

**SUBSISTENCE USE OF RENEWABLE
RESOURCES BY RURAL RESIDENTS
OF SOUTHEAST ALASKA**

A Final Report Under the
U.S. Forest Service/University of Alaska
Cooperative Agreement PNW 88-553

by

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ACKNOWLEDGMENTS

This report is based on the active participation of 1,465 rural southeast residents, each of whom shared their time and knowledge during the survey phase of the study. Complementing the contributions of our respondents were the efforts of approximately thirty interviewers, three editors, three Forest Service dispatchers, Ranger Boat captains, and the universal support we received from the Forest Supervisors and District Rangers.

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EXECUTIVE SUMMARY

The Tongass Resource Use Cooperative Survey consists of 1,465 interviews conducted in 30 southeast Alaska communities between October 1, 1987, and March 13, 1988. The study was directed by the Institute of Social and Economic Research of the University of Alaska Anchorage. All permanent communities, with the exception of Juneau and Ketchikan, were included in the study. Households were selected for the study to yield statistically reliable data at the community level. A complete description of the methods used in the field phase of this study are contained in a separate document: Tongass Resource Use Cooperative Survey, Technical Report No. 1, Research Design and Field Phase (Kruse, Frazier, and Fahlman, 1988)

The purpose of this report is to describe the extent of harvest and distribution of renewable natural resources by rural southeast Alaska residents. Eighty-five percent of all households surveyed harvest one or more species of fish, wildlife, or plants. Such resources include deer, salmon, halibut, and other (nonsalmon) finfish, crab, shrimp, clams, other invertebrates, ducks, bear, harbor seal, berries, firewood, and other resources. Forty-one percent of all households report that at least 25 percent of the meat and fish they eat comes from resources harvested by members of their own households or is given to them by family or friends. The resources contributing most to the total pounds of edible products are deer (21 percent of total pounds), halibut (13 percent), king salmon (11 percent), coho salmon (7 percent), sockeye salmon (5 percent), and dungeness crab (5 percent).

Households in all communities in rural southeast Alaska harvest substantial amounts of fish, wildlife, and plant resources. Mean per capita harvests range from over 350 pounds in Edna Bay, Hoonah, Hyder, Meyers Chuck, Pelican, Klukwan, and Yakutat to under 175 pounds in Kake, Sitka, Wrangell, Haines, Metlakatla, Saxman, and Skagway. Due to their relatively large size, the communities of Sitka, Petersburg, and Wrangell account for 53 percent of the total resource harvest by rural southeast residents.

Participation in resource harvest activities is important to Native and non-Native residents alike. People residing in Native households harvest an average of 209 pounds per capita, compared with 191 pounds for individuals living in white households and 148 pounds for people from non-Native, non-white households. Native households are more likely to give and to receive resources obtained through their harvest activities. They are also more likely to share the following characteristics: obtain at least 25 percent of their food from at least five different resource harvesting activities and have incomes below \$10,000 per capita.

Respondents were asked to indicate locations on maps where they hunt for deer, harvest salmon and other finfish, gather invertebrates such as crab, and hunt for marine mammals. Preliminary analysis of the mapped data suggests that

southeast Alaska residents rely extensively on the marine and upland environments to conduct their resource harvesting activities. In addition, respondents were asked to describe the areas in which they hunt deer. Responses indicate the opportunistic character of southeast Alaska deer hunters. Depending on the weather, hunting pressure, regulations, and the availability of deer, southeast Alaska residents employ a variety of transportation technologies (i.e., skiffs, pleasure boats, commercial fishing vessels, automobiles, trucks, airplanes, and three-wheelers) to access their deer hunting areas. In addition, respondents indicated that a variety of habitat types were used for deer hunting, including old-growth forests, muskegs, beach fringes, alpine areas, and clearcuts.

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I. INTRODUCTION

This report presents the results of the Tongass Resource Use Cooperative Survey – a study of the subsistence¹ uses of natural resources in southeast Alaska by the residents of 30 southeast Alaska communities. It is based on data from 1,465 personal interviews conducted by a joint U.S. Forest Service, University of Alaska, Alaska Department of Fish and Game research team between October 1, 1987, and March 13, 1988. Based on data collected during this survey, this report is intended to provide an in-depth profile of current subsistence uses in southeast Alaska.

Research on subsistence uses in southeast Alaska is of interest to natural resource planners and managers in southeast Alaska, as well as the social science research community. Under section 810 of the Alaska National Interest Lands Conservation Act (ANILCA), federal planners and managers are mandated to assess the potential effects of alternative management activities on subsistence uses and needs. This research was undertaken primarily to understand the role of subsistence uses of natural resources in the lives of southeast Alaska's rural residents, and to understand the role of the Tongass National Forest in meeting subsistence needs.

The methods used to collect the data upon which this report is based are described in a report prepared by the Institute of Social and Economic Research (ISER) of the University Alaska Anchorage (Kruse, Frazier, and Fahlman, 1988). The research design was a product of an earlier cooperative agreement between the U.S. Forest Service and ISER. The design also benefitted from the comments and suggestions of the Division of Subsistence in the Alaska Department of Fish and Game. The questionnaire used in the survey (see Appendix A) and a description of the sampling and analysis design were approved by the federal Office of Management and Budget. The questionnaire consists of three sections: Deer Hunting, Use of Other Resources, and Background Questions. In addition to the survey questions, a major part of the interview was devoted to mapping subsistence harvest areas. Respondents mapped areas used to harvest deer, salmon, other finfish, marine invertebrates, and marine mammals. Information was recorded on mylar using pin-registered mylar U.S. Geological Survey 1:250,000 base maps for reference.

All permanent southeast communities, with the exception of Juneau and Ketchikan, were included in the study. Separate samples were drawn for each community so that the results of the survey can be separately reported by community, as well as for the region as a whole (see Table 1 for a summary of the sample). Prior to initiating the survey, we contacted approximately two hundred formal and informal community leaders throughout southeast Alaska to inform them about the study's objectives and to ask for their comments about the way in which the survey would be conducted. As a result of this public comment, we modified the study design to minimize response burden on residents and to provide local communities with additional information.

TABLE 1. SUMMARY OF SAMPLE

Community	Number of Occupied Households	Number of Interviews	Response Rate (percent)	Vacancy Rate (percent)
Cape Pole ¹	8	8	100	11
Meyers Chuck	10	10	100	76
Kasaan	14	14	100	55
N. Whale Pass	18	18	100	51
Point Baker	19	19	95	26
Elfin Cove	19	13	81	60
Edna Bay	21	20	95	40
Port Protection	27	25	93	34
Hollis	32	29	88	52
Port Alexander	37	34	94	49
Hyder	39	33	87	19
Klukwan	39	29	85	54
Tenakee Springs	45	31	94	64
Gustavus	65	35	81	53
Coffman Cove	66	41	82	14
Saxman	76	36	65	28
Pelican	82	48	92	32
Hydaburg	110	35	60	15
Angoon	140	46	87	15
Thorne Bay	156	52	88	31
Yakutat	169	48	72	8
Kake	193	52	80	7
Skagway	204	60	100	29
Hoonah	219	62	81	15
Klawock	224	52	78	15
Craig	365	64	86	6
Metlakatla	418	64	80	6
Haines	608	62	76	15
Wrangell ²	1,013	75	97	-
Petersburg ³	1,140	54	75	-
Sitka ⁴	<u>2,872</u>	<u>296</u>	<u>80</u>	<u>-</u>
TOTALS	8,448	1,465	83	-

¹ Cape Pole results are incorporated into the regional totals, but are not reported separately in this report.

² The Wrangell survey was directed by Katherine Cohen under contract with the Alaska Department of Fish and Game, Division of Subsistence. Vacancy rates are not available for Wrangell.

³ The Petersburg survey was directed by Chilkat Institute, also under contract to the Division of Subsistence. Vacancy rates are not available for Petersburg.

⁴ Sitka interviews were conducted by telephone. Vacancy rates are not available for Sitka.

ISER research staff edited, coded, entered on computer, and verified questionnaire responses. The resulting data file was then examined by staff of the Division of Subsistence and ISER for errors or apparent anomalies. In a few instances we contacted respondents to confirm their answers. In most cases, however, the verbatim comments of the respondents recorded on the questionnaires clarified or substantiated unusual responses.

Eighty-three percent of the households randomly selected to participate in the survey completed an interview (see Table 1 for individual community response rates). Refusal rates for individual questions were, with minor exceptions, under one percent of all respondents. The reliability of individual data items in the study depends on the variation in responses, the type of estimate (e.g. mean or percentage), the ability of the respondent to accurately provide the information, and the size of the sample upon which the estimate is based. Individual community samples were designed to yield maximum sampling errors for dichotomous variables (e.g., yes/no responses) of plus or minus 12 percentage points at a 95 percent level of confidence. While the reliability of individual estimates varies widely, most mean harvest amounts reported at the community level for major species or species groups can be assumed to have a margin of sampling error of plus or minus 50 percent of the mean (e.g. 126 deer \pm 50 percentage points or \pm 63 deer).

Much of the data contained in this report represent harvest quantities reported for the entire year of calendar 1987. These data reflect the respondent's best estimate and may be in error due to recall problems. Errors due to recall problems are additional to the sampling errors discussed above. Conversion of harvest quantities to edible pounds were made on the basis of conversion factors developed by the Alaska Department of Fish and Game (Schroeder and Kookesh, 1988).

Only households occupied at the time the survey was conducted were eligible for selection (see Table 1 for vacancy rates). Since some households are occupied only during the summer or only occasionally during the year, it is important to keep in mind that the survey results pertain to the winter population of each community. It is also possible that winter populations vary from year to year. While we have no evidence that the winter of 1987-88 was unusual, the reader should remember that the results can only be validly generalized to the population of each community in the winter of 1988.

The data upon which this report is based have also been used by the Division of Subsistence within the Alaska Department of Fish and Game in the preparation of technical reports. While all cooperating agencies have attempted to use consistent data analysis procedures, small differences in tabulations can be expected due to the timing of tabulations and the evolution of analysis procedures. The reader should also be aware that other data collection efforts such as harvest surveys conducted by the Division of Sportfish in the Alaska Department of Fish and Game produce estimates that may appear to be comparable but, in fact, are

based on different definitions of harvest activity and different data collection methods.

This report presents data recorded on the questionnaires only. Mapped information was being digitized into a geographic information system database and processed at the time this report was prepared. The report is divided into five chapters. Following this introductory chapter is an overview of the population of rural southeast Alaska. This overview places subsistence use in the context of the broader social and economic composition of the population. Chapter 3 presents results on the characteristics of deer harvesters and on the characteristics of deer harvest areas. Chapter 4 is divided into major sections by resource: salmon, other fish, land mammals other than deer, marine mammals, invertebrates, birds, and plants. Chapter 5 presents highlights and conclusions drawn from earlier chapters.

II. OVERVIEW

Information on household characteristics and resource harvest patterns is presented in summary form in this chapter. This information is based on the responses provided by the households sampled in the survey. We then extrapolated these data to derive estimates of rural household characteristics for the southeast region as a whole.² Since household characteristics vary over time, the reader should keep in mind that the results reported below may differ from estimates based on earlier data collection efforts by the Alaska Department of Fish and Game or other agencies.

A. Household Characteristics

Based on the survey results, approximately 8,500 households are currently occupied in the 30 communities that, for the purposes of this study, were considered to constitute the permanent rural settlements of southeast Alaska (see Table 1, above). These communities range in size from Meyers Chuck with a winter population of 10 households to Sitka, with its estimated population of approximately 3,000 households.³

Of the 25,500 people living in the rural communities of southeast Alaska, seven percent (1,572 people) live in the 17 small communities that had under 100 occupied households in the winter of 1988 (see Figure 1).⁴ Thus, about half the communities of rural southeast Alaska account for less than 10 percent of the rural population. A third (9,000 people) of all rural residents live in the 11 communities of between 100 and 999 occupied households, and another quarter (6,875 people) live in Wrangell and Petersburg, each having approximately 1,000 households. Finally, one in three rural residents live in Sitka.

Survey results indicate that the median 1987 family income in rural southeast Alaska was \$38,365. This can be compared with a U.S. median family income in 1987 of \$30,853 (USDC 1988). It should be kept in mind that the cost of living in rural southeast Alaska is somewhat higher than the national average. We estimate that costs are approximately 20 percent higher meaning that the comparable median southeast 1987 family income was \$31,500 in 1987, roughly equal to the U.S. median family income. It should also be kept in mind, however, that Alaska households receive substantial public services that are subsidized through government programs or provided by Native Corporations.

Viewed from another perspective, however, incomes of southeast Alaskan residents living in rural communities appear relatively low. The 1987 per capita income for Alaskans was \$18,230 (BEA 1988). The comparable figure for rural southeast Alaska based on this study is \$10,167. The Native rural southeast population had a 1987 per capita income of \$16,536. The members of one-in-six rural southeast households had per capita incomes of less than \$5,000 in 1987 (see Figure 2). Thus the maximum income for households in this category with four members in 1987 was \$20,000.

Viewed as a whole, Alaska is a state characterized by a highly mobile population. Much of this mobility, however, is confined to its urban centers. Rural southeast Alaska residents are more likely than their urban counterparts to remain in a single community most of their lives (see Figure 3). Slightly under half of all households (46 percent) have had a household member residing in the same community for 20 years or more. In only one in five households has no one resided in the community for at least five years.

Almost three-quarters (73 percent) of all rural Southeast households have a white head of household⁵ (see Figure 4). Since households headed by an Alaska Native are larger on average than households headed by a white (3.4 vs. 2.9), the white population is somewhat smaller as a proportion of the total rural Southeast population (70 percent).

In summary then, we will be presenting findings which apply to a population which either lives in one of three larger communities (Sitka, Petersburg, or Wrangell), or is dispersed in 27 small settlements and villages; in which the average family receives an income equal to the average American family, but less than the average Alaskan (on a per capita basis); which is more likely to remain in a community than move; and which is primarily non-Native (with a significant Native minority).

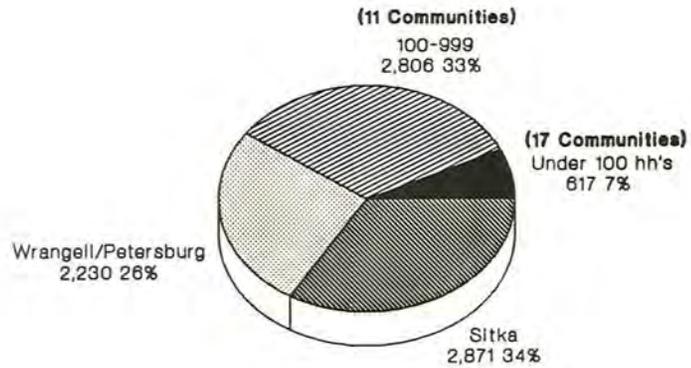
Only 15 percent of rural southeast households harvest no subsistence food (see Figure 5). Half of all households (51 percent) report harvesting more than 80 pounds of edible subsistence product per capita in 1987. A quarter of all households harvest more than 250 pounds per capita.

Much of the subsistence harvest is directly incorporated into household diets. Almost one in three households gets at least half of the food it consumes from its own harvest activities (see Figure 6). A total of 40 percent of all households get at least 25 percent of their food from household subsistence harvests.

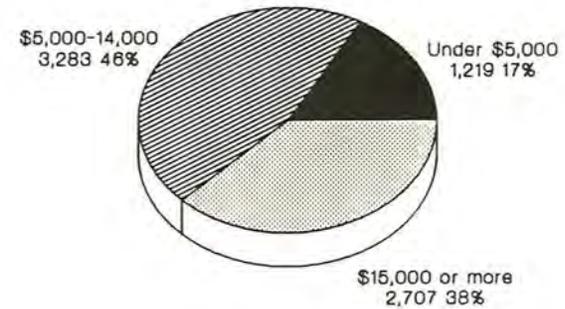
Residents not only use subsistence products for much of their food, they also tend to harvest multiple types of subsistence resources (see Figure 7). More than half of all households (61 percent) harvested at least four different types of fish, wildlife, and/or plant resources in 1987. One in five households harvested more than 10 different types of resources.

As we will show in more detail later in this report, subsistence uses of resources in southeast Alaska cannot be explained simply in terms of household harvest and consumption. Most subsistence harvesters give at least part of their harvest away (see Figure 8). A third of all households in rural southeast Alaska gave away at least four different types of resources in 1987. Most (approximately two-thirds) of the households reporting that they gave no resources away did not harvest any resources themselves.

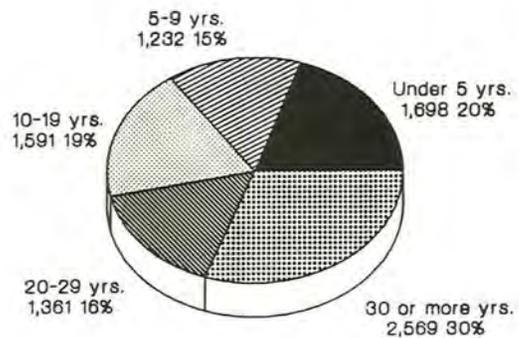
**Figure 1: Number of Households
By Size of Place**
(Number of Households in Community)



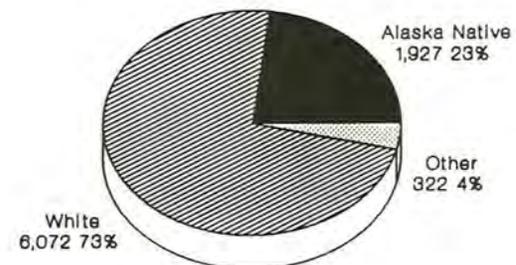
**Figure 2: Number of Households
By Income Per Household Member**



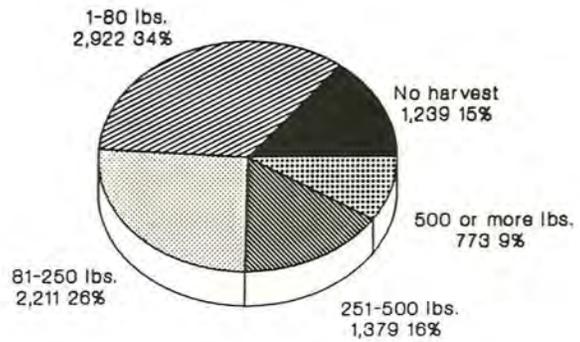
**Figure 3: Number of Households
By Length of Residence in Community**



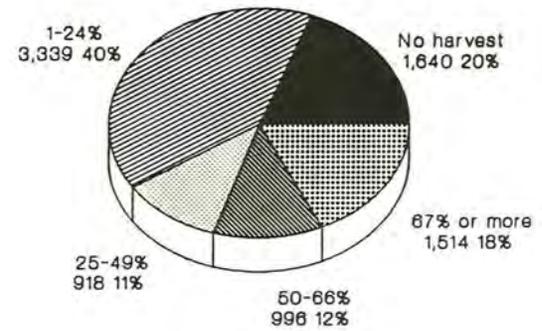
**Figure 4: Number of Households
By Ethnicity**



**Figure 5: Number of Households
By Pounds of Subsistence Harvest**

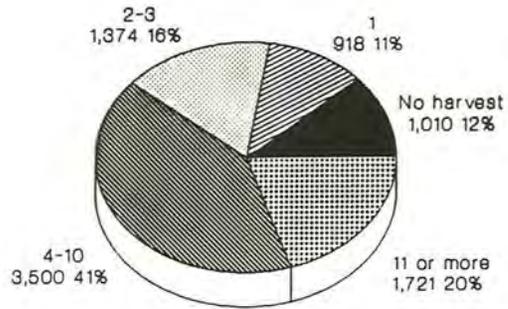


**Figure 6: Number of Households
By Percent of Meat from Subsistence**

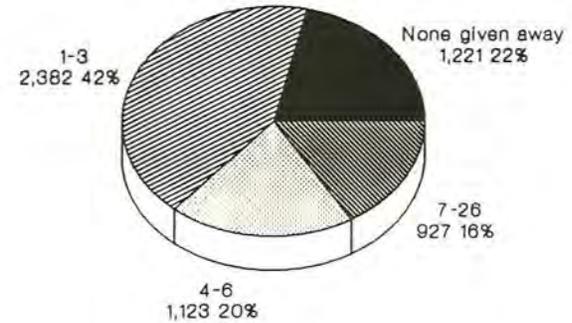


Tongass Resource Use Cooperative Survey

**Figure 7: Number of Households
By Number of Resource Types Harvested**
(Of 42 Resource Types, e.g. king salmon)



**Figure 8: Number of Households
By Number of Resource Types Given Away**
(Data for Sitka Not Collected)



Tongass Resource Use Cooperative Survey

B. Differences in Subsistence Resource Harvest Levels

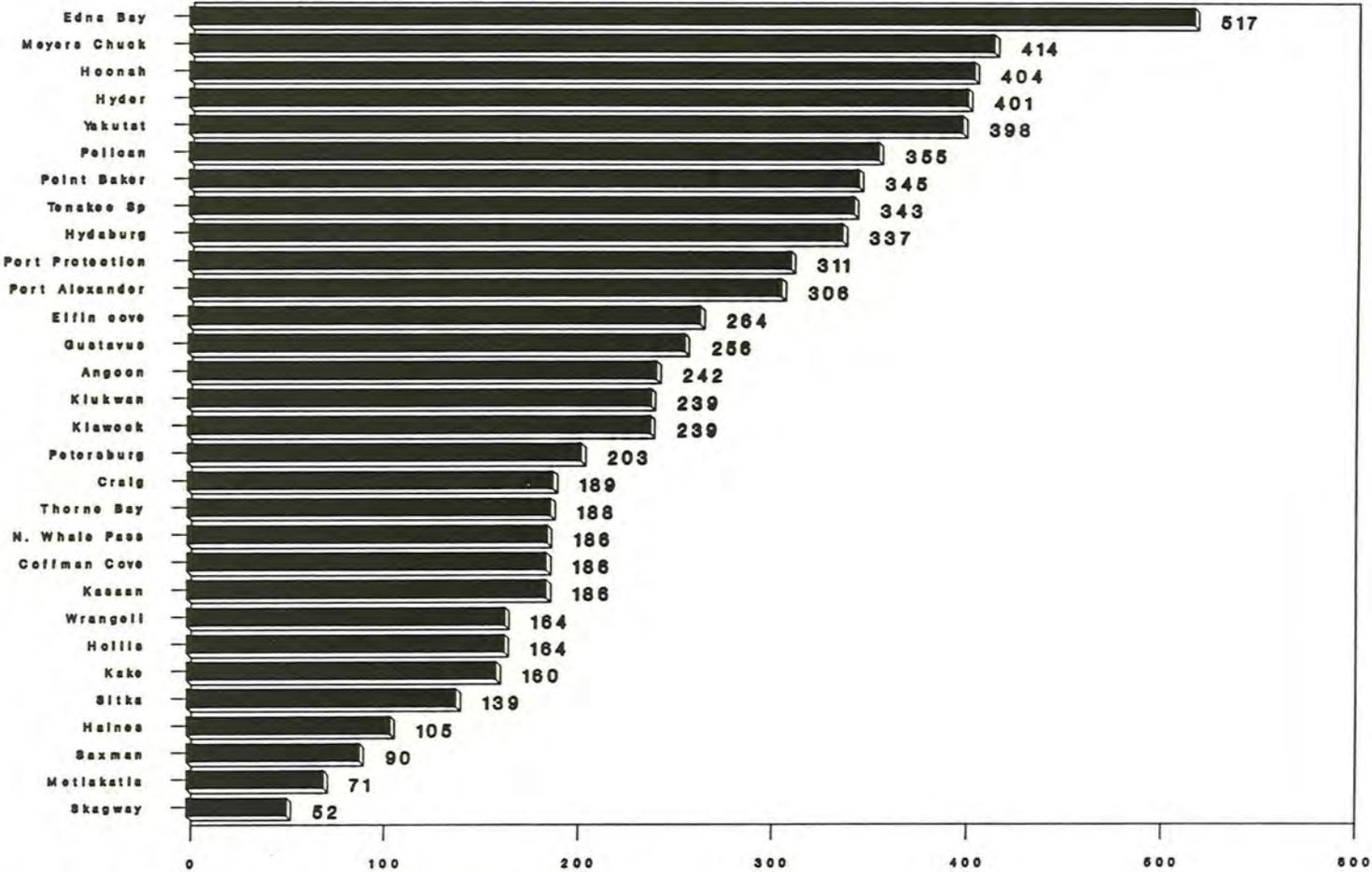
Household use of subsistence resources is high in most southeast communities. Communities reporting the highest per capita subsistence harvests include Edna Bay (517 pounds), Meyers Chuck (414), Hoonah (404), Hyder (401), and Yakutat (398). The communities of Pelican, Point Baker, Tenakee Springs, Hydaburg, Port Protection, and Port Alexander harvest over 300 pounds per capita. Even in Skagway, the community associated with the lowest per capita subsistence harvest, residents reported harvests amounting to 51 pounds per capita.

The distribution of total harvest levels by community bares little resemblance to the distribution of harvest levels on a per capita basis. Sitka, which is shown in Figure 9 to have the sixth lowest mean per capita harvest (158 pounds), represents the single largest consumer of subsistence resources. Sitka residents reported harvesting over 1.1 million pounds of edible resource product in 1987 (Figure 10). Sitka subsistence harvests constitute 25 percent of the total harvest of rural southeast residents. The next two largest communities, Petersburg and Wrangell, are the second and third highest consumers of subsistence resources, accounting for another 28 percent of the total regional harvest. The large differences in community size, then, account for more of the variation in total community harvest than do differences in the per capita harvest levels of individual communities.

The above conclusion is shown more clearly in Figures 11 and 12. Households in communities of under 100 occupied households harvested an average of 309 pounds per household member – nearly twice as much when compared to households in Sitka which harvested an average of 158 pounds per household member (Figure 11).⁶ Yet all 17 communities of under 100 households account for a combined total harvest of only 443,000 pounds, in contrast to a total harvest in Sitka alone of 1.1 million pounds, almost three times as much (Figure 12).

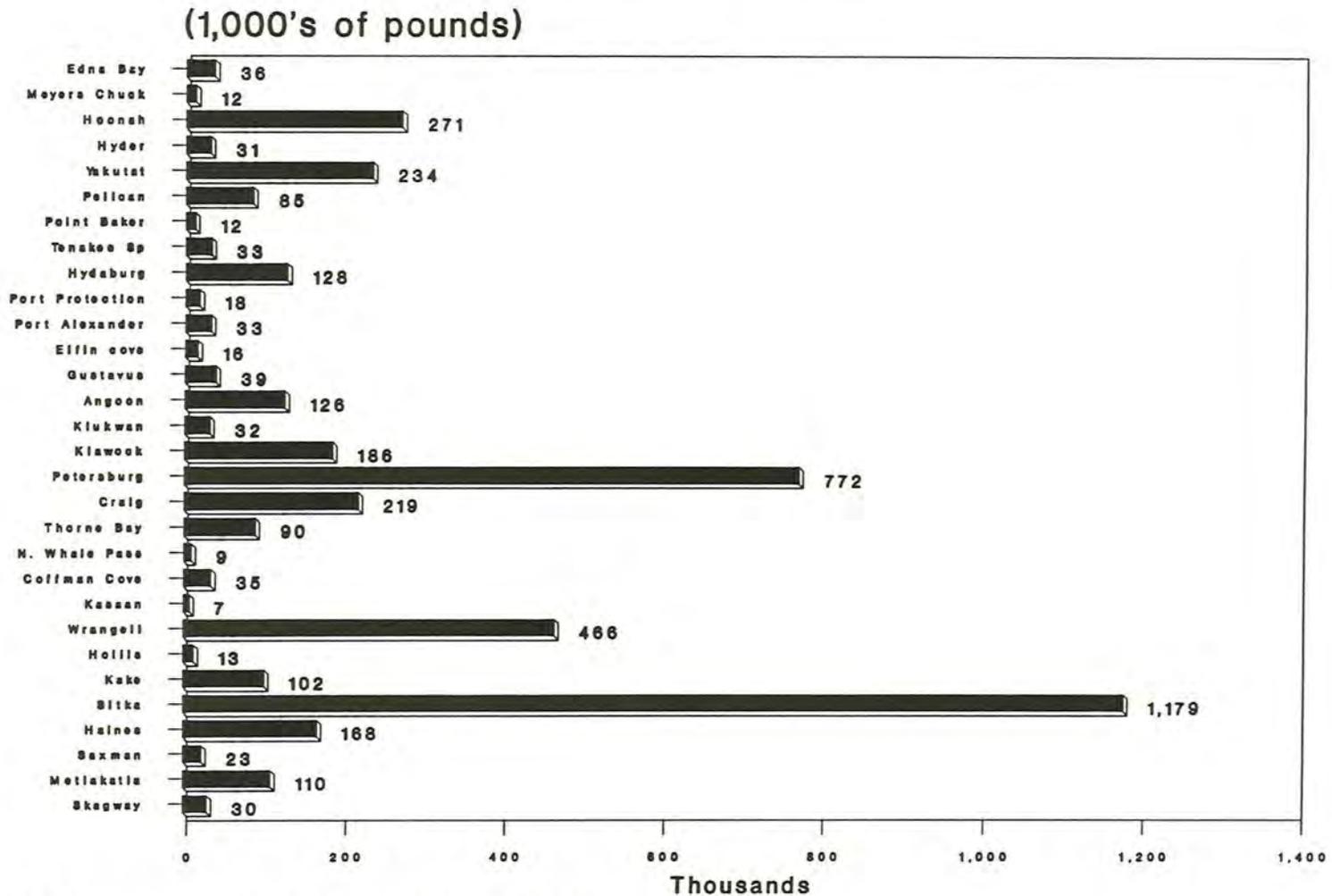
We have already seen that 85 percent of all households in rural southeast Alaska harvest at least some subsistence resources. One might still think, however, that the largest share of subsistence harvest would be accounted for by low income households. This expectation is consistent with the view that subsistence harvests are a means for compensating for low cash incomes. In fact, households with incomes of \$15,000 or more per household member account for the highest harvests of subsistence resources (see Figure 13). And, given the number of households with higher incomes, the highest income group also accounts for a larger aggregate harvest (1,263,000 pounds) than that of the lowest income group (877,000 pounds) (see Figure 14).

Figure 9: Per Capita Pounds of Subsistence Harvest By Place



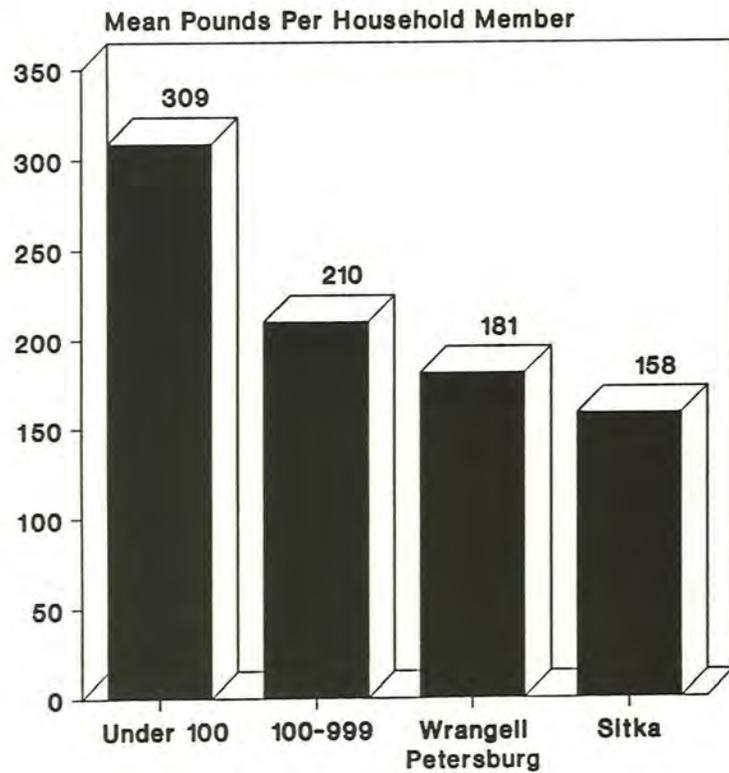
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Figure 10: Total Pounds of Subsistence Harvest By Place



Tongass Resource Use Cooperative Survey

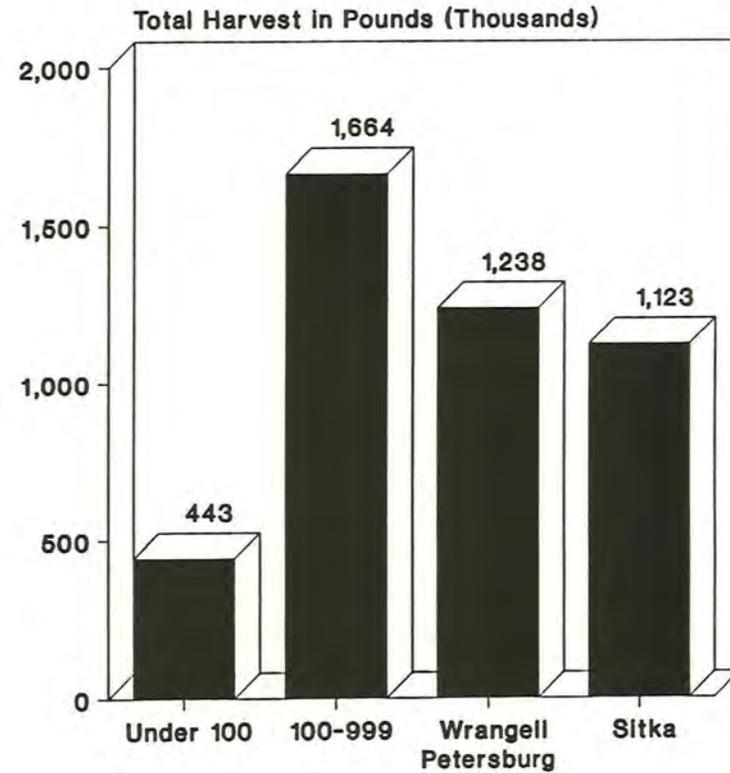
**Figure 11: Mean Harvest
By Size of Place**



Number of Households in Community

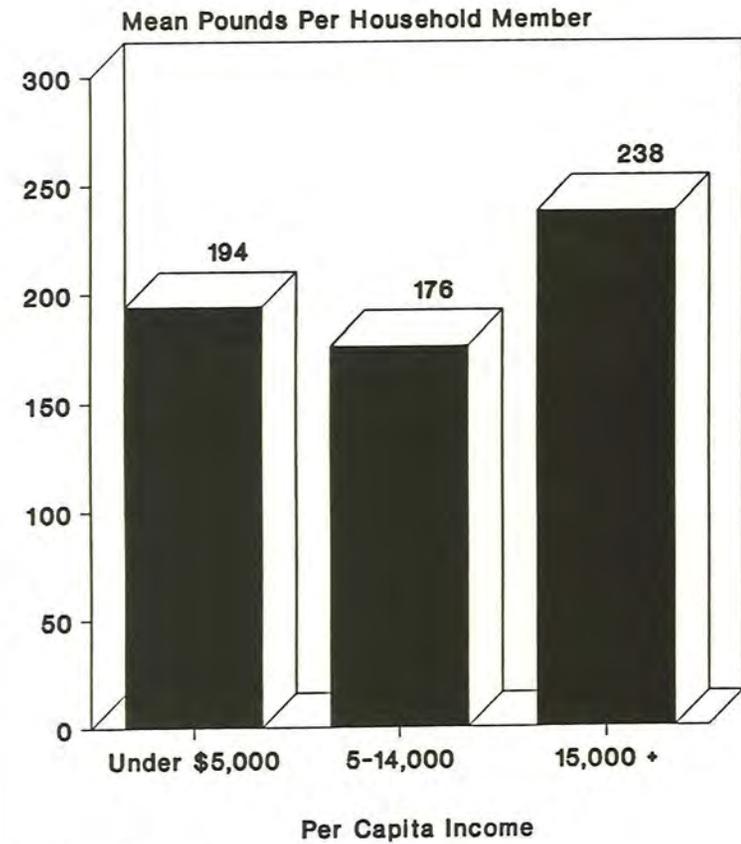
Tongass Resource Use Cooperative Survey

**Figure 12: Total Harvest
By Size of Place**



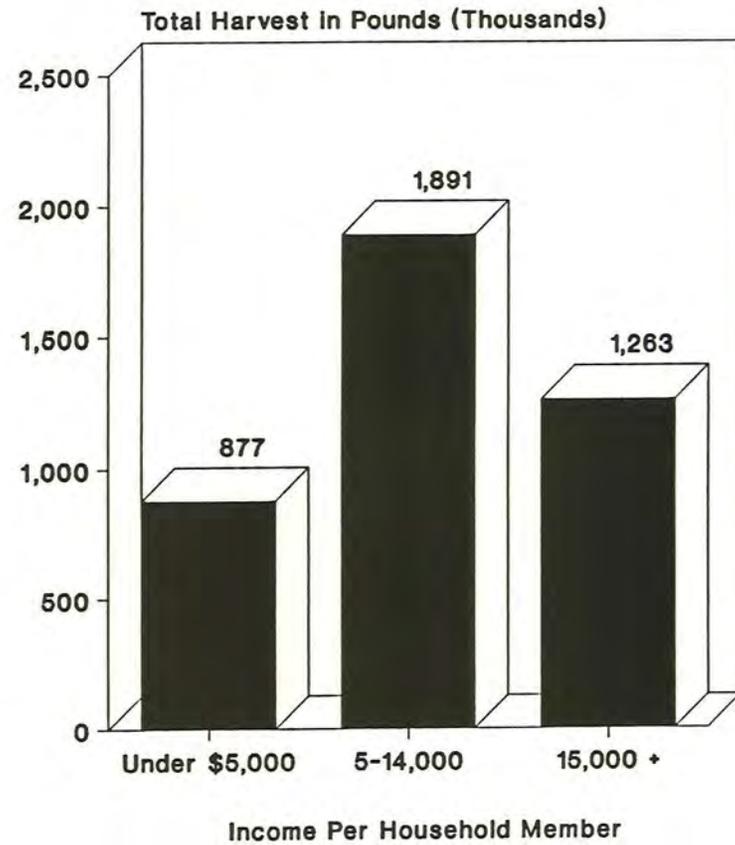
Number of Households in Community

**Figure 13: Mean Harvest
By Income Per Household Member**



Tongass Resource Use Cooperative Survey

**Figure 14: Total Harvest
By Income Per Household Member**



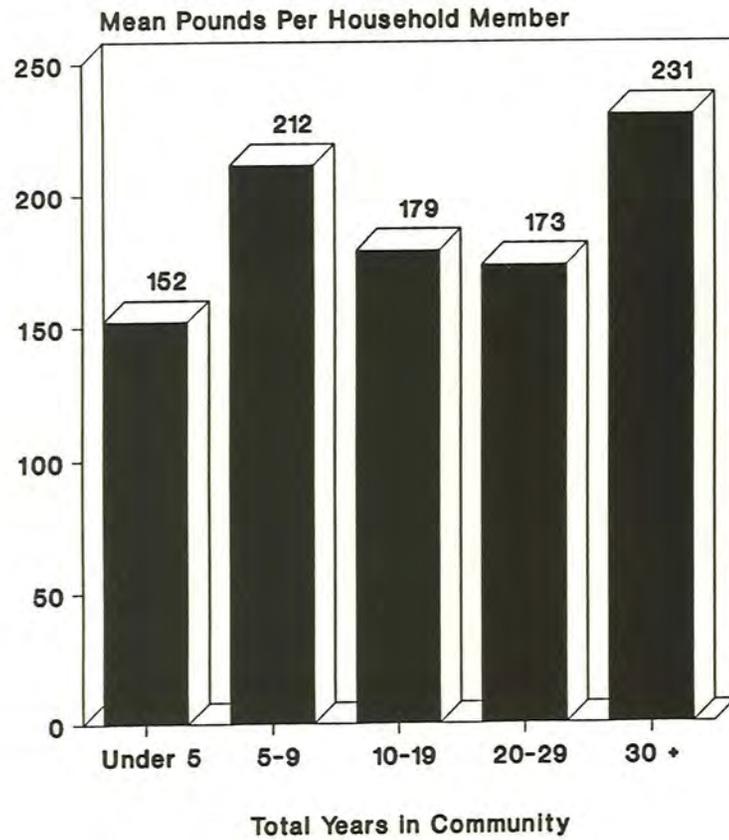
These results show that subsistence uses of natural resources in southeast Alaska are widely preferred sources of food. Subsistence harvest activity is therefore unlikely to diminish if household incomes were to increase; on the contrary, the data indicate that higher incomes are associated with increased harvests.

Another indication that subsistence uses of natural resources in southeast Alaska are of widespread interest among households in the region is the fact that newcomers to communities harvest significant quantities (see Figure 15). The relationship between harvest amount and length of residence is not uniform. Residents who have lived in the community for either 30 years or more, or between 5 and 9 years tend to harvest more than other residents.

We might speculate that the 5-to-9-year resident group has lived in the community long enough to have learned how and where to hunt for locally available resources and is highly motivated to harvest these resources. Residents of intermediate tenure (i.e., 10 to 29 years) may have lost some of the passion for harvest activity and/or may experience increased demands on their time (e.g. raising a family). The longest term residents may well reflect a self-selected group who have always been active harvesters of subsistence resources. The relatively large proportion of long-term residents coupled with a high level of harvest activity among such residents means that they account for the largest proportion of total subsistence harvest (see Figure 16).

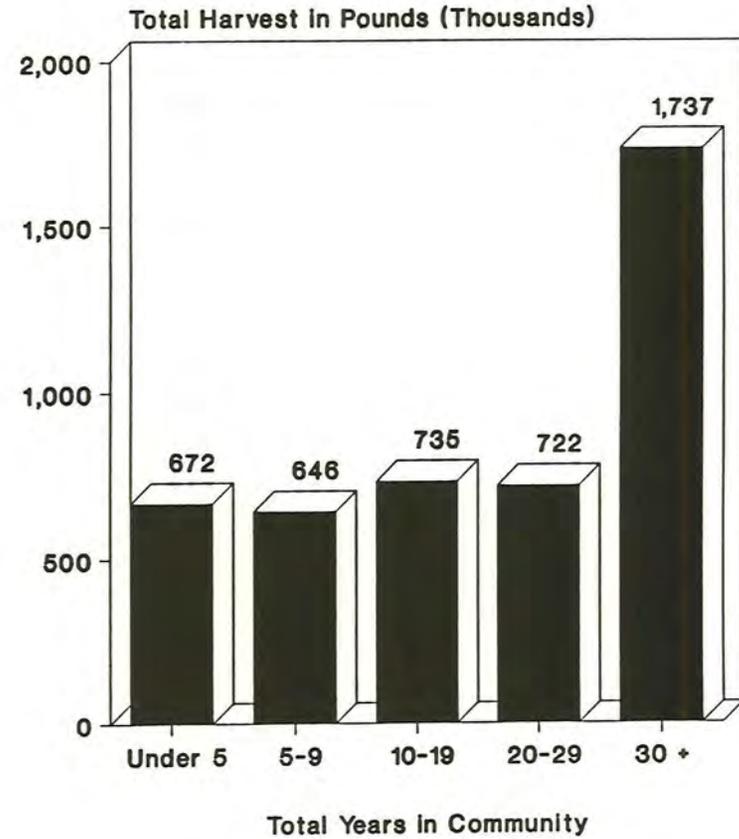
High income households and newcomers to communities are generally active harvesters of subsistence resources in southeast Alaska. So are low income households and long term residents. In keeping with this pattern of findings are the harvest patterns of Alaska Natives, whites, and persons of another ethnic background.⁷ We find that the mean Native harvest per household member (209 pounds), and the white mean harvest per household member (191 pounds), are similar, but that both are slightly higher than the mean harvest for non-Native, non-whites (148 pounds) (see Figure 17). And, because whites constitute 73 percent of the rural southeast population, they account for the largest component (69 percent) of total subsistence harvest – 3,034,000 pounds, in contrast to 1,248,000 pounds and 160,000 pounds for Natives and non-Native, non-white households respectively (see Figure 18).

**Figure 15: Mean Harvest
By Length Residence in Community**

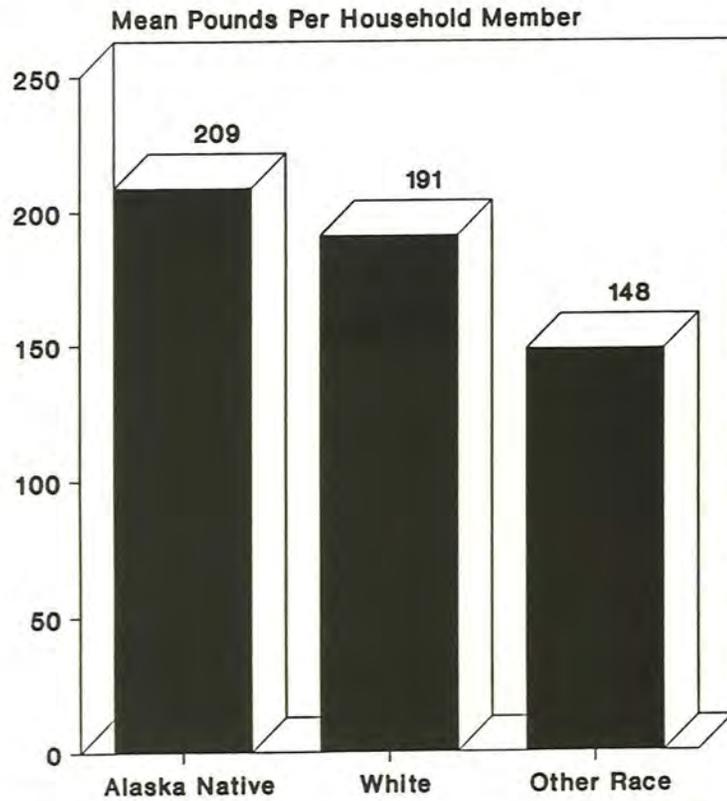


Tongass Resource Use Cooperative Survey

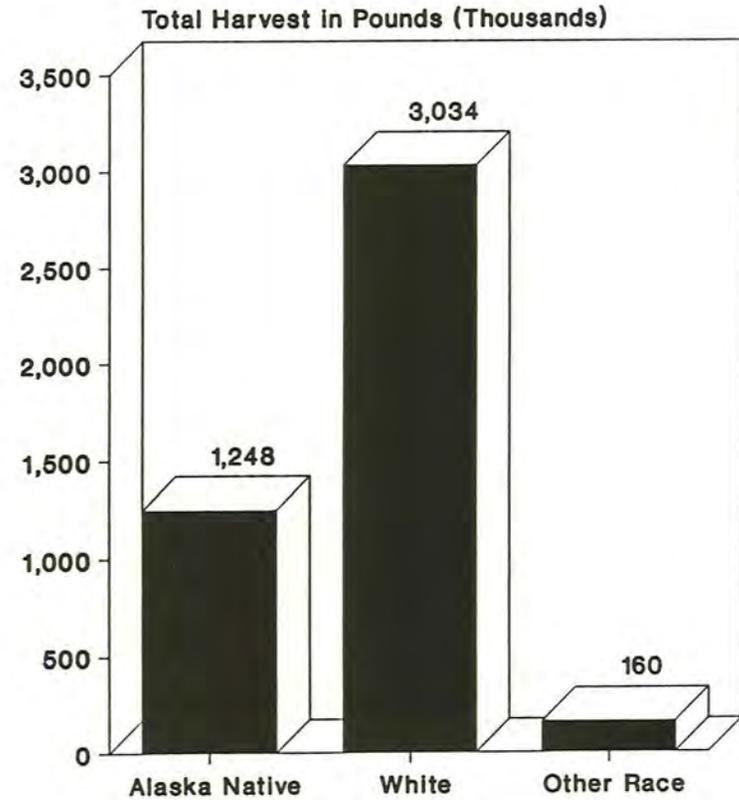
**Figure 16: Total Harvest
By Length Residence in Community**



**Figure 17: Mean Harvest
By Ethnicity**



**Figure 18: Total Harvest
By Ethnicity**



Tongass Resource Use Cooperative Survey

C. The Percent of Food Derived From Subsistence Activities

Closely related to the measure of total pounds of edible subsistence harvest per household member is the respondent's perception of the proportion, or percent, of the household's meat (i.e., meat and fish) that comes from the harvest activities of household members. We showed earlier (Figure 6) that almost a third of rural southeast Alaska households perceive that at least half of their meat comes from their own harvest activities.

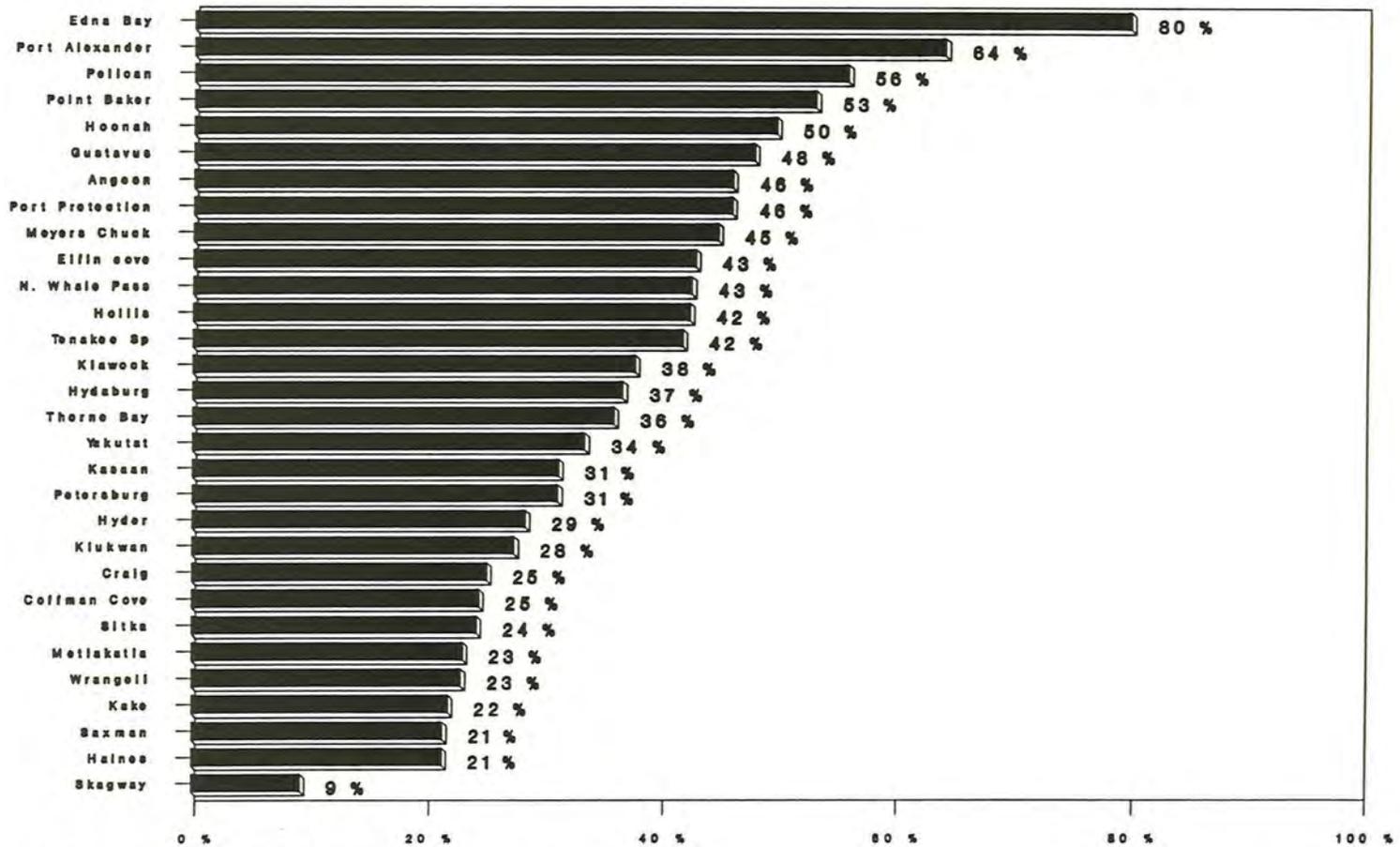
Figures 19 through 23 present a series of comparisons that parallel those we have just presented for mean harvest levels. The point of these figures is that, with one minor but interesting exception, the results are consistent with those of the previous set of figures. The exception is that members of the highest income group have the highest mean harvest and the lowest mean percent of meat derived from subsistence activities (compare Figure 13 with Figure 21). We should note that total household consumption of meat and fish is only partially explained by household harvests and purchased foods; another important category of food consists of the subsistence harvests of other households (see differences in resource sharing, below).

D. Differences in Diversity of Harvest

In terms of useable resources provided by the natural environment, southeast Alaska is a land of abundance. In all, respondents indicated that 42 different resource categories were harvested for personal use. This variety provides opportunities for diverse diets, depending on individual tastes and preferences. The availability of subsistence resources is not uniform throughout southeast Alaska. The uneven distribution of subsistence resources may, in part, explain variations in the diversity of harvest activity among rural southeast communities. Residents of Edna Bay, for example, harvest the highest average number of different resources (16.3), while the average number of different resources harvested by respondents in Skagway was three (see Figure 24). In fact, geographic differences in the richness of the resource base may partly explain community differences both in the mean harvest and percent of meat derived from such harvests. In addition to variability in the biological productivity of the land base, however, fish and game harvest regulations and other sociocultural considerations are also factors that determine levels and diversity of resource harvest.

The diversity of resource harvest activities does not vary greatly by size of place, income, length of residence, or ethnicity (see Figures 25 through 28). Region-wide, however, there is a slight tendency for households located in small communities, and households with lower incomes, to harvest a greater variety of resources than other households.

**Figure 19: Percent Meat
From Subsistence By Place**
(Average Percent Among Households)



Tongass Resource Use Cooperative Survey

Figure 20: Percent Meat From Subsistence By Size of Place

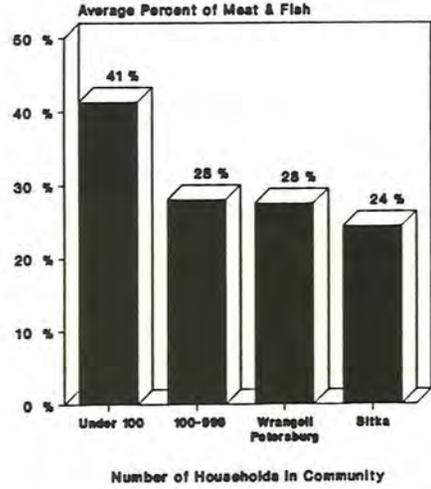


Figure 21: Percent Meat From Subsistence By Income Per Household Member

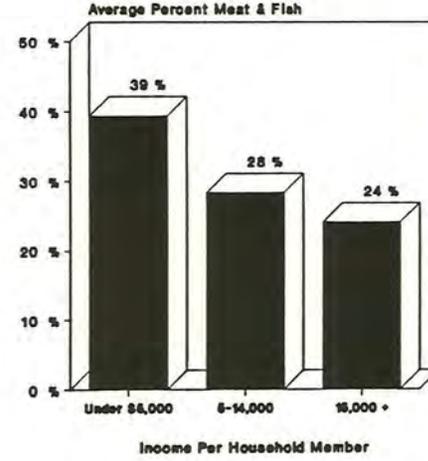


Figure 22: Percent Meat From Subsistence By Length Residence

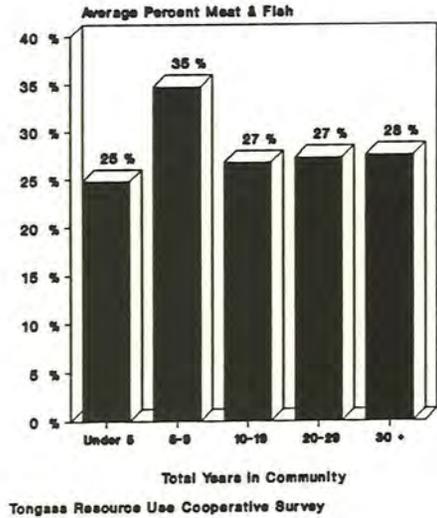


Figure 23: Percent Meat From Subsistence By Ethnicity

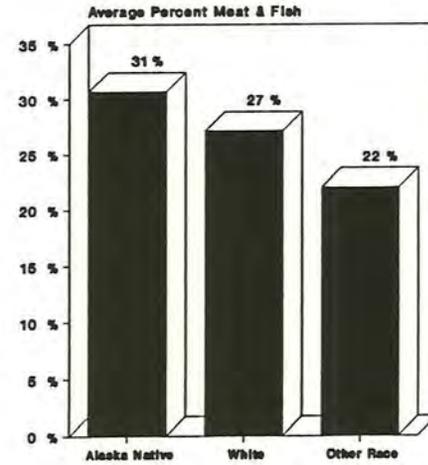
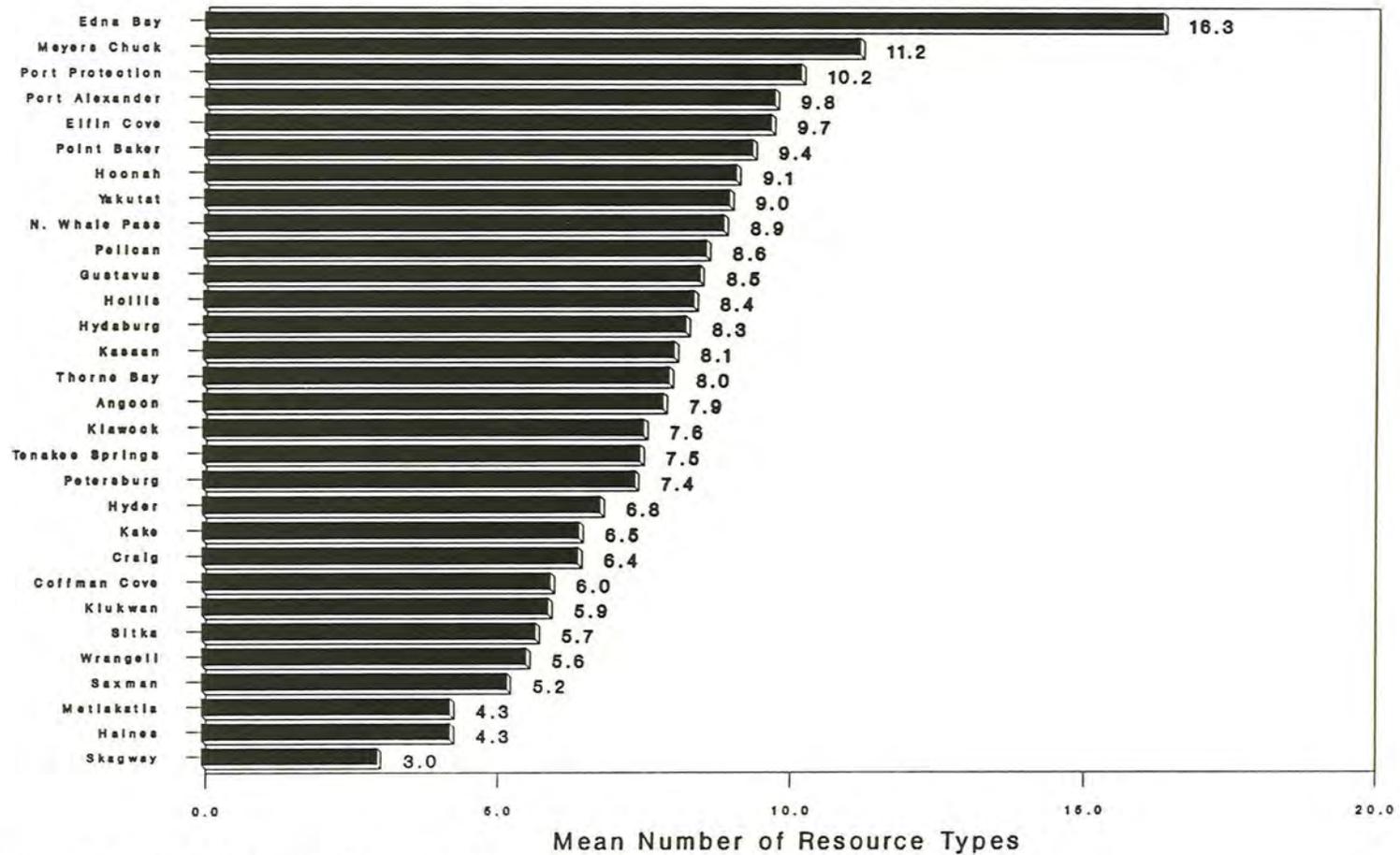


Figure 24: Number of Resource Types
Harvested by Place
(Of 42 Resource Types, e.g. king salmon)



Tongass Resource Use Cooperative Survey

Figure 25: Number of Resource Type Harvested by Size of Place
(Of 42 Resource Types, e.g. king salmon)

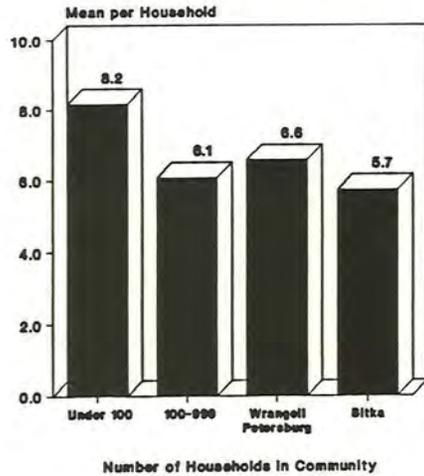


Figure 26: Number of Resource Types Harvested by Income Per Household Member

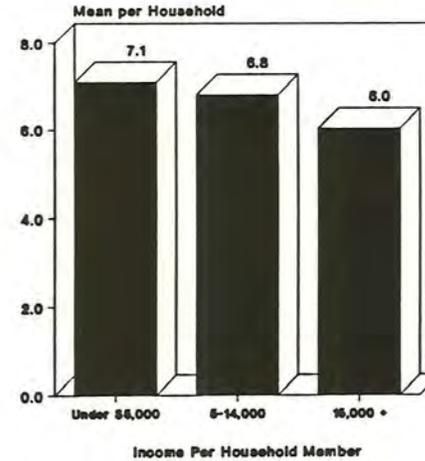


Figure 27: Number of Resource Types Harvested by Length Residence
(Of 42 Resource Types, e.g. king salmon)

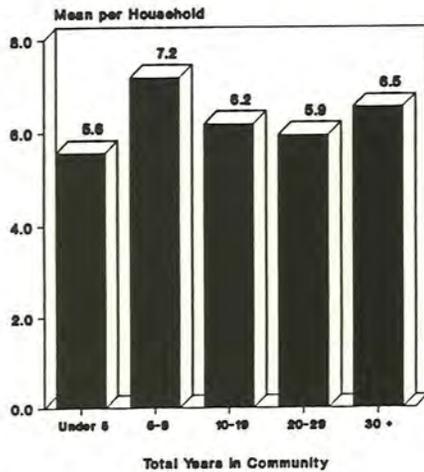
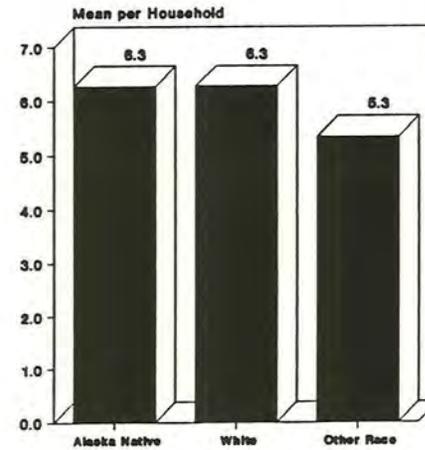


Figure 28: Number of Resource Types Harvested by Ethnicity
(Of 42 Resource Types, e.g. king salmon)



Tongass Resource Use Cooperative Survey

E. Differences in Resource Sharing

An important component of subsistence lifestyles involves distribution and exchange activities – sharing renewable natural resources with friends, families, co-workers, and other people in one’s social network. The survey collected data on the extent to which resources are shared between different households. Although we did not specifically ask about the geographic distribution of sharing networks, anecdotal data indicate that resources harvested in southeast Alaska are frequently shared with family or friends in different communities within the region. In addition, certain proportions of edible products find their way to communities in the lower 48.

With the exception of deer, the length of the survey precluded asking people questions about the amount, or quantity, of resource sharing. Instead, we asked people to indicate whether they gave or received any amount at all of a particular resource. Although information regarding the quantities of all resources that were shared would be extremely useful, the fact that resources are given and received at all is still an important indicator of the extent to which a community depends on subsistence resources for social, economic, and/or cultural purposes. Table 2 illustrates the differences among Southeast Alaska communities regarding their resource harvest and sharing patterns.⁸ Sharing of individual resources will be addressed in greater detail in subsequent chapters of this report.

Table 2
Harvest, Giving, and Receiving of
Subsistence Resources by Community

LOCATION	Pounds Harvested Per Capita			Mean Number of Resource Types Harvested	Mean Number of Resource Types Given	Mean Number of Resource Types Received
	Low Estimate*	Mean	High Estimate*			
Region	201	213	224	6.2	3.4	3.7
Edna Bay	475	517	560	16.4	6.7	7.2
Meyers Chuck	414	414	414	11.2	3.1	4.3
Hoonah	300	404	508	9.1	5.5	7.7
Hyder	365	401	437	6.8	2.0	3.1
Yakutat	304	398	492	9.0	6.1	9.0
Pelican	300	355	410	10.0	5.3	9.0
Point Baker	345	345	345	9.4	3.7	5.3
Tenakee Sp	250	343	436	7.5	3.8	5.5
Hydaburg	232	337	443	8.3	5.2	9.2
Port Protection	282	311	339	10.2	5.6	7.7
Port Alexander	281	306	331	9.7	3.8	5.4
Elfin cove	174	264	354	10.0	4.5	6.8
Gustavus	201	256	312	8.5	3.8	4.2
Angoon	178	242	306	7.9	3.8	6.4
Klukwan	151	239	327	5.9	3.9	6.1
Klawock	168	239	310	7.6	3.3	4.6
Petersburg	181	203	226	7.4	3.8	5.1
Craig	130	189	248	6.4	2.7	4.5
Thorne Bay	123	188	252	8.0	2.9	3.2
N. Whale Pass	186	186	186	8.9	1.9	3.5
Coffman Cove	139	186	232	6.0	1.8	2.2
Kasaan	186	186	186	8.1	4.2	5.8
Wrangell	116	164	212	5.6	3.2	6.3
Hollis	128	164	200	8.4	2.9	3.3
ake	119	160	201	6.5	3.3	7.0
Sitka	117	139	162	5.7	n/a	n/a
Haines	57	105	154	4.3	2.8	4.1
Saxman	58	90	121	5.2	2.6	5.7
Metlakatla	40	71	101	4.2	2.6	5.8
Skagway	31	52	72	3.0	1.3	3.6

n/a = data not available

* As mentioned in the introduction to this report, all figures are sample estimates. Columns one and three of Table 2 display the low and high estimates for per capita subsistence harvests based on a 90 percent level of confidence.

Sharing is an important cultural component of both Native and white societies. Traditionally, however, one of the special characteristics of Alaska Native cultures often mentioned is resource sharing. Relative to non-Natives, at least, this perception is confirmed by the data in this study. Region-wide, for example, respondents residing in Native households gave away an average of 3.0 different kinds of resources – nearly 50 percent more than white households, which gave away an average of 2.1 resources. This contrasts with non-Native, non-white households who shared 1.7 different kinds of resources (Figure 33). This pattern is nearly as pronounced when data on receiving are examined. On the average, Native households reported receiving 5.3 different resources, while white households and non-Native, non-white households received an average of 3.2 and 3.7 different resources respectively (Figure 38).

We also see important differences in sharing activity between households in the highest income category (who tend to share less) and other households (who both give and receive more extensively). Households containing members who average \$5,000 annual income or less gave away a mean of 3.0 different resources, while households averaging at least \$15,000 per person per year only gave away a mean of 1.9 resources. Households in which individual members averaged between \$5,000 and \$15,000 of income per year gave away an average of 2.8 resources (Figure 31).

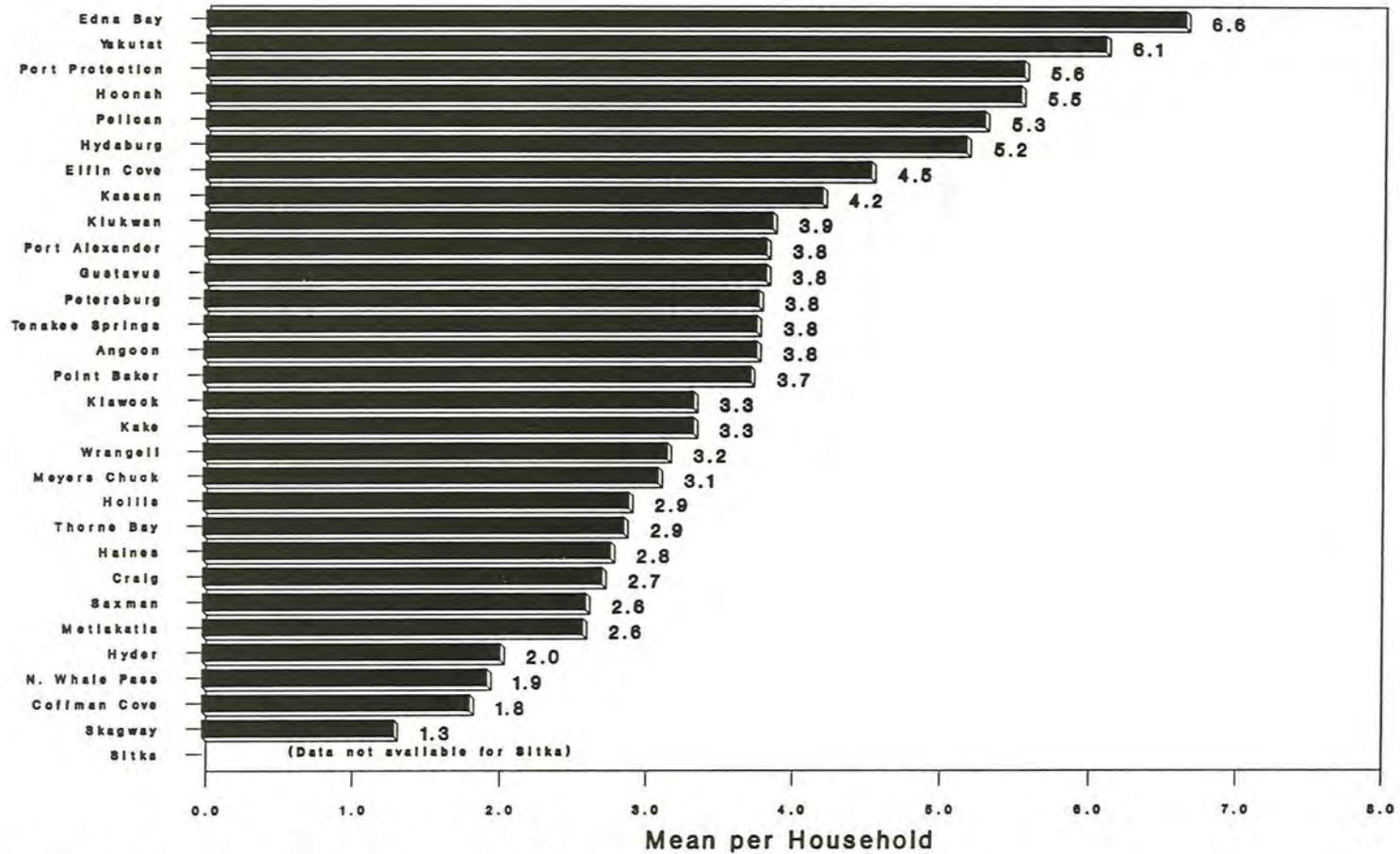
Higher income households not only gave fewer different kinds of resources to other households, but they also received fewer kinds of resources from others. Lower-income households (i.e., those averaging \$5,000 per year or less per individual household member) received a mean of 5.2 different kinds of resources from other households. Higher-income households (whose household members averaged \$15,000 per year or more), on the other hand, received only 3.3 different resources on average. Middle-income households (in which household members reported incomes ranging from \$5,000 to \$15,000 apiece) received 4.2 different resource types (Figure 36).

Differences in resource sharing patterns observed between lower and higher income households hold for non-Native households alone, but the pattern among Native households is somewhat different. Native households at all income levels give, on average, about the same number of different resource types (3.1, 3.7, 3.0 for low, middle, and high income groups). Interestingly, Native households receiving \$5,000 to \$15,000 per household member received a higher number (6.2) of different resource types on average than Native households receiving either more or less income (5.3 for under \$5,000 per household member and 5.0 for \$15,000-plus per household member).

One last noteworthy difference in sharing patterns is that long-term residents are substantially more likely to give as well as to receive subsistence resources than are people who have recently relocated to a community. Residents who have lived in a community for 30 years or more gave an average of 3.3 different resources types to other households, while people living in their community for less

than 30 years gave away an average of slightly less than 2 different resources (Figure 32). Residents of over 30 years were also the recipients of a greater average diversity of resources: 5.0 different resources types compared to 3.6, 3.2, and 2.9 for people living in the community for 20-29 years, 10-19 years, and less than ten years, respectively (Figure 37).

**Figure 29: Number of Resource Types
Given Away by Place**
(Of 42 Resource Types, e.g. king salmon)



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Figure 30: Number of Resource Types Given Away by Size of Place
(Of 42 Resource Types, e.g. king salmon)

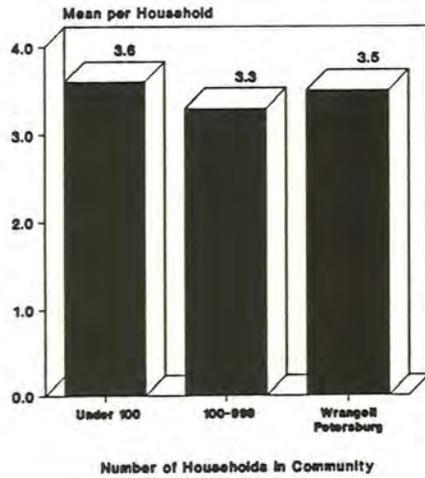


Figure 31: Number of Resource Types Given Away by Income Per Household Member

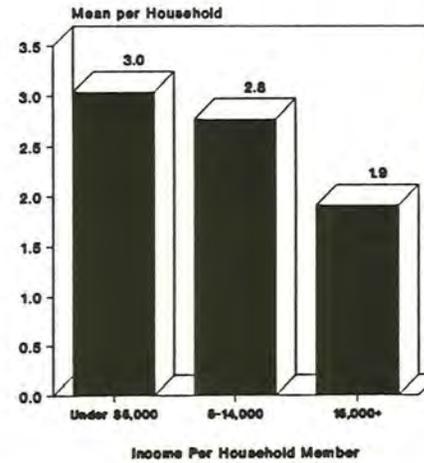


Figure 32: Number of Resource Types Given Away by Length of Residence
(Of 42 Resource Types, e.g. king salmon)

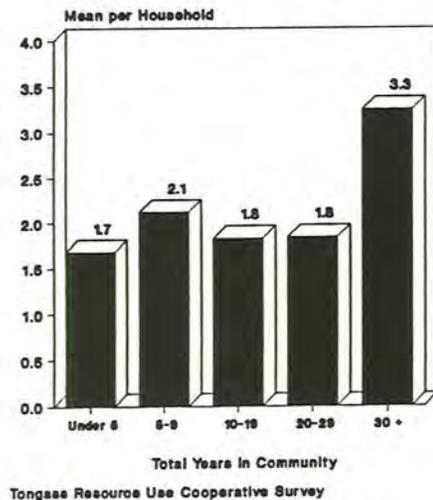
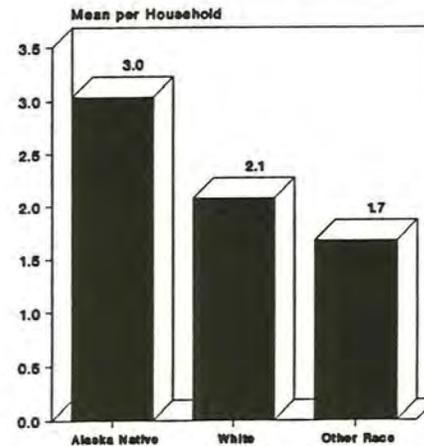
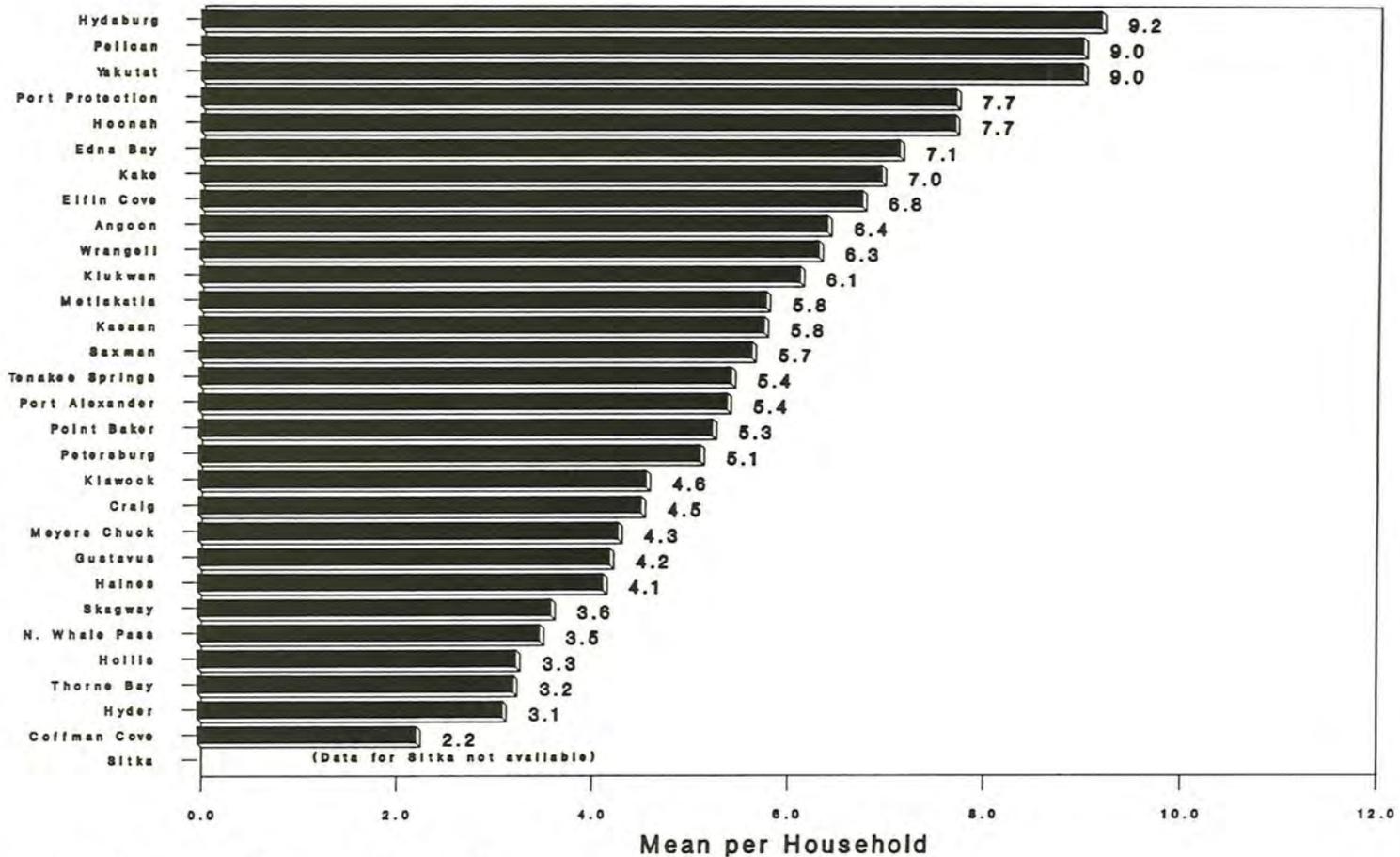


Figure 33: Number of Resource Type Given Away by Ethnicity
(Of 42 Resource Types, e.g. king salmon)



**Figure 34: Number of Resource Types
Received by Place**
(Of 42 Resource Types, e.g. king salmon)



Tongass Resource Use Cooperative Survey

Figure 35: Number of Resource Types Received by Size of Place
(Of 42 Resource Types, e.g. king salmon)

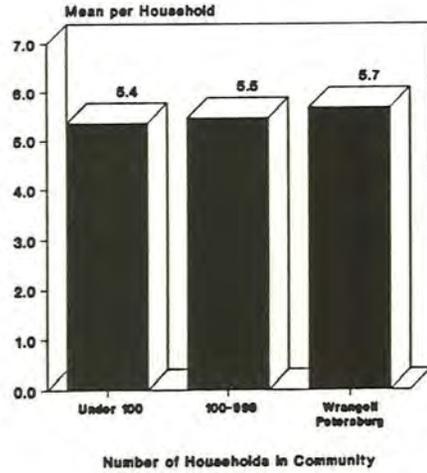


Figure 36: Number of Resource Types Received by Income Per Household Member

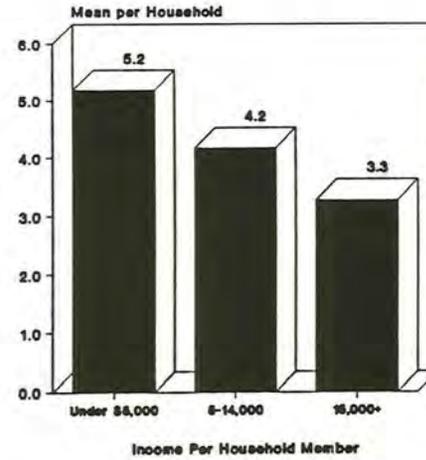


Figure 37: Number of Resource Types Received by Length Residence
(Of 42 Resource Types, e.g. king salmon)

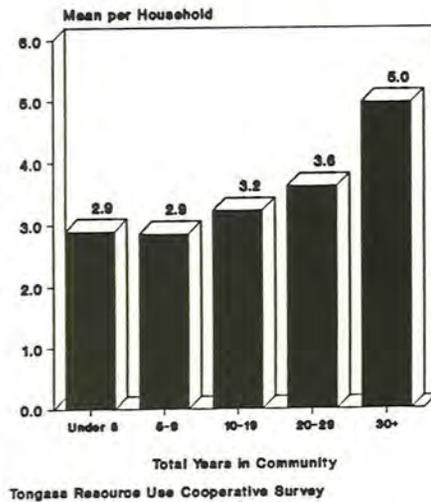
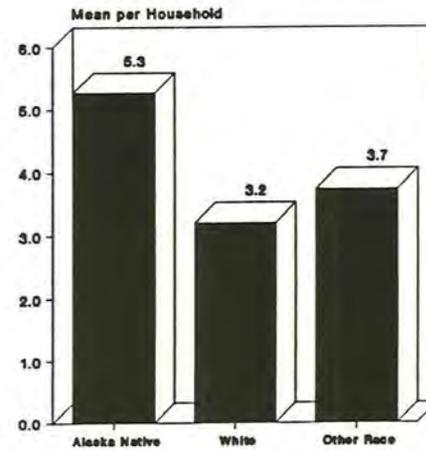


Figure 38: Number of Resource Types Received by Ethnicity
(Of 42 Resource Types, e.g. king salmon)



III. DEER

A. Deer Harvest

Numerous studies have documented the importance of Sitka black-tail deer as a source of food to southeast Alaska residents (Alves, 1980; George and Kookesh, 1983; Ellana and Sherrod, 1987). Data from the TRUCS study further confirm the continuing importance of deer meat in southeast Alaskan diets. Based on the survey results, deer constitute 21 percent of the total pounds of subsistence resources harvested by rural southeast Alaskans in 1987 (see Figure 39). An estimated 11,500 deer were harvested in 1987 by 3,000 households. In other words, over one-third of all rural households in the region – 37 percent – harvested at least one deer. Using a conversion factor of 80 pounds of useable meat per deer (Schroeder and Kookesh, 1988) this represents a total of approximately 928,000 pounds of deer that were either consumed, shared, or bartered by households that harvested deer.

As might be expected, deer harvest levels vary substantially by community (see Figure 40). Residents of Edna Bay, Port Alexander, Pelican, Tenakee Springs, Hoonah, and Angoon harvested an average of at least 250 pounds of deer meat per household in 1987. People residing in these communities are located in close proximity to prime deer habitat containing healthy deer populations, and competition from outside hunters is not yet so severe that deer populations have been depleted. Further, huntable deer populations are easily accessible, and liberal regulations have allowed relatively high harvest levels. Harvest levels were understandably lower in communities located distant from good deer habitat (e.g. Yakutat, Hyder, Skagway, and Haines).⁹

Compared to their counterparts in some of the smaller communities, residents of the three largest rural communities in the region – Sitka, Petersburg, and Wrangell – harvested much lower average quantities of deer per household: 106, 150, and 59 pounds, respectively. Although Sitka, Petersburg, and Wrangell residents do not harvest relatively large amounts of deer on a household basis, the three communities account for 58 percent of all deer harvested in the region, simply due to the fact that they together constitute 60 percent of the total number of rural households in the region (Figure 41). It is thus important to distinguish between differences in subsistence activity on a household and a community basis.

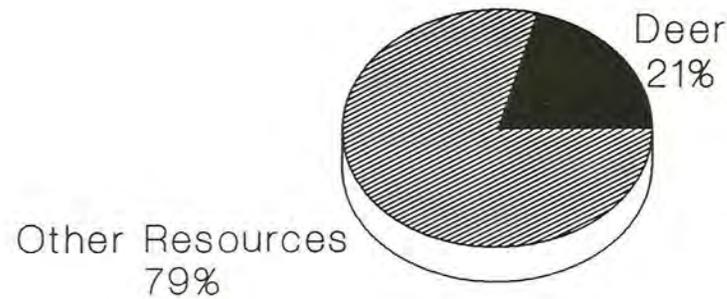
Figure 39: Deer Harvest Summary

(1987 Harvest Activity)

11,467 Deer

917,360 Pounds

Deer as Percent of Total Harvest



3,072 Households Harvested Deer (37% of all households)

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Figure 40: Mean Pounds of Deer Harvested Per Household By Place

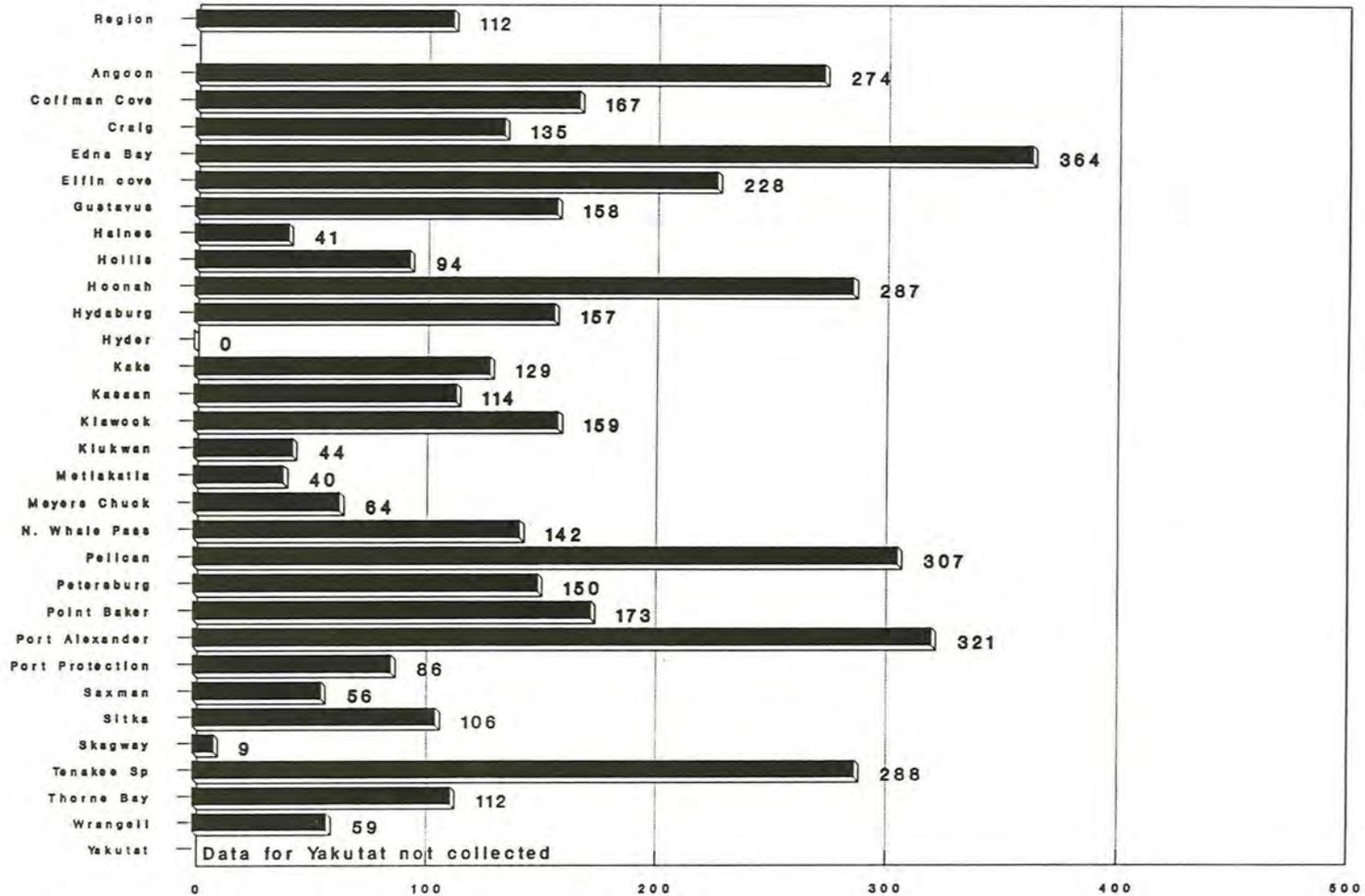
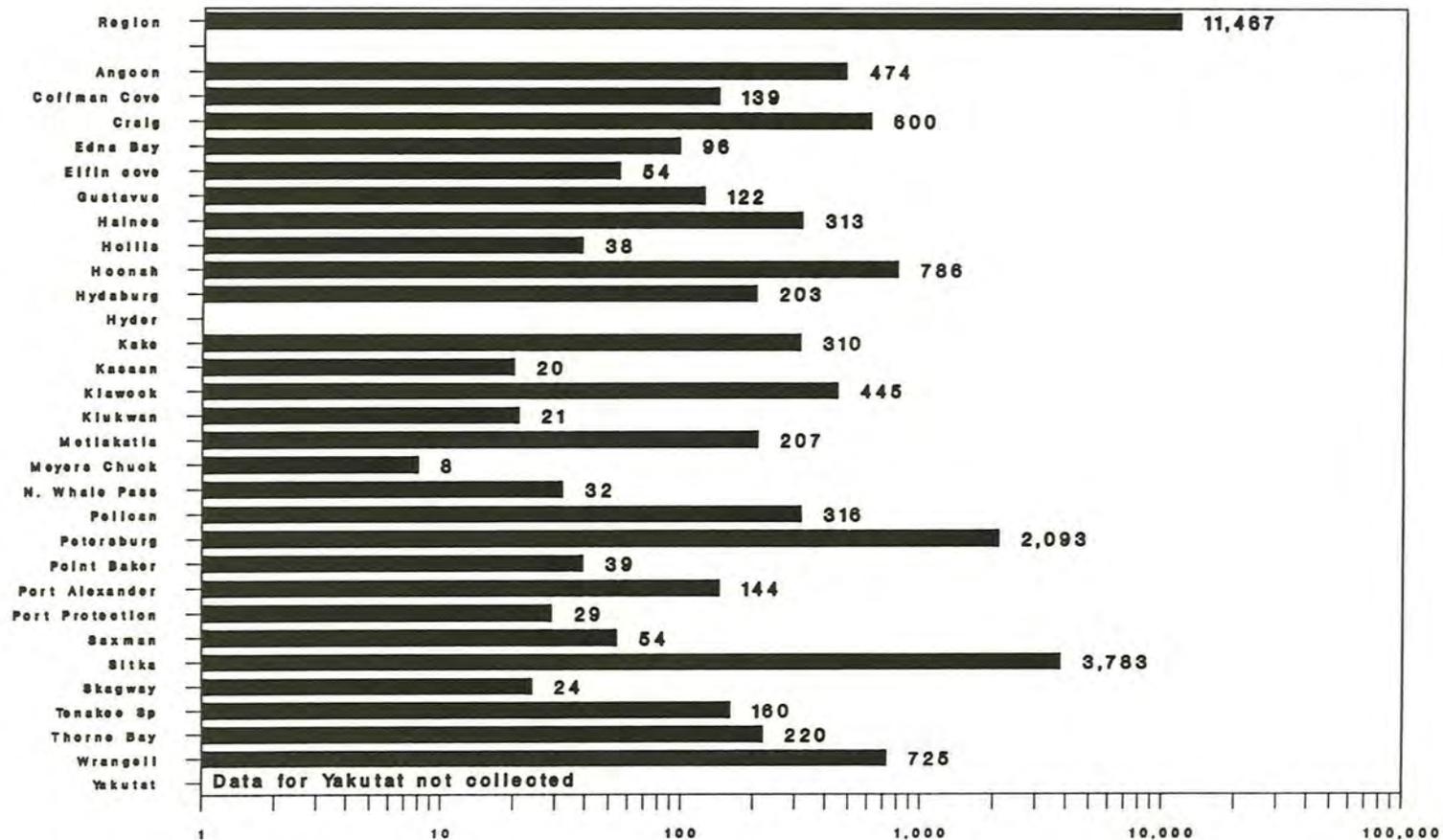


Figure 41: Total Number of Deer Harvested By Community (Logarithmic Scale)



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On a household basis, residents of communities with less than 100 households harvest deer in greater quantities, on the average, than the residents of larger communities. Residents of the smaller communities harvested an average of 168 pounds per household while communities larger than 100 households averaged approximately 108 pounds of deer per household (Figure 42).

A clear difference in deer harvest quantities is also evident by income (see Figure 43). Households with lower incomes per household member have higher average deer harvests. Households whose inhabitants make under \$5,000 apiece harvested an average of 151 pounds of deer. Households whose residents make \$5,000 to \$14,000 per year each harvested an average of 125 pounds of deer. Households that contained members who earned more than \$15,000 per year per person harvested an average of approximately one deer (88 pounds) of deer.

The pattern of deer harvest activity by length of residence parallels that for subsistence harvest activity as a whole (compare Figures 15 and 44). Although the actual trend line is uneven, generally speaking, the longer that a deer hunter resides in a particular community, the greater is his or her tendency to harvest a higher quantity of deer. It may take newcomers to the community a few years to establish themselves in hunting social networks, to purchase the means of transportation, and to develop the social knowledge necessary to find good hunting locations. This may help explain the increase in harvest amounts between recent arrivals and the five-to-nine year resident group. The drop off in harvest levels in the 10-19 year resident group may reflect an increase in competing time demands, or decreased interest. Finally, there may be a self-selection process in which those people who stay in rural southeast communities the longest are attuned to the natural resources offered by the region.

From the standpoint of ethnicity, Native households harvest about 13 percent more deer meat on the average than white households when responses are aggregated for the Region as a whole (see Figure 45). Native households harvested a mean of 125 pounds of deer, while white households averaged 122 pounds. Non-Native, non-white households harvested an average of 78 pounds (less than one deer) of deer per household. On a community-by-community basis, however, there were notable exceptions to this pattern. In general, however, low income households that are located in communities comprised of less than 100 households that are composed of long term Native residents tend to harvest more deer per person than other households.

Figure 42: Mean Pounds of Deer Harvested By Size of Community

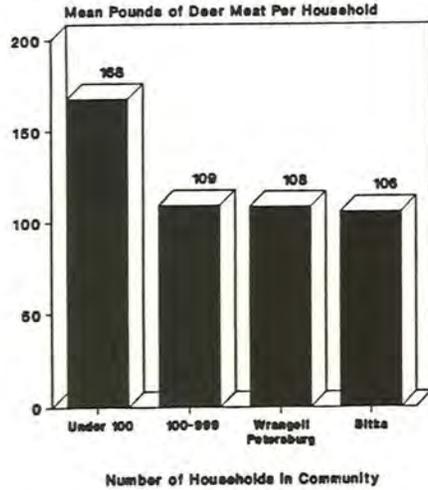


Figure 43: Mean Pounds of Deer Harvested by Income Per Household Member in 1987

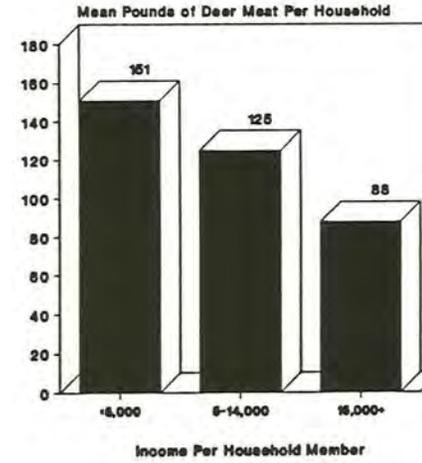


Figure 44: Mean Pounds of Deer Harvested By Years in Community

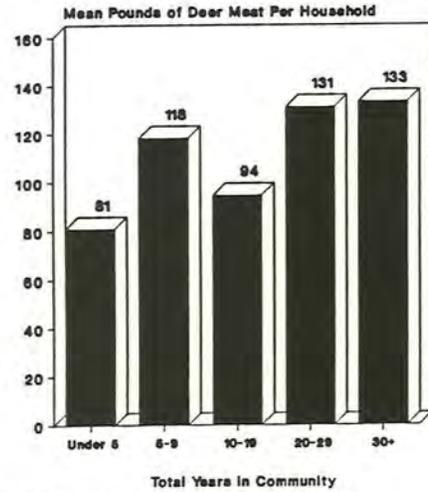
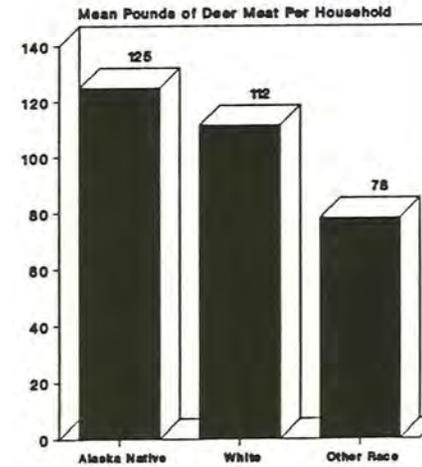


Figure 45: Mean Pounds of Deer Harvested By Ethnicity



Another perspective on the overall pattern of deer harvest activity can be gained by examining the total number of deer harvested by income and by ethnicity. Alaska Natives harvested an estimated 2,885 deer, or 25 percent of the total harvest (see Figure 46). In comparison, white residents harvested an estimated 8,268 deer (72 percent of the total harvest) with the remainder harvested by persons of other races. Among rural residents, people living in Sitka accounted for a third of all deer harvested in 1987 (see Figure 47). Those living in Wrangell or Petersburg accounted for another 20 percent of the total deer harvest. Residents of the 17 smallest rural southeast communities accounted for 9 percent of the total deer harvest.

Figure 46: Total Number of Deer Harvested by Race

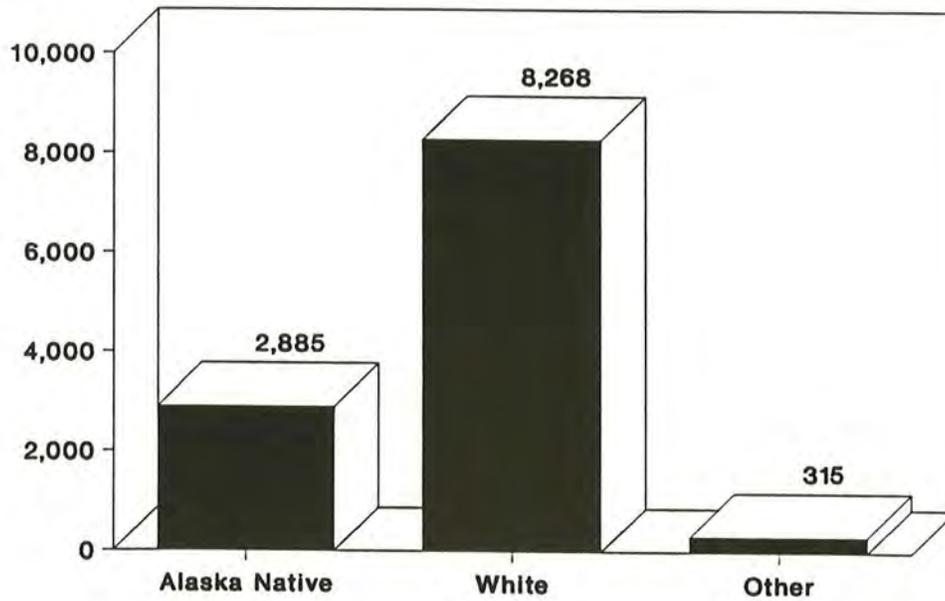
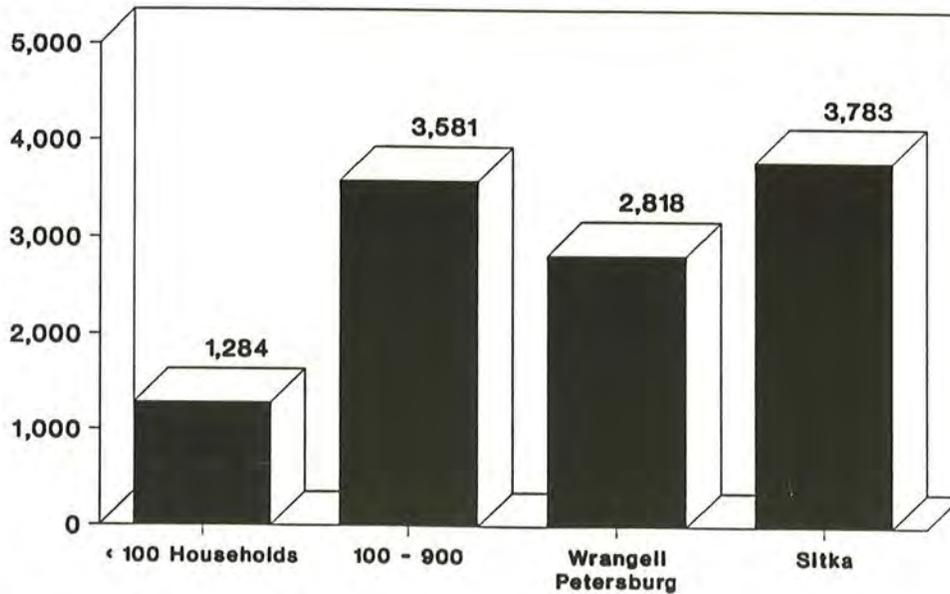


Figure 47: Total Number of Deer Harvested by Size of Place



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B. Sharing of Deer

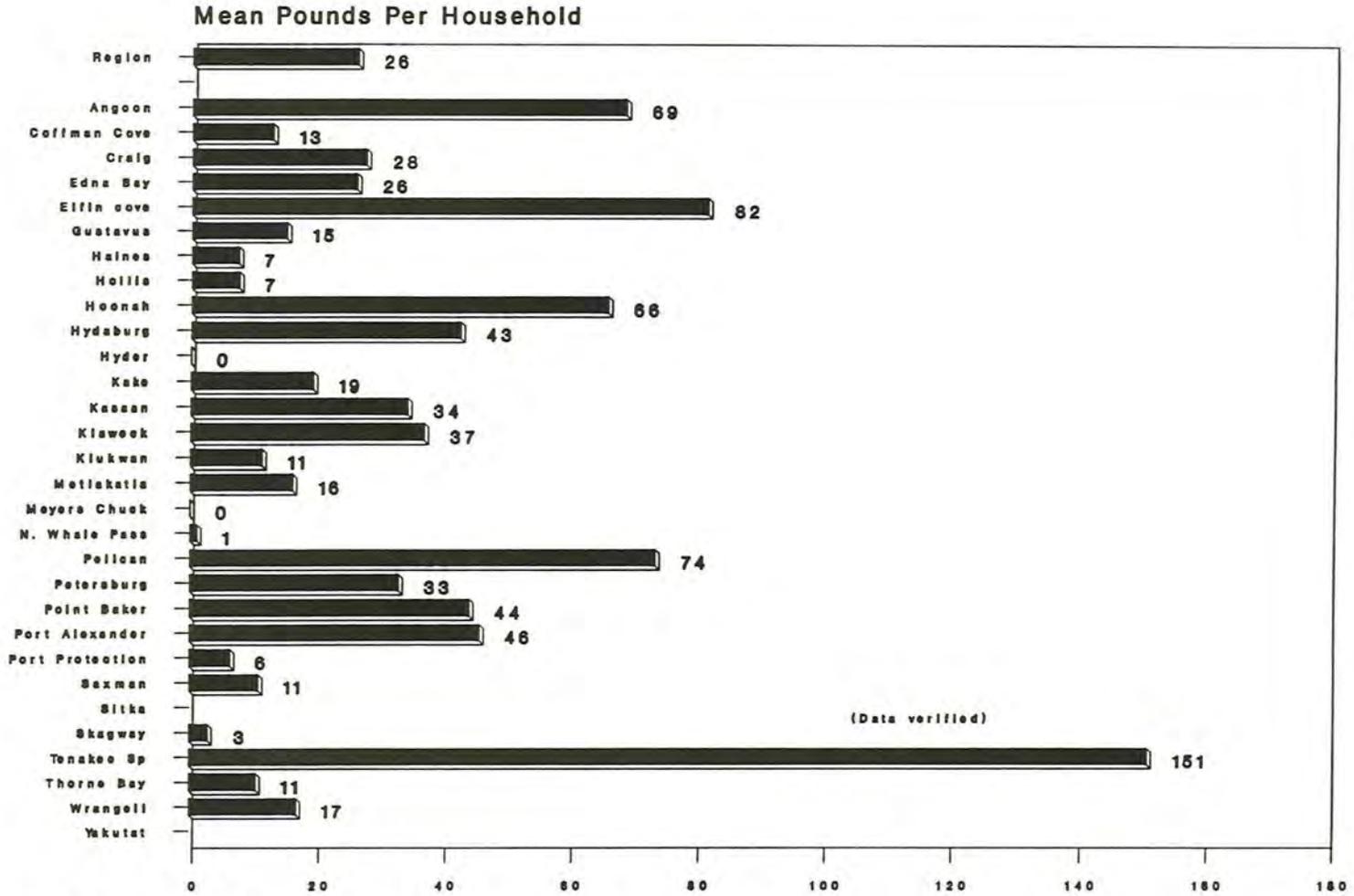
The importance of subsistence resources extends far beyond consumption by the harvesting household. Resource sharing not only contributes to the food budgets of those households that may be unable to procure resources for themselves, it also contributes to the social ties that bind kinship groups, friendship groups, and other social networks together.

1. PATTERNS OF GIVING

Since deer meat constitutes 21 percent of the total pounds of edible subsistence harvest, its importance to rural southeast subsistence lifestyles is self-evident. Another indicator of the importance of deer meat, however, is the degree to which it is shared among other households (see Figure 48). Data from many of the smaller communities indicate that deer-harvesting households gave away deer meat in amounts ranging from 40 to 80 pounds, on the average. This represents meat from one-half to one whole deer, respectively. Particularly striking is the high mean number of pounds of deer meat shared by Tenakee Springs households. This finding is more understandable in the context of some knowledge of the atypical age structure of the Tenakee population. Twenty-one percent of the men and 23 percent of the women living in Tenakee are at least 60 years old. Comparable figures for the region as a whole are eight and nine percent, respectively. The large amount of deer given away is largely given to residents who are unable to hunt deer for themselves. Other communities associated with high mean number of pounds of deer given away include Elfin Cove, Pelican, and Angoon (Figure 48 and Table 3).

In the region as a whole, 61 percent of those households harvesting deer meat also gave deer meat away. Forty-one percent of all deer harvesting households gave deer meat to friends, and an equal percentage of these households gave deer meat to relatives (see Figure 49). Twenty-seven percent gave deer meat to people that the respondent defined as elders. Ten percent or less gave deer meat to friends from work and to other people.

Figure 48: Mean Pounds of Deer Given Away By Place



Tongass Resource Use Cooperative Survey

(Data not available for Yakutat and Sitka)

TABLE 3
MEAN POUNDS OF DEER HARVESTED, GIVEN, AND RECEIVED PER
HOUSEHOLD BY COMMUNITY

Community	Mean Number of Pounds Harvested	Mean Number of Pounds Given Away	Mean Number of Pounds Received	Net Lbs Given Over Received
Regional Average	112	26	23	+03
Angoon	274	69	62	+07
Coffman Cove	167	13	12	+01
Craig	135	28	21	+07
Edna Bay	364	26	53	-27
Elfin Cove	228	82	26	+56
Gustavus	158	15	11	+04
Haines	41	07	17	-10
Hollis	94	07	19	-12
Hoonah	287	66	27	+39
Hydaburg	157	43	42	+01
Hyder	00	00	07	-07
Kake	129	19	24	-05
Kasaan	114	34	29	+05
Klawock	159	37	42	-05
Klukwan	44	11	09	+02
Metlakatla	40	16	38	-22
Meyers Chuck	64	00	18	-18
N. Whale Pass	142	01	12	-11
Pelican	307	74	47	+27
Petersburg	150	33	16	+17
Point Baker	173	44	18	+26
Port Alexander	321	46	46	00
Port Protection	86	06	46	-40
Saxman	56	11	26	-15
Skagway	09	03	09	-06
Tenakee	286	151	26	+125
Thorne Bay	112	11	12	-01
Wrangell	59	17	18	-01

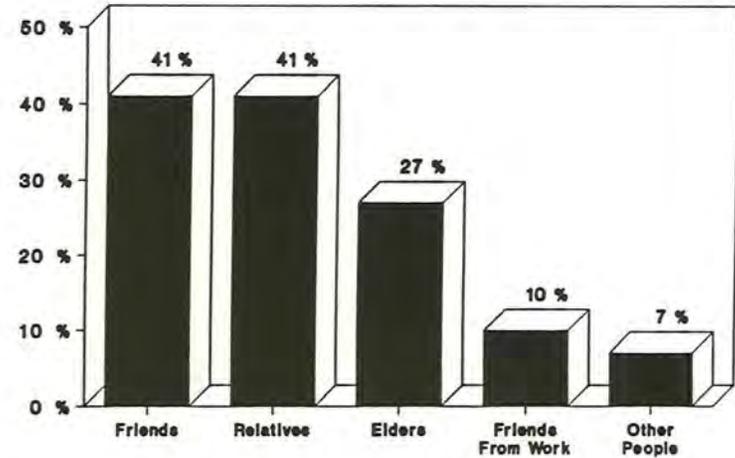
Note: Since information on deer harvest for Yakutat and information on deer giving and receiving for Sitka were unavailable, these communities have been omitted from this table.

Figure 49: Giving of Deer Meat (Excludes Sitka and Yakutat*)



(Percent of Harvesting Deer Households)

Relationship of Those To Whom Deer Meat Was Given



(Percent of Deer Harvesting HH's Giving Deer Away To:)

The extent of sharing of deer meat is not constant across households of varying characteristics. People living in smaller communities not only harvest more deer per household, they also share it with friends and family in greater quantity than their counterparts in the larger communities (Figure 50).

In addition, households with incomes of under \$15,000 per household member gave away approximately 26 pounds of deer meat apiece, while households with average incomes of at least \$15,000 per member only shared about 17 pounds of deer meat with other households (Figure 51). Interestingly, although there were significant differences in the quantities of deer meat harvested by the different income groups (Figure 43), there were no dramatic differences in the proportion of their harvest that they shared with other households. Households with higher income levels gave away about the same proportion of their deer harvest although they harvested less deer. Households with average yearly income at least \$15,000 per household member, for example, gave away, on average, approximately 17 pounds – or 19 percent – of the 88 pounds that they harvested. Households making \$5,000 or less per person per year gave away an average of 25 pounds – or 17 percent – of their average harvest of 151 pounds. Households in the middle income brackets – those making \$5,000 to \$15,000 per year – gave away 27 pounds (22 percent) out of their total average harvest of 125 pounds. Further analysis will be necessary to factor out differences due to household size, but the fact that households with higher average incomes share more of their (lower) deer harvest suggests that greater quantities of deer meat are actually consumed by lower income households than by their counterparts in households that make more money.

In terms of ethnicity, it is important to note that respondents from Native and non-Native, non-white households both gave deer meat away in quantities approximating twice the rate for whites (Figure 53). Whereas white households gave away an average of approximately 21 pounds of deer meat, inhabitants of Alaska Native and non-Native, non-white households gave away an average of 40 pounds of deer meat. This pattern occurs despite the fact that white households averaged 112 pounds of deer harvest compared to 125 pounds for Native households and 78 pounds for non-Native, non-white households (Figure 45). Thus, Native households shared approximately 32 percent (40 pounds out of 125 pounds harvested) of their deer harvest with other households, while white households shared only 18 percent (21 pounds out of 112 pounds harvested). This difference is undoubtedly due to a number of factors, but it may be accounted for to some degree by the fact that traditional norms of resource sharing have retained their vitality in the Native culture of southeast Alaska. Finally, it is noteworthy that members of non-Native, non-white households gave away over half (51 percent) of the deer meat that they harvested (40 pounds out of 78 pounds harvested).

Figure 50: Mean Pounds of Deer Given Away by Size of Community

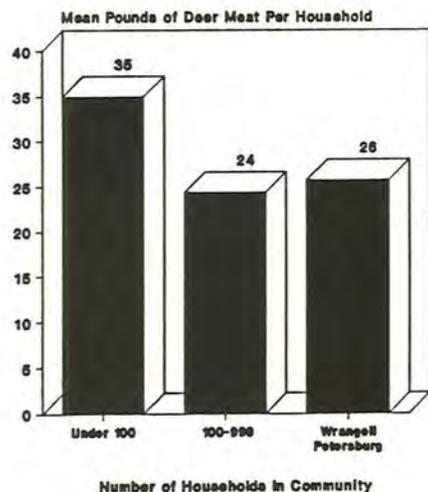


Figure 51: Mean Pounds of Deer Given Away by Household Income

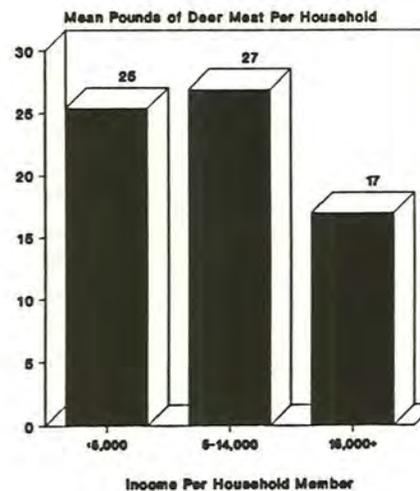
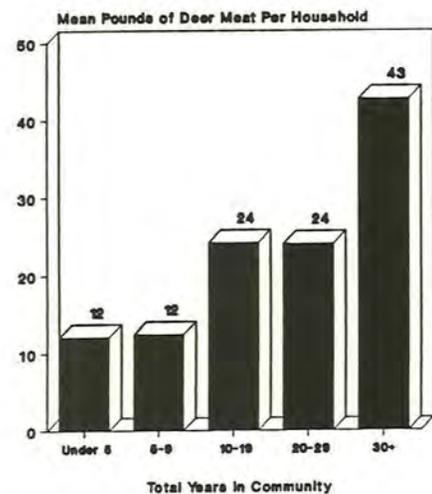
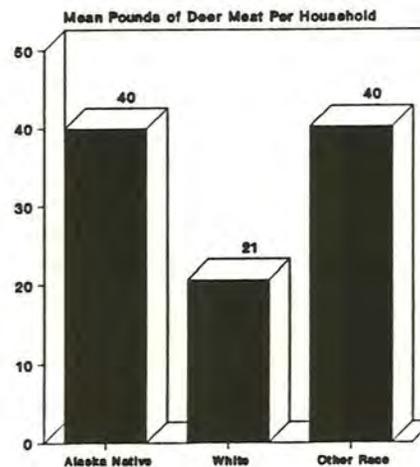


Figure 52: Mean Pounds of Deer Given Away by Yrs. in Community



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Figure 53: Mean Pounds of Deer Given Away by Ethnicity

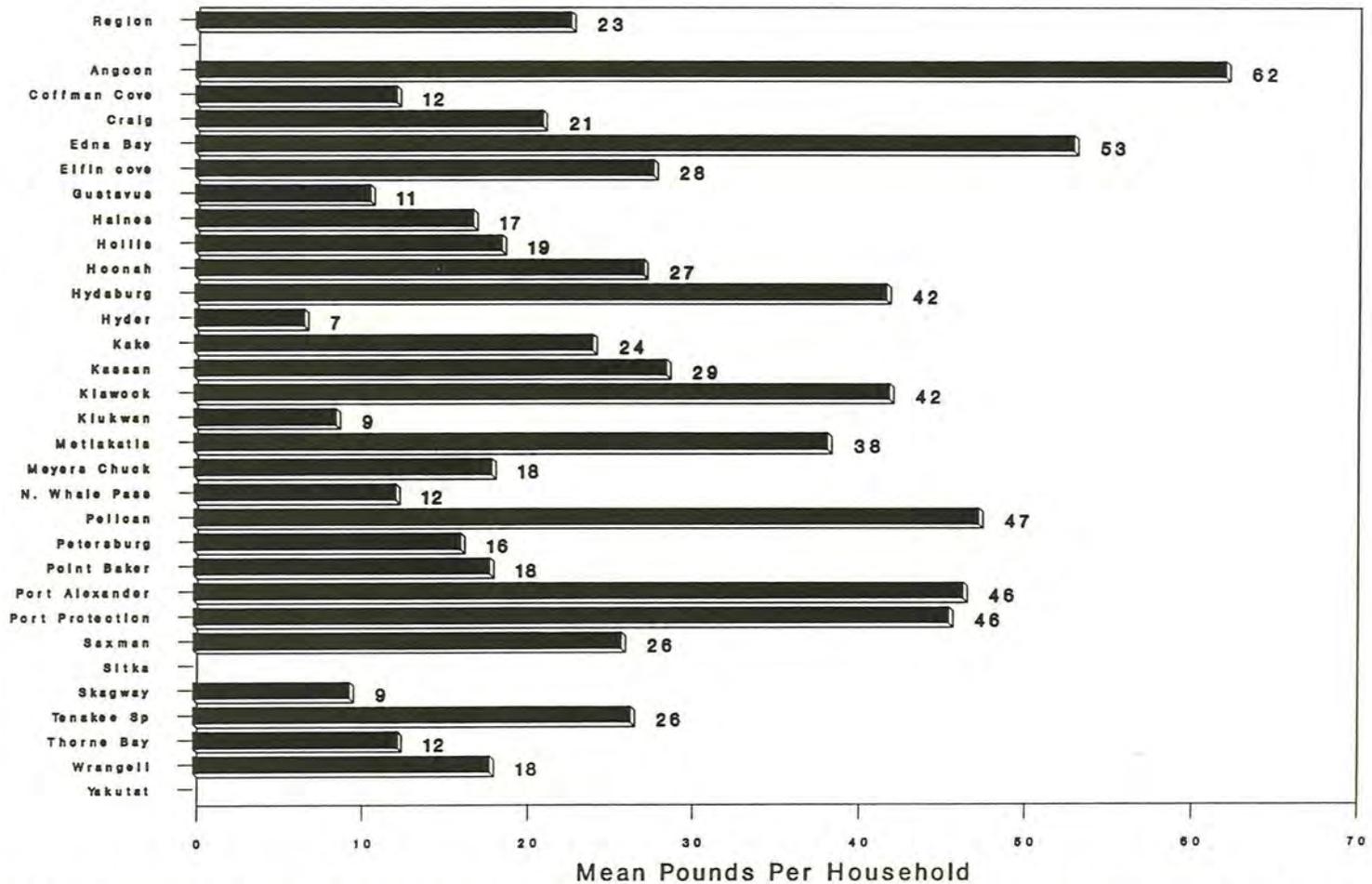


Length of residence in one's community also appears to influence sharing patterns. Although this relationship is probably confounded somewhat by ethnicity, residents who lived in the same community for 30 years or more give away almost twice as much deer meat as people who reside in the same community for 10-29 years, and more than three times as much as more recent arrivals to rural southeast communities. Households that resided in a community for 10 years or less gave away an average of 12 pounds of deer meat, while households that had lived in a community from 10 to 29 years gave away an average of 24 pounds per household. Those households that harvested deer and lived in a community for over 29 years gave away approximately 43 pounds per household (Figure 52).

If rural southeast Alaska were a closed system with respect to the distribution of deer meat, one would expect that the total amount of deer meat received throughout the region would approximately equal the total amount given away. Since our measures of these transfers are based on samples of respondents asked to recall and estimate pounds of deer meat given or received during the past year, we might expect large discrepancies in the aggregate results. However, the results at the regional level look remarkably consistent with our expectations and lend credibility to the results (see Figure 50). Excluding Sitka residents, of the 614,720 estimated total pounds of deer harvested by rural southeast residents, 142,969 pounds were reportedly given away to people residing in other households. The survey results also indicate that rural southeast households (again excluding Sitka) received a total of 124,242 pounds of deer meat (see Figure 54). The observed data suggest that slightly more deer meat is reportedly given away by rural residents than is received by households living in rural southeast communities. To a large extent, this difference (18,727 pounds or 13 percent of the total pounds given away) is probably due to a net transfer of some meat from harvesting households in rural southeast Alaska to residents in Juneau and Ketchikan, to other Alaskan communities, and/or to people living out of state.

It is also possible to compare average amounts of deer meat given and received on a community basis as a means of understanding the transfer of deer meat in rural southeast. In thirteen of the communities, the average number of pounds of deer given away exceeds the average number of pounds that were received. In 14 other communities, however, the opposite results obtained: households to which deer meat was given actually reported receiving a greater number of pounds, on average, than the number of pounds that were given away by the average household in the same community. In one community, Port Alexander, the average number of pounds of deer meat given away was exactly the same as the average number of pounds of deer meat received – 46 pounds. And in Hyder, a community in which no sampled respondent reported harvesting any deer, a small number of households actually reported receiving quantities that yield an average of seven pounds of deer meat per household for the community as a whole.

Figure 54: Mean Pounds of Deer Received By Place



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(Data not available for Yakutat and Sitka)

For many of the communities, the differences between the average number of pounds given and the average number of pounds received per household are relatively small and statistically insignificant. However, in five of the communities – Tenakee, Elfin Cove, Hoonah, Pelican, and Point Baker – respondents reported that the average net amount of deer meat given away per household exceeded the average amount received per household by quantities ranging from 26 pounds in Point Baker to 125 pounds in Tenakee (Table 3).

In contrast, households in five other communities (Port Protection, Edna Bay, Metlakatla, Meyers Chuck, and Saxman) reported receiving a higher average number of pounds of deer meat than they gave to others in amounts ranging from 15 pounds per household in Saxman to 40 pounds per household in Port Protection. Most communities which have relatively high mean harvests of deer are among the group of communities which give more deer meat than they receive. Conversely, most communities which have relatively low mean harvests of deer are among the group of communities which receive more deer meat than they give.

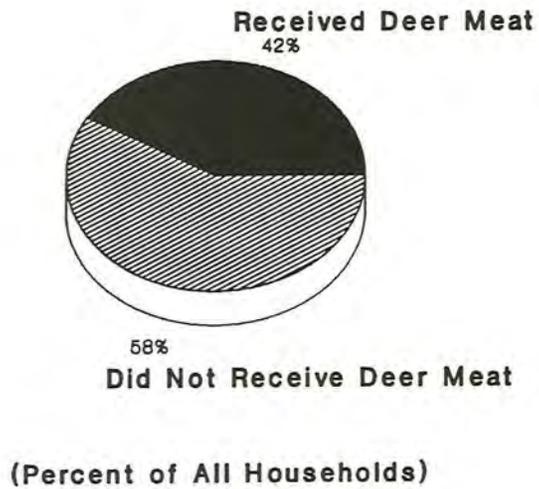
2. PATTERNS OF RECEIVING

As indicated above in Figure 39, 3,072 households – or 37 percent – in the region reported harvesting at least one deer during 1987. Of the harvesting households asked to report sharing (i.e., excluding Sitka and Yakutat households), 61 percent reported sharing deer with households other than their own. As a result, 42 percent of all households received deer meat (see Figure 55). This sharing activity substantially enlarges the proportion of households consuming deer; 47 percent of those households not harvesting deer received deer. A total of 66 percent of all rural southeast households (excluding Sitka and Yakutat) therefore obtain deer meat either through personal harvest activities or as gifts.

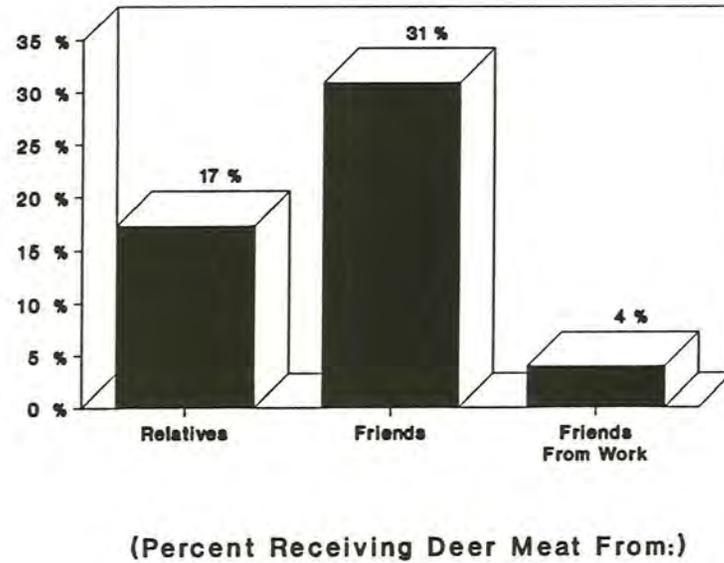
Meat received as gifts primarily came from friends and secondarily from relatives. Thirty-one percent of all households received deer meat from friends and 17 percent received meat from relatives (see Figure 55). Only 4 percent specifically mentioned that they received meat from friends at work.

In some of the communities, the mean quantity of deer meat received amounts to half a deer (40 pounds dressed weight) or more per household (Figure 54, Table 3). Although this quantity in itself does not represent a major contribution to one household's food budget, when viewed in conjunction with other subsistence resources harvested or received by the household, it possesses some measure of instrumental value beyond the simple expression of friendship or respect involved when one household gives a couple of deer steaks or a small roast to another.

Figure 55: Receiving of Deer Meat (Excludes Sitka and Yakutat*)



Relationship of Those From Whom Deer Meat Was Received



* Questions were not asked in Sitka and Yakutat

Households receiving the most deer meat tend to have lower incomes and are more apt to be Alaska Natives. In addition to harvesting deer in greater quantities, households in which individual members average less than \$5,000 apiece per year receive more deer meat – 35 pounds on average – than households with higher incomes (Figure 57, Table 4). In contrast, households whose individual members earned \$5,000 to \$15,000 per year received an average of 26 pounds. Households whose members averaged \$15,000 per year or more received the lowest mean pounds of deer – 23 (Figure 57, Table 4).

**TABLE 4
AVERAGE NUMBER OF POUNDS OF DEER HARVESTED,
GIVEN AWAY, AND RECEIVED PER HOUSEHOLD
BY HOUSEHOLD INCOME**

Income per Household Member	Mean Number of Pounds Harvested	Mean Number of Pounds Given Away	Mean Number of Pounds Received
Less than \$5,000	151	25	35
\$5000-\$15,000	125	27	26
\$15,000 or More	88	17	23

As indicated above, Alaska Native households harvest and give away higher quantities of deer meat than non-Native households. Thus, it comes as little surprise that households comprised of Alaska Natives are recipients of deer meat at nearly twice the rate of white households. Alaska Native households received an average of 35 pounds of deer meat, while white households received approximately 18 pounds, and non-Native, non-white households received about 20 pounds (Figure 59, Table 5).

**TABLE 5
AVERAGE NUMBER OF POUNDS OF DEER HARVESTED,
GIVEN AWAY, AND RECEIVED PER HOUSEHOLD BY ETHNICITY**

Income per Household Member	Mean Number of Pounds Harvested	Mean Number of Pounds Given Away	Mean Number of Pounds Received
Alaska Native	125	40	35
White	112	21	18
Non-Native, Non-White	78	40	20

It was reported above that people residing in a community five years or less or from 10 to 19 years harvest fewer deer than people who have lived in a community for other lengths of time (see Figure 58). Residents who have lived in their community for five years or less also receive fewer pounds of deer meat than longer-term residents. Interestingly, however, people residing in their community for 10 to 19 years receive more deer meat, on the average, than any other group, although they harvest fewer deer and give less deer meat away than households that have lived in the community for greater lengths of time (Figure 58, Table 6).

**TABLE 6
AVERAGE NUMBER OF POUNDS OF DEER HARVESTED,
GIVEN AWAY, AND RECEIVED PER HOUSEHOLD
BY LENGTH OF RESIDENCE IN THE COMMUNITY**

Income per Household Member	Mean Number of Pounds Harvested	Mean Number of Pounds Given Away	Mean Number of Pounds Received
0 to 5 years	81	12	11
6 to 9 years	118	12	22
10 to 19 years	94	24	31
20 to 29 years	131	24	25
30 years or more	133	43	26

Figure 56: Mean Pounds of Deer Received By Size of Community

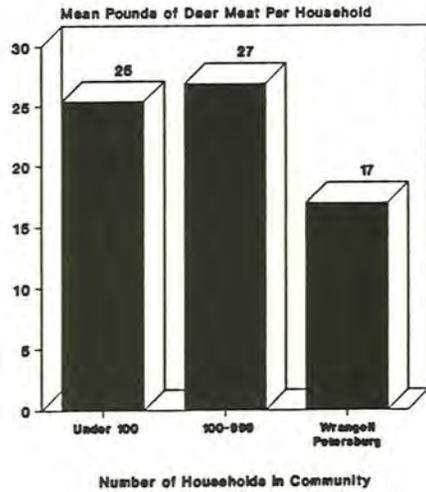


Figure 57: Mean Pounds of Deer Received By Household Income

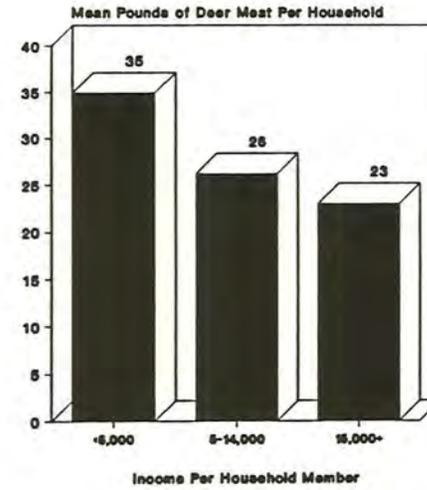


Figure 58: Mean Pounds of Deer Received By Years in Community

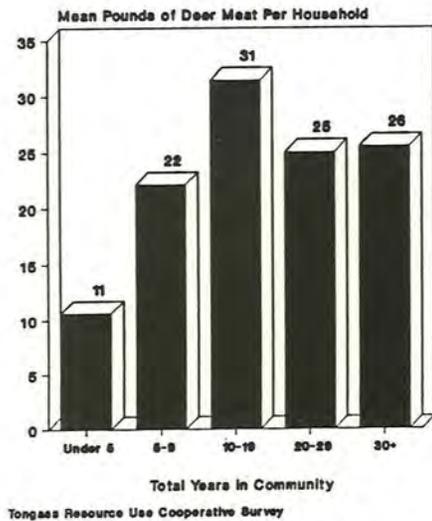
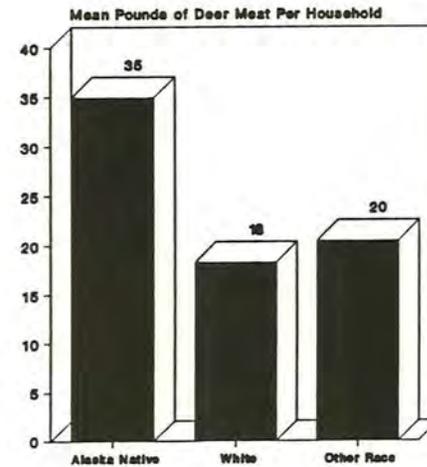


Figure 59: Mean Pounds of Deer Received By Ethnicity



C. Travel Patterns to Deer Harvest Areas

Deer harvest patterns and the role of such harvests in local lifestyles are of central interest to this study because of the potential conflicts between deer harvest and other uses of the forest. To provide a more comprehensive understanding of deer harvest patterns by rural southeast Alaska residents, it is as important to have information about the locations in which people hunt deer as it is to have information about subsistence users themselves. Information on the location and characteristics of areas where deer harvest takes place is instrumental in making resource allocation and management decisions which ensure the continuation of subsistence deer hunting opportunities.

In view of the importance of data on the location and characteristics of deer hunting environments, a major section of the survey instrument was devoted to gathering information about different deer hunting areas. Respondents were asked to draw polygons on topological maps of southeast Alaska indicating where these areas were located. Specifically, respondents were asked to draw polygons around locations that represented: (1) areas in which household members had ever hunted for deer during the entire time that they had resided in their present community; (2) areas considered to be particularly reliable for deer hunting (a location "where you are most likely to find deer some time during the year"); (3) areas that they once considered to be reliable for deer hunting, but for some reason they no longer hunted there; and (4) areas most frequently used for deer hunting by household members.

After the respondent mapped all of his or her household's different deer hunting areas by hand, he or she was asked to choose one of the most reliable deer hunting areas, and to think about that area in particular in answering a series of questions posed by the interviewer. Respondents used their own (undoubtedly varying) criteria for choosing the one reliable area to talk about, and each one may have gone through a different decision calculus in determining which reliable area he or she chose to discuss. Then this process was repeated for one "often used area," and one "reliable area no longer used."

For any individual household, it may not be especially meaningful to talk about a "typical" area. One reliable area may be accessible only during good weather. Another area might be dependable only after deer have moved into the beach fringe late in the season. Yet a third might be more of a sure thing after non-local hunters have departed for the year. Although there may be considerable variability, the possibilities are neither infinite nor random. As such, when data about individual areas provided by respondents throughout the region are aggregated, many of these differences will have been averaged out to some (admittedly unknown) degree. We suggest that it may then become considerably more meaningful to talk about "typical" kinds of areas at a regional level. We acknowledge that there may be serious methodological limitations associated with this approach. But in our judgment, these "typifications" provide useful constructs for understanding regional patterns of resource use. It is important to keep in

mind that a particular household may have mapped multiple areas under one or more categories (i.e., reliable, frequently used, no longer used). But in asking respondents to provide information about one of the areas in each category, we attempted to derive systematic information about the characteristics of different kinds of deer hunting areas in such a way that the data were generalizable to the regional population as a whole. It is within this context that we now discuss reliable areas for deer hunting, areas frequently used, and reliable areas no longer used for deer hunting.

Among other questions, respondents were asked about the modes of transportation used to reach their household's typical reliable deer hunting area and the deer hunting area used most often by household members. They also provided information on modes of transportation used in the past in travelling to a reliable area that has since been abandoned by their household as a deer hunting area. Data on reported travel patterns to these areas are presented in the following section.

1. TRAVEL TO MOST RELIABLE DEER HUNTING AREAS

The fact that southeast Alaska is an island archipelago is graphically illustrated by the transportation technologies that people employ to hunt deer. More than half (54 percent) of all households in rural southeast Alaska travel a minimum of 11 miles by boat to reach the one reliable deer hunting area that they chose to describe in the survey (see Figure 60).¹⁰ An additional 18 percent of all households also use boats to reach their reliable deer hunting area, but travel shorter distances (10 miles or less). Only 15 percent of all households use cars or trucks to travel to most reliable areas. Thirteen percent use some other form of transportation, such as airplanes, walking, all terrain vehicles, and the Alaska Marine Highway System.

Travel patterns to reliable deer hunting areas vary by community size, length of residence, and ethnicity. Seventy-one percent of Sitka deer hunters and 65 percent of Petersburg/Wrangell deer hunters travel by boat at least 11 miles, compared with 40 percent of those living in communities of between 100 and 999 households and 29 percent of those living in communities of under 100 households (Figure 63). Although this pattern may be explained somewhat by the availability of larger boats in the larger (and more affluent) communities, and by proximity of many of the smaller communities to huntable deer populations, it also suggests that the competition among residents of a community for good deer hunting areas may increase with community size.

Figure 60: Travel Pattern To Most Reliable Deer Area

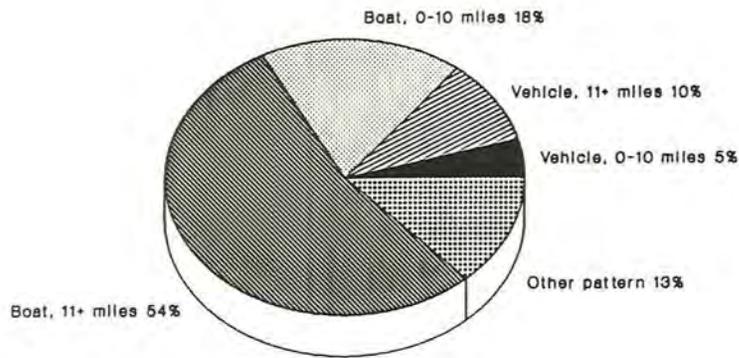


Figure 61: Travel Patterns To Most Often Used Deer Area

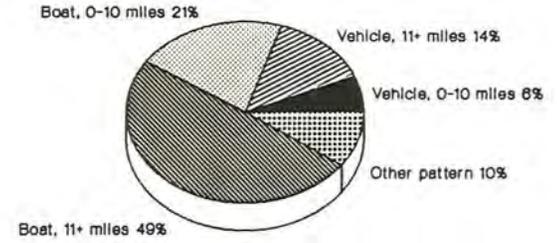
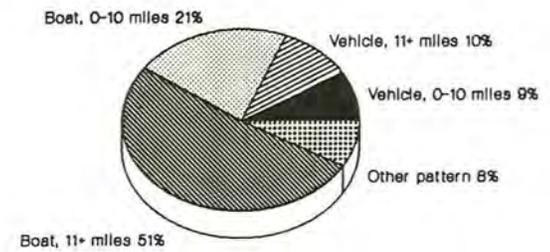


Figure 62: Travel Patterns To Abandoned Deer Area



The percentage of households travelling by boat at least 11 miles also generally increases with length of residence (Figure 65). While 73 percent of those living in their community 30 years or more travel in this way, only 33 percent of those living in their community less than 5 years follow the same pattern. This difference may be due to the increased knowledge and experience of longer term residents. It may also reflect a cultural difference, since Natives are disproportionately apt to be longer term residents of their present communities. This interpretation is supported by information presented in Figure 66. Again, remembering that respondents only provided information about one of several possible reliable deer areas that they may have mapped, these data indicate that two-thirds (67 percent) of Native deer hunting households travelled in excess of 10 miles by boat to reach their reliable area. This compares with only one half (51 percent) of the white households and a little over a third (39 percent) of the non-Native, non-white households travelling similar distances to a reliable deer hunting area.

Examination of distance travelled by boat yields a surprising result when viewed in light of income data. One might think that households with higher incomes would have the means to afford (and, therefore, to use) larger boats with more sophisticated gear allowing them to travel greater distances to access reliable deer hunting areas in bad weather and over more open water. Very little difference was detected, however, in distances travelled by boat for different income categories (Figure 64). The typical reliable deer hunting area was 11 miles or more distant from the community for approximately 54-55 percent of all income categories. Similarly, only slightly larger (but still rather insignificant) differences emerged regarding typical reliable areas accessed by boat and located less than 10 miles from the community. Approximately 21 percent, 19 percent, and 15 percent of the households in the less than \$5,000, \$5,000-\$14,000, and \$15,000 or greater categories, respectively, travelled 10 miles or less by boat to their typical reliable deer hunting area.

Figure 63: Travel in Boat 11+ Miles To Harvest Deer in Most Reliable Area By Size of Community

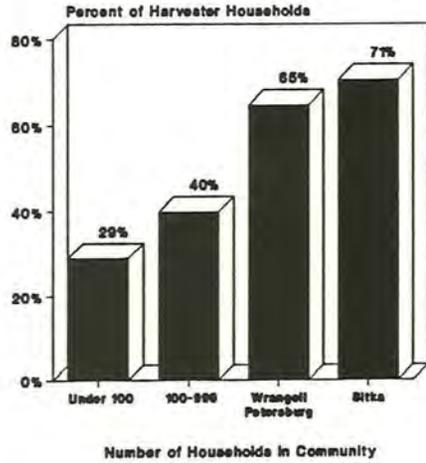


Figure 64: Travel in Boat To Harvest Deer in Most Reliable Area By Income

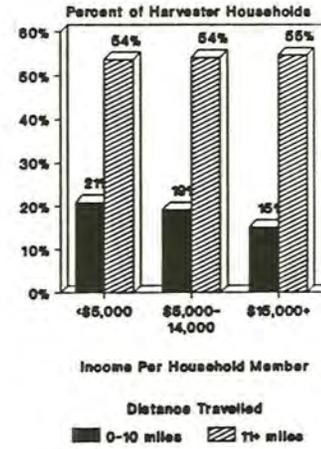


Figure 65: Travel in Boat 11+ Miles To Harvest Deer in Most Reliable Area By Years in Community

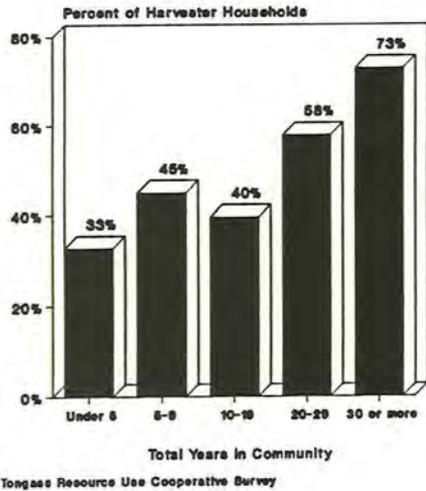
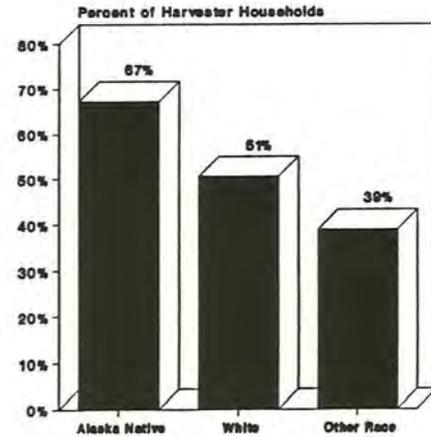


Figure 66: Travel in Boat 11+ Miles To Harvest Deer in Most Reliable Area By Ethnicity



2. TRAVEL PATTERNS TO MOST OFTEN USED DEER HUNTING AREAS

Subsistence hunters are often portrayed in the professional literature as "optimal foragers"; that is, their hunting behavior is often characterized by an economy of methods and means. Among other things, this suggests that, everything else being equal, subsistence hunters are likely to hunt most frequently those areas in which they have high probabilities of harvesting deer (areas that reliably produce opportunities for a successful harvest).

During development of the survey design, however, it was recognized that all things are seldom equal in the real world, and that systematic differences between typical areas that are most reliable and most frequently used might be revealed. For example, hunters may choose to hunt more frequently in areas closer to their community than in areas further from their community. This would save travel time and money for expenses, and it would reduce the probability of having to remain in the forest overnight due to bad weather or an accident. But, since most of the hunters in the community might regard close-in areas as preferential also, hunting pressure might reduce the probability of shooting a deer in an area most frequently used. In this case, more reliable areas – those in which the hunter would have higher chances of success – would probably lie greater distances from the community, where hunters would be dispersed over broader areas, resulting in less competition for deer and a higher probability of success.

Returning to Figures 60 and 61, the reported pattern of travel to the most frequently used deer hunting area is similar to that reported for the most reliable deer hunting area. Again, about 70 percent of the deer harvesting households in our sample indicated that they travelled by boat to the deer hunting area typically used most often. Of the households reportedly travelling by boat, 49 percent indicated that they travelled 11 miles or more, while 21 percent indicated that they travelled 10 miles or less. An additional 20 percent responded that they travelled by automotive vehicle to their most frequently used deer hunting area, while about 10 percent stated that they used other means (e.g., airplane, all-terrain vehicle, walking, Alaska Marine Highway System) to access their most frequently used areas. In line with our expectations, a slightly larger proportion of households report traveling shorter distances by boat to their most frequently used areas (21 percent) than to their most reliable areas (18 percent).

Visual inspection of the mapped data that respondents provided on mylar overlays during their household interviews indicates that, for many of the communities, considerable overlap exists between reliable and frequently used deer hunting areas. Examination of the survey data presented above tends to confirm the existence of that overlap. It appears that, whenever possible, subsistence hunters prefer to hunt most often in those areas that have high likelihood of producing deer. Although more definitive conclusions must await the final analysis produced by digitizing and plotting actual map data, we would suggest that deer hunting can, in fact, be tentatively characterized as generally

occurring within a community's "home range." That is, each community is associated with areas that are more intensively used by local community residents. These areas can together be considered as a "home range." This "home range" is generally situated within a day's travel time either by boat or by truck or car if there is an adjacent road system.

3. TRAVEL PATTERNS TO AREAS NO LONGER USED FOR DEER HUNTING

Many deer hunters prefer to hunt in the same area(s) year after year. In this way, they get to know the topography, the vegetative characteristics, the pattern of deer trails, and other aspects of the biophysical environment which contribute to making them more effective and successful hunters. For others, deer hunting is a more dynamic experience – ever changing as new areas are either deliberately or opportunistically explored.

In an attempt to generate information about some of the changes occurring in deer harvest patterns, we asked people a series of questions about areas that were particularly good (reliable) for deer hunting but that, for some reason, they no longer use for deer hunting. In interpreting the following discussion regarding deer hunting areas no longer used, readers are cautioned to keep in mind that the respondent was asked to think about a specific place that was particularly good for deer hunting, but that is no longer used by the household. The area may or may not still be a reliable deer hunting area – all we can say about it is simply that it is no longer used. Reasons for discontinued use offered by respondents may lend insights about whether or not they ceased to use an area because they perceived that, for one reason or another, it had become less reliable than it had been in the past.

We asked about travel patterns to abandoned areas to see if such areas tend to differ in some characteristics from currently used reliable deer hunting areas. These differences may or may not suggest an actual shift in travel patterns. We are comparing a subset of areas once used (i.e., those areas which have been abandoned) with all reliable areas currently used by residents, including areas that were also used concurrently with the areas now abandoned for hunting deer. It may be that travel patterns differed between the abandoned areas and the other areas used concurrently that still comprise some of the reliable areas used today. Nevertheless, a comparison of differences between the characteristics of abandoned areas and all reliable currently used areas may suggest fruitful areas for further research on changes in harvest patterns.

When viewed from a regional perspective, transportation patterns to and from reliable areas currently used by deer hunters exhibit remarkable similarity to those used in the past to access areas that they no longer use (compare Figures 60 and 62). The regional aggregations, however, mask substantial differences in travel patterns at the community level. Table 7 compares the percent of deer

harvest households that reported using each major form of transportation to get to their household's most reliable deer harvest area with the means used in the past to travel to previously used areas. As can be readily observed, much larger differences in travel patterns exist for certain communities. For example, 26 percent of the Haines respondents indicated that they travel over 10 miles by boat to reach their current reliable areas, while exactly twice as many (52 percent) indicated that, in the past, they travelled over 10 miles to previously used areas.

Respondent households in nine communities show greater use of boats travelling distances of eleven miles or more to reach currently reliable deer harvest areas than they reported for abandoned areas. They are Hydaburg, Hoonah, Kake, Port Protection, Tenakee Springs, Coffman Cove, Petersburg, Sitka, and Pelican. A greater percentage of households responding in a number of other communities, however, indicated that they rely less on boats to travel over 10 miles to current reliable use areas than they did in traveling over 10 miles to areas no longer used.

Analysis of transportation patterns for deer hunting is a complex undertaking. As habitat modifications occur around a given community, as income levels change, as deer population levels fluctuate in response to weather conditions or predation, as new technology becomes available or less expensive, or as regulatory restrictions are implemented, deer hunters often avail themselves of different methods of transportation to access areas where they hunt deer. Greater analytical depth will be required in order to discern consistent patterns and causal relationships among the many variables determining choices of transportation for subsistence activities.

Table 7: Differences in Travel Patterns Between Current and Abandoned Deer Harvest Areas
 Percent of Deer Harvest Households Using Specific Travel Pattern
 (Places sorted in order of difference in percentage using boat 11+ miles)

	Use Boat 11+ Miles		Use Boat 0-10 Miles		Use Vehicle 11+ Miles		Use Vehicle 0-10 Miles	
	To Get To:		To Get To:		To Get To:		To Get To:	
	Current Area	Abandoned Area	Current Area	Abandoned Area	Current Area	Abandoned Area	Current Area	Abandoned Area
Hoonah	50	17	20	64	13	3	17	8
Sitka	71	41	7	28	0	3	5	19
Petersburg	83	63	6	16	0	10	0	10
Port Protection	75	57	12	43	6	0	6	0
Kake	100	86	0	0	0	0	0	0
Hydaburg	76	63	8	11	8	11	0	0
Tenakee Springs	10	0	75	43	0	0	0	0
Coffman Cove	8	0	5	39	37	11	51	30
Kasaan	30	75	40	25	0	0	0	0
Meyers Chuck	56	100	33	0	0	0	0	0
Metlakatla	49	78	46	16	1	0	1	4
Angoon	66	78	34	20	0	0	0	2
Port Alexander	28	34	48	17	0	0	0	0
Wrangell	44	48	42	23	0	8	1	8
Haines	26	52	8	0	0	0	0	0
Skagway	47	81	0	0	0	0	0	0
Klawock	23	23	3	27	61	45	11	0
Edna Bay	12	50	24	37	18	0	18	0
N. Whale Pass	0	0	0	0	47	0	40	100
Craig	20	42	13	21	59	37	6	0
Thorne Bay	4	9	1	4	54	67	35	9
Pelican	43	39	56	61	0	0	0	0
Point Baker	43	43	57	57	0	0	0	0
Hollis	0	0	4	0	72	73	9	0
Saxman	58	64	15	21	8	15	0	0
Gustavus	26	33	62	67	0	0	0	0
No Abandoned Areas Mentioned								
Hyder	83		0		17		0	
Klukwan	42		0		0		0	
Elfin Cove	17		67		0		0	

Source: Tongass Resource Use Cooperative Survey

D. Physical Characteristics of Deer Harvest Areas

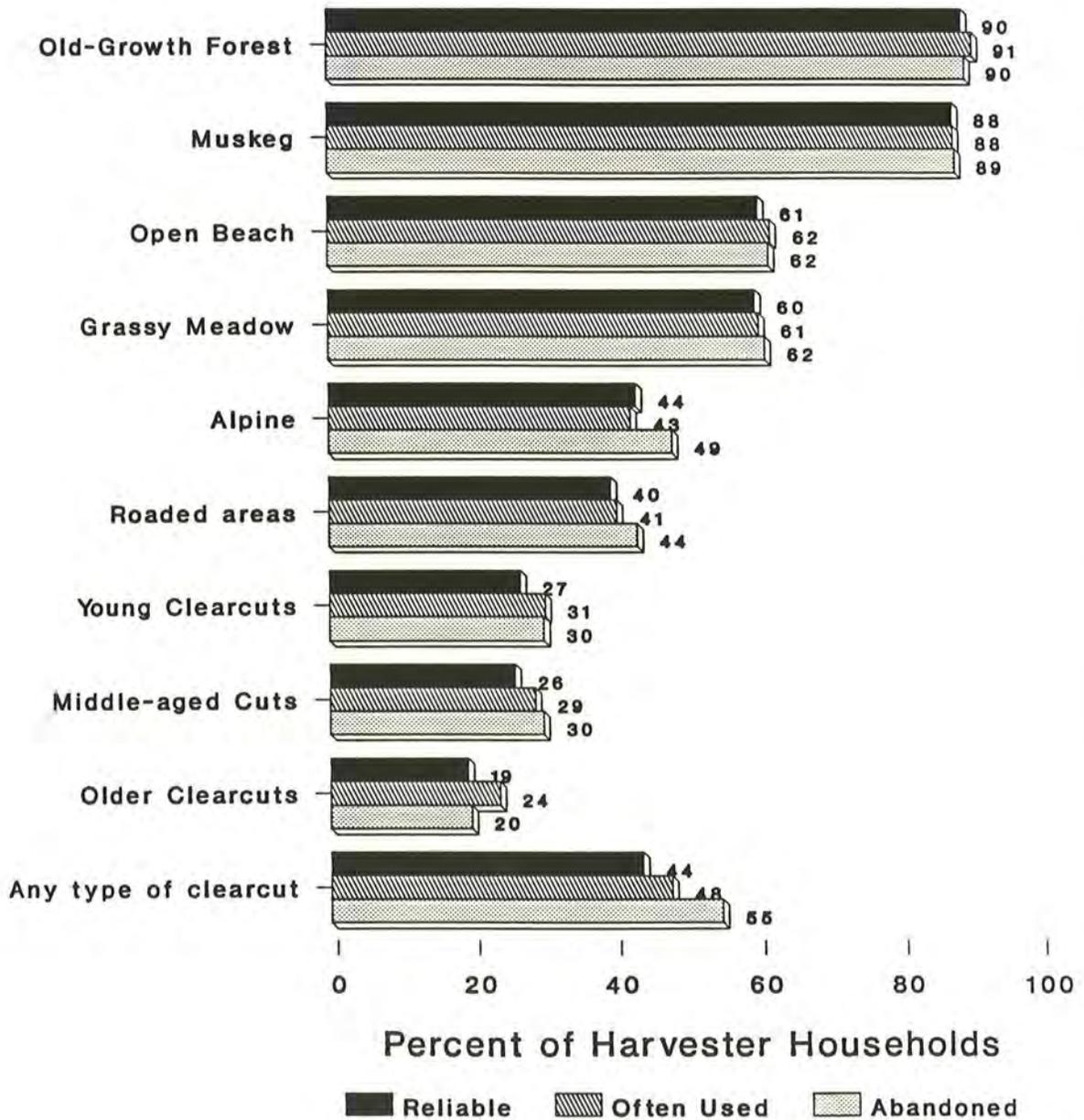
The mapped harvest areas provided by respondents will eventually serve as the basis for detailed descriptions of the physical characteristics of harvest areas. It is also interesting to know how hunters think of the areas they use to harvest deer. These perceptions provide an early look at the actual physical characteristics of these areas and tell us something about the basis upon which residents form attitudes about the relationship between subsistence and other uses of the forest.

Figure 67 shows the percentages of deer harvesters mentioning each physical characteristic as being present in the most reliable, the most often used deer harvest areas. Respondents were also asked to pick an area that they considered to be reliable for deer hunting that their household no longer uses to hunt deer. They were then asked to describe the physical characteristics of this area as well. On a regional basis, the three types of areas appear to have virtually identical physical features. In all three types of areas, old-growth forest and muskeg constitute the two principal features. In the majority of cases, such areas also have open beaches and grassy meadows present. Nearly one-half of the respondent households harvesting deer mentioned the existence of clearcuts of various ages occurring in presently reliable areas (44 percent), most-often-used areas (48 percent), and areas no longer used (55 percent).

As in the case of travel patterns, a comparison of the physical characteristics of deer harvest areas by community reveals significant differences between the physical characteristics of the most reliable current deer harvest areas and the current physical characteristics of areas abandoned for deer hunting. It is not possible to assume that the observed differences in physical attributes between current and abandoned deer harvest areas reflect the reason why residents stopped hunting in the abandoned areas. At the same time, they may suggest the need for further research and analysis of hypothesized relationships between subsistence uses and other resources uses.

We directly asked respondents to tell us why they stopped using areas that were reliable, at least until they abandoned hunting in the area. We grouped responses into categories reflecting similar answers. The percentages of households offering a response in each category are shown in Table 8. A third of all households that ceased hunting in one or more deer harvest areas said that they did so because of an absence of deer in the area. A fifth of all households stopped using an area due to the presence of too many hunters. Likewise, a fifth mentioned that an area was closed to hunting. About one in ten households said that the area was inconvenient to reach, that it had been logged, or that they had no means to get to the area any longer.

Figure 67: Physical Attributes of Deer Harvest Areas



Tongass Resource Use Cooperative Survey

Table B: Perceptions of Reasons Why Abandoned
Once Reliable Deer Harvest Areas
(Percent of Harvesters Mentioning Reason)

Region	Absence Of Deer	Too Many Hunters	Closed Area	Inconvenient To Get There	Logged Area	No Means To Get There	No Longer Hunt	Found A Better Area	Area Now Developed	Regula- tions	Bad Weather Environment
Region	33	21	20	10	9	9	7	6	4	-	-
Meyers Chuck	0	0	0	67	0	0	0	33	0	0	0
Hydaburg	30	22	0	15	52	0	11	4	0	0	0
Hoonah	44	13	0	9	59	21	0	0	30	0	0
Angoon	11	76	0	2	11	2	0	0	0	0	2
Kake	42	14	51	0	35	0	9	0	0	0	0
Port Protection	43	29	14	29	14	0	0	0	14	0	0
Metlakatla	10	55	0	4	2	20	0	6	2	0	0
Tenakee Springs	29	100	0	0	29	0	0	0	0	0	0
Point Baker	57	14	57	0	14	0	0	14	14	0	0
Port Alexander	0	0	0	34	17	0	34	0	49	0	0
Klawock	27	18	18	10	40	5	0	5	0	13	0
Edna Bay	13	25	0	25	50	0	0	0	0	0	0
Saxman	15	51	0	15	13	0	0	13	15	0	0
Gustavus	12	24	0	51	12	0	0	12	0	0	0
Petersburg	55	0	58	0	0	8	3	3	0	0	0
Sitka	6	53	0	27	3	6	3	12	6	0	0
Hollis	27	20	0	27	27	0	0	0	27	0	0
Wrangell	41	2	8	-	4	17	23	6	2	0	0
Kasaan	0	25	0	0	0	50	25	0	0	0	0
Pelican	25	50	0	8	0	0	0	0	17	0	0
Haines	26	0	0	24	0	24	0	24	2	0	0
Thorne Bay	9	33	0	54	4	0	4	4	0	0	0
Skagway	0	81	0	0	19	0	0	0	0	0	0
Craig	20	46	0	24	10	0	5	5	0	0	0
Coffman Cove	20	30	0	30	0	0	0	20	20	0	0
N. Whale Pass	0	67	0	33	33	0	0	33	0	0	0

Source: Tongass Resource Use Cooperative Survey

The answers most commonly given by respondents were not sufficiently specific to identify the chain of events that led them to abandon an area. The absence of deer, for example, could arise from many possible causes. This study was not intended to provide a complete explanation of why some deer harvest areas are abandoned. We can, however, offer data which suggest the need for further work in this area. Table 9 displays the percentage of households reporting four different physical characteristics in the most reliable current deer harvest area and in an area considered reliable when it was used. These characteristics are: the presence of young clearcuts, the presence of middle-aged clearcuts, the presence of old clearcuts, and the presence of roads. During the interview, we told respondents that young clearcuts are, "where the trees are short and there is heavy brush." Middle-aged clearcuts were defined as, "where the trees touch each other and are difficult to see through." Old clearcuts were described as, "where the trees are taller than houses and the ground beneath the trees is open."

The communities are ordered in Table 9 according to the largest negative difference in the percentage of respondents mentioning young clearcuts in the most reliable current deer harvest area and the percentage mentioning young clearcuts as a current characteristic of a once reliable, but abandoned, deer harvest area. The difference is 20 percentage points or more in nine communities: Meyers Chuck, Hydaburg, Hoonah, Angoon, Kake, Port Protection, Metlakatla, Tenakee Springs, and Point Baker. Five communities, on the other hand, show increases in the presence of young clearcuts: North Whale Pass, Coffman Cove, Craig, Skagway, and Thorne Bay.

With the exceptions of Point Baker and Metlakatla, the communities mentioned first in the above paragraph also reported that abandoned deer harvest areas more frequently have roads than current reliable deer harvest areas. These results are consistent with the reported sustained use of boats (over longer distances). Tables 10, 11, and 12 display the percentage of households in each community reporting any of the full array of physical characteristics covered in the interview for three types of deer harvest areas: most reliable, most often used, and abandoned.

Table 9: Differences Between Current
And Abandoned Deer Harvest Areas
(Percent of Harvesters Mentioning Presence of Characteristic)

	Presence of Young Clearcuts in:		Presence of Middle-Aged Clearcuts in:		Presence of Old Clearcuts in:		Presence of Roads In:	
	Current Area	Abandoned Area	Current Area	Abandoned Area	Current Area	Abandoned Area	Current Area	Abandoned Area
Meyers Chuck	22	100	0	100	22	33	22	67
Hydaburg	26	85	16	46	15	24	13	74
Hoonah	17	68	1	1	1	0	36	77
Angoon	22	61	36	60	32	64	10	62
Kake	25	60	18	49	29	32	16	46
Port Protection	31	57	13	71	19	29	38	71
Metlakatla	5	27	7	10	3	24	17	16
Tenakee Springs	35	57	35	71	5	14	45	86
Point Baker	36	57	38	100	0	43	43	43
Port Alexander	0	17	0	17	0	17	0	17
Klawock	66	80	61	71	50	47	86	81
Edna Bay	29	37	24	37	12	12	47	88
Saxman	42	50	50	43	26	18	39	43
Gustavus	5	12	3	0	3	0	5	12
Petersburg	15	18	18	24	15	16	43	49
Sitka	22	24	26	26	14	15	32	47
Hollis	46	47	20	53	39	80	78	100
Wrangell	33	33	44	37	26	23	42	50
Kasaan	0	0	20	0	20	0	0	0
Pelican	4	0	2	16	4	0	9	0
Haines	9	3	1	5	9	0	31	0
Thorne Bay	63	46	34	67	34	46	71	78
Skagway	36	19	24	0	27	0	36	19
Craig	52	15	29	26	24	21	65	26
Coffman Cove	68	30	62	11	38	0	78	70
N. Whale Pass	67	0	20	100	60	0	87	100
No Abandoned Areas Mentioned								
Elfin Cove	0		0		0		0	
Hyder	17		33		33		50	
Klukwan	42		15		15		27	

Source: Tongass Resource Use Cooperative Survey

Table 10

Characteristics of Most Reliable Deer Hunting Area
(Percentages)

OCCURRENCE OF VEGETATION TYPES AND ROADS (1)	Region										
		Angoon	Cape Pole	Coffman Cove	Craig	Edna Bay	Elfin Cove	Gustavus	Haines	Hollis	Hoonah
Old-Growth Forest	90	86	86	80	89	100	100	100	91	90	88
Muskeg	88	85	86	89	94	59	100	92	84	87	95
Open Beach	61	68	57	11	27	47	92	80	74	5	61
Grassy Meadow	60	90	43	50	60	71	50	86	67	61	50
Areas Above Treeline	44	59	0	58	54	29	75	22	13	40	63
Roads, including Logging	40	10	57	78	65	47	0	5	31	78	36
Young Clearcuts	27	25	43	68	52	29	0	5	9	46	17
Middle-aged Clearcuts	26	38	43	62	29	24	0	3	1	20	1
Older Clearcuts	19	36	43	38	24	12	0	3	9	39	1

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OCCURRENCE OF VEGETATION TYPES AND ROADS (1)											
	Hydaburg	Hyder	Kake	Kasaan	Klawock	Klukwan	Metlakatla	Meyers Chuck	N. Whale Pass	Pelican	Petersburg
Old-Growth Forest	92	83	86	90	89	85	88	89	93	96	87
Muskeg	100	100	88	90	94	100	97	100	73	97	80
Open Beach	77	67	81	40	38	46	90	67	7	72	79
Grassy Meadow	57	83	59	30	54	73	57	33	60	52	59
Areas Above Treeline	69	17	59	40	48	15	29	11	20	68	44
Roads, including Logging	13	50	16	0	86	27	17	22	87	9	43
Young Clearcuts	26	17	25	0	66	42	5	22	67	4	15
Middle-aged Clearcuts	16	33	18	20	61	15	7	0	20	2	18
Older Clearcuts	15	33	29	20	50	15	3	22	60	4	15

(1) Percentages do not total 100 because more than one characteristic could be mentioned by each household.

Table 10
(Continued)
Characteristics of Most Reliable Deer Hunting Area
(Percentages)

OCCURRENCE OF VEGETATION TYPES AND ROADS (1)	Point Baker	Port Alexander	Port Protection	Saxman	Sitka	Skagway	Tenakee Springs	Thorne Bay	Wrangell	Yakutat (2)
Old-Growth Forest	100	93	100	92	93	97	100	73	91	
Muskeg	71	92	100	100	87	97	90	94	91	
Open Beach	71	85	75	49	53	56	70	22	60	
Grassy Meadow	50	50	81	69	62	56	90	43	59	
Areas Above Treeline	36	58	50	29	58	41	47	26	29	
Roads, including Logging	43	0	38	39	32	36	45	71	42	
Young Clearcuts	36	0	31	42	22	36	35	63	33	
Middle-aged Clearcuts	39	0	13	50	26	24	35	34	44	
Older Clearcuts	0	0	19	26	14	27	5	34	26	

(1) Percentages do not total 100 because more than one characteristic could be mentioned by each household.

(2) Excludes Yakutat from regional total as questions were not asked.

Table 11

Characteristics of Areas Most Often Used For Deer Hunting
(Percentages)

OCCURRENCE OF VEGETATION TYPES AND ROADS (1)	Region	Angoon	Cape Pole	Coffman Cove	Craig	Edna Bay	Elfin Cove	Gustavus	Haines	Hollis	Hoonah
Old-Growth Forest	91	95	86	85	96	100	100	100	89	90	94
Muskeg	88	87	86	87	93	77	92	100	90	96	99
Open Beach	62	81	71	17	23	18	92	80	80	5	62
Grassy Meadow	61	76	43	46	62	53	58	81	70	66	46
Roads, including Logging	43	13	57	86	69	65	0	8	27	67	58
Areas Above Treeline	41	37	0	41	49	24	83	24	33	36	58
Middle-aged Clearcuts	31	51	43	65	44	41	0	5	1	31	6
Young Clearcuts	29	27	29	77	58	35	0	8	11	51	32
Older Clearcuts	24	44	43	39	26	41	0	3	11	50	1

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OCCURRENCE OF VEGETATION TYPES AND ROADS (1)	Hydaburg	Hyder	Kake	Kasaan	Klawock	Klukwan	Metlakatla	Meyers Chuck	N. Whale Pass	Pelican	Petersburg
Old-Growth Forest	98	83	88	86	80	80	97	89	100	96	92
Muskeg	100	100	99	86	97	60	77	100	75	95	80
Open Beach	76	83	86	71	23	100	90	67	6	68	76
Grassy Meadow	55	83	76	57	67	80	49	56	50	54	55
Roads, including Logging	16	33	6	14	84	0	21	0	88	12	42
Areas Above Treeline	56	0	56	29	51	40	30	11	25	61	40
Middle-aged Clearcuts	20	17	13	43	59	20	6	11	19	2	19
Young Clearcuts	25	17	12	14	68	20	16	0	69	4	13
Older Clearcuts	25	0	24	29	61	20	4	11	44	5	18

(1) Percentages do not total 100 because more than one characteristic could be mentioned by each household.

Table 11
(Continued)
Characteristics of Areas Most Often Used For Deer Hunting
(Percentages)

OCCURRENCE OF VEGETATION TYPES AND ROADS (1)	Point Baker	Port Alexander	Port Protection	Saxman	Sitka	Skagway	Tenakee Springs	Thorne Bay	Wrangell	Yakutat (2)
Old-Growth Forest	92	96	100	92	94	100	100	81	86	
Muskeg	86	100	100	100	83	94	90	91	93	
Open Beach	79	88	94	59	58	54	70	38	64	
Grassy Meadow	50	40	75	74	63	65	90	51	64	
Roads, including Logging Areas Above Treeline	57	0	44	37	35	35	55	86	46	
Middle-aged Clearcuts	29	44	25	33	49	41	42	29	30	
Young Clearcuts	31	0	19	40	29	54	35	55	48	
Older Clearcuts	50	0	44	33	22	24	45	59	38	
	8	0	25	33	17	59	10	59	33	

(1) Percentages do not total 100 because more than one characteristic could be mentioned by each household.

(2) Excludes Yakutat from regional total as questions were not asked.

Table 12

Characteristics of Areas Abandoned For Deer Hunting
(Percentages)

OCCURRENCE OF VEGETATION TYPES AND ROADS (1)	Region	Coffman					Elfin				
		Angoon	Cape Pole	Cove	Craig	Edna Bay	Cove (3)	Gustavus	Haines	Hollis	Hoonah
Muskeg	90	87	100	100	90	71		100	98	73	99
Old-Growth Forest	89	87	67	70	100	75		100	100	47	91
Grassy Meadow	62	89	33	80	32	38		88	100	53	36
Open Beach	62	98	33	20	63	63		73	52		84
Roads, including Logging	49	63	67	70	26	88		12	-	100	77
Areas Above Treeline	44	65	-	30	42	13		12	-	47	44
Young Clearcuts	30	64	67	30	16	38		12	3	47	68
Middle-aged Clearcuts	30	63	67	11	26	38		-	5	53	1
Older Clearcuts	20	67	67	-	21	13		-	-	80	-

OCCURRENCE OF VEGETATION TYPES AND ROADS (1)	Hydaburg	Hyder (3)					Meyers	N. Whale	Pelican	Petersburg
			Kake	Kasaan	Klawock	Klukwan (3)	Metlakatla	Chuck		
Muskeg	89		100	100	100		100	67	68	94
Old-Growth Forest	46		83	100	90		92	67	67	89
Grassy Meadow	63		74	50	64		71	67	33	61
Open Beach	67		88	75	68		92	33	-	93
Roads, including Logging	74		46	-	81		16	67	100	-
Areas Above Treeline	89		45	25	44		39	33	-	47
Young Clearcuts	85		60	-	80		27	100	-	-
Middle-aged Clearcuts	46		49	-	71		10	100	100	16
Older Clearcuts	24		32	-	48		25	33	-	-

- = Less a half of a percent

(1) Percentages do not total 100 because more than one characteristic could be mentioned by each household.

(2) Excludes Yakutat from regional total as questions were not asked.

(3) No abandoned areas mentioned by respondents.

Source: Tongass Resource Use Cooperative Survey

Table 12
(Continued)
Characteristics of Areas Abandoned For Deer Hunting
(Percentages)

OCCURRENCE OF VEGETATION TYPES AND ROADS (1)	Point Baker	Port Alexander	Port Protection	Saxman	Sitka	Skagway	Tenakee Springs	Thorne Bay	Wrangell	Yakutat (2)
Muskeg	86	100	86	94	85	81	86	83	81	
Old-Growth Forest	86	83	100	94	91	100	100	67	90	
Grassy Meadow	71	66	71	66	59	81	100	67	62	
Open Beach	86	100	100	100	44	81	86	33	60	
Roads, including Logging	43	17	71	43	47	19	86	78	50	
Areas Above Treeline	29	68	29	79	59	19	71	52	42	
Young Clearcuts	57	17	57	50	24	19	57	46	32	
Middle-aged Clearcuts	100	17	71	43	27	-	71	67	37	
Older Clearcuts	43	17	29	18	15	-	14	46	23	

- = Less a half of a percent

(1) Percentages do not total 100 because more than one characteristic could be mentioned by each household.

(2) Excludes Yakutat from regional total as questions were not asked.

(3) No abandoned areas mentioned by respondents.

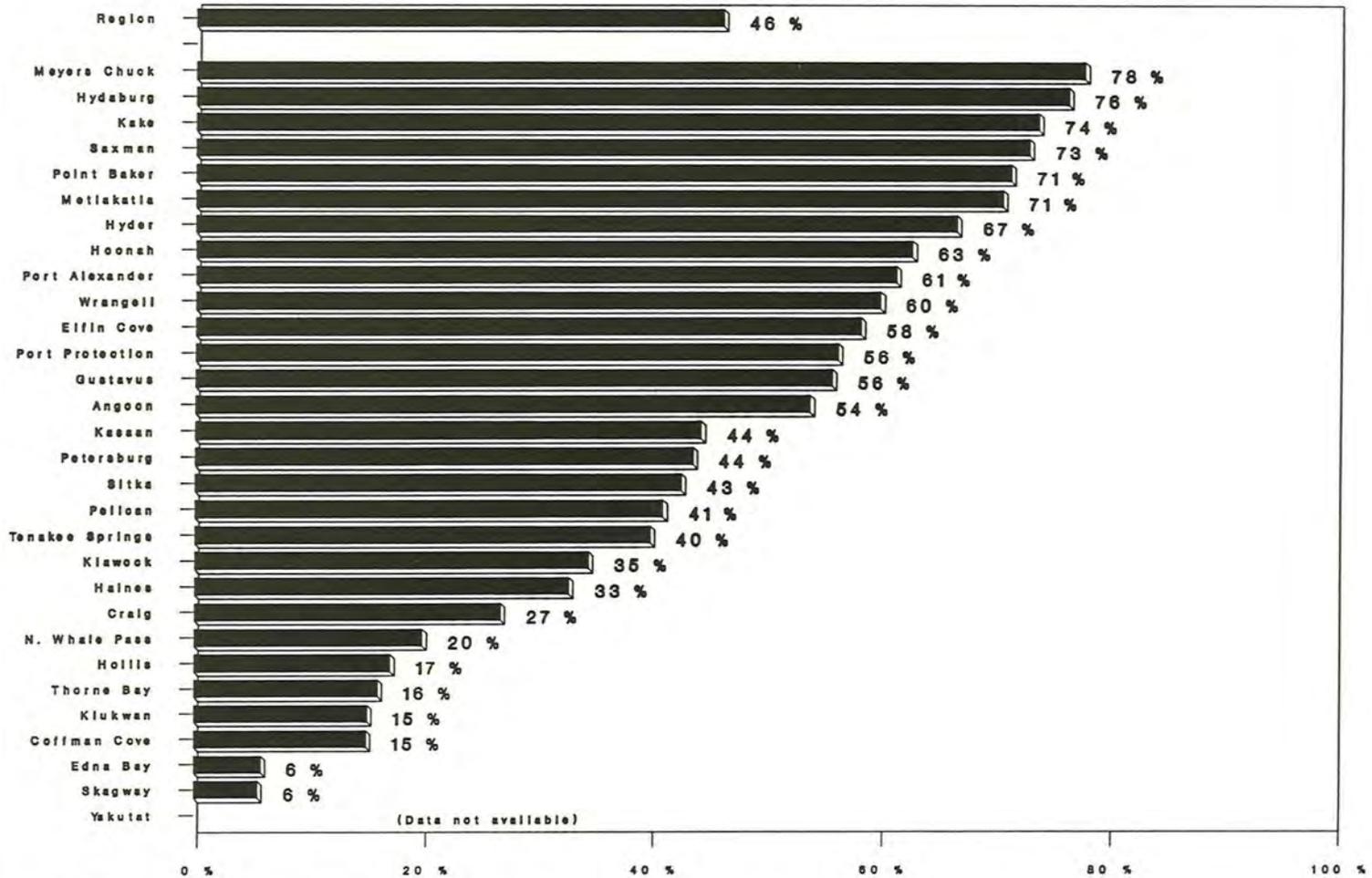
Source: Tongass Resource Use Cooperative Survey

E. Length of Use of Most Reliable Deer Harvest Areas

We initially included questions on the earliest year a household hunted deer as a measure of traditional and customary use. In a series of compromises during the research design phase, this question was only asked with regard to three specific deer hunting locations, the most reliable area, the area most frequently used, and a once reliable but abandoned area. Since hunters are likely to change where they hunt over time, these measures are not good measures of the total number of years a household has harvested deer. Since a household may not use the same area every year, the earliest year an area was used also is not a good measure of the total number of years an area has been used. The measures may be useful, however, as an indication of how often residents change where they hunt.

On a region-wide basis, 46 percent of all deer harvesters reported that their household first used the most reliable current deer harvest area before 1979. Thus the median length of time such areas have been used is about ten years. The length of time these areas have been used varies greatly by community (see Figure 68). On a household basis, length of use of the same area for deer hunting appears to vary primarily with length of residence and ethnicity (related variables, since long term residents are disproportionately Native). Two-thirds of Native households harvesting deer have used their most reliable deer harvest area for ten years or more.

Figure 68: Percent Hunting Deer
In Most Reliable Place Before 1979



Tongass Resource Use Cooperative Survey

Figure 69: Hunted in Most Reliable Deer Harvest Area Before 1979 By Size of Place

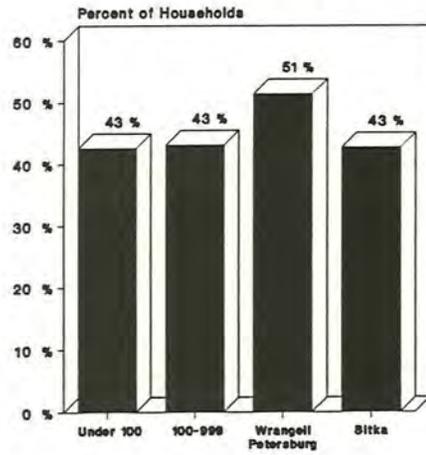


Figure 70: Hunted in Most Reliable Deer Harvest Area Before 1979 By 1987 Household Income

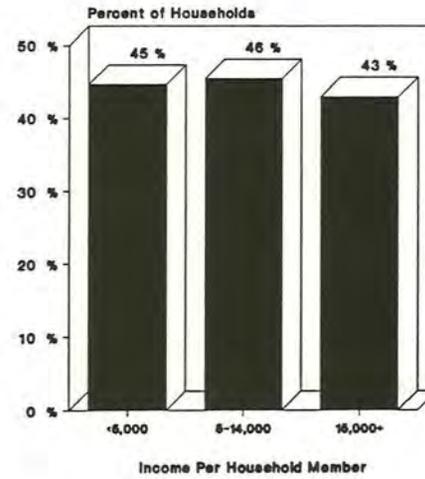


Figure 71: Hunted in Most Reliable Deer Harvest Area Before 1979 By Length of Residence

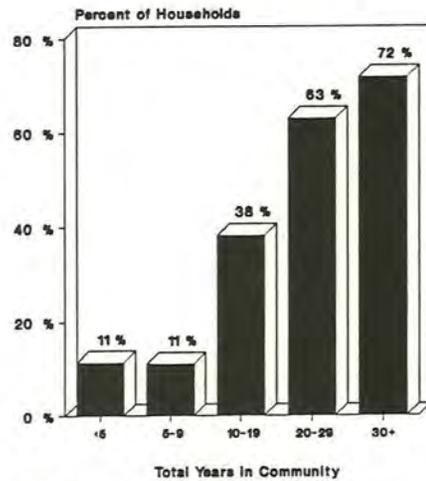
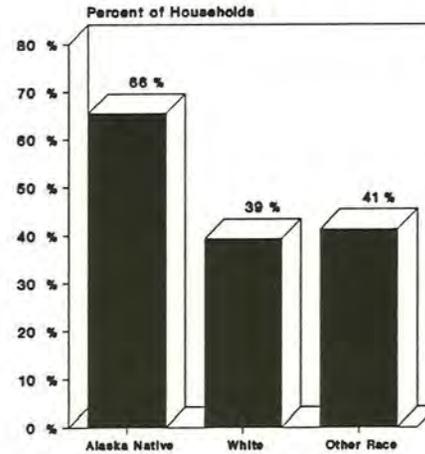


Figure 72: Hunted in Most Reliable Deer Harvest Area Before 1979 By Ethnicity



F. Extended Family Use of the Same Deer Harvest Area

Another intended measure of customary and traditional use was the common use of deer harvest areas by family members living in other households or deceased family members. The pattern of extended family use closely matches that of length of use (see Figures 73 through 77).

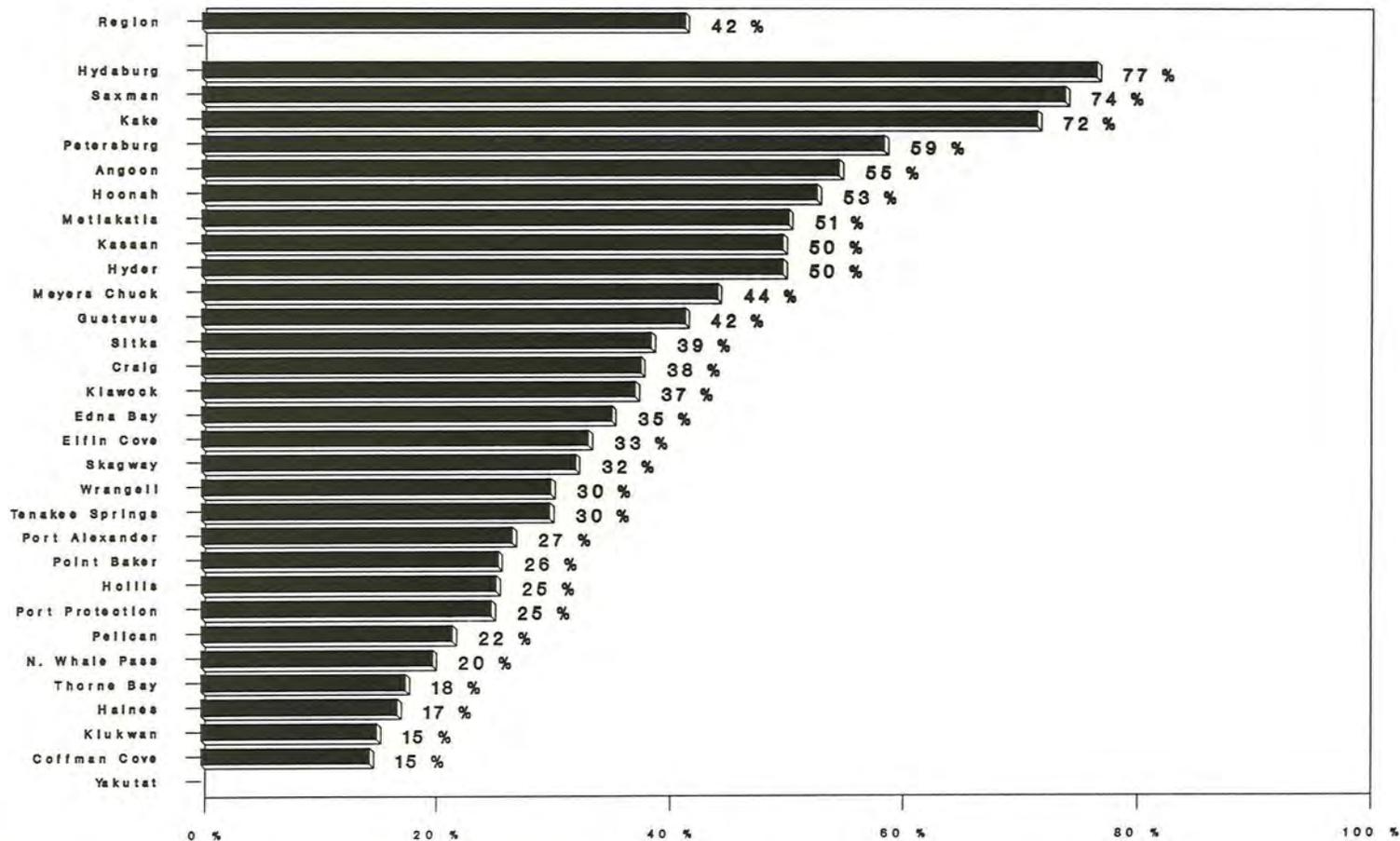
G. Deer Hunting Partners

The final measure of customary and traditional use was the incidence of cooperative hunting. This measure is not intended as a direct measure of customary and traditional use; rather, it was expected to shed some light on the role of hunting on the social relationships of rural southeast residents.

Only about one in five residents reported hunting alone on their last deer hunt (see Figure 78). The most common hunting partner is a friend. Forty-three percent of all deer hunters went with a friend on the last hunt. Cooperative hunting with relatives and friends from work constituted 26 percent and 12 percent, respectively, of the last hunts of rural southeast households.

Hunting without a partner is more common in smaller communities (see Figure 79). In communities of under 100 households, hunting without a partner is almost as common as hunting with a friend (37 percent vs. 41 percent). The pattern of deer hunting is similar among households of differing incomes (see Figure 80). Households with incomes of \$15,000 or more per household member are, however, somewhat less likely to go with relatives and more likely to go with friends from work. Finally, long-term resident and Native households are substantially more likely to hunt with relatives (see Figures 81 and 82).

Figure 73: Percent Households With Extended Family Use of Most Reliable Deer Hunting Area by Place



Tongass Resource Use Cooperative Survey

Figure 74: Extended Family Used Most Reliable Deer Harvest Area By Size of Place

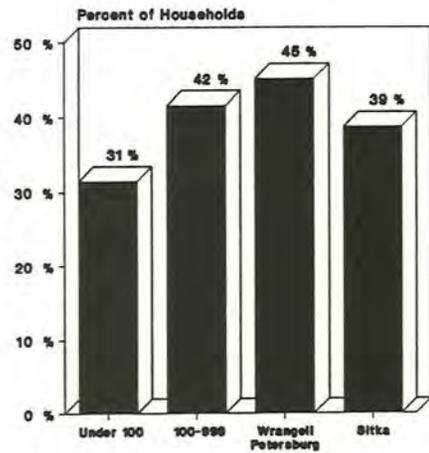


Figure 75: Extended Family Used Most Reliable Deer Harvest Area By Income Per Household Member

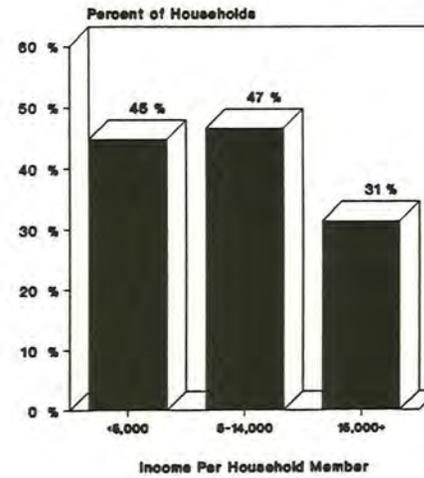


Figure 76: Extended Family Used Most Reliable Deer Harvest Area By Length of Residence

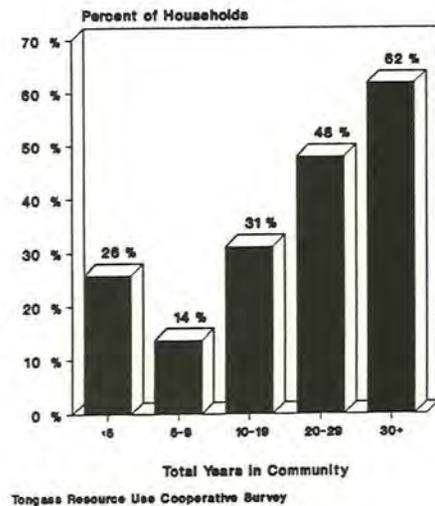


Figure 77: Extended Family Used Most Reliable Deer Harvest Area By Ethnicity

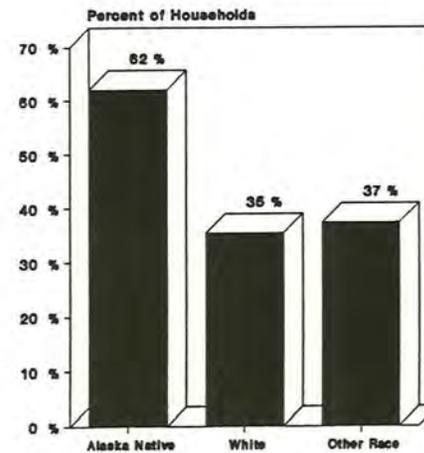


Figure 78: Type of Person Outside Household With Whom Hunt Deer In Most Reliable Place

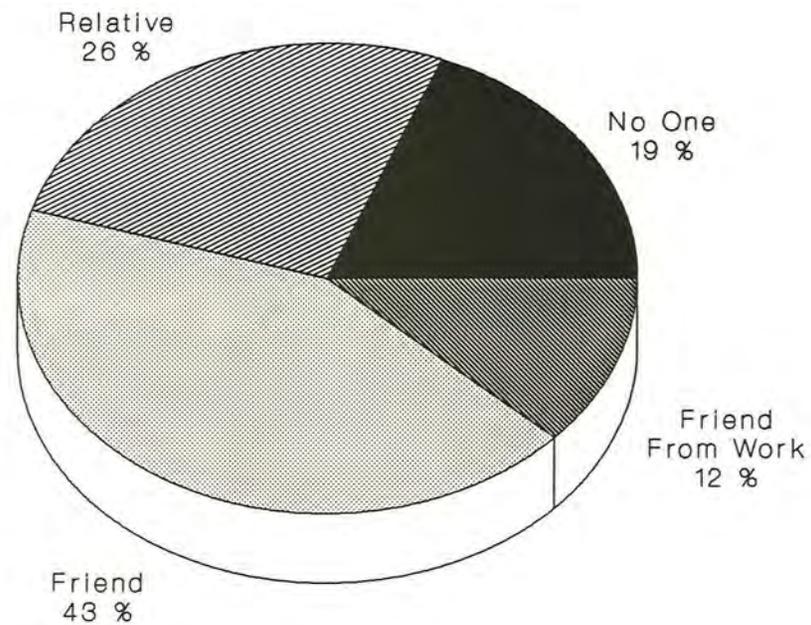
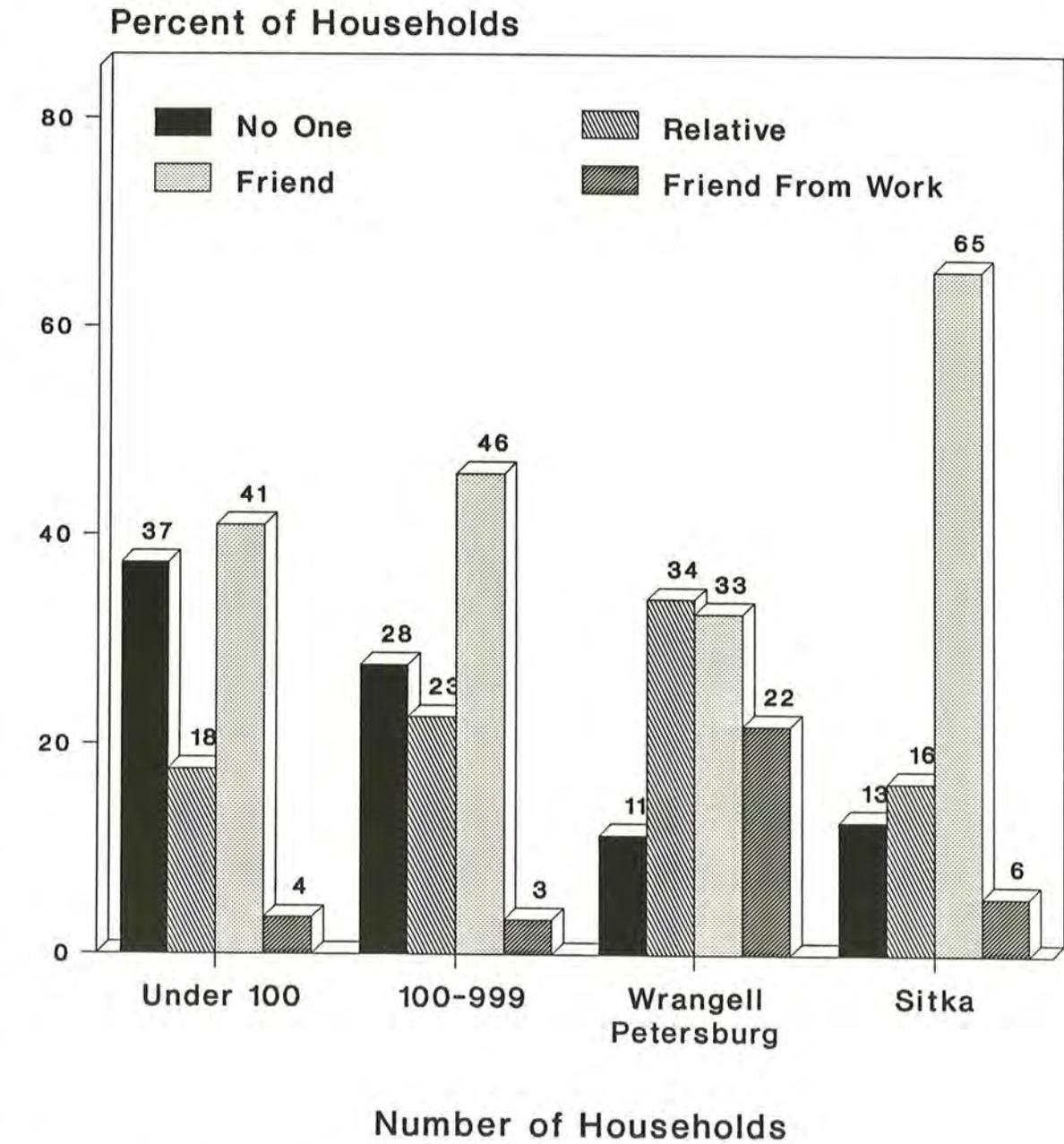
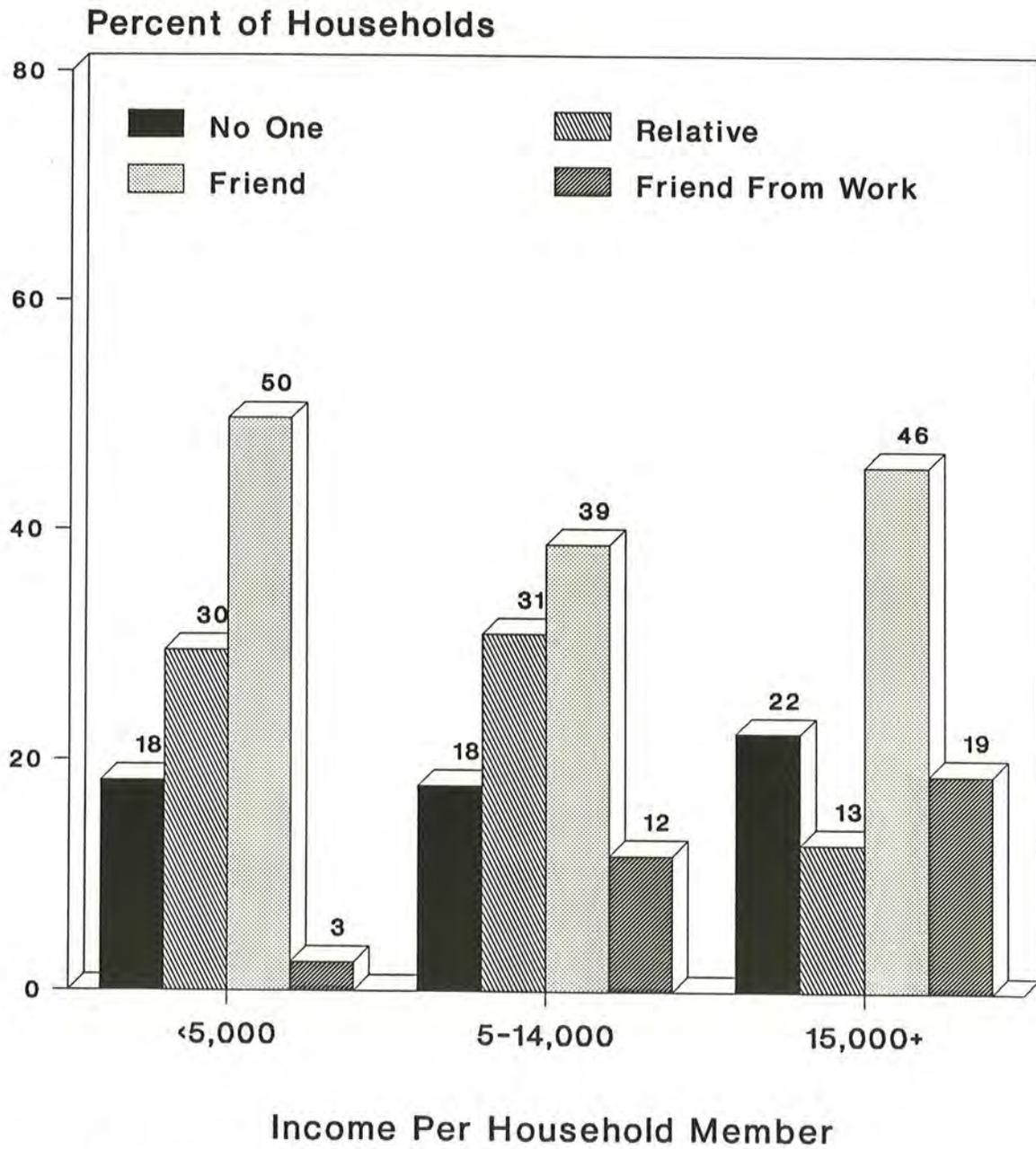


Figure 79: Type of Deer Hunting Partner in Most Reliable Deer Area by Size of Place



Tongass Resource Use Cooperative Survey

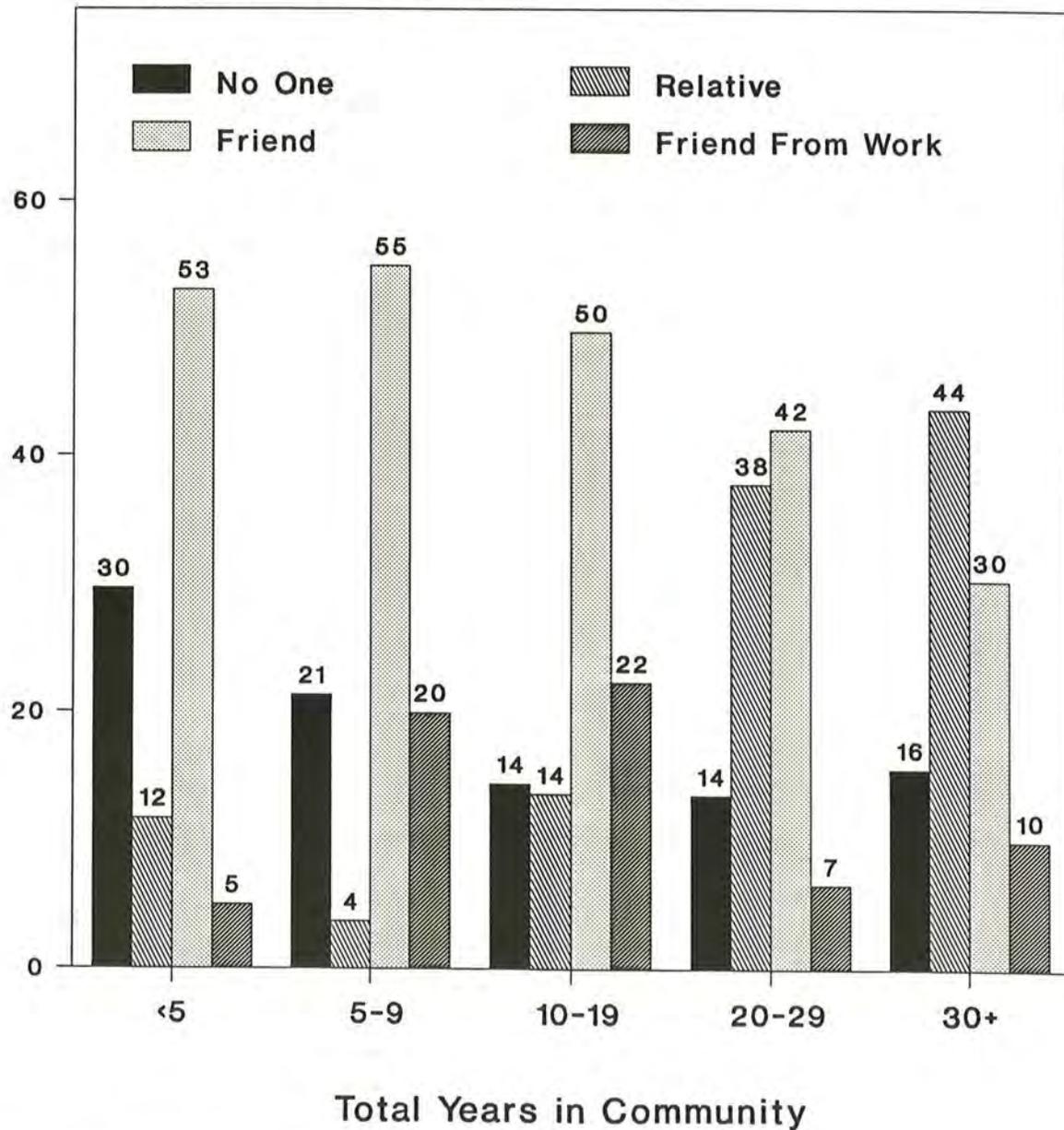
Figure 80: Type of Deer Hunting Partner in Most Reliable Deer Hunting Area by Household Income



Tongass Resource Use Cooperative Survey

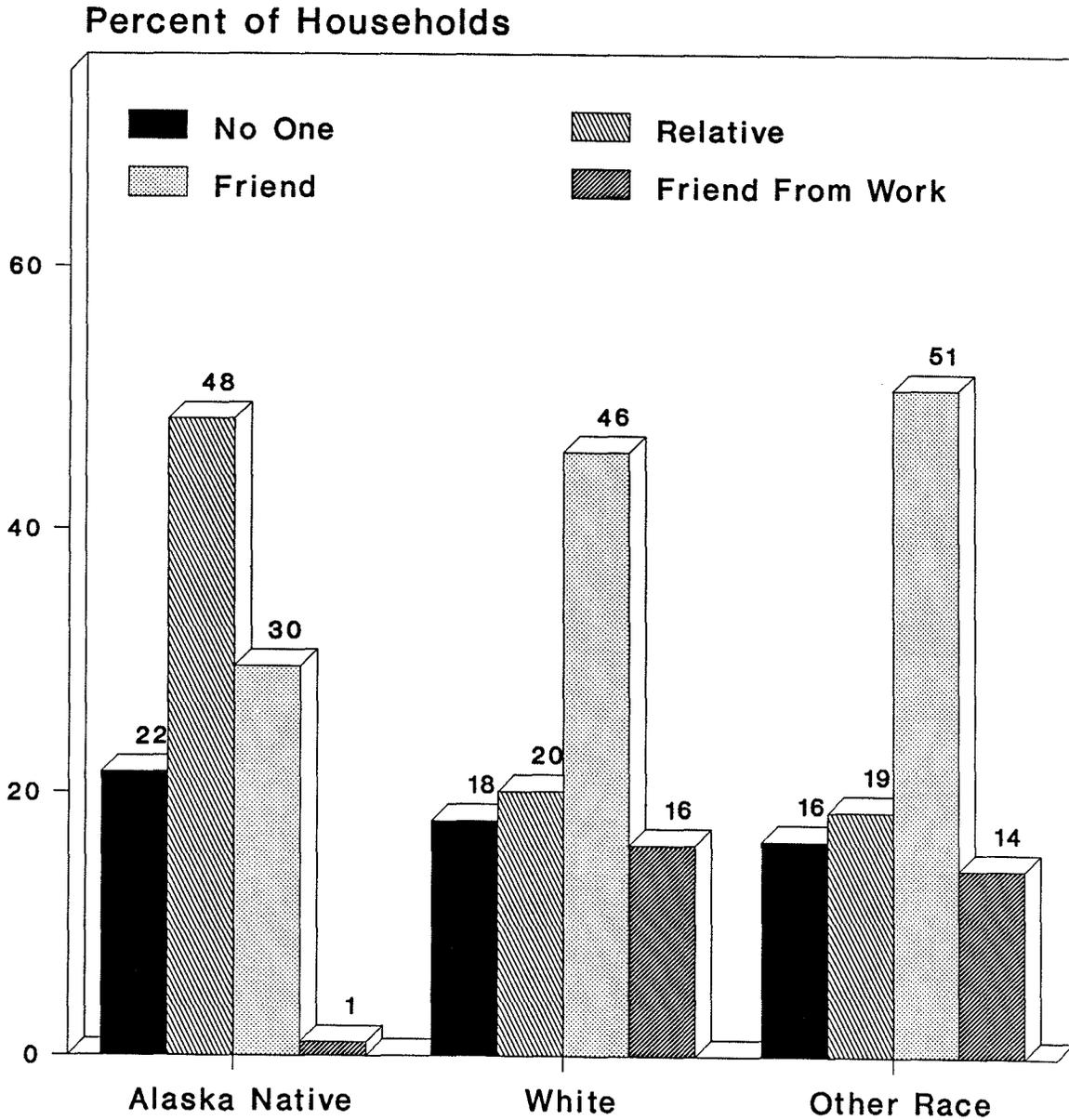
Figure 81: Type of Deer Hunting Partner in Most Reliable Deer Area By Length of Residence

Percent of Households



Tongass Resource Use Cooperative Survey

Figure 82: Type of Deer Hunting Partner in Most Reliable Deer Area by Ethnicity



Tongass Resource Use Cooperative Survey

IV. HARVESTS OF RESOURCES OTHER THAN DEER

This chapter is divided into seven sections, each concerning a category of subsistence resources. In order of presentation, these categories are: salmon, other finfish, land mammals other than deer, marine mammals, birds, and plants. The intent of this chapter is to establish the relative importance of the resource category as a subsistence resource, to identify variations in harvest activity by community and household characteristics, and to present detailed tabular data on resource harvest and sharing activity by species for all study communities and the region as a whole.

A. Salmon Harvest

Harvests of all salmon species constitute 21 percent of the total harvest of subsistence resources (see Figure 83). More than 1.2 million edible pounds of salmon were harvested in 1987. More than half of all households in rural southeast Alaska (59 percent, or 5000 households) harvested at least one salmon. Substantial percentages of households in all communities harvested salmon in 1987 (see Figure 84). Species harvested by the largest percentage of households in the region as a whole were kings (42 percent) and cohos (38 percent, see Table 13). The 508,000 pounds of kings harvested in 1987 accounted for 42 percent of the total subsistence salmon harvest (see Figure 85).¹¹

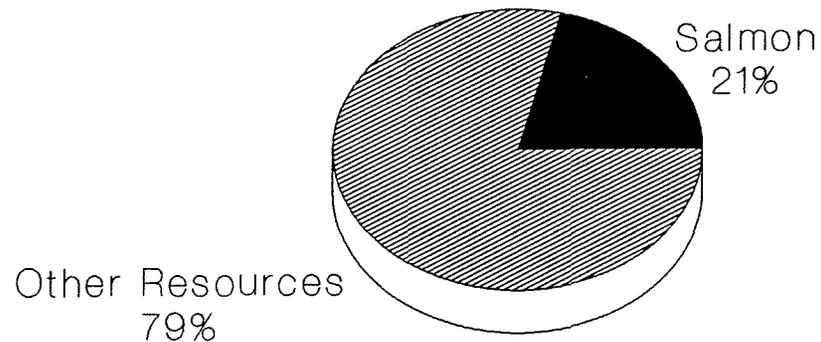
Most of the king salmon harvested for subsistence were caught with rod and reel (368,000 pounds, see Figure 86). Approximately 132,000 pounds of kings were removed from commercial harvests and 9,000 pounds were caught with nets or gaffs. Most sockeye, in contrast were harvested with nets or gaffs. The harvest pattern for cohos is similar to that for kings. Table 14 displays detailed harvest estimates in numbers of salmon by method of harvest and species for the region as a whole and for each community. For example, we estimate that 33,364 king salmon were harvested by rural southeast residents in 1987. The data are reported in Table 14 to the nearest whole salmon so that the regional total reflects the sum (within rounding error) of the community totals. It should be kept in mind, however, that these data are based on samples of households and are, therefore, estimates. Each estimate is subject to sampling error. The estimated sampling error (at a 95 percent level of confidence) for the number of kings harvested is 3,882. This means that the actual number of kings harvested is likely to fall between 29,482 and 37,246. Put another way, the sampling error is plus or minus 12 percent of the best estimate of 33,364 kings harvested.

Figure 83: Salmon Harvest Summary (1987 Harvest Activity)

174,456 Salmon

1,219,546 Pounds

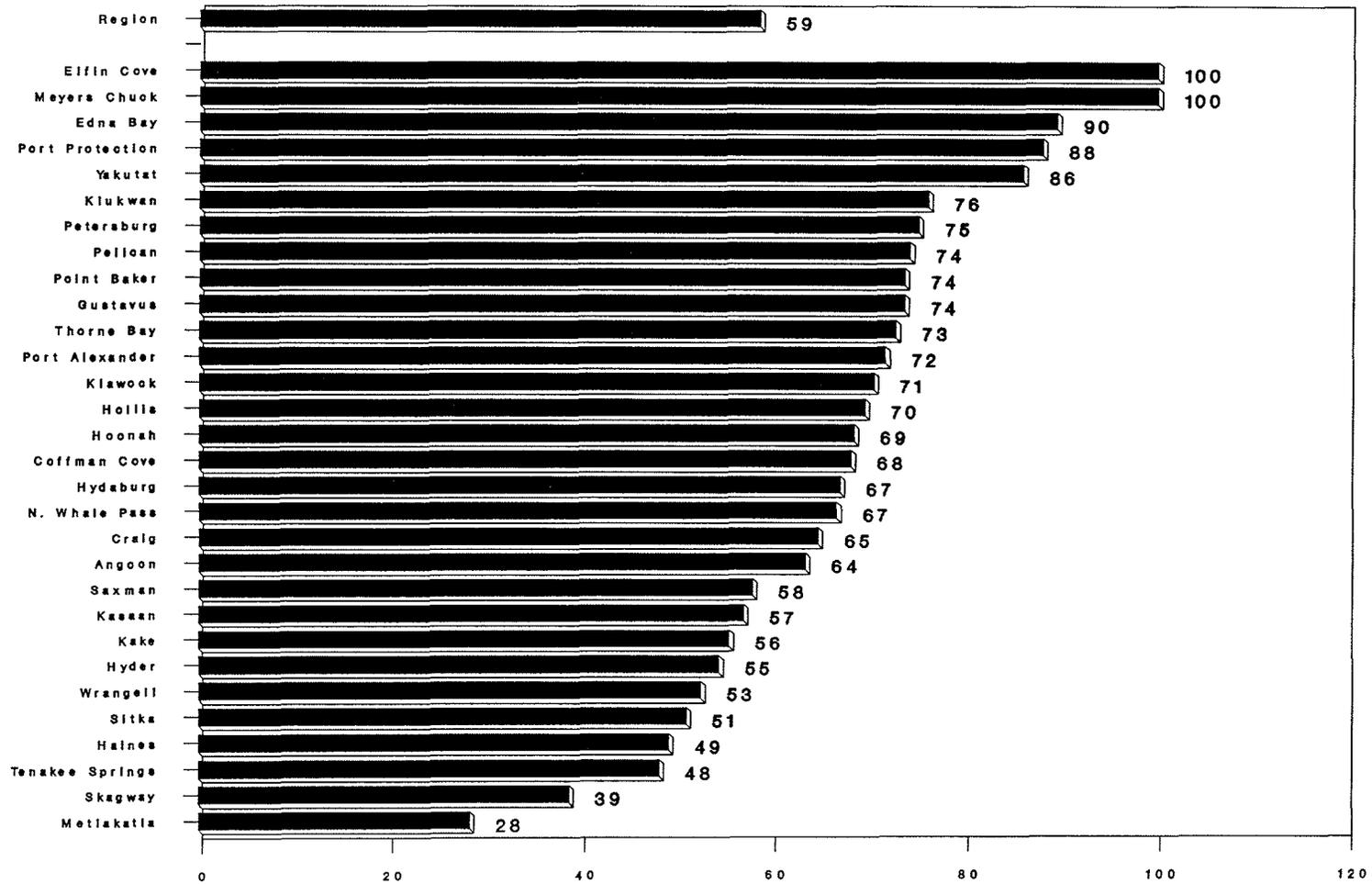
Salmon as Percent of Total Harvest



4,997 Households Harvested Salmon (59% of all households)

Tongass Resource Use Cooperative Survey

Figure 84: Percent Households Harvesting Salmon By Place



Tongass Resource Use Cooperative Survey

Table 13: Percent Harvesting Salmon

	Any	Kings	Sockeye	Cohos	Pinks	Chum
Region	59	42	23	38	19	11
Elfin Cove	100	92	46	54	39	15
Meyers Chuck	100	80	30	100	60	10
Edna Bay	90	74	42	68	53	21
Port Protection	88	36	68	36	48	20
Yakutat	86	61	71	69	14	8
Klukwan	76	50	67	52	21	50
Petersburg	75	68	11	52	16	14
Pelican	74	69	27	53	31	12
Point Baker	74	53	42	37	42	16
Gustavus	74	41	20	58	45	17
Thorne Bay	73	33	32	66	32	4
Port Alexander	72	71	9	50	12	6
Klawock	71	24	41	44	27	17
Hollis	70	13	41	45	34	19
Hoonah	69	50	29	55	36	32
Coffman Cove	68	53	21	44	8	5
Hydaburg	67	34	49	49	33	19
N. Whale Pass	67	61	17	33	28	11
Craig	65	31	33	40	12	7
Angoon	64	39	29	53	31	20
Saxman	58	37	35	27	29	14
Kasaan	57	29	50	21	21	0
Kake	56	28	32	37	21	32
Hyder	55	30	15	42	24	27
Wrangell	53	41	13	29	8	4
Sitka	51	39	23	33	22	10
Haines	49	33	36	24	6	6
Tenakee Springs	48	35	16	29	19	16
Skagway	39	18	8	25	18	18
Metlakatla	28	19	8	16	13	7

Source: Tongass Resource Use Cooperative Survey, 1988

Figure 85: Pounds Salmon Harvested by Species

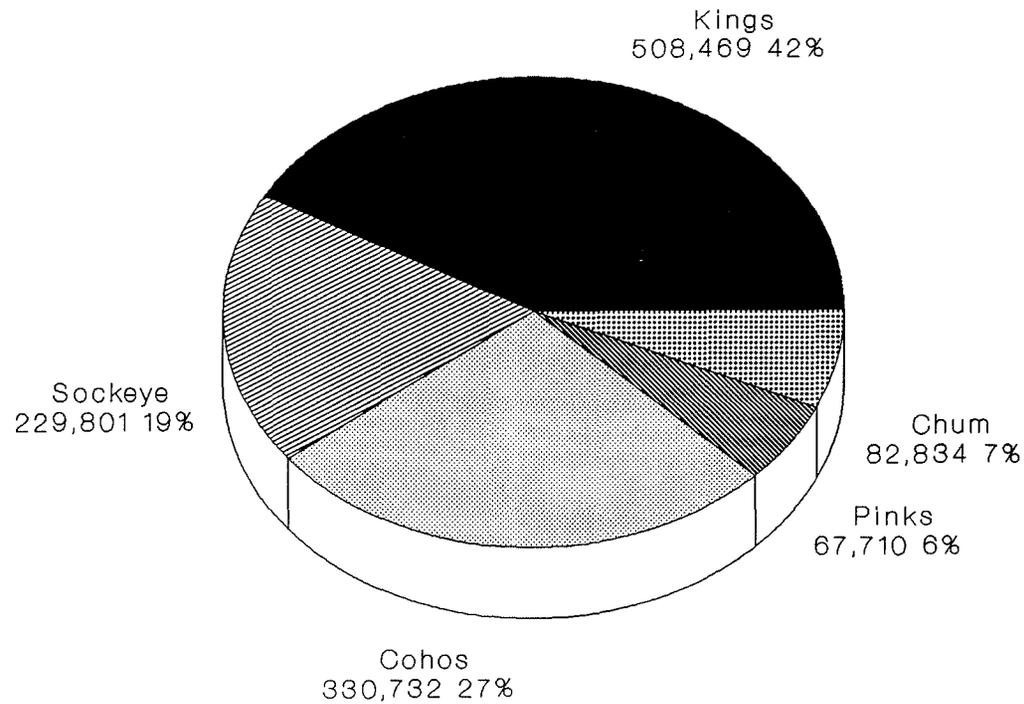
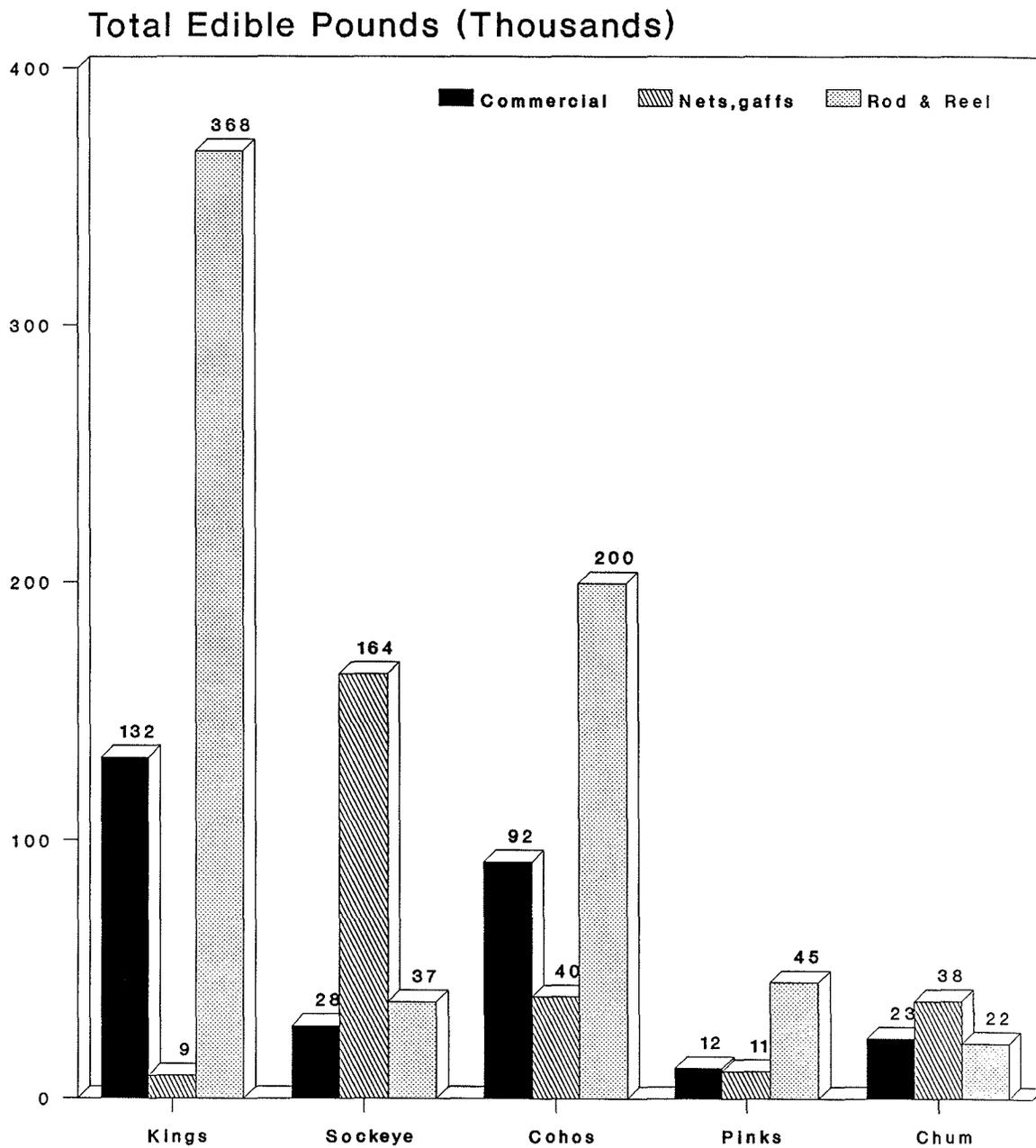


Figure 86: Pounds Salmon Harvested by Method of Harvest



Tongass Resource Use Cooperative Survey

Table 14: Total Number of Salmon Harvested

	All	Kings	Sockeye	Cohos	Pinks	Chum
Region	174,456	33,364	53,865	42,982	30,858	13,387
Angoon	5,488	1,020	1,554	1,387	1,187	339
Coffman Cove	915	431	137	293	44	9
Craig	8,788	686	4,067	1,856	1,901	278
Edna Bay	1,295	195	86	352	625	37
Elfin Cove	484	237	76	80	77	13
Gustavus	1,200	181	107	513	328	72
Haines	6,889	1,175	4,380	561	261	512
Hollis	698	38	254	145	196	65
Hoonah	9,674	1,664	1,213	2,055	1,209	3,532
Hydaburg	9,888	392	6,479	1,633	724	661
Hyder	1,279	217	89	455	245	273
Take	3,910	279	1,493	482	554	1,103
Kasaan	218	29	150	19	20	0
Klawock	9,923	776	3,844	3,119	1,665	518
Klukwan	3,134	83	1,880	282	149	740
Metlakatla	4,726	767	804	1,251	1,295	610
Meyers Chuck	414	101	26	152	130	5
N. Whale Pass	265	78	33	65	73	16
Pelican	2,068	523	268	400	820	58
Petersburg	21,415	6,727	1,822	7,674	4,021	1,171
Point Baker	463	106	217	35	88	17
Port Alexander	737	302	17	332	75	12
Port Protection	973	175	472	163	118	45
Saxman	1,582	166	890	152	292	83
Sitka	43,774	10,284	12,720	8,115	10,398	2,257
Skagway	2,006	186	253	281	955	331
Tenakee Springs	971	89	84	180	559	59
Thorne Bay	3,010	640	614	1,180	565	11
Wrangell	8,102	4,266	1,102	1,619	926	189
Yakutat	20,168	1,550	8,735	8,152	1,359	371

Source: Tongass Resource Use Cooperative Survey, 1988

Table 14 continued: Total Number of Salmon
Removed From Commercial Catch:

Region	Kings	Sockeye	Coho	Pinks	Chum
Angoon	557	166	495	693	221
Coffman Cove	60	54	35	11	5
Craig	296	301	95	75	188
Edna Bay	112	47	201	271	20
Elfin Cove	187	38	51	34	6
Gustavus	9	9	37	7	7
Haines	460	651	106	64	322
Hollis	30	5	5	0	0
Hoonah	1,114	881	1,220	410	693
Hydaburg	262	90	259	18	0
Hyder	90	0	189	61	59
Kake	102	280	238	216	296
Kasaan	16	0	9	5	0
Klawock	15	5	50	0	0
Klukwan	0	2	1	3	2
Metlakatla	251	405	473	218	600
Meyers Chuck	30	0	24	2	0
N. Whale Pass	0	0	0	0	0
Pelican	194	64	81	503	12
Petersburg	817	158	1,132	1,098	594
Pt. Baker	101	15	33	85	17
Port Alexander	195	17	163	75	7
Port Protection	139	54	118	57	17
Saxman	45	28	104	76	9
Sitka	1,863	1,067	1,349	388	388
Skagway	0	0	0	0	0
Tenakee Springs	66	6	56	0	3
Thorne Bay	19	0	50	91	0
Wrangell	879	389	471	59	101
Yakutat	802	1,858	4,911	969	235

Source: Tongass Resource Use Cooperative Survey, 1988

Table 14 Continued:
Number of Salmon Caught With Nets

Region	Kings	Sockeye	Coho	Pinks	Chum
Angoon	19	1,304	109	31	29
Coffman Cove	0	12	0	0	0
Craig	0	2,985	115	0	0
Edna Bay	0	0	0	0	0
Elfin Cove	0	0	0	0	0
Gustavus	13	26	31	6	1
Haines	0	3,053	0	128	114
Hollis	0	233	14	0	0
Hoonah	0	321	0	324	2,767
Hydaburg	41	6,388	705	557	416
Hyder	0	66	35	95	47
Take	0	1,213	0	88	736
Kasaan	0	150	10	3	0
Klawock	0	3,695	552	568	225
Klukwan	52	1,857	163	122	689
Metlakatla	0	0	29	0	0
Meyers Chuck	0	20	0	0	0
N. Whale Pass	0	0	0	0	0
Pelican	0	115	11	68	34
Petersburg	38	0	1,251	0	38
Point Baker	0	202	0	0	0
Port Alexander	0	0	0	0	5
Port Protection	8	417	0	22	17
Saxman	0	844	2	46	39
Sitka	58	8,303	487	2,006	633
Skagway	9	194	1	30	112
Tenakee Springs	0	78	1	0	29
Thorne Bay	0	423	0	0	0
Wrangell	0	381	151	431	30
Yakutat	369	6,280	1,530	358	137

Source: Tongass Resource Use Cooperative Survey, 1988

Table 14 Continued:
Number of Salmon Caught with Rod and Reel

Region	Kings	Sockeye	Coho	Pinks	Chum
	24,046	8,718	25,824	20,487	3,488
Angoon	445	84	783	462	89
Coffman Cove	371	72	258	33	4
Craig	390	781	1,645	1,826	90
Edna Bay	83	39	150	355	18
Elfin Cove	50	38	29	44	7
Gustavus	158	71	444	315	64
Haines	715	676	454	69	76
Hollis	8	16	126	196	65
Hoonah	550	11	835	475	72
Hydaburg	89	2	668	149	245
Hyder	128	22	230	89	167
Take	177	0	244	250	71
Kasaan	13	0	0	12	0
Klawock	761	145	2,517	1,097	293
Klukwan	31	21	118	23	50
Metlakatla	516	399	748	1,076	9
Meyers Chuck	71	6	128	128	5
N. Whale Pass	78	33	65	73	16
Pelican	329	89	307	248	11
Petersburg	5,872	1,664	5,291	2,923	539
Point Baker	5	0	2	3	0
Port Alexander	107	0	168	0	0
Port Protection	28	1	45	39	11
Saxman	121	18	45	169	36
Sitka	8,363	3,349	6,279	8,005	1,236
Skagway	178	59	280	925	219
Tenakee Springs	23	0	123	559	27
Thorne Bay	621	192	1,131	474	11
Wrangell	3,388	332	996	436	58
Yakutat	380	597	1,712	33	0

Source: Tongass Resource Use Cooperative Survey, 1988

Households located in rural southeast's smaller communities generally harvested more salmon on the average than households located in Wrangell or Sitka¹² (see Figure 87). Households with incomes of under \$5,000 per year per household member harvest on average twice as much salmon (234 pounds) as households with incomes of \$15,000 or more (112 pounds, see Figure 88). And, residents tend to harvest more salmon the longer they live in their community (see Figure 89). Both Native households and non-Native/non-white households harvest more salmon on the average than white households (see Figure 90).

Most households that harvest salmon also give salmon away. We reported above that 59 percent of all households harvest salmon. Seventy percent of these households (41 percent of all households) gave salmon away in 1987 (see Table 16). Communities in which half or more of all households shared salmon with other households include: Yakutat, Elfin Cove, Gustavus, Port Alexander, Pelican, Edna Bay, Petersburg, Hoonah, Hydaburg, and Klukwan.

A majority of rural southeast households (56 percent) also receive salmon (see Table 17). Resource sharing constitutes a major component of subsistence harvest patterns. Communities such as Elfin Cove, Port Protection, Yakutat, and Klukwan show high participation rates and high rates of both giving and receiving salmon. These data suggest a pattern of extensive resource redistribution within some communities. Resource redistribution within the community may account for that fact that while only 28 percent of Metlakatla households harvest salmon themselves, 71 percent of Metlakatla households receive salmon. This data is also consistent with a pattern of resource distribution between communities. Our study data do not allow us to discriminate between patterns of resource distribution between and within communities. Nevertheless, the data clearly establish that most rural southeast households are a part of an extensive salmon harvest and distribution network.

Figure 87: Pounds of Salmom Harvested by Size of Place

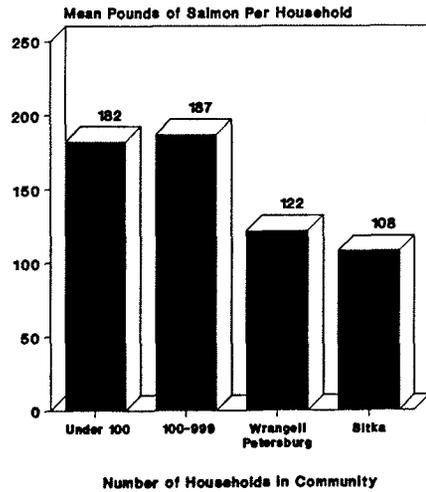


Figure 88: Pounds of Salmom Harvested by Income

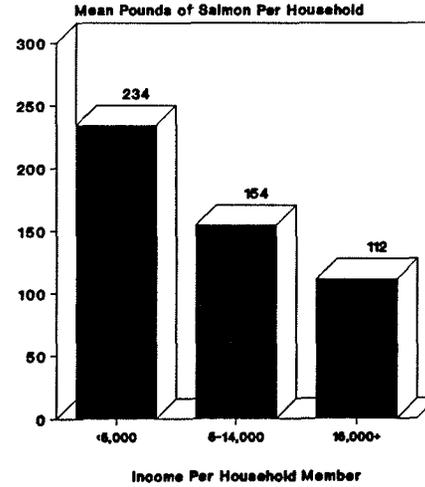


Figure 89: Pounds of Salmom Harvested by Length Residence

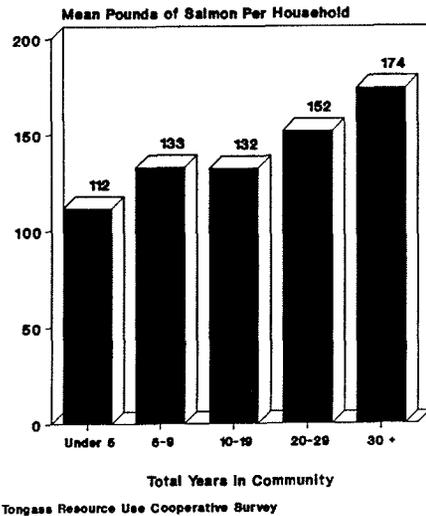


Figure 90: Pounds of Salmom Harvested by Ethnicity

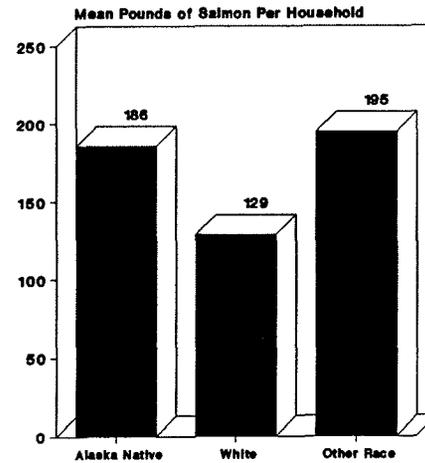


Table 15: Mean Pounds of Edible Salmon Harvested Per Household

	All	Kings	Sockeye	Cohos	Pinks	Chum
Region	143	60	27	39	8	10
Yakutat	751	136	215	369	18	13
Hydaburg	474	54	253	114	14	37
Klukwan	422	32	207	56	8	118
Edna Bay	344	134	17	121	63	10
Hoonah	321	114	23	71	12	100
Meyers Chuck	314	155	11	117	29	3
Klawock	265	53	74	107	16	14
Angoon	264	108	47	76	18	15
Elfin Cove	254	191	17	33	9	4
Hyder	242	85	10	90	14	43
Port Protection	241	99	75	47	10	10
Port Alexander	202	125	2	69	4	2
Pelican	175	98	14	38	22	4
Point Baker	164	85	49	14	10	6
Petersburg	153	85	6	49	7	6
Thorne Bay	146	63	17	58	8	-
Coffman Cove	145	100	9	34	1	1
Craig	131	29	48	38	11	5
Gustavus	130	43	7	62	11	7
Kake	117	22	33	19	6	36
N. Whale Pass	116	66	8	28	9	6
Saxman	113	33	50	15	8	7
Hollis	110	18	33	34	13	12
Sitka	108	55	19	22	8	5
Tenakee Springs	105	31	8	31	27	8
Kasaan	91	32	46	10	3	0
Wrangell	85	65	5	12	2	1
Metlakatla	75	28	8	23	7	9
Haines	74	29	31	7	1	5
Skagway	50	14	5	11	10	10

Source: Tongass Resource Use Cooperative Survey, 1988

Table 16: Percent Households Giving Away Salmon

	One or More	Kings	Sockeye	Cohos	Pinks	Chum
Region	41	27	14	20	7	7
Yakutat	67	41	54	46	10	6
Elfin Cove	62	62	23	31	23	15
Gustavus	61	25	20	48	13	10
Port Alexander	59	53	6	29	6	3
Pelican	56	49	17	28	5	6
Edna Bay	55	35	15	20	20	5
Petersburg	55	44	6	28	8	12
Hoonah	55	34	15	39	11	19
Hydaburg	52	25	42	30	16	12
Klukwan	50	23	40	31	14	19
Port Protection	48	24	24	24	8	8
Angoon	48	31	23	29	15	1
Kake	40	21	16	15	11	17
Haines	40	21	26	6	3	6
Meyers Chuck	40	30	0	20	10	0
Thorne Bay	40	18	17	29	11	4
Craig	40	19	17	23	4	2
Point Baker	37	32	11	5	16	16
Klawock	36	17	14	23	13	6
Kasaan	36	29	29	14	14	0
Metlakatla	34	21	9	18	4	6
N. Whale Pass	33	22	11	11	0	0
Hollis	33	10	15	17	21	7
Tenakee Springs	32	16	13	19	3	3
Coffman Cove	28	21	5	16	0	0
Wrangell	25	21	5	6	2	3
Saxman	21	10	18	7	7	10
Skagway	19	6	4	8	7	8
Hyder	18	12	6	12	3	6
Sitka	(Data not collected)					

Source: Tongass Resource Use Cooperative Survey, 1988

Table 17: Percent Households Receiving Salmon

	One or more	Kings	Sockeye	Cohos	Pinks	Chum
Region	56	39	22	25	9	7
Pelican	81	74	20	47	6	3
Kasaan	71	64	14	14	8	14
Metlakatla	71	39	15	58	6	4
Elfin Cove	69	62	8	39	0	8
Hoonah	64	37	18	30	20	13
Port Alexander	64	58	6	27	3	0
Wrangell	62	56	13	22	11	11
Petersburg	61	51	26	27	13	6
Port Protection	60	48	12	24	20	4
Hydaburg	60	43	51	31	14	3
Klukwan	59	28	54	26	14	23
Tenakee Springs	58	45	26	23	3	6
Kake	57	36	21	28	10	24
Yakutat	57	40	27	26	5	1
Angoon	54	47	32	37	18	0
Skagway	54	31	12	18	15	4
Saxman	51	18	33	31	7	15
Edna Bay	50	50	10	15	0	0
Gustavus	48	38	8	20	4	0
Point Baker	47	44	5	5	5	0
Craig	47	29	20	21	3	6
Haines	47	9	38	10	3	8
Hollis	44	4	23	17	3	0
Klawock	43	18	21	24	1	0
Hyder	33	15	9	15	0	3
N. Whale Pass	33	33	0	6	0	0
Thorne Bay	30	15	17	9	1	0
Meyers Chuck	30	30	20	20	10	0
Coffman Cove	21	20	9	3	0	0
Sitka						

Source: Tongass Resource Use Cooperative Survey, 1988

B. Harvest of Finfish Other Than Salmon

Finfish other than salmon account for 24 percent of the total subsistence harvest of rural southeast residents (see Figure 91). Sixty-one percent of all households were involved in this harvest in 1987. Over half of the households in all communities except Skagway and Metlakatla harvested at least some finfish other than salmon (see Figure 92).

Halibut is the most commonly harvested finfish other than salmon, with 48 percent of all households catching one or more halibut in 1987. A third of all rural southeast households harvested dolly varden, steelhead, or trout; 29 percent harvested rock fish, and 19 percent harvested cod. Smaller percentages of households harvested herring (7 percent), hooligan (4 percent), or flounder, sole, or flatfish (4 percent).

The importance of halibut to the total subsistence harvest is even greater than the percentages of households harvesting the species would suggest. In terms of pounds, halibut accounts for over half of the total harvest of finfish other than salmon (13 percent of the total subsistence harvest, see Figure 93). Trout, including dolly varden and steelhead, account for 20 percent of the total finfish harvest.

With the exception of herring, most finfish are caught with rod and reel. The rod and reel catch includes 68 percent of all cod, 85 percent of halibut (calculated in terms of pounds), 77 percent of all flatfish, 70 percent of all rock fish, and virtually all trout.

Households in communities of under 100 households harvest on the average 201 pounds of other finfish compared to averages of 116 pounds in Sitka, 136 pounds in Wrangell and Petersburg, and 139 pounds in communities of 100-999 households (see Figure 94). Differences in household income do not account for any major differences in the harvest of other finfish (see Figure 95), nor does length of residence have a uniform affect on harvest levels (see Figure 96). White households average slightly higher harvests of other finfish than Native households or non-Native, non-white households (see Figure 97). In summary then, finfish--especially halibut--comprise an important part of the total subsistence harvest regardless of income, length of residence or ethnicity. At the same time, households located in the region's smallest communities harvest substantially higher amounts of other finfish.

Like salmon, halibut is a widely exchanged resource. A third of all rural southeast households gave away at least some halibut in 1987 (see Table 20) and half of all households (52 percent) received at least some halibut (see Table 21). Communities in which households harvest relatively high amounts of halibut include Meyers Chuck, Edna Bay, Pelican, Gustavus, and Yakutat (see Table 22).

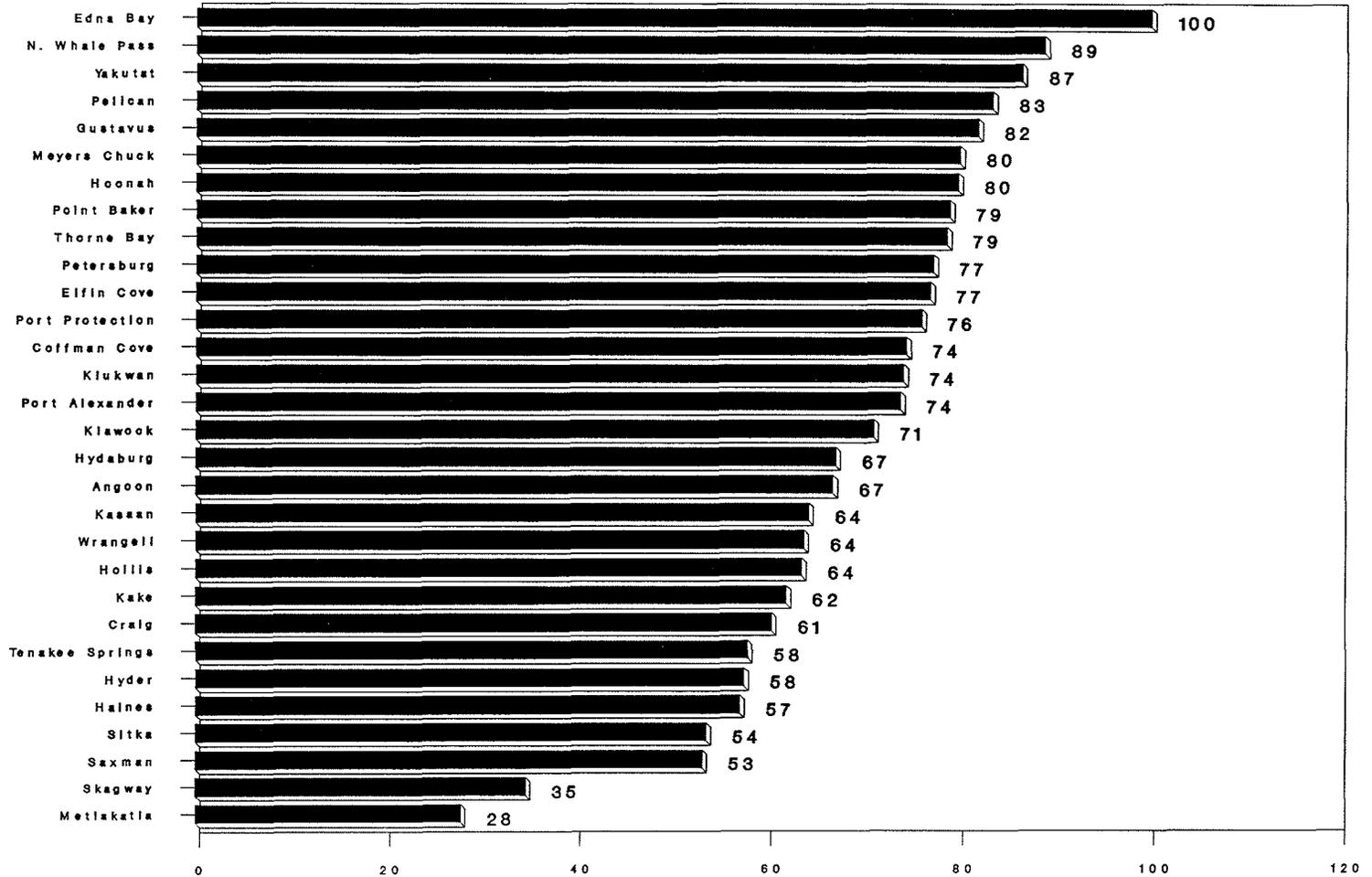
Figure 91: Harvest Summary, Finfish Other Than Salmon

Other Finfish as Percent of Total Harvest



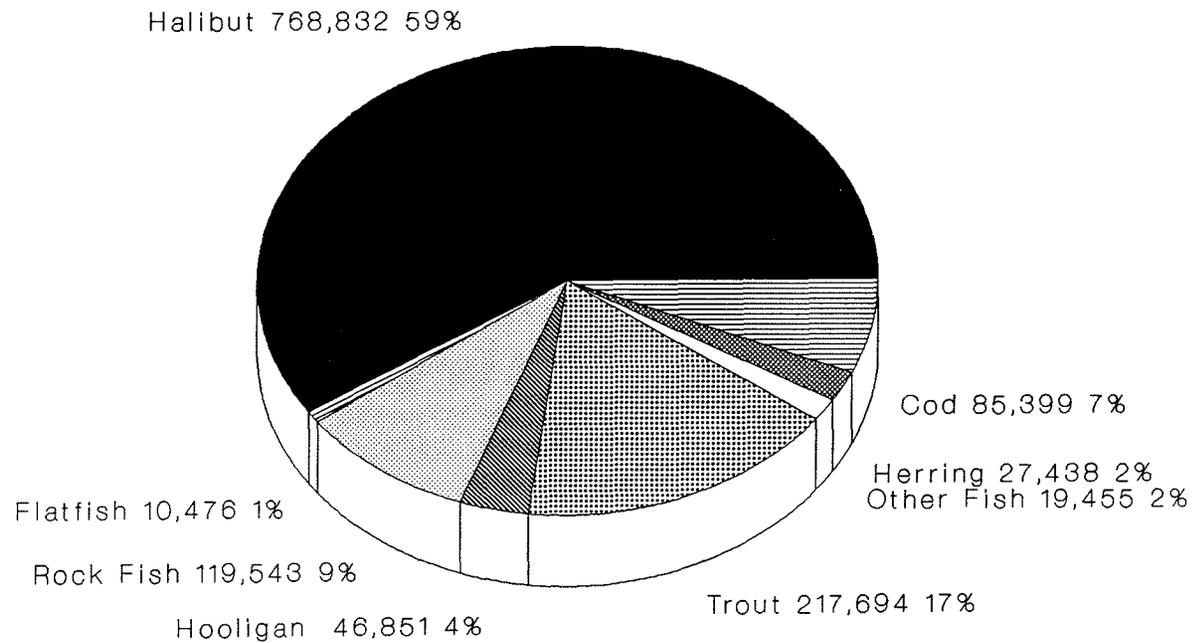
5,219 Households Harvested Other Finfish
(61% of all households)

Figure 92: Percent Households Harvesting Other Finfish By Place



Tongass Resource Use Cooperative Survey

Figure 93: Pounds of Other Finfish Harvested by Species



- Trout includes Dolly Varden and Steelhead
- Flatfish includes flounder and sole

Table 18: Percent of Households Harvesting Finfish Other Than Salmon

Region	Percent of Households Harvesting Finfish Other Than Salmon							
	Any	Cod	Halibut	Flounder, Sole, Flat Fish	Rock Fish	Herring	Hooligan	Dolly Varden Steelhead Trout
Region	61	19	48	4	29	7	4	33
Edna Bay	100	65	95	25	90	20	5	60
N. Whale Pass	89	33	56	11	28	6	0	61
Yakutat	87	17	54	10	10	3	44	43
Pelican	83	45	75	13	73	16	10	41
Gustavus	82	29	76	16	15	4	0	45
Meyers Chuck	80	30	70	10	80	20	0	40
Hoonah	80	33	62	8	48	11	0	50
Point Baker	79	53	63	0	58	16	0	26
Thorne Bay	79	41	58	1	56	0	0	57
Petersburg	77	11	64	6	23	9	1	37
Elfin Cove	77	31	77	8	54	15	23	31
Port Protection	76	44	68	8	60	24	0	24
Coffman Cove	74	27	43	3	41	5	0	58
Klukwan	74	0	7	5	5	5	60	55
Port Alexander	74	39	65	3	50	3	0	27
Klawock	71	29	52	7	50	7	1	42
Hydaburg	67	18	31	4	46	3	0	34
Angoon	67	33	54	6	16	11	0	35
Kasaan	64	43	43	14	57	0	0	14
Wrangell	64	6	47	3	19	10	8	40
Hollis	64	30	37	14	54	4	0	34
Kake	62	13	54	3	22	15	3	28
Craig	61	27	35	3	39	3	0	37
Tenakee Springs	58	32	58	16	48	13	0	32
Hyder	58	18	21	9	15	15	3	52
Haines	57	8	41	1	10	-	14	41
Sitka	54	23	47	4	34	8	2	24
Saxman	53	13	34	3	36	11	0	11
Skagway	35	12	21	8	5	0	6	24
Metlakatla	28	7	22	1	18	3	0	11

Source: Tongass Resource Use Cooperative Survey, 1988

Table 19: Total Number Finfish Other Than Salmon Harvested

Region	Total Number Finfish Other Than Salmon Harvested					
	Cod	Halibut (Lbs.)	Flounder, Sole, Flat Fish	Rock Fish	Herring (Lbs.)	Dolly Varden Steelhead Trout
	21,346	768,832	3,504	59,572	33,802	80,941
Angoon	498	15,268	8	309	850	820
Coffman Cove	219	6,574	2	385	102	1,305
Craig	1,835	19,753	28	4,439	514	5,552
Edna Bay	305	5,471	132	1,148	268	173
Elfin Cove	123	2,318	13	210	204	208
Gustavus	101	11,924	40	90	92	754
Haines	989	30,076	46	323	6	9,855
Hollis	109	924	52	318	52	325
Hoonah	2,061	32,757	61	5,547	753	2,501
Hydaburg	309	11,333	59	2,513	196	1,372
Hyder	142	4,632	52	140	348	651
Kake	274	16,833	27	579	1,472	953
Kasaan	42	500	7	69	0	205
Klawock	939	31,224	63	3,173	648	6,608
Klukwan	0	182	2	54	13	1,243
Metlakatla	1,052	15,544	33	2,354	1,248	1,064
Meyers Chuck	51	2,890	3	686	40	460
N. Whale Pass	30	1,345	25	33	10	206
Pelican	648	17,000	68	2,306	441	1,878
Petersburg	2,068	153,118	303	3,347	7,020	9,307
Point Baker	60	1,530	0	318	115	45
Port Alexander	239	4,138	11	1,173	133	314
Port Protection	231	2,592	19	789	315	124
Saxman	62	3,284	15	625	242	76
Sitka	6,640	241,685	1,110	22,766	13,861	16,938
Skagway	380	4,644	141	209	0	1,127
Tenakee Springs	213	5,515	54	470	151	474
Thorne Bay	988	23,148	3	1,709	0	3,540
Wrangell	468	68,202	639	3,019	4,440	11,728
Yakutat	271	30,900	486	285	269	1,135

Source: Tongass Resource Use Cooperative Survey, 1988

Table 19 Continued:
 Number of Other Finfish Harvested From Commercial Catch

	Cod	Halibut	Flatfish	Rockfish	Herring
Region	6,641	108,203	475	16,972	6,069
Angoon	80	2,754	0	55	107
Coffman Cove	10	162	2	34	0
Craig	600	3,658	0	1,513	0
Edna Bay	114	1,654	5	277	11
Elfin Cove	32	898	0	83	0
Gustavus	25	520	0	48	0
Haines	767	5,461	0	275	0
Hollis	2	39	8	13	0
Hoonah	1,860	10,974	6	5,029	167
Hydaburg	87	3,879	49	539	0
Hyder	72	1,269	45	120	118
Kake	127	4,123	0	401	659
Kasaan	9	20	0	10	0
Klawock	101	1,189	0	272	250
Klukwan	0	0	0	0	0
Metlakatla	238	3,850	0	480	0
Meyers Chuck	10	0	0	10	0
N. Whale Pass	0	100	0	0	0
Pelican	293	4,736	40	688	46
Petersburg	775	16,462	0	701	1,238
Pt. Baker	43	810	0	48	0
Port Alexander	105	665	0	249	0
Port Protection	137	475	11	150	22
Saxman	15	133	0	64	0
Sitka	837	15,442	292	4,753	2,765
Skagway	0	0	0	0	0
Tenakee Springs	86	572	11	117	0
Thorne Bay	9	12,386	0	91	0
Wrangell	89	13,125	6	807	492
Yakutat	116	2,849	0	142	197

Source: Tongass Resource Use Cooperative Survey, 1988

Table 19 Continued:
Number of Other Finfish Harvested Using Nets

Region	Cod	Flatfish	Rockfish	Herring	Trout
Angoon	0	0	31	743	14
Coffman Cove	0	0	0	102	6
Craig	0	0	0	514	0
Edna Bay	0	0	0	257	0
Elfin Cove	0	0	0	204	9
Gustavus	0	17	0	92	14
Haines	0	0	0	6	6
Hollis	6	0	0	52	0
Hoonah	0	0	0	586	16
Hydaburg	0	0	0	196	114
Hyder	0	0	0	230	0
Kake	0	0	0	814	0
Kasaan	0	0	0	0	0
Klawock	0	0	0	398	155
Klukwan	0	0	0	13	203
Metlakatla	0	0	24	1,248	0
Meyers Chuck	0	0	0	40	0
N. Whale Pass	0	0	0	10	0
Pelican	49	0	14	395	52
Petersburg	25	0	0	5,782	0
Point Baker	0	0	0	115	10
Port Alexander	0	0	0	133	0
Port Protection	26	0	26	294	6
Saxman	0	0	0	242	0
Sitka	29	0	1,067	11,097	0
Skagway	0	10	0	0	56
Tenakee Springs	0	0	0	151	0
Thorne Bay	0	3	0	0	0
Wrangell	5	29	28	3,948	0
Yakutat	0	289	8	72	138

Source: Tongass Resource Use Cooperative Survey, 1988

Table 19 Continued:
 Number of Other Finfish Harvested Using Rod & Reel

Region	Cod	Halibut	Flatfish	Rockfish	Trout
	14,564	660,629	2,681	41,403	80,141
Angoon	417	12,514	8	223	806
Coffman Cove	209	6,412	0	350	1,299
Craig	1,235	16,095	28	2,926	5,552
Edna Bay	190	3,817	127	870	173
Elfin Cove	91	1,421	13	127	199
Gustavus	76	11,405	24	41	740
Haines	222	24,615	46	48	9,849
Hollis	101	885	44	305	325
Hoonah	201	21,783	56	518	2,485
Hydaburg	223	7,454	10	1,974	1,258
Hyder	70	3,363	7	20	651
Kake	147	12,710	27	177	953
Kasaan	33	480	7	59	205
Klawock	839	30,035	63	2,901	6,453
Klukwan	0	182	2	54	1,040
Metlakatla	814	11,694	33	1,850	1,064
Meyers Chuck	41	2,890	3	676	460
N. Whale Pass	30	1,245	25	33	206
Pelican	306	12,265	28	1,604	1,826
Petersburg	1,268	136,656	303	2,646	9,307
Point Baker	17	720	0	270	35
Port Alexander	134	3,473	11	924	314
Port Protection	68	2,117	9	613	118
Saxman	47	3,151	15	560	76
Sitka	5,773	226,243	818	16,946	16,938
Skagway	380	4,644	131	209	1,071
Tenakee Springs	127	4,942	42	352	474
Thorne Bay	979	10,762	0	1,618	3,540
Wrangell	374	55,077	604	2,184	11,728
Yakutat	155	28,051	197	136	997

Source: Tongass Resource Use Cooperative Survey, 1988

Figure 94: Pounds of Other Finfish Harvested by Size of Community

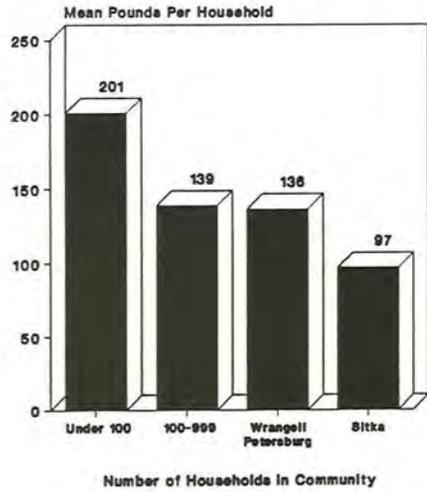


Figure 95: Pounds of Other Finfish Harvested by Household Income

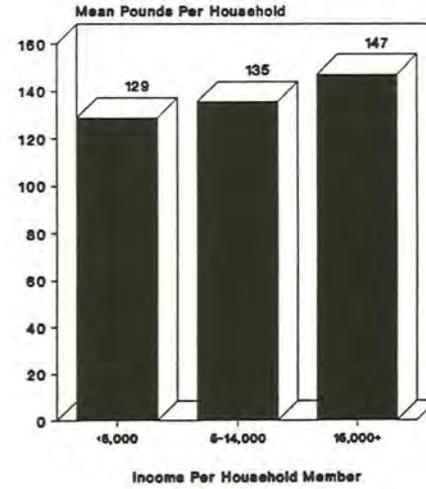


Figure 96: Pounds of Other Finfish Harvested by Length Residence

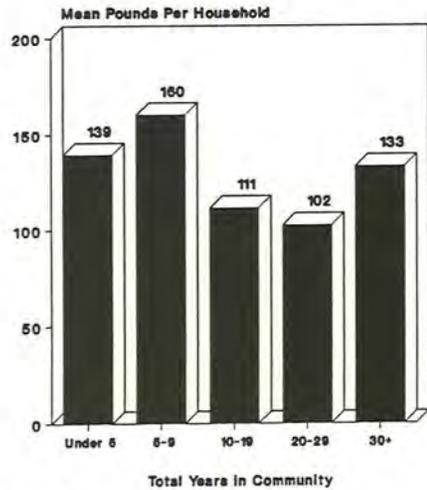


Figure 97: Pounds of Other Finfish Harvested by Ethnicity

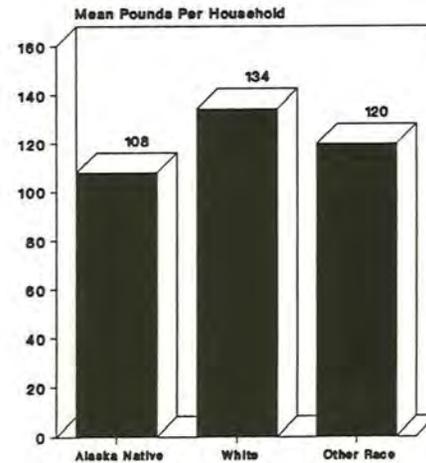


Table 20 Percent Households Giving Away Finfish Other Than Salmon

	One or More	Cod	Halibut	Flounder, Sole, Flat Fish	Rock Fish	Herring	Hooligan	Dolly Varden Steelhead Trout	Other Fish
Region	42	7	32	1	11	1	4	15	2
Angoon	50	15	42	0	4	1	1	6	1
Coffman Cove	47	6	35	3	11	0	0	15	0
Craig	31	8	22	0	17	0	0	13	0
Edna Bay	95	50	80	5	60	5	0	30	10
Elfin Cove	62	15	54	8	23	0	8	15	0
Gustavus	74	11	66	2	6	0	0	19	0
Haines	35	3	22	0	-	0	8	24	3
Hollis	17	7	17	0	11	0	0	8	0
Hoonah	62	18	44	0	29	7	0	25	0
Hydaburg	45	9	25	3	30	0	0	18	3
Hyder	15	6	15	0	6	6	0	6	0
Kake	30	4	23	0	7	0	3	18	0
Kasaan	57	14	36	7	29	0	0	14	0
Klawock	47	15	29	4	26	0	0	19	0
Klukwan	55	0	0	0	0	0	39	36	0
Metlakatla	19	7	10	-	11	0	0	4	-
Meyers Chuck	50	30	50	0	30	0	0	0	0
N. Whale Pass	39	11	28	6	6	0	0	6	6
Pelican	72	30	60	3	41	6	9	17	2
Petersburg	53	6	48	0	9	2	1	14	3
Point Baker	58	32	42	0	37	0	0	5	5
Port Alexander	53	11	44	0	27	0	0	18	0
Port Protection	52	16	52	4	40	8	0	4	12
Saxman	24	3	13	3	13	0	0	5	0
Sitka	-								
Skagway	12	1	6	1	3	0	3	7	0
Tenakee Springs	45	23	42	3	32	0	0	19	0
Thorne Bay	41	10	25	0	10	0	0	18	0
Wrangell	40	3	30	2	10	0	9	14	5
Yakutat	57	5	38	2	2	1	24	8	2

Source: Tongass Resource Use Cooperative Survey, 1988

Table 21: Percent Households Receiving Finfish Other Than Salmon

Region	One or More	Cod	Halibut	Flounder,	Rock Fish	Herring	Hooligan	Dolly Varden
				Sole, Flat Fish				Steelhead Trout
Region	61	16	52	2	15	9	16	18
Angoon	71	24	62	1	14	16	10	21
Coffman Cove	40	5	28	0	3	2	0	21
Craig	62	20	49	2	20	6	13	21
Edna Bay	85	30	80	0	55	15	5	10
Elfin Cove	85	46	69	0	15	23	8	15
Gustavus	57	24	42	4	10	4	0	12
Haines	55	5	53	0	3	-	13	17
Hollis	51	3	34	0	12	0	4	7
Hoonah	71	32	57	0	25	26	13	23
Hydaburg	93	19	81	0	48	12	63	33
Hyder	49	6	49	6	3	0	3	21
Kake	71	16	63	0	19	14	11	17
Kasaan	64	14	50	0	7	14	29	14
Klawock	58	14	47	1	16	8	13	12
Klukwan	74	5	50	0	0	12	50	41
Metlakatla	73	7	68	0	24	18	28	15
Meyers Chuck	50	30	50	0	40	10	0	10
N. Whale Pass	50	6	33	11	11	11	6	11
Pelican	84	51	70	4	56	33	19	24
Petersburg	44	18	36	0	7	4	3	20
Point Baker	74	32	63	5	32	21	16	16
Port Alexander	76	42	74	3	48	3	0	26
Port Protection	80	24	72	0	36	24	12	40
Saxman	67	9	47	0	21	26	24	13
Sitka								
Skagway	62	1	58	3	3	1	3	16
Tenakee Springs	74	23	55	0	36	32	0	10
Thorne Bay	52	0	40	0	10	4	0	16
Wrangell	67	19	56	7	15	8	33	17
Yakutat	80	14	62	1	22	26	50	12

Source: Tongass Resource Use Cooperative Survey, 1988

Table 22: Mean Edible Pounds Finfish Other Than Salmon Harvested Per Household

Region	All	Cod	Halibut	Flounder,	Rock	Herring	Dolly Varden		Other
				Sole, Flat Fish			Fish	Steelhead	
Region	128	10	67	1	14	3	6	26	2
Angoon	127	14	88	-	4	5	0	16	-
Coffman Cove	159	13	79	-	12	1	0	53	-
Craig	130	20	43	-	24	1	0	41	-
Edna Bay	441	58	208	19	109	10	-	22	14
Elfin Cove	190	26	98	2	22	9	4	29	0
Gustavus	192	6	148	2	3	1	0	32	-
Haines	100	7	40	-	1	0	8	44	1
Hollis	89	13	23	5	20	1	0	27	1
Hoonah	241	38	120	1	51	3	0	30	0
Hydaburg	182	11	82	2	46	1	0	34	6
Hyder	176	15	95	4	7	7	2	45	0
Kake	111	6	70	-	6	6	9	13	0
Kasaan	91	12	29	2	10	0	0	40	0
Klawock	238	17	111	1	28	2	1	78	-
Klukwan	274	0	4	-	3	-	195	86	0
Metlakatla	61	10	30	-	11	2	0	7	-
Meyers Chuck	525	20	231	1	137	3	0	124	8
N. Whale Pass	107	7	60	4	4	-	0	31	1
Pelican	338	32	165	2	56	4	13	62	4
Petersburg	151	7	108	1	6	5	-	21	4
Point Baker	124	13	64	0	33	5	0	6	3
Port Alexander	206	26	90	1	64	3	0	23	0
Port Protection	197	34	77	2	58	9	0	12	4
Saxman	60	3	35	1	16	3	0	3	-
Sitka	97	9	48	1	16	4	-	16	3
Skagway	46	7	18	2	2	0	1	15	-
Tenakee Springs	174	19	99	4	21	3	0	29	0
Thorne Bay	227	25	118	-	22	0	0	61	0
Wrangell	119	2	54	2	6	4	18	31	3
Yakutat	267	6	146	9	3	1	74	18	9

Source: Tongass Resource Use Cooperative Survey, 1988

C. Harvest of Land Mammals Other Than Deer

Land mammals other than deer account for only 4 percent of the total harvest of edible subsistence resources (see Figure 98). The only communities in which at least 30 percent of the households harvested land mammals other than deer in 1987 were Edna Bay, North Whale Pass, Thorne Bay, and Meyers Chuck (see Figure 99). Residents of these communities harvested moose, black bear, or furbearers (see Table 23).

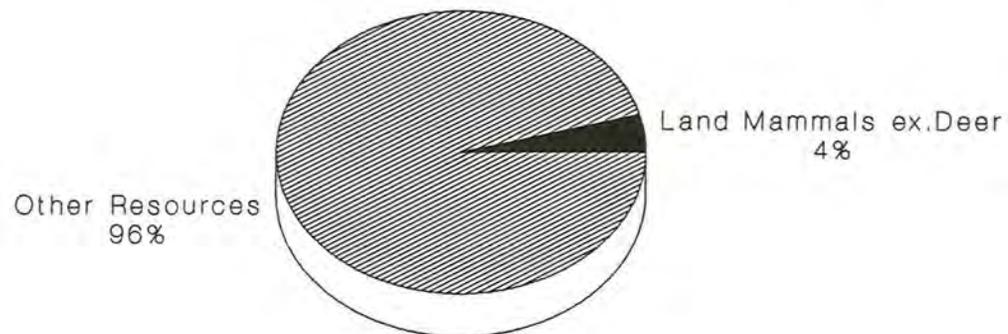
Expressed in mean pounds, the harvest of land mammals other than deer is highest in Petersburg and Wrangell where moose was harvested by 9 and 7 percent of all households, respectively (see Figure 100). Other land mammals were much more likely to be harvested by low income households (see Figure 101). Differences in harvest levels are not consistent by length of residence (see Figure 102). Mean harvest levels appear to be higher for whites than Natives, and extremely low for non-Native, non-whites (see Figure 103).

A quarter of all rural southeast households received meat from other households harvesting land mammals other than deer (see Table 24). In most cases, this was either moose or black bear meat. Based on the fact that moose are accessible to residents of only a few southeast communities, the distribution of moose meat to households in all but two communities provides evidence of a subsistence resource distribution network that spans community boundaries.

Figure 98: Harvest Summary, Land Mammals Other Than Deer

198,612 Pounds

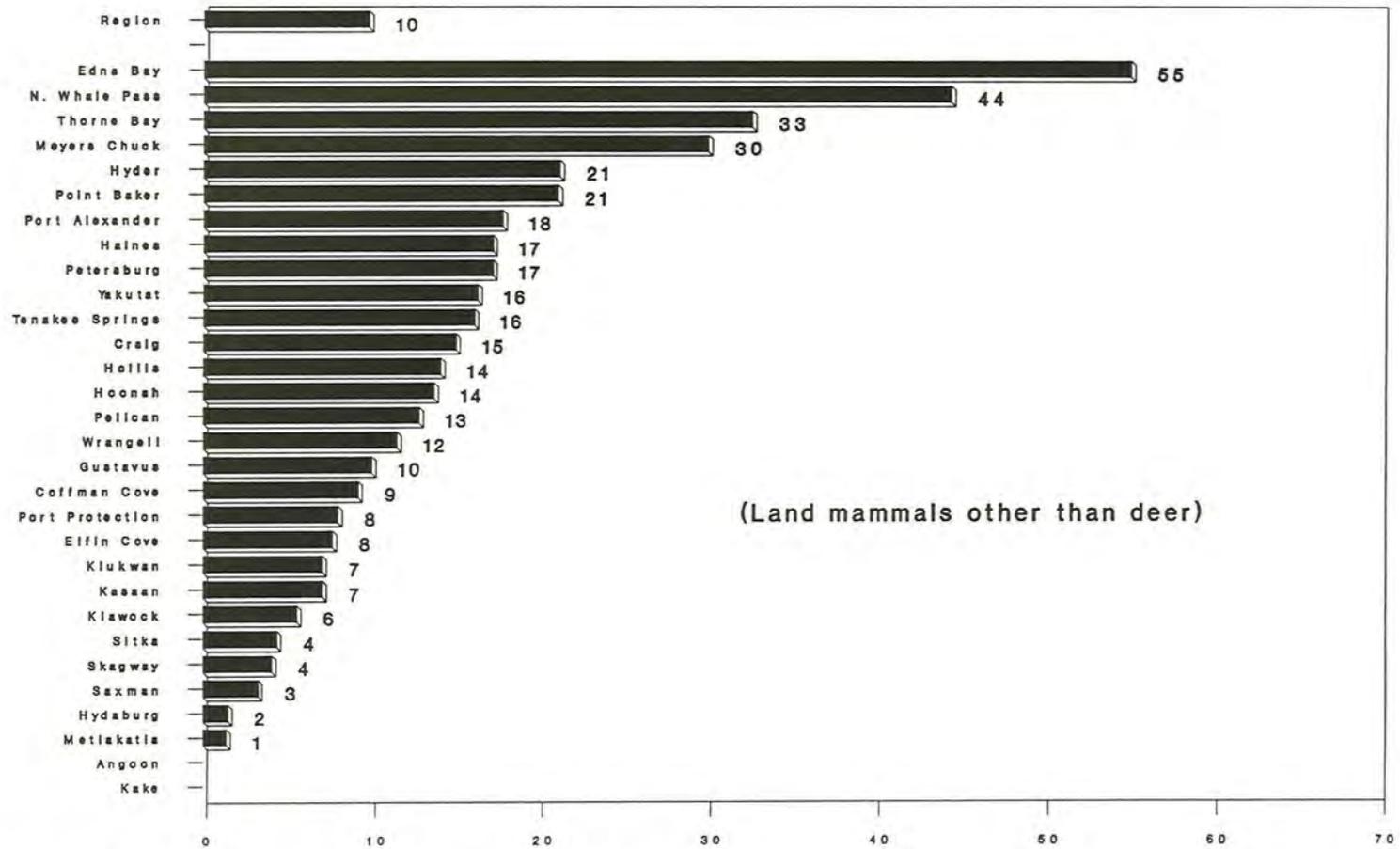
Other Land Mammals as Percent of Total Harvest



834 Households Harvested Other Land Mammals
(10% of all households)

Tongass Resource Use Cooperative Survey

Figure 99: Percent Households Harvesting Other Land Mammals By Place



Tongass Resource Use Cooperative Survey

Table 23: Percent Households Harvesting
Land Mammals Other Than Deer

Region	Any	Moose	Goat	Black Bear	Furbearers
Edna Bay	55	5	0	45	40
N. Whale Pass	44	6	0	11	33
Thorne Bay	33	1	1	7	25
Meyers Chuck	30	10	0	0	30
Hyder	21	6	9	18	15
Point Baker	21	0	0	21	0
Port Alexander	18	0	0	3	18
Haines	17	4	-	8	11
Petersburg	17	9	0	3	7
Yakutat	16	13	0	1	4
Tenakee Springs	16	0	0	0	16
Craig	15	1	0	2	13
Hollis	14	0	4	11	6
Hoonah	14	0	0	3	11
Pelican	13	4	0	0	10
Wrangell	12	7	3	5	1
Gustavus	10	0	0	0	10
Coffman Cove	9	0	0	0	9
Port Protection	8	0	0	4	4
Elfin Cove	8	0	0	0	8
Klukwan	7	0	0	7	0
Kasaan	7	0	0	0	7
Klawock	6	1	0	2	2
Sitka	4	-	1	1	3
Skagway	4	0	1	1	4
Saxman	3	3	0	0	0
Hydaburg	2	0	0	2	0
Metlakatla	1	0	-	-	1
Angoon		0	0	0	0
Kake		0	0	0	0

Source: Tongass Resource Use Cooperative Survey, 1988

Figure 100: Pounds of Other Land Mammals Harvested by Size of Place

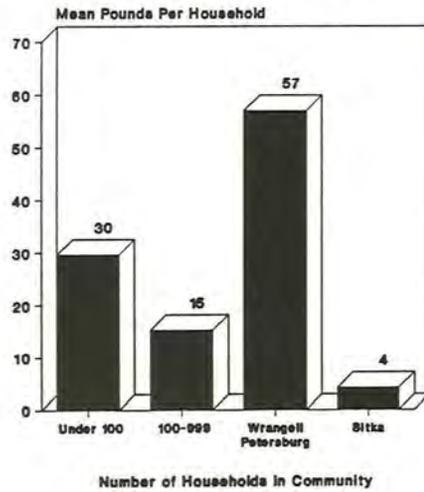


Figure 101: Pounds of Other Land Mammals Harvested by Income

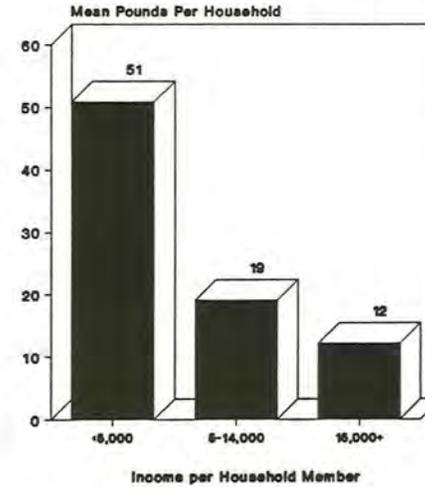
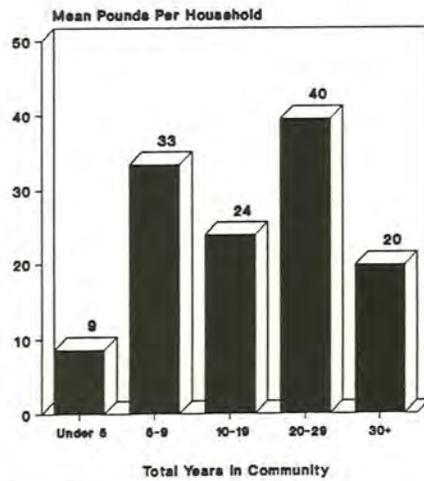


Figure 102: Pounds of Other Land Mammals Harvested by Length Residence



Tongass Resource Use Cooperative Survey

Figure 103: Pounds of Other Land Mammals Harvested by Ethnicity

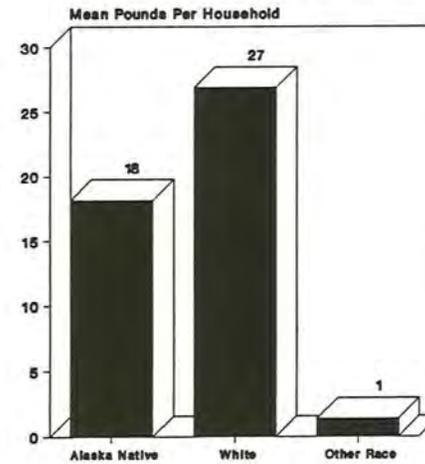


Table 24: Percent Households
Receiving Land Mammals Other Than Deer

Region	Any	Moose	Goat	Black Bear
Region	25	22	3	6
Angoon	8	8	2	0
Coffman Cove	8	5	0	3
Craig	13	6	1	3
Edna Bay	40	20	15	20
Elfin Cove		0	0	0
Gustavus	16	14	4	0
Haines	46	42	6	11
Hollis	29	6	0	26
Hoonah	20	19	1	1
Hydaburg	11	6	0	5
Hyder	27	27	3	0
Kake	1	1	0	0
Kasaan	7	7	0	0
Klawock	5	2	0	4
Klukwan	30	30	7	5
Metlakatla	7	4	-	6
Meyers Chuck	20	0	0	10
N. Whale Pass	11	6	0	11
Pelican	16	13	0	3
Petersburg	23	22	1	2
Point Baker	21	5	0	11
Port Alexander	9	0	3	6
Port Protection	48	28	4	44
Saxman	19	18	1	8
Sitka				
Skagway	19	15	7	3
Tenakee Springs	13	10	0	3
Thorne Bay	27	13	5	18
Wrangell	43	39	6	7
Yakutat	52	44	2	9

Source: Tongass Resource Use Cooperative Survey, 1988

D. Marine Mammal Harvest

The only marine mammal harvested at least in part by rural southeast residents for its meat is the harbor seal. Harbor seal accounts for only 3 percent of the total subsistence harvest (see Figure 104). In 1987, 400 rural southeast households harvested some 1,900 marine mammals including 1,500 harbor seal. The principal communities involved in the harvest of marine mammals are Angoon, Hoonah, Kake, and Yakutat (see Figure 105). In these communities between a quarter and a third of all households harvested harbor seals in 1987 (see Table 25).

Low income households on the average harvest almost seven times as many pounds of harbor seal meat as high income households (see Figure 106). Harvest levels also differ greatly by length of residence (see Figure 107), no doubt reflecting the tendency of Native residents to live in a single community throughout their lives.

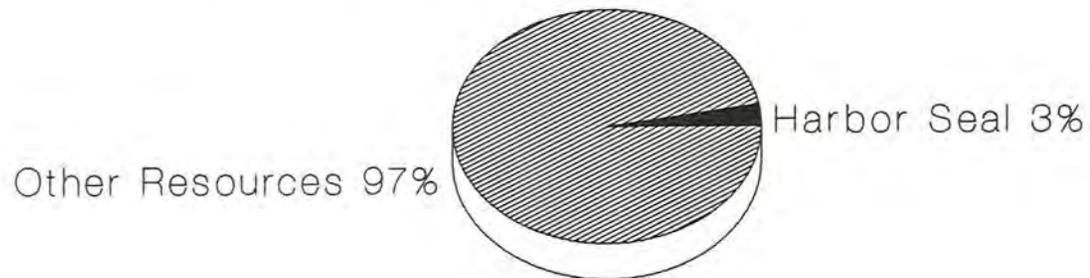
The distribution of harbor seal meat appears to be primarily confined to the community in which it was harvested (see Tables 25 and 26), but there is evidence of distributions from one community to another. Residents of Gustavus, Haines, Port Protection, Skagway, and Thorne Bay reported no harvests of marine mammals yet between one and six percent of the households in these communities received marine mammal harvest products. Households in some communities also appear to be more likely to share marine mammal harvests with other households within the community. These households are located in Hoonah, Hydaburg, Port Alexander, Saxman, and Yakutat.

Figure 104: Marine Mammal Harvest Summary

1,900 Marine Mammals

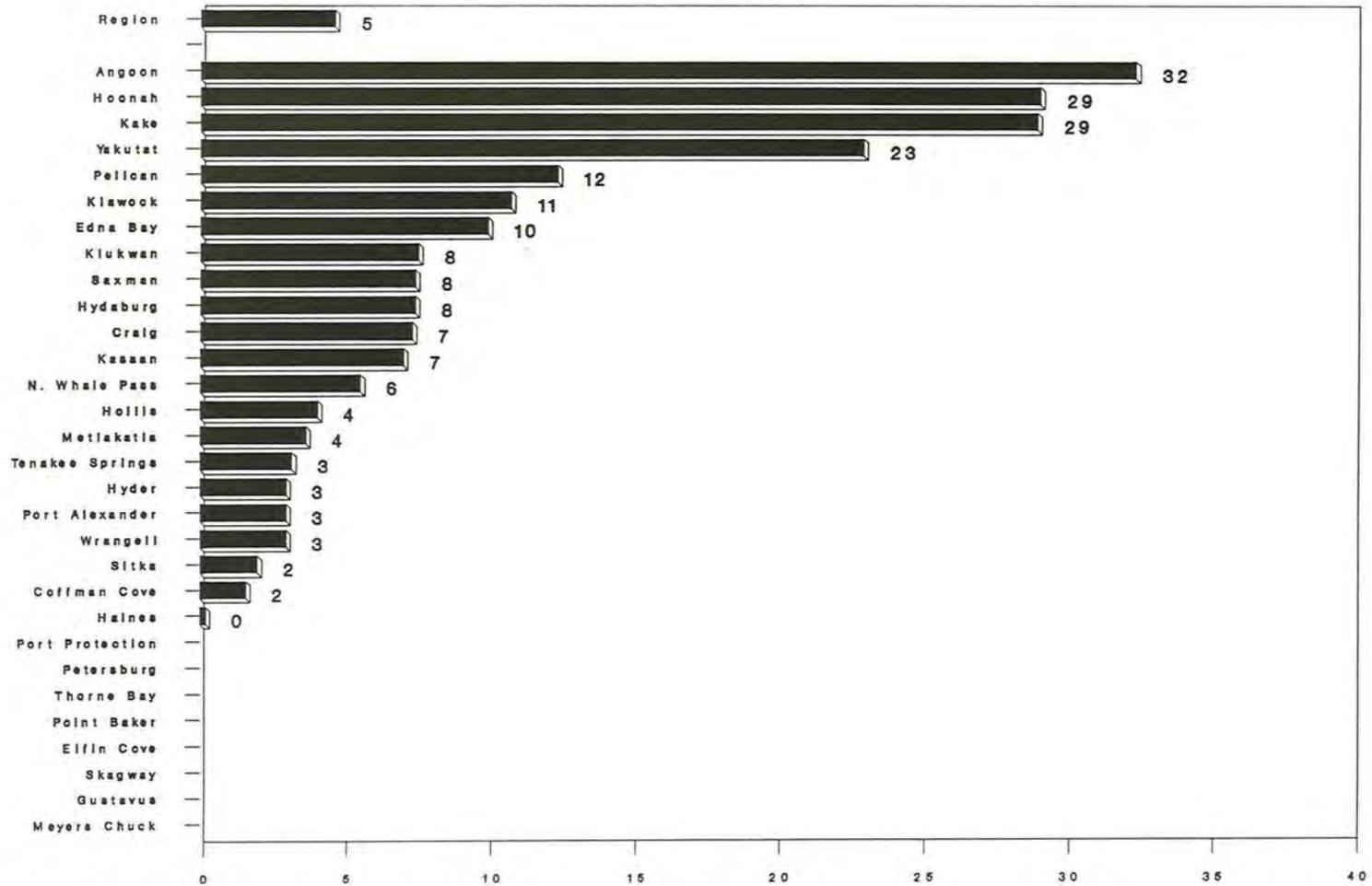
140,000 Pounds
(of Harbor Seal)

Harbor Seal as Percent of Total Harvest



397 Households Harvested Marine Mammals (Harbor Seals)
(5% of all households)

Figure 105: Percent Households Harvesting Marine Mammals By Place



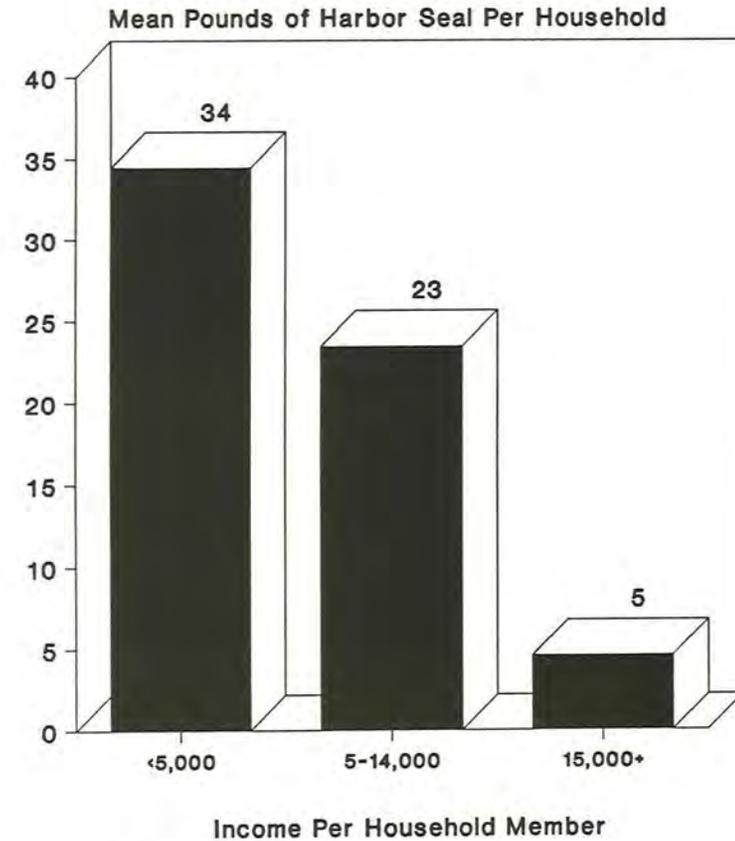
Tongass Resource Use Cooperative Survey

Table 25: Percent Households Harvesting Marine Mammals

	Any	Harbor Seal	Other Marine Mammals
Region	5	4	1
Angoon	32	32	0
Hoonah	29	27	3
Kake	29	29	0
Yakutat	23	23	0
Pelican	12	11	5
Klawock	11	11	0
Edna Bay	10	0	10
Klukwan	8	8	0
Saxman	8	8	0
Hydaburg	8	8	0
Craig	7	7	0
Kasaan	7	7	0
N. Whale Pass	6	6	0
Hollis	4	0	4
Metlakatla	4	3	1
Tenakee Springs	3	3	3
Hyder	3	3	0
Port Alexander	3	3	0
Wrangell	3	3	1
Sitka	2	1	1
Coffman Cove	2	2	0
Haines	0	0	0
Port Protection	0	0	0
Petersburg	0	0	0
Thorne Bay	0	0	0
Point Baker	0	0	0
Elfin Cove	0	0	0
Skagway	0	0	0
Gustavus	0	0	0
Meyers Chuck	0	0	0

Source: Tongass Resource Use Cooperative Survey, 1988

Figure 106: Pounds of Harbor Seal Harvested by Income



Tongass Resource Use Cooperative Survey

Figure 107: Pounds of Harbor Seal Harvested by Length Residence

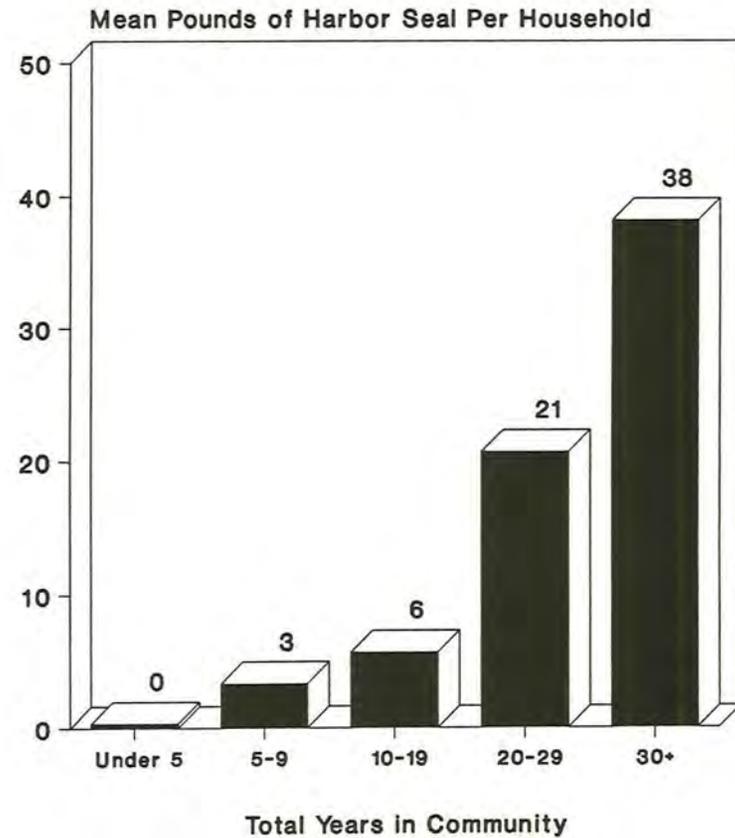


Table 26: Percent Households Receiving
Marine Mammals

Region	One or more	Harbor Seal	Other Marine Mammals
Region	8	7	-
Angoon	21	21	2
Hoonah	43	43	1
Kake	29	30	0
Yakutat	39	39	0
Pelican	20	17	4
Klawock	9	9	0
Edna Bay	5	5	0
Klukwan	26	26	0
Saxman	19	19	0
Hydaburg	19	19	5
Craig	3	3	0
Kasaan		0	0
N. Whale Pass	6	6	0
Hollis	4	0	4
Metlakatla	0	-	0
Tenakee Springs	6	6	0
Hyder		0	0
Port Alexander	15	15	0
Wrangell	2	2	0
Sitka			
Coffman Cove	6	5	5
Haines	5	5	0
Port Protection	4	4	0
Petersburg		0	0
Thorne Bay	3	3	0
Point Baker		0	0
Elfin Cove		0	0
Skagway	1	1	0
Gustavus	6	6	0
Meyers Chuck		0	0

Source: Tongass Resource Use Cooperative Survey, 1988

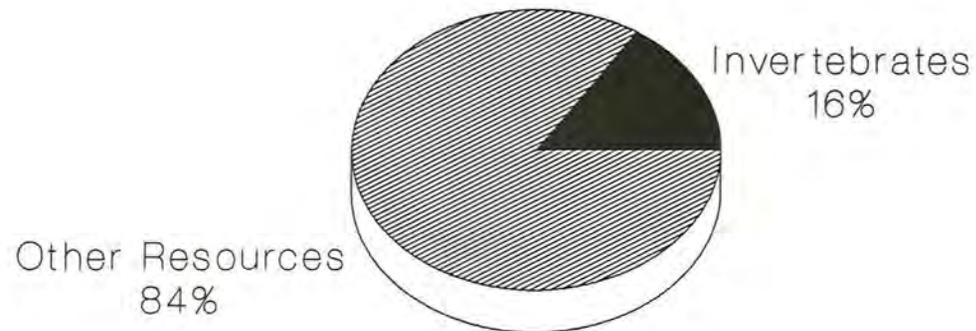
E. Harvest of Invertebrates

Invertebrates constitute 16 percent of the total subsistence harvest (see Figure 108). Almost half (47 percent) of rural southeast households harvested invertebrates in 1987. On a community basis, the percentage of households harvesting invertebrates varied from 100 percent in Kasaan to 10 percent in Klukwan (see Figure 109). The species harvested by the largest percentage of residents are clams and cockles (32 percent of all households, see Table 27), and dungeness crab (28 percent). Dungeness crab is the most important invertebrate species when considered from the perspective of mean edible pounds harvested (see Table 28). Another notable invertebrate resource is shrimp which is harvested by at least a third of all households in Edna Bay, North Whale Pass, Yakutat, Hollis, Meyers Chuck, Elfin cove, and Hyder. Also important on a regional basis are Abalone (harvested by 12 percent of all households), shrimp (11 percent), Gumboot (9 percent), Herring eggs (8 percent), king crab (8 percent), tanner crab (7 percent), and Octopus (7 percent).

Sea cucumber is an important resource in at least 13 communities (see Table 28). Communities in which at least 20 percent of all households harvested sea cucumber include: Hollis, Edna Bay, Point Baker, Thorne Bay, Kasaan, and Meyers Chuck. Sea Urchins are important to selected communities including Yakutat, and Edna Bay. Similarly, scallops are harvested by at least 10 percent of all households in Edna Bay, Meyers Chuck, Craig, and Hollis. On the average, long term, Native households harvest more invertebrates than other households (see Figures 110-113).

Figure 108: Invertebrate Harvest Summary

Invertebrates as Percent of Total Harvest



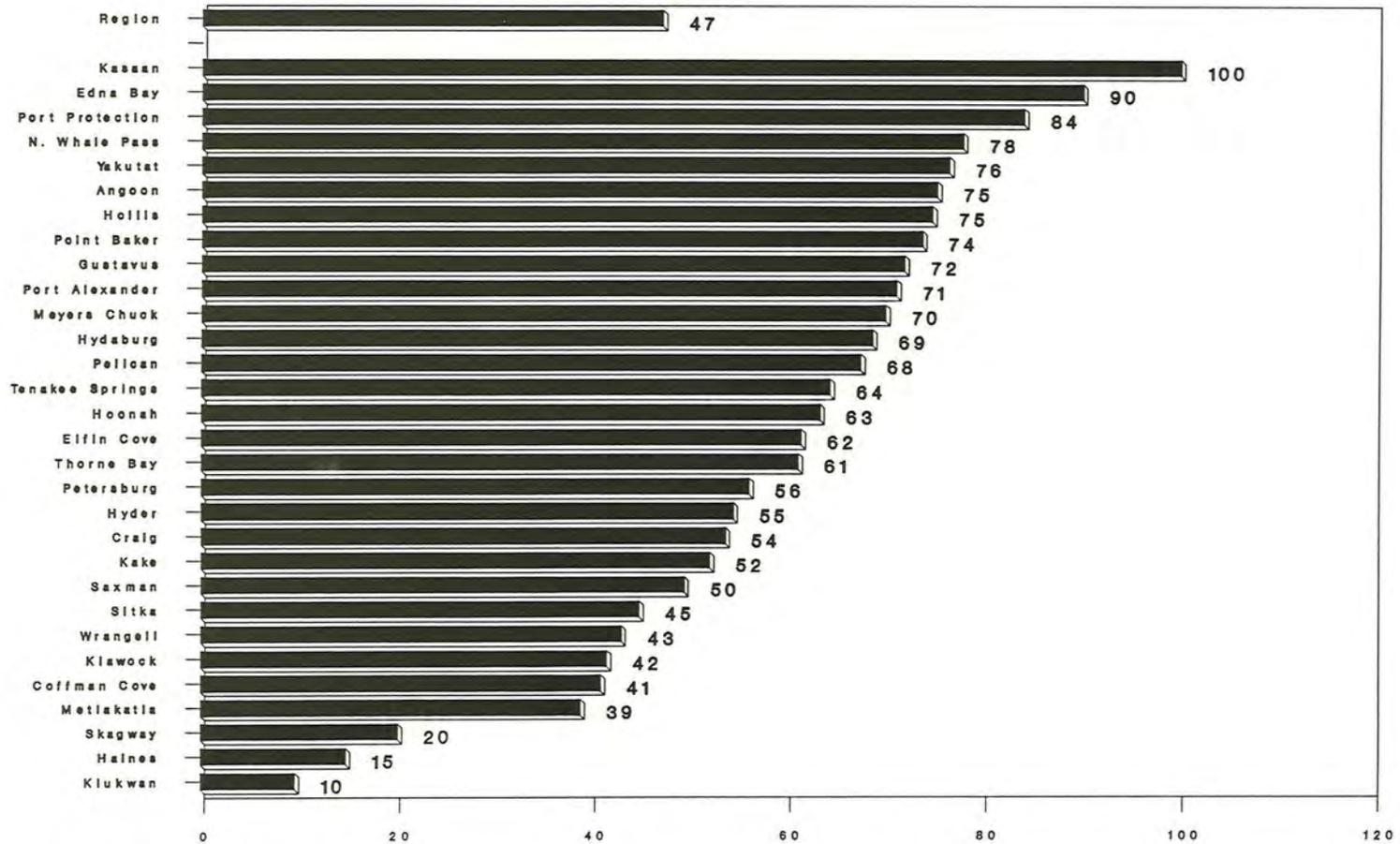
741,438 Pounds Harvested in 1987

4,017 Households Harvested Invertebrates

(47% of all households)

Tongass Resource Use Cooperative Survey

Figure 109: Percent Households Harvesting Invertebrates
By Place



Tongass Resource Use Cooperative Survey

Table 27: Percent Households Harvesting Invertebrates

Region	Any	King Crab	Dungeness Crab	Tanner Crab	Shrimp	Sea Urchins	Abalone
Region	47	8	28	7	11	2	12
Kasaan	100	0	50	0	7	0	14
Edna Bay	90	20	65	10	35	10	70
Port Protection	84	16	72	8	16	0	20
N. Whale Pass	78	0	78	0	39	0	0
Yakutat	76	11	35	9	32	21	0
Angoon	75	9	26	14	2	1	0
Hollis	75	7	43	4	33	0	4
Point Baker	74	5	37	0	26	5	0
Gustavus	72	13	64	16	6	4	0
Port Alexander	71	6	27	6	18	6	3
Meyers Chuck	70	0	70	0	50	0	10
Hydaburg	69	10	57	0	13	6	24
Pelican	68	9	35	11	16	0	5
Tenakee Springs	64	16	61	6	6	0	0
Hoonah	63	9	43	8	5	0	0
Elfin Cove	62	8	54	23	46	0	0
Thorne Bay	61	2	46	9	13	1	5
Petersburg	56	12	27	12	25	1	8
Hyder	55	9	46	6	46	0	3
Craig	54	3	32	0	9	1	15
Kake	52	2	14	0	0	0	0
Saxman	50	0	11	0	7	0	3
Sitka	45	10	29	6	7	4	21
Wrangell	43	2	27	6	17	0	7
Klawock	42	6	26	0	2	3	19
Coffman Cove	41	2	31	0	8	0	12
Metlakatla	39	-	26	-	1	3	22
Skagway	20	15	6	15	8	0	0
Haines	15	6	12	6	0	-	0
Klukwan	10	3	7	7	0	0	0

Source: Tongass Resource Use Cooperative Survey, 1988

Table 27 continued: Percent Households Harvesting Invertebrates

	Octopus	Scallops	Gumboot	Sea Cucumber	Clams, Cockles	Other Inverte- brates	Herring Eggs
Region	7	4	9	5	32	2	8
Kasaan	21	7	43	21	71	7	7
Edna Bay	45	55	20	50	45	15	15
Port Protection	8	0	8	8	72	12	8
N. Whale Pass	6	0	6	11	50	0	0
Yakutat	9	2	22	4	58	1	3
Angoon	9	0	67	0	46	1	4
Hollis	11	11	13	52	58	3	0
Point Baker	21	0	0	32	63	11	0
Gustavus	10	0	0	0	31	6	4
Port Alexander	21	3	24	12	71	38	3
Meyers Chuck	10	20	20	20	50	0	0
Hydaburg	10	6	22	16	57	8	27
Pelican	9	3	13	2	62	7	21
Tenakee Springs	13	6	6	0	35	0	10
Hoonah	9	8	28	3	47	1	15
Elfin Cove	0	0	15	0	31	0	0
Thorne Bay	3	1	1	22	38	1	0
Petersburg	10	7	6	-	40	0	4
Hyder	6	0	0	0	30	6	0
Craig	8	15	11	10	30	0	22
Kake	8	0	41	0	41	0	3
Saxman	6	3	16	11	40	0	9
Sitka	6	3	4	3	31	1	9
Wrangell	6	4	4	6	28	4	8
Klawock	6	5	17	18	30	3	18
Coffman Cove	3	2	2	3	18	0	2
Metlakatla	11	4	19	9	37	6	3
Skagway	1	0	0	0	1	4	0
Haines	0	0	0	0	5	-	0
Klukwan	0	0	0	0	3	0	0

Source: Tongass Resource Use Cooperative Survey, 1988

Table 28: Mean Edible Pounds of Invertebrates Harvested Per Household

	All	King Crab	Dungeness Crab	Tanner Crab	Shrimp	Sea Urchins	Abalone
Region	87	7	28	3	13	0	4
Angoon	84	4	18	11	-	1	0
Coffman Cove	30	-	20	0	1	0	2
Craig	157	5	22	0	2	-	7
Edna Bay	216	5	76	2	20	1	33
Elfin Cove	87	3	49	12	6	0	0
Gustavus	110	3	92	4	-	1	0
Haines	15	2	6	6	0	-	0
Hollis	67	4	26	-	9	0	8
Hoonah	168	5	75	13	2	0	0
Hydaburg	286	3	103	0	9	-	13
Hyder	227	8	154	14	21	0	1
Kake	50	1	19	0	0	0	0
Kasaan	211	0	128	0	14	0	2
Klawock	115	12	35	0	1	-	10
Klukwan	6	1	3	2	0	0	0
Metlakatla	60	-	21	-	1	1	7
Meyers Chuck	156	0	76	0	61	0	1
N. Whale Pass	96	0	62	0	6	0	0
Pelican	139	4	25	32	5	0	1
Petersburg	118	10	25	4	34	-	2
Point Baker	90	1	26	0	40	-	0
Port Alexander	80	1	16	1	18	-	2
Port Protection	101	5	56	2	6	0	2
Saxman	35	0	8	0	1	0	2
Sitka	61	11	19	2	2	-	6
Skagway	35	26	4	3	-	0	0
Tenakee Springs	125	29	65	1	3	0	0
Thorne Bay	57	-	39	2	2	-	3
Wrangell	117	3	46	4	48	0	2
Yakutat	121	5	39	9	12	6	0

Source: Tongass Resource Use Cooperative Survey, 1988

Table 28 continued: Mean Edible Pounds of Invertebrates Harvested Per Household

	Octopus	Scallops	Gumboot	Sea Cucumber	Clams, Cockles	Other Inverte- brates	Herring Eggs
Region	4	1	2	0	15	0	9
Angoon	7	0	15	0	23	2	5
Coffman Cove	-	3	-	-	3	0	-
Craig	18	3	2	-	24	0	74
Edna Bay	33	8	2	3	18	2	15
Elfin Cove	0	0	2	0	15	0	0
Gustavus	2	0	0	0	5	1	2
Haines	0	0	0	0	1	-	0
Hollis	3	1	1	3	10	1	0
Hoonah	2	1	8	-	47	-	16
Hydaburg	5	3	3	1	40	-	105
Hyder	1	0	0	0	26	1	0
Kake	5	0	7	0	17	0	1
Kasaan	6	4	9	-	43	1	4
Klawock	4	1	4	2	27	1	19
Klukwan	0	0	0	0	-	0	0
Metlakatla	11	-	3	-	10	1	6
Meyers Chuck	5	1	2	3	8	0	0
N. Whale Pass	1	0	-	-	28	0	0
Pelican	13	-	1	-	42	2	14
Petersburg	6	-	6	-	29	0	1
Point Baker	7	0	0	2	13	-	0
Port Alexander	9	2	6	-	16	9	2
Port Protection	2	0	-	-	21	6	-
Saxman	3	-	3	1	13	0	4
Sitka	3	1	1	-	9	-	7
Skagway	-	0	0	0	-	1	0
Tenakee Springs	10	1	-	0	14	0	4
Thorne Bay	-	2	-	2	7	1	0
Wrangell	2	1	1	-	8	-	2
Yakutat	5	1	7	-	35	-	1

Source: Tongass Resource Use Cooperative Survey, 1988

Figure 110: Pounds of Invertebrates Harvested by Size of Place

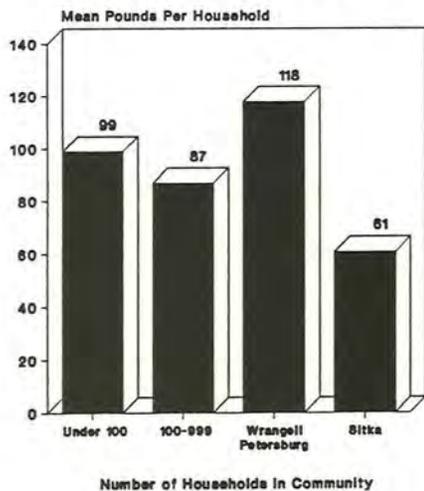


Figure 111: Pounds of Invertebrates Harvested by Income

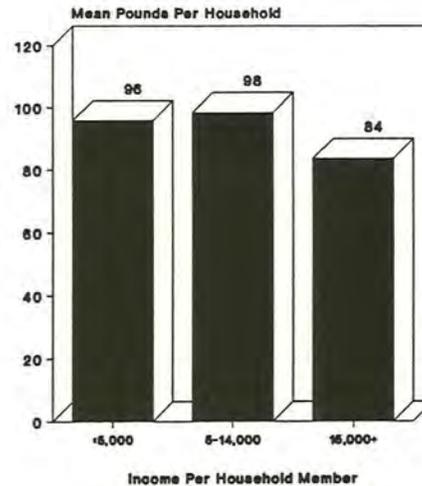


Figure 112: Pounds of Invertebrates Harvested by Length Residence

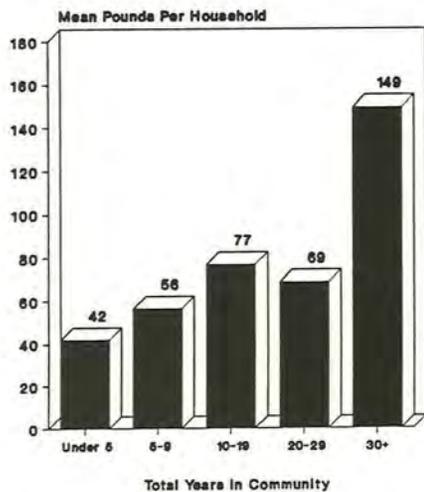


Figure 113: Pounds of Invertebrates Harvested by Ethnicity

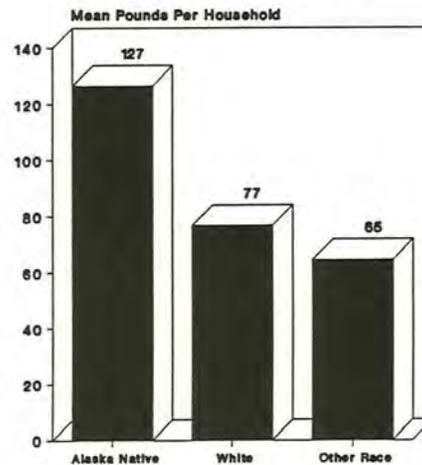


Table 29: Total Number of Invertebrates Harvested

Region	King	Dungeness	Tanner	Shrimp	Sea	Abalone	Octopus
	Crab	Crab	Crab	(Lbs.)	Urchins (5 gal)	(Lbs.)	
Region	9,062	94,380	12,735	106,552	609	33,745	3,647
Angoon	83	1,001	677	20	27		92
Coffman Cove	1	520	0	20		146	3
Craig	261	3,200	0	66	4	2,549	672
Edna Bay	15	635	23	562	2	698	68
Elfin Cove	9	373	102	419			
Gustavus	24	2,355	116	24	8		14
Haines	156	1,573	1,716		1		
Hollis	19	342	3	298		260	10
Hoonah	144	6,606	1,313	332			39
Hydaburg	47	4,546	0	996	8	1,405	52
Hyder	45	2,405	248	828		35	5
Take	16	1,439	0				94
Kasaan	0	715	0	200		22	9
Klawock	399	3,116	0	138	20	2,294	87
Klukwan	5	45	36				
Metlakatla	29	3,518	41	280	57	2,804	453
Meyers Chuck	0	304	0	610		5	5
N. Whale Pass	0	444	0	105			1
Pelican	47	835	1,178	425		111	100
Petersburg	1,764	12,281	1,967	41,617	25	2,290	735
Point Baker	2	200	0	757	1		14
Port Alexander	6	232	14	678	2	56	33
Port Protection	21	608	21	162		65	4
Saxman	0	258	0	101		126	21
Sitka	4,473	21,679	2,329	7,052	233	17,994	776
Skagway	766	325	285	58			5
Tenakee Springs	184	1,155	12	123			43
Thorne Bay	10	2,409	111	265	2	547	5
Wrangell	410	18,641	1,864	48,303		2,323	216
Yakutat	124	2,621	680	1,997	219		92

Source: Tongass Resource Use Cooperative Survey, 1988

Table 29 continued: Total Number of Invertebrates Harvested

Region	Scallops (Lbs.)	Gumboot (Gal)	Sea Cucumber (5 gal)	Clams, Other Inver- Cockles tebrates (5 gal) (Lbs.)	Herring Eggs (Lbs.)	
Region	5,807	5,021	992	15,006	2,669	75,834
Angoon		517		368	204	734
Coffman Cove	216	1	2	23		27
Craig	1,077	150	54	1,050		26,990
Edna Bay	158	9	29	44	42	315
Elfin Cove		9		34		
Gustavus				41	59	105
Haines				52	37	
Hollis	42	6	51	38	19	
Hoonah	154	433	8	1,199	5	3,574
Hydaburg	365	79	34	519	46	11,588
Hyder				120	47	
Kake		342		396		239
Kasaan	50	31	3	71	15	50
Klawock	184	202	239	708	136	4,205
Klukwan				1		
Metlakatla	75	282	39	487	238	2,471
Meyers Chuck	8	5	17	9		
N. Whale Pass		1	2	59		
Pelican	23	20	2	404	141	1,173
Petersburg	496	1,969	7	4,172		822
Point Baker			18	30	7	
Port Alexander	55	51	4	68	323	55
Port Protection		2	2	67	162	8
Saxman	30	48	21	114		323
Sitka	1,494	437	116	3,075	504	20,496
Skagway				3	124	
Tenakee Springs	29	3		72		185
Thorne Bay	254	2	122	127	85	
Wrangell	1,006	134	208	936	386	2,224
Yakutat	92	284	12	702	39	249

Source: Tongass Resource Use Cooperative Survey, 1988

Table 30: Percent Households Giving Away Invertebrates

	One or more	King Crab	Dungeness Crab	Tanner Crab	Shrimp	Sea Urchins	Abalone
Region	32	3	17	5	8	1	3
Angoon	40	2	11	7	1	0	0
Coffman Cove	18	0	14	0	0	0	0
Craig	28	2	16	0	0	0	5
Edna Bay	60	5	35	0	20	0	30
Elfin Cove	39	8	31	15	0	0	0
Gustavus	41	2	32	12	0	4	0
Haines	11	3	6	5	3	3	0
Hollis	33	4	18	4	15	0	4
Hoonah	46	5	29	9	0	0	0
Hydaburg	49	2	39	0	9	3	4
Hyder	24	3	21	3	12	0	0
Kake	34	0	4	0	0	0	0
Kasaan	64	0	36	0	7	0	7
Klawock	25	3	11	0	1	0	5
Klukwan	7	0	7	7	0	0	0
Metlakatla	28	-	15	0	1	3	8
Meyers Chuck	20	0	10	0	10	0	0
N. Whale Pass	22	0	17	0	6	0	0
Pelican	42	8	25	11	9	0	4
Petersburg	43	7	20	10	19	0	7
Point Baker	37	0	16	0	11	0	0
Port Alexander	33	3	15	0	12	0	0
Port Protection	60	4	48	0	8	0	8
Saxman	19	0	5	0	0	0	3
Sitka							
Skagway	10	7	2	2	0	0	0
Tenakee Springs	45	13	42	6	6	0	0
Thorne Bay	27	0	14	0	5	1	0
Wrangell	30	1	18	4	14	0	2
Yakutat	56	2	22	4	17	9	0

Source: Tongass Resource Use Cooperative Survey, 1988

Table 30 continued: Percent Households Giving Away Invertebrates

	Octopus	Scallops	Gumboot	Sea Cucumber	Clams, Cockles	Other Inverte- brates	Herring Eggs
Region	4	1	6	2	17	1	3
Angoon	3	0	31	1	21	0	2
Coffman Cove	2	0	0	2	5	0	2
Craig	0	3	6	6	15	0	11
Edna Bay	5	10	5	15	30	10	5
Elfin Cove	0	0	8	0	15	0	0
Gustavus	6	0	0	0	12	0	4
Haines	0	0	0	0	3	0	0
Hollis	0	8	7	13	11	0	0
Hoonah	4	1	12	0	33	0	12
Hydaburg	6	3	12	6	25	2	18
Hyder	3	0	0	0	12	3	0
Kake	4	0	20	0	25	0	1
Kasaan	7	0	29	7	36	0	7
Klawock	3	0	12	9	19	1	13
Klukwan	0	0	0	0	0	0	0
Metlakatla	7	1	10	3	23	6	3
Meyers Chuck	0	0	10	10	10	0	0
N. Whale Pass	0	0	0	6	6	0	0
Pelican	4	3	5	0	27	1	8
Petersburg	7	3	3	-	17	0	0
Point Baker	11	0	0	5	16	0	0
Port Alexander	3	0	9	0	18	3	3
Port Protection	4	0	4	8	44	4	0
Saxman	0	3	7	8	19	0	1
Sitka							
Skagway	1	0	0	0	1	1	0
Tenakee Springs	6	3	3	0	10	0	10
Thorne Bay	0	0	0	3	10	0	0
Wrangell	4	0	3	3	18	2	2
Yakutat	8	0	15	0	41	0	2

Source: Tongass Resource Use Cooperative Survey, 1988

Table 31: Percent Households Receiving Invertebrates

Region	One or more	King Crab	Dungeness Crab	Tanner Crab	Shrimp	Sea Urchins	Abalone
Region	73	26	50	14	35	2	10
Angoon	80	18	37	15	2	1	6
Coffman Cove	62	6	55	0	9	0	0
Craig	62	5	31	3	29	0	31
Edna Bay	85	0	60	5	45	0	55
Elfin Cove	92	54	77	54	77	0	0
Gustavus	70	35	61	16	24	0	0
Haines	56	30	30	8	19	3	0
Hollis	72	0	41	0	18	0	7
Hoonah	81	42	63	21	11	1	4
Hydaburg	88	12	64	2	58	6	39
Hyder	58	6	52	6	30	0	6
Kake	86	33	68	22	9	0	4
Kasaan	86	0	71	0	57	0	14
Klawock	62	6	39	6	21	3	24
Klukwan	79	12	24	7	7	0	0
Metlakatla	81	7	49	1	28	6	16
Meyers Chuck	60	20	50	0	50	0	0
N. Whale Pass	56	6	56	0	39	0	0
Pelican	85	68	73	44	50	1	6
Petersburg	76	44	55	25	40	0	9
Point Baker	74	0	53	26	32	0	5
Port Alexander	65	30	30	6	18	0	9
Port Protection	64	24	40	12	40	4	20
Saxman	67	1	24	0	33	0	5
Sitka							
Skagway	71	62	16	21	14	0	0
Tenakee Springs	74	39	55	10	42	0	3
Thorne Bay	57	4	44	0	31	0	1
Wrangell	78	18	68	11	60	3	9
Yakutat	89	37	66	38	66	4	1

Source: Tongass Resource Use Cooperative Survey, 1988

Table 31 continued: Percent Households Receiving Invertebrates

	Octopus	Scallops	Gumboot	Sea Cucumber	Clams, Cockles	Other Inverte- brates	Herring Eggs
Region	5	4	10	3	24	2	24
Angoon	9	0	33	2	39	2	62
Coffman Cove	2	2	3	0	3	3	0
Craig	3	8	5	5	21	0	16
Edna Bay	15	30	0	0	26	20	5
Elfin Cove	8	0	0	0	31	0	0
Gustavus	4	4	4	0	14	0	4
Haines	1	0	5	0	16	-	10
Hollis	4	4	0	16	20	0	16
Hoonah	7	6	30	0	44	3	49
Hydaburg	2	3	27	9	46	0	55
Hyder	6	3	0	0	15	0	0
Kake	6	3	38	0	45	3	58
Kasaan	0	0	21	0	21	0	57
Klawock	1	5	20	20	20	1	31
Klukwan	0	0	9	0	5	5	79
Metlakatla	16	-	4	3	25	3	30
Meyers Chuck	10	0	0	0	0	0	0
N. Whale Pass	0	6	6	11	11	11	11
Pelican	8	8	7	3	40	6	38
Petersburg	5	0	12	3	14	1	14
Point Baker	5	0	0	5	32	5	21
Port Alexander	6	0	0	0	18	3	8
Port Protection	20	4	0	4	32	0	24
Saxman	3	3	16	8	28	0	47
Sitka							
Skagway	0	4	0	0	8	5	2
Tenakee Springs	13	10	0	0	10	3	6
Thorne Bay	2	0	0	2	12	3	1
Wrangell	3	4	1	2	31	6	30
Yakutat	18	36	17	0	50	1	46

Source: Tongass Resource Use Cooperative Survey, 1988

F. Bird Harvest

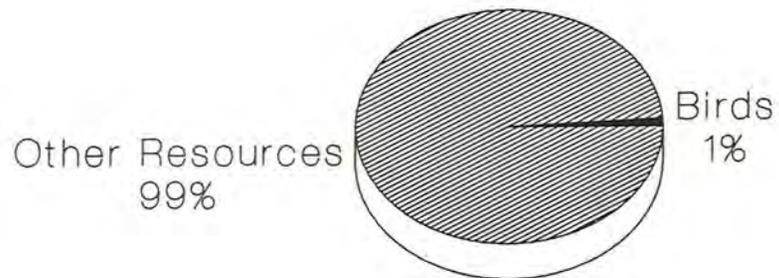
Birds constitute a negligible percentage of the total subsistence harvest in rural southeast Alaska as a whole. They are harvested by a third or less of the households in all communities except Edna Bay. Ducks are the most important type of bird harvested but contribute an average of only four pounds of edible meat per household. Households associated with the highest levels of bird harvest are high income, white, and residing in Petersburg. These findings suggest that birds may be more culturally important to rural southeast residents who grew up in areas where waterfowl hunting is a common activity.

Figure 114: Bird Harvest Summary

33,000 Birds Harvested

55,000 Pounds

Birds as Percent of Total Harvest

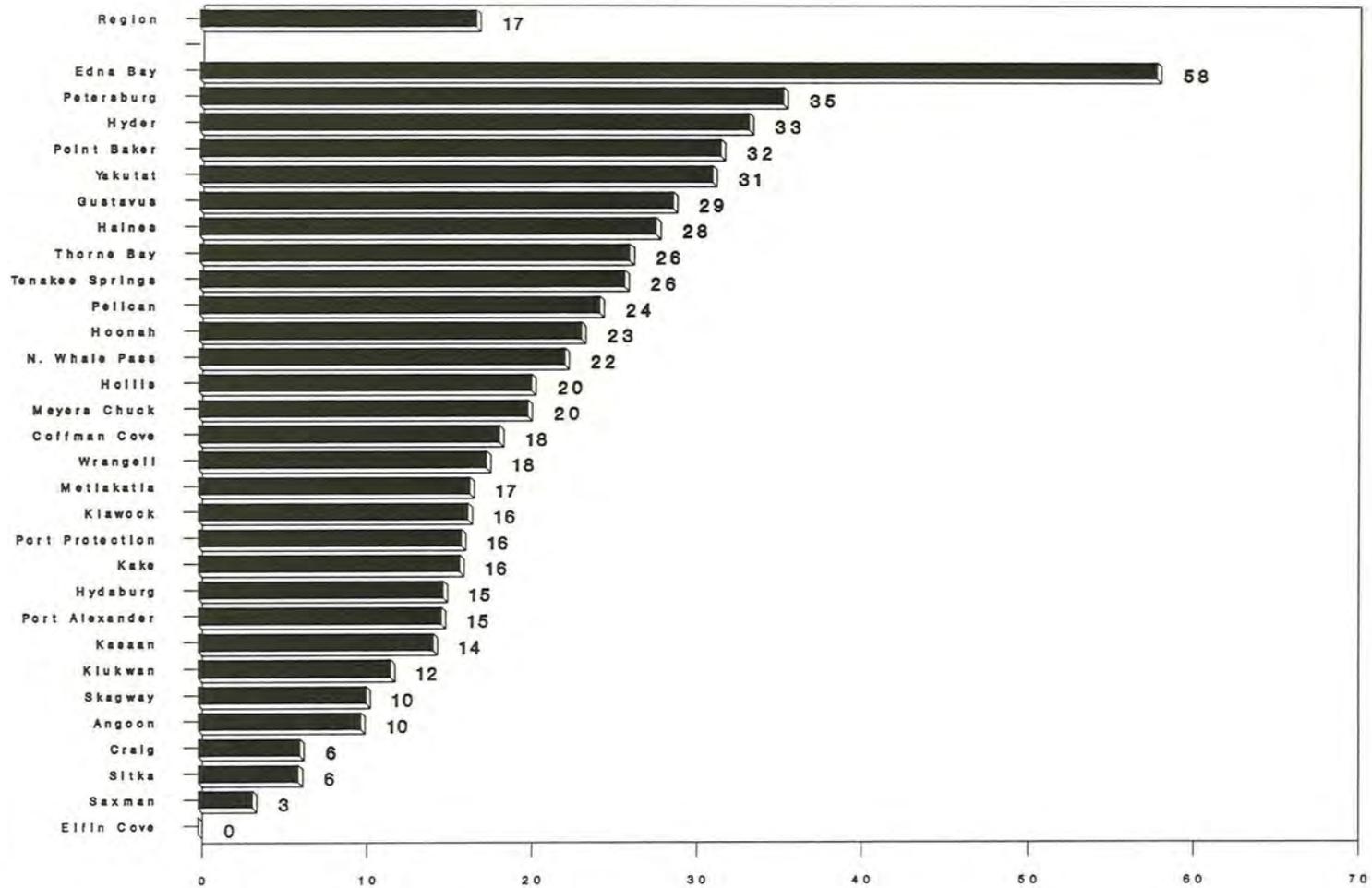


1,428 Households Harvested Birds in 1987

(17% of all households)

Tongass Resource Use Cooperative Survey

Figure 115: Percent Households Harvesting Birds By Place



Tongass Resource Use Cooperative Survey

Figure 116: Pounds of Birds Harvested by Size of Place

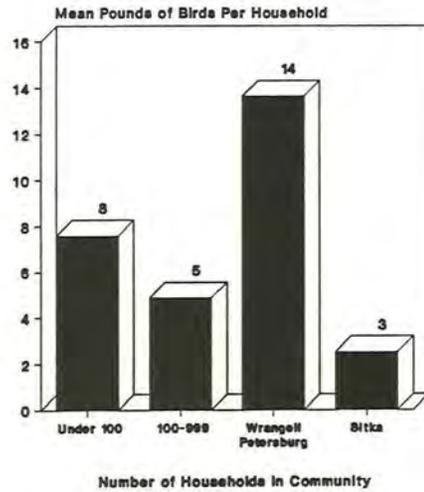


Figure 117: Pounds of Birds Harvested by Income

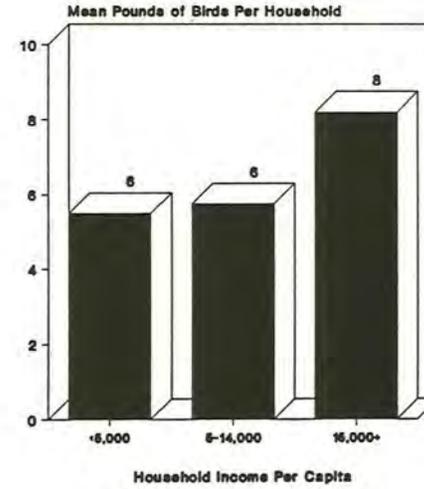


Figure 118: Pounds of Birds Harvested by Length Residence

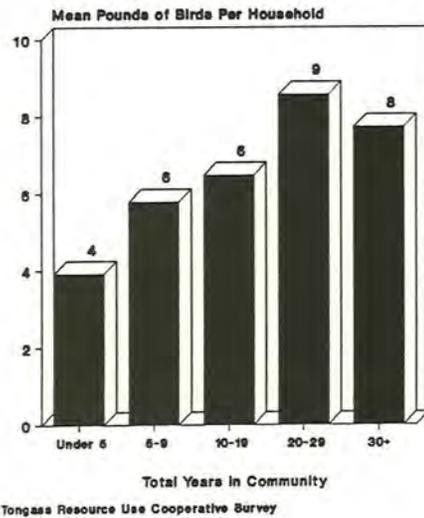


Figure 119: Pounds of Birds Harvested by Ethnicity

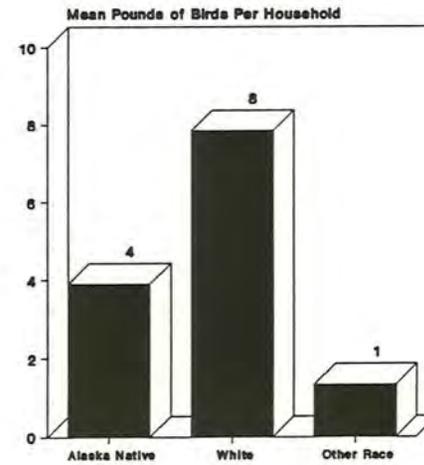


Table 32: Percent Households Harvesting Birds

	Any	Ducks	Seabirds	Canada Geese	Seabird Eggs	Other Birds
Region	17	14	2	8	1	6
Edna Bay	58	37	21	32	5	32
Petersburg	35	30	2	24	0	10
Hyder	33	27	6	24	0	27
Point Baker	32	32	0	21	0	5
Yakutat	31	30	7	4	9	7
Gustavus	29	21	2	7	0	21
Haines	28	14	3	0	0	23
Thorne Bay	26	20	4	11	0	14
Tenakee Springs	26	26	6	16	0	3
Pelican	24	19	4	10	2	3
Hoonah	23	18	3	12	3	8
N. Whale Pass	22	22	0	11	0	0
Hollis	20	20	7	9	0	3
Meyers Chuck	20	20	10	20	0	0
Coffman Cove	18	9	0	8	0	14
Wrangell	18	17	2	12	0	8
Metlakatla	17	13	1	13	0	1
Klawock	16	9	0	7	8	1
Port Protection	16	12	4	16	0	4
Kake	16	11	0	2	0	12
Hydaburg	15	6	0	3	10	0
Port Alexander	15	12	0	6	0	6
Kasaan	14	14	0	0	0	0
Klukwan	12	7	0	3	0	5
Skagway	10	4	0	3	0	10
Angoon	10	8	0	6	0	4
Craig	6	5	2	4	0	1
Sitka	6	6	1	2	0	1
Saxman	3	3	3	3	0	0
Elfin Cove	0	0	0	0	0	0

Source: Tongass Resource Use Cooperative Survey, 1988

Table 33: Total Number of Birds Harvested

	All	Ducks	Seabirds	Canada Geese	Seabird Eggs	Other Birds
Region	33,224	20,119	1,302	3,830	2,489	5,484
Angoon	245	193		37		15
Coffman Cove	1,604	1,557		8		39
Craig	739	476	180	60		23
Edna Bay	303	159	56	16	25	47
Elfin Cove	0					
Gustavus	261	180	7	15		59
Haines	2,736	533	61			2,142
Hollis	45	24	12	4		5
Hoonah	983	591	6	64	226	96
Hydaburg	675	124		24	527	
Hyder	325	101	41	65		118
Kake	377	256		9		112
Kasaan	12	12				
Klawock	918	205		80	630	3
Klukwan	51	32		12		7
Metlakatla	1,416	1,115	15	263		23
Meyers Chuck	200	120	50	30		
N. Whale Pass	31	26		5		
Pelican	326	195	24	35	58	14
Petersburg	11,743	7,668	152	2,144		1,779
Point Baker	68	49		17		2
Port Alexander	149	83		7		59
Port Protection	111	89	9	8		5
Saxman	117	76	38	3		
Sitka	4,395	3,880	243	194		78
Skagway	256	81		6		169
Tenakee Springs	151	112	10	26		3
Thorne Bay	567	438	15	26		88
Wrangell	3,319	2,111	234	503		471
Yakutat	2,120	873	49	126	1,023	49

Source: Tongass Resource Use Cooperative Survey, 1988

Table 34: Mean Edible Pounds of Birds Harvested Per Household

	All	Ducks	Seabirds	Canada Geese	Seabird Eggs	Other Birds
Region	7	4	0	2	0	0
Angoon	3	2	0	1	0	-
Coffman Cove	5	4	0	1	0	-
Craig	4	2	1	1	0	-
Edna Bay	22	12	4	4	-	2
Elfin Cove		0	0	0	0	0
Gustavus	6	4	-	1	0	1
Haines	4	1	-	0	0	2
Hollis	2	1		1	0	-
Hoonah	6	4	-	1	-	-
Hydaburg	4	2	0	1	1	0
Hyder	16	4	2	8	0	2
Kake	3	2	0	-	0	-
Kasaan	1	1	0	0	0	0
Klawock	4	1	0	2	1	-
Klukwan	3	1	0	2	0	-
Metlakatla	7	4	-	3	0	-
Meyers Chuck	41	18	8	15	0	0
N. Whale Pass	4	2	0	1	0	0
Pelican	6	4	-	2	-	-
Petersburg	19	9	-	9	0	1
Point Baker	8	4	0	4	0	-
Port Alexander	5	3	0	1	0	1
Port Protection	7	5	-	1	0	-
Saxman	2	1	1	-	0	0
Sitka	3	2	-	-	0	-
Skagway	1	1	0	-	0	1
Tenakee Springs	7	4	-	3	0	-
Thorne Bay	6	4	-	1	0	-
Wrangell	6	3	-	3	0	-
Yakutat	13	8	-	4	1	-

Source: Tongass Resource Use Cooperative Survey, 1988

Table 35: Percent Households Giving Away Birds

	One or More	Ducks	Seabirds	Canada Geese	Seabird Eggs	Other Birds
Region	13	6	1	4	-	1
Angoon	4	1	0	6	0	1
Coffman Cove	8	0	0	0	0	0
Craig	8	1	0	0	0	0
Edna Bay	20	5	15	5	0	0
Elfin Cove	8	0	0	0	0	0
Gustavus	4	12	0	2	0	0
Haines	13	3	3	0	0	6
Hollis	6	4	0	3	0	0
Hoonah	10	6	0	6	1	3
Hydaburg	15	2	0	0	2	2
Hyder	3	3	0	3	0	0
Kake	16	2	0	0	0	2
Kasaan	7	7	0	0	0	0
Klawock	9	3	0	1	1	0
Klukwan	9	3	0	3	0	5
Metlakatla	15	12	1	7	0	-
Meyers Chuck	10	0	0	0	0	0
N. Whale Pass	11	0	0	0	0	0
Pelican	21	4	1	5	2	0
Petersburg	14	6	0	9	0	1
Point Baker	11	11	0	11	0	0
Port Alexander		0	0	0	0	0
Port Protection	20	4	0	0	0	0
Saxman		0	0	0	0	0
Sitka						
Skagway	9	1	0	0	0	2
Tenakee Springs	13	19	3	0	0	3
Thorne Bay	15	3	0	3	0	0
Wrangell	15	14	1	6	0	2
Yakutat	43	12	4	6	7	0

Source: Tongass Resource Use Cooperative Survey, 1988

Table 36: Percent Households Receiving Birds

	One or more	Ducks	Seabirds	Canada Geese	Seabird Eggs	Other Birds
Region	13	9	1	5	1	3
Angoon	4	3	1	2	1	2
Coffman Cove	8	5	2	3	0	0
Craig	8	7	0	2	0	0
Edna Bay	20	5	5	10	0	0
Elfin Cove	8	0	0	0	0	8
Gustavus	4	0	0	4	0	4
Haines	13	8	3	0	0	13
Hollis	6	6	0	0	0	0
Hoonah	10	9	3	6	4	3
Hydaburg	15	3	0	0	13	0
Hyder	3	3	0	3	0	0
Kake	16	16	0	1	0	6
Kasaan	7	0	0	0	0	7
Klawock	9	2	0	4	6	0
Klukwan	9	9	0	0	0	0
Metlakatla	15	9	3	6	0	-
Meyers Chuck	10	10	0	10	0	0
N. Whale Pass	11	6	0	6	0	0
Pelican	21	10	0	7	8	0
Petersburg	14	9	0	7	0	0
Point Baker	11	5	0	5	0	5
Port Alexander		0	0	0	0	0
Port Protection	20	20	4	12	0	0
Saxman		0	0	0	0	0
Sitka						
Skagway	9	2	0	2	0	9
Tenakee Springs	13	10	0	6	3	3
Thorne Bay	15	15	0	3	0	0
Wrangell	15	11	0	3	0	3
Yakutat	43	27	4	24	19	4

Source: Tongass Resource Use Cooperative Survey, 1988

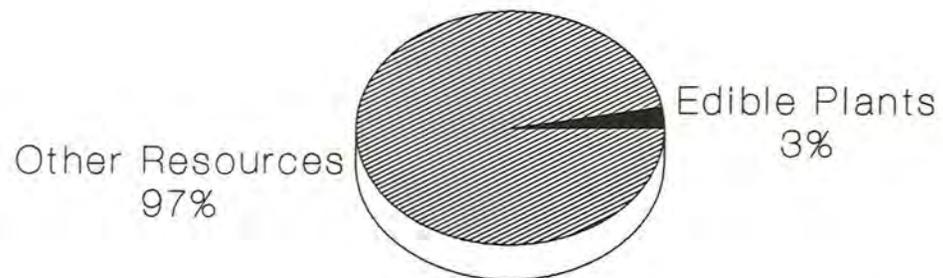
G. Plant Harvest Summary

While over half of all rural southeast households harvest edible plants, plant products account for only 3 percent of the total subsistence harvest (see Figure 120). Berries of various types make up the largest component of the plant harvest (see Tables 37, 38, and 39). More edible plants are harvested by the residents of smaller communities, by low income households, and by Natives (see Figures 122-125).

Also important but not part of the above statistics is firewood. Forty-six percent of all rural southeast households harvested an estimated total of 26,000 chords of firewood in 1987, for an average of three chords per household. Firewood is also a shared resource, with 13 percent of all households giving firewood away and 10 percent of all households receiving firewood.

Figure 120: Plant Harvest Summary

Edible Plants as Percent of Total Harvest



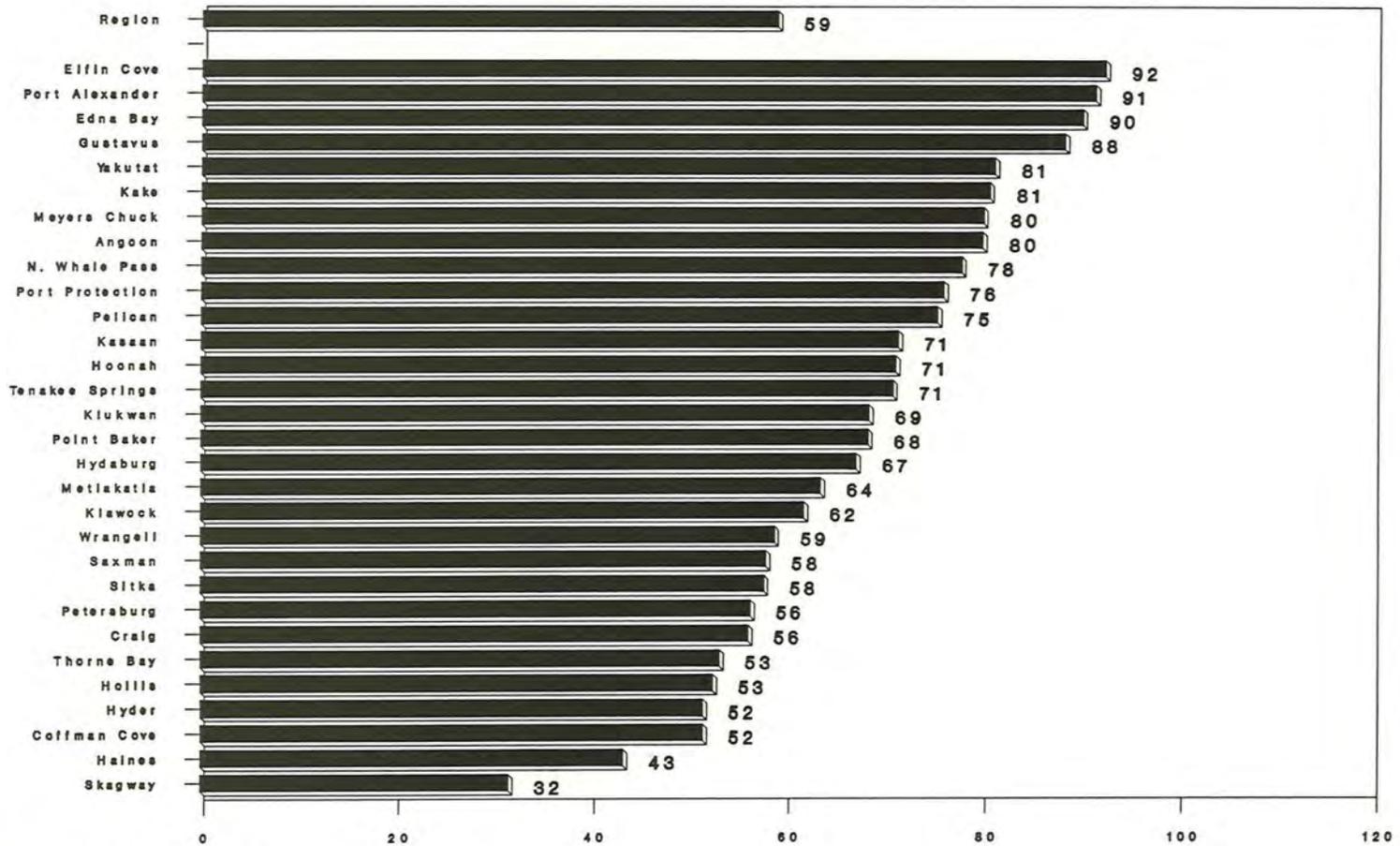
5,017 Households Harvested Edible Plants
(59% of all households)

140,879 Pounds Harvested

(excluding 475,000 pounds of seaweed harvested as fertilizer)

Tongass Resource Use Cooperative Survey

Figure 121: Percent Households Harvesting Edible Plants By Place



Tongass Resource Use Cooperative Survey

Table 37: Percent Households Harvesting Edible Plants

Region	Beach				Firewood
	Any	Greens	Seaweed	Berries	
	59	12	12	56	46
Elfin Cove	92	23	31	92	85
Port Alexander	91	80	56	80	84
Edna Bay	90	65	5	85	95
Gustavus	88	34	8	88	92
Yakutat	81	9	45	80	52
Kake	81	4	35	70	48
Meyers Chuck	80	40	0	80	70
Angoon	80	4	27	75	59
N. Whale Pass	78	17	22	67	83
Port Protection	76	48	32	72	96
Pelican	75	33	12	73	50
Kasaan	71	29	21	64	85
Hoonah	71	13	17	72	74
Tenakee Springs	71	33	10	68	35
Klukwan	69	7	7	69	79
Point Baker	68	37	5	63	79
Hydaburg	67	28	46	52	58
Metlakatla	64	1	26	48	37
Klawock	62	27	30	49	59
Wrangell	59	9	8	59	45
Saxman	58	11	14	50	42
Sitka	58	7	8	56	34
Petersburg	56	21	9	57	57
Craig	56	28	14	40	51
Thorne Bay	53	15	3	51	63
Hollis	53	30	3	53	76
Hyder	52	0	3	52	67
Coffman Cove	52	6	9	49	45
Haines	43	-	3	43	46
Skagway	32	1	2	31	26

Source: Tongass Resource Use Cooperative Survey, 1988

Table 38: Total Number of Plants Harvested

Region	Beach			
	Greens (Qts.)	Seaweed (Qts.)	Berries (Qts.)	Firewood (Chords)
	29,071	35,611	76,197	26,453
Angoon	123	1,627	1,419	560
Coffman Cove	56	214	500	162
Craig	2,099	1,774	2,178	2,133
Edna Bay	792	105	624	261
Elfin Cove	143	803	464	118
Gustavus	173	137	796	380
Haines	6	2,403	3,445	1,754
Hollis	293	58	357	188
Hoonah	194	2,422	4,148	1,306
Hydaburg	664	2,311	1,533	759
Hyder		14	337	281
Kake	445	2,308	4,537	817
Kasaan	63	60	84	93
Klawock	1,327	1,301	1,942	584
Klukwan	78	246	630	191
Metlakatla	45	4,798	1,850	1,391
Meyers Chuck	105		217	111
N. Whale Pass	19	30	125	143
Pelican	158	455	1,085	306
Petersburg	16,851	884	11,639	4,275
Point Baker	45	40	417	124
Port Alexander	925	402	1,133	293
Port Protection	357	105	418	189
Saxman	192	231	416	235
Sitka	3,114	6,596	22,921	4,336
Skagway	12	310	553	314
Tenakee Springs	113	170	479	206
Thorne Bay	145	223	893	807
Wrangell	414	2,248	6,400	3,391
Yakutat	117	3,276	4,577	664

Source: Tongass Resource Use Cooperative Survey, 1988

Table 39: Mean Edible Pounds of Plants
Harvested Per Household

Region	All	Beach Greens	Seaweed	Berries	Firewood (chords)
		17	3	4	9
Angoon	23	1	12	11	4
Coffman Cove	12	1	3	8	2
Craig	17	6	5	6	6
Edna Bay	72	38	5	30	12
Elfin Cove	74	8	42	24	6
Gustavus	17	3	2	12	6
Haines	10	-	4	6	3
Hollis	22	9	2	11	6
Hoonah	31	1	11	19	6
Hydaburg	41	6	21	14	8
Hyder	9	0	-	9	7
Kake	38	2	12	24	4
Kasaan	15	5	4	6	7
Klawock	20	6	6	9	3
Klukwan	24	2	7	16	5
Metlakatla	16	-	11	4	3
Meyers Chuck	32	11	0	22	11
N. Whale Pass	10	1	2	7	8
Pelican	21	2	6	13	4
Petersburg	24	14	1	10	4
Point Baker	26	2	2	22	7
Port Alexander	67	25	11	31	9
Port Protection	33	13	4	15	7
Saxman	11	3	3	5	3
Sitka	11	1	2	8	2
Skagway	4	-	2	3	2
Tenakee Springs	17	3	4	11	5
Thorne Bay	8	1	1	6	5
Wrangell	9	-	2	6	3
Yakutat	47	1	19	27	4

Source: Tongass Resource Use Cooperative Survey, 1988

Figure 122: Pounds of Edible Plants Harvested By Size of Community

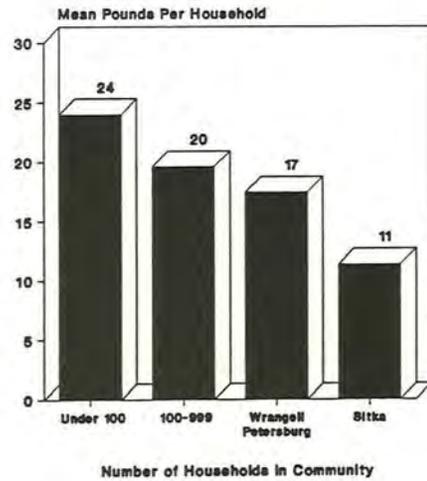


Figure 123: Pounds of Edible Plants Harvested by Income

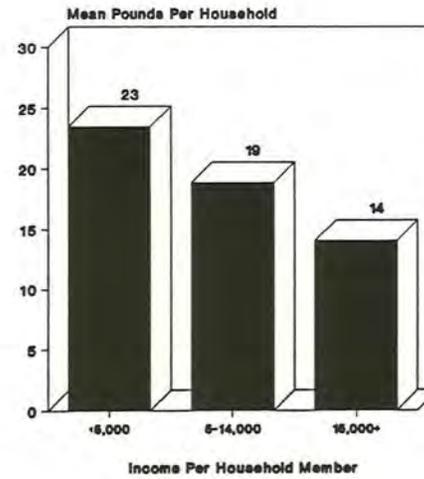


Figure 124: Pounds of Edible Plants Harvested by Length Residence

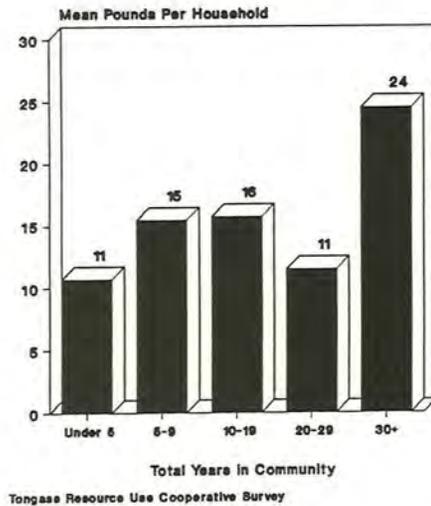


Figure 125: Pounds of Edible Plants Harvested by Ethnicity

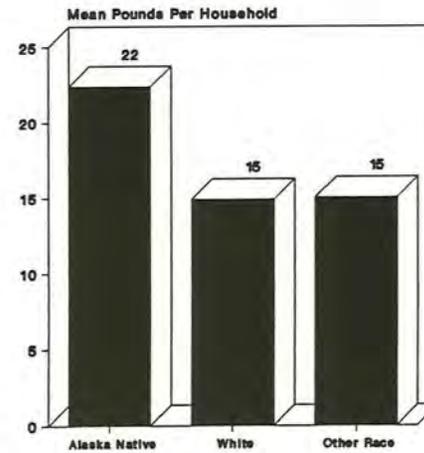


Table 40: Percent Households Giving Away Plants

Region	One or more	Beach Greens	Seaweed	Berries	Firewood
Region	34	5	9	23	13
Angoon	49	2	23	15	15
Coffman Cove	9	2	5	12	2
Craig	20	15	9	16	24
Edna Bay	55	30	10	50	30
Elfin Cove	54	0	0	23	31
Gustavus	27	8	0	38	6
Haines	31	0	0	23	8
Hollis	24	7	0	13	19
Hoonah	53	1	13	34	25
Hydaburg	67	16	31	10	24
Hyder	27	0	0	9	6
Kake	48	3	18	22	16
Kasaan	36	0	21	21	21
Klawock	30	15	12	15	16
Klukwan	50	0	7	31	15
Metlakatla	33	1	17	21	1
Meyers Chuck	20	20	0	20	0
N. Whale Pass	22	6	11	33	6
Pelican	50	13	9	27	8
Petersburg	30	3	7	30	14
Point Baker	42	0	0	16	5
Port Alexander	39	15	32	29	6
Port Protection	44	12	20	20	0
Saxman	38	10	11	11	15
Sitka					
Skagway	17	0	0	10	5
Tenakee Springs	29	13	3	20	10
Thorne Bay	24	3	2	9	9
Wrangell	38	4	4	24	13
Yakutat	45	4	32	37	27

Source: Tongass Resource Use Cooperative Survey, 1988

Table 41: Percent Households Receiving Plants

Region	One or More	Beach Greens	Seaweed	Berries	Firewood
	38	6	15	22	10
Angoon	50	14	29	35	8
Coffman Cove	17	6	8	5	2
Craig	36	12	13	13	14
Edna Bay	60	25	10	35	5
Elfin Cove	54	0	0	54	8
Gustavus	44	14	0	27	16
Haines	28	0	10	23	3
Hollis	30	10	3	9	17
Hoonah	59	4	40	34	21
Hydaburg	73	25	39	28	31
Hyder	18	0	0	15	3
Kake	52	3	28	32	24
Kasaan	43	0	29	8	21
Klawock	37	10	23	19	11
Klukwan	55	0	39	33	12
Metlakatla	42	10	21	22	10
Meyers Chuck	20	0	10	10	20
N. Whale Pass	22	11	6	11	0
Pelican	47	7	24	31	2
Petersburg	30	4	3	18	8
Point Baker	37	11	21	26	0
Port Alexander	47	12	21	24	12
Port Protection	52	16	40	20	12
Saxman	45	13	36	18	22
Sitka					
Skagway	20	1	2	15	5
Tenakee Springs	32	10	6	26	0
Thorne Bay	34	3	4	16	26
Wrangell	41	3	21	24	5
Yakutat	47	2	25	25	13

Source: Tongass Resource Use Cooperative Survey, 1988

ENDNOTES

1. Although it could be argued that the lifestyles of certain individuals living in urban environments have a subsistence component, we consistently use the term "subsistence" in reference to the noncommercial, customary, and traditional natural resource harvest and use activities of Alaskan residents living in rural communities. To assist the reader in understanding why only certain communities were selected for study and to understand how they achieved rural status for purposes of this research, the following background discussion is provided.

The term "subsistence" has a variety of popular, social, scientific, and legal meanings and definitions. In this report, we purposely chose to adopt the definition of subsistence expressed in federal law, specifically the Alaska National Interest Lands Conservation Act (ANILCA). Title VIII of ANILCA (U.S. Congress, 1980) defines subsistence as

. . . the customary and traditional uses by rural Alaska residents of wild, renewable resources for direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation; for the making and selling of handicraft articles out of non-edible byproducts of fish and wildlife resources taken for personal or family consumption, for barter, or sharing for personal or family consumption; and for customary trade.

Subsistence users are thus differentiated from commercial user-groups by the customary and traditional nature of their activities and by the fact that the resources they harvest are restricted to personal or family barter, sharing, trade, or consumption. Likewise, subsistence users are presumably distinguished from recreational, personal use, and sport users by virtue of residing in rural communities. These legal distinctions are significant because of an important provision in ANILCA regarding the allocation of scarce fish and wildlife resources. In Section 804, ANILCA specifies that subsistence users shall have priority access to fish and wildlife resources whenever harvest restrictions are necessary. ANILCA (U.S. Congress, 1980) states:

Except as otherwise provided in this Act and other Federal laws, the taking on public lands of fish and wildlife for nonwasteful subsistence uses shall be accorded priority over the taking on such lands of fish and wildlife for other purposes. Whenever it is necessary to restrict the taking of populations of fish and wildlife on such lands for subsistence uses in

order to protect the continued viability of such populations, or to continue such uses, such priority shall be implemented through appropriate limitations based on the application of the following criteria:

- (1) customary and direct dependence upon the populations as the mainstay of livelihood;
- (2) local residency; and
- (3) the availability of alternative resources.

Procedures cooperatively established under ANILCA by the Secretary of the Department of Interior and the State of Alaska leave the responsibility for allocation, regulation, and management of fish and wildlife resources on Federal public lands in the hands of appropriate State agencies, provided that regulations promulgated by the State conform to the requirements contained in Federal statute. The legislative history of ANILCA identifies four Alaskan communities (Anchorage, Fairbanks, Juneau, and Ketchikan) as examples of communities that the Congress specifically considered to be nonrural. With these exceptions, ANILCA made no attempt to define "rural Alaska residence," preferring to leave these decisions to the implementing agencies. At the time that this study was conducted, responsibility for making rural determinations resided with the Alaska Joint Boards of Fisheries and Game. Based as they were on political – rather than sociological, economic, or demographic criteria – these classifications were subject to change. For example, in southeast Alaska, some rural communities designated as rural by the Joint Boards were precluded from subsistence shellfish harvest by the Board of Fisheries. Due to recent Supreme Court review, the responsibility for managing subsistence is in a state of flux. In any case, depending on further judicial review, legislative changes, or other political considerations, communities designated rural today may find themselves classified as nonrural as a result of regulations implemented by state or federal regulatory agencies.

At the time that this survey was conducted, the Joint Boards of Fisheries and Game had classified all communities in southeast Alaska--except Juneau and Ketchikan--as rural.

2. Throughout this report, we refer to data either on a community-by-community basis or at a regional level. Information relating to an individual community is derived from the responses to the survey from the sampled households in that community. Information relating to the southeast region as a whole is computed by aggregating the information from all the sampled communities. Consequently, when we refer to data describing characteristics or behavior of residents of the southeast region, we assume the reader understands that this does not include information from Juneau,

Ketchikan, or isolated settlements in which data were not collected as part of this study.

3. Our survey sample did not include the unknown number of isolated homes that are not nearby established communities. Satellite settlements were, however, incorporated in community samples.
4. Throughout this report, where possible, figures include the numerical basis for the graphic being shown. In Figure 1, for example, the actual number of households associated with each slice of the pie is given, as is the percent of households.
5. Throughout this report, we define Native households as those in which the person knowing the most about the hunting and fishing activities of the household identifies himself or herself as an Alaska Native. These households constitute 73 percent of all households occupied by one or more Alaska Native adults. Under this definition, we can be most sure that the actual harvests reported were made by an Alaska Native. This approach, however, yields a lower bound estimate of Native harvest since households of mixed ethnic composition can be expected to be part of the Alaska Native cultural community.
6. Whereas the per capita harvest data reported in Figure 9 is based on the division of total harvest by total population on a community basis, harvest data reported on a per household basis is calculated in two steps. First, a per harvest household figure is based on the division of total household harvest by the number of persons living in the household. Second, a mean of household member harvests is calculated for each analysis category (e.g., households living in a community 30 years or more).
7. The most recent data on the ethnic composition of the southeast Alaska population is reported in the 1980 U.S. Census. In 1980, 200 Filipinos, 108 Japanese, 282 Hispanics, and 353 persons of other racial backgrounds resided in rural southeast Alaska.
8. Sitka sample households were selected by random-digit dialing and interviewed by telephone. The Sitka telephone interview did not include questions on resource sharing. We attempted to interview all Sitka sample households which reported.
9. Questions on deer harvest were not asked in Yakutat since the community is not located near good deer habitat and since a special set of questions on the Situk River were added to the questionnaire used in Yakutat.

10. Respondents were told that by "reliable" we mean "locations where you are most likely to find deer sometime during the year." They were asked "to pick one place that you think is particularly good for deer hunting" as a reference point for questions on travel.
11. Note that for the purposes of this study, subsistence harvests include all noncommercial harvests by rural residents. Thus, salmon caught by rod and reel on a sportfishing license are included.
12. Wrangell and Petersburg are grouped in all of our analyses by size of place. In this case, however, the two communities show substantially different mean harvest levels of king salmon and coho salmon (see Table 15). Petersburg households harvested an average of 153 pounds.

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