. Did this household use BIRDS in 1985-86? _____ yes _____ no

18. How many household members hunted BIRDS in 1985-86? _____

19. BIRD HARVEST AND USE INFORMATION

Species	Use? Yes	Use? No	Attempt harvest? Yes	Attempt harvest? No	Harvest in numbers	Give away? Yes	Give away? No	Receive? Yes	Receive? No
Ducks									
Geese									
Spruce Grouse									
Ptarmigan									
Other									
Other									

NOW, I WILL ASK SOME QUESTIONS ABOUT TRAPPING.

20. Did this household use the meat or fur of furbearers in 1985-86?

_____ yes _____ no

21. How many household members trapped in 1985-86? _____

22. FURBEARER HARVEST AND USE INFORMATION

Species	Use fur? Yes	Use fur? No	Use meat? Yes	Use meat? No	Attempt harvest? Yes	Attempt harvest? No	Harvest in numbers	Give away? Yes	Give away? No	Receive? Yes	Receive? No
Beaver											
Muskrat											
Land Otter											
Mink											
Marten											
Wolverine											
Wolf											
Coyote											
Red Fox											
Lynx											
Parka Squirrel											
Marmot											
Other											

NEXT, SOME QUESTIONS ABOUT PLANTS.

23. Did this household use wild plants in 1985-86. _____ yes _____ no

24. How many household members gathered wild plants in 1985-86? _____

25. PLANT HARVEST AND USE INFORMATION

Species	Use? Yes	Use? No	Attempt harvest? Yes	Attempt harvest? No	Harvest in Quarts	Give away? Yes	Give away? No	Receive? Yes	Receive? No
Berries									
Other Plants									

List other plants. _____

_____

26. Of the total amount of meat and fish eaten by your household in the last 12 months, what portion came from your hunting and fishing activities?

_____%

27. If there were no restrictions on bag limits, how many of each of the following resources would this household use in a year? (fractions can be used)

Moose _____

Caribou _____

King salmon _____

Red salmon _____

Silver salmon _____

NEXT, I WOULD LIKE TO ASK SOME QUESTIONS ABOUT EMPLOYMENT PATTERNS OF THIS HOUSEHOLD'S MEMBERS.

28. [Complete the following set of questions for each adult (18 and older) member of the household.]

ADULT ONE. ID# _____ (from question 1)

Present employment status. _____

1. Employed or self-employed
2. Retired
3. Unemployed (active)
4. Unemployed (inactive)
5. Homemaker
6. Student
7. Disabled

EMPLOYMENT OVER LAST 12 MONTHS

Occupation Type	Employer	Location	Which Months	hrs/ week	How much did you earn?
1.					
2.					
3.					
4.					

ADULT TWO. ID# _____ (from question 1)

Present employment status. _____

1. Employed or self-employed
2. Retired
3. Unemployed (active)
4. Unemployed (inactive)
5. Homemaker
6. Student
7. Disabled

EMPLOYMENT OVER LAST 12 MONTHS

Occupation Type	Employer	Location	Which Months	hrs/ week	How much did you earn?
1.					
2.					
3.					
4.					

ADULT THREE. ID# _____ (from question 1)

Present employment status. _____

1. Employed or self-employed
2. Retired
3. Unemployed (active)
4. Unemployed (inactive)
5. Homemaker
6. Student
7. Disabled

EMPLOYMENT OVER LAST 12 MONTHS

Occupation Type	Employer	Location	Which Months	hrs/ week	How much did you earn?
1.					
2.					
3.					
4.					

ADULT FOUR. ID# _____ (from question 1)

Present employment status. _____

1. Employed or self-employed
2. Retired
3. Unemployed (active)
4. Unemployed (inactive)
5. Homemaker
6. Student
7. Disabled

EMPLOYMENT OVER LAST 12 MONTHS

Occupation Type	Employer	Location	Which Months	hrs/ week	How much did you earn?
1.					
2.					
3.					
4.					

29. Please list other sources of cash income for this household.

	Source	Amount received for last 12 months
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____

30. Were the last 12 months typical of the employment patterns of this household in recent years?

yes _____ no _____ Explain _____

_____

_____

31. Are there more _____ or less _____ sources of employment in this area now than 12 months ago?

32. Over the last several years, the state has held a number of land disposals in the Susitna Basin. Have these disposals affected your hunting and fishing activities?

yes _____ no _____ Explain _____

_____

_____

(If answer is yes, ask the following if not mentioned in explanation) Have land disposals displaced your hunting or fishing activities?

_____

Have land disposals displaced your trapping activities? _____

_____

Have land disposals increased competition for fish and game? _____

_____

APPENDIX B

Conversion Weight Factors for Wild Resources

Species	Edible Weight
King Salmon	18.0 lbs.
Red Salmon	4.0
Pink Salmon	2.0
Chum Salmon	6.0
Silver Salmon	6.0
L. Locked Silver Salmon	1.0
Rainbow Trout	1.5
Lake Trout	1.5
Dolly Varden	1.0
Grayling	.8
Burbot	2.5
Northern Pike	2.3
Whitefish	1.0
Char	1.4
Cut Throat Trout	1.5
Sheefish	6.5
Halibut	12.3
Flounder	5.0
Cod	2.5
Hooligan	.25
Herring	.4
Red Snapper	2.0
Razor Clams	.25
Other Clams	.25
King Crab	2.3
Tanner Crab	1.6
Dungeness Crab	.7
Shrimp	.01
Freshwater Clams	.13
Abalone	5.0
Mussels	.005

Species	Edible Weight
Moose	500.0 lbs.
Caribou	130.0
Sheep	65.0
Goat	72.5
Black Bear	58.0
Brown Bear	141.0
Bison	450.0
Deer	42.5
Elk	225.0
Harbor Seal	-----
Porcupine	4.5
Snowshoe Hare	1.5
Bowhead Whale	-----
Belukha Whale	-----
Ducks	1.5
Geese	3.0
Spruce Grouse	.5
Ptarmigan	.5
Beaver	8.75
Muskrat	.5
Land Otter	-----
Mink	-----
Marten	-----
Wolverine	-----
Wolf	-----
Coyote	-----
Fox	-----
Lynx	-----
Parka Squirrel	-----
Marmot	-----
Berries	1.0
Other Plants	1.0

APPENDIX C

INDUSTRY-EMPLOYER CATEGORIES

1. Agriculture, Forestry and Commercial Fishing (loggers, farm implement and fertilizer sales, farmers and ag. laborers, trappers)

2. Mining (metal mining, oil & gas extraction, nonmetallic minerals)

3. Construction (carpenters, bricklayers, electricians, plumbers)

4. Manufacturing (Forest and Wood Products, Seafood Processors, Chemical and Allied Products, Paper and Paper Products)

5. Transportation, Communications, Utilities, excluding government utilities (telephone company, air transportation, electric, gas and sanitary services, and trucking and warehousing)

6. Wholesale Trade (establishments that sell goods to retail outlets and not directly to consumers such as distributors of furniture, alcoholic beverages, automotive parts, construction machinery)

7. Retail trade (establishments that sell goods directly to consumers such as clothing, hardware, and food stores, gasoline stations, eating and driking establishments, automotive dealers)

8. Finance, insurance and real estate (banks, realty offices, insurance companies, credit agencies, and investment companies)

9. Services, other than wholesale and retail trade (hotels, legal services, auto repair shops, and business services)

10. Federal government

11. State government (including education)

12. Local government (including education and utilities)

OCCUPATION CATEGORIES

1. Professional, technical and managers (teachers, engineers, accountants, lawyers, medical and detail technicians, airplane pilots)

2. Clerical workers and sales persons (bookkeepers, secretaries, shipping & receiving clerks, telephone operators and clothing sales people)

3. Service Workers (Hospital, hotel, restaurant workers, private household workers, police officers, firefighters)

4. Agriculture, fishery and forestry related workers (lodgers, commercial fishers, trappers, farmers, and landscapers)

5. Processing (food, metal processing, ore refining)

6. Machine trades (Machinists, mechanics, printers, cabinetmakers)

7. Benchwork (Fabricators, Asssemblers, & Repairers of metal, jewelry, photo equip. & textiles, tailors, sewing machine operators)

8. Structural (welders, electrical workers, carpenters, painters)

9. Armed Forces

10. Recreation-based occupations (guiding, mountain-climbing)

11. Motor freight & transportation (truck drivers, air transportation, railroad, parking lot)

12. Packing and Materials Handling (packagers, movers, stevedores)

13. Mining (borers, drillers, cutters, and blasting specialists)

14. Miscellaneous (elec. util., water and water treatment, graphic arts workers)