Wild Resource Harvests and Uses by Residents of Seward and Moose Pass, Alaska, 2000

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ABSTRACT

In March and April of 2001 researchers employed by the Alaska Department of Fish and Game's (ADF&G) Division of Subsistence conducted 203 interviews with residents of Moose Pass and Seward, two communities in the Kenai Peninsula Borough. The study was designed to collect information about the harvest and use of wild fish, game, and plant resources, demography, and aspects of the local cash economy such as employment and income. These communities were classified "non-rural" by the Federal Subsistence Board in 1990, which periodically reviews its classifications. This study was the first comprehensive harvest assessment done for these communities. Data were collected for the 12-month period between April 1, 2000 and March 31, 2001. The study was funded through a cooperative agreement between ADF&G and the US Forest Service Chugach National Forest.

Information was collected during face-to-face interviews using a standard survey form. The goal was to talk with representatives from a randomly selected sample of year-round households in the communities along the first 38 miles of the Seward Highway, grouped in this study as Moose Pass and Seward. Of all households contacted, a majority (81%) agreed to be interviewed. Households were asked for detailed information about their harvest and use of wild foods during the study year, as well as specific locations on the Kenai Peninsula and in Prince William Sound they use to hunt, fish, and gather wild plant resources over the previous ten-year period.

Population growth in the study communities has been steady over the past twenty years or so. Between 1980 and 2000, the population in the city of Seward increased by 56.3%. The population of the Moose Pass area has also increased, and although census boundaries have changed of the years, it can be estimated that the area's population has grown approximately 82% between 1990 and 2000. About 80% of the household heads in both study communities were born outside of Alaska, with an average length of residency in the study communities of around 12 years.

Most adults in these communities were employed: 74.5% in Moose Pass and 86.1% in Seward. Much of the work was seasonal. Of those individuals with jobs, about half were employed year-round (60% in Moose Pass and 50% in Seward). Government was the largest employer in Moose Pass (34% of employed individuals), while in Seward 38% were employed in the service sector. People from Seward mostly work in Seward (89.6%), and about half of the Moose Pass workforce commutes to Seward (51.1%). Average household income was similar for the two communities: $61,523 for Seward and $59,051 for Moose Pass. Households in each town reported a similar amount of money spent on food in the study year, $5,600 in Seward and $5,100 in Moose Pass, which represents 9.1% and 8.7% of the average household income, respectively.

Answers to the survey questions produced patterns of harvest and use of wild resources for home use in the study communities in 2000/2001. Almost all of the households used wild foods and a large majority fished, hunted, or gathered resources. Sharing of wild foods was also common, with 87% of households in each community receiving at least one resource during the study year. Reported harvests of wild food were 87 pounds per person (236 pounds per household) in Moose Pass and 97 pounds per

person (261 pounds per household) in Seward, measured in pounds usable weight. Moose Pass households reported harvesting about 5.3 different resources during 2000/2001 and Seward households harvested approximately 4.4 resources.

Salmon was the most important wild resource for each community, constituting 48% of the total pounds harvested in Seward and 37% in Moose Pass. Per capita, salmon accounted for 46 pounds per person per year in Seward, and 32 pounds in Moose Pass, far and away the largest contributor to the household wild food larder.

Approximately 20% of all the salmon harvested in Seward came from a commercial catch, and 80% was caught with rod and reel. In Moose Pass, 76% of the salmon was harvested using rod and reel, while only 0.4% came from a commercial catch. Commercial fishing was also the source of 70% of the crab used in the average Seward home.

In Moose Pass, large land mammals composed 28% of total pounds of subsistence food harvested. About 16 pounds of moose meat was harvested per person, and caribou and deer each made up approximately 3 pounds per person. In Seward, the large land mammals were the third most important category behind other fish. The average person in Seward harvested approximately 12 pounds of moose meat and about 1 pound each of deer, caribou, and black bear.

Fish other than salmon contributed approximately 24% of the total pounds of subsistence food in Seward, and 23% of pounds in Moose Pass. In both Seward and Moose Pass halibut was the most important non-salmon fish harvested, with an average of 13 pounds harvested per person. Rockfish, Dolly Varden, and ling cod round out the category in both communities. Birds, marine invertebrates and plants, when combined for each community, constitute around 12% of the total subsistence harvests measured in pounds.

Both communities had a great disparity between high-harvesting households and those that reported taking little or no resources. In both Seward and Moose Pass a small segment of the population harvested most of the wild foods and used on average a much wider variety of wild foods. In Moose Pass the 25% highest harvesting households contributed 81.3% of the community's total; this top quartile in Seward harvested 81.8% of the total pounds. Looking even more narrowly, 70% of the harvest was taken by the top 15% of Moose Pass households and by 18% in Seward.

Conversely, the combined harvests for the 50% lowest harvesting households totaled only 3.4% in Moose Pass and 2.4% in Seward. These low harvesting households also used relatively few kinds of resources, an average of 5.0 kinds in Moose Pass and 4.5 kinds in Seward. In contrast, the top 25 percent of harvesting households in Moose Pass used 13.8 kinds of wild resources and those in Seward used 13.5 kinds. These figures indicate little re-distribution of resources from very active households to relatively inactive households, and the absence of a community-wide pattern of frequent and diverse uses of wild foods.

The Division of Subsistence has done survey projects in 14 Kenai Peninsula communities since 1982, with updates in several of those communities. The findings from Seward and Moose Pass from the 2000/2001 study align these communities with the more populous, road connected communities and set them apart from the more remote communities off the road system. Populations range from over 6,000 people in Kenai, and 4,542 people in the Seward study area, to the small communities such as the Moose

Pass study area (402 people), Cooper Landing, Hope, Nanwalek, and Port Graham. Nanwalek and Port Graham are largely Alaska Native communities (over 80 percent of the population is Alaska Native). In all other communities, Alaska Natives are a minority.

Seward and Moose Pass displayed high levels of employment and cash income. These study communities, along with Kenai, all reported year-round employment for greater than 50 percent of all employed individuals, with an average of around 10 months of employment. According to household survey results, per capita monetary incomes in Seward and Moose Pass are in the same range as those of Kenai, at the high end of the scale for the Kenai Peninsula Borough. Communities off of the road system--Seldovia, Port Graham and Nanwalek-- all had a relatively high level of seasonal employment and a relatively low per capita income. These measures indicate that, despite the presence of seasonally available employment in Seward and Moose Pass, employment is relatively available and reliable, with cash incomes comparable to the most populous areas of the state and generally higher than those of remote areas off the road system.

In all Kenai Peninsula communities surveyed by the Division of Subsistence, a very large majority of households, always close to or at 100 percent, used at least one wild resource in the study year, and generally 80 to 90 percent or more harvested wild foods. Estimated pounds of wild foods harvested per household indicate different patterns of use for these communities, however. The road-connected communities, including Seward and Moose Pass, as well as Kenai, Homer, Cooper Landing and Hope, trend toward a per capita harvest of 90-100 pounds. (Ninilchik is unique among road-connected communities with a per capita harvest of 164.) Off the road system, the small, Alaska Native communities of Nanwalek and Port Graham averaged 212 to 305 pounds per person, respectively. Road-connectivity was also associated with a distinction between the average number of resources households used; the values for Seward and Moose Pass (7.5 and 7.9 kinds, respectively) are clearly in the same range as all the other road-connected places, while Nanwalek and Port Graham used about 16-20 kinds of wild foods. Seldovia's average was in-between these two sets of communities.

This study found strong similarities between Seward's and Moose Pass' patterns of wild resource use in 2000/01. The study areas had similar levels of harvest, ranges of resources used, and harvest composition. Despite their contrasting population sizes, Seward and Moose Pass had very similar demographic and economic characteristics, such as length of residency, duration of cash employment, and cash income.

The study finds that the patterns of using wild resources by residents of Moose Pass and Seward are much like those other road connected communities of the Kenai Peninsula, such as Hope, Cooper Landing, Kenai, Ninilchik, and Homer. This pattern is marked by a narrow range of resources used, relatively low harvest levels in general, and high harvest levels for a small segment of the population which account for much of the community's total harvest. No extensive networks of distribution and exchange exist that link the high harvesting households with the less productive. These elements contrast greatly with those in the more remote Kenai Peninsula communities of Nanwalek and Port Graham with high harvests, great diversity, and widespread sharing. Length of local residency tends to be higher and often life-long in these more remote communities, while cash employment is more sporadic and cash incomes much lower.

While people in Seward and Moose Pass do harvest and use wild foods in some quantity, the overall contribution of these wild foods to the socioeconomic system is less significant than in the more remote communities of the Kenai Peninsula. In Seward and Moose Pass, as well as in other road-connected communities in the area, the importance of hunting and fishing can best be described as a common mode of recreation and means of supplementing a primarily cash-based local economy.

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CHAPTER ONE: INTRODUCTION

BACKGROUND

This report presents research findings on the harvest of fish and wildlife resources for home use by the residents of Seward, Moose Pass, and nearby areas, communities on the Kenai Peninsula of south central Alaska (Fig. 1). The Alaska Department of Fish and Game, Division of Subsistence conducted the research, funded through a contract with the US Forest Service, Chugach National Forest (Purchase Order No. 43-109-1-0069). The Division of Subsistence collected harvest, use, demographic, and employment information through face-to-face interviews conducted at the homes of Seward and Moose Pass area residents. The study year was a 12-month period from April 1, 2000 through March 31, 2001.

The research followed procedures used in other Division of Subsistence projects. Similar projects have been conducted in well over 100 Alaska communities. Since only limited information was available about resource use patterns in Seward and Moose Pass, a primary goal of the project was to add these communities to the database describing the home use of fish and wildlife in Alaska. Applications of the research findings include regulation review, land use planning, and fish and wildlife management plans.

Another reason for the project is that the Seward and Moose Pass areas have been classified as non-rural by the Federal Subsistence Board (FSB), along with the Kenai/Soldotna and Homer/Anchor Point areas within the Kenai Peninsula Borough. (See maps in Federal Subsistence Board 2002:viii.) The rest of the Kenai Peninsula Borough, including Hope, Cooper Landing, Ninilchik, Nikolaevsk, Fox River, Halibut Cove, Jakolof Bay, Seldovia, Port Graham, and Nanwalek, is classified as rural by the federal board. These classifications are subject to periodic review by the FSB. Also, the Alaska Joint Board of Fisheries and Game has identified most of the Kenai Peninsula, including the study area, as a "nonsubsistence area" where "dependence upon subsistence [uses of fish and wildlife resources] is not a principal characteristic of the economy, culture, and way of life of the area or community" (Alaska Statutes 16.05.258[c]). The information in this report may be useful for future evaluations of rural and nonrural areas and nonsubsistence areas. (For more background on these topics, see Chapter Three.)

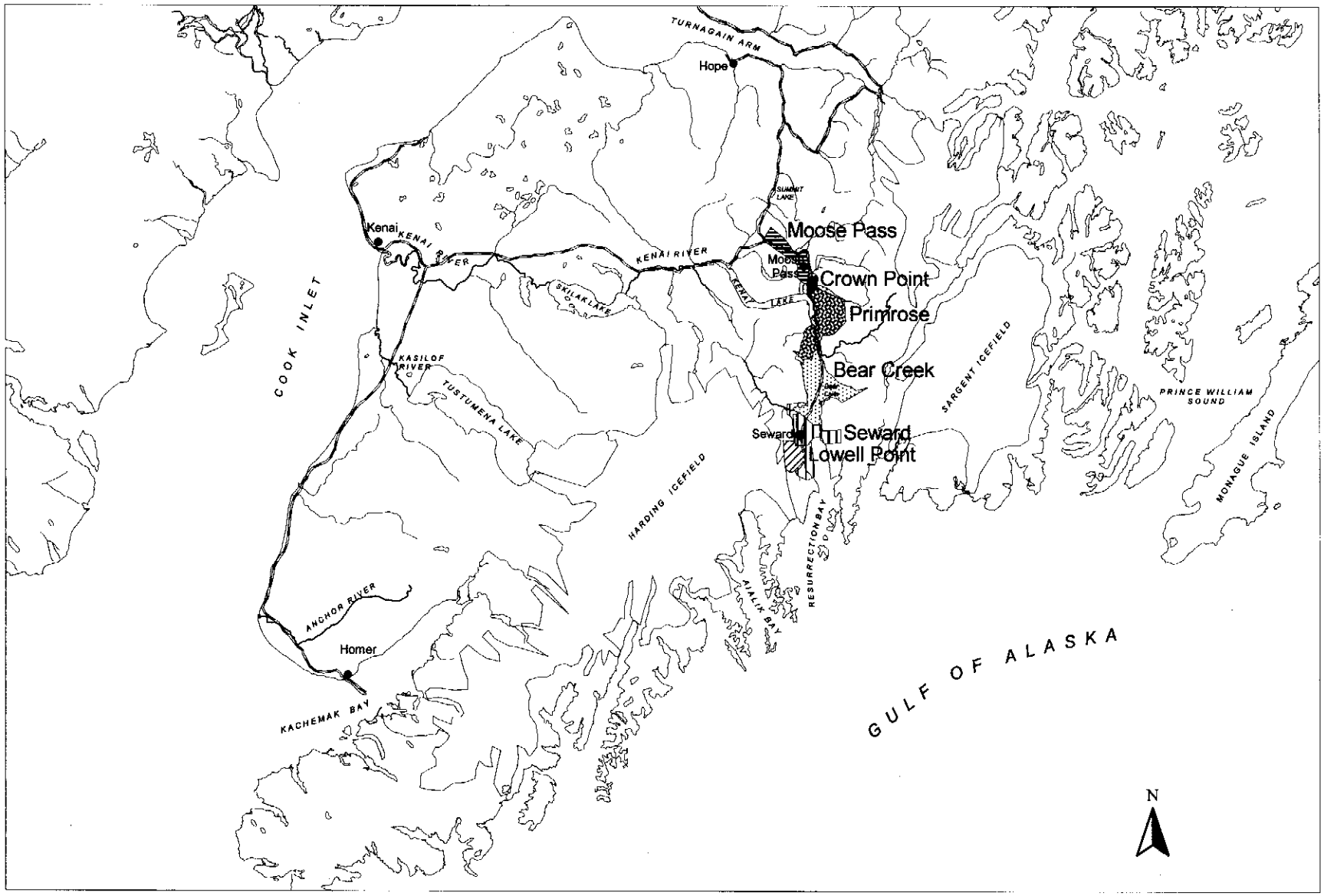


Figure 1. Census Designated Places (and the cities of Seward) Boundaries, Seward Highway, Kenai Peninsula

PURPOSES AND OBJECTIVES

The overall goal of the project was to collect baseline data on aspects of wild resource uses, demography, and cash economy for Seward, Moose Pass, and nearby communities. The study year was the 12-month period from April 1, 2000 through March 31, 2001. Data were compiled and reported for two study areas: the Seward area, including the city of Seward and the census designated places of Lowell Point and Bear Creek (hereafter either "Seward" or "the Seward study area"); and the Moose Pass area, including the census designated places of Moose Pass, Crown Point, and Primrose (hereafter "Moose Pass" or "the Moose Pass study area"). The following information was collected for each interviewed household:

1. Demographic information, including household size and composition, length of residency, ethnicity, birthplace
2. Economic data, including type of jobs, location of jobs, income from jobs, other income, and expenses for food
3. Resource harvest and use information, including whether or not the household used, attempted to harvest, harvested, received, or gave away each kind of resource over the study year; estimated harvests; and estimated fish harvests by gear type.
4. Locations of harvest activities in the study year and over the previous 10 years while living in the study area.

COMMUNITY SAMPLING AREAS

The total study area included the areas along the Seward Highway from mile 34 near Tern Lake and the cut-off to the Sterling Highway, south to the city of Seward at mile 0 and beyond to the Lowell Point area (Fig. 1). The study area corresponds to the "Seward Nonrural Area" as defined by the Federal Subsistence Board (see Chapter Three). Outside the city of Seward, most homes in the study area are located along the Seward Highway, which runs roughly north-south, following the routes of the historic Iditarod Trail and the Alaska Railroad south from Upper Trail Lake, passing by the eastern shore of Kenai Lake, and passing across the

divide leading down to Resurrection Bay. This area is part of Game Management Unit 7 for wildlife management and the Cook Inlet Management Area for fisheries.

The two study communities, Moose Pass and Seward, each include a number of non-municipal Census Designated Places (CDPs) as defined by the US Census. The Moose Pass community comprised the CDPs of Moose Pass, Crown Point, and Primrose; the Seward community comprised Bear Creek and Lowell Point CDPs, plus the municipality of Seward. The region between the southern boundary of the Primrose CDP at Milepost 16 (Snow River) south to Bear Lake is uninhabited. Thus for this study, the households north of the Snow River were grouped together as part of the Moose Pass study area and those to the south were part of the Seward study area. About eight road miles separate the northernmost Seward-area household near Bear Lake and the southernmost Moose Pass-area household near Snow River. The goal was to interview all the year-round households in the Moose Pass study area and 100 randomly selected households in the Seward study area.

When the design for the study was prepared, there were areas and households outside the CDPs and the city of Seward between the Primrose CDP and the Grouse Creek Group CDP, in the area south of the city of Seward, and along the stretch of highway between Upper Trail Lake and Tern Lake. Updated CDP designations for the 2000 US Census classify the entire study area into contiguous CDP areas. From north to south from Tern Lake, these include Moose Pass CDP (including a previously uncircumscribed area), Crown Point CDP, Primrose CDP, the new Bear Creek CDP (which includes the former Grouse Creek Group CDP plus the stretch of road to the north formerly outside any CDP), the city of Seward, and the new Lowell Point CDP to the south of Seward. The latter three areas are part of "Seward" or "the Seward study area" in this report.

STAFFING, TRAINING, AND FIELD IMPLEMENTATION

Staffing

A team of Fish and Wildlife Technicians from the ADF&G divisions of Sport Fish and Commercial Fisheries joined the Subsistence Division in the fieldwork phase of this project. Table 1 provides an overview of project staffing. All field staff worked together to complete surveys in both Seward and Moose Pass.

Table 1. Project Staff

Project Lead	James Fall, Regional Program Manager
Data Management Lead	Charles Utermohle, Program Coordinator (through June 2001) Gretchen Jennings, Program Coordinator (from July 2001)
Programmers	Gretchen Jennings, Analyst Programmer Kurt Kamletz, Analyst Programmer
Data Entry	Jessie Mallery, Administrative Clerk
Cartography	Brian Davis, Subsistence Resource Specialist
Field Research Lead	Brian Davis, Subsistence Resource Specialist
Field Research Staff	Greg Corner Roger Dunbar Brent Hove Ann Pennisten Donald Reeves Katie Sechrist Ken Vartan
USFS Liaison	Steve Zemke

Confidentiality and Informed Consent

Under the research ethics guidelines followed by the Division of Subsistence, each household has the option to decline to be interviewed, or to decline to answer any specific question in the survey. Participation in this project was entirely voluntary. Also, individual and household-level responses to the questions are anonymous and confidential.

Fieldwork Procedures

To facilitate sample selection and identification of households for interviewing, Brian Davis, Subsistence Resource Specialist for the Division of Subsistence and fieldwork lead for the project, received parcel information from the Kenai Peninsula Borough in the form of electronic map files that had been digitized and formatted for ArcView GIS software. A list of homeowners and their properties, with a description of the type of structure (single family dwelling, duplex, apartment, etc.) was linked to the map showing the locations of parcels, and from this a map of all the dwellings in the Seward and Moose Pass study areas was created. By creating a map of dwellings, the research team could estimate the spatial distribution of households in different portions of the community such as city blocks or subdivisions. The random sample of households for Seward was taken from all community subdivisions.

When the research team arrived in Seward in late March 2001, Brian Davis coordinated the efforts to validate the Seward household sample taken from maps and property records. Members of the research field team visited the city offices to obtain detailed, up-to-date information on where dwellings were located. Maps were ground-checked for accuracy and multi-unit dwellings had to be inventoried. Many of the residences had parcel numbers or lot/block designations but no street number listed, and researchers spent a day and a half matching the lists of households with maps and actual structures seen while driving around town. Dwellings were added and dropped from the original list as needed, and the matching of the random selection to the actual dwelling was adjusted accordingly. Borough maps and property lists, as well as conversations with residents and neighbors, helped make corrections to the original community map. This occurred during the entire course of the survey project as new residential information came to light.

After two days of mapping the community of Seward, the crew began a training session to acquaint themselves with the survey instrument and methods for collecting harvest information. James Fall (Regional Program Manager with the Division of Subsistence) and Charles Utermohle (Program Coordinator for the Division of Subsistence Data Management Program) conducted the training, guided by a training manual, and addressed issues such as residence mapping and sampling, daily logs and record keeping, data coding, survey mapping procedures, confidentiality, and other administrative matters such as timesheets. The daylong training session wrapped up with several "practice" surveys administered by the researchers to each other. Each crewmember received a copy of the training manual, a codebook, daily log sheets, time sheets, mapping supplies, a letter of introduction, and several copies of the project overview. (A copy of the overview appears as Appendix A.)

Over the next 10 days, the research staff worked in pairs in and around Seward locating households, contacting residents, and conducting interviews. Researchers used the maps and household lists to locate structures by street address or lot/block numbers, and then proceeded to attempt contact with the randomly selected household. Beginning in the second week of work, researchers began to contact residents of the second study area, Moose Pass. For Moose Pass, the survey goal was 100 percent, therefore every dwelling was targeted for a survey and no random sample selection was necessary.

First contact with households was ordinarily made in person. Telephone calls were also used, if property records contained the name of the resident and phone numbers could be found using the local directory. When researchers failed to find anyone at home they left letters of introduction to prepare the residents for future attempts to contact them. In some cases, researchers left their names and the phone number of the study team's field residence, and household residents called to set up an appointment or ask questions about the project.

The researchers generally worked in pairs. This provided a certain amount of personal protection, ease in locating residences from a car, and the opportunity to cooperate in the mapping and note-taking aspects of conducting the survey. Partners were able to discuss methods and procedures, learning from each other and checking each other's work, both during and after the interviews. Teams switched partners often, offering changing perspectives and new ways of approaching the survey.

The research pairs kept running logs of the households for which they were responsible. Attempts to contact potential interviewees were logged with the date and time, as well as additional notes describing the situation, such as: "doesn't appear lived in," "hunter not home," "come back later," and so on. To ensure a statistically valid random sample, a concerted effort was made to contact each randomly selected household, with one of a number of potential outcomes: interview completed; declined to be interviewed; no contact; vacant; seasonal dwelling; non-residential structure; non-local resident (person had a permanent dwelling elsewhere); and non-existent (no structure on selected location).

For sample achievement tracking, "no contact" meant that three or more attempts to contact the occupants failed to result in a completed survey. In some cases researchers would knock on the door three or more times, varying the days of the week or weekend and hour of the day in an effort to find the residents at home. In other cases a neighbor would inform the researchers that the residents were out of town for the month the research was being conducted. If evidence indicated the dwelling was only a seasonal cabin, it would be classified as "seasonal"; if the indication was that the structure was completely uninhabited, then the household was called "vacant."

Interviews were conducted only with residents who had lived in the community for at least three months during the study period (that is, at last since January 1, 2001). If they had not been there that long, or if they were not a permanent resident, the respondents were thanked for their time and told that they did not meet the requirements for participation. They would then be marked "non-resident" on the tracking log sheet. This rule was developed to produce a reliable picture of resource use patterns by people living in the community for a meaningful portion of the study year.

Brian Davis served as the coordinator for the field crew in Seward. He assigned households from the master list (to ensure adherence to the random selection process) to the various research teams, maintained the collection of completed log sheets and completed surveys, advised researchers on surveying and logging procedures, and participated in household interviews. He also oversaw the coding of the survey forms done by the crew, and checked each survey for completeness and consistency. All researchers lived together in Seward, and if clarification or additional information on a survey was needed, the researchers were close by.

Supplemental Fieldnotes

Many respondents provided supplemental information, either about their resource uses or their observations of resource populations. This kind of information can be very valuable as context within which to interpret subsistence harvest data, or as triggers for new research programs within the Division of Subsistence or other agencies. The background contextual information can also be used by other agency programs for analyzing and interpreting their data. Supplemental information was recorded either as marginal notes on the survey form, or at the back of the survey form. Marginal notes were transcribed to the space provided on the survey form after the interview was complete, and were typed as part of the data entry process, and indexed by household identification number as a permanent part of the project database.

SURVEY INSTRUMENT

The primary method of data collection was a formal interview using a standard survey instrument. (Appendix B contains a sample of the form.) The form was similar to that administered in other division studies, including interviews conducted in other Kenai Peninsula communities (Seitz et al. 1994; Fall and Utermohle 1995; Fall and Utermohle 1999; Fall et al. 2000). The large majority of the interviews were conducted face-to-face, most frequently in respondents' homes, although other locations were used if so desired by the respondent. A very small number of interviews were conducted over the phone. The survey instrument was not designed for self-administration, so in no case was a form left with a household to fill out on their own.

As in all division surveys, each household was asked whether it engaged in harvest activities and to estimate harvest quantities. Both state and federal regulations allow individuals to fish or hunt as proxies for others, including people outside their own household. In this study, such activities, including harvests, were recorded on the survey forms of the individuals actually harvesting, not on the form of the individual for whom the harvest occurred. This method was chosen to approximate practices in rural Alaska, where harvesting for elders, those who are ill, and others unable to harvest for themselves, is commonplace and operates outside bureaucratic controls.

MAPPING METHODS AND GIS ANALYSIS

Two procedures were used to document fish, wildlife, and wild plant harvest areas, depending upon the time period. Each will be described in turn.

Location of Harvest Activities during the Study Year

On the survey instrument, the general location of hunting, fishing, and gathering effort for selected resources/categories was recorded (see list below). Respondents pointed to letter-coded areas on a map of the Kenai Peninsula (GMUs 15 and 7 and adjacent waters) to indicate which were used in the 2000-2001 study year. For wildlife, the areas where harvests occurred were also indicated. Kenai Peninsula areas were defined by game management subunit, federal unit boundary, and marine/freshwater systems. Areas used that were in other parts of Alaska were recorded on the survey form. The areas on the Kenai Peninsula used in recording harvesting activities were as follows (see also Figure 25 in Chapter Three):

A. GMU 15A, areas outside outer boundaries of the Kenai NWR
B. GMU 15A, areas within the outer boundaries of the Kenai NWR
C. GMU 15B, areas outside the outer boundaries of the Kenai NWR
D. GMU 15B, areas within the outer boundaries of the Kenai NWR
E. GMU 15C, areas outside the outer boundaries of the Kenai NWR
F. GMU 15C, areas within the outer boundaries of the Kenai NWR
G. GMU 7, areas outside the outer boundaries of the Chugach National Forest, the Kenai Fjords National Park, and the Kenai NWR
H. GMU 7, areas within the outer boundaries of the Chugach National Forest and the Kenai NWR; the Kenai Fjords National Park is closed to hunting
I. Upper Cook Inlet Area marine waters
J. Lower Cook Inlet Area marine waters east to Gore Point, including Kachemak Bay
K. Marine waters of the Gulf of Alaska along the Kenai Peninsula and GMU 7 east of Gore Point including Resurrection Bay.

Location of Harvest Activities over the Previous Ten Years

While most of the questions on the survey addressed household resource harvest and use activities over the 12 month period from April 2000 to March 2001, the second portion of the mapping component of the survey asked for hunting and noncommercial fishing information for the years 1990-2000, or the years within that time-span that the household was living in the study area.

Interview respondents were shown four maps on which to mark their subsistence harvest activity for, respectively: fish on Kenai Peninsula, fish in Prince William Sound, game and plants on the Kenai Peninsula, and game and plants in Prince William Sound. Different colors were used by the respondents to indicate the areas used by that household for harvest of specific resource categories (see list below). Interviewers encouraged respondents to be as specific as possible, marking only the drainage, shoreline, road corridor, trail, or other specific area where the harvest activity took place over the last 10 years. Respondents drew lines to indicate a narrow corridor, such as the coastline of a particular bay or lakeshore, and circles, squares, or otherwise enclosed shapes to indicate a distinct area, body of water, or set of streams within a distinct area. If the same area was used for numerous resource categories, a letter code was used to avoid overlapping colors. Some respondents were very specific in their markings, and others were not so specific, but the best effort was made to get as precise and detailed a map describing that household's harvesting activity as possible. If the household used areas not included on the survey map, a written description of the location (i.e. "Raspberry Island," or "mouth of Chitina River") and of the species harvested was made on the survey form.

The mapping color/letter codes for the fish maps were as follows:

Red – Sockeye Salmon (A)
Black – Coho Salmon (B)
Pink – Other Salmon Species (C)
Purple – Dolly Varden (D)
Blue – Rainbow Trout (E)
Brown – Other Freshwater Fish (F)
Orange – Marine Fish (G)
Green – Marine Invertebrates (H)

The mapping color/letter codes for the wildlife and plants maps were as follows:

Red – Moose or Deer (A)

Pink – Goat (B)

Purple – Caribou (C)

Blue – Birds (D)

Orange – Sheep (E)

Brown – Brown Bear (F)

Black – Black Bear (G)

Green – Wild Plants (H)

The maps, printed on 11" x 17" white paper, were projected to a scale of approximately 1:400,000, and included a detailed coastline, all major streams, lakes, communities, and several major mountain peaks. The amount of detail on a standard USGS topographic map was not included on the map survey instrument, but 1:250,000 topographic maps were available to the respondent as a reference for the survey map. This method of collecting harvest area information differed from that used on some previous studies done in southcentral Alaska (e.g. the "Homer Rural Area Study," Fall et al. 2000) which used clear mylar overlays on top of large format topographic maps as the surface on which harvest information was recorded. The mylar overlay method allowed for a high level of precision associated with the detail of the topographic reference maps, but the paper map method was determined to provide an acceptable level of respondent accuracy without the extra efforts required to transport and set-up the mylars.

The household survey map information was digitized using ArcView GIS software, with each location indicated by each household being recorded as a row of data in the GIS database. The data were accumulated and summary maps were made for each community showing the areas used for noncommercial harvest of each resource group. Within each area, specific locations were ranked by the intensity of their use by households and these differing intensities were depicted. Areas used by only one or two households were not shown on the maps as a consideration to the confidentiality of those households.

SAMPLE ACHIEVMENT

As reported in Table 2, 104 households were interviewed in the Seward study area, representing 6.2 percent of the estimated year-round households. This exceeded the goal of 100 household interviews. In total, researchers attempted to contact 179 households in order to achieve this study goal. In the Moose Pass study area, 99 households were interviewed, for a 67.0 percent sample of the 148 estimated year-round households. Researchers attempted to contact 180 households.

Table 2. Sample Achievement, Seward & Moose Pass Study, 2001

	Seward	Moose Pass
Number of Dwelling Units	1,936	204
Interview Goal	100	145
Households Interviewed	104	99
Households Failed to Contact	18	19
Households Declined to be Interviewed	34	13
Moved/Non-Resident Households *	23	49
Total Households Attempted to Interview	179	180
Refusal Rate	24.6%	11.6%
Final Estimate of Permanent Households	1,687	148
Percentage Interviewed	6.2%	66.9%
Interview Weighting Factor	16.221	1.495
Sampled Population	280	269
Estimated Population	4,542	402

* Non resident households had not lived in the community for at least three months during the study year.

In Seward, 24.6 percent of households contacted declined to participate in the survey. The refusal rate for Moose Pass was 11.6 percent, for a combined refusal rate of 18.8 percent for the project, a modest and typical level for a project such as this one. For example, this level of nonparticipation is like that encountered in a similar division study conducted in five other Kenai Peninsula communities in 1999, 15.2 percent (Fall et al. 2000:20-22). The refusal rate at Seward was similar to that encountered in Kenai in 1992 (24.2 percent) and 1994 (24.1 percent) (Tomrdle et al. 1995:26). A comprehensive household survey conducted in eight Gulf of Alaska communities in 1998 had an overall refusal rate of 13.9 percent (Fall and Utermohle 1999:14).

For the entire study (203 households), interviews on average took 0.59 hours (about 35 minutes) to complete, with a range from 2 hours to about 5 minutes. The averages for the two study areas were virtually the same, 0.59 hours for Moose Pass and 0.60 hours for Seward (Table 3).

Table 3. Average Length of Interviews

Community	Number Surveys	Length of Interviews (hours)		
		Mean	Maximum	Minimum
Moose Pass	99	0.59	1.50	0.12
Seward	104	0.60	2.00	0.08
Total	203	0.59	2.00	0.08

DATA MANAGEMENT

Data Coding

Answers to all survey questions were converted into a set of numeric codes for expedient data entry and analysis. As part of the training sessions given the research team in March 2001, coding was explained to and practiced by the interviewers in Seward. The surveys were coded in Seward by research staff, with all responses transcribed to code, with the exception of certain information relating to household employment and economics. Crew members coded each

other's surveys to allow for an additional level of review. Brian Davis reviewed all the coded forms in the field, as well as the survey maps, for completeness and accuracy. Charles Utermohle of the data management unit in Anchorage reviewed the surveys and coded the economic data related to standard industrial codes. Then the forms were passed to Jessie Mallery in the Anchorage regional office for data entry.

Data Analysis

Data were entered for analysis using the SPSS (Statistical Package for the Social Sciences) computer program. Each survey was entered twice, to insure accuracy, into a Microsoft Access 99 database. Harvest estimates in numbers, gallons, buckets, or whole weights were converted into usable pounds using standard factors (Appendix C).

A few limitations to the study results need to be mentioned. The study successfully describes a "snapshot" of hunting and fishing activities in Seward and Moose Pass for the particular study year. However, only limited comparisons with other data sources are possible, because systematic harvest data for most marine invertebrates, small game, some fish, and wild plants are unavailable. Because this was the first comprehensive household harvest survey conducted in either Moose Pass or Seward, it cannot be said with certainty that the study year was typical or atypical of resource harvest patterns and economic conditions in the communities, although the longitudinal data that are available suggest that the study year was generally representative of other recent years. Also, only limited survey data, for just one or two years for some communities and none for others, are available for other Kenai Peninsula communities, thus limiting the scope of comparisons that can be made.

REPORT ORGANIZATION

In addition to this final report, a short summary of the study findings was prepared and sent to each participating household that requested one (Appendix D). The results of this study also appear in the latest version of the Division of Subsistence Community Profile Database.

The remaining chapters of this report are as follows. Chapter Two contains a short description and history of the study area. This is followed by study findings on demography and

cash economy. Chapter Three provides a discussion of the study results regarding resource harvests and uses, as well as a limited comparison of the survey findings with data from other sources, primarily Department of Fish and Game records. The final chapter, Chapter Four, compares the study results for Seward and Moose Pass with study findings from previous division research in other Kenai Peninsula communities. Chapter Four concludes with observations about the role of wild resource harvests and uses in the study areas in the context of other Kenai Peninsula communities both on and off the road system.

CHAPTER TWO: COMMUNITY BACKGROUND, DEMOGRAPHY, AND CASH ECONOMY

HISTORICAL BACKGROUND

The study area included communities in two different ecosystems, separated by the divide just south of the Snow River where the high, relatively dry boreal forests around Kenai Lake to the north give way to the wetter lowlands surrounding Resurrection Bay to the south. Moose Pass is situated near Kenai and Trail Lakes and the various streams that run into the larger Kenai Lake, and then into Kenai River to the west; Seward is on the shore of Resurrection Bay and only 20 miles from the open ocean in the Gulf of Alaska. Both communities are surrounded by the dramatic peaks of the Kenai Mountains that stand in an arc along the eastern side of the Kenai Peninsula, defining Prince William Sound on the east and the Gulf of Alaska on the south.

Near Moose Pass, Dena'ina (Tanaina) Athabaskan Indians of the *Tsaht'ana* band fished for salmon in the productive headwaters of the Kenai River, hunted large and small game, and gathered wild plants. The Dena'ina were called "Kenaitze" by the Russian settlers in the 1700s, who borrowed the name "Kenaiyut" used for the Dena'ina by the native Alutiiq people from the south (Leer 1978, Townsend 1981:638, Osgood 1937). In the Dena'ina Athabaskan language, the name for Seward is "*Tl'ubugh*" (backshore); Salmon Creek Pass (to Seward) is "*Tsaniłtunh*" ("extends through cliffs"); Trail Creek, near Moose Pass, is called "*Niłdilent*" ("flow together place"); and Kenai Lake is "*Sqilan Bena*" ("ridge place lake") (Kalifornsky 1991:350). Decimated by epidemic diseases, most of the Kenai Peninsula Dena'ina population concentrated in the community of Kenai during the 19th century (Mishler 1985). The last member of the Kenai Mountains band of Dena'ina died in Kenai in 1945 (Kalifornsky 1991:v).

The area of present day Seward was within the territory of the Alutiiq, also called Pacific Eskimo, Chugach Eskimo, or Suqpiaq (Birket-Smith 1953, Stanek 2000). According to Birket-Smith (1953:99), the Alutiiq of Resurrection Bay were called "Qutatluq," which in the modern orthography is written "*Qutekcak*." He noted former villages on Resurrection Bay at Qutalleq and Kanigilik (Birket Smith 1953:116). Evidently these villages were not occupied when the

Russians arrived in the late 18th century. There was no indigenous population settled in Resurrection Bay when Seward was founded in 1903.

In the late 1700s, the Russian America Company began building industrial outposts and fur-buying stations, as well as colonial settlements, along the shores of the northern Gulf of Alaska in Kodiak and the Kenai Peninsula, as well as in Southeast Alaska. As the colony grew Governor Shelikof ordered the construction of a ship building yard at Voskresenskoe, or Resurrection Bay, in 1793 near present day Seward. The first vessel built in Russian America, the Phoenix, was completed there in 1794. Over the next ten years the shipyards saw the construction of at least two more vessels (Sweetland-Smith 1990:131).

Disputes regarding the exact location of the Russian shipyards have risen over the years, with some placing it near Lowell Point or Cain's Head south of the city of Seward. In 1880 a prospector named Henry Stock reported seeing the remains of an iron smelter near Fourth of July Creek, on the eastern shore of Resurrection Bay near the head of the Bay. Stock recalled seeing large, round iron objects resembling cannon balls, and iron slag near the 8' or 10' wide smelter furnace. Iron ore has been identified further up Fourth of July Creek (Barry 1997: 9).

After the sale of Alaska to the United States, gold mining became the primary industry and draw to the Kenai Peninsula. With an influx of miners to the northern Kenai Peninsula towns of Hope and Sunrise during the mid-1890s, the Alaska Commercial Company and other shipping operations used the ice-free port of Resurrection Bay for winter shipping to the area. During winter months dog sled trails connected the gold country to Resurrection Bay, and in 1898 private and military interests began exploring routes for a wagon road through the mountains of the eastern Kenai Peninsula.

Seward was founded when a group of settlers arrived in August 1903. At that time, the only inhabitants of the area were Mary Lowell, her four unmarried children, and the families of her two married daughters. Lowell, of Alaska Native and Russian descent, had arrived with her husband Frank Lowell from Cook Inlet in 1883. These families lived by fishing and trapping (Painter 1983a:30-31).

Construction of a railroad north from Resurrection Bay began in 1904 in hopes of transporting Matanuska valley coal to market, but by 1910 it extended only 71 miles north to Moose Pass on the shores of Trail Lake, where it connected to the multitude of trail roads leading to gold mines in the Falls Creek and Crown Point areas. (Winter travel along these trails

radiating from Moose Pass continued to be dependent on dog teams until completion of the auto road from Hope to Moose Pass in 1926.) Despite the financial difficulties of railroad construction ventures, Seward became a thriving community during that time, with a population in 1910 of 534 residents.

The United States government, hoping to connect by rail the rich interior mineral sources and the shipping outlets on the coast, decided on a route through the Susitna River valley, along Turnagain Arm and south to Seward. The Alaska Engineering Commission was established in Seward in 1915, and construction crews moved into town. The old rail system was refurbished and rebuilt in sections, and soon extended through present day Girdwood, Anchorage, and the Matanuska-Susitna valleys on its way north to Fairbanks. Seward continued to grow, and in 1920 the town was home to 652 miners, merchants, homesteaders and railroad personnel.

Commercial fishing and fish processing was also a fledgling industry around this time. The San Juan Fishing and Packing Company opened in Seward in 1917. Known as "the San Juan plant," the cannery solicited the catch of independent fishermen and encouraged the growth of a local fishing industry. Seward Fisheries, later Hagen and Company, began operations in 1929. By 1931 the Corps of Engineers had constructed a small boat harbor in Seward to support the modest fleet of fishing boats. In the 1930s, an estimated 12 boats fished in Resurrection Bay (Cook and Norris 1998: 239).

In 1925, the Jessie Lee home, an orphanage for Alaska Natives, moved from Unalaska to Seward. It operated there until 1966 (Painter 1983a:32).

Road access in and around the Seward and Moose Pass areas evolved from dog sled trails to incomplete wagon roads to the existing Seward Highway from Seward to Anchorage. The wagon roads begun in the 1890s were not developed into passable routes out of Seward until the 1930s. A road leading five miles north to Bear Lake was completed in 1916, and by 1923 the road paralleling the railroad was completed to the southern end of Kenai Lake near Primrose. A proposed route along Resurrection River, leading to the mouth of the Russian River and west to Kenai, never materialized. The Kenai Lake road terminus was eventually linked to Moose Pass in 1938, and then became the completed Seward Highway in 1951 (Cook and Norris 1998:101), opening up the Kenai Peninsula to settlement and recreation from the north.

Moose Pass was first named on Alaska Railroad maps in 1922. It was officially named by its first postmaster in 1928 (Painter 1983b:35).

The Chugach National Forest was established in 1907. The Kenai National Wildlife Refuge was established as the Kenai National Moose Range by President Franklin Roosevelt, and renamed when the Alaska National Interest Lands Conservation Act (ANILCA) was passed by Congress in 1980. ANILCA also established the Kenai Fjords National Park. All of these federal conservation units serve to attract visitors for recreational opportunities. In 1998, the Alaska SeaLife Center, funded with money from the *Exxon Valdez* Oil Spill settlement, opened in Seward as a marine research facility. It also has displays for the public and has become an important tourist destination.

POPULATION HISTORY

Figure 2 provides a population history of the area now within the Kenai Peninsula portion of the Kenai Peninsula Borough as reported by the US Census from 1880 through 2000 (Rollins 1978, Alaska Department of Labor 1987, Alaska Department of Labor 1993, US Census 2001). This area experienced steady and substantial population growth during the second half of the 20th century, which can be attributed to economic development and diversification and the development of transportation systems (e.g. Fried and Windisch-Cole 1999).

Table 4 reports US Census data for communities with the study area for 1910 through 2000. Because much of the study area was outside established municipalities and census designated places, it is not possible to report precise population estimates prior to 2000. Nevertheless, the available data suggest population growth, although at a more modest pace than the Kenai Peninsula Borough overall. The city of Seward grew 53.6 percent from 1980 (1,843 people) to 2000 (2,830 people), although the rate of growth slowed in the 1990s. It appears that recent population growth has occurred in what is now the Bear Creek CDP to the north of Seward, which had 1,748 people in 2000 compared to 1,263 in 2000 for the Grouse Creek CDP and the balance of the Seward census area. Table 4 shows the combined populations of Crown Point, Moose Pass, and Primrose CDPs increasing about 82% between 1990 and 2000. It should be noted that the jump in population for Moose Pass from 81 in 1990 to 206 in 2000 reflects in part the larger boundaries of the CDP in 2000, extending to the north.

Figure 2. Population of Kenai Peninsula Borough Area, 1880 - 2000

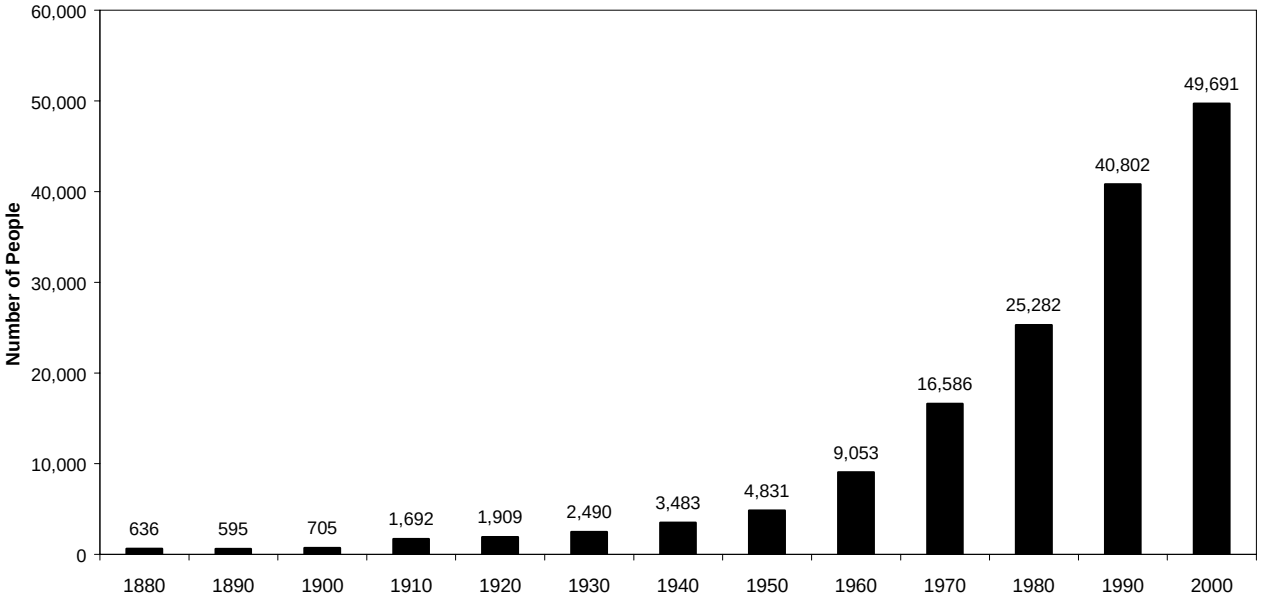


Table 4. Population of the Study Area, 1910 to 2000[a]

	1910	1920	1929	1939	1950	1960	1970	1980	1990	2000
Bear Creek CDP										1,748
Crown Point CDP									62	75
Grouse Creek Group CDP									580	b
Lowell Point CDP										92
Moose Pass CDP				84	70	136	53	76	81	206
Primrose CDP									63	93
Seward	534	652	835	949	2,114	1,891	1,587	1,843	2,699	2,830
Balance of Seward CA						797	614	650	683	c
Total	534	652	835	1,033	2,184	2,824	2,254	2,569	4,168	5,044

a CDP = census designated place; CA = census area; blanks indicate data not available at that level.

b Part of Bear Creek CDP in 2000

c Included in Bear Creek and Lowell Point census designated places in 2000

Source: Rollins 1978; Alaska Department of Labor 1987, 1993, US Census 2001

COMMUNITY DESCRIPTIONS

Seward is located at the head of Resurrection Bay on the Kenai Peninsula in southcentral Alaska. It is at milepost 0 of the Seward Highway, which runs north 127 miles to Anchorage.[1] Seward is also the southern terminus of the Alaska Railroad, which has the city of Fairbanks as its northern end. Seward is a home rule city, incorporated in 1912. The incorporated area measures 14.4 square miles and had a population of 2,830 in 2000. Two census designated places, outside any incorporated cites, were included in the Seward study area for this project. These are Lowell Point (population 92 in 2000), along Resurrection Bay to the southwest of the Seward city limits; and Bear Creek, running from mile 3 to mile 16 on the Seward Highway north of the city limits (population 1,748 in 2000). All of these areas are within the Kenai Peninsula Borough, established in 1964.

Reflecting its role as a transportation, processing, tourism, and commercial center, there is a relatively wide variety of businesses and services in Seward. There are numerous hotels, restaurants, service stations, stores, and businesses serving visitors and locals residents. There is also a small boat harbor, airport, ferry terminal, and railroad station. There is an elementary school (grades K through 6) and a middle/high school (grades 7 through 12). Located in Seward are offices of Kenai Fjords National Park and Visitor Center and US Forest Service, and numerous tour and charter services. Marine research facilities include the Alaska SeaLife Center and the University of Alaska Marine Sciences Institute. Seward's role as a tourist destination is reflected in the annual July 4th Mount Marathon race and the silver salmon derby later in the summer. Seward is also the site of a state prison.

The Qutekcak Tribe, formerly the Mt. Marathon Native Association, provides services to Seward's Alaska Native residents. It is not a federally recognized tribal government, however.

Moose Pass is an unincorporated community north of Seward on the Seward Highway between mile 27 and mile 34, on the shore of Upper Trail Lake. The Moose Pass CDP had a population of 206 in 2000. Included in this CDP are several other named places, such as "Avalanche Acres" to the north. Two other census designated places were part of the Moose Pass study area for this project: Crown Point, located from mile 24 to mile 27 on the Seward

[1] All mile post numbers and distance are taken from The Milepost (Graef 1999)

Highway south of Moose Pass (population 75 in 2000). Further south is the Primrose CDP, from mile 16 to Mile 24 (population 93 in 2000), which also includes Lawing and Lakeview.

At Moose Pass are located several lodges, grocery stories, service stations, post office, and an RV park. There is a school for grades K through 8 but high school students are bused to Seward.

DEMOGRAPHY

Table 5 presents information on the demographic characteristics of the two study areas of Seward and Moose Pass based on the survey results. These findings can be compared with selected results from the 2000 federal census (Table 6). The estimated population for the Seward sampling area, which included the city of Seward plus the census designated places of Lowell Point and Bear Creek, was 4,542. The US census reported combined population of 4,670 for these three areas for 2000. The slightly lower estimate for the division survey is explained by the exclusion from the sample of households that had not been resident in the community for at least three months during the study year. The average household size for the Seward sample was 2.69, compared to 2.84 for the census. The sampled population had a greater percentage of males (55.7 percent) than females (44.3 percent). (See also Table 7 and Fig. 3, which are population profiles for Seward based on the survey results.) The US Census had a similar finding: 58.0 percent male and 42.0 percent female.

The survey results found an Alaska Native population in Seward of 308 (+/- 4.7 percent at the 95 percent level of confidence), making up 6.8 percent of the total population. The US Census reported a substantially larger Alaska Native population of 880 and 18.8 percent of the total. The reasons for this difference are uncertain. The research team did not notice a particular tendency of Alaska Native households to refuse participation more frequently than non-Native households, and no significant difference in refusal rates has been observed in other division studies. The possible under-representation of Seward's Alaska Native population in this study most likely did not skew the average household harvest quantities, but it may have had some effect on the estimates of the community's level of participation in sharing resources. (See Chapter 3 and Table 48 for discussion.)

Table 5. Demographic Characteristics of Households, Moose Pass and Seward, 2000

Characteristics	Moose Pass	Seward
Sampled Households	99	104
Number of Households in the Community	148	1687
Percentage of Households Sampled	66.89	6.16
Household Size		
Mean	2.72	2.69
Minimum	1	1
Maximum	8	11
Sample Population	269	280
Estimated Community Population	402.14	4541.92
Age		
Mean	35.02	34.48
Minimum	0.1	0.1
Maximum	91	91
Median	39	38
Length of Residency - Population		
Mean	14.38	15.05
Minimum	0.4	0.5
Maximum	61	75
Length of Residency - Household Heads		
Mean	12.19	12.36
Minimum	0.1	0.1
Maximum	61	75
Sex		
Males		
Number	222.75	2530.5
Percentage	55.39	55.71
Females		
Number	179.39	2011.42
Percentage	44.61	44.29
Alaska Native		
Households (Either Head)		
Number	7.47	129.77
Percentage	5.05	7.69
Estimated Population		
Number	22.42	308.2
Percentage	5.58	6.79

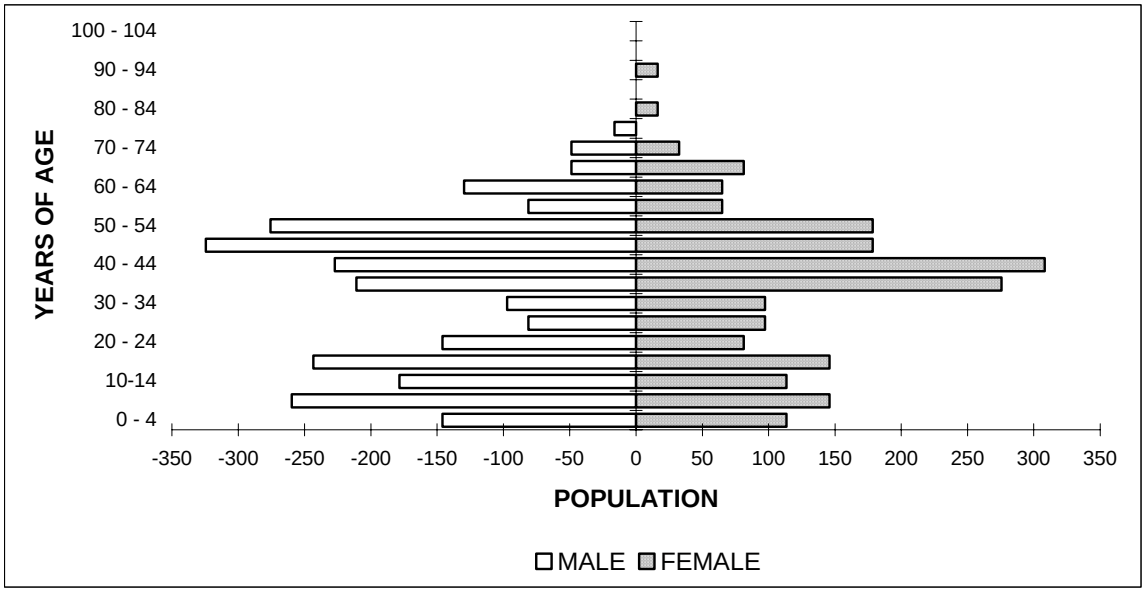
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Survey, 2001

Table 6. Selected Demographic Characteristics of Seward and Moose Pass, 2000, from the US Census

	Population	Occupied Households	Average HH Size	Sex				Alaska Native	
				Male	(Percent)	Female	(Percent)	Number	Percent
Bear Creek	1,748	686	2.55	950	54.3%	798	45.7%	284	16.2%
Lowell Point	92	39	2.00	60	65.2%	32	34.8%	4	4.3%
Seward	2,830	917	2.40	1,699	60.0%	1,131	40.0%	592	20.9%
Seward Area	4,670	1,642	2.84	2,709	58.0%	1,961	42.0%	880	18.8%
Crown Point	75	28	2.43	37	49.3%	38	50.7%	7	9.3%
Moose Pass	206	84	2.45	124	60.2%	82	39.8%	22	10.7%
Primrose	93	33	2.82	45	48.4%	48	51.6%	6	6.5%
Moose Pass Area	374	145	2.58	206	55.1%	168	44.9%	35	9.4%

Source: US Bureau of the Census 2001

Figure 3. Population Profile, Seward, 2000



SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Survey, 2001

Table 7. Population Profile, Seward, 2000

AGE	MALE			FEMALE			TOTAL		
	NUMBER	PERCENT	CUM. PERCENT	NUMBER	PERCENT	CUM. PERCENT	NUMBER	PERCENT	CUM. PERCENT
0 - 4	145.99	5.77%	5.77%	113.55	5.65%	5.65%	259.54	5.71%	5.71%
5-9	259.54	10.26%	16.03%	145.99	7.26%	12.90%	405.53	8.93%	14.64%
10-14	178.43	7.05%	28.16%	113.55	5.65%	18.55%	291.98	6.43%	21.07%
15 - 19	243.32	9.62%	35.92%	145.99	7.26%	25.81%	389.31	8.57%	29.64%
20 - 24	145.99	5.77%	40.78%	81.11	4.03%	29.84%	227.1	5.00%	34.64%
25 - 29	81.11	3.21%	44.66%	97.33	4.84%	34.68%	178.43	3.93%	38.57%
30 - 34	97.33	3.85%	47.57%	97.33	4.84%	39.52%	194.65	4.29%	42.86%
35 - 39	210.88	8.33%	58.25%	275.76	13.71%	53.23%	486.63	10.71%	53.57%
40 - 44	227.1	8.97%	66.02%	308.2	15.32%	68.55%	535.3	11.79%	65.36%
45 - 49	324.42	12.82%	75.73%	178.43	8.87%	77.42%	502.86	11.07%	76.43%
50 - 54	275.76	10.90%	84.47%	178.43	8.87%	86.29%	454.19	10.00%	86.43%
55 - 59	81.11	3.21%	91.26%	64.88	3.23%	89.52%	145.99	3.21%	89.64%
60 - 64	129.77	5.13%	92.23%	64.88	3.23%	92.74%	194.65	4.29%	93.93%
65 - 69	48.66	1.92%	94.17%	81.11	4.03%	96.77%	129.77	2.86%	96.79%
70 - 74	48.66	1.92%	97.09%	32.44	1.61%	98.39%	81.11	1.79%	98.57%
75 - 79	16.22	0.64%	99.03%	0	0.00%	98.39%	16.22	0.36%	98.93%
80 - 84	0	0.00%	100.00%	16.22	0.81%	99.19%	16.22	0.36%	99.29%
85 - 89	0	0.00%	100.00%	0	0.00%	99.19%	0	0.00%	99.29%
90 - 94	0	0.00%	100.00%	16.22	0.81%	100.00%	16.22	0.36%	99.64%
95 - 99	0	0.00%	100.00%	0	0.00%	100.00%	0	0.00%	99.64%
100 - 104	0	0.00%	100.00%	0	0.00%	100.00%	0	0.00%	99.64%
Missing	16.22	0.64%	100.00%	0	0.00%	100.00%	16.22	0.36%	100.00%
TOTAL	2,530.51	51.12%		193.33	48.88%		395.56	100.00%	

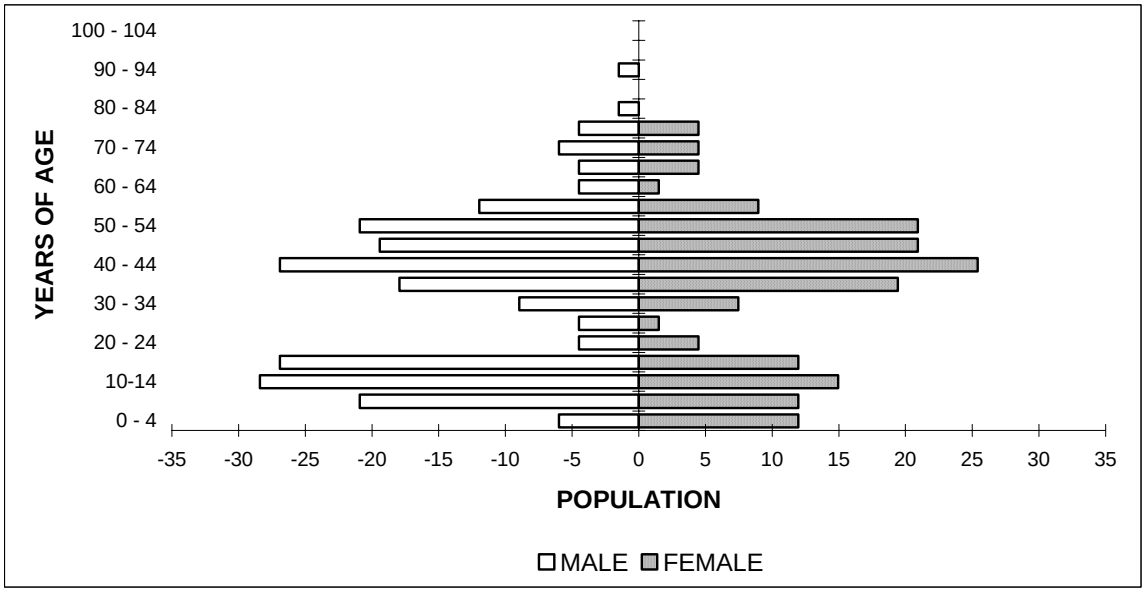
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Survey, 2001

As noted above, in this study, Moose Pass includes three census designated places: Moose Pass, Primrose, and Crown Point. The estimated population of this area based on survey results was 402; the US Census reported 374. The average size of surveyed households was 2.72, compared to 2.58 reported by the US Census. The male to female ratio in the population of Moose Pass was about the same as that found for Seward: 55.4 percent males and 44.6 percent female. (See also Table 8 and Fig. 4, population profiles for Moose Pass based on the survey results.) This ratio was virtually identical to the US Census finding of 55.1 percent male and 44.9 percent female for the Moose Pass population. The estimated Alaska Native population of Moose Pass based on the surveys was about 22 people (+/- 2.6 percent at the 95 percent level of confidence), 5.6 percent of the total population, compared to a US Census estimate of 35 people (9.4 percent of the total).

The average length of residency in the study communities for household heads was 12.4 years for Seward and 12.2 years for Moose Pass (Table 5). Figure 5 shows the length of residence in the study communities of households, with household values equaling the greater length of residence of either household head. Most households in both communities had lived in the area for less than 15 years: 54.6 percent for Moose Pass and 56.7 percent for Seward. A smaller percentage of households in both communities had lived in the area for 25 years or more, 20.2 percent for Moose Pass and 25.0 percent for Seward.

As shown in Table 9, more than three quarters of the household heads in both study areas were born in a state other than Alaska: 78.5 percent of Moose Pass household heads and 75.9 percent of those living in the Seward in the study year. Additionally, 4.1 percent of Moose Pass household heads and 10.3 percent in Seward were born in a foreign country. In Moose Pass, 15.1 percent of household heads were born in Alaska, including 2.3 percent in Moose Pass, 5.2 percent in Seward, and 7.6 percent in other Alaska communities. Birthplace data were missing for 2.3 percent of Moose Pass household heads. For Seward, 11.0 percent of household heads were born in Alaska, including 5.8 percent in Seward, none in Moose Pass, and 5.2 percent in other Alaska communities. Birthplace data were missing for 0.6 percent of Seward household heads.

Figure 4. Population Profile, Moose Pass, 2000



SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Survey, 2001

Table 8. Population Profile, Moose Pass, 2000

AGE	MALE			FEMALE			TOTAL		
	NUMBER	PERCENT	CUM. PERCENT	NUMBER	PERCENT	CUM. PERCENT	NUMBER	PERCENT	CUM. PERCENT
0 - 4	5.98	2.68%	2.68%	11.96	6.67%	6.67%	17.94	10.67%	10.67%
5-9	20.93	9.40%	12.08%	11.96	6.67%	13.33%	32.89	14.33%	25.00%
10-14	28.4	12.75%	28.16%	14.95	8.33%	21.67%	43.35	14.33%	39.33%
15 - 19	26.91	12.08%	35.92%	11.96	6.67%	28.33%	38.87	9.83%	49.16%
20 - 24	4.48	2.01%	40.78%	4.48	2.50%	30.83%	8.97	6.46%	55.62%
25 - 29	4.48	2.01%	44.66%	1.49	0.83%	31.67%	5.98	3.09%	58.71%
30 - 34	8.97	4.03%	47.57%	7.47	4.17%	35.83%	16.44	7.58%	66.29%
35 - 39	17.94	8.05%	58.25%	19.43	10.83%	46.67%	37.37	8.15%	74.44%
40 - 44	26.91	12.08%	66.02%	25.41	14.17%	60.83%	52.32	4.78%	79.21%
45 - 49	19.43	8.72%	75.73%	20.93	11.67%	72.50%	40.36	3.93%	83.15%
50 - 54	20.93	9.40%	84.47%	20.93	11.67%	84.17%	41.86	2.81%	85.96%
55 - 59	11.96	5.37%	91.26%	8.97	5.00%	89.17%	20.93	3.65%	89.61%
60 - 64	4.48	2.01%	92.23%	1.49	0.83%	90.00%	5.98	2.81%	92.42%
65 - 69	4.48	2.01%	94.17%	4.48	2.50%	92.50%	8.97	2.25%	94.66%
70 - 74	5.98	2.68%	97.09%	4.48	2.50%	95.00%	10.46	1.69%	96.35%
75 - 79	4.48	2.01%	99.03%	4.48	2.50%	97.50%	8.97	1.12%	97.47%
80 - 84	1.49	0.67%	100.00%	0	0.00%	97.50%	1.49	0.56%	98.03%
85 - 89	0	0.00%	100.00%	0	0.00%	97.50%	0	0.00%	98.03%
90 - 94	1.49	0.67%	100.00%	0	0.00%	97.50%	1.49	0.00%	98.03%
95 - 99	0	0.00%	100.00%	0	0.00%	97.50%	0	0.00%	98.03%
100 - 104	0	0.00%	100.00%	0	0.00%	97.50%	0	0.00%	98.03%
Missing	2.99	1.34%	100.00%	4.48	2.50%	100.00%	7.47	1.97%	100.00%
TOTAL	222.71	51.12%		193.33	48.88%		395.56	100.00%	

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Survey, 2001

Figure 5. Length of Residency of Moose Pass and Seward Households in the Study Areas, 2000

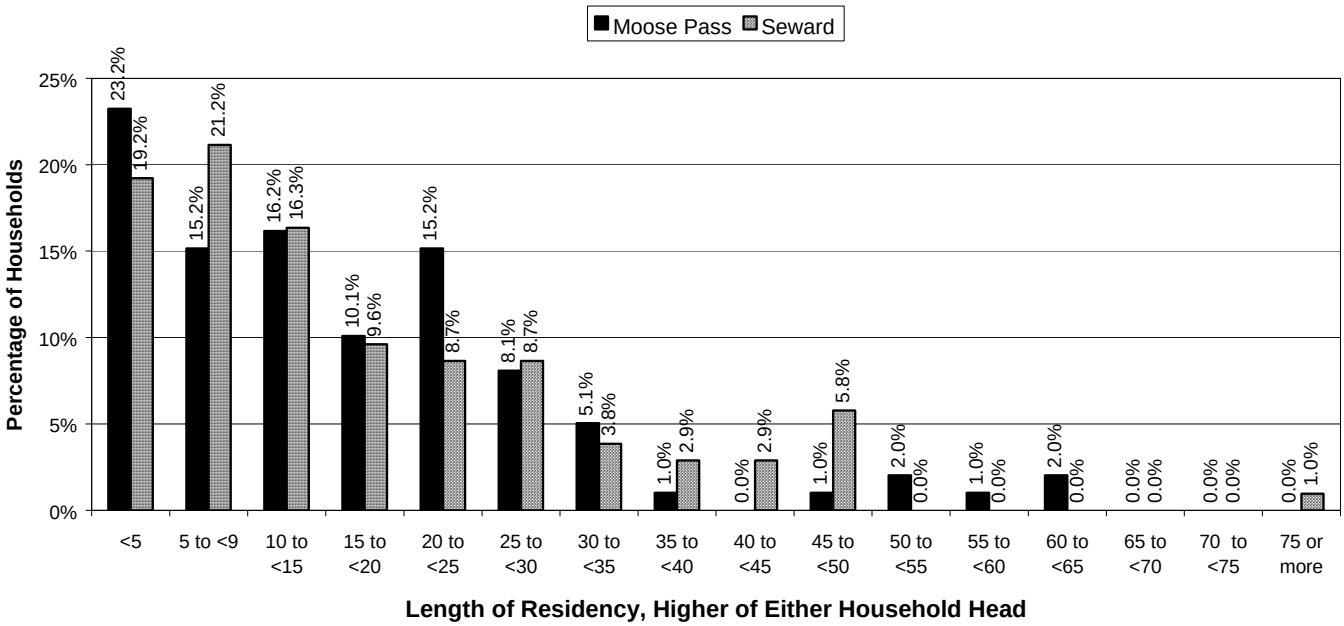


Table 9. Place of Birth of Household Heads, Seward and Moose Pass

Birthplace	Percentage of Household Heads	
	Seward	Moose Pass
Seward	5.8%	5.2%
Moose Pass	0.0%	2.3%
Other Alaska	5.2%	7.6%
Other United States	75.9%	78.5%
Foreign	10.3%	4.1%
Missing	2.9%	2.3%

Note: "birthplace" means the residence of the parents of the individual when the individual was born.

Source: Alaska Department of Fish and Game, Division of Subsistence Household Survey, 2001

CASH EMPLOYMENT

Table 10 provides survey findings about cash employment in the Seward and Moose Pass study areas in 2000/01 study year. In both communities, most adults were employed: 74.5 percent in Moose Pass and 86.1 percent in Seward. The average number of months employed was similar, 9.8 months for employed adults in Moose Pass and 9.6 months for those living in Seward. There was a seasonal aspect to employment in both places: 59.7 percent of employed adults living in Moose Pass worked year-round as did 50.0 percent in Seward.

As shown in Table 11, by industry, government jobs were the largest category in Moose Pass, providing 30.2 percent of the jobs and 36.5 percent of cash income. Government jobs included those with the federal government (12.6 percent of all jobs), state government (8.2 percent), local government (4.4 percent), and schools (5.0 percent). In Moose Pass, 34.2 percent of employed adults held government jobs. The industry providing the second-most jobs in the Moose Pass study area was services (such as health care, sport fishing charters, and auto repair) (26.4 percent of all jobs), followed by trades (such as stores and restaurants) (18.1 percent) and construction (10.4 percent). Commercial fishing played a very minor role in the Moose Pass cash economy (1.1 percent of jobs, 1.3 percent of employed adults), as did fish processing (2.2 percent of jobs, 2.7 percent of employed adults). No interviewed Moose Pass households reported employment in logging during the study year.

In Seward in the 2000/01 study year, services provided the largest percentage of jobs at 31.9 percent, with 38.2 percent of all employed adults working in this industry (Table 12). Government jobs ranked second (20.7 percent of all jobs), with state government jobs most numerous (8.8 percent), followed by education (5.2 percent), local government (4.4 percent), and federal government (2.4 percent). Work in trades (17.1 percent of jobs), transportation, communications, and utilities (12.4 percent), and manufacturing (mostly fish processing) (12.0 percent) was also important in Seward. There were relatively few jobs in commercial fishing, accounting for 2.0 percent of all jobs and 2.7 percent of employed adults in Seward in 2000/01.
Table 13 reports of the location of jobs held by adult residents of the two study areas in the study year. Most of the jobs held by Moose Pass residents, 51.1 percent, were located in Seward, suggesting that commuting between Moose Pass and Seward is commonplace. Most of the rest of the cash employment took place in Moose Pass itself, 32.4 percent of all jobs held by

Table 10. Employment Characteristics, Moose Pass and Seward, 2000

Characteristics	Moose Pass	Seward
All Adults		
Number	298.99	3503.77
Mean Weeks Employed	31.63	35.6
Employed Adults		
Number	222.75	3017.13
Percentage	74.5	86.11
Jobs		
Number	272.08	4071.51
Mean	1.22	1.35
Minimum	1	1
Maximum	3	4
Months Employed		
Mean	9.81	9.55
Minimum	1	1
Maximum	12	12
Percent Employed Year-Round	59.73	50
Mean Weeks Employed	42.46	41.34
HOUSEHOLDS		
Number	148	1687
Employed		
Number	121.09	1573.45
Percentage	81.82	93.27
Jobs per Employed Household		
Mean	2.25	2.59
Minimum	1	1
Maximum	5	16
Employed Adults		
Minimum	1	1
Maximum	4	9
Mean		
Employed Households	1.84	1.92
Total Households	1.51	1.79
Mean Person Weeks of Employment	63.9	73.94

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Survey, 2001

Table 11. Employment by Industry, Moose Pass, 2000

	Jobs	Households	Individuals	Percentage of Income
Estimated Total Number	272.1	121.1	222.7	
Agriculture, Forestry, Fishing	3.85%	7.41%	4.03%	4.82%
Agriculture/Forestry	0.00%	0.00%	0.00%	0.00%
Agriculture	0.00%	0.00%	0.00%	0.00%
Forestry	0.00%	0.00%	0.00%	0.00%
Fishing, Hunting, Trapping	3.85%	7.41%	4.03%	4.82%
Hatchery/Enhancement	2.20%	4.94%	2.68%	3.51%
Commercial Fishing	1.10%	2.47%	1.34%	1.17%
Hunting/Trapping	0.55%	1.23%	0.67%	0.15%
Mining	0.55%	1.23%	0.67%	0.76%
Construction	10.44%	20.99%	12.75%	10.87%
Manufacturing	3.30%	7.41%	4.03%	8.09%
Cannery	2.20%	4.94%	2.68%	2.59%
Other Manufacturing	1.10%	2.47%	1.34%	5.50%
Logging/Timber	0.00%	0.00%	0.00%	0.00%
Transportation, Communications, and Utilities	6.04%	12.35%	7.38%	2.92%
Trade	18.13%	30.86%	21.48%	11.07%
Wholesale	0.55%	1.23%	0.67%	1.35%
Retail	17.58%	29.63%	20.81%	9.72%
Finance, Insurance, and Real Estate	0.55%	1.23%	0.67%	1.12%
Services	26.37%	41.98%	31.54%	23.79%
Government	30.22%	44.44%	34.23%	36.50%
Federal	12.64%	22.22%	14.77%	12.01%
State	8.24%	17.28%	10.07%	16.91%
Local	9.34%	17.28%	11.41%	7.59%
Local Government	4.40%	8.64%	5.37%	4.79%
Local Education	4.95%	9.88%	6.04%	2.80%
Unknown	0.55%	1.23%	0.67%	0.06%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Survey, 2001

Table 12. Employment by Industry, Seward, 2000

	Jobs	Households	Individuals	Percentage of Income
Estimated Total Number	4071.5	1573.5	3017.1	
Agriculture, Forestry, Fishing	2.79%	5.15%	3.76%	0.41%
Agriculture/Forestry	0.80%	1.03%	1.08%	0.00%
Agriculture	0.40%	1.03%	0.54%	0.00%
Forestry	0.40%	1.03%	0.54%	0.00%
Fishing, Hunting, Trapping	1.99%	4.12%	2.69%	0.41%
Hatchery/Enhancement	0.00%	0.00%	0.00%	0.00%
Commercial Fishing	1.99%	4.12%	2.69%	0.41%
Hunting/Trapping	0.00%	0.00%	0.00%	0.00%
Mining	0.80%	2.06%	1.08%	1.95%
Construction	1.99%	5.15%	2.69%	2.59%
Manufacturing	11.95%	22.68%	13.98%	7.64%
Cannery	8.37%	16.49%	10.75%	6.08%
Other Manufacturing	3.59%	7.22%	3.76%	1.56%
Logging/Timber	0.00%	0.00%	0.00%	0.00%
Transportation, Communications, and Utilities	12.35%	24.74%	16.67%	16.01%
Trade	17.13%	24.74%	20.43%	10.13%
Wholesale	0.80%	2.06%	1.08%	0.08%
Retail	16.33%	23.71%	19.89%	10.05%
Finance, Insurance, and Real Estate	0.40%	1.03%	0.54%	0.23%
Services	31.87%	53.61%	38.17%	29.94%
Government	20.72%	39.18%	25.27%	31.09%
Federal	2.39%	4.12%	3.23%	3.37%
State	8.76%	20.62%	11.83%	17.99%
Local	9.56%	21.65%	12.37%	9.73%
Local Government	4.38%	11.34%	5.91%	4.27%
Local Education	5.18%	12.37%	6.45%	5.46%
Unknown	0.00%	0.00%	0.00%	0.00%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Survey, 2001

Moose Pass resident adults. Only small percentages of the jobs held by Moose Pass residents were located in other Kenai Peninsula communities (4.4 percent) or other parts of Alaska (7.7 percent).

Employment of Seward residents was very localized, with 89.6 percent of all jobs located in the community itself (Table 13). Few jobs held by Seward residents were located in other Kenai Peninsula communities (1.2 percent) or other Alaska communities (7.6 percent) during the 2000/01 study year.

Table 13. Location of Jobs, Seward and Moose Pass, 2000/01

	Seward (Estimated 4,072 jobs)		Moose Pass (Estimated 272 jobs)	
Location of Job	Number	Percent	Number	Percent
Moose Pass	16	0.4%	88	32.4%
Seward	3,650	89.6%	139	51.1%
Subtotal, Study Communities	3,666	90.0%	227	83.5%
Other Kenai Peninsula	49	1.2%	12	4.4%
Other Alaska, ex. Kenai Peninsula	308	7.6%	21	7.7%
Other US	16	0.4%	7	2.7%
Missing Location	32	0.8%	4	1.6%
Totals	4,072	100.0%	272	100.0%

Source: ADF&G Division of Subsistence Household Survey 2001

CASH INCOME

Table 14 through Table 17 report study findings regarding cash incomes in the two study areas. On average, cash incomes were similar in Seward and Moose Pass in the 2000/01 study year. Average household income was $61,523 in Seward ($22,851 per capita) (Table 14) and $59,051 in Moose Pass ($21,733 per capita) (Table 15). In Seward, earned income on average was $49,197 per household. Average household earned income per household in Moose Pass was $45,020.

Table 14. Community, Household, and Per Capita Incomes, All Sources and by Employer Types
Seward, 2000

INCOME SOURCE	COMMUNITY TOTAL	AVERAGE HOUSEHOLD	PER CAPITA
All Sources	$103,788,904	$61,523	$22,851
Earned Income	$82,995,406	$49,197	$18,273
Agriculture, Forestry, Fishing	$339,130	$201	$75
Agriculture/Forestry	$0	$0	$0
Agriculture	-$8	-$8	-$8
Forestry	-$8	-$8	-$8
Fishing, Hunting, Trapping	$339,130	$201	$75
Hatchery/Enhancement	$0	$0	$0
Commercial Fishing	$339,130	$201	$75
Hunting/Trapping	$0	$0	$0
Mining	$1,622,115	$962	$357
Construction	$2,152,547	$1,276	$474
Manufacturing	$6,337,064	$3,756	$1,395
Cannery	$5,045,860	$2,991	$1,111
Other Manufacturing	$1,291,204	$765	$284
Logging/Timber	$0	$0	$0
Transportation, Communications, and Utilities	$13,289,991	$7,878	$2,926
Trade	$8,404,466	$4,982	$1,850
Wholesale	$64,885	$38	$14
Retail	$8,339,581	$4,943	$1,836
Finance, Insurance, and Real Estate	$194,654	$115	$43
Services	$24,851,238	$14,731	$5,472
Government	$25,804,200	$15,296	$5,681
Federal	$2,800,853	$1,660	$617
State	$14,927,967	$8,849	$3,287
Local	$8,075,380	$4,787	$1,778
Local Government	$3,540,105	$2,098	$779
Local Education	$4,535,275	$2,688	$999
Unknown	$0	$0	$0
Other Income	$20,793,498	$12,326	$4,578

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Survey, 2001

Table 15. Community, Household, and Per Capita Incomes, All Sources and by Employer Types
Moose Pass, 2000

INCOME SOURCE	COMMUNITY TOTAL	AVERAGE HOUSEHOLD	PER CAPITA
All Sources	$8,739,544	$59,051	$21,733
Earned Income	$6,662,922	$45,020	$16,569
Agriculture, Forestry, Fishing	$321,414	$2,172	$799
Agriculture/Forestry	$0	$0	$0
Agriculture	$0	$0	$0
Forestry	$0	$0	$0
Fishing, Hunting, Trapping	$321,414	$2,172	$799
Hatchery/Enhancement	$233,960	$1,581	$582
Commercial Fishing	$77,737	$525	$193
Hunting/Trapping	$9,717	$66	$24
Mining	$50,828	$343	$126
Construction	$724,303	$4,894	$1,801
Manufacturing	$538,929	$3,641	$1,340
Cannery	$172,667	$1,167	$429
Other Manufacturing	$366,263	$2,475	$911
Logging/Timber	$0	$0	$0
Transportation, Communications, and Utilities	$194,343	$1,313	$483
Trade	$737,330	$4,982	$1,834
Wholesale	$89,697	$606	$223
Retail	$647,633	$4,376	$1,610
Finance, Insurance, and Real Estate	$74,747	$505	$186
Services	$1,585,400	$10,712	$3,942
Government	$2,431,888	$16,432	$6,047
Federal	$799,890	$5,405	$1,989
State	$1,126,376	$7,611	$2,801
Local	$505,622	$3,416	$1,257
Local Government	$319,172	$2,157	$794
Local Education	$186,450	$1,260	$464
Unknown	$3,737	$25	$9
Other Income	$2,076,623	$14,031	$5,164

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Survey, 2001

Table 16. Community, Household, and Per Capita Other Income by Source, Seward, 2000

SOURCE	OTHER INCOME			
	PERCENTAGE REPORTING	COMMUNITY TOTAL	AVERAGE HOUSEHOLD	PER CAPITA
All Sources		$20,793,497.57	$12,325.72	$4,578.13
Aid to Families with Dependent children	0.96%	$145,990.38	$86.54	$32.14
Adult Public Assistance (OAA, APD)	3.85%	$103,718.06	$61.48	$22.84
Pension/Retirement	15.38%	$5,322,735.89	$3,155.15	$1,171.91
Longevity Bonus	6.73%	$347,132.69	$205.77	$76.43
Social Security	13.46%	$2,505,324.77	$1,485.08	$551.60
Energy Assistance	0.96%	$7,299.52	$4.33	$1.61
Supplemental Security Income	0.00%	$0.00	$0.00	$0.00
Unemployment	16.35%	$508,316.89	$301.31	$111.92
Native Corporation Dividend	2.88%	$860,694.42	$510.19	$189.50
Fishing Permit Leasing	0.00%	$0.00	$0.00	$0.00
Alaska Permanent Fund Dividend	96.15%	$7,827,566.45	$4,639.93	$1,723.40
General Assistance Grant	0.00%	$0.00	$0.00	$0.00
Salmon Disaster Assistance	0.00%	$0.00	$0.00	$0.00
Alaska Temporary Assistance Program	0.00%	$0.00	$0.00	$0.00

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Survey, 2001

Table 17. Community, Household, and Per Capita Other Income by Source, Moose Pass, 2000

SOURCE	OTHER INCOME			
	PERCENTAGE REPORTING	COMMUNITY TOTAL	AVERAGE HOUSEHOLD	PER CAPITA
All Sources		$2,076,622.85	$14,031.24	$5,163.91
Aid to Families with Dependent children	0.00%	$0.00	$0.00	$0.00
Adult Public Assistance (OAA, APD)	1.01%	$2,092.93	$14.14	$5.20
Pension/Retirement	14.14%	$474,048.48	$3,203.03	$1,178.81
Longevity Bonus	7.07%	$42,157.58	$284.85	$104.83
Social Security	19.19%	$308,934.77	$2,087.40	$768.22
Energy Assistance	0.00%	$0.00	$0.00	$0.00
Supplemental Security Income	1.01%	$10,763.64	$72.73	$26.77
Unemployment	12.12%	$51,306.67	$346.67	$127.58
Native Corporation Dividend	2.02%	$1,158.59	$7.83	$2.88
Fishing Permit Leasing	0.00%	$0.00	$0.00	$0.00
Alaska Permanent Fund Dividend	91.92%	$724,654.34	$4,896.31	$1,801.99
General Assistance Grant	0.00%	$0.00	$0.00	$0.00
Salmon Disaster Assistance	0.00%	$0.00	$0.00	$0.00
Alaska Temporary Assistance Program	0.00%	$0.00	$0.00	$0.00

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Survey, 2001

Income from sources other than jobs provided $4,578 per household on average in Seward in the study year of 2000/01 (Table 16). Of these income sources, the Alaska Permanent Fund Dividend was most important, followed by retirement income and social security. In Seward, 15.4 percent of households reported retirement income and 13.5 percent reported income from social security payments.

The pattern was similar in Moose Pass (Table 17). Other income sources averaged $5,164 per household. The Alaska Permanent Fund Dividend was the most significant source of other income, but retirement benefits (14.1 percent of all households) and social security payments (19.2 percent) were notable as well at Moose Pass.

COST OF FOOD PURCHASES

Households were asked to estimate their monthly expenditures for food; these were multiplied by 12 to estimate the average yearly food cost. As shown in Table 18, average costs were similar in the two study areas. At Seward, households spent on average $5,610 during the study year on food, $2,084 per person. This represents 9.1 percent of the total average household cash income in Seward, according to survey results. At Moose Pass, on average, households spent $5,163 annually on food, $1,900 per person, 8.7 percent of the total cash income.

As estimated by the Cooperative Extension Service of the University of Alaska (2002), the cost of food index for Seward for a family of 4 with 2 children age 6 to 11 years for March 2001 was 123.22, compared to 102.25 for Anchorage, 113.14 for Kenai/Soldotna, 134.65, and 183.71 for Dillingham (the latter was chosen as a community of similar size to Seward that is off the road system). This index is based on the cost of 104 food items for one week.

Table 18. Estimated Annual Cost of Purchasing Food, Seward and Moose Pass, 2000/01

	Mean Household Cost of Annual Food Purchase	Cost of Food per Capita	Percent of Annual Cash Income Spent on Food
Seward	$5,610	$2,084	9.1%
Moose Pass	$5,163	$1,900	8.7%

Source: ADF&G Division of Subsistence Household Survey 2001

SCHAPTER THREE: RESOURCE HARVEST AND USE

REGULATORY CONTEXT

Nonsubsistence Areas and Rural/Non-rural Classifications

Although reviewing the complex history of subsistence and personal use regulations on the Kenai Peninsula is beyond the scope of this report (see Braund 1982; Fall and Stanek 1990), this section offers some background for understanding the hunting and fishing activities in which residents of Seward and Moose Pass participated during the study year. Under state regulations in place during the study year and adopted in 1992 following the passage of a new state subsistence statute, most of the Kenai Peninsula was classified as a nonsubsistence area by the Joint Board of Fisheries and Game (5 AAC 99.015(3)). Under the state law, subsistence hunts and fisheries may not be authorized in nonsubsistence areas (AS 16.05.258(c,d)); harvests for home use take place under general hunting regulations and under sport and personal use fishing regulations. However, residents of nonsubsistence areas may participate in state-authorized subsistence fisheries and subsistence hunts in other areas of the state. A small portion of the Kenai Peninsula that is off the road system around Seldovia, Port Graham, and Nanwalek was outside the nonsubsistence area. There were subsistence fisheries near these communities that were open to all Alaska residents. Subsistence hunting for moose and goats in this area required state "Tier II subsistence permits," a system whereby individuals qualify for permits based on the score they receive on their answers to questions about their customary and direct dependence on the wildlife population and the availability of alternative resources.

As discussed in Chapter One, the Federal Subsistence Board (FSB) classifies Alaska communities as either rural or nonrural. In the study year, both the communities were classified as nonrural by the FSB. Therefore, the interviewed households were ineligible for federal subsistence hunts and fisheries. These federal hunts and fisheries occur on federal public lands (the Chugach National Forest and the Kenai National Wildlife Refuge on the Kenai Peninsula) and are not necessarily limited to rural areas.

Hunting Regulations

Table 19 is a summary of state hunting regulations for big game species for Game Management Units 7 and 15 (the Kenai Peninsula) and GMU 6 (Prince William Sound), the areas used the most by study area residents, that were in effect during the 2000/01 study year (ADF&G 2000a). Residents of the study communities did not qualify for participation in federal subsistence hunts because their area of residence was classified as rural.

Fishing Regulations: Subsistence and Personal Use Fisheries

Table 20 summarizes the state regulations governing personal use salmon fisheries in the Cook Inlet Management area during the study year (ADF&G 2000b). The primary personal use salmon fisheries were set gill net fisheries at the mouth of the Kasilof River, which takes place in June, a set gill net fishery targeting coho salmon in Kachemak Bay in August, and two dip net fisheries in the Kasilof and Kenai rivers that occurred primarily in July. There were no personal use salmon fisheries in Resurrection Bay.

Because the waters of Resurrection Bay are in a nonsubsistence area, fishing for marine fish such as halibut and cod, and marine invertebrates such as clams and crab, took place under personal use or sport fishing regulations. Halibut could be taken only with a hand-held line or a line attached to a rod or pole with no more than two hooks. There was a two fish per day limit. Personal use fishing for shrimp, king crab, and Dungeness crab was closed. A permit was required to harvest Tanner crab. Generally, personal use fishing for other marine invertebrates, such as clams, was open with no seasons or limits. Personal use regulations also allowed the harvest of smelt and herring.

Sport fishing regulations for the Kenai Peninsula/Cook Inlet area are complex and will not be summarized here.

Table 19. Hunting Regulations for Big Game, Game Management Units 7, 15, and 6, 2000/01

Species	Area	Permit Requirement[2], Season, and Bag Limit[3]
Black Bear	GMU 7 & 15	One bear July 1-December 31; one bear Jan 1-June 30; skull and skin must be sealed
Black Bear	GMU 6	One bear Sept 1-June 30; skull and skin must be sealed
Brown Bear	GMU 7 & 15	One bear every four years, by regulatory permit. October 15-October 31; skull and skin must be sealed.
Brown Bear	GMU 6D (except Montague Island)	One bear every four years, by regulatory permit. October 15-May 25. skull and skin must be sealed.
Caribou	GMU 7	Portion Kenai Mountains Herd: One caribou by drawing permit Aug. 10-Dec. 31.
Caribou	GMU 15B	Portion Killy River Herd: One caribou by drawing permit: Aug. 10-Sept. 20. (or two cow caribou by permit Aug. 10-Oct. 10).
Caribou	GMU 15C	Portion Fox River Herd: One caribou by drawing permit: Aug. 10-Sept. 20.
Deer	GMU 6	Five deer total; Bucks Aug. 1-Sept 30; Any deer, Oct. 1-Dec. 31
Goat	GMU 6A and B	One goat by registration permit, Aug. 20-Jan. 31
Goat	GMU 6C and D	One goat by registration permit, Sept. 15-Jan. 31
Goat	GMU 7	One goat by drawing permit Aug. 10-Sept.30 or by registration permit Oct.15-Nov.30.
Goat	GMU 15	Portion outside nonsubsistence area: one goat by Tier II permit, Aug.1-Sept.30, or one goat by registration permit Oct. 15-Nov.30
Moose	GMU 15A	Skilak Lake Management Area: No Open Season.
Moose	GMU 15A	East of Mystery Creek Road and north of Sterling Highway: one bull (sf/50" or 3bt); Aug.20-Sept.20; by bow and arrow only, Aug.10-17; or by drawing permit, Oct.20-Nov.20.
Moose	GMU 15A	Remainder: one bull (sf/50" or 3bt), Aug. 20-Sept.20; or by bow and arrow Aug.10-Aug.17.
Moose	GMU 15B	Portion around Funny River West Fork, south of Kenai River, west of Skilak River: one bull (50" or 3bt) by drawing permit Sept.1-Sept.20 or Sept.26-Oct.15.
Moose	GMU 15B	Remainder: one bull (sf/50" or 3bt) Aug.20-Sept.20, or by bow and arrow Aug.10-Aug.17.
Moose	GMU 15C	Portion southwest of Point Pogibshi to point at Rocky Bay and Windy Bay: one bull by Tier II permit, Sept. 1-Sept.30.
Moose	GMU 15C	Portion South of Anchor River and northwest of Kachemak Bay: one bull (sf/50" or 3bt), Aug.20-Sept.20
Moose	GMU 15C	Remainder: one bull (sf/50" or 3bt), Aug.20-Sept.20
Moose	GMU 7	Portion west of Resurrection Creek Trail, north of Sterling Highway, outside the Resurrection Creek Closed Area: one bull (sf/50" or 3bt), Aug.20-Sept.20, or by drawing permit oct.20-Nov.20
Moose	GMU 7	Portion Placer River drainages and Bear Valley outside the Portage Glacier Closed Area: one bull (sf/50" or 3bt), Aug.20-Sept.20.
Moose	GMU 6D	One bull, Sept.1-Sept.30
Sheep	GMU 7	Portion east of Fuller Lake trail, south of Dike Creek, west of a line from Dike Creek headwaters south to the Sterling Highway and north of the Sterling Hwy: one ram with full curl horn or larger, Aug.10-Sept.20, or one ewe by drawing permit, Aug.10-Sept.20.
Sheep	GMU 7	Portion south of Sterling Highway, west of the Seward Highway and north and east of Kenai Lake: one ram with full curl horn or larger, or one ewe, by drawing permit Aug.10-Sept.20.
Sheep	GMU 7	Remainder: one ram with full curl horn or larger, Aug.10-Sept.20.
Sheep	GMU 15 A	Portion east of Fuller Lake trail, south of Dike Creek, west of a straight line from the headwaters of Dike Creek south to the Sterling Highway and north of the Sterling Highway: one ram with full-curl horn or larger, Aug.10-Sept.20, or one ewe by drawing permit Aug.10-Sept.20.
Sheep	GMU 15	Remainder: One ram with full-curl horn or larger, Aug.10-Sept.20.

Source: ADF&G 2000a

Table 20. Personal Use Salmon Fisheries, Kenai Peninsula, 2000

Fishery	Open Area	Season	Limits	Other
Kasilof River Set Net Fishery	Inside the ADF&G regulatory markers on each side of the mouth of the Kasilof River, about one mail on each side	June 16 until closed by emergency order, daily, 6 a.m. to 6 p.m.	25 salmon per household head and 10 for each dependent	Closed by emergency order when approximately 10,000 to 20,000 sockeye have been taken
Kasilof River Dipnet Fishery	Lower Kasilof river from Cook Inlet to about one mile upstream	July 10 to August 5, seven days a week, 24 hours a day	25 salmon per household head and 10 for each dependent; only one king salmon may be retained	
Kenai River Dipnet Fishery	In Cook Inlet north and south of the river mouth and upstream to the Warren Ames Bridge at River Mile 5.1	July 10 to August 5, seven days a week, 24 hours a day	25 salmon per household head and 10 for each dependent; only one king salmon may be retained	
Kachemak Bay Set Net Fishery	In Kachemak Bay in waters within the non-subsistence area, with some closed waters			
China Poot Creek Dipnet Fishery	In China Poot Creek (south shore of Kachemak Bay, upstream of ADF&G markers)	July 1 to August 7	6 sockeye salmon per person per day; only sockeye salmon may be retained	
Fox Creek Dipnet Fishery	In Fox Creek (upper Kachemak Bay), upstream from an ADF&G regulatory marker at the high tide line to Caribou Lake			
Fish Creek Dipnet Fishery		July 10 to July 30, from 11:00 a.m. to 11:00 p.m., seven days per week	25 salmon per household head and 10 for each dependent; only one king salmon may be retained	

Source: ADF&G 2000b

PARTICIPATION IN RESOURCE HARVESTS AND USES

As reported in Table 21 (see also Table 22 and Table 23), 97.1 percent of Seward households used at least one wild resource during the 2000/01 study year. Most households engaged in at least one hunting, fishing, or gathering activity (88.5 percent); 88.5 percent harvested at least one kind of wild resource. Additionally, 86.5 percent of Seward households received at least one wild food as a gift from another household, and 65.4 percent of households shared wild resources with others. Study findings were similar for Moose Pass: 99.0 percent of Moose Pass households used at least one wild resource, 91.9 percent attempted a harvest and the same percentage successfully harvested at least one wild food, 86.9 percent received a wild resource from another households, and 59.6 percent gave away at least one resource to another household.

Study findings about the involvement of individuals in hunting, fishing, trapping, gathering, and resource processing activities in each study community are reported in Table 24 and illustrated in Figure 6. A larger percentage of residents of Moose Pass hunted (24.2 percent) than did so in Seward (13.2 percent). Otherwise, individual involvement in resource activities was similar in both places. About 62.8 percent of Moose Pass residents fished, compared to 56.4 percent in Seward. Few people trapped: 4.8 percent in Moose Pass and 1.1 percent in Seward. The activity involving the most people was harvesting of wild plants; 70.6 percent of Moose Pass residents and 67.1 percent in Seward engaged in this activity. Overall, most people in both communities participated in at least one harvest activity in the study year, including 83.6 percent of Moose Pass residents and 80.0 percent of Seward residents. Additionally, 83.2 percent of Moose Pass residents helped process wild resources as did 77.5 percent of Seward residents.

RESOURCES HARVESTED AND USED

As shown in Figure 7 (see also Table 22 and Table 23), salmon was the most widely used wild resource category in both Seward and Moose Pass in the 2000/01 study year. In Seward, 86.5 percent all households used salmon, as did 84.8 percent of Moose Pass households. Wild plants (used by 84.6 percent of Seward households and 80.8 percent of Moose Pass households) ranked second, and fish other than salmon ranked third among resource categories (79.8 percent

Table 21. Resource Harvest and Use Characteristics for the Communities of Moose Pass and Seward, 2000/01

	Moose Pass	Seward
Mean Number Of Resources Used Per Household	7.87	7.54
Minimum	0.00	0.00
Maximum	30.00	32.00
95 % Confidence Limit (+/-)	9.21	14.01
Median	6.00	6.50
Mean Number Of Resources Attempted To Harvest Per Household	6.11	5.08
Minimum	0.00	0.00
Maximum	29.00	23.00
95 % Confidence Limit (+/-)	11.18	19.09
Median	5.00	4.00
Mean Number Of Resources Harvested Per Household	5.28	4.44
Minimum	0.00	0.00
Maximum	26.00	21.00
95 % Confidence Limit (+/-)	11.62	18.93
Median	4.00	3.50
Mean Number Of Resources Received Per Household	3.64	4.17
Minimum	0.00	0.00
Maximum	22.00	27.00
95 % Confidence Limit (+/-)	12.39	18.39
Median	2.00	4.00
Mean Number Of Resources Given Away Per Household	2.19	2.04
Minimum	0.00	0.00
Maximum	22.00	24.00
95 % Confidence Limit (+/-)	18.45	28.36
Median	1.00	1.00
Mean Household Harvest, Pounds	236.49	261.05
Minimum	0.00	0.00
Maximum	1,870.08	3,328.40
Total Pounds Harvested	35,000.25	440,383.54
Community Per Capita Harvest, Pounds	87.0	97.0
Percent Using Any Resource	98.99	97.12
Percent Attempting To Harvest Any Resource	91.92	88.46
Percent Harvesting Any Resource	91.92	88.46
Percent Receiving Any Resource	86.87	86.54
Percent Giving Away Any Resource	59.60	65.38
Number Of Households In Sample	99	104
Number of Resources Available	143	143

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Survey, 2001

Table 22 . Estimated Harvest and Use of Fish, Game, and Plant Resources,

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			95% Conf Limit (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Percapita	Total		Mean HH	Harvest
All Resources	97.1	88.5	88.5	86.5	65.4	440383.54	261.05	96.96	440383.5	lbs	261.05	39.20%
Fish	93.3	67.3	63.5	75	48.1	315112.59	186.79	69.38	315112.6	lbs	186.79	41.50%
Salmon	86.5	61.5	56.7	58.7	37.5	210745.69	124.92	46.4	37302.37		22.11	48.90%
Chum Salmon	8.7	6.7	5.8	4.8	2.9	4180.87	2.48	0.92	697.51		0.41	121.20%
Coho Salmon	72.1	55.8	51	35.6	29.8	96668.34	57.3	21.28	17901.55		10.61	41.30%
Chinook Salmon	50	34.6	28.8	28.8	12.5	29525.1	17.5	6.5	1622.12		0.96	43.80%
Pink Salmon	15.4	12.5	11.5	4.8	4.8	2407.48	1.43	0.53	1313.91		0.78	73.70%
Sockeye Salmon	47.1	28.8	26	29.8	17.3	77623.25	46.01	17.09	15540.19		9.21	102.00%
Landlocked Salmon	3.8	2.9	2.9	1.9	0	340.64	0.2	0.07	227.1		0.13	113.80%
Unknown Salmon	6.7	0	0	6.7	0	0	0	0	0		0	0.00%
Non-Salmon Fish	79.8	52.9	49	60.6	30.8	104366.9	61.87	22.98	104366.9	lbs	61.87	58.50%
Herring	1	0	0	1	0	0	0	0	0		0	0.00%
Herring Roe	1.9	1	1	1	1	1476.13	0.88	0.33	1476.13	lbs	0.88	192.10%
Herring Sac Roe	0	0	0	0	0	0	0	0	0		0	0.00%
Herring Spawn on Kelp	1.9	1	1	1	1	1476.13	0.88	0.33	210.88	gal	0.13	192.10%
Smelt	2.9	1.9	1.9	1.9	1.9	316.31	0.19	0.07	316.31	lbs	0.19	163.00%
Eulachon (hooligan, candlefish)	2.9	1.9	1.9	1.9	1.9	316.31	0.19	0.07	97.33	gal	0.06	163.00%
Unknown Smelt	0	0	0	0	0	0	0	0	0		0	0.00%
Cod	10.6	4.8	4.8	5.8	2.9	1268.49	0.75	0.28	843.5		0.5	149.40%
Pacific Cod (gray)	6.7	2.9	2.9	3.8	1.9	986.25	0.58	0.22	308.2		0.18	119.20%
Pacific Tom Cod	2.9	1.9	1.9	1	1	259.54	0.15	0.06	519.08		0.31	180.40%
Walleye Pollock (whiting)	1.9	1	1	1	0	22.71	0.01	0	16.22		0.01	192.10%
Eel	1	0	0	1	0	0	0	0	0		0	0.00%
Flounder	1.9	1	1	1	0	48.66	0.03	0.01	16.22		0.01	192.10%
Starry Flounder	1.9	1	1	1	0	48.66	0.03	0.01	16.22		0.01	192.10%
Unknown Flounder	0	0	0	0	0	0	0	0	0		0	0.00%
Greenling	20.2	12.5	11.5	10.6	2.9	6553.35	3.88	1.44	1808.66		1.07	112.70%
Lingcod	20.2	12.5	11.5	10.6	2.9	6326.25	3.75	1.39	1581.56		0.94	122.20%
Unknown Greenling	1.9	1.9	1.9	0	0	227.1	0.13	0.05	227.1		0.13	147.30%
Halibut	72.1	33.7	27.9	55.8	21.2	57763.53	34.24	12.72	57763.53	lbs	34.24	61.20%
Rockfish	29.8	18.3	17.3	16.3	4.8	17660.78	10.47	3.89	9525.87		5.65	107.70%
Black Rockfish	18.3	13.5	13.5	7.7	3.8	12165.87	7.21	2.68	8110.58		4.81	118.40%
Red Rockfish	19.2	10.6	9.6	11.5	1	5336.76	3.16	1.18	1334.19		0.79	120.30%
Unknown Rockfish	2.9	2.9	1	1.9	1	158.16	0.09	0.03	81.11		0.05	192.10%
Sablefish (black cod)	9.6	2.9	1.9	8.7	1.9	704	0.42	0.15	227.1		0.13	147.30%
Sculpin	1	0	0	1	0	0	0	0	0		0	0.00%

Table 22 . Estimated Harvest and Use of Fish, Game, and Plant Resources, Seward, 2000

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested		95% Conf Limit (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Percapita	Total	Mean HH	Harvest
Irish Lord	1	0	0	1	0	0	0	0	0	0	0.00%
Unknown Irish Lord	1	0	0	1	0	0	0	0	0	0	0.00%
Unknown Sculpin	0	0	0	0	0	0	0	0	0	0	0.00%
Shark	3.8	1.9	1.9	1.9	2.9	291.98	0.17	0.06	32.44	0.02	135.20%
Unknown Shark	3.8	1.9	1.9	1.9	2.9	291.98	0.17	0.06	32.44	0.02	135.20%
Skates	1	0	0	1	1	0	0	0	0	0	0.00%
Sole	2.9	2.9	2.9	0	1	583.96	0.35	0.13	583.96	0.35	161.40%
Unknown Sole	2.9	2.9	2.9	0	1	583.96	0.35	0.13	583.96	0.35	161.40%
Wolffish	1	1	1	0	0	48.66	0.03	0.01	97.33	0.06	192.10%
Char	22.1	20.2	19.2	4.8	3.8	12683.32	7.52	2.79	9059.51	5.37	97.90%
Dolly Varden	19.2	18.3	17.3	3.8	2.9	12240.48	7.26	2.69	8743.2	5.18	101.30%
Lake Trout	7.7	7.7	6.7	1	1	442.84	0.26	0.1	316.31	0.19	86.10%
Grayling	5.8	8.7	5.8	0	0	510.97	0.3	0.11	729.95	0.43	134.80%
Pike	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Pike	0	0	0	0	0	0	0	0	0	0	0.00%
Sturgeon	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Sturgeon	0	0	0	0	0	0	0	0	0	0	0.00%
Trout	22.1	23.1	18.3	6.7	4.8	4144.5	2.46	0.91	2960.36	1.75	65.40%
Cutthroat Trout	1.9	1.9	1.9	0	0	68.13	0.04	0.01	48.66	0.03	142.60%
Rainbow Trout	18.3	22.1	18.3	2.9	2.9	4076.38	2.42	0.9	2911.7	1.73	66.40%
Steelhead	1	2.9	0	1	1	0	0	0	0	0	0.00%
Unknown Trout	2.9	0	0	2.9	1	0	0	0	0	0	0.00%
Whitefish	1.9	1.9	1.9	0	0	312.26	0.19	0.07	178.43	0.11	175.40%
Unknown Whitefish	1.9	1.9	1.9	0	0	312.26	0.19	0.07	178.43	0.11	175.40%
Land Mammals	47.1	16.3	9.6	42.3	9.6	69418.43	41.15	15.28	502.86	0.3	64.60%
Large Land Mammals	47.1	16.3	9.6	42.3	9.6	69240	41.04	15.24	324.42	0.19	65.60%
Bison	4.8	0	0	4.8	1	0	0	0	0	0	0.00%
Black Bear	9.6	4.8	3.8	6.7	2.9	4704.13	2.79	1.04	81.11	0.05	100.40%
Brown Bear	1.9	0	0	1.9	0	0	0	0	0	0	0.00%
Caribou	16.3	2.9	1	16.3	1.9	7299.52	4.33	1.61	48.66	0.03	192.10%
Deer	12.5	3.8	1.9	10.6	2.9	3503.77	2.08	0.77	81.11	0.05	137.90%
Elk	1	0	0	1	0	0	0	0	0	0	0.00%
Goat	3.8	3.8	1	2.9	1	1176.03	0.7	0.26	16.22	0.01	192.10%
Moose	33.7	14.4	5.8	28.8	6.7	52556.54	31.15	11.57	97.33	0.06	76.50%
Dall Sheep	0	0	0	0	0	0	0	0	0	0	0.00%
Small Land Mammals	5.8	3.8	3.8	3.8	0	178.43	0.11	0.04	178.43	0.11	105.10%

Table 22 . Estimated Harvest and Use of Fish, Game, and Plant Resources, Seward, 2000

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested		95% Conf Limit (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Percapita	Total	Mean HH	Harvest
Beaver	1.9	1	1	1.9	0	0	0	0	16.22	0.01	192.10%
Coyote	1.9	1.9	1.9	1	0	16.22	0.01	0	64.88	0.04	135.20%
Fox	0	0	0	0	0	0	0	0	0	0	0.00%
Red Fox	0	0	0	0	0	0	0	0	0	0	0.00%
Hare	3.8	2.9	2.9	1	0	162.21	0.1	0.04	81.11	0.05	137.90%
Snowshoe Hare	3.8	2.9	2.9	1	0	162.21	0.1	0.04	81.11	0.05	137.90%
Land Otter	0	0	0	0	0	0	0	0	0	0	0.00%
Lynx	0	0	0	0	0	0	0	0	0	0	0.00%
Marmot	0	0	0	0	0	0	0	0	0	0	0.00%
Marten	1	1	1	0	0	0	0	0	16.22	0.01	192.10%
Mink	0	0	0	0	0	0	0	0	0	0	0.00%
Muskrat	0	0	0	0	0	0	0	0	0	0	0.00%
Porcupine	0	0	0	0	0	0	0	0	0	0	0.00%
Squirrel	0	0	0	0	0	0	0	0	0	0	0.00%
Parka Squirrel (ground)	0	0	0	0	0	0	0	0	0	0	0.00%
Tree Squirrel	0	0	0	0	0	0	0	0	0	0	0.00%
Weasel	0	0	0	0	0	0	0	0	0	0	0.00%
Wolf	0	0	0	0	0	0	0	0	0	0	0.00%
Wolverine	0	0	0	0	0	0	0	0	0	0	0.00%
Marine Mammals	1.9	0	0	1.9	0	0	0	0	0	0	0.00%
Seal	0	0	0	0	0	0	0	0	0	0	0.00%
Harbor Seal	0	0	0	0	0	0	0	0	0	0	0.00%
Harbor Seal (saltwater)	0	0	0	0	0	0	0	0	0	0	0.00%
Sea Otter	0	0	0	0	0	0	0	0	0	0	0.00%
Steller Sea Lion	0	0	0	0	0	0	0	0	0	0	0.00%
Whale	1.9	0	0	1.9	0	0	0	0	0	0	0.00%
Belukha	0	0	0	0	0	0	0	0	0	0	0.00%
Bowhead	1.9	0	0	1.9	0	0	0	0	0	0	0.00%
Birds and Eggs	15.4	14.4	10.6	5.8	2.9	3803.86	2.25	0.84	5336.76	3.16	121.40%
Migratory Birds	3.8	2.9	1.9	1.9	1	590.45	0.35	0.13	746.17	0.44	176.00%
Ducks	2.9	2.9	1.9	1	1	590.45	0.35	0.13	746.17	0.44	176.00%
Bufflehead	0	0	0	0	0	0	0	0	0	0	0.00%
Gadwall	1	1	1	0	0	77.86	0.05	0.02	97.33	0.06	192.10%
Goldeneye	1	1	1	0	0	77.86	0.05	0.02	97.33	0.06	192.10%
Unknown Goldeneye	1	1	1	0	0	77.86	0.05	0.02	97.33	0.06	192.10%
Harlequin	0	0	0	0	0	0	0	0	0	0	0.00%

Table 22 . Estimated Harvest and Use of Fish, Game, and Plant Resources, Seward, 2000

	Percentage of Households					Pounds Harvested			Amount Harvested		95% Conf Limit (+/-)
Mallard	2.9	1.9	1.9	1	0	162.21	0.1	0.04	162.21	0.1	137.90%
Merganser	0	0	0	0	0	0	0	0	0	0	0.00%
Common Merganser	0	0	0	0	0	0	0	0	0	0	0.00%
Red-Breasted Merganser	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Merganser	0	0	0	0	0	0	0	0	0	0	0.00%
Long-tailed Duck (Oldsquaw)	1	1	1	0	1	77.86	0.05	0.02	97.33	0.06	192.10%
Northern Pintail	1	1	1	0	0	77.86	0.05	0.02	97.33	0.06	192.10%
Scaup	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Scaup	0	0	0	0	0	0	0	0	0	0	0.00%
Scoter	1	1	1	0	1	87.59	0.05	0.02	97.33	0.06	192.10%
Black Scoter	0	0	0	0	0	0	0	0	0	0	0.00%
Surf Scoter	1	1	1	0	1	87.59	0.05	0.02	97.33	0.06	192.10%
White-winged Scoter	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Scoter	0	0	0	0	0	0	0	0	0	0	0.00%
Northern Shoveler	0	0	0	0	0	0	0	0	0	0	0.00%
Teal	1	1	1	0	0	29.2	0.02	0.01	97.33	0.06	192.10%
Green Winged Teal	1	1	1	0	0	29.2	0.02	0.01	97.33	0.06	192.10%
Wigeon	0	0	0	0	0	0	0	0	0	0	0.00%
American Wigeon	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Ducks	0	1	0	0	0	0	0	0	0	0	0.00%
Geese	1	0	0	1	0	0	0	0	0	0	0.00%
Brant	0	0	0	0	0	0	0	0	0	0	0.00%
Canada Geese	1	0	0	1	0	0	0	0	0	0	0.00%
Dusky Canada Geese	0	0	0	0	0	0	0	0	0	0	0.00%
Lesser Canada Geese	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Canada Geese	1	0	0	1	0	0	0	0	0	0	0.00%
White-fronted Geese	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Geese	0	0	0	0	0	0	0	0	0	0	0.00%
Crane	0	0	0	0	0	0	0	0	0	0	0.00%
Sandhill Crane	0	0	0	0	0	0	0	0	0	0	0.00%
Shorebirds	0	0	0	0	0	0	0	0	0	0	0.00%
Common Snipe	0	0	0	0	0	0	0	0	0	0	0.00%
Seabirds & Loons	0	0	0	0	0	0	0	0	0	0	0.00%
Cormorants	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Cormorant	0	0	0	0	0	0	0	0	0	0	0.00%
Gulls	0	0	0	0	0	0	0	0	0	0	0.00%

Table 22 . Estimated Harvest and Use of Fish, Game, and Plant Resources, Seward, 2000

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested		95% Conf Limit (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Percapita	Total	Mean HH	Harvest
Unknown Gull	0	0	0	0	0	0	0	0	0	0	0.00%
Loons	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Loon	0	0	0	0	0	0	0	0	0	0	0.00%
Murre	0	0	0	0	0	0	0	0	0	0	0.00%
Common Murre	0	0	0	0	0	0	0	0	0	0	0.00%
Puffins	0	0	0	0	0	0	0	0	0	0	0.00%
Horned Puffin	0	0	0	0	0	0	0	0	0	0	0.00%
Tufted Puffin	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Puffin	0	0	0	0	0	0	0	0	0	0	0.00%
Other Birds	12.5	12.5	9.6	3.8	1.9	3213.41	1.9	0.71	4590.59	2.72	136.90%
Upland Game Birds	12.5	12.5	9.6	3.8	1.9	3213.41	1.9	0.71	4590.59	2.72	136.90%
Grouse	6.7	9.6	6.7	0	1	590.45	0.35	0.13	843.5	0.5	87.70%
Spruce Grouse	5.8	8.7	5.8	0	1	533.68	0.32	0.12	762.39	0.45	95.30%
Sharp-tailed Grouse	0	0	0	0	0	0	0	0	0	0	0.00%
Ruffed Grouse	1	1.9	1	0	0	56.77	0.03	0.01	81.11	0.05	192.10%
Unknown Grouse	0	0	0	0	0	0	0	0	0	0	0.00%
Ptarmigan	7.7	7.7	4.8	3.8	1	2622.96	1.55	0.58	3747.09	2.22	166.60%
White-tailed Ptarmigan	7.7	7.7	4.8	3.8	1	2622.96	1.55	0.58	3747.09	2.22	166.60%
Bird Eggs	0	0	0	0	0	0	0	0	0	0	0.00%
Duck Eggs	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Duck Eggs	0	0	0	0	0	0	0	0	0	0	0.00%
Geese Eggs	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Geese Eggs	0	0	0	0	0	0	0	0	0	0	0.00%
Seabird & Loon Eggs	0	0	0	0	0	0	0	0	0	0	0.00%
Gull Eggs	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Gull Eggs	0	0	0	0	0	0	0	0	0	0	0.00%
Puffin Eggs	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Puffin Eggs	0	0	0	0	0	0	0	0	0	0	0.00%
Tern Eggs	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Seabird Eggs	0	0	0	0	0	0	0	0	0	0	0.00%
Marine Invertebrates	35.6	14.4	12.5	27.9	10.6	22825.27	13.53	5.03	22825.27 lbs	13.53	96.20%
Chitons (bidarkis, gumboots)	0	0	0	0	0	0	0	0	0 gal	0	0.00%
Red (large) Chitons	0	0	0	0	0	0	0	0	0 gal	0	0.00%
Black (small) Chitons	0	0	0	0	0	0	0	0	0 gal	0	0.00%
Clams	21.2	8.7	8.7	15.4	6.7	15049.18	8.92	3.31	5016.39 gal	2.97	121.70%
Butter Clams	3.8	1.9	1.9	2.9	1	133.82	0.08	0.03	44.61 gal	0.03	175.40%

Table 22 . Estimated Harvest and Use of Fish, Game, and Plant Resources, Seward, 2000

	Percentage of Households					Pounds Harvested			Amount Harvested		95% Conf Limit (+/-)
Horse Clams (Gaper)	1	1	1	0	0	48.66	0.03	0.01	16.22 gal	0.01	192.10%
Pacific Littleneck Clams (Steamers)	5.8	3.8	3.8	1.9	1.9	656.96	0.39	0.14	218.99 gal	0.13	106.50%
Pinkneck Clams	0	0	0	0	0	0	0	0	0 gal	0	0.00%
Razor Clams	14.4	5.8	5.8	10.6	3.8	14209.73	8.42	3.13	4736.58 gal	2.81	127.80%
Unknown Clams	0	0	0	0	0	0	0	0	0 gal	0	0.00%
Cockles	1	1	1	0	0	24.33	0.01	0.01	8.11 gal	0	192.10%
Unknown Cockles	1	1	1	0	0	24.33	0.01	0.01	8.11 gal	0	192.10%
Crabs	13.5	3.8	2.9	11.5	4.8	7416.31	4.4	1.63	7416.31 lbs	4.4	165.80%
Dungeness Crab	2.9	1.9	1	1.9	0	1135.48	0.67	0.25	1622.12	0.96	192.10%
King Crab	5.8	0	0	5.8	1.9	0	0	0	0 gal	0	0.00%
Unknown King Crab	5.8	0	0	5.8	1.9	0	0	0	0 gal	0	0.00%
Tanner Crab	5.8	2.9	2.9	3.8	2.9	6280.83	3.72	1.38	3925.52	2.33	161.60%
Tanner Crab, Bairdi	4.8	1.9	1.9	3.8	2.9	1090.06	0.65	0.24	681.29	0.4	183.10%
Unknown Tanner Crab	1	1	1	0	0	5190.77	3.08	1.14	3244.23	1.92	192.10%
Unknown Crab	1	0	0	1	0	0	0	0	0 gal	0	0.00%
Geoducks	1.9	1.9	1.9	0	0	291.98	0.17	0.06	97.33	0.06	163.00%
Limpets	1	1	1	0	0	2.92	0	0	1.95 gal	0	192.10%
Mussels	1.9	1	1	1	1	12.17	0.01	0	8.11 gal	0	192.10%
Unknown Mussels	1.9	1	1	1	1	12.17	0.01	0	8.11 gal	0	192.10%
Octopus	1.9	0	0	1.9	0	0	0	0	0	0	0.00%
Oyster	3.8	0	0	3.8	0	0	0	0	0 gal	0	0.00%
Unknown Oyster	3.8	0	0	3.8	0	0	0	0	0 gal	0	0.00%
Scallops	4.8	1	0	4.8	0	0	0	0	0 gal	0	0.00%
Unknown Scallops	4.8	1	0	4.8	0	0	0	0	0 gal	0	0.00%
Sea Cucumber	1	1	1	0	1	16.22	0.01	0	8.11 gal	0	192.10%
Sea Urchin	1	0	0	1	0	0	0	0	0 gal	0	0.00%
Unknown Sea Urchin	1	0	0	1	0	0	0	0	0 gal	0	0.00%
Shrimp	5.8	0	0	5.8	1.9	0	0	0	0 gal	0	0.00%
Snails	1	1	1	0	0	12.17	0.01	0	8.11 gal	0	192.10%
Vegetation	84.6	77.9	77.9	45.2	42.3	29223.38	17.32	6.43	29223.38 lbs	17.32	47.00%
Berries	80.8	74	74	40.4	37.5	23228.04	13.77	5.11	5807.01 gal	3.44	51.70%
Plants/Greens/Mushrooms	18.3	13.5	13.5	6.7	2.9	3432.4	2.03	0.76	858.1 gal	0.51	86.90%
Seaweed/Kelp	3.8	3.8	3.8	1.9	2.9	2562.94	1.52	0.56	640.74 gal	0.38	131.70%
Unknown Seaweed	3.8	3.8	3.8	1.9	2.9	2562.94	1.52	0.56	640.74 gal	0.38	131.70%
Wood	30.8	29.8	29.8	1.9	6.7	0	0	0	2246.63 crd	1.33	52.30%

Table 23. Estimated Harvest and Use of Fish, Game, and Plant Resources, Moose Pass, 2000

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			95% Conf Limit (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Percapita	Total		Mean HH	Harvest
All Resources	99	91.9	91.9	86.9	59.6	35000.25	236.49	87.03	35000.25	lbs	236.49	18.00%
Fish	94.9	69.7	66.7	67.7	39.4	20839.97	140.81	51.82	20839.97	lbs	140.81	18.90%
Salmon	84.8	59.6	55.6	56.6	31.3	12838.98	86.75	31.93	2212.53		14.95	19.10%
Chum Salmon	7.1	5.1	4	3	3	161.29	1.09	0.4	26.91		0.18	70.60%
Coho Salmon	58.6	44.4	41.4	30.3	19.2	4682.18	31.64	11.64	867.07		5.86	22.70%
Chinook Salmon	25.3	23.2	16.2	14.1	10.1	2340.1	15.81	5.82	128.57		0.87	44.50%
Pink Salmon	16.2	12.1	11.1	7.1	5.1	169.83	1.15	0.42	92.69		0.63	45.60%
Sockeye Salmon	51.5	38.4	36.4	24.2	20.2	5443.64	36.78	13.54	1089.82		7.36	23.60%
Landlocked Salmon	0	0	0	0	0	0	0	0	0		0	0.00%
Unknown Salmon	8.1	1	1	8.1	2	41.93	0.28	0.1	7.47		0.05	114.20%
Non-Salmon Fish	78.8	61.6	56.6	47.5	23.2	8000.98	54.06	19.9	8000.98	lbs	54.06	22.50%
Herring	1	0	0	1	0	0	0	0	0		0	0.00%
Herring Roe	0	0	0	0	0	0	0	0	0	lbs	0	0.00%
Herring Sac Roe	0	0	0	0	0	0	0	0	0		0	0.00%
Herring Spawn on Kelp	0	0	0	0	0	0	0	0	0	gal	0	0.00%
Smelt	1	1	0	1	0	0	0	0	0	lbs	0	0.00%
Eulachon (hooligan, candlefish)	1	1	0	1	0	0	0	0	0	gal	0	0.00%
Unknown Smelt	0	1	0	0	0	0	0	0	0		0	0.00%
Cod	6.1	1	1	5.1	1	9.57	0.06	0.02	2.99		0.02	114.20%
Pacific Cod (gray)	6.1	1	1	5.1	1	9.57	0.06	0.02	2.99		0.02	114.20%
Pacific Tom Cod	0	0	0	0	0	0	0	0	0		0	0.00%
Walleye Pollock (whiting)	1	0	0	1	0	0	0	0	0		0	0.00%
Eel	1	0	0	1	0	0	0	0	0		0	0.00%
Flounder	1	1	1	1	1	8.97	0.06	0.02	2.99		0.02	114.20%
Starry Flounder	1	1	1	1	1	8.97	0.06	0.02	2.99		0.02	114.20%
Unknown Flounder	0	0	0	0	0	0	0	0	0		0	0.00%
Greenling	21.2	12.1	12.1	11.1	5.1	469.41	3.17	1.17	119.6		0.81	73.50%
Lingcod	21.2	12.1	12.1	11.1	5.1	466.42	3.15	1.16	116.61		0.79	75.20%
Unknown Greenling	2	1	1	2	1	2.99	0.02	0.01	2.99		0.02	114.20%
Halibut	60.6	36.4	32.3	37.4	15.2	5422.72	36.64	13.48	5422.72	lbs	36.64	23.60%
Rockfish	22.2	16.2	16.2	11.1	8.1	532.05	3.59	1.32	254.14		1.72	41.60%
Black Rockfish	15.2	13.1	13.1	5.1	5.1	287.03	1.94	0.71	191.35		1.29	47.50%
Red Rockfish	15.2	9.1	9.1	6.1	4	239.19	1.62	0.59	59.8		0.4	46.10%
Unknown Rockfish	3	1	1	3	1	5.83	0.04	0.01	2.99		0.02	114.20%
Sablefish (black cod)	5.1	2	2	3	2	13.9	0.09	0.03	4.48		0.03	84.80%
Sculpin	1	1	1	0	0	1.49	0.01	0	2.99		0.02	114.20%

Table 23. Estimated Harvest and Use of Fish, Game, and Plant Resources, Moose Pass, 2000

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested		95% Conf Limit (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Percapita	Total	Mean HH	Harvest
Irish Lord	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Irish Lord	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Sculpin	1	1	1	0	0	1.49	0.01	0	2.99	0.02	114.20%
Shark	1	0	0	1	0	0	0	0	0	0	0.00%
Unknown Shark	1	0	0	1	0	0	0	0	0	0	0.00%
Skates	0	0	0	0	0	0	0	0	0	0	0.00%
Sole	1	0	0	1	0	0	0	0	0	0	0.00%
Unknown Sole	1	0	0	1	0	0	0	0	0	0	0.00%
Wolffish	0	0	0	0	0	0	0	0	0	0	0.00%
Char	28.3	27.3	23.2	6.1	3	782.76	5.29	1.95	559.11	3.78	36.00%
Dolly Varden	18.2	18.2	14.1	4	1	372.54	2.52	0.93	266.1	1.8	40.70%
Lake Trout	20.2	18.2	16.2	5.1	3	410.21	2.77	1.02	293.01	1.98	38.00%
Grayling	9.1	10.1	8.1	2	4	61.74	0.42	0.15	88.2	0.6	50.80%
Pike	3	1	1	3	0	44.85	0.3	0.11	14.95	0.1	114.20%
Unknown Pike	3	1	1	3	0	44.85	0.3	0.11	14.95	0.1	114.20%
Sturgeon	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Sturgeon	0	0	0	0	0	0	0	0	0	0	0.00%
Trout	38.4	34.3	30.3	10.1	4	650.9	4.4	1.62	464.93	3.14	22.40%
Cutthroat Trout	0	0	0	0	0	0	0	0	0	0	0.00%
Rainbow Trout	38.4	34.3	30.3	10.1	4	625.79	4.23	1.56	446.99	3.02	22.60%
Steelhead	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Trout	1	1	1	0	0	25.12	0.17	0.06	17.94	0.12	114.20%
Whitefish	1	1	1	0	0	2.62	0.02	0.01	1.49	0.01	114.20%
Unknown Whitefish	1	1	1	0	0	2.62	0.02	0.01	1.49	0.01	114.20%
Land Mammals	56.6	33.3	22.2	45.5	16.2	9854.41	66.58	24.5	330.38	2.23	74.30%
Large Land Mammals	54.5	31.3	15.2	45.5	15.2	9767.7	66	24.29	61.29	0.41	38.20%
Bison	0	0	0	0	0	0	0	0	0	0	0.00%
Black Bear	17.2	14.1	6.1	11.1	6.1	520.24	3.52	1.29	8.97	0.06	45.40%
Brown Bear	0	1	0	0	0	0	0	0	0	0	0.00%
Caribou	10.1	1	1	9.1	3	1345.45	9.09	3.35	8.97	0.06	114.20%
Deer	14.1	6.1	3	11.1	3	1227.05	8.29	3.05	28.4	0.19	68.20%
Elk	1	0	0	1	0	0	0	0	0	0	0.00%
Goat	5.1	3	2	3	3	216.77	1.46	0.54	2.99	0.02	80.30%
Moose	41.4	28.3	8.1	36.4	9.1	6458.18	43.64	16.06	11.96	0.08	38.90%
Dall Sheep	5.1	4	0	5.1	2	0	0	0	0	0	0.00%
Small Land Mammals	10.1	14.1	10.1	1	2	86.71	0.59	0.22	269.09	1.82	89.80%

Table 23. Estimated Harvest and Use of Fish, Game, and Plant Resources, Moose Pass, 2000

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested		95% Conf Limit (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Percapita	Total	Mean HH	Harvest
Beaver	2	3	2	0	1	0	0	0	85.21	0.58	112.20%
Coyote	2	2	2	0	0	0	0	0	23.92	0.16	90.00%
Fox	1	1	1	1	0	0	0	0	1.49	0.01	114.20%
Red Fox	1	1	1	1	0	0	0	0	1.49	0.01	114.20%
Hare	6.1	9.1	6.1	0	1	86.71	0.59	0.22	43.35	0.29	58.20%
Snowshoe Hare	6.1	9.1	6.1	0	1	86.71	0.59	0.22	43.35	0.29	58.20%
Land Otter	0	0	0	0	0	0	0	0	0	0	0.00%
Lynx	1	1	1	0	0	0	0	0	2.99	0.02	114.20%
Marmot	0	0	0	0	0	0	0	0	0	0	0.00%
Marten	2	3	2	0	1	0	0	0	26.91	0.18	92.10%
Mink	1	2	1	0	0	0	0	0	52.32	0.35	114.20%
Muskrat	0	0	0	0	0	0	0	0	0	0	0.00%
Porcupine	1	1	1	0	0	0	0	0	1.49	0.01	114.20%
Squirrel	0	0	0	0	0	0	0	0	0	0	0.00%
Parka Squirrel (ground)	0	0	0	0	0	0	0	0	0	0	0.00%
Tree Squirrel	0	0	0	0	0	0	0	0	0	0	0.00%
Weasel	1	1	1	0	0	0	0	0	10.46	0.07	114.20%
Wolf	1	1	1	0	0	0	0	0	19.43	0.13	114.20%
Wolverine	1	1	1	0	0	0	0	0	1.49	0.01	114.20%
Marine Mammals	0	0	0	0	0	0	0	0	0	0	0.00%
Seal	0	0	0	0	0	0	0	0	0	0	0.00%
Harbor Seal	0	0	0	0	0	0	0	0	0	0	0.00%
Harbor Seal (saltwater)	0	0	0	0	0	0	0	0	0	0	0.00%
Sea Otter	0	0	0	0	0	0	0	0	0	0	0.00%
Steller Sea Lion	0	0	0	0	0	0	0	0	0	0	0.00%
Whale	0	0	0	0	0	0	0	0	0	0	0.00%
Belukha	0	0	0	0	0	0	0	0	0	0	0.00%
Bowhead	0	0	0	0	0	0	0	0	0	0	0.00%
Birds and Eggs	24.2	26.3	23.2	3	7.1	644.89	4.36	1.6	920.89	6.22	33.70%
Migratory Birds	6.1	6.1	6.1	2	3	173.83	1.17	0.43	237.7	1.61	67.70%
Ducks	6.1	6.1	6.1	2	3	166.21	1.12	0.41	230.22	1.56	66.90%
Bufflehead	1	1	1	0	0	1.2	0.01	0	2.99	0.02	114.20%
Gadwall	1	1	1	0	0	4.78	0.03	0.01	5.98	0.04	114.20%
Goldeneye	2	2	2	0	0	7.18	0.05	0.02	8.97	0.06	84.80%
Unknown Goldeneye	2	2	2	0	0	7.18	0.05	0.02	8.97	0.06	84.80%
Harlequin	0	0	0	0	0	0	0	0	0	0	0.00%

Table 23. Estimated Harvest and Use of Fish, Game, and Plant Resources, Moose Pass, 2000

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested		95% Conf Limit (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Percapita	Total	Mean HH	Harvest
Mallard	4	4	4	1	3	74.75	0.51	0.19	74.75	0.51	66.60%
Merganser	1	1	1	0	0	1.35	0.01	0	1.49	0.01	114.20%
Common Merganser	1	1	1	0	0	1.35	0.01	0	1.49	0.01	114.20%
Red-Breasted Merganser	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Merganser	0	0	0	0	0	0	0	0	0	0	0.00%
Long-tailed Duck (Oldsquaw)	0	0	0	0	0	0	0	0	0	0	0.00%
Northern Pintail	1	1	1	0	0	4.78	0.03	0.01	5.98	0.04	114.20%
Scaup	1	1	1	0	0	1.35	0.01	0	1.49	0.01	114.20%
Unknown Scaup	1	1	1	0	0	1.35	0.01	0	1.49	0.01	114.20%
Scoter	0	0	0	0	0	0	0	0	0	0	0.00%
Black Scoter	0	0	0	0	0	0	0	0	0	0	0.00%
Surf Scoter	0	0	0	0	0	0	0	0	0	0	0.00%
White-winged Scoter	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Scoter	0	0	0	0	0	0	0	0	0	0	0.00%
Northern Shoveler	1	2	1	0	0	4.48	0.03	0.01	7.47	0.05	114.20%
Teal	2	2	2	0	0	14.8	0.1	0.04	49.33	0.33	90.60%
Green Winged Teal	2	2	2	0	0	14.8	0.1	0.04	49.33	0.33	90.60%
Wigeon	2	2	2	0	1	27.21	0.18	0.07	38.87	0.26	91.40%
American Wigeon	2	2	2	0	1	27.21	0.18	0.07	38.87	0.26	91.40%
Unknown Ducks	2	2	2	1	0	24.34	0.16	0.06	32.89	0.22	80.70%
Geese	2	2	2	0	0	7.18	0.05	0.02	2.99	0.02	80.30%
Brant	0	0	0	0	0	0	0	0	0	0	0.00%
Canada Geese	2	2	2	0	0	7.18	0.05	0.02	2.99	0.02	80.30%
Dusky Canada Geese	1	1	1	0	0	5.38	0.04	0.01	1.49	0.01	114.20%
Lesser Canada Geese	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Canada Geese	1	1	1	0	0	1.79	0.01	0	1.49	0.01	114.20%
White-fronted Geese	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Geese	0	0	0	0	0	0	0	0	0	0	0.00%
Crane	0	0	0	0	0	0	0	0	0	0	0.00%
Sandhill Crane	0	0	0	0	0	0	0	0	0	0	0.00%
Shorebirds	1	1	1	0	0	0.45	0	0	4.48	0.03	114.20%
Common Snipe	1	1	1	0	0	0.45	0	0	4.48	0.03	114.20%
Seabirds & Loons	0	0	0	0	0	0	0	0	0	0	0.00%
Cormorants	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Cormorant	0	0	0	0	0	0	0	0	0	0	0.00%
Gulls	0	0	0	0	0	0	0	0	0	0	0.00%

Table 23. Estimated Harvest and Use of Fish, Game, and Plant Resources, Moose Pass, 2000

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested		95% Conf Limit (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Percapita	Total	Mean HH	Harvest
Unknown Gull	0	0	0	0	0	0	0	0	0	0	0.00%
Loons	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Loon	0	0	0	0	0	0	0	0	0	0	0.00%
Murre	0	0	0	0	0	0	0	0	0	0	0.00%
Common Murre	0	0	0	0	0	0	0	0	0	0	0.00%
Puffins	0	0	0	0	0	0	0	0	0	0	0.00%
Horned Puffin	0	0	0	0	0	0	0	0	0	0	0.00%
Tufted Puffin	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Puffin	0	0	0	0	0	0	0	0	0	0	0.00%
Other Birds	23.2	25.3	22.2	1	4	465.68	3.15	1.16	665.25	4.49	35.50%
Upland Game Birds	23.2	25.3	22.2	1	4	465.68	3.15	1.16	665.25	4.49	35.50%
Grouse	19.2	20.2	19.2	0	4	320.22	2.16	0.8	457.45	3.09	38.10%
Spruce Grouse	17.2	18.2	17.2	0	4	299.29	2.02	0.74	427.56	2.89	39.90%
Sharp-tailed Grouse	1	1	1	0	1	10.46	0.07	0.03	14.95	0.1	114.20%
Ruffed Grouse	2	2	2	0	0	10.46	0.07	0.03	14.95	0.1	82.00%
Unknown Grouse	0	0	0	0	0	0	0	0	0	0	0.00%
Ptarmigan	16.2	18.2	15.2	1	1	145.46	0.98	0.36	207.8	1.4	40.40%
White-tailed Ptarmigan	16.2	18.2	15.2	1	1	145.46	0.98	0.36	207.8	1.4	40.40%
Bird Eggs	1	1	1	0	1	5.38	0.04	0.01	17.94	0.12	114.20%
Duck Eggs	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Duck Eggs	0	0	0	0	0	0	0	0	0	0	0.00%
Geese Eggs	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Geese Eggs	0	0	0	0	0	0	0	0	0	0	0.00%
Seabird & Loon Eggs	1	1	1	0	1	5.38	0.04	0.01	17.94	0.12	114.20%
Gull Eggs	1	1	1	0	1	5.38	0.04	0.01	17.94	0.12	114.20%
Unknown Gull Eggs	1	1	1	0	1	5.38	0.04	0.01	17.94	0.12	114.20%
Puffin Eggs	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Puffin Eggs	0	0	0	0	0	0	0	0	0	0	0.00%
Tern Eggs	0	0	0	0	0	0	0	0	0	0	0.00%
Unknown Seabird Eggs	0	0	0	0	0	0	0	0	0	0	0.00%
Marine Invertebrates	29.3	16.2	16.2	17.2	7.1	1866.44	12.61	4.64	1866.44 lbs	12.61	47.30%
Chitons (bidarkis, gumboots)	0	0	0	0	0	0	0	0	0 gal	0	0.00%
Red (large) Chitons	0	0	0	0	0	0	0	0	0 gal	0	0.00%
Black (small) Chitons	0	0	0	0	0	0	0	0	0 gal	0	0.00%
Clams	26.3	16.2	16.2	12.1	4	1854.48	12.53	4.61	618.16 gal	4.18	47.60%
Butter Clams	1	0	0	1	0	0	0	0	0 gal	0	0.00%

Table 23. Estimated Harvest and Use of Fish, Game, and Plant Resources, Moose Pass, 2000

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			95% Conf Limit (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Percapita	Total		Mean HH	Harvest
Horse Clams (Gaper)	0	0	0	0	0	0	0	0	0	gal	0	0.00%
Pacific Littleneck Clams (Steamers)	0	0	0	0	0	0	0	0	0	gal	0	0.00%
Pinkneck Clams	0	0	0	0	0	0	0	0	0	gal	0	0.00%
Razor Clams	26.3	16.2	16.2	12.1	4	1854.48	12.53	4.61	618.16	gal	4.18	47.60%
Unknown Clams	0	0	0	0	0	0	0	0	0	gal	0	0.00%
Cockles	0	0	0	0	0	0	0	0	0	gal	0	0.00%
Unknown Cockles	0	0	0	0	0	0	0	0	0	gal	0	0.00%
Crabs	6.1	0	0	6.1	0	0	0	0	0	lbs	0	0.00%
Dungeness Crab	3	0	0	3	0	0	0	0	0		0	0.00%
King Crab	2	0	0	2	0	0	0	0	0	gal	0	0.00%
Unknown King Crab	2	0	0	2	0	0	0	0	0	gal	0	0.00%
Tanner Crab	1	0	0	1	0	0	0	0	0		0	0.00%
Tanner Crab, Bairdi	1	0	0	1	0	0	0	0	0		0	0.00%
Unknown Tanner Crab	0	0	0	0	0	0	0	0	0		0	0.00%
Unknown Crab	1	0	0	1	0	0	0	0	0	gal	0	0.00%
Geoducks	0	0	0	0	0	0	0	0	0		0	0.00%
Limpets	0	0	0	0	0	0	0	0	0	gal	0	0.00%
Mussels	0	0	0	0	0	0	0	0	0	gal	0	0.00%
Unknown Mussels	0	0	0	0	0	0	0	0	0	gal	0	0.00%
Octopus	4	2	1	3	2	11.96	0.08	0.03	2.99		0.02	114.20%
Oyster	3	0	0	3	2	0	0	0	0	gal	0	0.00%
Unknown Oyster	3	0	0	3	2	0	0	0	0	gal	0	0.00%
Scallops	1	0	0	1	0	0	0	0	0	gal	0	0.00%
Unknown Scallops	1	0	0	1	0	0	0	0	0	gal	0	0.00%
Sea Cucumber	0	0	0	0	0	0	0	0	0	gal	0	0.00%
Sea Urchin	0	0	0	0	0	0	0	0	0	gal	0	0.00%
Unknown Sea Urchin	0	0	0	0	0	0	0	0	0	gal	0	0.00%
Shrimp	3	0	0	3	1	0	0	0	0	gal	0	0.00%
Snails	0	0	0	0	0	0	0	0	0	gal	0	0.00%
Vegetation	80.8	76.8	76.8	48.5	39.4	1794.54	12.13	4.46	1794.54	lbs	12.13	19.50%
Berries	72.7	59.6	59.6	43.4	26.3	1380.44	9.33	3.43	345.11	gal	2.33	17.90%
Plants/Greens/Mushrooms	28.3	27.3	26.3	9.1	12.1	373.74	2.53	0.93	93.43	gal	0.63	48.20%
Seaweed/Kelp	6.1	6.1	6.1	1	3	40.36	0.27	0.1	10.09	gal	0.07	53.40%
Unknown Seaweed	6.1	6.1	6.1	1	3	40.36	0.27	0.1	10.09	gal	0.07	53.40%
Wood	68.7	66.7	66.7	8.1	21.2	0	0	0	710.1	crd	4.8	14.20%

Table 24. Participation in the Harvest and Processing of Wild Resources, Seward and Moose Pass, 2000/01

			Moose Pass	Seward
Total Number of People			402.14	4541.92
GAME	Hunt	Number	97.17	600.18
		Percentage	24.16	13.21
		Missing	0	0
		Missing %	0	0
	Process	Number	121.09	648.85
		Percentage	30.11	14.29
		Missing	0	0
		Missing %	0	0
FISH	Fish	Number	252.65	2562.94
		Percentage	62.83	56.43
		Missing	0	16.22
		Missing %	0	0.36
	Process	Number	264.61	2514.28
		Percentage	65.8	55.36
		Missing	0	32.44
		Missing %	0	0.71
FURBEARERS	Hunt or Trap	Number	19.43	48.66
		Percentage	4.83	1.07
		Missing	0	0
		Missing %	0	0
	Process	Number	19.43	64.88
		Percentage	4.83	1.43
		Missing	0	0
		Missing %	0	0
PLANTS	Gather	Number	284.04	3049.58
		Percentage	70.63	67.14
		Missing	0	0
		Missing %	0	0
	Process	Number	282.55	2968.47
		Percentage	70.26	65.36
		Missing	0	0
		Missing %	0	0
ANY RESOURCE				
	Attempt	Number	336.36	3633.54
		Percent	83.64	80
	Process	Number	334.87	3519.99
		Percent	83.27	77.5

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Survey, 2001.

Figure 6. Individual Participation in Harvest Actitvities, Seward and Moose Pass, 2000/01

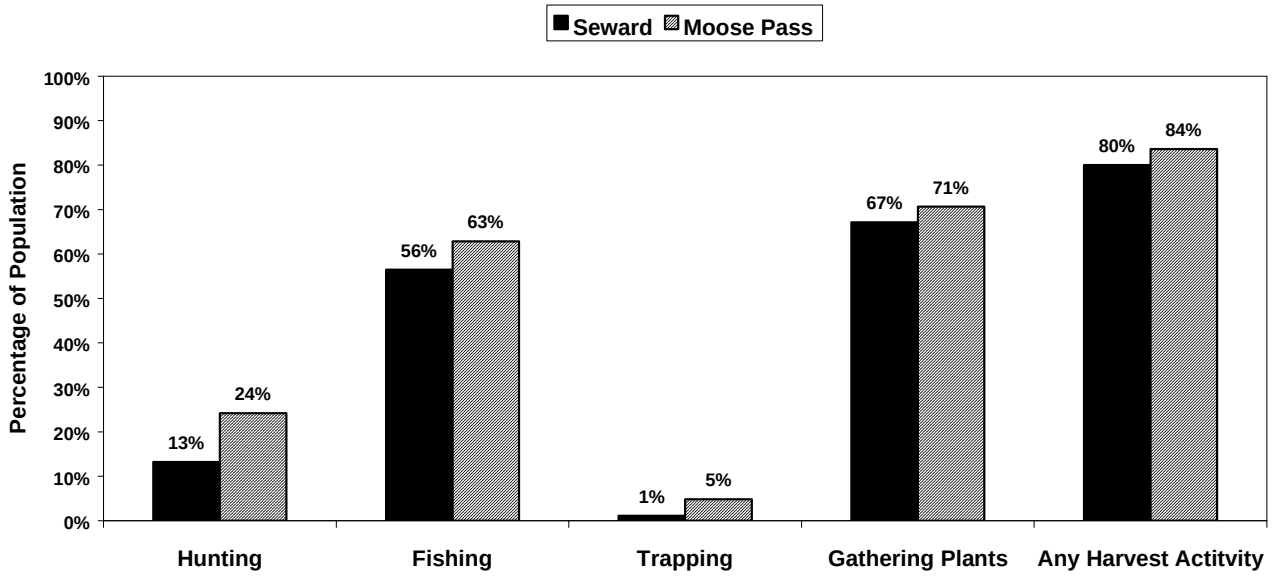
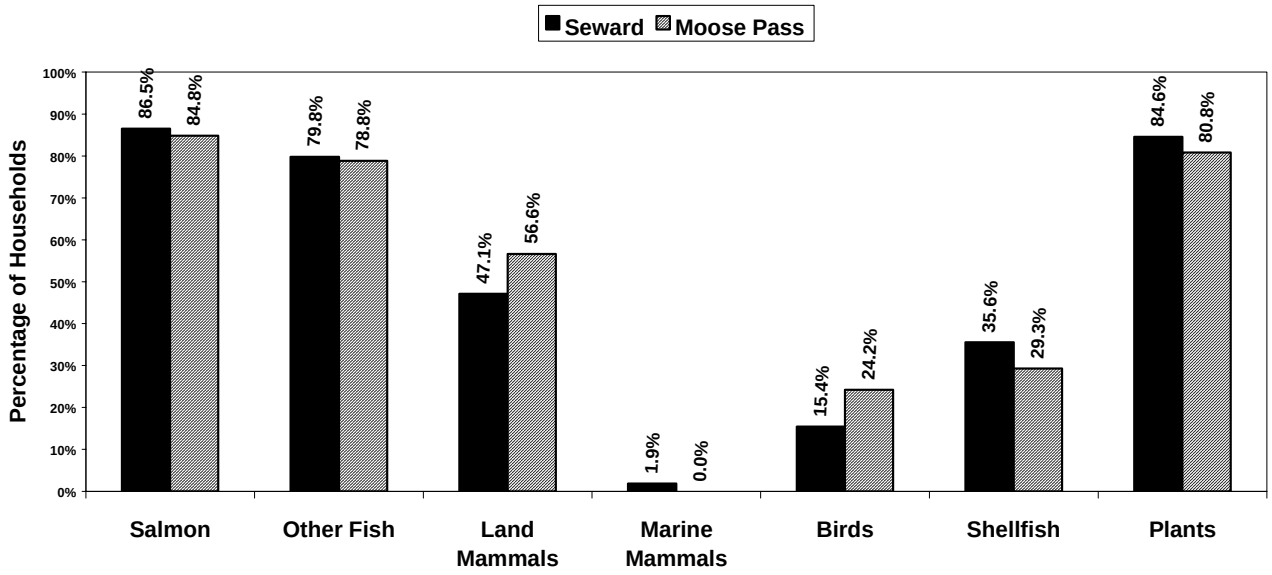


Figure 7. Percentage of Households Using Resource Categories, Seward and Moose Pass, 2000/01



of Seward households and 78.8 percent of Moose Pass households). Other resource categories were less commonly used. Just over half the Moose Pass households (56.6 percent) used land mammals, as did just under half the Seward households (47.1 percent). Marine invertebrates were used by 35.6 percent of Seward households and 29.3 of households in Moose Pass. Birds were used by 24.2 percent of Moose Pass households and 15.4 percent of those living in Seward. No Moose Pass households reported using marine mammals in the study year, and only 1.9 percent of Seward households did so.

The range of individual resources used and harvested was almost the same in Seward and Moose Pass in the study year (Fig. 8, Table 21). The average number of kinds of resources used per household was 7.9 kinds in Moose Pass and 7.5 kinds in Seward. This average is one way to express "diet breadth" and an indication of the relative diversity of wild food uses in the communities. Another measure is the number of resources used by 50 percent or more of the households in a community. Here, too, Seward and Moose Pass were similar; in both communities, there were four resources used by half or more of the households (Table 25). Berries (used by 80.8 percent of Seward households and 72.7 percent in Moose Pass), coho salmon (72.1 percent in Seward, 58.6 percent in Moose Pass), and halibut (72.1 percent in Seward, 60.6 percent in Moose Pass) were "core resources" in both communities. In Seward, half the households used chinook salmon in 2000/01 (25.3 percent did so in Moose Pass), and in Moose Pass, 51.5 percent of households used sockeye salmon (47.1 percent did so in Seward). Table 26 lists the 10 resources used by the most households in each study community in 2000/01 by harvest quantity in pounds usable weight per person. This table is discussed further, below.

As shown in Figure 8 (see also Table 21), the average number of resources attempted to harvest, harvested, received, and given away in 2000/01 were similar in both study communities. Moose Pass households attempted to harvest an average of 6.1 kinds of wild resources and harvested 5.3 kinds; the corresponding findings for Seward households were 5.1 kinds attempted and 4.4 kinds harvested. On average, Moose Pass households received 3.6 kinds of wild resources and gave away 2.2 kinds, while Seward households received 4.2 kinds and gave away 2.0 kinds.

Figure 8. Average Number of Resources Used, Attempted to Harvest, Harvested, Received, and Gave Away per Household, Seward and Moose Pass, 2000/2001

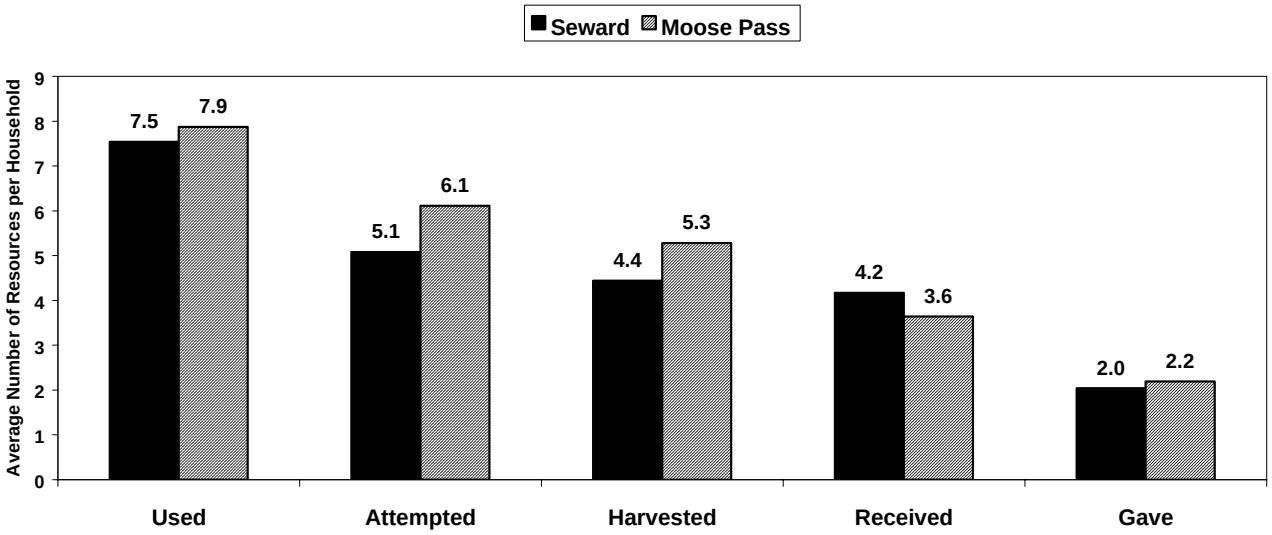


Figure 9. Composition of Harvests for Home Use by Resource Category, Seward and Moose Pass, 2000/01

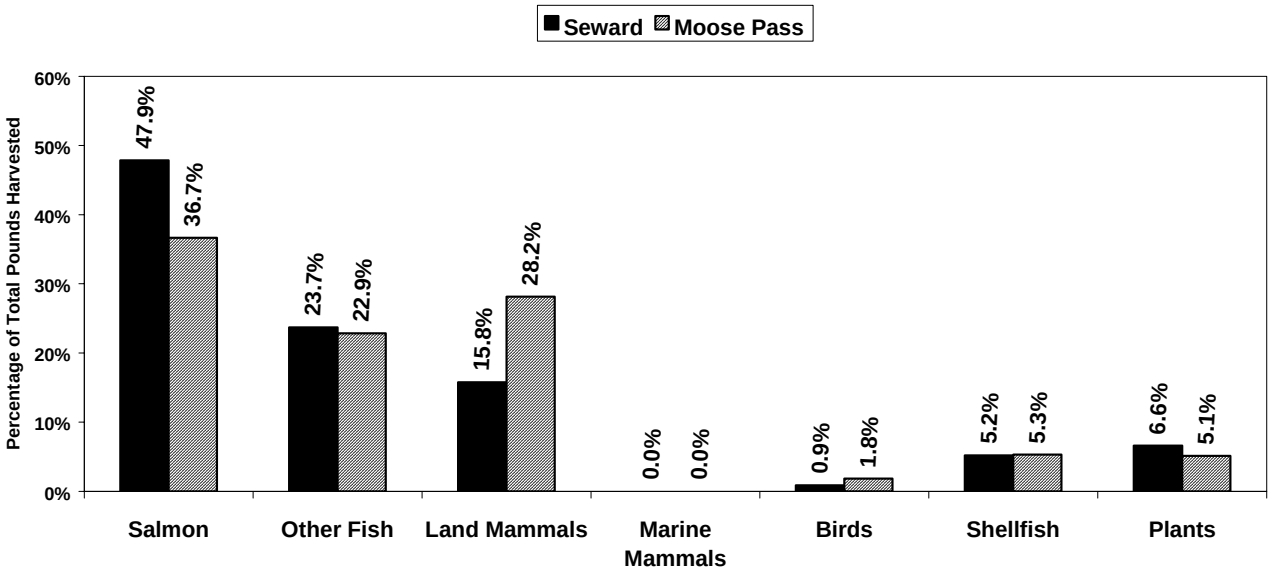


Table 25. Ten Resources Used by the Most Households, Seward and Moose Pass, 2000/01

	Moose Pass		Seward	
	Resource	Percent using	Resource	Percent using
1	Berries	72.7%	Berries	80.8%
2	Halibut	60.6%	Coho	72.1%
3	Coho	58.6%	Halibut	72.1%
4	Sockeye	51.5%	Chinook	50.0%
5	Moose	41.4%	Sockeye	47.1%
6	Razor Clams	26.3%	Moose	33.7%
7	Chinook	25.3%	Dolly Varden	19.2%
8	Black Rockfish	15.2%	Black Rockfish	18.3%
9	Deer	14.1%	Caribou	16.3%
10	Caribou	10.1%	Razor Clams	14.4%

Table 26. Contribution of Harvests of Top Ten Resources to Total Harvest, Seward and Moose Pass, 2000/01

	Moose Pass				Seward			
	Resource	Per Capita Harvest, lbs	Percent of Harvest	Cumulative Percent	Resource	Per Capita Harvest, lbs	Percent of Harvest	Cumulative Percent
1	Moose	16.1	18.5%	18.5%	Coho	21.3	21.9%	21.9%
2	Sockeye	13.5	15.6%	34.0%	Sockeye	17.1	17.6%	39.6%
3	Halibut	13.5	15.5%	49.5%	Halibut	12.7	13.1%	52.7%
4	Coho	11.6	13.4%	62.9%	Moose	11.6	11.9%	64.6%
5	Chinook	5.8	6.7%	69.6%	Chinook	6.5	6.7%	71.3%
6	Razor Clams	4.6	5.3%	74.9%	Berries	5.1	5.3%	76.6%
7	Berries	3.4	3.9%	78.8%	Razor Clams	3.1	3.2%	79.8%
8	Caribou	3.4	3.8%	82.6%	Dolly Varden	2.7	2.8%	82.6%
9	Deer	3.1	3.5%	86.2%	Black Rockfish	2.7	2.8%	85.4%
10	Black Rockfish	1.3	1.5%	87.7%	Caribou	1.6	1.7%	87.0%

HARVEST QUANTITIES AND HARVEST COMPOSITION

Table 22 and Table 23 list the resources used and harvested for home use in Seward and Moose Pass in 2000/01 based upon the household survey results. On average, households in Seward harvested 261.1 pounds (usable weight) of wild resources in the study year, 97.0 pounds per capita. Moose Pass average harvests were similar: 236.5 pounds per household and 87.0 pounds per person (see also Table 21).

As this report was nearing completion, an analysis of fish and wildlife harvest levels for selected Alaska communities based on ADF&G harvest tickets, permit returns, and the results of the Division of Sport Fish (ADF&G) angler survey became available (Wolfe and Fischer 2002, Wolfe and Fischer 2003). Using these records, the per capita harvest estimate for Seward for 1999 (the year before the study year for this study) was 28.53 pounds, and for Moose Pass, the estimated per capita harvest was 37.72 pounds (Wolfe and Fischer 2003:52). (Note that Wolfe and Fischer defined "Seward" and "Moose Pass" identically to this study.) These estimates are notably lower than those based on the face to face household surveys conducted for this study, of 97.0 pounds per person and 87.0 pounds per person, respectively.

A full discussion and comparison of these two sets of harvest estimates is beyond the scope of this report. However, several factors can be suggested that mitigate (but do not eliminate) the differences between the estimates. First, the ADF&G records used by Wolfe and Fischer do not include birds, small game, fish removed from commercial harvests for home use, and plants. Removing these resources from the household survey findings results in a revised per capita estimate of 78.1 pounds for Seward and 79.5 pounds for Moose Pass. Second, the angler survey (a mailed survey) and the household surveys were administered to a relatively small sample of households in Seward: 63 angler surveys (Scott and Wolfe 2002) and 104 household surveys, sampling fractions of 3.8 percent (based on 1,675 occupied housing units in 2000) and 6.2 percent respectively. The relatively small sample size and the wide range of involvement in harvesting resulted in a wide confidence range for the Seward household survey data (+/-39.2 percent at the 95 percent confidence limit [Table 22]). The corresponding confidence range for the angler survey is not available but most likely has a similar or greater margin of error. For Moose Pass, the household survey achieved a high sampling fraction of 66.9 percent, while the angler survey estimates are based on responses from 6 households (3.2

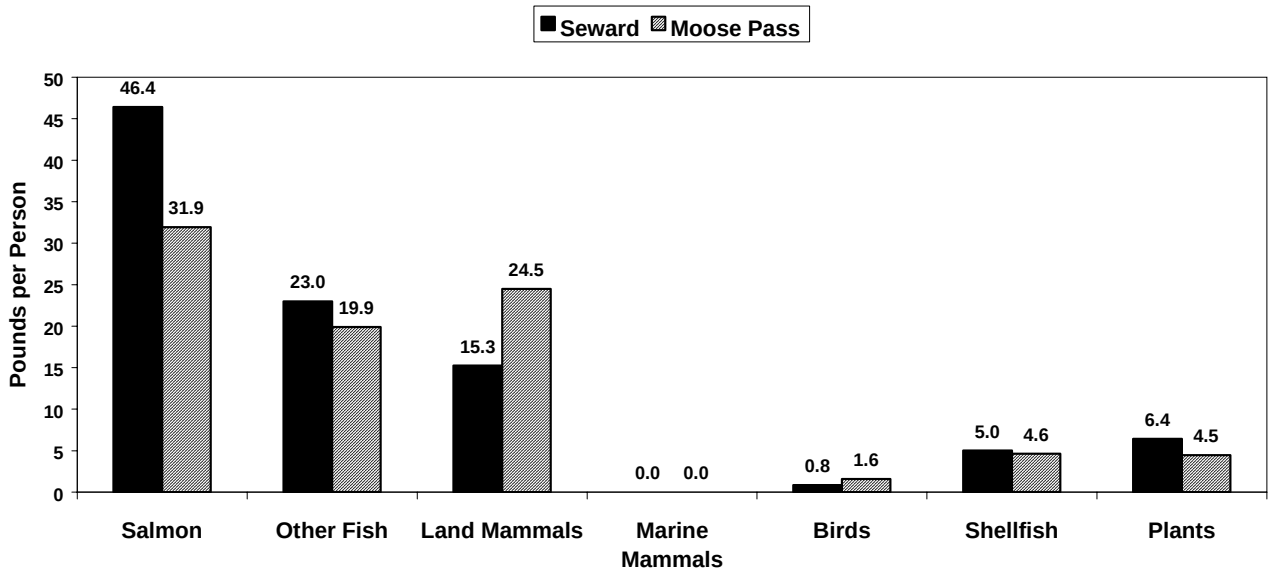
percent of the 190 households in the three CDPs of the Moose Pass study area). The confidence range for the household survey data for Moose Pass is +/- 18.0 percent (Table 23).

Also, for both study communities, it is possible that the household survey sample over-represents very active harvesters, if they were most likely to agree to be interviewed and if most of those households that declined to be surveyed harvested few to no wild foods. Because the refusal rate was 24.6 percent in Seward and 11.6 percent in Moose Pass, such a sampling bias could result in an overestimate of community harvests. This is especially problematic in communities such as Seward and Moose Pass where, as discussed below, a very small percentage of the total households harvests a very large percentage of the total community take. (See also below for a discussion of the survey estimate of moose harvests compared with harvest ticket data.) Finally, it should be noted, as discussed in Chapter Four, that the total harvest estimates for Seward and Moose Pass based on the household survey results are similar to household survey findings for other Kenai Peninsula Borough communities on the road system.

In both communities, salmon made up the largest portion of the harvest for home use in 2000/01: 47.9 percent of the total harvest as estimated in usable pounds in Seward (46.4 pounds per capita) and 36.7 percent of the total harvest in Moose Pass (31.9 pounds per capita) (Fig. 9, Fig. 10). In Moose Pass, land mammals ranked second (28.2 percent, 24.5 pounds per capita) and nonsalmon fish third (22.9 percent, 19.9 pounds per capita), while these rankings were reversed in Seward: nonsalmon fish contributed 23.7 percent of the total harvest (23.0 pounds per capita) and land mammals 15.8 percent (15.3 pounds per capita). Wild plants and marine invertebrates represented much smaller portions of the total harvests. In Seward, wild plants provided 6.6 percent of the total (6.4 pounds per person) and shellfish 5.2 percent (5.0 pounds per capita). In Moose Pass, 5.1 percent of the total harvest was wild plants (4.5 pounds per person) and 5.3 percent was shellfish (4.6 pounds per person). In both communities, birds made up a very small portion of the total harvest: 0.9 percent in Seward (0.8 pounds per person) and 1.8 percent in Moose Pass (1.6 pounds per person). There were no marine mammal harvests reported by interviewed households in either community.

Table 22 and Table 23 report the estimated harvests for specific resource categories, subcategories, and individual resources for Seward and Moose Pass, respectively. Table 26 lists the ten resources harvested in the largest quantities in each community during the study year. Note that the same set of resources was used by the most households in both areas (Table 25).

Figure 10. Harvests of Wild Resources for Home Use by Resource Category, Seward and Moose Pass, 2000/01



In each community the same five resources contributed the bulk of the harvest: moose (ranked first in Moose Pass, fourth in Seward), coho salmon (first in Seward, fourth in Moose Pass), sockeye salmon (second in both), halibut (third in both), and chinook salmon (fifth in both). In total, these five resources contributed 71.3 percent of the total harvest in Seward and 69.6 percent in Moose Pass. In both places, three resources contributed about half of the total harvest: coho salmon, sockeye salmon, and halibut in Seward, and moose, sockeye salmon, and halibut in Moose Pass.

Interviewed households estimated the percentage of their use of meat, fish, and birds in 2000/01 that derived from wild resources (either harvested by the household or received). As shown in Table 27, in both Seward and Moose Pass, by far the most households reported that between 1 percent and 25 percent of their meat supply was from wild foods, 68.3 percent of households and 60.6 percent of households, respectively. A much smaller percentage of households estimated that more than half their meat was from wild fish, game, or birds, 17.4 percent of Seward households and 24.3 percent of Moose Pass households. As also shown in Table 27, households in both communities that estimated a low percentage of wild resource uses also on average had lower harvests and a narrower range of resources used than households that estimated that most of their meat derived from wild resources. For example, in Seward,

Table 27. Households' Estimates of the Percentage of Meat, Fish, and Birds They Used from Wild Resources, 2000/01

	Seward				Moose Pass			
	% of HHs	lbs/person	Average # of Resources used per HH	Average Length of Residency (yrs)	% of HHs	lbs/person	Average # of Resources used per HH	Average Length of Residency (yrs)
None (0%)	8.7%	0.7	1.4	20.9	5.1%	2.9	2.4	14.4
1% to 25%	68.3%	69.1	6.5	17.2	60.6%	32.4	5.8	16.2
26% to 50%	3.8%	151.8	14.3	26.8	10.1%	157.8	9.6	18.3
51% to 75%	5.8%	69.9	11.5	6.5	5.1%	43.9	12.2	15.7
76% to 99%	10.6%	214.2	14.4	11.8	18.2%	232.2	14.4	14.9
All (100%)	1.0%	701.9	22.0	29.0	1.0%	154.3	5.0	10.0
Missing	1.9%	18.2	2.5	24.5	0.0%	NA	NA	NA

Source: Alaska Department of Fish and Game, Division of Subsistence Household Survey, 2001

households in the 1 percent to 25 percent category (68.3 percent of all households) had a per capita harvest of 69.1 pounds and used on average 6.5 kinds of wild foods, while those in the 76 percent to 99 percent category (10.6 percent of all households) harvested 214.2 pounds per person and used on average 14.4 kinds of wild foods. Similarly, at Moose Pass, households in the 1 percent to 25 percent category (60.6 percent of households) harvested 32.4 pounds per person and used an average of 5.8 kinds of wild foods, in contrast to the households in the 76 to 99 percent category (18.2 percent of households) who harvested 232.2 pounds per person and used on average 14.4 kinds of wild foods. There appeared to be no relationship between involvement in the use of wild foods and the length of time the household had lived in the community. Indeed, as shown in Table 27, the "high user" category (76 to 99 percent) in both study areas had on average lived in the area for a shorter period of time than those that used and harvested fewer wild foods (1 to 25 percent), 11.8 years and 17.2 years in Seward and 14.9 years and 16.2 years in Moose Pass.

COMMERCIAL FISHERIES AS A SOURCE OF RESOURCES FOR HOME USE

As shown in Table 28, removal of resources from commercial fisheries was an insignificant source of wild resources for Moose Pass in the study year, providing an estimated total of 51.7 useable pounds, just 0.15 percent of the total community harvest. All of this harvest was salmon.

In contrast, retaining a portion of commercial harvests for home use contributed a significant portion of the estimated harvest in Seward, 11.5 percent (an estimated total of about 50,700 pounds usable weight) (Table 29). Commercial removal supplied 20.5 percent of the community's total salmon harvest, including most (54.3 percent) of the sockeye harvest. Commercial removal also supplied most of Seward's estimated harvest of crab for home use, at 70.0 percent of the usable weight.

Table 28. Estimated Amounts of Resources Removed From Commercial Harvests, Moose Pass, 2000/20(

Resource	Removed from Catch		Percent of	
	Amount	Pounds	Species Harvest (lbs)	Community Harvest (lbs)
All Resources	51.71	51.71	0.23	0.15
Fish	51.71	51.71	0.25	0.15
Salmon	5.98	51.71	0.4	0.15
Chum Salmon	1.49	8.96	5.56	0.03
Coho Salmon	1.49	8.07	0.17	0.02
Chinook Salmon	1.49	27.21	1.16	0.08
Sockeye Salmon	1.49	7.47	0.14	0.02

Source: Alaska Department of Fish and Game, Division of Subsistence Household Survey, 2001

Table 29. Estimated Amounts of Resources Removed From Commercial Harvests, Seward, 2000/2001

Resource	Removed from Catch		Percent of	
	Amount	Pounds	Species Harvest (lbs)	Community Harvest (lbs)
All Resources	50700.94	50700.94	15	11.51
Fish	45510.17	45510.17	14.44	10.33
Salmon	8499.88	43313.83	20.55	9.84
Chinook Salmon	64.88	1181	4	0.27
Sockeye Salmon	8435	42132.82	54.28	9.57
Non-Salmon Fish	2196.34	2196.34	2.1	0.5
Halibut	1946.54	1946.54	3.37	0.44
Sablefish (black cod)	64.88	201.14	28.57	0.05
Wolffish	97.33	48.66	100	0.01
Marine Invertebrates	5190.77	5190.77	22.74	1.18
Crabs	5190.77	5190.77	69.99	1.18
Tanner Crab	3244.23	5190.77	82.64	1.18
Unknown Tanner Crab	3244.23	5190.77	100	1.18

Source: Alaska Department of Fish and Game, Division of Subsistence Household Survey, 2001

LOCATIONS OF HUNTING, FISHING, AND GATHERING ACTIVITIES OVER THE LAST TEN YEARS

Seward Harvest Locations

Salmon Fishing Locations

As reported in Table 22, 28.8 percent of Seward households reported fishing for sockeye salmon during the 2000/01 study year. Over the years 1990-2000, 43 percent of households reported fishing for sockeye. During that time, 19 percent of surveyed Seward households reported using the confluence of the Russian and Kenai Rivers for sockeye salmon fishing; 16 percent fished for sockeye in Resurrection Bay north of Caines Head (Fig. 11). Other areas used by a number of Seward households included sections of the Kenai River between Kenai and Skilak Lakes, between Skilak Lake and the Moose River, and below the Funny River confluence to the outlet at Cook Inlet; Russian River; and outer Resurrection Bay waters around Fox and Rugged Islands and Cape Resurrection. Waters along the outer Kenai coast and in Prince William Sound also contain areas used by single households (use areas not depicted on the map).

Seventy five percent of Seward households reported fishing for coho salmon at some time between 1990-2000 (the most household involvement in resource harvest activity for any resource classification). Sixty nine percent used Resurrection Bay north of Caines Head, 31 percent used the waters of Resurrection Bay south of Caines Head and north of Sunny Cove on Fox Island, 21 percent used the waters of outer Resurrection Bay, including the eastern shores of the outer Aialik Peninsula and Aialik Cape, eastward to Rugged Island and Cape Resurrection, and 11 percent fished for cohos in Day Harbor near and along the western shores of Resurrection Peninsula (Fig. 12). Other locations used by a number of Seward households include the waters of Blying Sound south of Aialik Cape and Harding Gateway, extending eastward to Whidbey Bay and Johnstone Bay; the confluence of the Kenai and Russian Rivers and the Kenai River as it leaves Skilak Lake; and the lower portions of the Kenai, Ninilchik, and Anchor Rivers and Deep Creek as they meet Cook Inlet. Waters along the outer Kenai coast and in Prince William Sound also contain areas used by single households (use areas not depicted on the map).

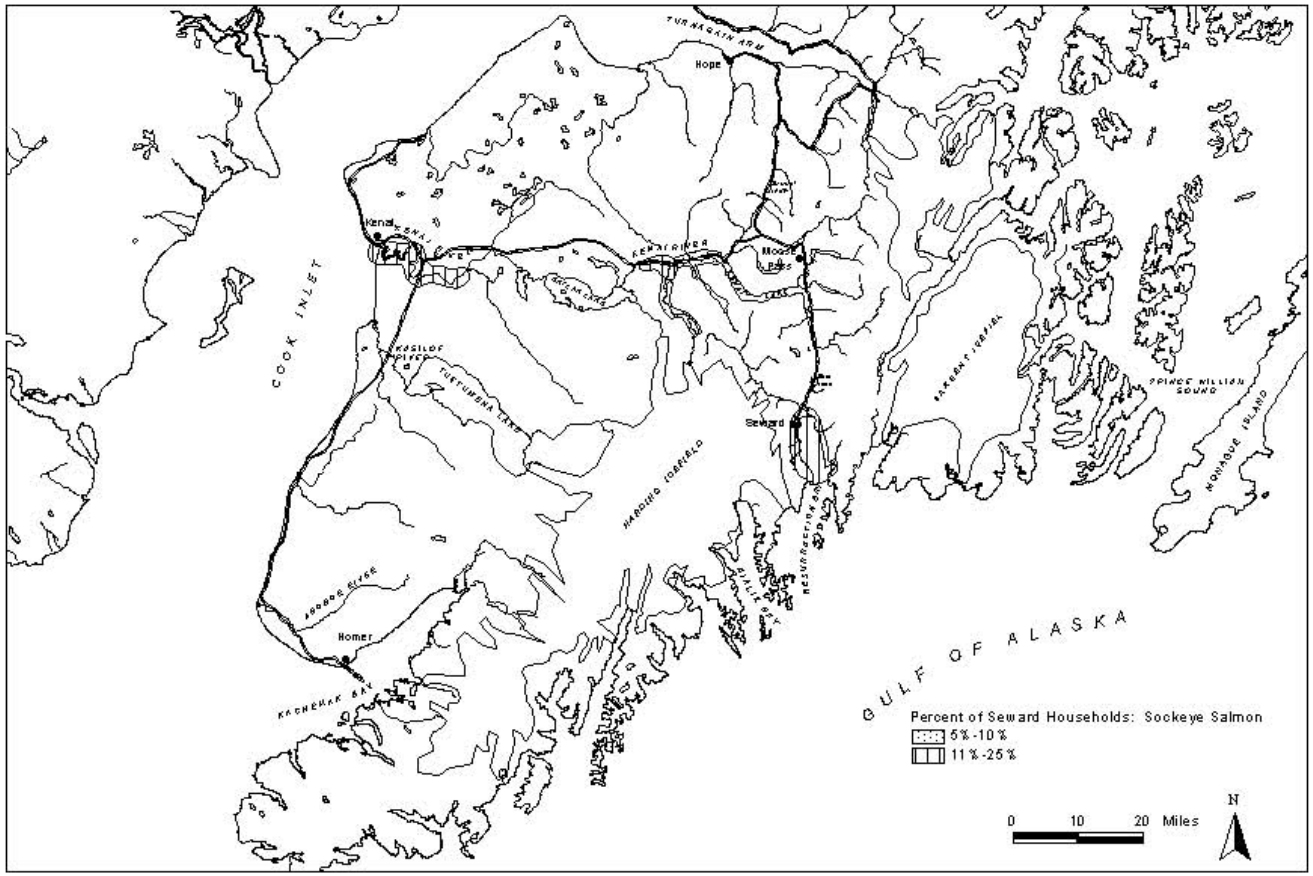


Figure 11. Seward Household Use Areas, Sockeye Salmon
Showing Percent of Total Households

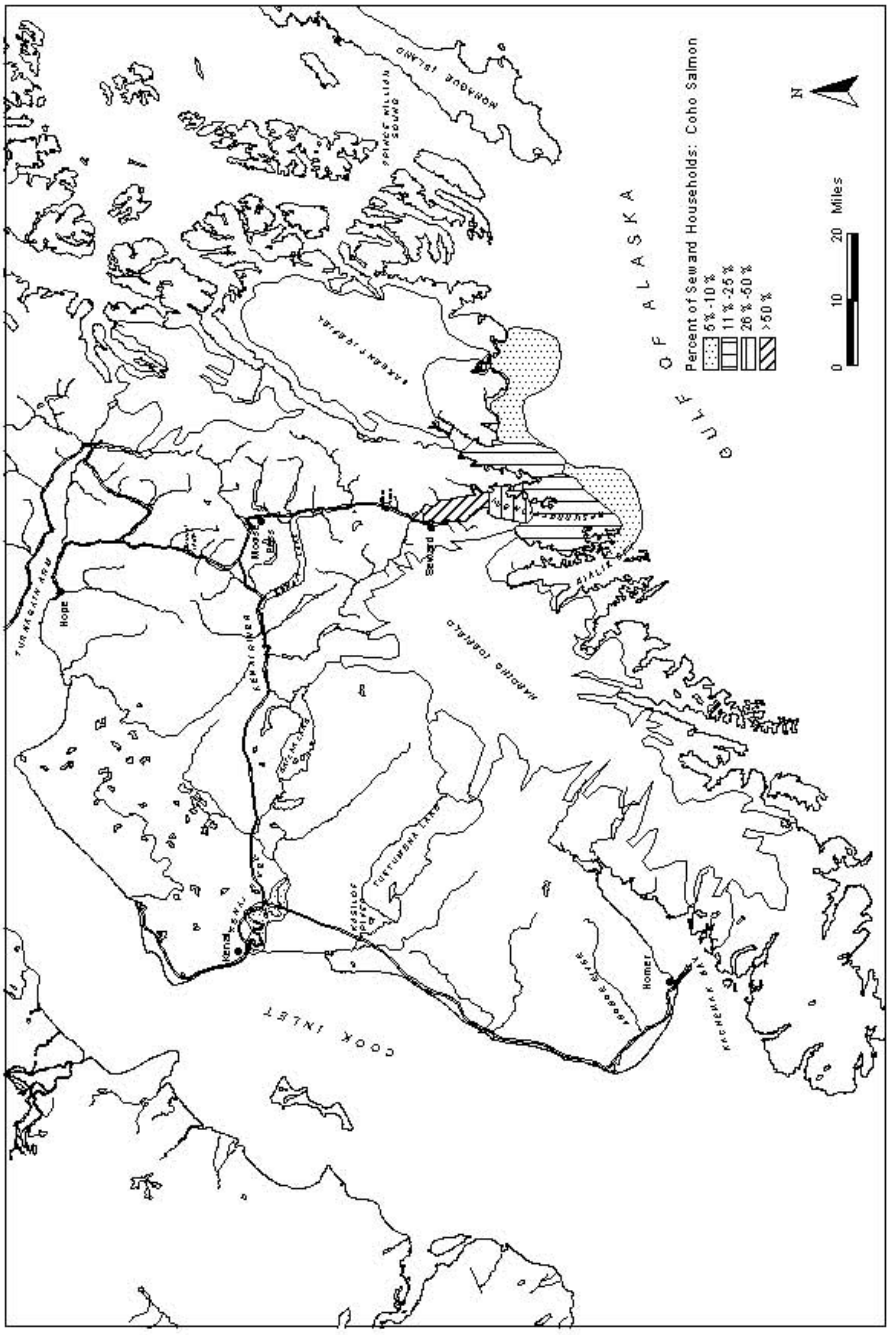


Figure 12. Seward Household Use Areas, Coho Salmon
Showing Percent of Total Households

70

Forty five percent of Seward households reported fishing for salmon other than cohos or sockeyes (i.e. chinooks, pinks, or chums) at some time between 1990-2000. Thirty one percent used Resurrection Bay north of Caines Head, 14 percent used the waters of outer Resurrection Bay south of Caines Head and north of a line roughly between Agnes Cove on Aialik Peninsula to Cape Resurrection, and 11 percent used the section of the Kenai River between the outlet of Skilak Lake and approximately 7 miles downstream from the Soldotna Bridge (Fig. 13). Other locations included Cook Inlet off of the mouths of Ninilchik River, Anchor River, and Deep Creek, and around Anchor Point and the Homer Spit, as well as Day Harbor near the eastern shore of Resurrection Peninsula. Waters in northern Cook Inlet and in Prince William Sound also contain areas used by single households (use areas not depicted on the map).

Other Fishing Locations

Fifty seven percent of Seward households reported fishing for marine fish (including halibut, lingcod, and other bottomfish) at some time between 1990-2000. Forty percent of Seward households reported fishing for marine fish in the waters of outer Resurrection Bay, south of Caines Head and north of the latitude of Agnes Bay on Aialik Peninsula (except the waters nearest the shore of Aialik Peninsula), around Fox and Rugged Island and around Cape Resurrection; 24 percent of households reported fishing in Resurrection Bay north of Caines Head; and 19 percent used the waters approximately 2½ miles off of Cape Fairfield and Cape Junken in Blying Sound and in the waters of Puget Bay (Fig. 14). The near shore waters of Day Harbor, Whidbey Bay and Johnstone Harbor were used by 12 percent of households. The waters in between Montague Strait and the Gulf of Alaska near the southern tip of Montague Island were used by 16 percent of households, and 12 percent fished in Resurrection Bay, Aialik Peninsula and the waters 3 ½ to 9 miles south of Rugged Island. Ten percent of households fished in Aialik Bay and south in the waters in Dora Passage and around the Chiswell Islands. Other areas in Prince William Sound, lower Cook Inlet, Kachemak Bay, and on the outer Kenai coast were used by smaller groups of households, and still more areas in Cook Inlet and Prince William sound were used by single households.

Fourteen percent of households in Seward households reported fishing for freshwater fish during the years 1990-2000. The area of highest-intensity harvest by Seward households was

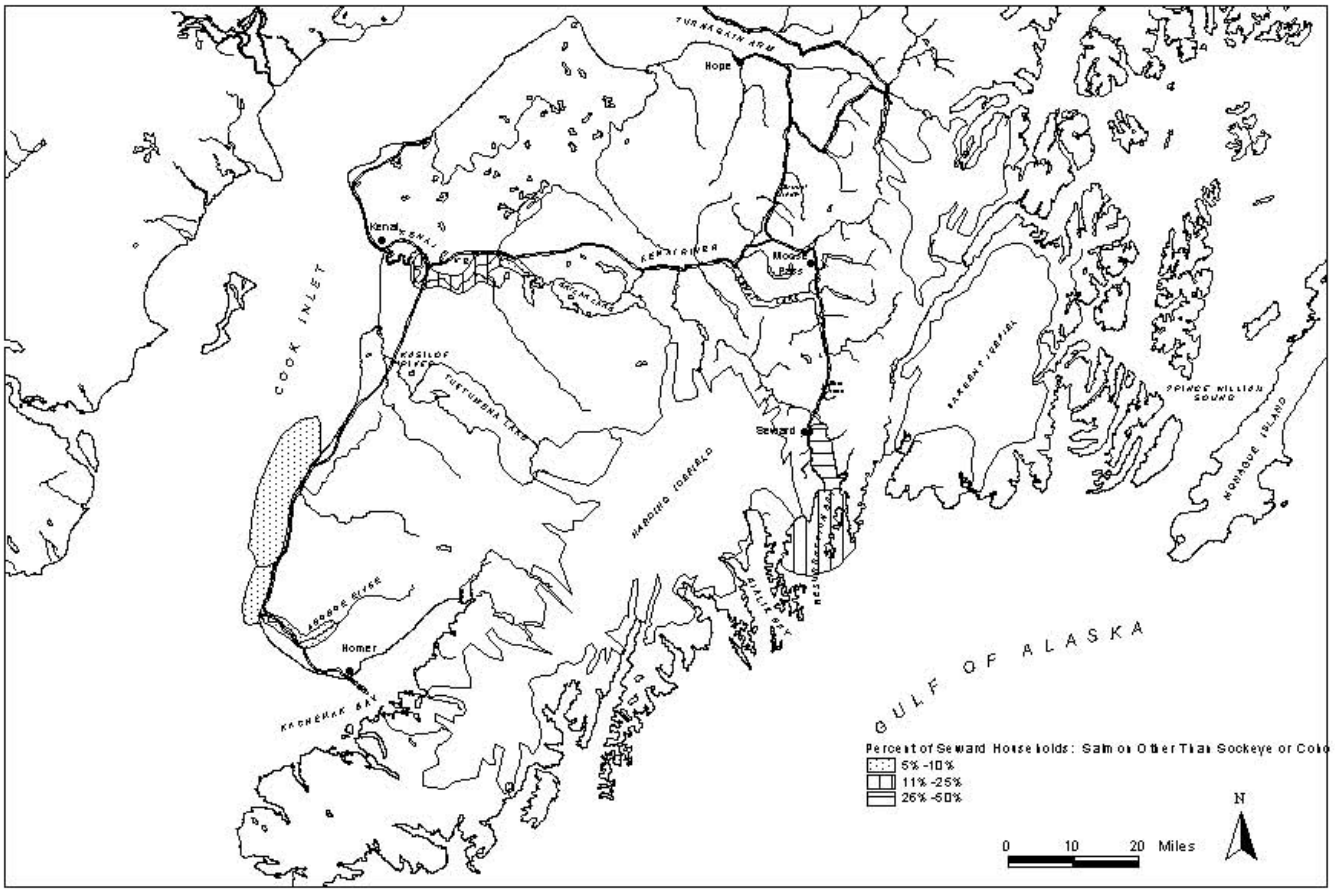


Figure 13. Seward Household Use Areas, Salmon Other Than Coho or Sockeye
Showing Percent of Total Households

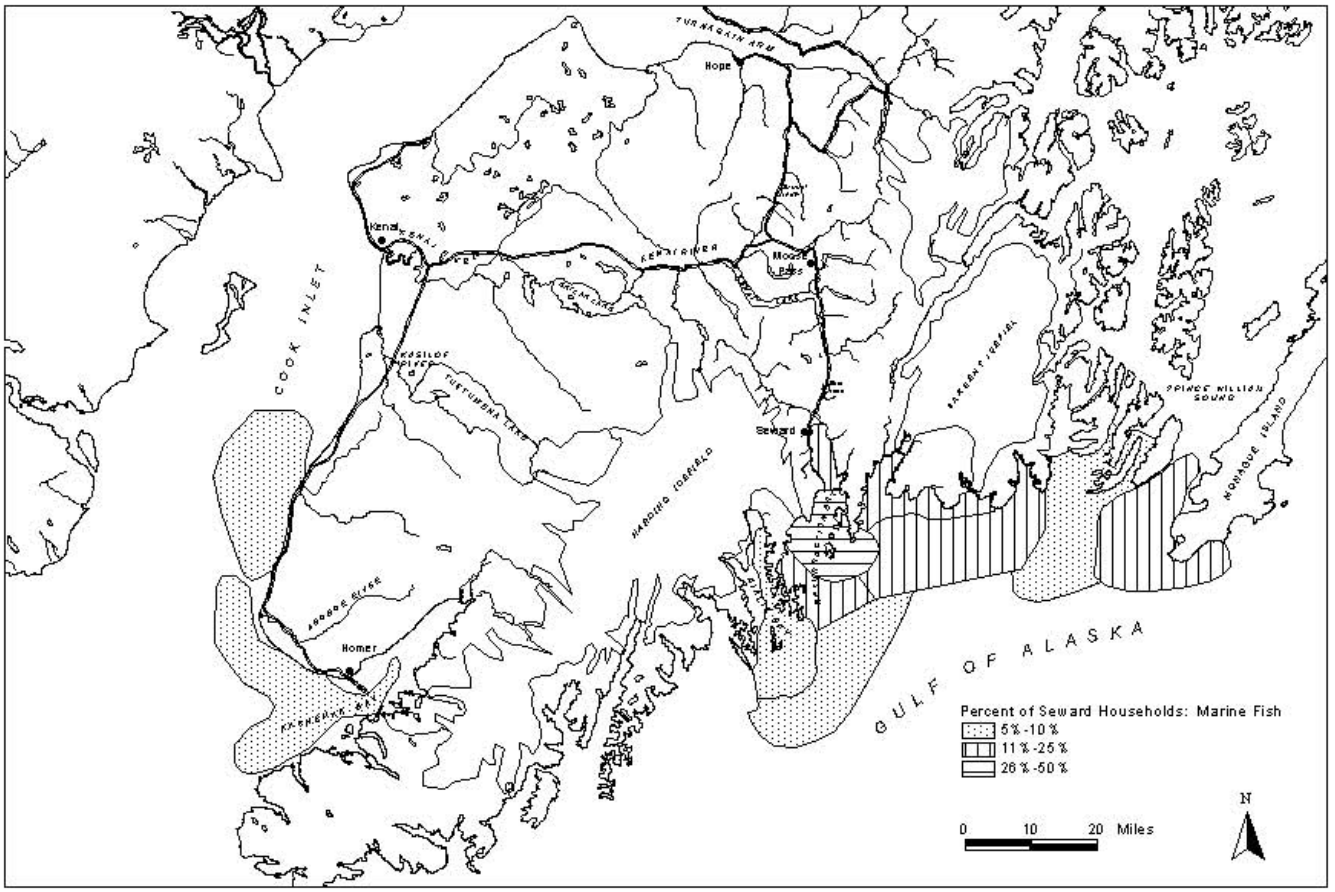


Figure 14. Seward Household Use Areas, Marine Fish
Showing Percent of Total Households

Upper Trail Lake, where 7 percent of households fished for "other" freshwater fish (Fig. 15). Other areas included streams and drainages between Seward and Moose Pass along the road system, in the Anchor River and in various lakes around the Kenai Peninsula.

Thirty six percent of households in Seward households reported fishing for rainbow trout during the years 1990-2000. Ten percent of households used the area around Bear Lake, Grouse Lake and Salmon Creek north of the city of Seward. Lakes and streams along the roadway (Upper and Lower Trail Lakes, Kenai Lake, Lost Lake, Grayling Lake, Snow River, and lower Kenai and Anchor Rivers) were also used by numerous Seward households (Fig. 16).

Thirty four percent of households in Seward households reported fishing for Dolly Varden during the years 1990-2000. The lower waters of the Resurrection River and the streams in the town of Seward, as well as the north-and-western shores of Resurrection Bay were used by 14% of Seward households for Dolly Varden (Fig. 17). All the lakes and streams in the immediate vicinity of Moose Pass were likewise fished for Dollies, as were the upper sections of the Kenai River extending through Skilak Lake.

Twenty six percent of households in Seward households reported fishing for marine invertebrates during the years 1990-2000. Clam Gulch, on Cook Inlet, was the location used by 18 percent of households, with other locations in Cook Inlet and Kachemak Bay also being used (Fig 18).

Hunting Locations

Twenty percent of households in Seward households reported hunting birds during the years 1990-2000. The lower Resurrection River along Exit Glacier Road provided hunting grounds for 9 percent of households; 6 percent of households hunted birds around Grant, Upper and Lower Trail, and Ptarmigan Lakes near Moose Pass (Fig. 19). Other areas used for bird hunting included the areas around Lost Lake, Resurrection River and Resurrection River Trail, Juneau, Devil, and Mills Creeks, as well as Johnson Lake and Johnson Lake Trail.

Ten percent of households in Seward households reported hunting black bear during the years 1990-2000. Four percent of Seward households reported hunting for black bear around the head of Resurrection Bay, in and around Seward near Resurrection River, Fourth of July Creek,

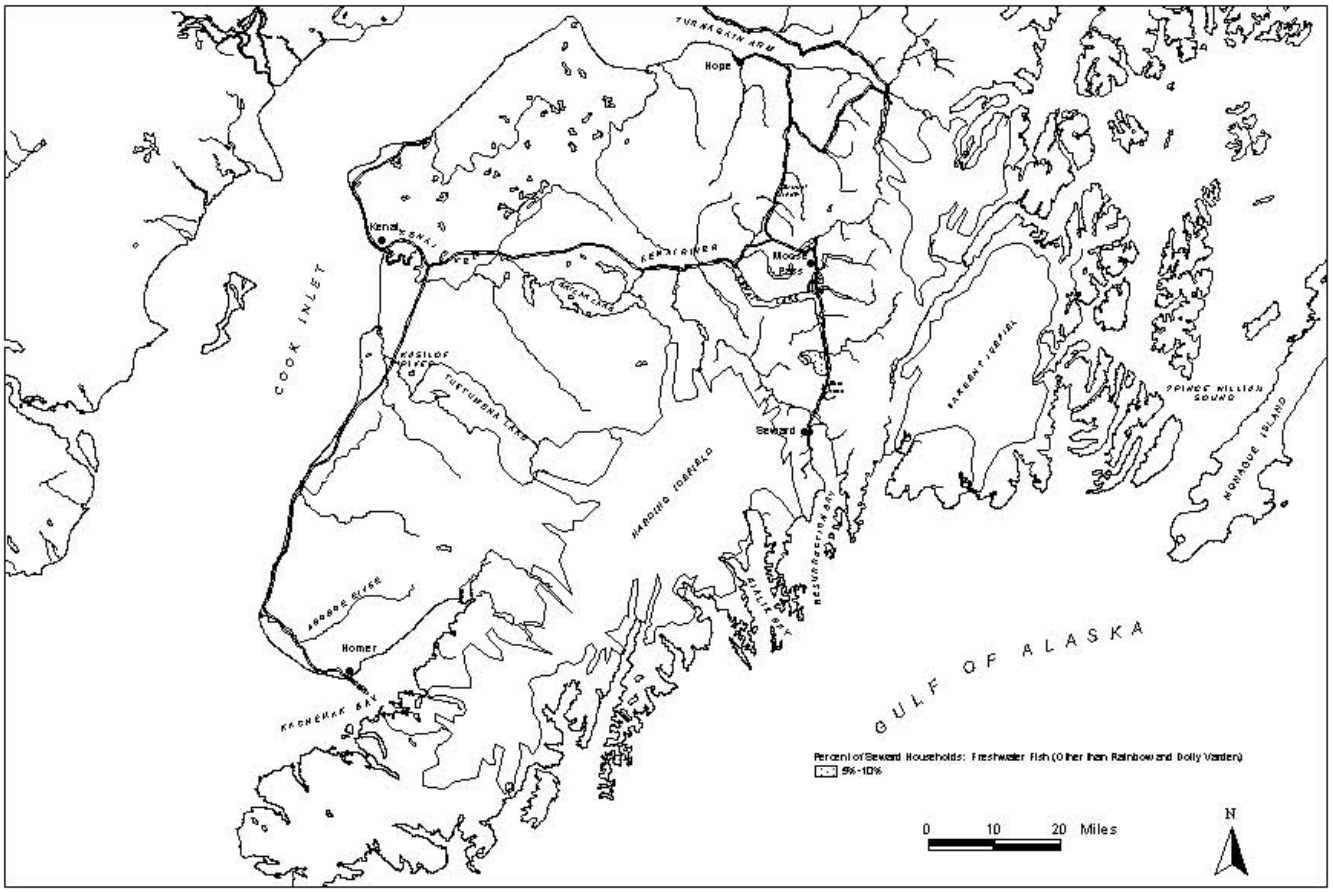


Figure 15. Seward Household Use Areas, Other Freshwater Fish
Showing Percent of Total Households

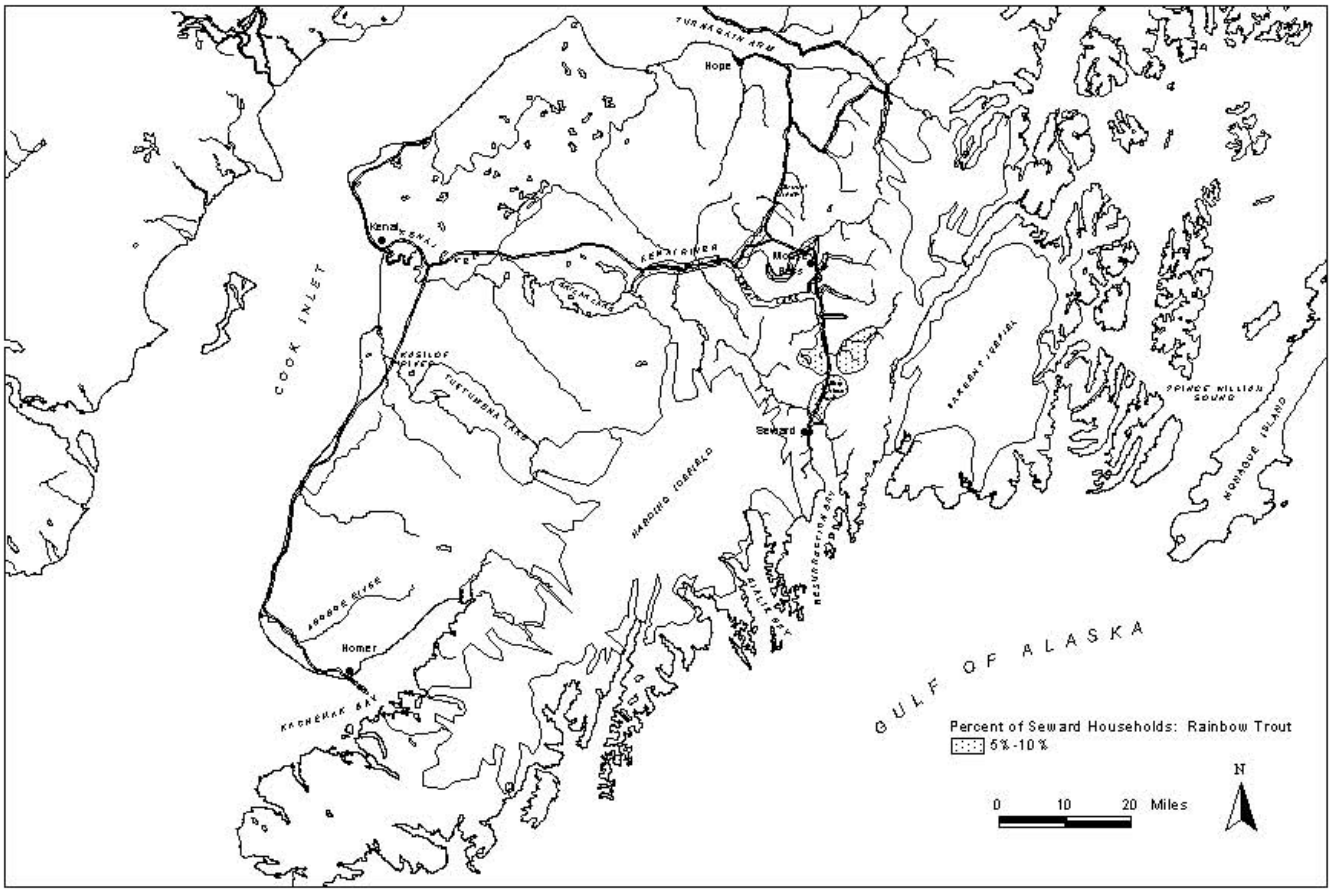


Figure 16. Seward Household Use Areas, Rainbow Trout
Showing Percent of Total Households

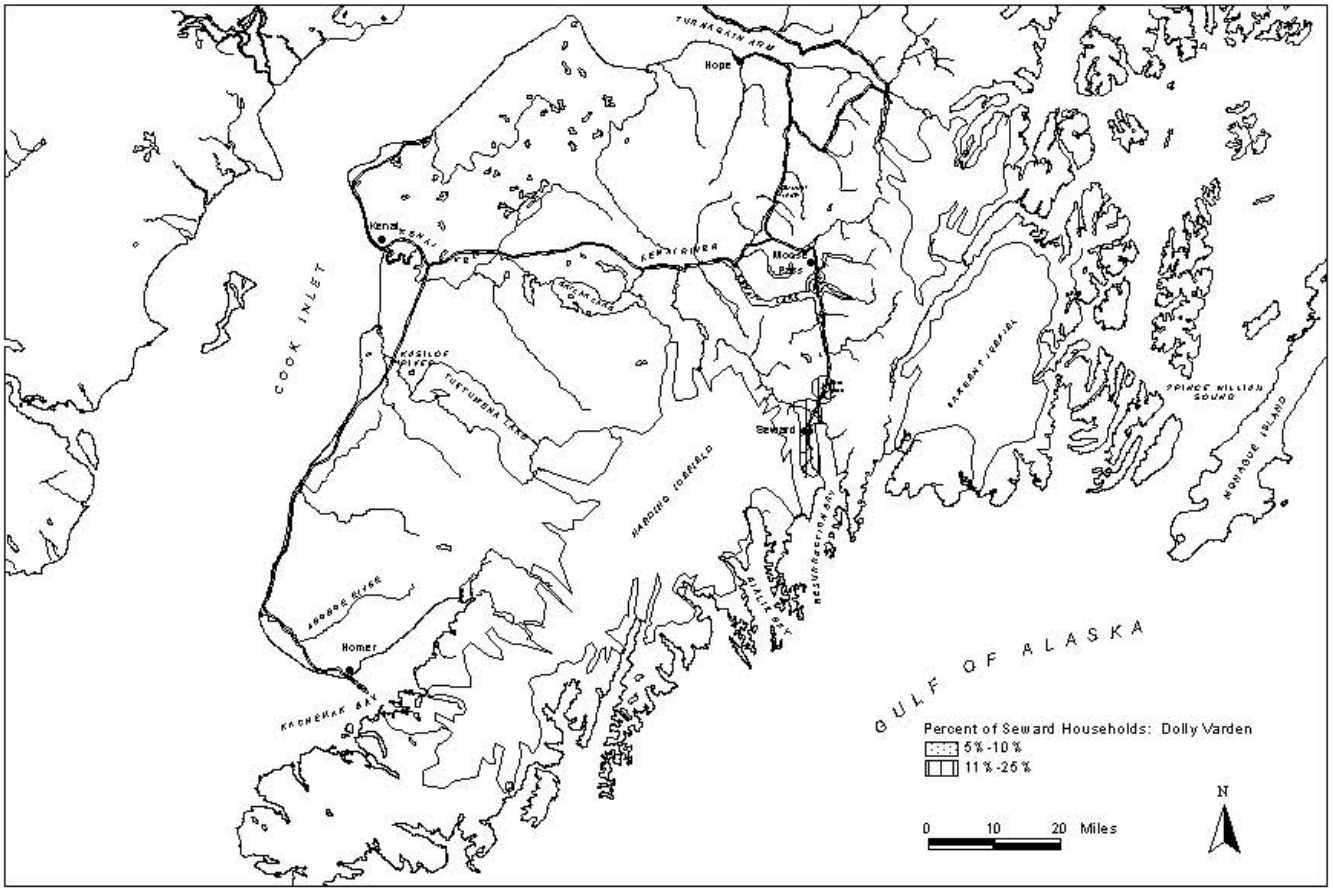


Figure 17. Seward Household Use Areas, Dolly Varden
Showing Percent of Total Households

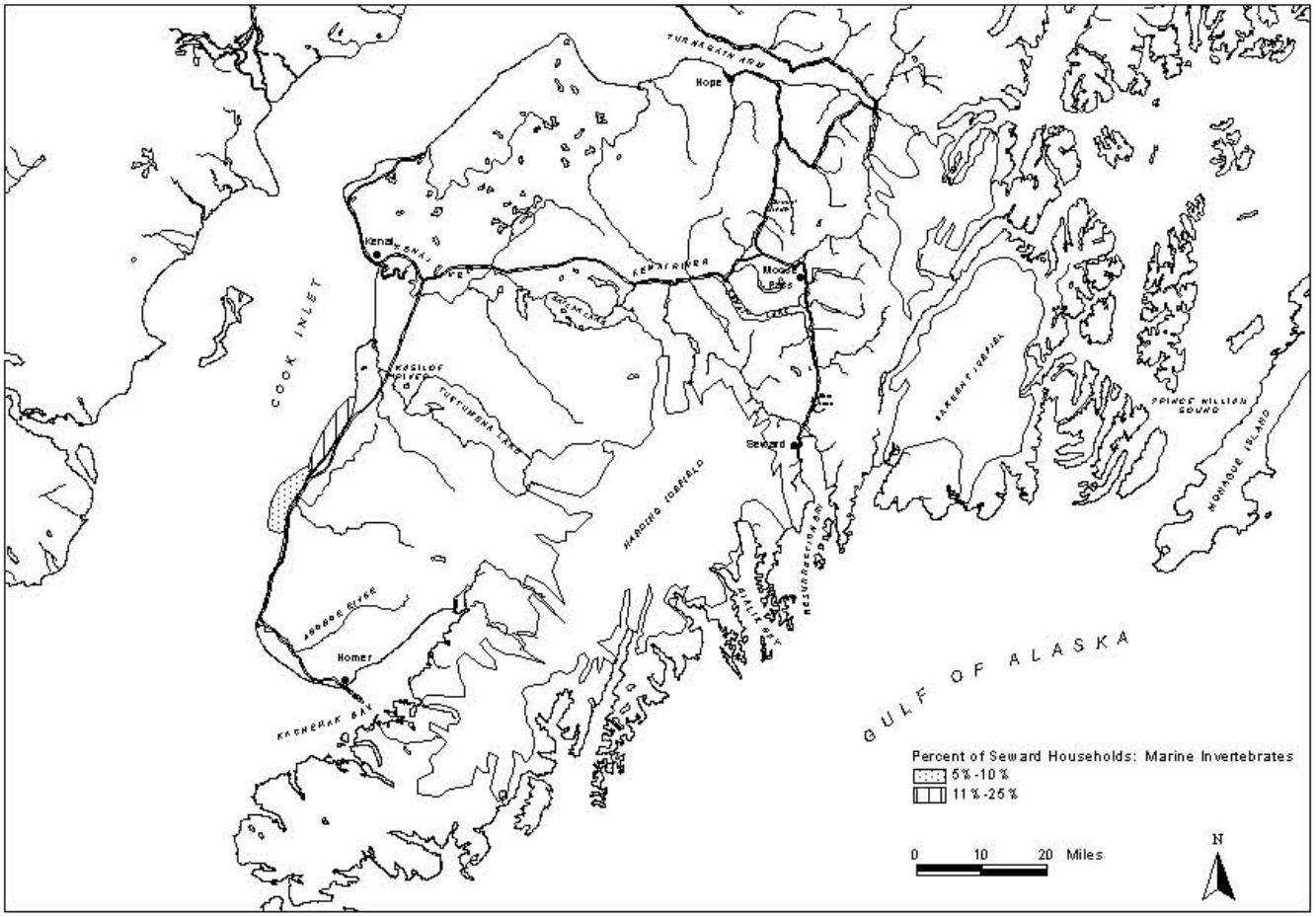


Figure 18. Seward Household Use Areas, Marine Invertebrates
Showing Percent of Total Households

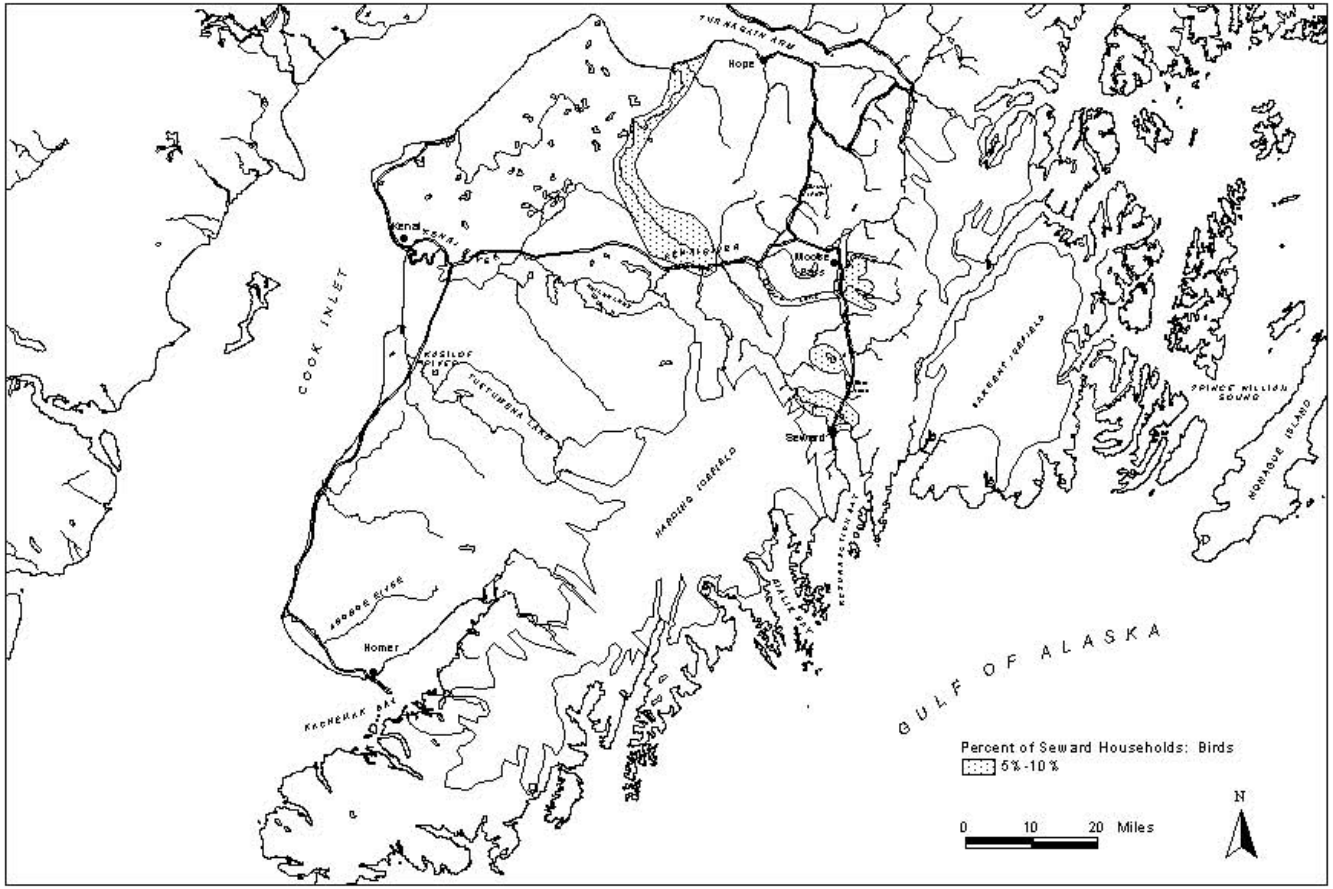


Figure 19. Seward Household Use Areas, Birds
Showing Percent of Total Households

Bear Mountain, Spruce Creek, and along Exit Glacier Road. Other black bear hunters used territories throughout the Kenai Mountains, in the drainages and near the lakes.

Nine percent of households in Seward reported hunting goat during the years 1990-2000. The highest concentration of goat hunting by Seward residents occurred on the eastern shores of Resurrection Bay near Fourth of July Creek. Other areas around the outer Kenai Coast, and in the interior Kenai Mountains were also used by Seward goat hunters.

Ten percent of households in Seward households reported hunting deer during the years 1990-2000. Islands in Prince William Sound provided access to deer, with 8 percent of households using Montague Island, and 4 percent using Naked Island (Fig. 20). Other islands in the western region of Prince William Sound were also used for deer hunting, including LaTouche, Evans, and Knight Islands.

Twenty four percent of households in Seward households reported hunting moose during the years 1990-2000. Twelve percent of households reported hunting for moose along the Snow River and in Paradise Valley, as well as around the Primrose Creek area; 7 percent of moose hunters used the Resurrection River valley near Exit Glacier Road, and 7 percent hunted in the broad Mystery Creek/Swanson River area (Fig. 21).

Two percent of households in Seward reported hunting sheep during the years 1990-2000, hunting in the Kenai Mountains near the road system.

No households in Seward reported hunting for either brown bear or caribou during the years 1990-2000. Therefore no use area maps for the community were produced for these species.

Plant Gathering Locations

Seventy one percent of households in Seward households reported gathering wild plants during the years 1990-2000. The most intensely used area by Seward households for plant harvest was the immediate vicinity around Seward and the shores of Resurrection Bay north of Tonsina Point, where 44 percent of households reported harvest (Fig. 22). Thirty seven percent of households used the area around Resurrection River, Exit Glacier Road, and Salmon Creek; 20 percent of households used either side of the Seward Highway near Lost Lake, Grayling Lake, Bear Lake, and Snow River; and 12 percent harvested around Trail Creek, Lower Trail and

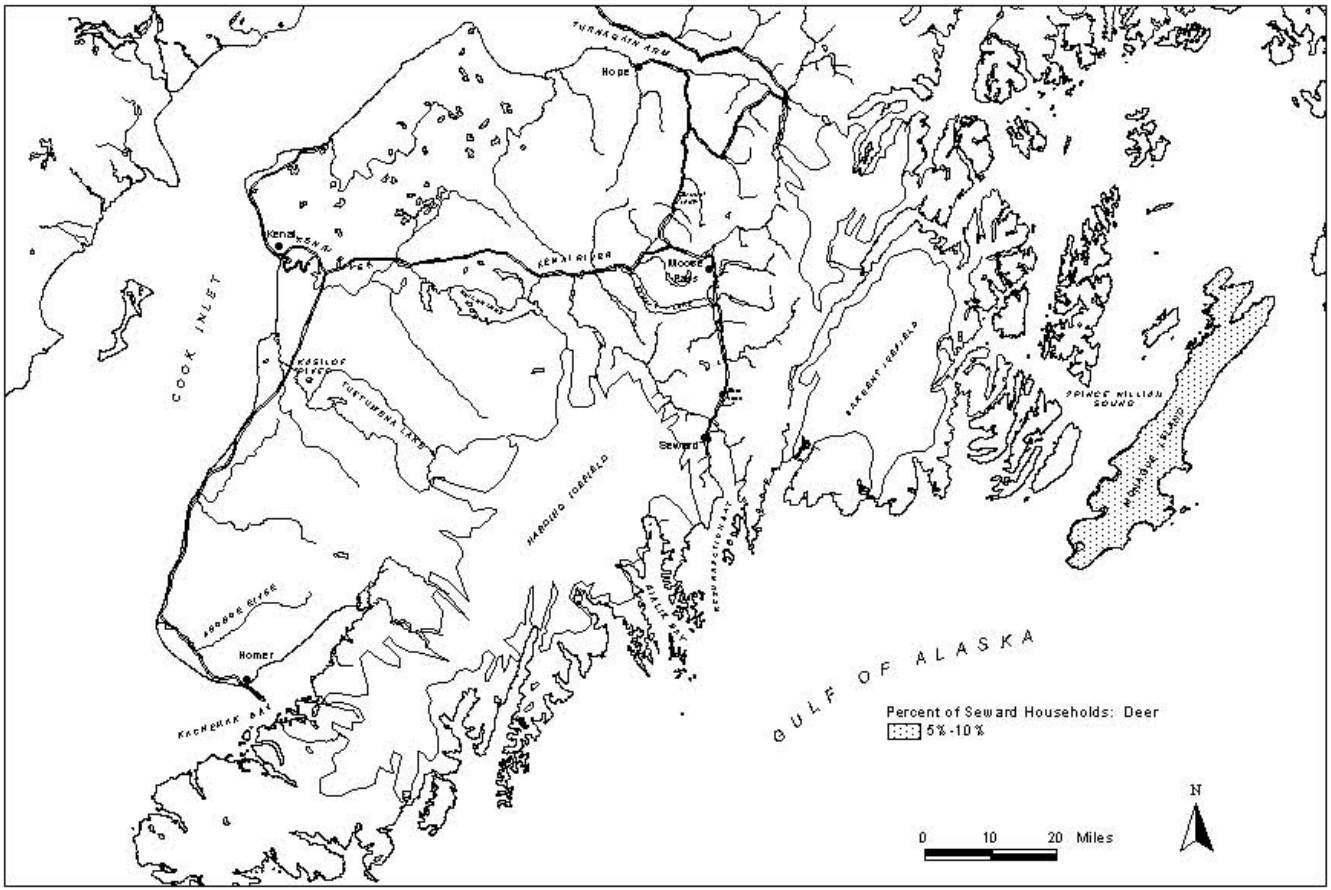


Figure 20. Seward Household Use Areas, Deer
Showing Percent of Total Households

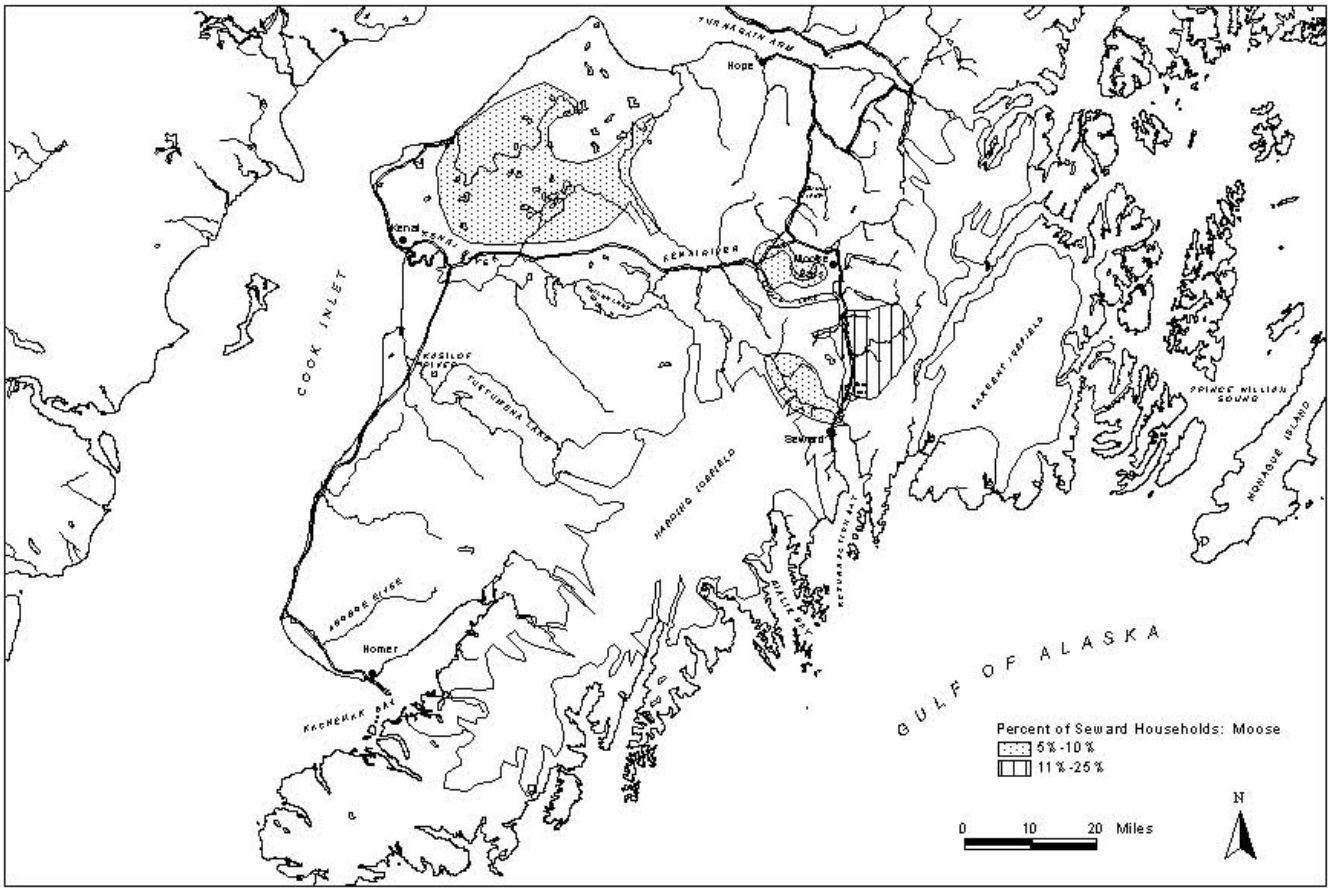


Figure 21. Seward Household Use Areas, Moose
Showing Percent of Total Households

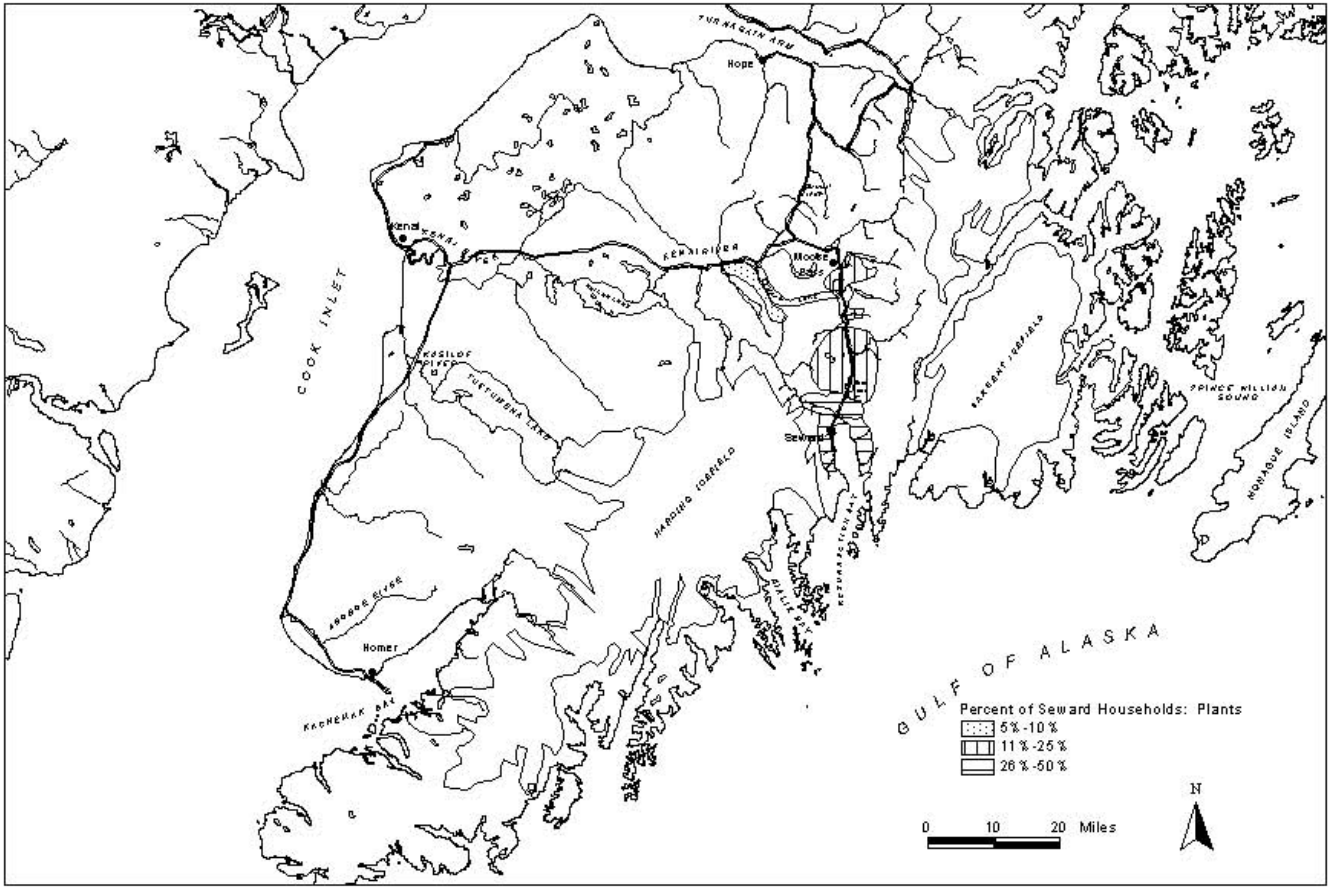


Figure 22. Seward Household Use Areas, Plants
Showing Percent of Total Households

Grant Lakes, Ptarmigan Creek and Victor Creek. Other groups of households used the areas along the Seward Highway near Summit Lake and State Creek, and Sterling Highway near the Russian River and Kenai River confluence, as well as around the community of Hope.

Moose Pass Harvest Locations

Salmon Harvest Locations

Of the 99 Moose Pass households surveyed, 66 percent fished for sockeye salmon during 1990-2000. The confluence of the Kenai and Russian Rivers was the most commonly used area, with 31 percent of households reporting fishing there; 20 percent reported using the waters of Resurrection Bay north of Caines Head; and 17 percent said they fished for sockeye in the lower Kenai River (downstream from the Soldotna bridge) during the last 10 years (Fig. 23). Other areas where sockeye salmon were fished included the Kenai River near the Funny River confluence (7 percent); the outer waters of Resurrection Bay and in Day Harbor, the Kasilof River, Kenai River above Skilak Lake and around Cooper Creek and Kenai Lake (each with 6 percent of households reporting). Other areas where sockeye were fished included other sections of the Kenai River and in Cook Inlet.

Among residents of Moose Pass, 66 percent of households fished for coho salmon between 1990-2000. Resurrection Bay and Day Harbor marine waters were the most important locations for coho fishing by Moose Pass residents during the years 1990-2000 (Fig. 24). In the inside waters of Resurrection Bay north of Caines Head, 61 percent of households fished for coho. Immediately to the south, in waters between Caines Head and the latitude of Cape Resurrection, 30 percent of households fished for coho, and south of that, in waters north of a line extending from Aialik Cape to Cape Mansfield, including Day Harbor, 8 percent of households reported fishing. Other areas included the Kenai River between Skilak Lake and Kenai Lake, including Russian River; the Kenai, Moose, and Funny Rivers below Skilak Lake; and waters in Cook Inlet and Kachemak Bay.

Other salmon species were also targeted by Moose Pass residents, with 41 percent of households reporting fishing for chinook, pink, and/or chum salmon during the years 1990-2000.

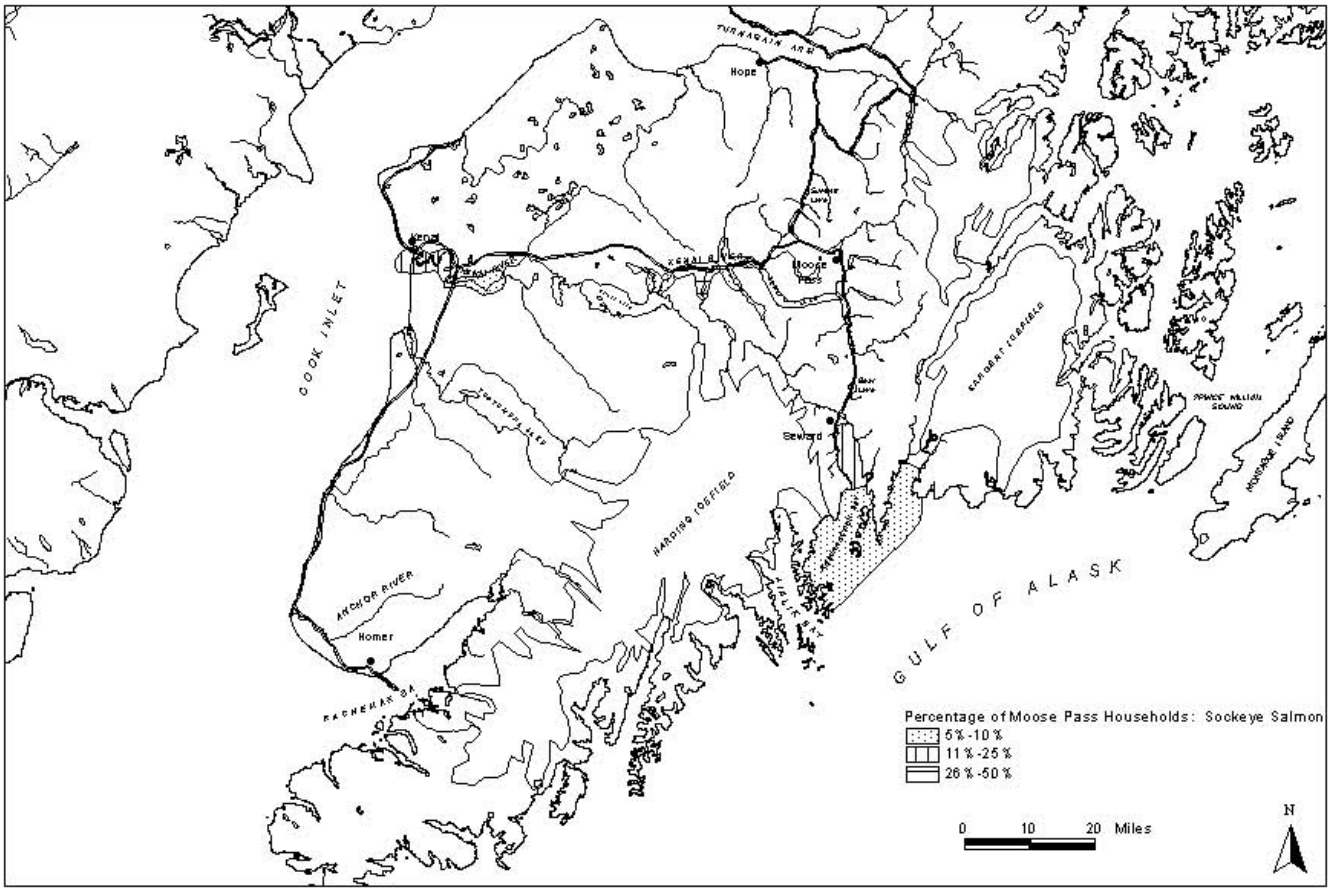


Figure 23. Moose Pass Household Use Areas, Sockeye Salmon
Showing Percent of Total Households

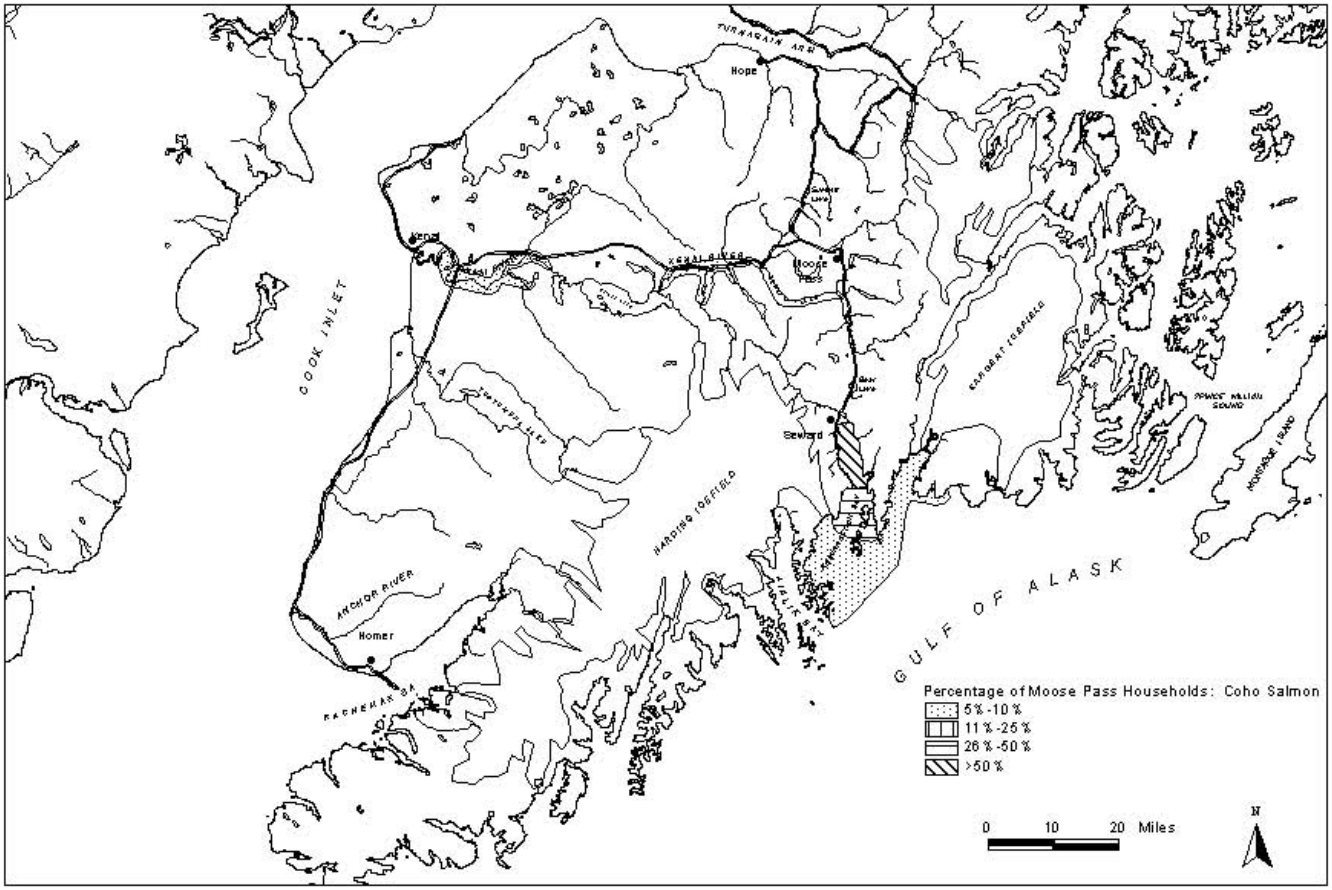


Figure 24. Moose Pass Household Use Areas, Coho Salmon
Showing Percent of Total Households

Inside Resurrection Bay north of Caines Head, 28 percent of households reported fishing for salmon other than sockeye or coho (Fig. 25). Just south, in waters of Resurrection Bay north of Aialik Cape and west of Cape Resurrection, 10 percent of households fished for salmon. Waters of Kenai River downstream from the Funny River confluence, and at the mouth in Cook Inlet, were fished by 8 percent of Moose Pass households; in Cook Inlet off Deep Creek, 6 percent fished for salmon. Day Harbor and Kachemak Bay were both fished by 3 percent of households. Other areas on the Kenai River and in Cook Inlet were used by Moose Pass residents to fish for salmon species other than sockeye or coho.

Other Fishing Locations

Fifty seven percent of Moose Pass households harvested marine fish between 1990-2000. The waters of Resurrection Bay and Day Harbor were heavily used to obtain species such as halibut, rockfish, and lingcod. The outer sections of Resurrection Bay, waters south of Caines Head extending approximately 15 miles south of Cape Resurrection into Blying Sound and Harding Gateway, were used by 33 percent of households (Fig. 26). The inside waters of Resurrection Bay north of Caines Head were used by 21 percent of Moose Pass households, and 20 percent reported fishing for marine fish in Day Harbor. Dora Passage and waters from Aialik Cape to a point 18 miles into the Gulf of Alaska were used by 13 percent of Moose Pass households, and Kachemak Bay waters were used by 12 percent. Cook Inlet, off Clam Gulch and south to Anchor Point, was used by 8 percent of households for marine fish. Other spots in the western waters of Prince William Sound, the Outer Kenai coast, and elsewhere in Cook Inlet were all fished as well.

In Moose Pass, 52 percent of households fished for rainbow trout between 1990 and 2000; 32 percent of households said they fished for rainbow trout in Grant, Lower Trail, and Vogt Lakes, and in Grant and Trail Creek (Fig. 27). Ptarmigan Lake and Ptarmigan Creek were used by 22 percent of households, and Upper Trail Lake was used by 14 percent. In Victor Creek and in all of Kenai Lake, 13 percent of Moose Pass households fished for rainbow trout, and 11 percent fished in Carter Lake and in the Kenai River from Kenai Lake to Skilak and Hidden Lakes. Other areas used by Moose Pass households for rainbow trout included the Russian River, Crescent, Russian, Cooper, Lost, Summit and Johnson Lakes, in streams around

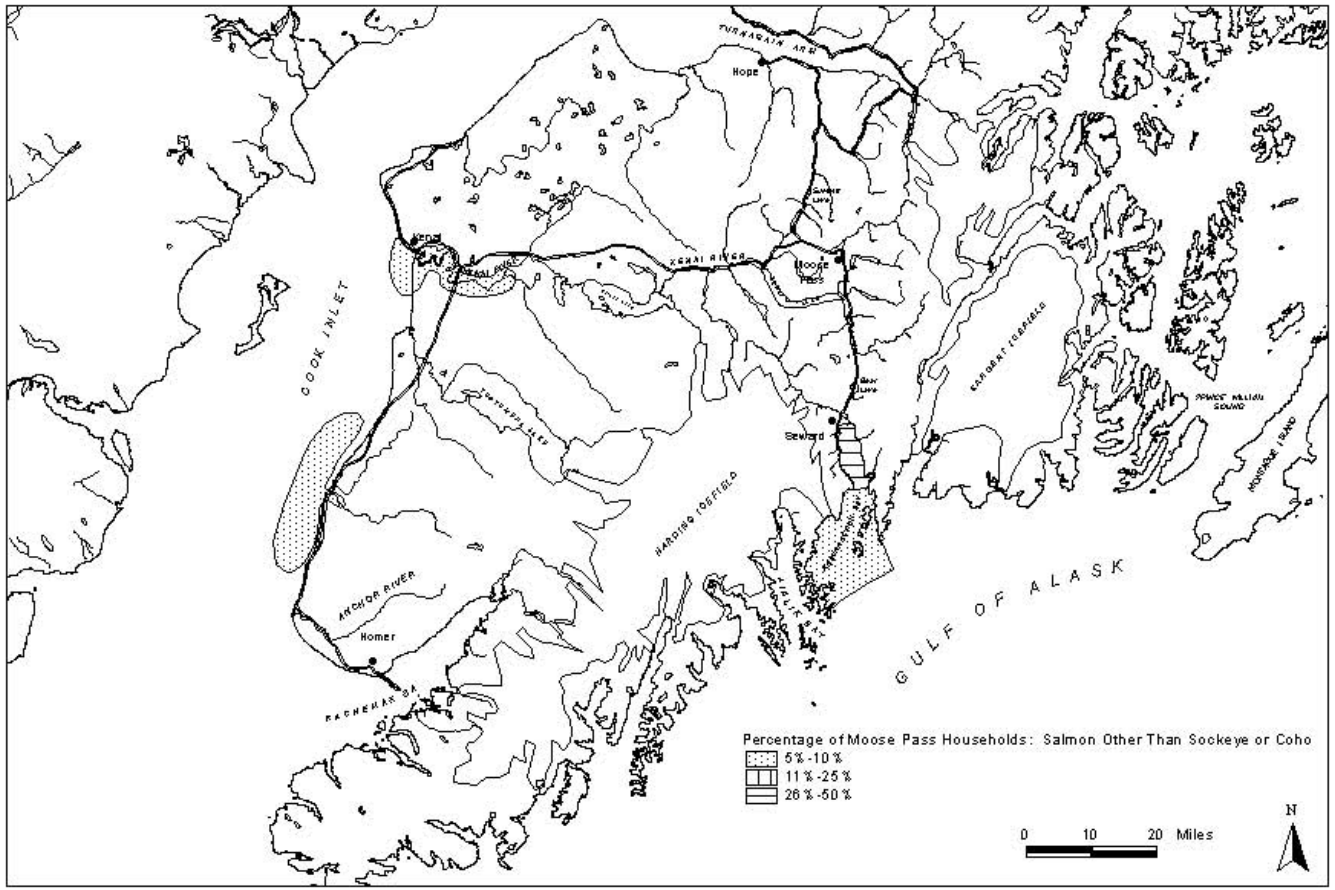


Figure 25. Moose Pass Household Use Areas, Salmon Other Than Sockeye or Coho Showing Percent of Total Households

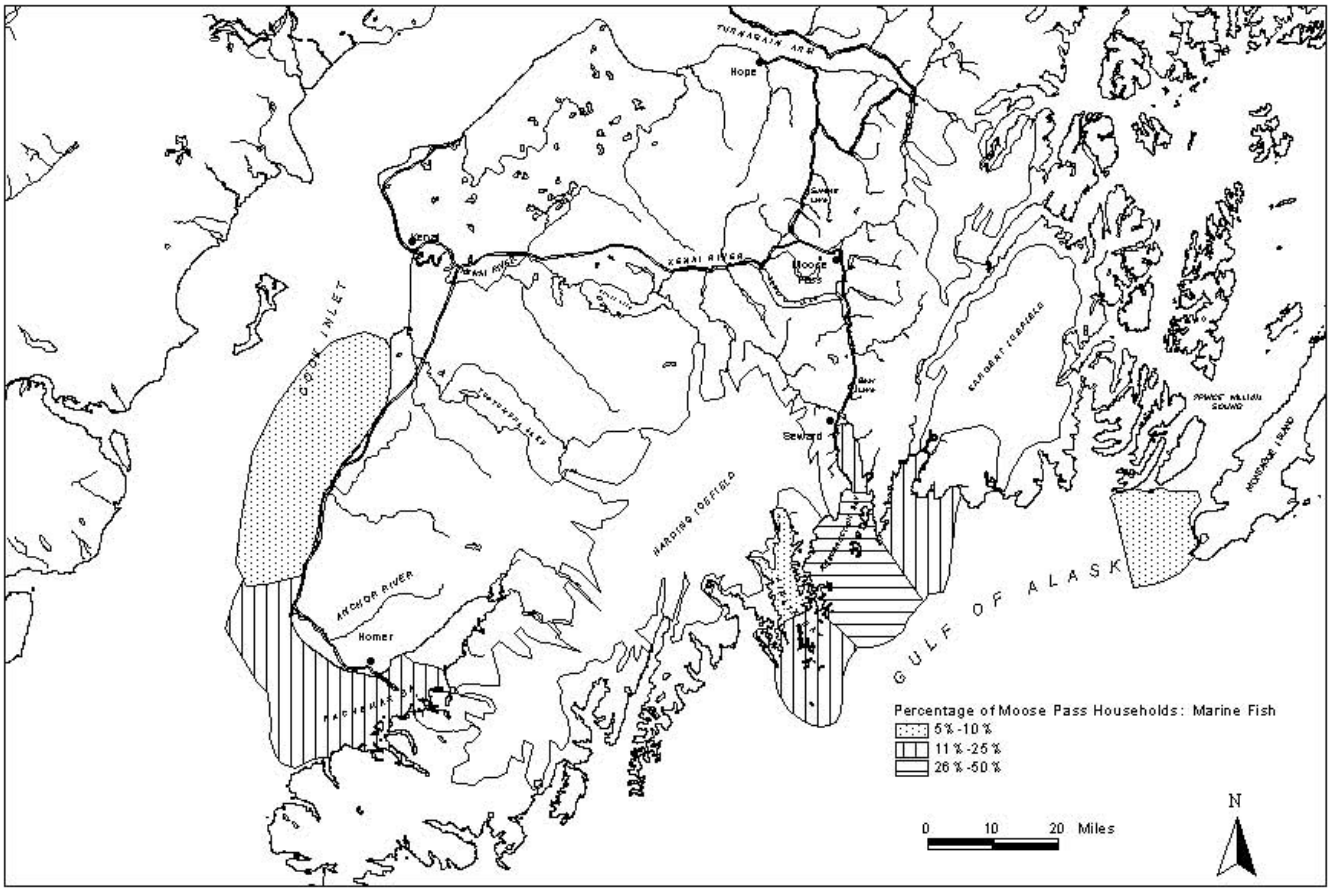


Figure 26. Moose Pass Household Use Areas, Marine Fish
Showing Percent of Total Households

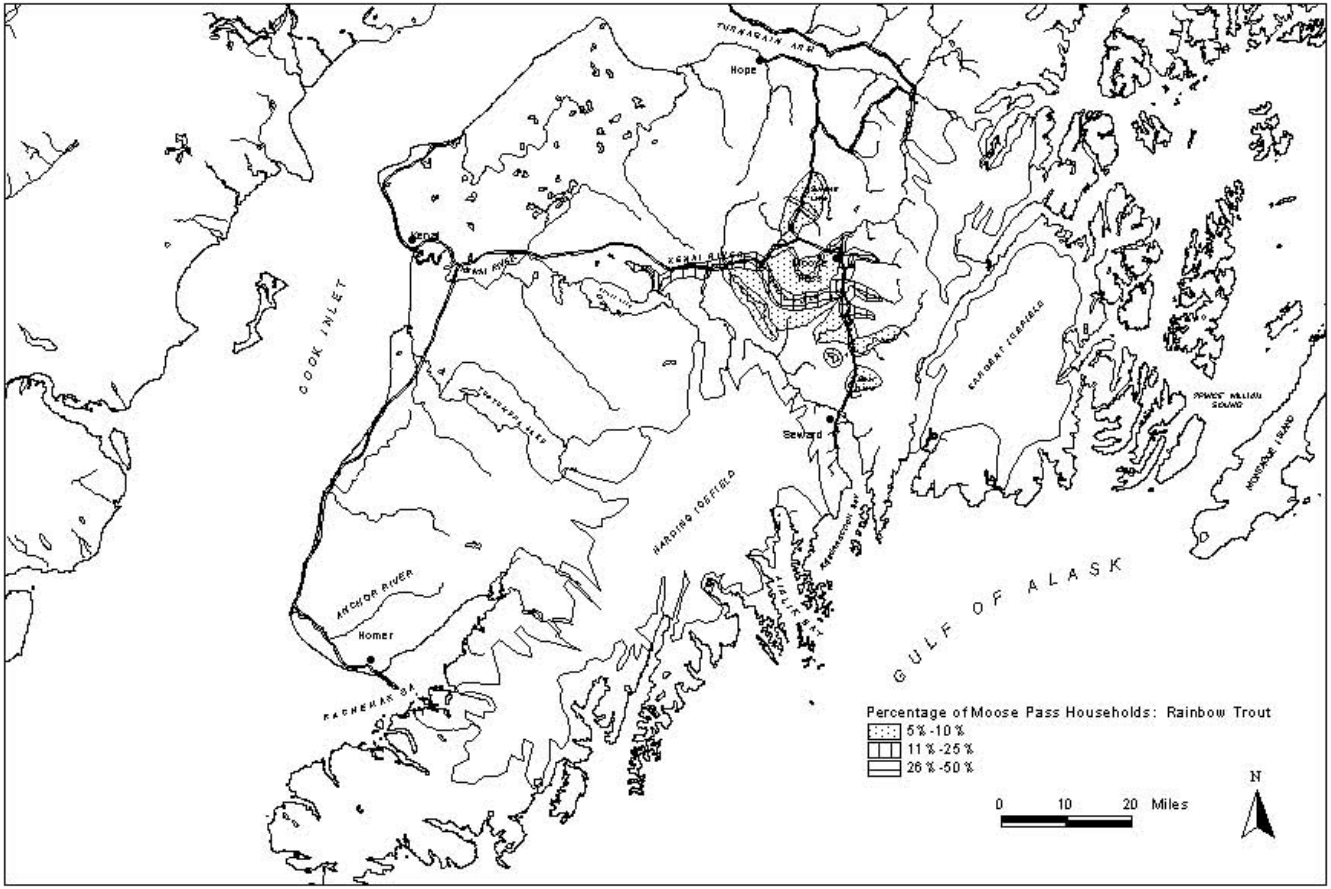


Figure 27. Moose Pass Household Use Areas, Rainbow Trout
Showing Percent of Total Households

these lakes, as well as in the low lying areas of the western Kenai Peninsula around Swanson and Moose Rivers.

Thirty nine percent of Moose Pass households fished for Dolly Varden during the 1990-2000 period. The most heavily used waters for Dolly Varden fishing were Trail Creek, Lower Trail Lake and the outlet of Grant Lake, where 27 percent of Moose Pass households reported fishing from 1990-2000 (Fig. 28). Ptarmigan Lake and Ptarmigan Creek drew 25 percent of households, and 15 percent fished in Upper Trail Lake. In the southern end of Kenai Lake and in Primrose Creek, 11 percent of households fished for Dolly Varden. Victor Creek, Kenai Lake, Russian River, Kenai River, Quartz Creek, Crescent Creek, as well as streams and marine waters around Seward in Resurrection Bay were also used by Moose Pass households during that time.

Thirty four percent of Moose Pass households reported fishing for fish like lake trout and grayling in freshwater; 14 percent used Crescent and Carter Lakes and Quartz Creek; 12 percent used Grant Lake, Grant Creek, Lower Trail Lake and Lower Trail Creek; and 8 percent used Kenai Lake for freshwater species other than Dolly Varden and rainbow trout. Other areas fished over those years included Lost Lake, Upper Trail Creek and Johnson Lake. Figure 29 shows areas used by Moose Pass households for fishing nonsalmon freshwater fish other than rainbow trout or Dolly Varden.

In Moose Pass, 40 percent of households reported harvesting marine invertebrates during the past 10 years. The most heavily used areas were the beaches on the west side of the Kenai Peninsula, on and near Clam Gulch; 34 percent of Moose Pass households have harvested marine invertebrates there over the years 1990-2000. Just south of Clam Gulch, the beaches at Ninilchik and at the mouth of Deep Creek were used by 21 percent of households (Fig. 30). Other locations along the eastern shore of Cook Inlet/western Kenai Peninsula were used by 4 percent to 6 percent of the households, and Resurrection Bay was use by 3 percent of households for marine invertebrate harvest. A few Moose Pass residents ventured to the south shore of Kachemak Bay for shellfish.

Hunting Locations

Moose were hunted by 39 percent of Moose Pass households over the years 1990-2000. The areas east of the Seward Highway between Bear Lake and Ptarmigan Lake, extending back

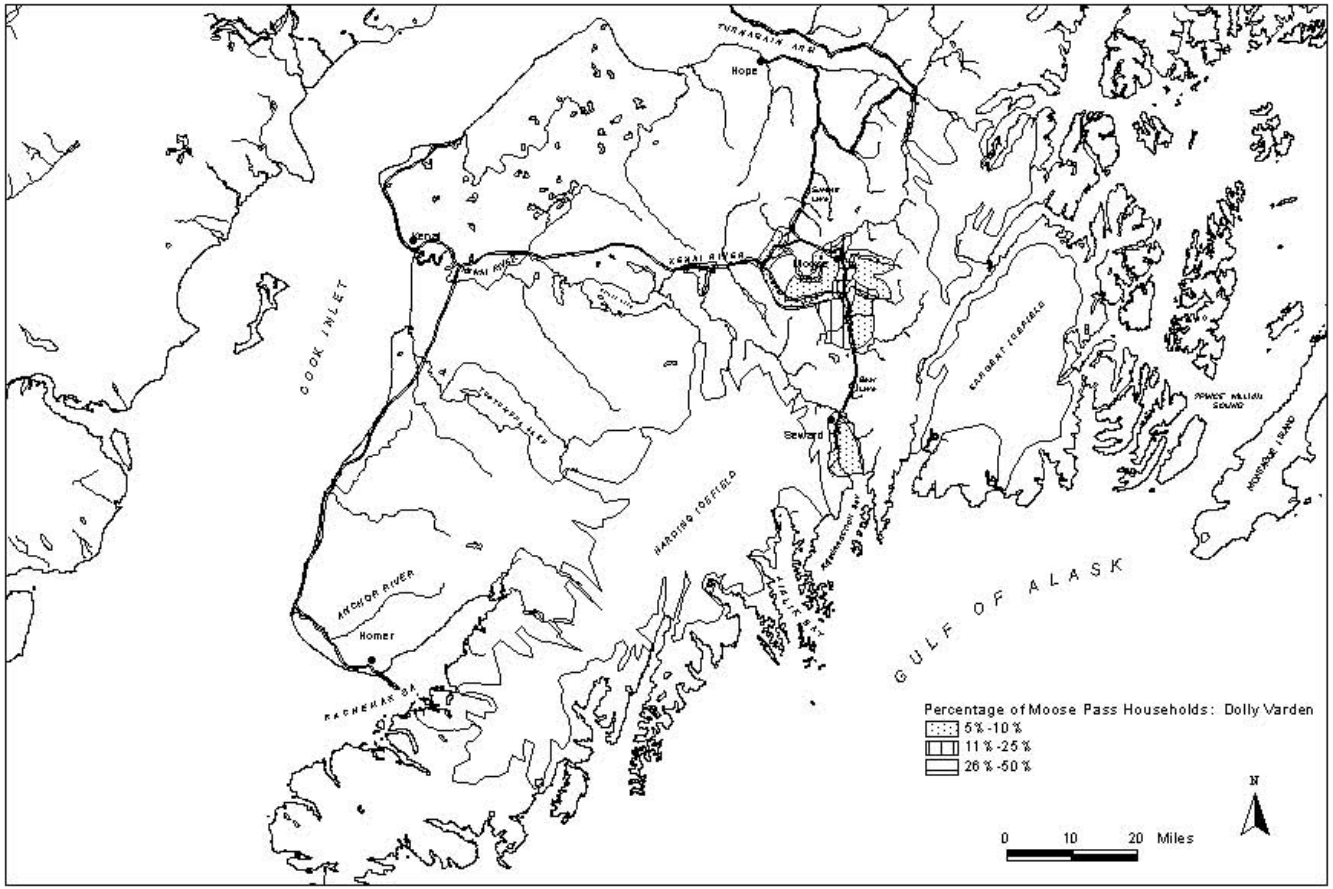


Figure 28. Moose Pass Household Use Areas, Dolly Varden
Showing Percent of Total Households

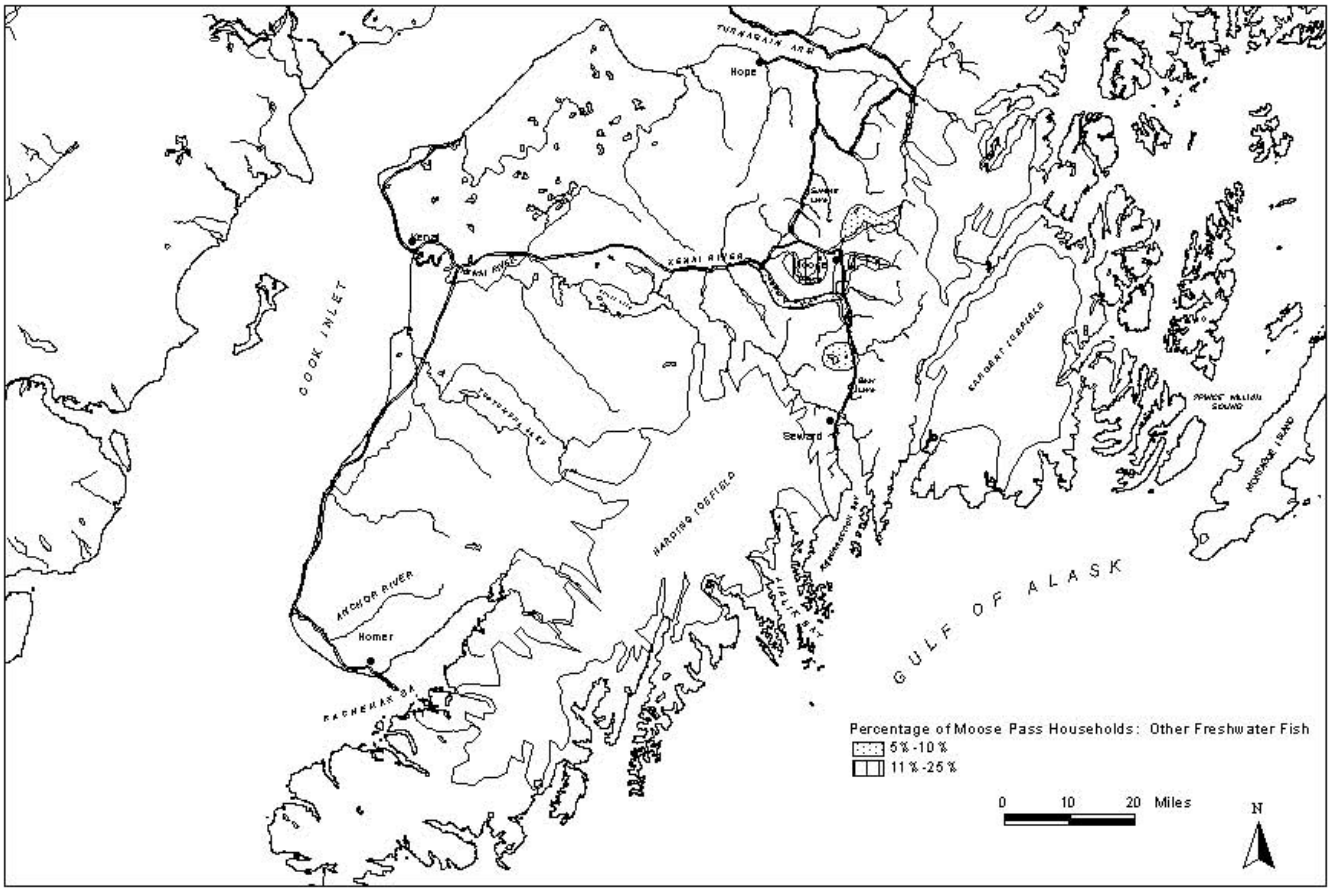


Figure 29. Moose Pass Household Use Areas, Freshwater Fish Other Than Rainbow Trout or Dolly Varden Showing Percent of Total Households

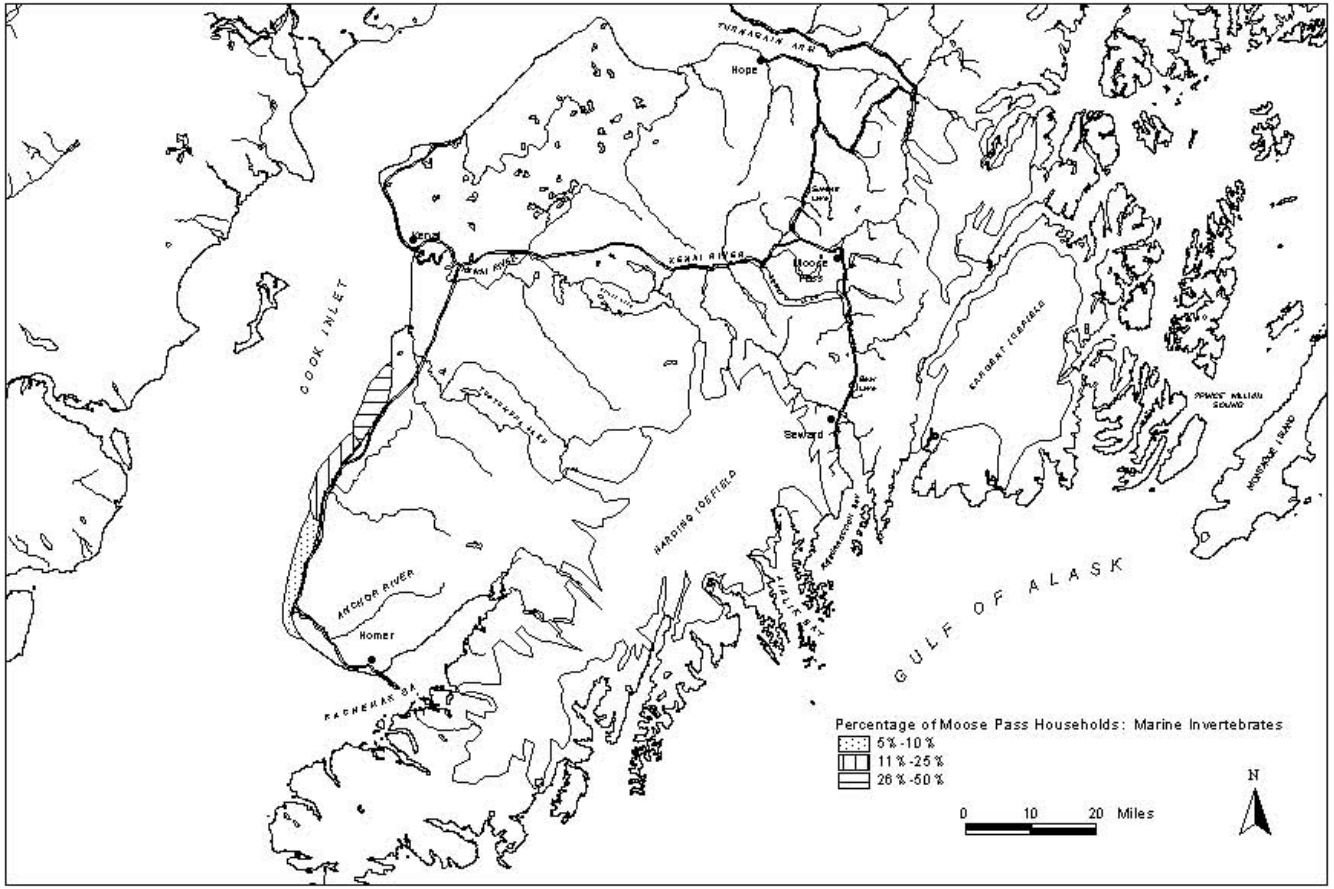


Figure 30. Moose Pass Household Use Areas, Marine Invertebrates
Showing Percent of Total Households

some 7 miles from the highway, was used by 25 percent of households, while a 5 mile-wide corridor along the highway from Kenai Lake north to Summit Lake was used by 24 percent. Between Madison Mountain near Crescent Lake to the area just north of Grant Lake, 22 percent of households hunted for moose, and the area just north of there around Upper Trail Lake, Johnson Lake, and Mills Creek was used by 21 percent (Fig. 31). Eighteen percent hunted on the northern shores of Kenai Lake, and 16 percent hunted moose on the southern shores of Kenai Lake and around Crescent Lake to the north. The area to the west of the Seward Highway, between Primrose Creek and Grayling Lake, including Lost Lake, was hunted by 14 percent of households. The area around Cooper Lake and Cooper Creek was hunted by 12 percent of households, and immediately north of the Sterling Highway around Juneau Creek and Resurrection Pass trail, 11 percent of households hunted moose. Between 5 percent and 10 percent of households hunted in the areas around Resurrection, Chickaloon and Nellie Juan Rivers and Mystery, Bench and Granite Creeks. Less than 5 percent of households hunted moose along the watersheds in the northeast of the Kenai Peninsula, along Russian River, and in the Swan Lake Road area of the western Kenai Peninsula.

Deer were hunted in the decade 1990-2000 by 18 percent of Moose Pass households. On the southern end of Montague Island 9 percent of households hunted deer at some point during that time. Green Island was hunted by 5 percent of Moose Pass households, and 3 percent of households hunted deer on northern Montague and on LaTouche and Knight Islands. Single households hunted on numerous other islands throughout Prince William Sound, as well as locations on the mainland shores on the western part of the Sound.

Twenty two percent of Moose Pass households hunted black bear during the 1990s. The areas around Grant and Ptarmigan Lakes, and the uplands to the east, were hunted by 16 percent of Moose Pass households (Fig. 32). Fourteen percent hunted the mountains around Crescent Lake and the areas near Sheep Mountain and Victor Creek. Snug Harbor Road on the southern shore of Kenai Lake, the areas between Kenai and Cooper Lakes, and the mountains around Boulder Creek were hunted by 13 percent of households, and 11 percent hunted the area between Upper Trail Creek and the headwaters of Mills and Canyon Creeks. Near the Seward Highway around Summit Lake and Colorado Creek, 9 percent of households hunted black bear. South of Cooper Lake to Resurrection Peaks, including Lost Lake and Martin and Boulder Creeks, 7 percent of households hunted black bear, while 6 percent hunted along the upper Snow River and

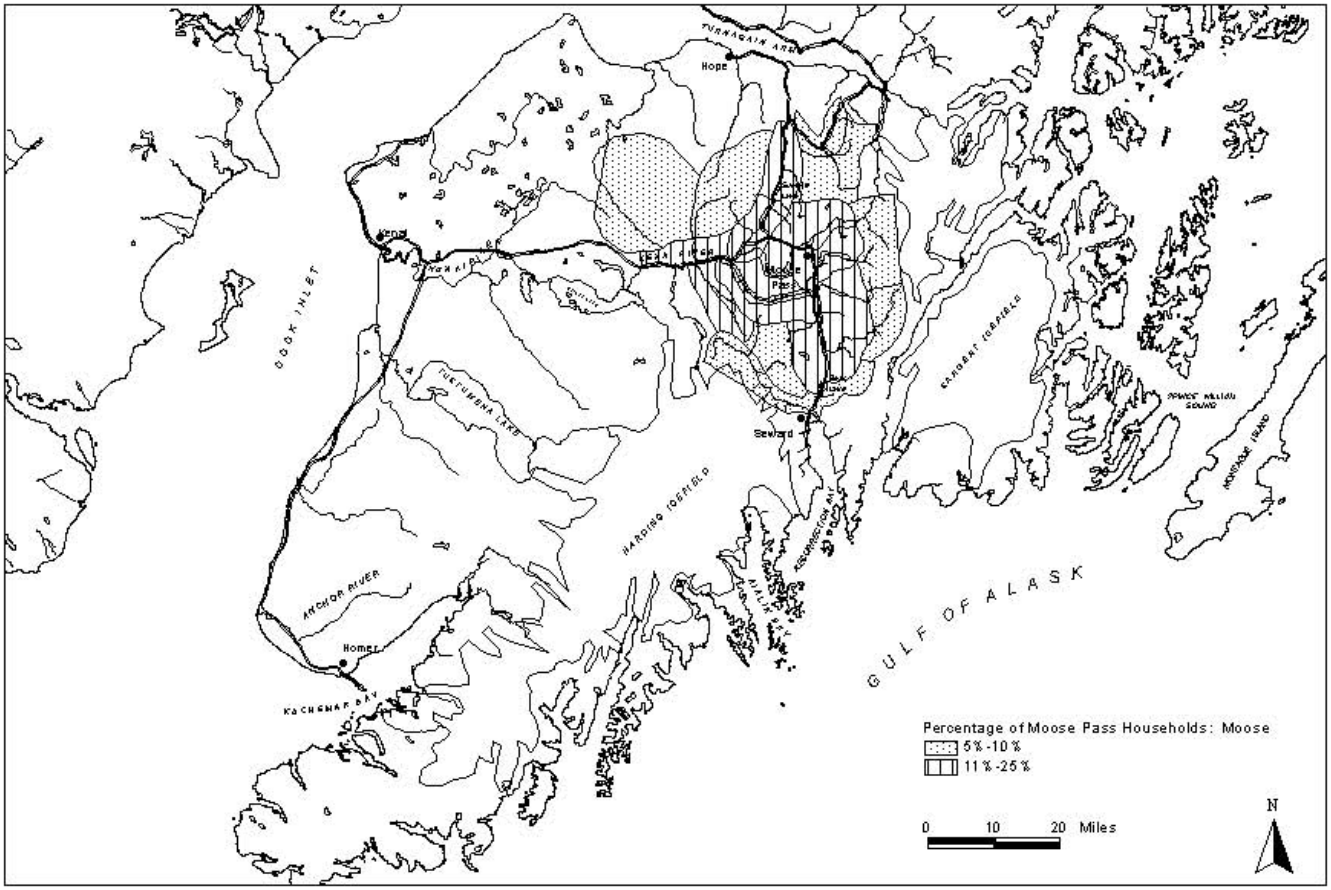


Figure 31. Moose Pass Household Use Areas, Moose
Showing Percent of Total Households

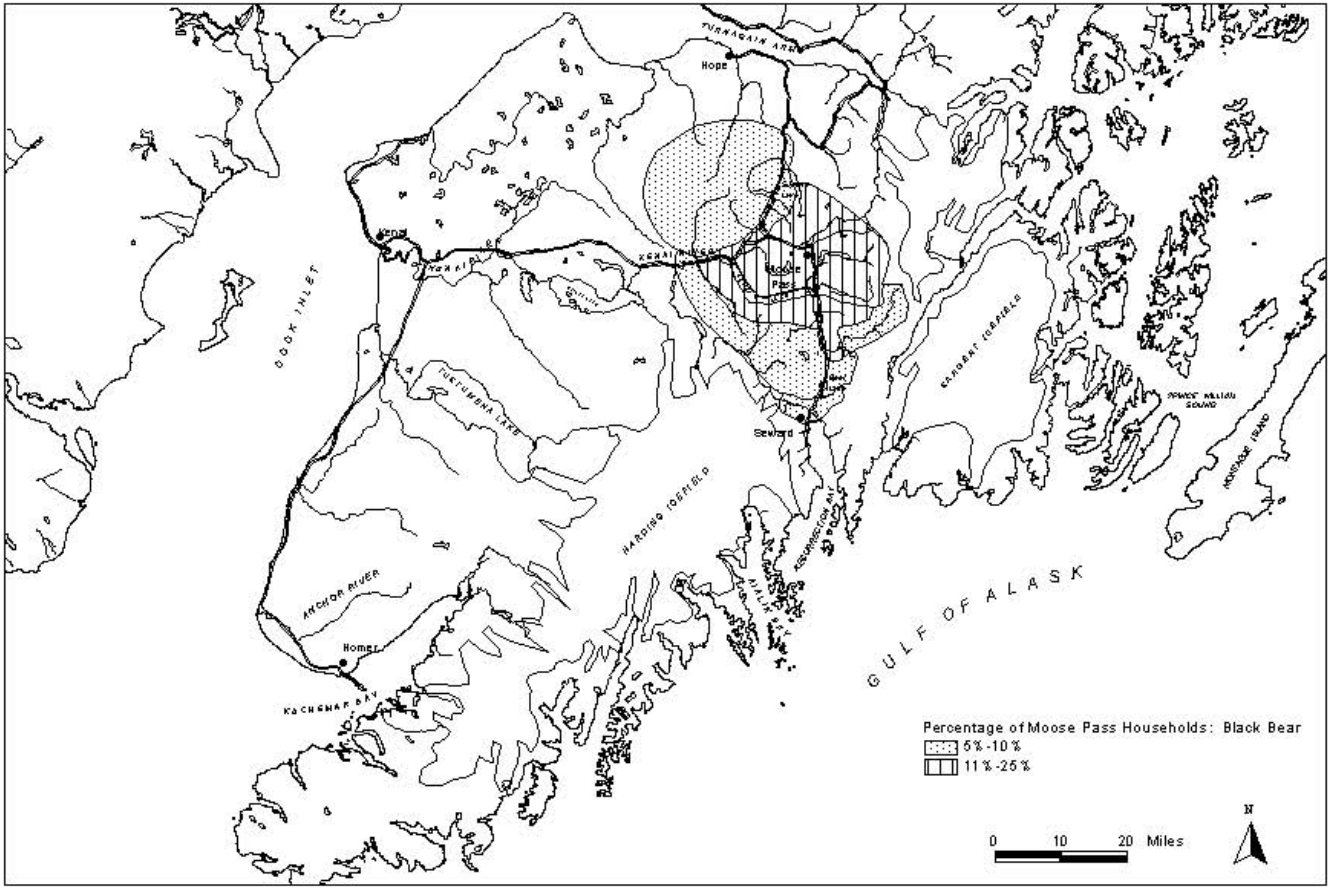


Figure 32. Moose Pass Household Use Areas, Black Bear
Showing Percent of Total Households

Paradise Lakes, and 5 percent hunted along Juneau Creek and the headwaters of Resurrection Creek. Moose Pass black bear hunters also ranged west to Swanson Lakes and Skilak Lake, north to Placer River, and south to Nellie Juan Lake.

Only 3 percent of Moose Pass households hunted brown bear during the 1990s. The broad area from Cooper Lake east to the edge of Trail and Spencer Glaciers, and from Ptarmigan Lake north to Granite Creek provided brown bear hunting habitat for Moose Pass households.

Birds were hunted by 32 percent of Moose Pass households in the 1990s. Twenty six percent hunted birds in the vicinity of Crescent Lake, south and west of the Seward Highway and north of Kenai Lake (Fig. 33). The next most heavily used locations for bird hunting include the areas east of Resurrection Pass Trail at Juneau Creek and all the areas east of the Seward Highway south of Mills Creek, north of Victor Creek and west of inlets to Upper Trail and Ptarmigan Lakes, which are used by 20 percent of households. South of Kenai Lake, north of Resurrection Peaks, west of the Seward Highway and east of Boulder Creek, including Lost Lake, was hunted by 16 percent of Moose Pass households. Across the highway, around the Snow River and Paradise Lakes, 12 percent of households hunted birds between 1990-2000. Areas south of the Seward Highway near Canyon Creek and Bench Creek, including the Trail Creek drainage, provided bird hunting grounds for 11 percent of households, while 10 percent hunted around Cooper Lake and Cooper Creek south of the Sterling Highway. Along Juneau Creek and Resurrection Pass Trail, including Chickaloon River, 9 percent of households hunted birds, and 7 percent hunted along the highlands between Trail Glacier and Paradise Valley. Most of the remaining lands on the Kenai Peninsula east of the Resurrection Trail, in addition to locations in Prince William Sound, were used by Moose Pass bird hunters during the years 1990-2000.

Between 1990-2000, 8 percent of Moose Pass households reported hunting caribou on the Kenai Peninsula. Seven percent of them hunted around the Resurrection Creek west to the Chickaloon River and south to the mountains west of Summit Lake. Other households hunted just east of Summit Lake and near the Sterling Highway near Resurrection Pass Trail.

Fifteen percent of Moose Pass households reported hunting for goats on the Kenai in the 1990s. Most of those households hunted in the vicinity of Grant, Ptarmigan, Vogt, and southern Kenai lakes, where 11 percent of households reported hunting. Five percent or less of Moose Pass households reported hunting for goat in the mountains around Trail Creek, Summit Lake,

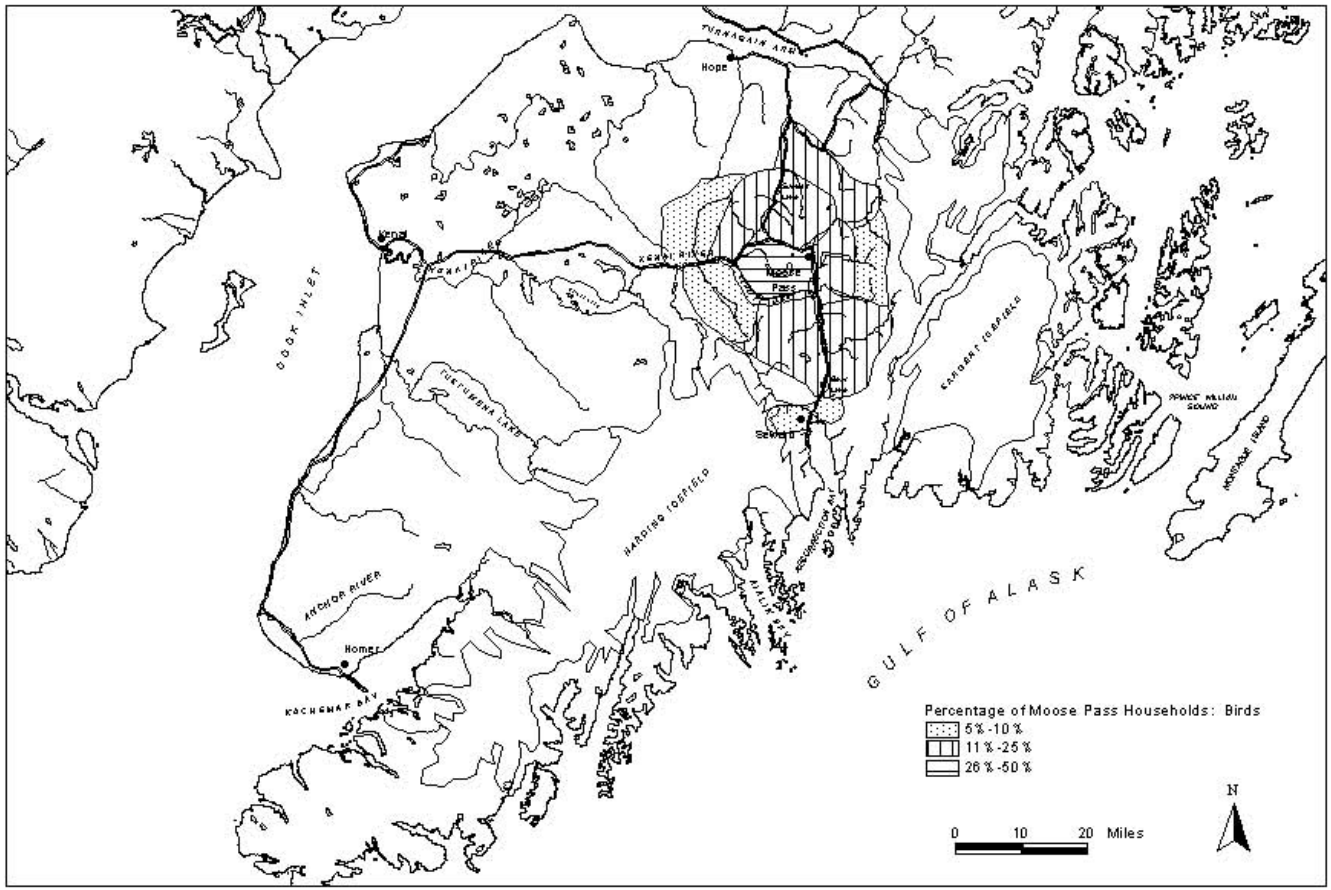


Figure 33. Moose Pass Household Use Areas, Birds
Showing Percent of Total Households

Crescent Lake, Bear Lake and near the city of Seward. Other spots for goat hunting were around Resurrection Bay and along the Resurrection River.

Eleven percent of Moose Pass households hunted sheep in the Kenai Peninsula area during 1990-2000. In areas south of the Seward Highway near Tern and Grant Lakes around Crescent Lake, 7 percent of households reported hunting sheep. The corridor of mountains stretching south from Trail Creek to Bear Lake, including Lark, Andy Simons, Sheep, and Paradise Mountains, were used by 5 percent to 6 percent of households. Scattered areas on the eastern half of the Kenai Peninsula, some along the rocky shores of the Gulf of Alaska, were also used for sheep hunting between 1990-2000.

Plant Gathering Locations

Of Moose Pass households, 69 percent said they harvested plants on the Kenai Peninsula during the years 1990-2000. The most popular place for gathering plants was south of the Crown Point area, around Ptarmigan Lake and Ptarmigan Creek (Fig. 34); 32 percent of households harvested plants there. Just north of there, around Vogt Lake and the Crown Point Mine, 31 percent of households said they hunted for berries or plants. Other heavily used areas included the land around Moose Pass, Carter Lake and Upper Trail Lake, as well as Trail Creek, which were used by 29 percent of households. More than 20 percent of households gathered plants near the head of Resurrection Bay, around Crescent Lake, and in the hills around Lost and Grayling Lakes. More than 10 percent of households used the areas around the outlet of Kenai Lake and Kenai River, along the highway from Kenai Lake to Summit Lake, around Grant Lake, and in the Primrose Creek area near the southern end of Kenai Lake. Most other areas on the Kenai Peninsula east of Juneau Creek were used by Moose Pass households for gathering plants, as well as some locations on the western Kenai Peninsula and in Prince William Sound.

SALMON

As measured in pounds usable weight, salmon provided the largest portion of the estimated wild resources harvest in both Seward (47.9 percent) and Moose Pass (36.7 percent) in the study year (Fig. 9). The estimated per capita harvest of salmon was 46.4 pounds in Seward

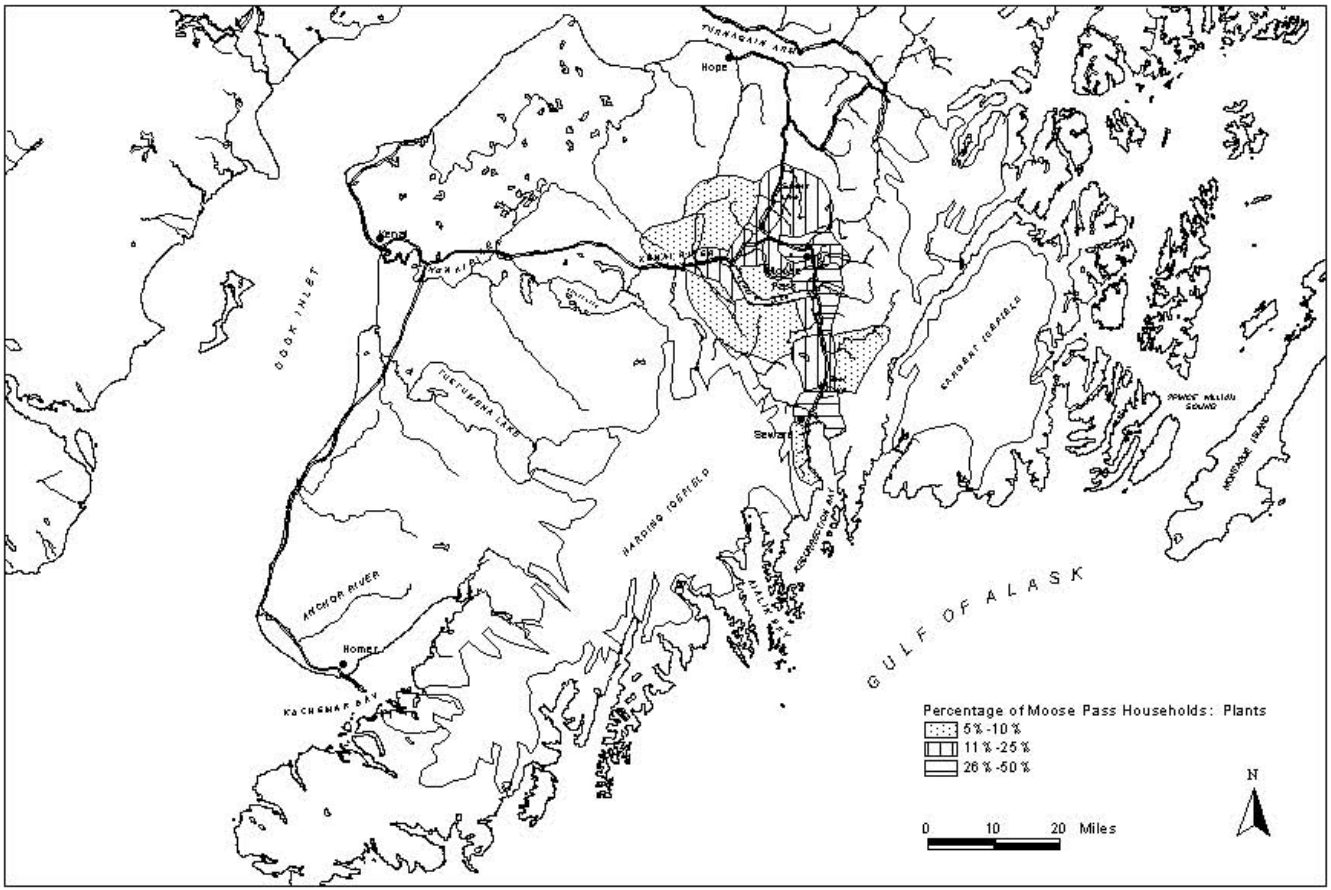


Figure 34. Moose Pass Household Use Areas, Plants
Showing Percent of Total Households

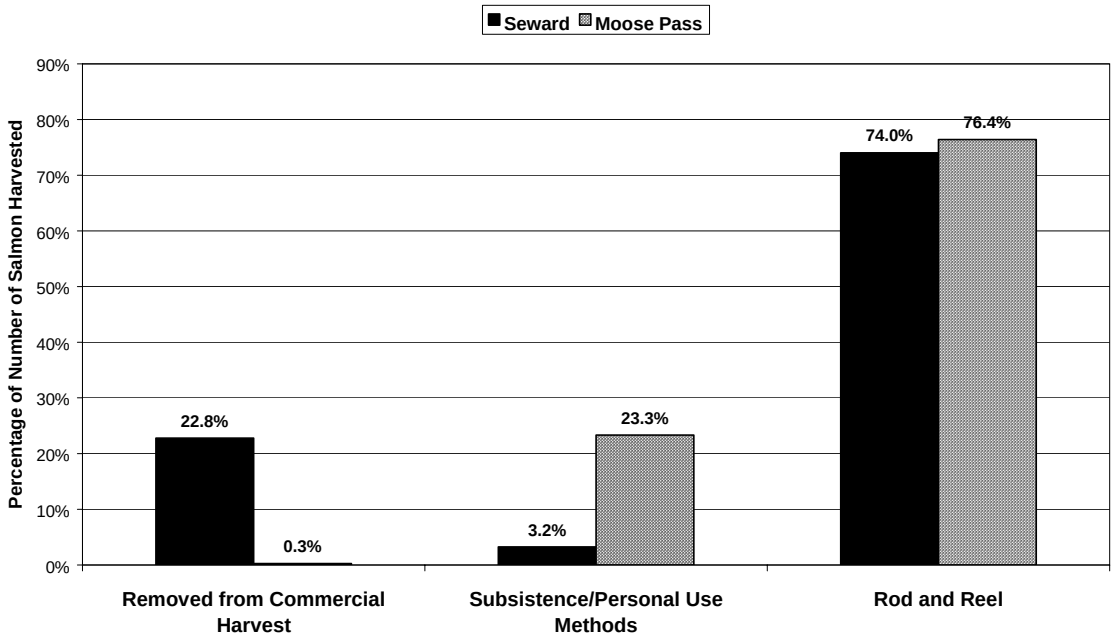
and 31.9 pounds in Moose Pass (Fig. 10). Most households in both communities used salmon during the study year: 86.5 percent in Seward and 84.8 percent in Moose Pass (Fig. 7). Most also fished for salmon: 61.5 percent in Seward and 59.6 percent in Moose Pass (Table 22, Table 23). In both communities, coho salmon ranked first among salmon species in terms of percentage of households using and harvesting. In Seward, coho ranked first in terms of harvest levels as well. In Moose Pass, sockeye salmon slightly outranked coho; sockeye ranked second in terms of harvest and participation in Seward. Half the households in Seward used chinook (king) salmon, as did 25.3 percent in Moose Pass. Chum and pink salmon were used by fewer households in both communities and harvested in more limited quantities.

As shown in Figure 35 (see also Table 30, Table 31, Table 32, and Table 33), rod and reel gear accounted for most of the salmon harvest for home use in both study areas, 74.0 percent of all salmon harvested by Seward households and 76.4 percent of the salmon harvest by Moose Pass households. In Seward, 54.8 percent of households harvested salmon with rod and reel as did just over half the Moose Pass households (50.5 percent) (Table 34).

Removal of salmon from commercial harvests for home use was important at Seward. Although only 2.9 percent of households did so (Table 34), commercial harvests accounted for 22.8 percent of the total salmon harvest by sampled Seward households (Fig. 35). Virtually all of this was sockeye salmon, and commercial removal accounted for 54.3 percent of the total home use harvest of sockeyes by Seward households (Table 31). In contrast, commercial removal was a relatively unimportant source of salmon for home use at Moose Pass in the study year. Just 1.0 percent of households did so, accounting for only 0.3 percent of the total salmon harvest (Table 34, Table 33, Fig. 35).

Personal use fisheries were an important source of salmon for home use for Moose Pass households, generally more so than for households from Seward. About 11 percent of Moose Pass households participated in Kenai Peninsula personal use dip net fisheries in 2000 (Table 34), accounting for 17.9 percent of the total salmon harvest by households living in the Moose Pass study area (Table 33). Most of this harvest was sockeye salmon (94.3 percent), and 34.3 percent of the community's sockeye harvest was achieved with personal use dip nets. About 3.0 percent of Moose Pass households participated in personal use or subsistence salmon setnet fisheries in the study year. These fisheries accounted for 5.4 percent of the community's total salmon harvest, and included coho, chinook, and sockeye salmon (Table 34, Table 33).

Figure 35. Percentage of Salmon Harvests by Gear Type, Seward and Moose Pass, 2000/01



For the Seward study area, personal use and subsistence methods accounted for 3.2 percent of the total salmon harvest for home use (Fig. 35). About six percent (5.8 percent) of households participated in these fisheries (Table 34). This included set net fisheries (1.9 percent of households), dip net fisheries (1.0 percent), and ice fishing (2.9 percent).

Table 35 reports the locations of salmon harvests by interviewed households from both study areas in the study year of 2000/01. This includes harvests with any noncommercial gear. Figure 36 depicts the areas used to record these harvest locations. For both Moose Pass and Seward, the most households harvested salmon in the marine waters of Resurrection Bay, 44.4 percent and 53.8 percent, respectively. Waters within the outer boundaries of the Kenai NWR or Chugach NF were a source of salmon for 20.2 percent of Moose Pass households, but just 2.9 percent of those from Seward.

Table 30. Estimated Salmon Harvest by Gear Type, Seward, 2000

Resource	Harvest Units	Removed from Commercial Catch		Subsistence Methods								Rod and Reel		Any Method	
				Setnet		Dipnet		Other		Subsistence Gear Any Method					
		Total	HH Mean	Total	HH Mean	Total	HH Mean	Total	HH Mean	Total	HH Mean	Total	HH Mean	Total	HH Mean
Salmon		8499.88	5.04	470.41	0.28	340.64	0.2	389	0.23	1200.37	0.71	27602.1	16.36	37302.4	22.11
	lbs	43313.8	25.68	4079.73	2.42	1701.52	1.01	1533	0.91	7314.15	4.34	160118	94.91	210746	124.92
Chum Salmon		0	0	16.22	0.01	0	0	0	0	16.22	0.01	681.29	0.4	697.51	0.41
	lbs	0	0	97.23	0.06	0	0	0	0	97.23	0.06	4083.64	2.42	4180.87	2.48
Coho Salmon		0	0	0	0	0	0	243	0.14	243.32	0.14	17658.2	10.47	17901.6	10.61
	lbs	0	0	0	0	0	0	1314	0.78	1313.91	0.78	95354.4	56.52	96668.3	57.3
Chinook Salmon		64.88	0.04	129.77	0.08	0	0	0	0	129.77	0.08	1427.46	0.85	1622.12	0.96
	lbs	1181	0.7	2362.01	1.4	0	0	0	0	2362.01	1.4	25982.1	15.4	29525.1	17.5
Pink Salmon		0	0	0	0	0	0	0	0	0	0	1313.91	0.78	1313.91	0.78
	lbs	0	0	0	0	0	0	0	0	0	0	2407.48	1.43	2407.48	1.43
Sockeye Salmon		8435	5	324.42	0.19	340.64	0.2	0	0	665.07	0.39	6440.12	3.82	15540.2	9.21
	lbs	42132.8	24.98	1620.49	0.96	1701.52	1.01	0	0	3322.01	1.97	32168.4	19.07	77623.3	46.01
Landlocked Salmon		0	0	0	0	0	0	146	0.09	145.99	0.09	81.11	0.05	227.1	0.13
	lbs	0	0	0	0	0	0	219	0.13	218.99	0.13	121.66	0.07	340.64	0.2
Unknown Salmon		0	0	0	0	0	0	0	0	0	0	0	0	0	0
	lbs	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Survey, 2001

Table 31. Estimated Percentages of Salmon Harvest by Gear Type, Resource, and Total Salmon Harvest, Seward, 2000

Resource	Percent Base	Removed from Commercial Catch		Subsistence Methods								Rod and Reel		Any Method	
				Setnet		Dipnet		Other		Subsistence Gear Any Method					
		No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.
Salmon	geartype	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	resource	22.79	20.55	1.26	1.94	0.91	0.81	1.04	0.73	3.22	3.47	74	75.98	100	100
	total	22.79	20.55	1.26	1.94	0.91	0.81	1.04	0.73	3.22	3.47	74	75.98	100	100
Chum Salmon	geartype	0	0	3.45	2.38	0	0	0	0	1.35	1.33	2.47	2.55	1.87	1.98
	resource	0	0	2.33	2.33	0	0	0	0	2.33	2.33	97.67	97.67	100	100
	total	0	0	0.04	0.05	0	0	0	0	0.04	0.05	1.83	1.94	100	100
Coho Salmon	geartype	0	0	0	0	0	0	62.5	85.71	20.27	17.96	63.97	59.55	47.99	45.87
	resource	0	0	0	0	0	0	1.36	1.36	1.36	1.36	98.64	98.64	100	100
	total	0	0	0	0	0	0	0.65	0.62	0.65	0.62	47.34	45.25	100	100
Chinook Salmon	geartype	0.76	2.73	27.59	57.9	0	0	0	0	10.81	32.29	5.17	16.23	4.35	14.01
	resource	4	4	8	8	0	0	0	0	8	8	88	88	100	100
	total	0.17	0.56	0.35	1.12	0	0	0	0	0.35	1.12	3.83	12.33	100	100
Pink Salmon	geartype	0	0	0	0	0	0	0	0	0	0	4.76	1.5	3.52	1.14
	resource	0	0	0	0	0	0	0	0	0	0	100	100	100	100
	total	0	0	0	0	0	0	0	0	0	0	3.52	1.14	100	100
Sockeye Salmon	geartype	99.24	97.27	68.97	39.72	100	100	0	0	55.41	45.42	23.33	20.09	41.66	36.83
	resource	54.28	54.28	2.09	2.09	2.19	2.19	0	0	4.28	4.28	41.44	41.44	100	100
	total	22.61	19.99	0.87	0.77	0.91	0.81	0	0	1.78	1.58	17.26	15.26	100	100
Landlocked Salmon	geartype	0	0	0	0	0	0	37.5	14.29	12.16	2.99	0.29	0.08	0.61	0.16
	resource	0	0	0	0	0	0	64.29	64.29	64.29	64.29	35.71	35.71	100	100
	total	0	0	0	0	0	0	0.39	0.1	0.39	0.1	0.22	0.06	100	100
Unknown Salmon	geartype	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	resource	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	total	0	0	0	0	0	0	0	0	0	0	0	0	100	100

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Survey, 2001

Table 32. Estimated Salmon Harvest by Gear Type, Moose Pass, 2000

Resource	Harvest Units	Removed from Commercial Catch		Subsistence Methods								Rod and Reel		Any Method	
				Setnet		Dipnet		Other		Subsistence Gear Any Method					
		Total	HH Mean	Total	HH Mean	Total	HH Mean	Total	HH Mean	Total	HH Mean	Total	HH Mean	Total	HH Mean
Salmon		5.98	0.04	119.6	0.81	396	2.68	0	0	515.8	3.48	1690.79	11.42	2212.53	14.95
	lbs	51.71	0.35	1004.4	6.79	2034	13.74	0	0	3038	20.53	9748.89	65.87	12838.98	86.75
Chum Salmon		1.49	0.01	0	0	0	0	0	0	0	0	25.41	0.17	26.91	0.18
	lbs	8.96	0.06	0	0	0	0	0	0	0	0	152.33	1.03	161.29	1.09
Coho Salmon		1.49	0.01	29.9	0.2	0	0	0	0	29.9	0.2	835.68	5.65	867.07	5.86
	lbs	8.07	0.05	161.45	1.09	0	0	0	0	161.5	1.09	4512.65	30.49	4682.18	31.64
Chinook Salmon		1.49	0.01	29.9	0.2	5.98	0.04	0	0	35.88	0.24	91.19	0.62	128.57	0.87
	lbs	27.21	0.18	544.21	3.68	109	0.74	0	0	653.1	4.41	1659.84	11.22	2340.1	15.81
Pink Salmon		0	0	0	0	8.97	0.06	0	0	8.97	0.06	83.72	0.57	92.69	0.63
	lbs	0	0	0	0	16.4	0.11	0	0	16.44	0.11	153.39	1.04	169.83	1.15
Sockeye Salmon		1.49	0.01	59.8	0.4	374	2.53	0	0	433.5	2.93	654.79	4.42	1089.82	7.36
	lbs	7.47	0.05	298.69	2.02	1867	12.61	0	0	2166	14.63	3270.67	22.1	5443.64	36.78
Landlocked Salmon		0	0	0	0	0	0	0	0	0	0	0	0	0	0
	lbs	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown Salmon		0	0	0	0	7.47	0.05	0	0	7.47	0.05	0	0	7.47	0.05
	lbs	0	0	0	0	41.9	0.28	0	0	41.93	0.28	0	0	41.93	0.28

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Survey, 2001

Table 33. Estimated Percentages of Salmon Harvest by Gear Type, Resource, and Total Salmon Harvest, Moose Pass, 2000

		Removed from Commercial Catch		Subsistence Methods								Rod and Reel		Any Method	
				Setnet		Dipnet		Other		Subsistence Gear Any Method					
Resource	Percent Base	No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.
Salmon	geartype	100	100	100	100	100	100	0	0	100	100	100	100	100	100
	resource	0.27	0.4	5.41	7.82	17.91	15.84	0	0	23.31	23.67	76.42	75.93	100	100
	total	0.27	0.4	5.41	7.82	17.91	15.84	0	0	23.31	23.67	76.42	75.93	100	100
Chum Salmon	geartype	25	17.33	0	0	0	0	0	0	0	0	1.5	1.56	1.22	1.26
	resource	5.56	5.56	0	0	0	0	0	0	0	0	94.44	94.44	100	100
	total	0.07	0.07	0	0	0	0	0	0	0	0	1.15	1.19	100	100
Coho Salmon	geartype	25	15.61	25	16.08	0	0	0	0	5.8	5.31	49.43	46.29	39.19	36.47
	resource	0.17	0.17	3.45	3.45	0	0	0	0	3.45	3.45	96.38	96.38	100	100
	total	0.07	0.06	1.35	1.26	0	0	0	0	1.35	1.26	37.77	35.15	100	100
Chinook Salmon	geartype	25	52.62	25	54.18	1.51	5.35	0	0	6.96	21.49	5.39	17.03	5.81	18.23
	resource	1.16	1.16	23.26	23.26	4.65	4.65	0	0	27.91	27.91	70.93	70.93	100	100
	total	0.07	0.21	1.35	4.24	0.27	0.85	0	0	1.62	5.09	4.12	12.93	100	100
Pink Salmon	geartype	0	0	0	0	2.26	0.81	0	0	1.74	0.54	4.95	1.57	4.19	1.32
	resource	0	0	0	0	9.68	9.68	0	0	9.68	9.68	90.32	90.32	100	100
	total	0	0	0	0	0.41	0.13	0	0	0.41	0.13	3.78	1.19	100	100
Sockeye Salmon	geartype	25	14.44	50	29.74	94.34	91.78	0	0	84.06	71.27	38.73	33.55	49.26	42.4
	resource	0.14	0.14	5.49	5.49	34.29	34.29	0	0	39.78	39.78	60.08	60.08	100	100
	total	0.07	0.06	2.7	2.33	16.89	14.54	0	0	19.59	16.87	29.59	25.47	100	100
Landlocked Salmon	geartype	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	resource	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	total	0	0	0	0	0	0	0	0	0	0	0	0	100	100
Unknown Salmon	geartype	0	0	0	0	1.89	2.06	0	0	1.45	1.38	0	0	0.34	0.33
	resource	0	0	0	0	100	100	0	0	100	100	0	0	100	100
	total	0	0	0	0	0.34	0.33	0	0	0.34	0.33	0	0	100	100

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Survey, 2001

Table 34. Percentage of Households Harvesting Salmon by Gear Type and Species, Moose Pass and Sewar

RESOURCE	Removed from Commercial Catch	Subsistence Methods			Subsistence Gear Any Method	Rod and Reel	Any Method
		Setnet	Dipnet	Other[1]			
Moose Pass							
Salmon	1.01	3.03	11.11	0	14.14	50.51	55.56
Chum Salmon	1.01	0	0	0	0	3.03	4.04
Coho Salmon	1.01	1.01	0	0	1.01	40.4	41.41
Chinook Salmon	1.01	1.01	2.02	0	3.03	13.13	16.16
Pink Salmon	0	0	1.01	0	1.01	10.1	11.11
Sockeye Salmon	1.01	1.01	10.1	0	11.11	28.28	36.36
Landlocked Salmon	0	0	0	0	0	0	0
Unknown Salmon	0	0	1.01	0	1.01	0	1.01
Seward							
Salmon	2.88	1.92	0.96	2.88	5.77	54.81	56.73
Chum Salmon	0	0.96	0	0	0.96	4.81	5.77
Coho Salmon	0	0	0	0.96	0.96	50.96	50.96
Chinook Salmon	0.96	0.96	0	0	0.96	27.88	28.85
Pink Salmon	0	0	0	0	0	11.54	11.54
Sockeye Salmon	1.92	0.96	0.96	0	1.92	23.08	25.96
Landlocked Salmon	0	0	0	1.92	1.92	0.96	2.88
Unknown Salmon	0	0	0	0	0	0	0

[1] Ice fishing with rod and reel; not classified as a subsistence method in the Cook Inlet Management Area

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Survey, 2001

Table 35. Percentage of Households Using Various Areas to Harvest Fish and Marine Invertebrates, Seward and Moose Pass, 2000/01

Location of Reported Harvest	Percentage of Households							
	Seward				Moose Pass			
	Salmon	Rainbow Trout	Other Freshwater Fish	Marine Invertebrates	Salmon	Rainbow Trout	Other Freshwater Fish	Marine Invertebrates
GMU 7: non-Kenai Peninsula Wildlife Refuge/ Chugach National Forest	4.8%	3.8%	6.7%		2.0%	2.0%	0.0%	
GMU 7: Kenai Peninsula Wildlife Refuge/ Chugach National Forest	2.9%	20.2%	12.5%		20.2%	33.3%	24.2%	
GMU 15A: non-Kenai Peninsula Wildlife Refuge	1.9%	1.0%	0.0%		3.0%	0.0%	0.0%	
GMU 15A: Kenai Peninsula Wildlife Refuge	1.0%	1.9%	1.0%		1.0%	2.0%	1.0%	
GMU 15B: non-Kenai Peninsula Wildlife Refuge	2.9%	1.0%	0.0%		9.1%	0.0%	1.0%	
GMU 15B: Kenai Peninsula Wildlife Refuge	5.8%	1.0%	1.0%		5.1%	0.0%	1.0%	
GMU 15C: non-Kenai Peninsula Wildlife Refuge	3.8%	1.0%	1.0%		2.0%	0.0%	0.0%	
GMU 15C: Kenai Peninsula Wildlife Refuge	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	
Upper Cook Inlet Area Marine Waters	1.0%	0.0%	0.0%	5.8%	1.0%	0.0%	0.0%	15.2%
Lower Cook Inlet Area Marine Waters	2.9%	0.0%	0.0%	4.8%	0.0%	0.0%	0.0%	1.0%
Resurrection Bay / Outer Kenai Coast	53.8%	1.0%	3.8%	4.8%	44.4%	0.0%	2.0%	1.0%
Other	8.7%	1.0%	1.9%	1.9%	7.1%	1.0%	4.0%	1.0%

Source: Alaska Department of Fish and Game, Division of Subsistence, Household Survey 2001

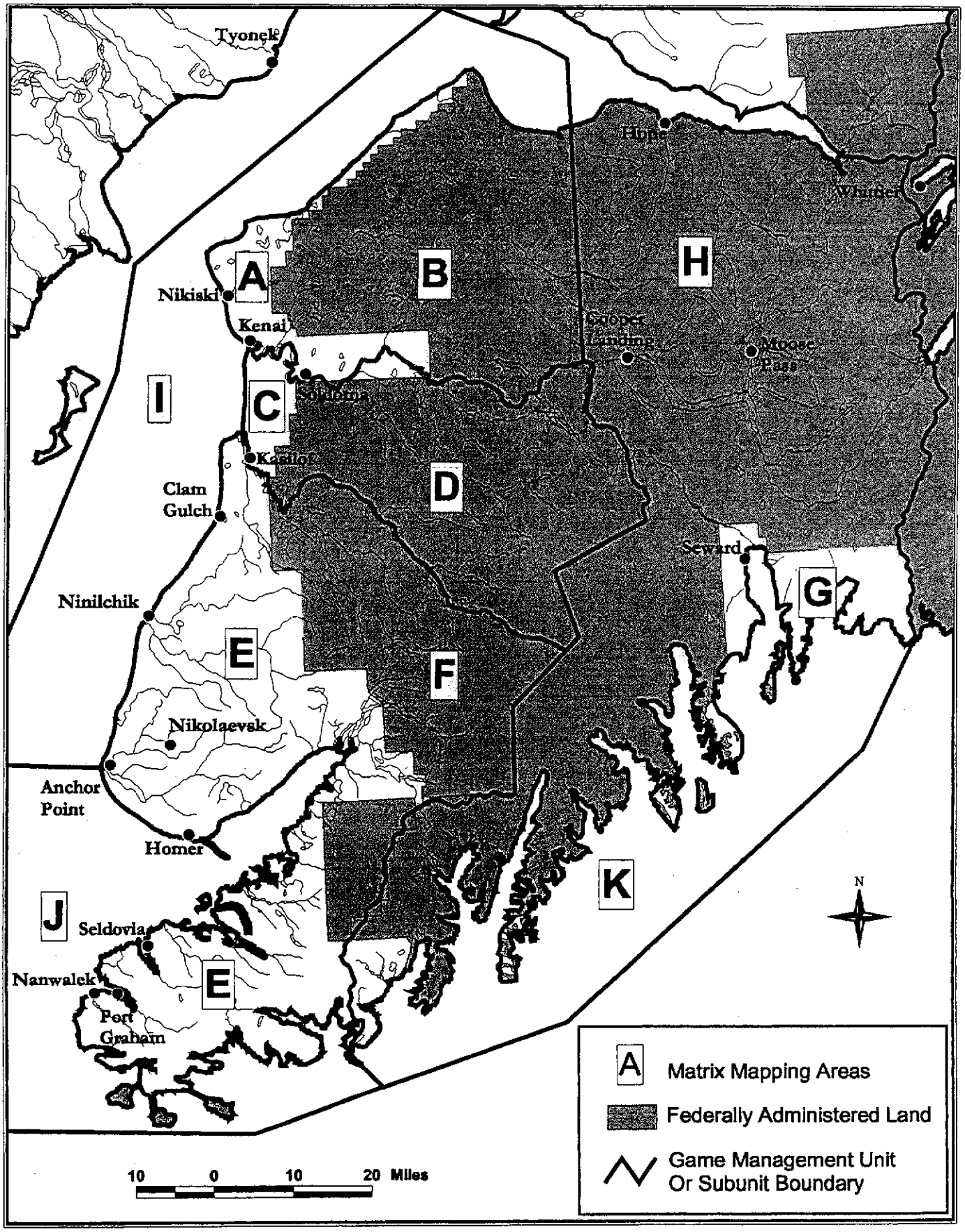


Figure 36. Location of Matrix Mapping areas for 2000/01 Activities

OTHER FISH

As estimated in pounds usable weight, fish other than salmon ranked second as a resource category in Seward (23.7 percent of all resources harvested) and third in Moose Pass (22.9 percent) (Fig. 9). The community harvest of other fish in pounds per person was 23.0 pounds in Seward and 19.9 pounds in Moose Pass (Fig. 10). Most households in both communities used at least one kind of nonsalmon fish in 2000/01: 79.8 percent of Seward households and 78.8 percent of those living in Moose Pass (Fig. 7). Most also fished for at least one of these species: 52.9 percent of Seward households and 61.6 percent in Moose Pass (Table 22, Table 23).

Most nonsalmon fish were taken with rod and reel gear under sport fishing regulations: 95.5 percent (as measured in pounds usable weight) in Seward (Table 36, Table 37) and 98.1 percent in Moose Pass (Table 38, Table 39). This, at least in part, reflects regulations, which do not allow other kinds of gear in the waters of the nonsubsistence area or in freshwater. In Seward, 47.1 percent of households harvested nonsalmon fish with rod and reel (Table 40), as did 53.5 percent in Moose Pass (Table 41).

Of all non-salmon fish, halibut was by far the most widely used and harvested in both study communities. In Seward, 72.1 percent of households used halibut, as did 60.6 percent in Moose Pass. The estimated harvest of halibut in Seward was 12.7 pounds usable weight per person, 55.4 percent of all nonsalmon fish. In Moose Pass, the estimated harvest of halibut was 13.5 pounds per person, 67.7 percent of all fish other than salmon (Table 22, Table 23). All of the halibut harvest by Moose Pass residents was taken with rod and reel gear (Table 38). At Seward, 3.4 percent of the halibut harvest was removed from commercial catches for home use, and the rest was caught with rod and reel (Table 36).

In both communities, halibut fishers took advantage of the availability of charter services to harvest halibut (Table 42). In Seward, 12.5 percent of all households (41.1 percent of all noncommercial halibut fishers) used charters and 20.2 percent did not (none used charters and also fished without the service). Halibut harvests resulting from using charter services accounted for 47.9 percent of the total harvest of halibut by Seward households, and 49.7 percent if halibut removed from commercial harvests for home use are excluded from the total. The pattern was similar at Moose Pass, where 13.1 percent of all households (and 36.1 percent of noncommercial halibut fishers) fished for halibut only by using charters and 20.2 percent (55.6 percent of halibut

Table 36. Estimated Percentages of Fish Other Than Salmon Harvest by Gear Type, Resource, and Total Harvest, Seward, 2000

Resource	Percent Base	Subsistence Gear	Removed from Commercial Gear	Rod and Reel	Ice Fishing
Non-Salmon Fish	geartype	100	100	100	100
	resource	1.72	2.1	95.53	0.65
	total	1.72	2.1	95.53	0.65
Herring	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Herring Sac Roe	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Herring Spawn on Kelp	geartype	82.35	0	0	0
	resource	100	0	0	0
	total	1.41	0	0	0
Eulachon (hooligan, candlefish)	geartype	17.65	0	0	0
	resource	100	0	0	0
	total	0.3	0	0	0
Unknown Smelt	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Pacific Cod (gray)	geartype	0	0	0.99	0
	resource	0	0	100	0
	total	0	0	0.94	0
Pacific Tom Cod	geartype	0	0	0.26	0
	resource	0	0	100	0
	total	0	0	0.25	0
Walleye Pollock (whiting)	geartype	0	0	0.02	0
	resource	0	0	100	0
	total	0	0	0.02	0
Eel	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Starry Flounder	geartype	0	0	0.05	0
	resource	0	0	100	0
	total	0	0	0.05	0
Unknown Flounder	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Lingcod	geartype	0	0	6.35	0
	resource	0	0	100	0
	total	0	0	6.06	0
Unknown Greenling	geartype	0	0	0.23	0
	resource	0	0	100	0
	total	0	0	0.22	0
Halibut	geartype	0	88.63	55.99	0
	resource	0	3.37	96.63	0
	total	0	1.87	53.48	0
Black Rockfish	geartype	0	0	12.2	0
	resource	0	0	100	0
	total	0	0	11.66	0
Red Rockfish	geartype	0	0	5.35	0
	resource	0	0	100	0
	total	0	0	5.11	0
Unknown Rockfish	geartype	0	0	0.16	0
	resource	0	0	100	0
	total	0	0	0.15	0
Sablefish (black cod)	geartype	0	9.16	0.5	0
	resource	0	28.57	71.43	0
	total	0	0.19	0.48	0

(continued)

Table 36. Estimated Percentages of Fish Other Than Salmon Harvest by Gear Type, Resource, and Total Harvest, Seward, 2000 (continued)

Resource	Percent Base	Subsistence Gear	Removed from Commercial Gear	Rod and Reel	Ice Fishing
Unknown Irish Lord	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Unknown Sculpin	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Unknown Shark	geartype	0	0	0.29	0
	resource	0	0	100	0
	total	0	0	0.28	0
Skates	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Unknown Sole	geartype	0	0	0.59	0
	resource	0	0	100	0
	total	0	0	0.56	0
Wolffish	geartype	0	2.22	0	0
	resource	0	100	0	0
	total	0	0.05	0	0
Dolly Varden	geartype	0	0	12.28	0
	resource	0	0	100	0
	total	0	0	11.73	0
Lake Trout	geartype	0	0	0.44	0
	resource	0	0	100	0
	total	0	0	0.42	0
Grayling	geartype	0	0	0.51	0
	resource	0	0	100	0
	total	0	0	0.49	0
Unknown Pike	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Unknown Sturgeon	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Cutthroat Trout	geartype	0	0	0.07	0
	resource	0	0	100	0
	total	0	0	0.07	0
Rainbow Trout	geartype	0	0	3.41	100
	resource	0	0	83.29	16.71
	total	0	0	3.25	0.65
Steelhead	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Unknown Trout	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Unknown Whitefish	geartype	0	0	0.31	0
	resource	0	0	100	0
	total	0	0	0.3	0

Source: Alaska Department of Fish and Game, Division of Subsistence Household Survey 2001

Table 37. Estimated Harvest of Fish Other Than Salmon by Gear Type, Seward, 2000

Resource	Units	Removed From Commercial Catch		Subsistence Gear		Rod and Reel		Ice Fishing		Any Method	
		Total	HH Mean	Total	HH Mean	Total	HH Mean	Total	HH Mean	Total	HH Mean
Non-Salmon Fish	lbs	2196.34	1.3	1792.4	1.06	99697	59.1	681.29	0.4	104367	61.87
Herring	lbs	0	0	0	0	0	0	0	0	0	0
Herring Sac Roe	lbs	0	0	0	0	0	0	0	0	0	0
Herring Spawn on Kelp	lbs	0	0	1476.1	0.88	0	0	0	0	1476.13	0.88
Eulachon (hooligan, candlefish)	lbs	0	0	316.31	0.19	0	0	0	0	316.31	0.19
Unknown Smelt	lbs	0	0	0	0	0	0	0	0	0	0
Pacific Cod (gray)	lbs	0	0	0	0	986.25	0.58	0	0	986.25	0.58
Pacific Tom Cod	lbs	0	0	0	0	259.54	0.15	0	0	259.54	0.15
Walleye Pollock (whiting)	lbs	0	0	0	0	22.71	0.01	0	0	22.71	0.01
Eel	lbs	0	0	0	0	0	0	0	0	0	0
Starry Flounder	lbs	0	0	0	0	48.66	0.03	0	0	48.66	0.03
Unknown Flounder	lbs	0	0	0	0	0	0	0	0	0	0
Lingcod	lbs	0	0	0	0	6326.3	3.75	0	0	6326.25	3.75
Unknown Greenling	lbs	0	0	0	0	227.1	0.13	0	0	227.1	0.13
Halibut	lbs	1946.54	1.15	0	0	55817	33.09	0	0	57763.5	34.24
Black Rockfish	lbs	0	0	0	0	12166	7.21	0	0	12165.9	7.21
Red Rockfish	lbs	0	0	0	0	5336.8	3.16	0	0	5336.76	3.16
Unknown Rockfish	lbs	0	0	0	0	158.16	0.09	0	0	158.16	0.09
Sablefish (black cod)	lbs	201.14	0.12	0	0	502.86	0.3	0	0	704	0.42
Unknown Irish Lord	lbs	0	0	0	0	0	0	0	0	0	0
Unknown Sculpin	lbs	0	0	0	0	0	0	0	0	0	0
Unknown Shark	lbs	0	0	0	0	291.98	0.17	0	0	291.98	0.17
Skates	lbs	0	0	0	0	0	0	0	0	0	0
Unknown Sole	lbs	0	0	0	0	583.96	0.35	0	0	583.96	0.35
Wolffish	lbs	48.66	0.03	0	0	0	0	0	0	48.66	0.03
Dolly Varden	lbs	0	0	0	0	12240	7.26	0	0	12240.5	7.26
Lake Trout	lbs	0	0	0	0	442.84	0.26	0	0	442.84	0.26
Grayling	lbs	0	0	0	0	510.97	0.3	0	0	510.97	0.3
Unknown Pike	lbs	0	0	0	0	0	0	0	0	0	0
Unknown Sturgeon	lbs	0	0	0	0	0	0	0	0	0	0
Cutthroat Trout	lbs	0	0	0	0	68.13	0.04	0	0	68.13	0.04
Rainbow Trout	lbs	0	0	0	0	3395.1	2.01	681.29	0.4	4076.38	2.42
Steelhead	lbs	0	0	0	0	0	0	0	0	0	0
Unknown Trout	lbs	0	0	0	0	0	0	0	0	0	0
Unknown Whitefish	lbs	0	0	0	0	312.26	0.19	0	0	312.26	0.19

Source: Alaska Department of Fish and Game, Division of Subsistence Household Survey 2001

Table 38. Estimated Percentages of Fish Other Than Salmon Harvest by Gear Type, Resource, and Total Harvest, Moose Pass, 2000

Resource	Percent Base	Subsistence Gear	Removed from Commercial Gear	Rod and Reel	Ice Fishing
Non-Salmon Fish	geartype	100	0	100	100
	resource	0.11	0	98.08	1.8
	total	0.11	0	98.08	1.8
Herring	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Herring Sac Roe	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Herring Spawn on Kelp	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Eulachon (hooligan, candlefish)	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Unknown Smelt	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Pacific Cod (gray)	geartype	0	0	0.12	0
	resource	0	0	100	0
	total	0	0	0.12	0
Pacific Tom Cod	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Walleye Pollock (whiting)	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Eel	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Starry Flounder	geartype	100	0	0	0
	resource	100	0	0	0
	total	0.11	0	0	0
Unknown Flounder	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Lingcod	geartype	0	0	5.94	0
	resource	0	0	100	0
	total	0	0	5.83	0
Unknown Greenling	geartype	0	0	0.04	0
	resource	0	0	100	0
	total	0	0	0.04	0
Halibut	geartype	0	0	69.1	0
	resource	0	0	100	0
	total	0	0	67.78	0
Black Rockfish	geartype	0	0	3.66	0
	resource	0	0	100	0
	total	0	0	3.59	0
Red Rockfish	geartype	0	0	3.05	0
	resource	0	0	100	0
	total	0	0	2.99	0
Unknown Rockfish	geartype	0	0	0.07	0
	resource	0	0	100	0
	total	0	0	0.07	0
Sablefish (black cod)	geartype	0	0	0.18	0
	resource	0	0	100	0
	total	0	0	0.17	0

(continued)

Table 38. Estimated Percentages of Fish Other Than Salmon Harvest by Gear Type, Resource, and Total Harvest, Moose Pass, 2000 (continued)

Resource	Percent Base	Subsistence Gear	Removed from Commercial Gear	Rod and Reel	Ice Fishing
Unknown Irish Lord	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Unknown Sculpin	geartype	0	0	0.02	0
	resource	0	0	100	0
	total	0	0	0.02	0
Unknown Shark	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Skates	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Unknown Sole	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Wolffish	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Dolly Varden	geartype	0	0	4.13	33.33
	resource	0	0	87.08	12.92
	total	0	0	4.05	0.6
Lake Trout	geartype	0	0	5.23	0
	resource	0	0	100	0
	total	0	0	5.13	0
Grayling	geartype	0	0	0.79	0
	resource	0	0	100	0
	total	0	0	0.77	0
Unknown Pike	geartype	0	0	0.57	0
	resource	0	0	100	0
	total	0	0	0.56	0
Unknown Sturgeon	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Cutthroat Trout	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Rainbow Trout	geartype	0	0	6.75	66.67
	resource	0	0	84.62	15.38
	total	0	0	6.62	1.2
Steelhead	geartype	0	0	0	0
	resource	0	0	0	0
	total	0	0	0	0
Unknown Trout	geartype	0	0	0.32	0
	resource	0	0	100	0
	total	0	0	0.31	0
Unknown Whitefish	geartype	0	0	0.03	0
	resource	0	0	100	0
	total	0	0	0.03	0

Source: Alaska Department of Fish and Game, Division of Subsistence Household Survey 2001

Table 39. Estimated Harvest of Fish Other Than Salmon by Gear Type, Moose Pass, 2000

Resource	Harvest Units	Removed From Commercial Catch		Subsistence Gear		Rod and Reel		Ice Fishing		Any Method	
		Total	HH Mean	Total	HH Mean	Total	HH Mean	Total	HH Mean	Total	HH Mean
Non-Salmon Fish	lbs	0	0	8.97	0.06	7848	53.02	144.41	0.98	8001	54.06
Herring	lbs	0	0	0	0	0	0	0	0	0	0
Herring Sac Roe	lbs	0	0	0	0	0	0	0	0	0	0
Herring Spawn on Kelp	lbs	0	0	0	0	0	0	0	0	0	0
Eulachon (hooligan, candlefish)	lbs	0	0	0	0	0	0	0	0	0	0
Unknown Smelt	lbs	0	0	0	0	0	0	0	0	0	0
Pacific Cod (gray)	lbs	0	0	0	0	9.57	0.06	0	0	9.57	0.06
Pacific Tom Cod	lbs	0	0	0	0	0	0	0	0	0	0
Walleye Pollock (whiting)	lbs	0	0	0	0	0	0	0	0	0	0
Eel	lbs	0	0	0	0	0	0	0	0	0	0
Starry Flounder	lbs	0	0	8.97	0.06	0	0	0	0	8.97	0.06
Unknown Flounder	lbs	0	0	0	0	0	0	0	0	0	0
Lingcod	lbs	0	0	0	0	466	3.15	0	0	466.42	3.15
Unknown Greenling	lbs	0	0	0	0	2.99	0.02	0	0	2.99	0.02
Halibut	lbs	0	0	0	0	5423	36.64	0	0	5422.7	36.64
Black Rockfish	lbs	0	0	0	0	287	1.94	0	0	287.03	1.94
Red Rockfish	lbs	0	0	0	0	239	1.62	0	0	239.19	1.62
Unknown Rockfish	lbs	0	0	0	0	5.83	0.04	0	0	5.83	0.04
Sablefish (black cod)	lbs	0	0	0	0	13.9	0.09	0	0	13.9	0.09
Unknown Irish Lord	lbs	0	0	0	0	0	0	0	0	0	0
Unknown Sculpin	lbs	0	0	0	0	1.49	0.01	0	0	1.49	0.01
Unknown Shark	lbs	0	0	0	0	0	0	0	0	0	0
Skates	lbs	0	0	0	0	0	0	0	0	0	0
Unknown Sole	lbs	0	0	0	0	0	0	0	0	0	0
Wolffish	lbs	0	0	0	0	0	0	0	0	0	0
Dolly Varden	lbs	0	0	0	0	324	2.19	48.14	0.33	372.54	2.52
Lake Trout	lbs	0	0	0	0	410	2.77	0	0	410.21	2.77
Grayling	lbs	0	0	0	0	61.7	0.42	0	0	61.74	0.42
Unknown Pike	lbs	0	0	0	0	44.9	0.3	0	0	44.85	0.3
Unknown Sturgeon	lbs	0	0	0	0	0	0	0	0	0	0
Cutthroat Trout	lbs	0	0	0	0	0	0	0	0	0	0
Rainbow Trout	lbs	0	0	0	0	530	3.58	96.27	0.65	625.79	4.23
Steelhead	lbs	0	0	0	0	0	0	0	0	0	0
Unknown Trout	lbs	0	0	0	0	25.1	0.17	0	0	25.12	0.17
Unknown Whitefish	lbs	0	0	0	0	2.62	0.02	0	0	2.62	0.02

Source: Alaska Department of Fish and Game, Division of Subsistence Household Survey 2001

Table 40. Percentage of Households Harvesting Fish Other Than Salmon by Gear Type and Seward, 2000

Resource	Subsistence Gear	Removed from Commercial Gear	Rod and Reel	Ice Fishing	Any Method
Non-Salmon Fish	2.88	2.88	47.12	0.96	49.04
Herring	0	0	0	0	0
Herring Sac Roe	0	0	0	0	0
Herring Spawn on Kelp	0.96	0	0	0	0.96
Eulachon (hooligan, candlef	1.92	0	0	0	1.92
Unknown Smelt	0	0	0	0	0
Pacific Cod (gray)	0	0	2.88	0	2.88
Pacific Tom Cod	0	0	1.92	0	1.92
Walleye Pollock (whiting)	0	0	0.96	0	0.96
Eel	0	0	0	0	0
Starry Flounder	0	0	0.96	0	0.96
Unknown Flounder	0	0	0	0	0
Lingcod	0	0	11.54	0	11.54
Unknown Greenling	0	0	1.92	0	1.92
Halibut	0	1.92	25.96	0	27.88
Black Rockfish	0	0	13.46	0	13.46
Red Rockfish	0	0	9.62	0	9.62
Unknown Rockfish	0	0	0.96	0	0.96
Sablefish (black cod)	0	0.96	0.96	0	1.92
Unknown Irish Lord	0	0	0	0	0
Unknown Sculpin	0	0	0	0	0
Unknown Shark	0	0	1.92	0	1.92
Skates	0	0	0	0	0
Unknown Sole	0	0	2.88	0	2.88
Wolffish	0	0.96	0	0	0.96
Dolly Varden	0	0	17.31	0	17.31
Lake Trout	0	0	6.73	0	6.73
Grayling	0	0	5.77	0	5.77
Unknown Pike	0	0	0	0	0
Unknown Sturgeon	0	0	0	0	0
Cutthroat Trout	0	0	1.92	0	1.92
Rainbow Trout	0	0	17.31	0.96	18.27
Steelhead	0	0	0	0	0
Unknown Trout	0	0	0	0	0
Unknown Whitefish	0	0	1.92	0	1.92

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Survey, 2001

Table 41. Percentage of Households Harvesting Fish Other Than Salmon by Gear Type
Moose Pass, 2000

Resource	Subsistence Gear	Removed from Commercial Gear	Rod and Reel	Ice Fishing	Any Method
Non-Salmon Fish	1.01	0	53.54	5.05	56.57
Herring	0	0	0	0	0
Herring Sac Roe	0	0	0	0	0
Herring Spawn on Kelp	0	0	0	0	0
Eulachon (hooligan, candlefis	0	0	0	0	0
Unknown Smelt	0	0	0	0	0
Pacific Cod (gray)	0	0	1.01	0	1.01
Pacific Tom Cod	0	0	0	0	0
Walleye Pollock (whiting)	0	0	0	0	0
Eel	0	0	0	0	0
Starry Flounder	1.01	0	0	0	1.01
Unknown Flounder	0	0	0	0	0
Lingcod	0	0	12.12	0	12.12
Unknown Greenling	0	0	1.01	0	1.01
Halibut	0	0	32.32	0	32.32
Black Rockfish	0	0	13.13	0	13.13
Red Rockfish	0	0	9.09	0	9.09
Unknown Rockfish	0	0	1.01	0	1.01
Sablefish (black cod)	0	0	2.02	0	2.02
Unknown Irish Lord	0	0	0	0	0
Unknown Sculpin	0	0	1.01	0	1.01
Unknown Shark	0	0	0	0	0
Skates	0	0	0	0	0
Unknown Sole	0	0	0	0	0
Wolffish	0	0	0	0	0
Dolly Varden	0	0	12.12	2.02	14.14
Lake Trout	0	0	16.16	0	16.16
Grayling	0	0	8.08	0	8.08
Unknown Pike	0	0	1.01	0	1.01
Unknown Sturgeon	0	0	0	0	0
Cutthroat Trout	0	0	0	0	0
Rainbow Trout	0	0	26.26	4.04	30.3
Steelhead	0	0	0	0	0
Unknown Trout	0	0	1.01	0	1.01
Unknown Whitefish	0	0	1.01	0	1.01

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Survey, 2001

fishers) did not use charters; 3.0 percent (8.3 percent of halibut fishers) fished on their own and also used charters. Halibut harvests resulting from charters accounted for 49.3 percent of the total halibut harvest by Moose Pass in 2000/01.

Table 42. Use of Charters for Halibut Fishing, Seward and Moose Pass, 2000/01

	Percentage of Households That Fished For Halibut[1]			Percentage of Halibut Harvest	
	Fished Only with Charter	Fished Only without Charter	Fished Both With and Without Charter	All Halibut Harvest	All Harvest ex removed from Commerical
Moose Pass	13.13%	20.20%	3.03%	49.30%	49.30%
Seward	12.50%	19.23%	0.00%	47.99%	49.67%

[1] In Seward, two interviewed households (1.9 percent) removed halibut from commercial catches for home use.

Source: Alaska Department of Fish and Game, Division of Subsistence Houehold Survey, 2001

In Moose Pass, rainbow trout were used by more households (38.4 percent) than any other nonsalmon fish except halibut; 30.2 percent of Moose Pass households fished for rainbow trout. Other fish used by 15 percent or more of the Moose Pass households included lingcod (21.2 percent), lake trout (20.2 percent), Dolly Varden (18.2 percent), black rockfish (15.2 percent), and red rockfish (15.2 percent) (Table 23). All of this harvest was with rod and reel; a few Moose Pass households fished through the ice for Dolly Varden and rainbow trout (Table 23, Table 38).

After halibut, lingcod was the nonsalmon fish used by the most Seward households, 20.2 percent (Table 22). Other fish used by more than 15 percent of the Seward households were red rockfish (19.2 percent), Dolly Varden (19.2 percent), black rockfish (18.3 percent), and rainbow trout (18.3 percent). All harvests of these species were with rod and reel; about 17.3 percent of Seward households ice-fished for rainbow trout (Table 36, Table 40).

MARINE INVERTEBRATES

Marine invertebrates ranked fourth among resource categories in both Seward and Moose Pass in terms of overall use. In Seward, 35.6 percent of households used at least one kind of

marine invertebrate, as did 29.3 percent of Moose Pass households (Fig. 7). Far fewer harvested marine invertebrates: 12.5 percent of Seward households and 16.2 percent of Moose Pass households (Table 22, Table 23). In Seward, the per capita harvest of marine invertebrates was 5.0 pounds, 5.2 percent of the community total and ranking fifth among the seven resource categories. At Moose Pass, the per capita harvest of marine invertebrates was 4.6 pounds, 5.3 percent of the total and ranking fourth (Fig. 9, Fig. 10).

In both study areas, razor clams ranked first among marine invertebrate resources in terms of percentage of households using and harvesting during the study year (Table 22, Table 23). In Seward, 14.4 percent of households used razor clams and 5.8 percent harvested them. Among all resources harvested, razor clams ranked sixth in Seward in 2000/01. In Moose Pass, 26.3 percent of households used razor clams and 16.2 percent harvested them. Razor clams ranked seventh among all resources harvested by Moose Pass households in 2000/01.

Harvest and use of other marine invertebrates was relatively low. In Seward, 13.5 percent of households used at least one kind of crab, with 2.9 percent harvesting them. In Moose Pass, only 6.1 percent of households used crab and there was no harvest. In Seward, 5.8 percent of households used little neck clams and 5.8 used shrimp, with no other marine invertebrates used by more than five percent of households. In Moose Pass, no marine invertebrate was used by more than five percent of households except razor clams and crab (Table 22, Table 23).

LAND MAMMALS

General Use Patterns

About half the interviewed households in both study communities used at least one kind of land mammal in the 2000/01 study year: 56.6 percent of Moose Pass households and 47.1 percent of Seward households (Fig. 7). At Moose Pass, a third of the households (33.3 percent) hunted land mammals, with 22.2 percent successful, for an estimated per capita harvest of 24.5 pounds usable weight, second only to salmon. Hunting land mammals was less common at Seward, where 16.3 percent of households hunted and 9.6 percent harvested. The estimated harvest of land mammals at Seward was15.3 pounds per person, ranking third after salmon and nonsalmon fish (Table 22, Table 23, Fig. 9, Fig. 10).

Moose

In Seward, 33.7 percent of the households used moose during the study year, 14.4 percent hunted moose, and 5.8 percent were successful. The estimated harvest of moose by Seward residents was about 97 animals (+/- 76.5 percent [about 74 animals], for a range of 23 to 171), 31.2 pounds per household and 11.6 pounds per person (Table 22).

In Moose Pass, 41.4 percent of households used moose in 2000/01, with 28.3 percent hunting moose and 8.1 percent harvesting moose. The estimated harvest of moose by Moose Pass residents was 12 animals (+/- 38.9 percent [about 5 animals], for a range of 7 to 17), 43.6 pounds per household and 16.1 pounds per person (Table 23).

Household surveys resulted in a higher estimated moose harvest for both communities than indicated from ADF&G harvest reports. For the years 1989 through 2000, Seward's reported moose harvests ranged between 26 animals (1999) and 47 animals (1997), with an average of 36 animals (Fig. 37). The reported harvest for 2000 was 33 moose, compared to the household survey estimate of 97 animals (and a range of 23 to 171 moose). For Moose Pass, the reported harvest of moose has ranged from 1 (1993) to 8 (1997) for the period 1989 through 2000, with an average of 5 animals (Fig. 38). The reported harvest for 2000 was 4 moose, compared to the household survey estimate of 12 (and a range of 7 to 17 moose).

In an earlier section of this chapter, some reasons were offered as to why the estimated total harvests of wild resources derived from household surveys in Seward and Moose Pass are higher than those based upon harvest tickets, permits, and angler mailed surveys. Some of these factors, such as relatively small sample sizes and a potential overrepresentation of very active harvesters in the sample, likely apply to the different moose harvest estimates also. Additionally, it should be noted that moose harvest ticket and permit data are not expanded to account for nonreporting. However, ADF&G routinely adds an estimate of unreported and illegally-taken moose to its annual estimate of moose mortality in each GMU and subunit. For the 2000/01 hunting year, for GMU 7 and 15 (the two Kenai Peninsula GMUs), ADF&G estimated a total of 110 unreported moose harvests, 19.3 percent of the total estimated harvest of 568 moose (ADF&G 2002). Correspondingly, the reported harvests for Seward and Moose Pass from harvest tickets and permits as shown in Figures 37 and 38 could be increased by about 20 percent to account for these unreported harvests, resulting in a revised total of about 40 moose for

Figure 37. Seward: Number of Moose Harvested, 1989 - 2000

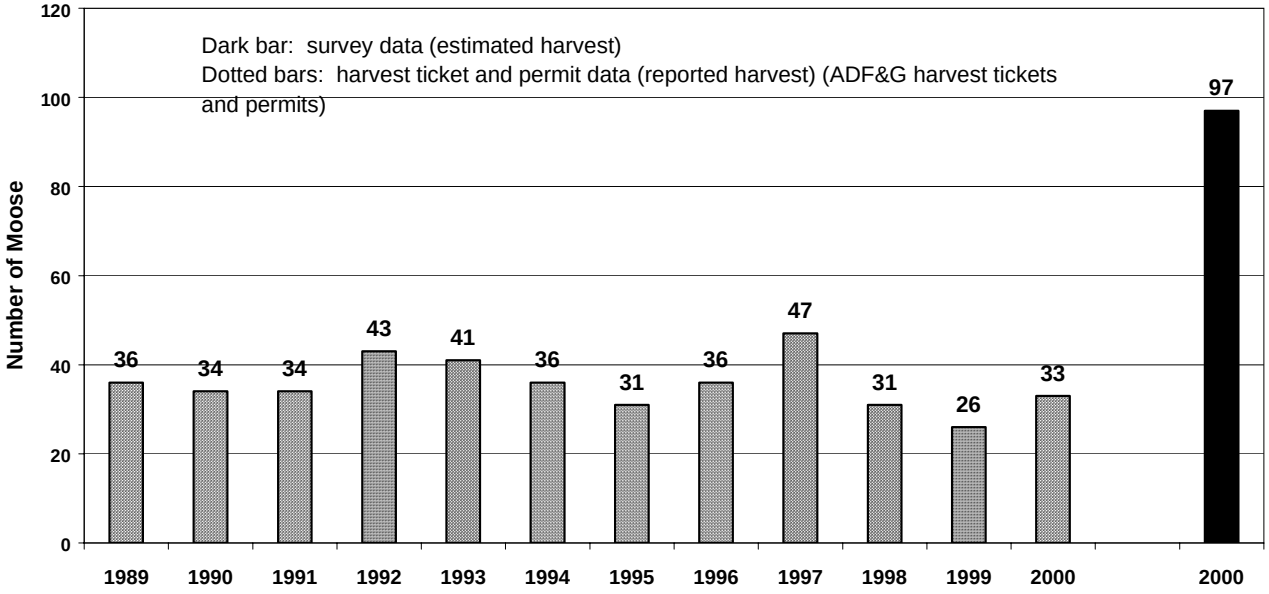
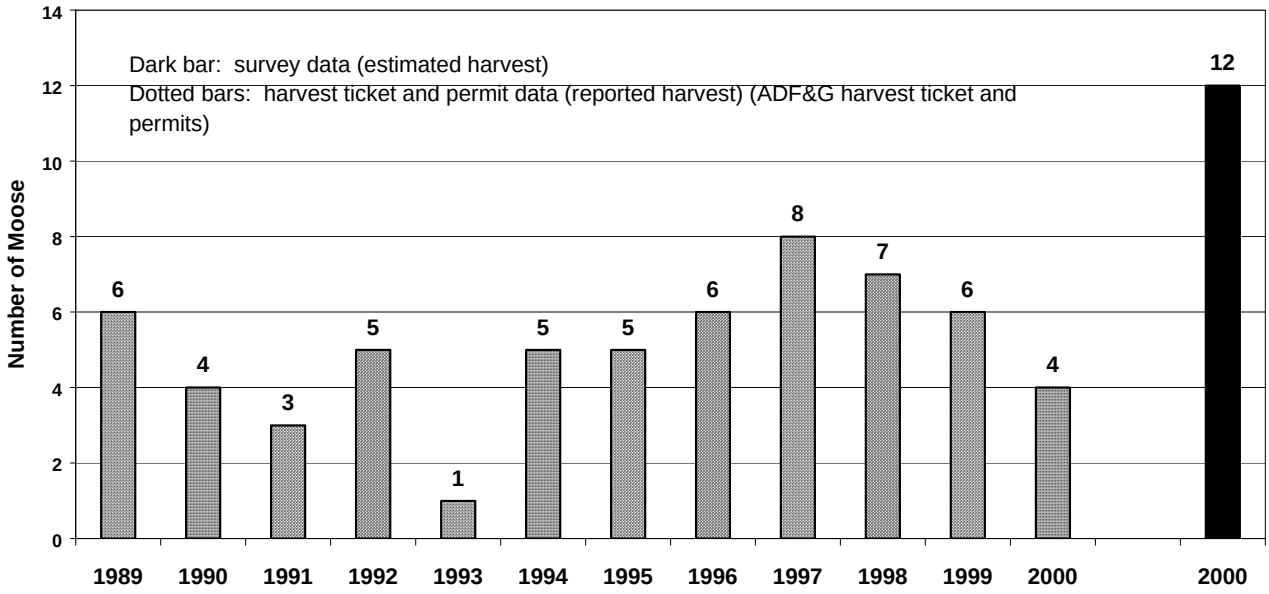


Figure 38. Moose Pass: Number of Moose Harvested, 1989 - 2000



Seward and 5 for Moose Pass. This adjustment places the estimates within the 95 percent confidence range for moose harvests based on the survey results for Seward, although the revised estimate for Moose Pass remains just under the lower end of the 95 percent confidence range for Moose Pass. (See Fall et al. 2000 for additional discussion of comparisons of moose harvest ticket data and household survey harvest estimates for Kenai Peninsula communities. See also Wolfe and Fischer 2002:37-39 and Wolfe and Fischer 2003:39-41.)

Table 43 reports the location of moose hunting and harvests by interviewed Seward households in the 2000/01 study year. The most households (7.7 percent of all households) hunted in areas outside the Kenai Peninsula and the rest of the moose hunting was in GMU 7 (Fig. 39). Of all moose harvests by the sampled households, 75 percent took place outside the Kenai Peninsula GMUs (Table 43). For Moose Pass, areas within federal conservation units in GMU 7 attracted the most moose hunters (15.2 percent of all households hunted there), and areas outside the Kenai Peninsula were hunted by 12.1 percent of all hunters (Table 44, Fig. 39). Two-thirds of the moose harvest, however, occurred in units other than GMU 7 and 15 (Table 44).

Survey respondents were asked if they received any road kill moose during the study year. As shown in Table 45, of those Moose Pass households receiving moose (36.4 percent of all households), 25.0 percent said yes (this group might have also received moose meat from harvested animals), 69.4 percent said no, and 5.6 percent were unsure of the source of the moose meat they received. At Seward, of the 28.8 percent of all households who received moose, 10.0 percent received meat from road kill animals, 73.3 percent did not, and 16.7 percent were not sure if the meat they received was from a road kill or a harvested moose.

Caribou

Caribou are relatively scarce on the Kenai Peninsula. There are four small herds that are the result of reintroduction programs.[1] Hunting of these herds is restricted through permit systems. Several more abundant caribou populations are available to Seward and Moose Pass residents. In GMU 13, the Nelchina Herd is accessible along the road system, although access to this herd is restricted to holders of Tier II subsistence permits. The abundant Mulchatna Herd in GMUs 9B, 17, and 19 is accessible by air.

[1] The herds are: the Kenai Mountains Herd in the northern portion of GMU 7; the Kenai Lowlands Herd in a portion of GMU 15a; the Killey River Herd in the eastern portion of GMU 15B; and the Fox River Herd near the head of Kachemak Bay in GMU 15C.

Table 43 . Percentage of Households Using Various Areas to Hunt or Harvest Large Land Mammals, Seward, 2000/01

Location of Hunting or Harvest:	Percentage of Households									
	Black Bear		Caribou		Mountain Goat		Moose		Dall Sheep	
	hunted	harvested	hunted	harvested	hunted	harvested	hunted	harvested	hunted	harvested
GMU 7: non-Kenai Peninsula Wildlife Refuge/ Chugach National Forest	0.0%	0.0%	0.0%	0.0%	1.9%	0.0%	2.9%	0.0%	0.0%	0.0%
GMU 7: Kenai Peninsula Wildlife Refuge/ Chugach National Forest	3.8%	1.9%	0.0%	0.0%	1.9%	0.0%	6.7%	1.9%	0.0%	0.0%
GMU 15A: non-Kenai Peninsula Wildlife Refuge	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
GMU 15A: Kenai Peninsula Wildlife Refuge	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
GMU 15B: non-Kenai Peninsula Wildlife Refuge	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
GMU 15B: Kenai Peninsula Wildlife Refuge	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
GMU 15C: non-Kenai Peninsula Wildlife Refuge	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
GMU 15C: Kenai Peninsula Wildlife Refuge	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other	3.8%	3.8%	3.8%	1.9%	0.0%	0.0%	7.7%	6.7%	0.0%	0.0%

Source: Alaska Department of Fish and Game, Division of Subsistence Household Survey, 2001

Table 44. Percentage of Households Using Various Areas to Hunt or Harvest Large Land Mammals, Moose Pass, 2000/01

Location of Hunting or Harvest:	Percentage of Households									
	Black Bear		Caribou		Mountain Goat		Moose		Dall Sheep	
	hunted	harvested	hunted	harvested	hunted	harvested	hunted	harvested	hunted	harvested
GMU 7: non-Kenai Peninsula Wildlife Refuge/ Chugach National Forest	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	0.0%	0.0%	0.0%
GMU 7: Kenai Peninsula Wildlife Refuge/ Chugach National Forest	13.1%	6.1%	0.0%	0.0%	4.0%	4.0%	15.2%	2.0%	3.0%	0.0%
GMU 15A: non-Kenai Peninsula Wildlife Refuge	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
GMU 15A: Kenai Peninsula Wildlife Refuge	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	0.0%	0.0%	0.0%
GMU 15B: non-Kenai Peninsula Wildlife Refuge	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
GMU 15B: Kenai Peninsula Wildlife Refuge	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
GMU 15C: non-Kenai Peninsula Wildlife Refuge	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
GMU 15C: Kenai Peninsula Wildlife Refuge	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other	2.0%	0.0%	1.0%	0.0%	0.0%	0.0%	12.1%	6.1%	1.0%	0.0%

Source: Alaska Department of Fish and Game, Division of Subsistence Household Survey, 2001

Figure 39. Location of Moose Hunting, Seward and Moose Pass, 2000

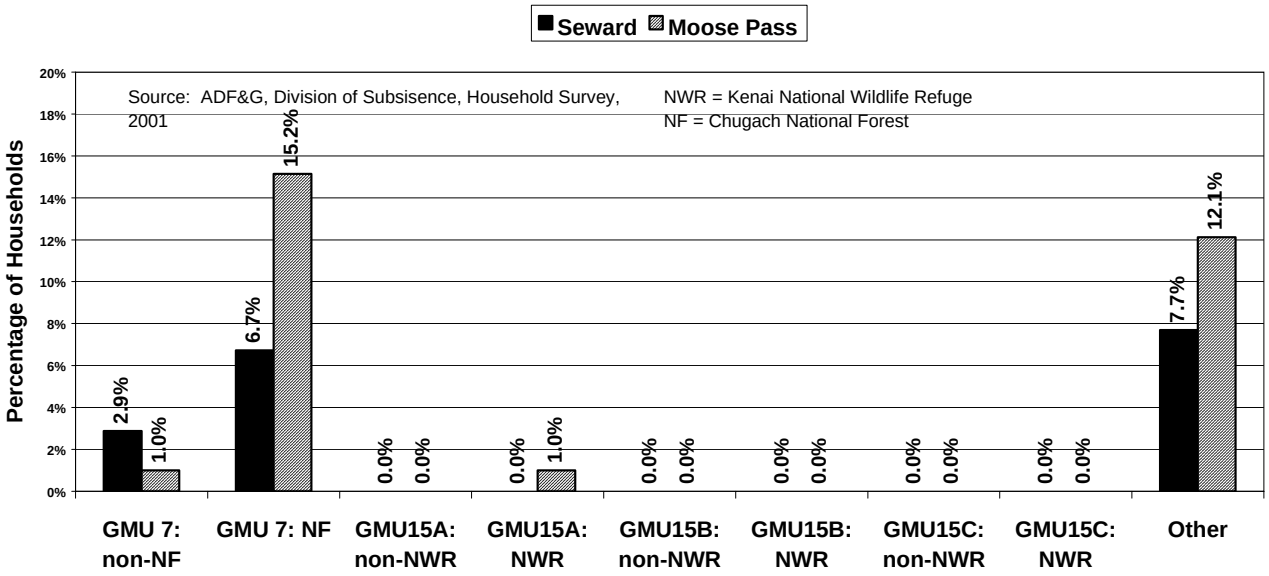


Table 45. Use of Road Kill Moose, Seward and Moose Pass, 2000/01

Community	Percentage of HH Receiving Moose	Of those Households Receiving Moose, Percentage that Received Roadkill		
		Yes	No	Unsure
Moose Pass	36.40%	25.00%	69.44%	5.56%
Seward	28.80%	10.00%	73.33%	16.67%

Source: Alaska Department of Fish and Game, Division of Subsistence Household Survey, 2001

Among Seward households in the 2000/01 study year, 16.3 percent reported using caribou, with all of these households receiving caribou. Just 2.9 percent of Seward households hunted caribou and 1.0 percent of all households were successful. The estimated harvest was about 49 animals (Table 22).

At Moose Pass, 10.1 percent of households used caribou, with 9.1 percent receiving caribou. One percent of households hunted and harvested caribou. The estimated total harvest for Moose Pass in the study year was about 9 caribou (Table 23).

No households in either study community hunted any of the Kenai Peninsula herds (Table 43, Table 44). Interviewed Seward residents hunted caribou in GMU 17 (Bristol Bay), GMU 12 (Upper Tanana/Forty Mile), and GMU 20 (interior Alaska). For Moose Pass, caribou hunting and harvest took place in GMU 22 (Seward Peninsula).

Bears

At Seward, 9.6 percent of households reported using black bear in 2000/01; 4.8 percent hunted black bears and 3.8 percent were successful, for an estimated harvest of 81 animals (Table 22). At Moose Pass, black bear was the second-most commonly used big game species after moose, with 17.2 percent of households using black bear, 14.1 percent hunting, and 6.1 percent harvesting. The estimated harvest was about 9 black bears (Table 23). As reported in Table 43 and Table 44, black bear hunting by study community households took place in 2000/01 in GMU 7 within the outer boundaries of the Chugach National Forest and in GMU 15B within the Kenai NWR.

There was no harvest of brown bears reported by interviewed households in either study community in 2000/01. There was no use of brown bear in Moose Pass, although one percent of households were unsuccessful hunters (Table 23). For Seward, 1.9 percent of households reported using brown bear but there was no reported hunting effort (Table 22).

Sitka Black-Tailed Deer

There is no deer population on the Kenai Peninsula, but deer are abundant on Kodiak Island (GMU 8) and in Prince William Sound (GMU 6), with long seasons and generous bag

limits. In Seward, 12.5 percent of households used deer in the 2000/01 study year, ranking third among big game species. Most of these households used deer they had received from other households, as only 3.8 percent of Seward households hunted deer and 1.9 percent were successful. The estimated harvest of deer by Seward residents in the study year was 81 animals (Table 22). Hunters were not asked about the location of their deer hunting in 2000.

Deer use patterns were similar at Moose Pass, where 14.1 percent of households used deer in 2000/01, ranking third after moose and black bear. Of all households, 6.1 percent hunted deer and 3.0 percent harvested deer, for an estimated total of 28 animals (Table 23).

Other Big Game

A small percentage of interviewed households in each study community reported using other big same species in 2000/01. At Seward, these included bison (4.8 percent using, no reported hunting effort by sampled households), elk (1.0 percent using, no hunting effort), and goat (3.8 percent using, 3.8 percent hunting, 1.0 percent harvesting) (Table 22). At Moose Pass, other big game used included elk (1.0 percent using, no hunting effort), goat (5.1 percent using, 3.0 percent hunting, 2.0 percent harvesting), and Dall sheep (5.1 percent using, 4.0 percent hunting, no harvest) (Table 23).

Small Game and Furbearers

According to study results, use of small game and furbearers was relatively low in Seward and Moose Pass in 2000/01. At Seward, 5.8 percent of households used at least one kind of resource from this category, with hare used most frequently (3.8 percent of households) (Table 22). At Moose Pass, 10.1 percent of households used small game or furbearers and of these, again, hare was most widely used (6.1 percent) (Table 23).

MARINE MAMMALS

Under the federal Marine Mammal Protection Act, only coastal Alaska Natives may hunt marine mammals for subsistence purposes. In the study year, there were no harvests or uses of marine mammals reported by the Moose Pass sampled households (Table 23). In Seward, no marine mammal hunting households were interviewed as part of the random sample. About two percent of households reported using gifts of bowhead whale, but no uses of other marine mammals were recorded for the study year (Table 22).

Since 1992, the Division of Subsistence in collaboration with the Qutekcak Tribe and the Alaska Native Harbor Seal Commission, has estimated harbor seal and sea lion harvests through interviews with Seward hunters (in the study, any known marine mammal hunters in Moose Pass are included in Seward) (Wolfe 2001). As shown in Table 46, there have been no harvests of sea lions by Seward hunters from 1992 through 2000. Estimated harvests of harbor seals averaged 3 during that period, with a high of 11 animals in 1995. No seal harvests were reported in 1993, 1997, or 1998.

Table 46. Estimated Subsistence Takes of Sea Lions and Harbor Seals, Seward, 1992 - 2000

	Sea Lions			Harbor Seals		
	Harvest	Struck/Lost	Total Take	Harvest	Struck/Lost	Total Take
1992	0	0	0	2	0	2
1993	0	0	0	0	0	0
1994	0	0	0	5	0	5
1995	0	0	0	11	6	16
1996	0	0	0	6	0	6
1997	0	0	0	0	0	0
1998	0	0	0	0	0	0
1999*						
2000	0	0	0	4	0	4
Average	0	0	0	3	1	4

* No estimates available for 1999

Source: Wolfe 2001:C-44

BIRDS

As a resource category, birds and eggs contributed 0.9 percent of the total wild resource harvest by Seward households in 2000/01 (0.8 pounds per person) and 1.8 percent at Moose Pass (1.6 pounds per person) (Fig. 9). In Seward, 15.4 percent of households used birds, as did 24.2 percent in Moose Pass (Fig. 7). Upland game birds (ptarmigan and grouse) made up most of the harvest and use of birds in both study areas. In Seward, 7.7 percent of households used ptarmigan and 6.7 percent used grouse (Table 22). There was a slightly higher level of use at Moose Pass, with 16.2 percent of households using ptarmigan and 17.2 percent using grouse (Table 23). Fewer households used migratory waterfowl: 3.8 percent of Seward households and 6.1 percent in Moose Pass.

There was no use of wild bird eggs by interviewed households in Seward. In Moose Pass, 1.0 percent of households used and harvested gull eggs (Table 22, Table 23)

WILD PLANTS

Wild plants were widely used among study area households in 2000/01. At Seward, 84.6 percent of households used wild plants, ranking just below salmon in terms of overall level of use (Fig. 7). On average, Seward households harvested 6.4 pounds per person of wild plants, accounting for 6.6 percent of the total harvest (Fig. 9, Fig. 10). At Moose Pass, 80.8 percent of households used wild plants, again ranking second after salmon (Fig. 7). Moose Pass households harvested 4.5 pounds per person of wild plants for 5.1 percent of the total harvest (Fig. 9, Fig. 10). In both communities, berries accounted for most of the wild plant harvest. At Seward, harvests of berries (5.11 pounds per person) ranked sixth among all resources, and they ranked seventh at Moose Pass (3.43 pounds per person). In addition, 18.3 percent of Seward households used other edible plants, as did 28.3 percent at Moose Pass (Table 22, Table 23).

HOUSEHOLD-LEVEL PATTERNS OF HARVEST AND USE

There was a very wide range of household-level harvests in both the Seward and Moose Pass study areas in 2000/01. In most Alaska communities, a subset of households accounts for

the majority of the wild resource harvest. Typically, about 30 percent of a community's households harvest 70 percent of the wild foods (Wolfe 1987). Study results found an even more skewed pattern in Seward and Moose Pass. In Seward, about 15 percent of the households accounted for 70 percent of the harvest and 30 percent took 85 percent of the total (Fig. 40). In Moose Pass, about 18 percent of the households took 70 percent of the harvest and 30 percent took 86 percent of the total (Fig. 41).

As illustrated in Figure 42, the majority of households in Seward and Moose Pass had relatively low harvests. In Seward, 42.3 percent harvested 100 pounds or less, and an additional 11.5 had no harvest. In Moose Pass, 40.2 percent harvested 100 pounds or less, and an additional 15.2 percent harvested nothing.

Table 47 reports the percentage of the wild resource harvest in Seward and Moose Pass taken by quartile households (those in the lowest twenty five percent in terms of harvest, the second quarter, the third quarter, and the top quarter). As can be seen, harvests were concentrated in the top quartile, households in which harvested 82.8 percent of the resources in Seward and 81.3 percent of the resources in Moose Pass. The top 25 percent of harvesters in the two study areas shared several other characteristics, including per capita harvest (249.6 pounds for Seward, 247.3 for Moose Pass) and average number of resources used per household (13.5 kinds, 13.8 kinds), harvested (10.0 kinds, 11.4 kinds), given away (4.4 kinds, 5.0 kinds), and received (5.5 kinds, 4.6 kinds).

Both study areas also had a large segment of households that had low harvests and used a narrow range of wild foods (Table 47). In Seward, households in the bottom two quartiles in terms of total harvest (lowest 50 percent) averaged a harvest of 5.3 pounds per person and used an average of 6.0 kinds of wild foods. In Moose Pass, this lowest 50 percent averaged a harvest of 7.0 pounds per person and used an average of 6.3 kinds of wild foods.

The disparity between the lowest and highest harvesters in terms of average number of resources used suggests that many households in Seward and Moose Pass are not involved in extensive sharing networks. Those households in both communities that harvested the most wild foods also received the largest variety of foods from other households. This suggests that actively harvesting households share with each other and a small number of other households. In Seward, high harvesters harvested an average of 9.96 kinds of wild resources but shared an

Figure 40. Distribution of Harvests by Percentage of Households, Seward, 2000/01

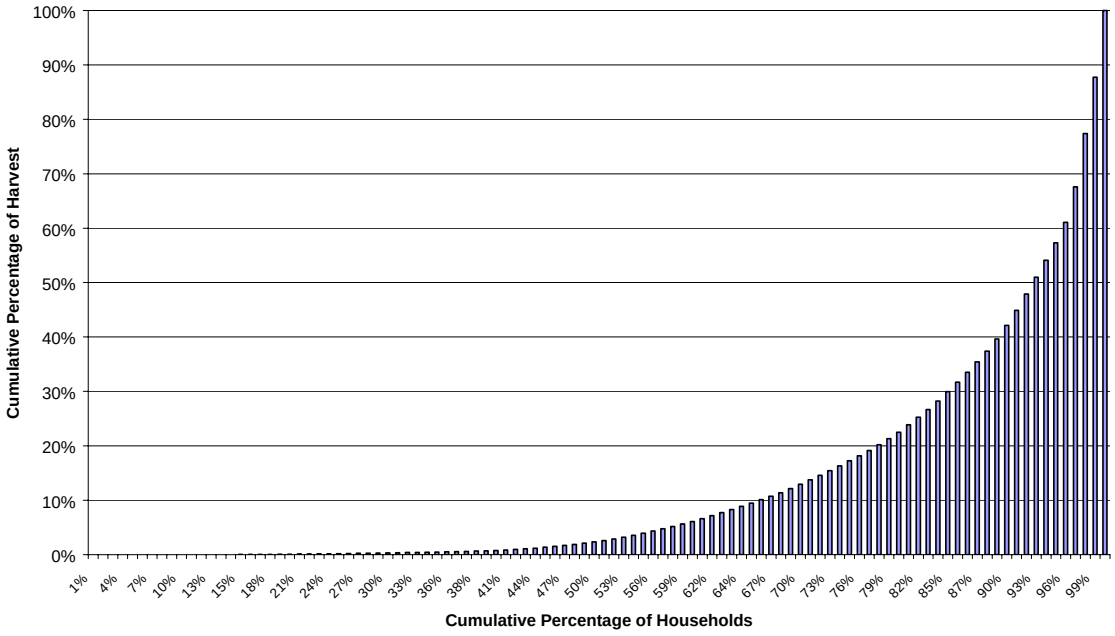


Figure 41. Distribution of Harvests by Percentage of Households, Moose Pass, 2000/01

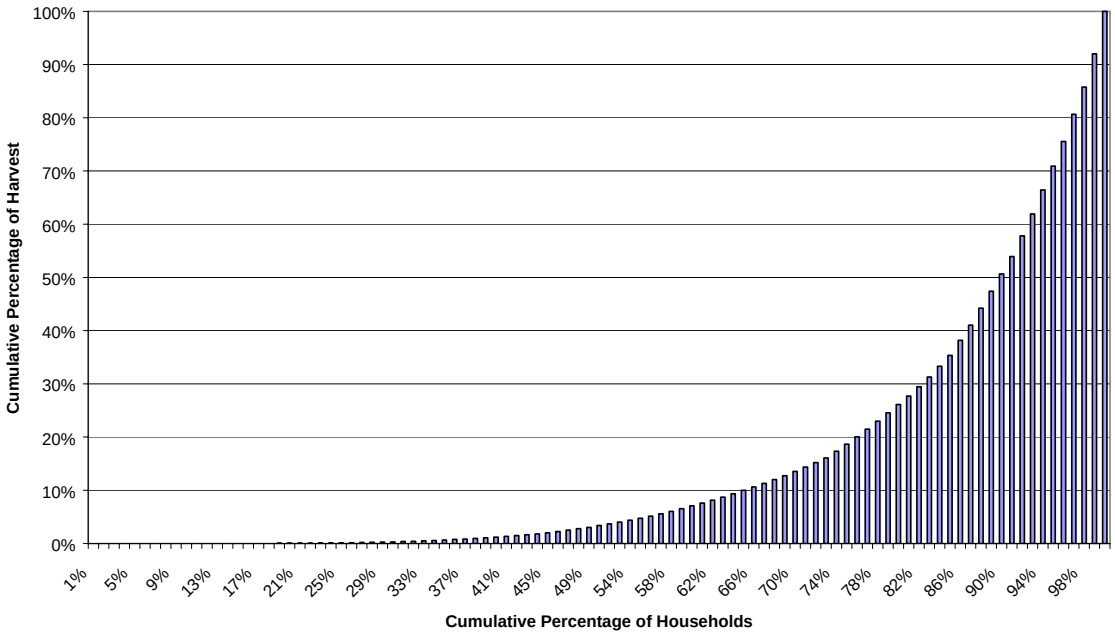
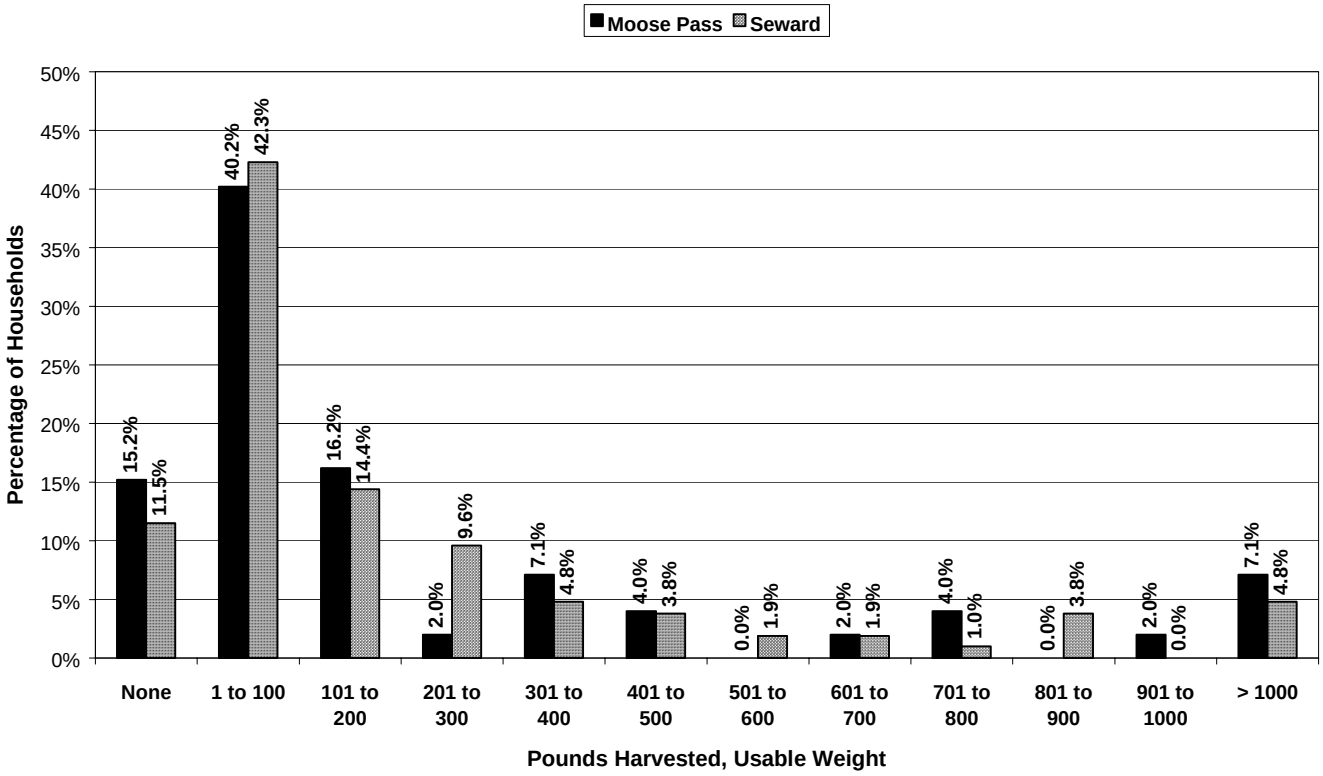


Figure 42. Household Harvests of Wild Resources, Seward and Moose Pass, 2000/01



average of 4.38 kinds (44.0 percent). In Moose Pass, the top quartile harvested 11.36 kinds of wild resources and gave away an average of 5.04 kinds (44.4 percent) (Table 47).

As noted in Chapter Two, 6.8 percent of the sample population in Seward was Alaska Native (see Table 5), compared to an estimate of 18.8 percent from the 2000 US Census (see Table 6). This potential under-sampling of Alaska Natives in Seward raises the question of how representative the study findings are for the community, if Alaska Natives in the community harvest and use wild resources in a substantially different pattern than the remainder of the population. One way to investigate this possibility is to compare selected study findings for the Native and non-Native households that were interviewed in the study (Table 48), and assume that the Native households are generally representative of other Native households in Seward. It should be noted that, on average, Alaska Native households had lived in Seward longer than other households, 25.4 years and 16.3 years respectively, although, as observed earlier, there

Table 47. Percent of Community Harvests, Per Capita Harvests, Average Number of Resources Used, Harvested, Given Away, and Received per Household by Percentile, Seward and Moose Pass, 2000/01

		Seward	Moose Pass
Percentage of Community Harvest	Lowest Quarter	0.2%	0.1%
	Second Quarter	2.2%	3.3%
	Third Quarter	14.9%	15.3%
	Top Quarter	82.8%	81.3%
Per Capita Harvest	Lowest Quarter	0.85 lbs	0.49 lbs
	Second Quarter	9.76 lbs	12.31 lbs
	Third Quarter	56.98 lbs	45.38 lbs
	Top Quarter	249.64 lbs	247.25 lbs
Average Number of Resources Used	Lowest Quarter	3.12	3.60
	Second Quarter	5.96	6.32
	Third Quarter	7.62	7.71
	Top Quarter	13.46	13.84
Average Number of Resources Harvested	Lowest Quarter	0.65	0.88
	Second Quarter	2.12	3.12
	Third Quarter	5.04	5.79
	Top Quarter	9.96	11.36
Average Number of Resources Given Away	Lowest Quarter	0.50	0.32
	Second Quarter	1.42	1.56
	Third Quarter	1.85	1.83
	Top Quarter	4.38	5.04
Average Number of Resources Received	Lowest Quarter	2.65	2.84
	Second Quarter	4.54	4.16
	Third Quarter	3.96	2.88
	Top Quarter	5.54	4.64

Table 48. Comparison of Selected Study Findings for Native and Non-Native Households in Seward, 2000/01

	Native	Non-Native	Community
Estimated Number of Households	130	1,557	1,687
Percentage of Households	7.7%	92.3%	
Average Length of Residence (years)[1]	25.44	16.26	17.06
Average Household Income	$57,010	$61,899	$61,523
Average Household Harvest	216.81	264.73	261.05
Per Capita Harvest	78.84	98.50	97.00
Average Number of Resources Used	7.88	7.51	7.54
Average Number of Resources Attempted to Harvest	4.00	5.17	5.08
Average Number of Rsources Harvested	3.63	4.51	4.44
Average Number of Resources Received	5.25	4.08	4.17
Average Number of Resources Given Away	4.13	1.86	2.04

[1] Household value, higher of either household head

Source: Alaska Department of Fish and Game, Division of Subsistence Household Surveys, 2001

appeared to be no relationship between length of residency in the community and level of use and harvest of wild foods. Average household incomes of the two groups were similar, $57,010 for Native households and $61,899 for other households.

In terms of wild resource uses and harvests, there was little difference between Alaska and Non-Native households in the Seward area sample. On average, Native households harvested 216.8 pounds of wild foods, 78.8 pounds per person, and other households harvested on average slightly more, 264.7 pounds per household and 98.5 pounds per person. Both sets of households used about the same range of wild resources, an average of 7.9 kinds for Native households and 7.5 kinds for other households. One potential difference is that the sampled Native households appeared more likely to share resources they harvested or received than did other households. Native households in Seward gave away an average of 4.1 kinds of wild foods, while other household gave away 1.9 kinds.

These findings about uses and harvests of wild resources by Native households in Seward are consistent with those of a study conducted in 1979 by The North Pacific Rim (TNPR) (North

Pacific Rim 1981:33-40), an Alaska Native non-profit regional organization (now named Chugachmiut). In that study, five kinds of wild foods (coho salmon, pink salmon, halibut, eulachon, and berries) were used by 50 percent or more of surveyed Alaska Native households. In the division study, there were four kinds of wild resources used by 50 percent or more of households. The TNPR study (1981:37) noted:

> Only 17.3 percent of the Native households said that half or more of the food in their diet is subsistence caught and gathered, and about half of the households conceded that subsistence food does not figure as prominently as it did ten years ago. Among the reasons given for this were seasonal restrictions, other regulations, availability and accessibility of resources, and lack of time. Other explanations given included lack of interest and the limitations that living in an apartment imposed on putting up and storing food. Two thirds of the households feel that it is harder to gather subsistence food. In this regard, there was near unanimity in the households' belief that subsistence resources are less available than in the past. Respondents largely attributed the decreased availability to hunting pressure, mismanagement, and sport fishing.

In summary, although the random sample selection of households in Seward in this study may have under-selected Alaska Native households, the results of the interviews and comparisons with the earlier TNPR study suggest that this did not result in a significant mischaracterization of resource harvest and use patterns in the community. As a group, sampled Native households in Seward harvested and used wild resources in about the same quantities and ranges as did other households and conformed to the overall pattern of the community.

CHAPTER FOUR: DISCUSSION AND CONCLUSIONS

SUMMARY OF STUDY FINDINGS

Table 49 compares selected study findings for Seward and Moose Pass. Although the Seward study area's population was more than 10 times the size of that of the Moose Pass area (4,542 and 402, respectively), there were many similarities between the two areas in terms of demography, cash economy, and patterns of wild resource harvest and use. The percentage of Alaska Natives in both samples was similar, 5.6 percent of the total population for Moose Pass and 6.8 percent for Seward. The percentage of household heads born in Alaska was 11.0 percent of Moose Pass and 15.1 percent for Seward. Also, the average length of residency of households in the local area was about the same, 12.2 years for Moose Pass and 12.4 years for Seward.

The study found similarities in the cash economies of both areas. Most jobs held by employed adults in both communities were in Seward, 51.1 percent of jobs held by Moose Pass adults and 89.6 percent of employed adults living in Seward (Table 49). Employed adults in Moose Pass and Seward worked on average about the same number of months in the study year, 9.8 months and 9.6 months, respectively. There was a seasonal aspect to employment in both places; 59.7 percent of Moose Pass employed adults worked year-round, as did 50.0 percent in Seward. Cash incomes were just about the same in both study communities, $21,733 per capita in Moose Pass and $22,851 in Seward.

There were many similarities in patterns of wild resource harvests and uses in Seward and Moose Pass in the 2000/01 study year. Moose Pass households harvested on average 236.5 pounds of wild foods and 87.0 pounds per person, and Seward households harvested 261.1 pounds per households and 97.0 pounds per person. In both communities, there were four core wild foods used by 50 percent or more of the households: berries, halibut, coho salmon and sockeye salmon in Moose Pass, and berries, coho salmon, halibut, and chinook salmon in Seward (see Table 25). On average Moose Pass households used 7.9 kinds of wild resources in 2000/01; the range of wild resources used averaged 7.5 kinds in Seward. In both communities, a small minority of households harvested most of the wild foods and used on average a much wider variety. The 25 percent of the households in Moose Pass with the highest harvests took 81.3 percent of the community total; this percentile of Seward households harvested 81.8 percent. In

Table 49. Comparison of Selected Study Findings for Seward and Moose Pass, 2000/01

	Moose Pass	Seward
Demography		
Population	402	4542
Percent Alaska Native	5.58%	6.79%
Percent of HH Head Born in Alaska	11.00%	15.10%
Average Length of Residency, HH Heads	12.19 yrs	12.36 yrs
Cash Economy		
Percent of Jobs Located in Seward	51.10%	89.60%
Average Number of Months Employed	9.81	9.55
Percent of Employed Adults Working Year-Round	59.73%	50.00%
Average Household Income	$69,051	$61,523
Per Capita Income	$21,733	$22,851
Resource Harvest and Use		
Per Capita Harvest, Lbs Usable Weight	87.0	97.0
Average HH Harvest, Lbs Usable Weight	236.5	261.1
Number of Resources Used by 50% or More of HHs	4	4
Average # of Resources Used per HH	7.87	7.54
Average # of Resources Attempted to Harvest per HH	6.11	5.08
Average # of Resources Harvested per HH	5.28	4.44
Average # of Resources Received per HH	3.64	4.17
Average # of Resources Given Away per HH	2.19	2.04
Percent of Total Harvest taken by Top 25%	81.30%	82.80%
Percent of HHs taking 70 percent of harvest	15%	18%
Per Capita Harvest of lowest 50 percent of HHs	7.0 lbs	5.3 lbs
Percent of Total Harvest taken by Lowest 50% of HHs	3.40%	2.40%
Average # of Resources Used by Lowest 50 % of HHs	4.96	4.54
Average # of Resources Used by Top 25% of HHs	13.84	13.46

Source: Alaska Department of Fish and Game, Division of Subsistence Household Survey, 2001

Moose Pass, 15 percent of the households harvested 70 percent of the wild resources; in Seward, 18 percent did so. Conversely, the 50 percent of the households in Moose Pass with the lowest harvests took only 3.4 percent of the community total and 7.0 pounds per person; in Seward also, the majority of households were low harvesters, taking 2.4 percent of the community total and 5.3 pounds per person. These low harvesting households also used relatively few kinds of resources, an average of 5.0 kinds in Moose Pass and 4.5 kinds in Seward. In contrast, the top 25 percent of harvesting households in Moose Pass used 13.8 kinds of wild resources and those in Seward used 13.5 kinds (see Table 47). Evidently, sharing networks in these communities do not distribute a variety of resources from very active households to relatively inactive ones. This results in the absence of a community-wide pattern of frequent and diverse uses of wild foods.

COMPARISONS WITH OTHER KENAI PENINSULA COMMUNITIES

Table 50 presents demographic and economic information for Kenai Peninsula communities from Division of Subsistence household surveys. Surveyed areas display a range of population sizes, from over 6,000 people in Kenai, and 4,542 people in the Seward study area, to the small communities such as the Moose Pass study area (402 people), Cooper Landing, Hope, Nanwalek, and Port Graham. Nanwalek and Port Graham are largely Alaska Native communities (over 80 percent of the population is Alaska Native). In all other communities, Alaska Natives are a minority.

As shown in Figure 43, the average number of months employed for employed adults in the study communities in 2000/01 was in the high end of the range of all surveyed Kenai Peninsula Borough communities, lower than that of Kenai but higher than other road-connected communities as well as Seldovia, Nanwalek, and Port Graham, which are off the road system. A seasonal employment pattern is indicated in the percentage of employed adults who worked year-round (Fig. 44), but only in Seward, Moose Pass, and Kenai were 50 percent or more of employed adults working year-round. According to household survey results, per capita monetary incomes in Seward and Moose Pass are in the same range as those of Kenai, at the high end of the scale for the Kenai Peninsula Borough (Fig. 45).

In summary, although a seasonal element remains in the local economy of the road-connected area of the Kenai Peninsula, including Seward and Moose Pass, employment is

Table 50. Selected Demographic and Economic Characteristics, Kenai Peninsula Borough Communities

Community	Study Year	Household Survey Data[1]					
		Population	% Alaska Native	Average Length of Residency in Community, Household Heads	Per Capita Income[2]	Average Months Employed	Percent Employed Year-Round
Cooper Landing	1990	258	0.6%	13.2 yrs	$14,780	8.6	46.0%
Fritz Creek East	1998	434	0.5%	12.8 yrs	$17,400	8.6	42.9%
Homer	1982	5,633		11.8 yrs	$10,070	9.7	
Hope	1990	152	4.0%	15.0 yrs	$13,679	9.0	49.1%
Kenai	1982	6,123		10.3 yrs	$10,843	11.3	
Kenai	1991	6,796	6.0%	14.8 yrs	$15,665	9.8	60.4%
Kenai	1992	6,642	8.7%	12.3 yrs	$19,542	10.5	64.3%
Kenai	1993	6,372	4.2%	13.0 yrs	$19,642	10.3	65.7%
Moose Pass	**2000**	**402**	**5.6%**	**12.2 yrs**	**$21,733**	**9.8**	**59.7%**
Nanwalek	1991	161	90.4%	26.4 yrs	$7,279	7.0	12.5%
Nanwalek	1992	170	89.5%	30.2 yrs	$5,404	6.4	19.4%
Nanwalek	1993	141	88.9%	25.6 yrs	$7,787	7.4	26.8%
Nikolaevsk	1998	235	0.0%	17.9 yrs	$11,140	6.8	12.7%
Ninilchik	1982	651		20.6 yrs	$11,500	7.6	
Ninilchik	1998	1,073	9.6%	16.6 yrs	$18,664	8.9	43.4%
North Fork Road	1998	467	1.8%	14.5 yrs	$18,138	9.0	39.3%
Port Graham	1991	161	83.8%	32.4 yrs	$8,758	8.1	38.5%
Port Graham	1992	167	92.8%	32.5 yrs	$8,798	8.1	32.9%
Port Graham	1993	175	89.7%	30.5 yrs	$9,810	8.0	37.1%
Seldovia	1982	600		15.3 yrs	$6,968	8.8	
Seldovia	1991	341	23.7%	17.8 yrs	$14,637	8.7	40.0%
Seldovia	1992	375	34.3%	20.2 yrs	$13,477	8.6	39.2%
Seldovia	1993	431	32.8%	19.7 yrs	$17,502	8.9	45.3%
Seward	**2000**	**4,542**	**6.8%**	**12.4 yrs**	**$22,851**	**9.6**	**50.0%**
Voznesenka	1998	327	0.0%	11.7 yrs	$10,160	8.2	10.0%

[1] See Table 6 for data from the 1990 US Census on population size, ethnicity, and income. Blank cells indicate data unavailable.
[2] Not adjusted for inflation.

Source: Scott et al. 1999, Seitz et al. 1994, Fall and Utermohle 1995, Reed 1985, Fall et al. 2000, and this study

Figure 43. Average Number of Months Employed, Employed Adults, Kenai Peninsula Borough Communities

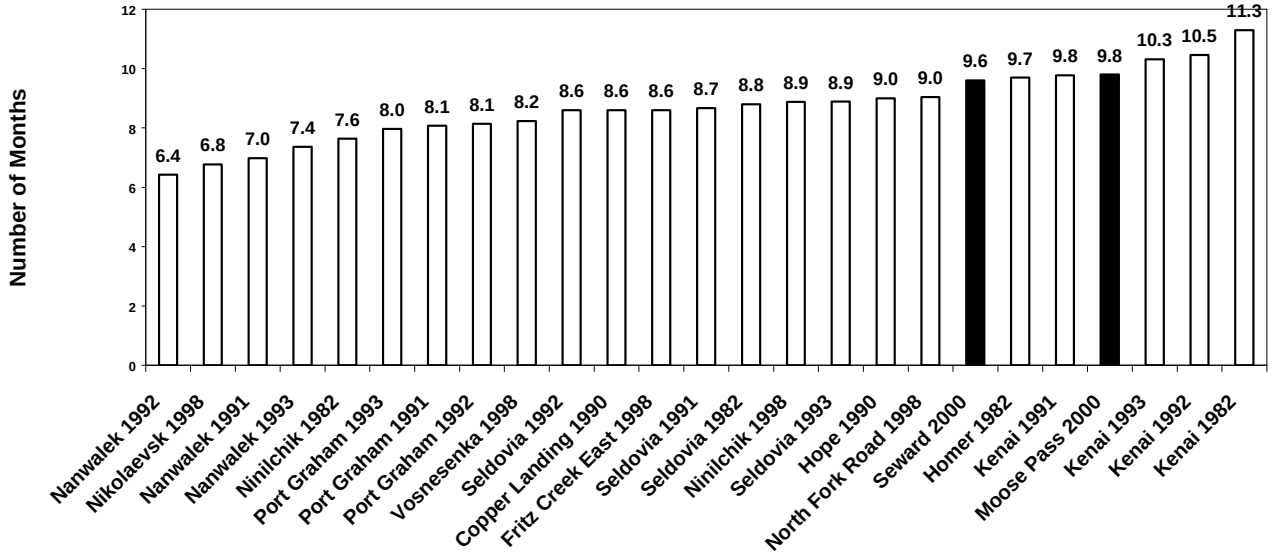


Figure 44. Percentage of Employed Adults Employed Year-Round, Kenai Peninsula Borough Communities

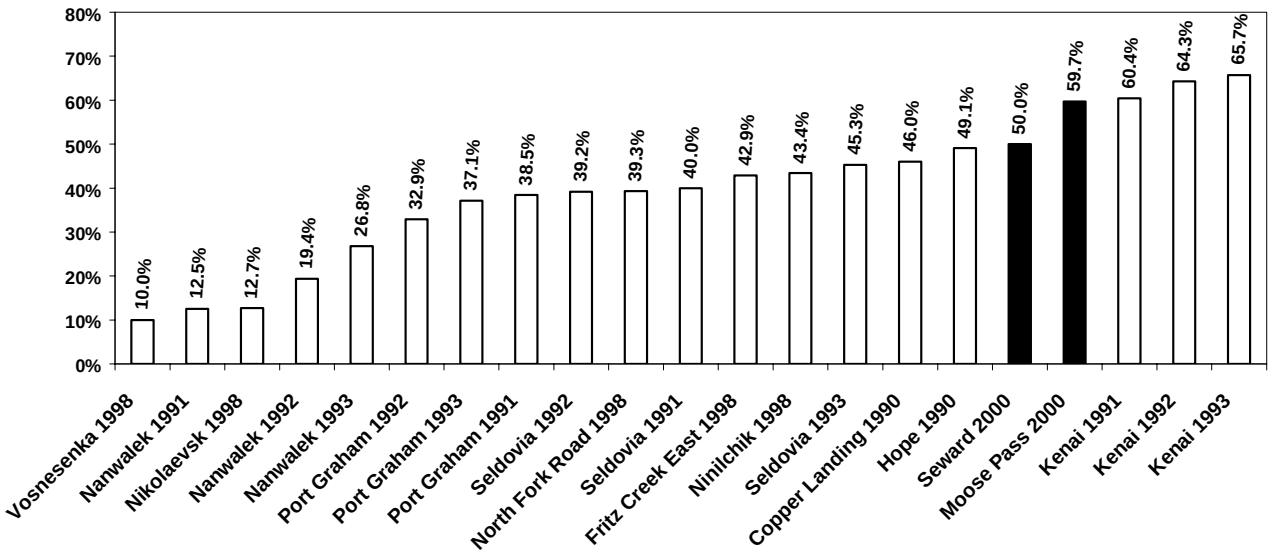
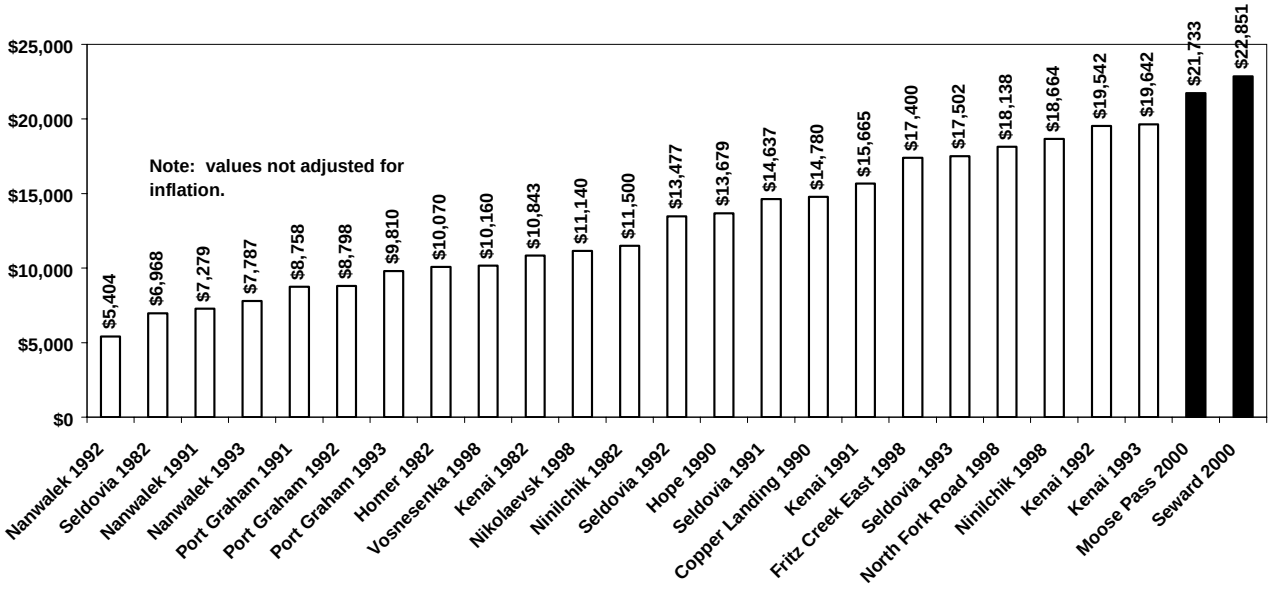


Figure 45. Per Capita Cash Incomes, Kenai Peninsula Borough Communities



relatively available and reliable (Fried and Windisch-Cole 1999). Consequently, cash incomes are about the same as those of the most populous areas of the state, and generally higher than those of remote areas off the road system.

Table 51 reports levels of participation in resource activities, estimated harvest levels, and ranges of resources used, harvested, and sharing per household for each Kenai Peninsula Borough community for which at least one year of comprehensive survey data are available. In every community, a very large majority of households, always close to or at 100 percent, used at least one wild resource in the study year. A large majority, generally 80 to 90 percent or more, harvested wild foods.

Differences between communities appear in harvest levels as estimated in pounds per household and per capita (Table 51, Fig. 46). Harvest levels by residents of Seward and Moose Pass are similar to those of households in most road-connected Kenai Peninsula Borough communities such as Homer, Kenai, Cooper Landing, and Hope. Harvest levels in Ninilchik in 1998 (164 pounds per person), Voznesenka in 1998 (167 pounds per person), and Seldovia in 1991, 1992, and 1993 (206 pounds, 145 pounds, and 184 pounds per person respectively) are significantly higher than the other road-system communities mentioned above. All of these road

Table 51. Participation in Resource Actitivites, Estimated Harvests, and Average Number of Resources Used, Harvested, and Shared, Kenai Peninsula Borough Communities

	Study	Percentage of Households (Any Resource):					Estimated Havest (lbs):		Average Number of Kinds of Resources per Household:				
Community	Year	Use	Attempt	Harvest	Receive	Give	Per Household	Per Capita	Use	Attempt	Harvest	Receive	Give
Cooper Landing	1990	100.0	93.5	93.5	80.9	71.7	238.0	91.5	8.3	6.4	5.9	3.4	2.1
Fritz Creek East	1998	100.0	93.9	93.9	93.9	84.6	304.7	105.4	9.4	6.8	6.1	4.7	3.1
Homer	1982			85.6			294.0	93.8					
Hope	1990	100.0	93.9	93.9	90.3	73.8	262.2	110.7	9.1	7.2	6.4	3.8	2.8
Kenai	1982			80.5			125.2	37.9					
Kenai	1991	98.0	87.0	81.0	84.0	66.0	237.0	74.5	6.2	5.2	4.2	2.7	1.8
Kenai	1992	94.6	89.2	83.8	78.4	73.0	229.6	73.9	6.7	5.7	4.7	2.7	2.5
Kenai	1993	98.0	89.1	86.1	81.2	62.4	234.9	83.8	7.1	5.4	4.5	3.2	2.3
Moose Pass	**2000**	**99.0**	**91.9**	**91.9**	**86.9**	**59.6**	**236.5**	**87.0**	**7.9**	**6.1**	**5.3**	**3.6**	**2.2**
Nanwalek	1987	97.0	93.9	93.9	93.9	93.9	1,078.3	284.7	25.0	18.0	17.2	15.1	10.9
Nanwalek	1989	100.0	100.0	100.0	100.0	93.9	538.0	140.9	13.7	10.5	9.9	6.9	7.2
Nanwalek	1990	100.0	100.0	100.0	100.0	97.1	813.1	181.3	22.4	15.4	14.8	13.1	8.9
Nanwalek	1991	100.0	100.0	100.0	100.0	100.0	1,017.5	258.8	21.2	14.9	14.0	12.8	9.9
Nanwalek	1992	100.0	100.0	100.0	100.0	93.8	1,159.7	279.0	22.9	17.7	16.1	14.1	12.3
Nanwalek	1993	100.0	100.0	100.0	100.0	97.0	1,164.0	304.9	22.7	16.8	15.6	13.5	12.9
Nanwalek	1998	100.0	100.0	100.0	100.0	89.7	1,120.9	253.9	21.5	16.0	15.6	14.3	11.6
Nikolaevsk	1998	100.0	89.2	89.2	78.4	73.0	625.2	133.0	9.1	7.1	6.5	3.1	2.7
Ninilchik	1982			91.7			229.9	76.7					
Ninilchik	1998	99.0	97.0	96.0	92.1	73.3	439.5	163.8	8.6	6.6	5.6	4.0	3.1
North Fork Road	1998	98.3	86.2	86.2	93.1	62.1	275.3	98.0	7.6	5.6	4.8	3.7	2.1
Port Graham	1987	100.0	100.0	100.0	98.1	81.5	656.8	228.8	21.5	14.9	14.3	10.6	6.3
Port Graham	1989	95.8	93.8	93.8	91.7	64.6	323.4	122.2	11.2	8.3	7.7	6.4	4.4
Port Graham	1990	100.0	100.0	100.0	97.8	89.1	637.2	214.0	17.4	12.1	11.0	9.3	6.7
Port Graham	1991	100.0	95.9	95.9	98.0	87.8	779.6	280.9	22.0	14.7	13.6	13.4	10.2
Port Graham	1992	100.0	100.0	100.0	100.0	97.9	784.1	272.7	22.1	14.8	13.6	14.0	11.1
Port Graham	1993	100.0	98.0	98.0	100.0	90.2	607.7	212.3	19.4	11.6	10.9	13.0	9.9
Port Graham	1998	100.0	97.7	97.7	95.5	86.4	627.8	253.4	16.5	10.1	9.6	10.3	7.3
Seldovia	1982			94.3			176.8	50.7					
Seldovia	1991	98.5	92.4	92.4	95.5	84.8	604.0	205.5	13.5	9.3	9.0	6.4	4.8
Seldovia	1992	98.5	93.8	93.8	95.4	84.6	397.5	145.1	12.3	8.9	8.4	6.2	4.3
Seldovia	1993	95.4	95.4	95.4	86.2	78.5	516.8	183.6	12.9	9.3	8.9	6.4	5.0
Seward	**2000**	**97.1**	**88.5**	**88.5**	**86.5**	**65.4**	**261.1**	**97.0**	**7.5**	**5.1**	**4.4**	**4.2**	**2.0**
Voznesenka	1998	100.0	100.0	100.0	83.3	77.8	883.3	167.4	8.6	6.9	6.4	3.1	4.4

Source: Scott et al. 1999 and this study; blank cells indicate data unavailable

Figure 46. Harvests of Wild Resources for Home Use, Kenai Peninsula Communities

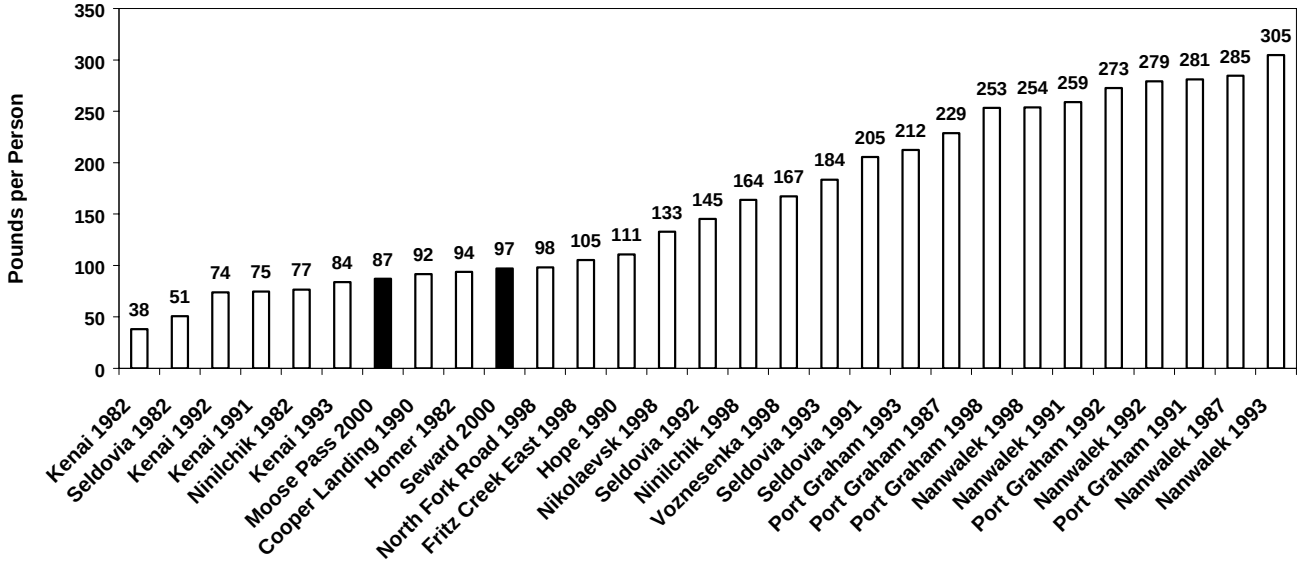
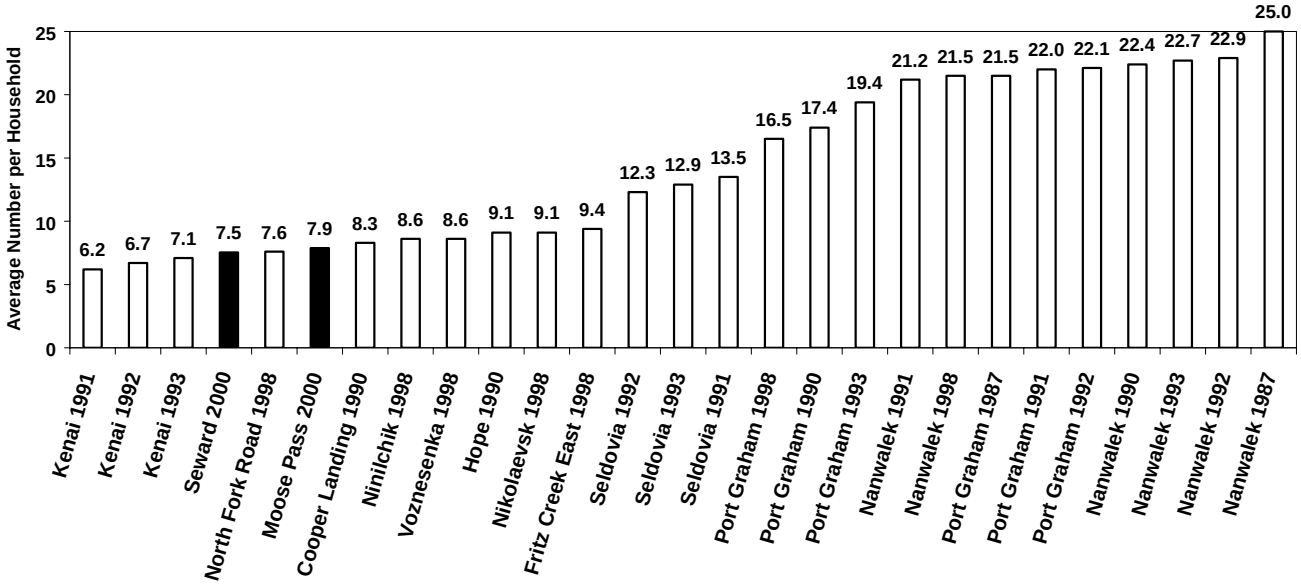


Figure 47. Average Number of Kinds of Resources Used per Household, Kenai Peninsula Communities



system communities have harvest levels that were much lower than those of the two small, Alaska Native communities of Nanwalek and Port Graham (ranging from 212 pounds to 305 pounds per person), which are off the road system.

There are contrasts between Kenai Peninsula Borough communities on and off the road system regarding the range of resources used, an index of diet breadth (Table 51, Fig. 47). The values for Seward and Moose Pass (7.5 kinds and 7.9 kinds, respectively) are clearly in the same range as all the other road-connected places. In no study year did any community on the road system have a household average number of resources used greater than 9.4 kinds. In contrast, in most study years, households in Nanwalek and Port Graham used about 20 or more kinds of wild foods, and never less than 16.5 kinds. Seldovia's average was in-between these two sets of communities. Similar contrasts occur for the average number of resources attempted to harvest, harvested, received, and given away (Table 51).

CONCLUSIONS

In summary, the study found strong similarities in the patterns of wild resource use as reported in the Seward and Moose Pass study areas in 2000/01. The study areas had similar harvest levels, ranges of resources used, and harvest composition. Moose Pass had a slightly more inland focus, with slightly higher land mammal and bird harvests, and slightly lower nonsalmon fish harvests than Seward. But this difference was not significant given the overall similarity of resource harvest and use patterns. And despite their contrasting population sizes, Seward and Moose Pass had very similar demographic and economic characteristics, such as length of residency, duration of cash employment, and cash income.

The study findings show that the wild resource use patterns of residents of Moose Pass and Seward are much like those other road connected communities of the Kenai Peninsula Borough, such as Hope, Cooper Landing, Kenai, Ninilchik, and Homer. This includes relatively low harvest levels and narrow range of resources used by a large majority of households, with a small segment of the communities harvesting much larger amounts of wild foods and accounting for the large majority of the community harvests. It does not appear that most low-harvesting households are linked by extensive networks of distribution and exchange with these high harvesting households.

A different pattern of wild resource uses exists for more remote Kenai Peninsula Borough communities, such as Nanwalek and Port Graham, and other southcentral Alaska communities off of the road system such as Chenega Bay and Tatitlek. Residents of these communities harvest and use wild foods in much higher quantities and have more diverse harvests and uses than the vast majority of households in Seward, Moose Pass, and other road-connected places. Length of local residency tends to be higher and often life-long in these more remote communities, while cash employment is more sporadic and cash incomes much lower. In combination, for communities off the road system, these factors form a principal feature of the economy and way of life for virtually all their residents and families (see Wolfe 1983, Wolfe and Ellanna 1983).

The people in Seward and Moose Pass do harvest and use wild foods in some quantity, and this cannot be said to be an unimportant aspect to life in these communities. However, the overall contribution of these wild foods to the socioeconomic system is less significant than in the more remote communities of the Kenai Peninsula. In Seward and Moose Pass, as well as in other road-connected communities in the area, the importance of hunting and fishing can best be described as a common mode of recreation and means of supplementing a primarily cash-based local economy.

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APPENDIX A: PROJECT OVERVIEW

STATE OF ALASKA

DEPARTMENT OF FISH AND GAME

DIVISION OF SUBSISTENCE

TONY KNOWLES, GOVERNOR

333 Raspberry Road
ANCHORAGE, AK 99518-1599
PHONE: (907) 267-2353
FAX: (907) 267-2450

March 2001

Overview of Study of Fish and Wildlife Harvests and Uses in the Seward and Moose Pass Areas

The Alaska Department of Fish and Game, Division of Subsistence, is conducting a study of patterns of harvest and use of fish and wildlife resources in the Seward and Moose Pass area. The project is funded through a cooperative agreement with the US Forest Service. Department of Fish and Game personnel will be contacting residents of the study area and asking them if they will consent to be interviewed about their fish and wildlife harvest and use activities in 2000. Most interviews will be conducted face-to-face at respondents' homes or other convenient locations. Households to be interviewed are being selected at random and it is important that we interview a broad cross section of the community. Participation in the interview is entirely voluntary. Responses to the survey questions are anonymous and confidential. The results of this research are not being used for regulation enforcement purposes.

The research is following procedures used in other Division of Subsistence projects. Similar projects have been conducted in well over 100 Alaska communities. Since only limited information is available about resource use patterns in Seward and Moose Pass, it is important that these communities be represented in the growing database about resource uses in Alaska so that resource management agencies can serve them better. Applications of the research findings include regulation change, land use planning, and fish and wildlife management plans. Among the types of information being collected are the following:

⇒ Resource harvests and uses in 2000, such as:
- Whether the household used, tried to harvest, gave away, or received wild resources
- Harvest quantities
- Harvest locations

⇒ Demographic information
- Household size
- Length of residency
- Ethnicity
- Individual involvement in harvesting and processing activities

⇒ Other economic data such as the kinds of jobs held by household members, the location and amount earned from these jobs

The research findings will be summarized in a final report that will be completed by the end of 2001. Participants in the research and others may obtain (free of charge) a short overview of the study findings by returning a request form to the Division of Subsistence office in Anchorage (see address and phone numbers above).

If you are selected for an interview, we hope you will take the time to talk with one of the members of our study team. The interview may take 30 minutes or so, or longer (perhaps up to an hour) if your household is very active in fishing and hunting and/or has a lot of information to voluntarily share with us. We think you will find the interviewing process interesting.

We thank you very much for your help. If you have questions, contact the Division of Subsistence at the address and numbers above.

APPENDIX B

SAMPLE SURVEY INSTRUMENT

SEWARD - MOOSE PASS 2000/2001

HH ID: _____ START TIME: _____

COMMUNITY: MOOSE PASS 231 STOP TIME: _____

) # OF PERSON RESPONDING TO SURVEY: _____

INTERVIEWER: _____

DATE: _____

CODER: _____

FIELD SUPERVISOR: _____

HOUSEHOLD INFORMATION. WHO WERE MEMBERS OF THIS HOUSEHOLD BETWEEN APRIL 1, 2000, AND MARCH 31, 2001?

IN THE STUDY YEAR, DID YOU HUNT/PROCESS:

PERSON ID#	M/F	RELATION TO HH HEAD	AGE	RESIDENCE OF PARENT WHEN BORN	TOTAL YEARS IN COMM.	ETHNICITY	GAME/MM/BIRDS* HUNT? Y/N	GAME/MM/BIRDS* PROCESS? Y/N	FISH/MI** FISH? Y/N	FISH/MI** PROCESS? Y/N	FURBEARERS HUNT/TRAP? Y/N	FURBEARERS PROCESS? Y/N	PLANTS GATHER? Y/N	PLANTS PROCESS? Y/N
HEAD 1														
1		1												
HEAD 2														
2		2												
3														
3														
4														
4														
5														
5														
6														
6														
7														
7														
8														
8														
9														
9														
10														
10														

* GAME/MM/BIRDS - should include harvesting/attempting to harvest large and small game, birds, and marine mammals.

** FISH/MI - should include harvesting/attempting to harvest marine invertebrates, eg., clam digging, etc.

COMMERCIAL FISHING - SALMON.

DID MEMBERS OF YOUR HOUSEHOLD PARTICIPATE IN COMMERCIAL SALMON FISHING BETWEEN APRIL 1, 2000, AND MARCH 31, 2001?

IF YES: PLEASE COMPLETE THE FOLLOWING TABLE (UNITS SHOULD INDICATE INDIVIDUALS, IF POUNDS THEN EDI

IF NO: DID YOU INCIDENTALLY HARVEST SALMON WHILE COMMERCIAL FISHING OTHER SPECIES?

	COMMERCIAL FISHED?		REMOVED FOR OWN USE	GAVE AWAY TO CREW	GAVE AWAY TO OTHERS	UNITS	ID #'S OF FISHERS	
SPECIES	Y/N	INCIDENTAL*	NUMBER	NUMBER	NUMBER		PERMIT HOLDER	CREW
CHINOOK SALMON						IND		
113000001						1		
CHUM SALMON						IND		
111000001						1		
SOCKEYE SALMON						IND		
115000001						1		
PINK SALMON						IND		
114000001						1		
COHO SALMON						IND		
112000001						1		
UNKNOWN SALMON						IND		
119000001						1		

* Incidental harvest - use only if household was not engaged in any commercial salmon fishing.

NOTES:

COMMERCIAL FISHING - NON-SALMON FISH

DID MEMBERS OF YOUR HOUSEHOLD PARTICIPATE IN COMMERCIAL FISHING (OTHER THAN SALMON)BETWEEN APRIL 1, 2000, AND MARCH 31, 2001?

IF YES: PLEASE COMPLETE THE FOLLOWING TABLE (POUNDS SHOULD INDICATE EDIBLE WEIGHT):

IF NO: DID YOU INCIDENTALLY HARVEST OTHER FISH WHILE COMMERCIAL FISHING FOR SALMON?

	COMMERCIAL FISHED?		REMOVED FOR OWN USE	GAVE AWAY TO CREW	GAVE AWAY TO OTHERS	UNITS	ID #'S OF FISHERS	
SPECIES	Y/N	INCIDENTAL	NUMBER	NUMBER	NUMBER		PERMIT HOLDER	CREW
HERRING						GAL		
120200001						4		
SPAWN ON KELP						GAL		
120306001						4		
HERRING SAC ROE						GAL		
120304001						4		
LINGCOD						IND		
121606001						1		
PACIFIC COD (GRAY)						IND		
121004001						1		
SABLEFISH (BLACK COD)						IND		
122800001						1		
UNKNOWN FLOUNDER						IND		
121499001						1		
SOLE						IND		
123699001						1		
HALIBUT						LBS		
121800001						2		
BLACK ROCKFISH*						IND		
122602001						1		
RED ROCKFISH**						IND		
122604001						1		
UNKNOWN ROCKFISH						IND		
122699001						1		
GREENLING						IND		
121699001						1		

* BLACK ROCKFISH = DARK DUSKY, BLACK, LIGHT DUSKY, SILVERGRAY, WIDOW, YELLOWTAIL, "SEA BASS" OR "BLACK BASS".

** RED ROCKFISH = YELLOWEYE (RED SNAPPER), ROUGHEYE, PACIFIC OCEAN PERCH, DARK BLOTCHED, HARLEQUIN, NORTH, COPPER, QUILLBACK, CANARY, SHORTRAKER, BLACKQUILL, RED BANDED, TIGER, AND "IDIOTFISH" OR "SHORTSPINE THORNYHEAD".

SPECIES	COMMERCIAL FISHED? Y/N	COMMERCIAL FISHED? INCIDENTAL	REMOVED FOR OWN USE NUMBER	GAVE AWAY TO CREW NUMBER	GAVE AWAY TO OTHERS NUMBER	UNITS	ID #'S OF FISHERS PERMIT HOLDER	ID #'S OF FISHERS CREW
WOLF EEL (WOLFFISH)						IND		
124200001						1		
SHARK						IND		
123299001						1		
WALLEYE POLLOCK (WHITING)						IND		
121012001						1		
STURGEON						IND		
125899001						1		

NOTES:

COMMERCIAL FISHING - MARINE INVERTEBRATES

DID MEMBERS OF YOUR HOUSEHOLD PARTICIPATE IN COMM. FISHING FOR MARINE INVERTEBRATES BETWEEN APRIL 1, 2000, AND MARCH 31, 2001? YES: ___

IF YES: PLEASE COMPLETE THE FOLLOWING TABLE (POUNDS SHOULD BE EDIBLE WEIGHT):

IF NO: DID YOU INCIDENTALLY HARVEST MARINE INVERTEBRATES WHILE COMMERCIAL FISHING FOR OTHER SPECIES?

	COMMERCIAL FISHED?		REMOVED FOR OWN USE	GAVE AWAY TO CREW	GAVE AWAY TO OTHERS	UNITS	SHELLS ON?	ID #'S OF FISHERS	
SPECIES	Y/N	INCIDENTAL	NUMBER	NUMBER	NUMBER		Y/N	PERMIT HOLDER	CREW
RAZOR CLAMS						GAL			
500612001						4			
PACIFIC LITTLENECK CLAMS (STEAMERS)						GAL			
500608001						4			
DUNGENESS CRAB						IND			
501004001						1			
KING CRAB						IND			
501008991						1			
TANNER CRAB						IND			
501012991						1			
OCTOPUS						IND			
502200001						1			
SHRIMP						LBS			
503400001						2			
SCALLOPS						LBS			
502699001						2			

NOTES:

NON-COMMERCIAL FISHING: SALMON.

DID MEMBERS OF YOUR HOUSEHOLD TRY TO HARVEST OR USE SALMON BETWEEN APRIL 1, 2000, AND MARCH 31, 2001? YES: ___ NO: ___
IF YES, PLEASE COMPLETE THE FOLLOWING TABLE (UNITS SHOULD INDICATE INDIVIDUALS UNLESS NOTED OTHERWISE. POUNDS SHOULD BE EDIBLE WEIGHT):

			NUMBER HARVESTED BY:								
SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	SET NET #	DIP NET #	FISH WHEEL #	ROD & REEL* #	OTHER TYPE	OTHER #	UNITS	RECEIVED Y/N	GAVE AWAY Y/N
CHINOOK SALMON									IND		
113000002									1		
CHUM SALMON									IND		
111000002									1		
SOCKEYE SALMON									IND		
115000002									1		
PINK SALMON									IND		
114000002									1		
COHO SALMON									IND		
112000002									1		
LANDLOCKED SALMON									IND		
116000002									1		
UNKNOWN SALMON									IND		
119000002									1		

* 'ROD & REEL' INCLUDES TROLLING IN OPEN WATER

NOTES:

SALMON FISHING LOCATIONS:

BETWEEN APRIL 1, 2000, AND MARCH 31, 2001, WHERE DID YOUR HOUSEHOLD FISH FOR SALMON?

	USE MAP TO IDENTIFY AREAS ON THE KENAI PENINSULA (Y/N)											NAMES OF OTHER FISHERIES USED		
	GMU 7: non-Kenai Peninsula Wildlife Refuge/ Chugach National Forest	GMU 7: Kenai Peninsula Wildlife Refuge/ Chugach National Forest	GMU 15A: non-Kenai Peninsula Wildlife Refuge	GMU 15A: Kenai Peninsula Wildlife Refuge	GMU 15B: non-Kenai Peninsula Wildlife Refuge	GMU 15B: Kenai Peninsula Wildlife Refuge	GMU 15C: non-Kenai Peninsula Wildlife Refuge	GMU 15C: Kenai Peninsula Wildlife Refuge	Upper Cook Inlet Area Marine Waters	Lower Cook Inlet Area Marine Waters	Resurrection Bay / Outer Kenai Coast	Most Important Other Fishery Area	Second Most Important Other Fishery Area	Third Most Important Other Fishery Area
	G	H	A	B	C	D	E	F	I	J	K	L	M	N
FOR SALMON: Y/N														
110000002														

NON-COMMERCIAL FISHING: NON-SALMON FINFISH.

DID MEMBERS OF YOUR HOUSEHOLD TRY TO HARVEST OR USE FISH OTHER THAN SALMON BETWEEN APRIL 1, 2000, AND MARCH 31, 2001? YES: ____ NO

IF YES, PLEASE COMPLETE THE FOLLOWING TABLE (UNITS SHOULD INDICATE INDIVIDUALS UNLESS NOTED OTHERWISE. POUNDS SHOULD BE EDIBLE WE

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	ROD & REEL #	DIP NET #	HAND LINE #	SET NET #	ICE FISHING #	OTHER TYPE	OTHER #	UNITS	RECEIVED Y/N	GAVE AWAY Y/N
HALIBUT *										LBS		
121800002										2		
BLACK ROCKFISH**										IND		
122602002										1		
RED ROCKFISH***										IND		
122604002										1		
UNKNOWN ROCKFISH										IND		
122699002										1		
LINGCOD										IND		
121606002										1		
PACIFIC COD (GRAY)										IND		
121004002										1		
HERRING										GAL		
120200002										4		
SPAWN ON KELP										GAL		
120306002										4		
EULACHON (HOOLIGAN)										GAL		
120404002										4		
SMELT										GAL		
120499002										4		
SABLEFISH (BLACK COD)										IND		
122800002										1		
PACIFIC TOMCOD										IND		
121008002										1		
COD, UNKNOWN										IND		
121099002										1		

* IF FISHED FOR HALIBUT, DID YOU USE A CHARTER SERVICE? NO____(0) YES____(1) BOTH USED CHARTER AND OTHER MEANS _____(2)

LBS FROM CHARTER: _____ LBS FROM OTHER: _____

** BLACK ROCKFISH = DARK DUSKY, BLACK, LIGHT DUSKY, SILVERGRAY, WIDOW, YELLOWTAIL, "SEA BASS" OR "BLACK BASS".

*** RED ROCKFISH = YELLOWEYE (RED SNAPPER), ROUGHEYE, PACIFIC OCEAN PERCH, DARK BLOTCHED, HARLEQUIN, NORTH, COPPER, QUILLBACK, ROS CANARY, SHORTRAKER, BLACKQUILL, RED BANDED, TIGER, AND "IDIOTFISH" OR "SHORTSPINE THORNYHEAD".

SEWARD - MOOSE PASS 2000/2001

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	ROD & REEL #	DIP NET #	HAND LINE #	SET NET #	ICE FISHING #	OTHER TYPE	OTHER #	UNITS	RECEIVED Y/N	GAVE AWAY Y/N
STARRY FLOUNDER										IND		
121406002										1		
SOLE										IND		
123699002										1		
GREENLING										IND		
121699002										1		
(WHITING)										IND		
121012002										1		
IRISH LORD										IND		
123006990										1		
UNKNOWN SCULPIN										IND		
123099002										1		
WOLF EEL (WOLFFISH)										IND		
124200002										1		
EEL										IND		
121200002										1		
SHARK										IND		
123299002										1		
SKATES										IND		
123400002										1		
DOLLY VARDEN										IND		
125006002										1		
LAKE TROUT										IND		
125010002										1		
RAINBOW TROUT										IND		
126204002										1		
STEELHEAD										IND		
126206002										1		
CUTTHROAT TROUT										IND		
126202002										1		
TROUT, UNKNOWN										IND		
126299002										1		
GRAYLING										IND		
125200002										1		
PIKE										IND		
125499002										1		
WHITEFISH										IND		
126499002										1		

SEWARD - MOOSE PASS 2000/2001

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	ROD & REEL #	DIP NET #	HAND LINE #	SET NET #	ICE FISHING #	OTHER TYPE	OTHER #	UNITS	RECEIVED Y/N	GAVE AWAY Y/N

STEELHEAD AND OTHER FRESHWATER FISH FISHING LOCATIONS.

BETWEEN APRIL 1, 2000, AND MARCH 31, 2001, WHERE DID YOUR HOUSEHOLD FISH FOR RAINBOW TROUT AND OTHER FRESHWATER FISH (OTHER THAN RAINBOW TROUT OR SALMON)?

	USE MAP TO IDENTIFY AREAS ON THE KENAI PENINSULA (Y/N)											NAMES OF OTHER FISHERIES USED		
	non-Kenai Peninsula Wildlife Refuge/ Chugach National Forest	Kenai Peninsula Wildlife Refuge/ Chugach National Forest	GMU 15A: non-Kenai Peninsula Wildlife Refuge	GMU 15A: Kenai Peninsula Wildlife Refuge	GMU 15B: non-Kenai Peninsula Wildlife Refuge	GMU 15B: Kenai Peninsula Wildlife Refuge	GMU 15C: non-Kenai Peninsula Wildlife Refuge	GMU 15C: Kenai Peninsula Wildlife Refuge	Upper Cook Inlet Area Marine Waters	Lower Cook Inlet Area Marine Waters	Resurrection Bay / Outer Kenai Coast	Most Important Other Fishery Area	Second Most Important Other Fishery Area	Third Most Important Other Fishery Area
	G	H	A	B	C	D	E	F	I	J	K	L	M	N
RAINBOW TROUT: Y/N														
126204002														
FISHED FOR OTHER FRESH WATER														
125999999														

* DOES NOT INCLUDE RAINBOW TROUT OR SALMON.

NON-COMMERCIAL FISHING: MARINE INVERTEBRATES [SHELLFISH].

DID MEMBERS OF YOUR HOUSEHOLD TRY TO HARVEST OR USE MARINE INVERTEBRATES BETWEEN APRIL 1, 2000, AN YES: _____ NO: _____

IF YES, PLEASE COMPLETE THE FOLLOWING TABLE (UNITS SHOULD INDICATE INDIVIDUALS UNLESS NOTED OTHERWISE. POUNDS SHOULD BE EDIBLE WEIGHT):

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	HARVESTED NUMBER #	HARVESTED UNITS	RECEIVED Y/N	GAVE AWAY Y/N	**SHELLS ON? Y/N**	NOTES
BUTTER CLAMS				GAL				
500602002				4				
RAZOR CLAMS				GAL				
500612002				4				
LITTLENECK CLAMS (STEAMERS)				GAL				
500608002				4				
PINKNECK (SURF) CLAMS				GAL				
500610002				4				
HORSE CLAMS (GAPER)				GAL				
500606002				4				
UNKNOWN CLAMS				GAL				
500699002				4				
DUNGENESS CRAB				IND				
501004002				1				
KING CRAB				IND				
501008992				1				
TANNER CRAB, BAIRDI (SNOW CRAB)				IND				
501012022				1				
UNKNOWN CRABS				IND				
501099002				1				
COCKLES				GAL				
500899002				4				
SCALLOPS				LBS				
502699002				2				
MUSSELS				GAL				
502099002				4				
BLACK CHITONS (BIDARKIS)				GAL				
500408002				4				
RED CHITONS (BIDARKIS)				GAL				
500404002				4				
OCTOPUS				IND				
502200002				1				
SEA URCHIN				GAL				
503299002				4				

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	HARVESTED NUMBER #	HARVESTED UNITS	RECEIVED Y/N	GAVE AWAY Y/N	**SHELLS ON? Y/N**	NOTES
SHRIMP				LBS				
503400002				2				
SNAILS				GAL				
503600002				4				
LIMPETS				GAL				
501800002				4				
OYSTER				GAL				
502499002				4				
WHELK				GAL				
504000002				4				
SEA CUCUMBER				GAL				
503000002				4				

BLANK

MARINE INVERTEBRATE HARVEST LOCATIONS.

BETWEEN APRIL 1, 2000, AND MARCH 31, 2001, WHERE DID YOUR HOUSEHOLD FISH FOR MARINE INVERTEBRATES?

	USE MAP TO IDENTIFY AREAS ON THE KENAI PENINSULA (Y/N)			NAMES OF OTHER FISHERIES USED		
	Upper Cook Inlet Area Marine Waters	Lower Cook Inlet Area Marine Waters	Resurrection Bay / Outer Kenai Coast	Most Important Other Fishery Area	Second Most Important Other Fishery Area	Third Most Important Other Fishery Area
	I	J	K	L	M	N
FISHED FOR MARINE INVERTEBRATES: Y/N						
500000000						

LARGE LAND MAMMALS.

DID MEMBERS OF YOUR HOUSEHOLD TRY TO HARVEST OR USE LARGE LAND MAMMALS BETWEEN APRIL 1, 2000, AND MARCH 31, 2001? YES: ____ NO: ____

IF YES, PLEASE COMPLETE THE FOLLOWING TABLE (UNITS SHOULD BE INDIVIDUALS):

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	HARVESTED FOR FOOD/ FOOD & FUR Number	HARVESTED FUR ONLY Number	HARVESTED TOTAL Number	UNITS	RECEIVED Y/N	GAVE AWAY Y/N	NOTES
MOOSE*						IND			**[SEE BELOW FOR ROAD KILL]**
211800000						1			
CARIBOU						IND			
211000000						1			
DALL SHEEP						IND			
212200000						1			
MOUNTAIN GOAT						IND			
211600000						1			
BLACK BEAR						IND			
210600000						1			
BROWN BEAR						IND			
210800000						1			
DEER						IND			
211200000						1			
ELK						IND			
211400000						1			
BISON						IND			
210400000						1			
						IND			
						1			
						IND			
						1			
						IND			
						1			

* IF THE HOUSEHOLD USED MOOSE:

DID YOU RECEIVE ANY MOOSE FROM A ROAD KILL? NO_____(0) YES____(1) NOT SURE____(-8)

DID YOU SALVAGE MOOSE FROM A ROAD KILL? NO_____(0) YES_____(1)

NUMBER OF MOOSE SALVAGED? _____

LARGE LAND MAMMALS HUNTING AND HARVEST LOCATIONS.

BETWEEN APRIL 1, 2000, AND MARCH 31, 2001, WHERE DID YOUR HOUSEHOLD HUNT AND HARVEST THE FOLLOWING SPECIES?

		USE MAP TO IDENTIFY AREAS ON THE KENAI PENINSULA (Y/N)								NAMES OF OTHER AREAS USED		
		GMU 7: non-Kenai Peninsula Wildlife Refuge/ Chugach	GMU 7: Kenai Peninsula Wildlife Refuge/ Chugach	GMU 15A: non-Kenai Peninsula Wildlife Refuge	GMU 15A: Kenai Peninsula Wildlife Refuge	GMU 15B: non-Kenai Peninsula Wildlife Refuge	GMU 15B: Kenai Peninsula Wildlife Refuge	GMU 15C: non-Kenai Peninsula Wildlife Refuge	GMU 15C: Kenai Peninsula Wildlife Refuge	Most Important Other Hunting Area	Second Most Important Other Hunting Area	Third Most Important Other Hunting Area
		G	H	A	B	C	D	E	F	L	M	N
MOOSE	HUNTED (Y/N)											
211800000	1											
MOOSE	HARVESTED (Y/N)											
211800000	2											
CARIBOU	HUNTED (Y/N)											
211000000	1											
CARIBOU	HARVESTED (Y/N)											
211000000	2											
DALL SHEEP	HUNTED (Y/N)											
212200000	1											
DALL SHEEP	HARVESTED (Y/N)											
212200000	2											
MOUNTAIN GOAT	HUNTED (Y/N)											
211600000	1											
MOUNTAIN GOAT	HARVESTED (Y/N)											
211600000	2											
BLACK BEAR	HUNTED (Y/N)											
210600000	1											
BLACK BEAR	HARVESTED (Y/N)											
210600000	2											
BROWN BEAR	HUNTED (Y/N)											
210800000	1											
BROWN BEAR	HARVESTED (Y/N)											
210800000	2											

SMALL LAND MAMMALS/FURBEARERS.

DID MEMBERS OF YOUR HOUSEHOLD TRY TO HARVEST OR USE SMALL LAND MAMMALS/FURBEARERS BETWEEN APRIL 1, 2000, AND MARCH 31, 2
IF YES, PLEASE COMPLETE THE FOLDING TABLE (UNITS SHOULD INDICATE INDIVIDUALS).

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	NUMBER HARVESTED FOOD NUMBER	FUR ONLY NUMBER	TOTAL NUMBER	UNITS	RECEIVED Y/N	GAVE AWAY Y/N	NUMBER SOLD	AVERAGE PRICE
RED FOX						IND				
220804000						1				
BEAVER						IND				
220200000						1				
COYOTE						IND				
220400000						1				
SNOWSHOE HARE						IND				
221004000						1				
LAND OTTER						IND				
221200000						1				
LYNX						IND				
221600000						1				
MARMOT						IND				
221800000						1				
MARTEN						IND				
222000000						1				
MINK						IND				
222200000						1				
MUSKRAT						IND				
222400000						1				
PORCUPINE						IND				
222600000						1				
WEASEL						IND				
223000000						1				
WOLF						IND				
223200000						1				
WOLVERINE						IND				
223400000						1				
TREE SQUIRREL (RED)						IND				
222804000						1				
PARKA SQUIRREL (GROUND)						IND				
222802000						1				

MARINE MAMMALS.

DID MEMBERS OF YOUR HOUSEHOLD TRY TO HARVEST OR USE MARINE MAMMALS BETWEEN APRIL 1, 2000, AND MARCH 31, 2001? YES: ___ NO: ___
IF YES, PLEASE COMPLETE THE FOLLOWING TABLE (UNITS ARE INDIVIDUALS. POUNDS SHOULD BE EDIBLE WEIGHT.):

SPECIES	USED*? Y/N	TRIED TO HARVEST? Y/N	SALVAGE? Y/N	NUMBER HARVESTED FOR FOOD #	FOR HIDE ONLY #	TOTAL	UNITS	RECEIVED Y/N	GAVE AWAY Y/N
HARBOR SEAL							IND		
300806040							1		
STELLER SEA LION							IND		
301200000							1		
SEA OTTER							IND		
301000000							1		
BELUKHA WHALE							IND		
301602000							1		
							IND		
							1		
							IND		
							1		
							IND		
							1		
							IND		
							1		
							IND		
							1		

* Use includes meat and/or oil, and/or fur.

BIRDS AND EGGS.

DID MEMBERS OF YOUR HOUSEHOLD TRY TO HARVEST OR USE BIRDS OR EGGS BETWEEN APRIL 1, 2000, AND MARCH 31, 2001? YES: ____ NO:
IF YES, PLEASE COMPLETE THE FOLLOWING TABLE (UNITS SHOULD BE INDIVIDUALS).

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	HARVEST	UNIT	RECEIVED Y/N	GAVE AWAY Y/N	NOTES
RUFFED GROUSE				IND			
421802060				1			
SPRUCE GROUSE				IND			
421802020				1			
SHARP-TAILED GROUSE				IND			
421802020				1			
UNKNOWN GROUSE				IND			
421802990				1			
PTARMIGAN				IND			
421804990				1			
MALLARD				IND			
410214000				1			
PINTAIL				IND			
410220000				1			
AMERICAN WIGEON				IND			
410236020				1			
GREEN-WINGED TEAL				IND			
410232060				1			
GADWALL				IND			
410208000				1			
SHOVELER				IND			
410230000				1			
SCAUP (BLUEBILL)				IND			
410226990				1			
GOLDENEYE (COPPERHEAD)				IND			
410210990				1			
BUFFLEHEAD (BUTTERBALL)				IND			
410202000				1			
HARLEQUIN (ROCK DUCK)				IND			
410212000				1			
RED-BRESTED MERGANSER (SAWBILL)				IND			
410216040				1			
COMMON MERGANSER (SAWBILL)				IND			
410216020				1			

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	UNKNOWN	UNIT	RECEIVED Y/N	GAVE AWAY Y/N	NOTES
UNKNOWN MERGANSER (SAWBILL)				IND			
410216990				1			
LONG-TAILED (OLDSQUAW)				IND			
410218000				1			
EIDER SPECIFY:				IND			
4102 __ __ __ __ __				1			
BLACK SCOTER				IND			
410228020				1			
WHITE-WINGED SCOTER				IND			
410228060				1			
SURF SCOTER				IND			
410228040				1			
UNKNOWN SCOTER				IND			
410228990				1			
DUCKS, UNKNOWN				IND			
410299000				1			
BRANT				IND			
410402000				1			
WHITE-FRONTED GEESE				IND			
410410000				1			
CANADA GEESE, LESSER				IND			
410404080				1			
CANADA GEESE, DUSKY				IND			
410404060				1			
CANADA GEESE, UNKNOWN				IND			
410404990				1			
UNKNOWN GEESE				IND			
410499000				1			
SANDHILL CRANE				IND			
410802000				1			
COMMON SNIPE				IND			
411002000				1			
UNKNOWN CORMORANT (FISH DUCK)				IND			
411204990				1			
LOONS				IND			
411216990				1			

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	UNKNOWN	UNIT	RECEIVED Y/N	GAVE AWAY Y/N	NOTES
HORNED PUFFINS				IND			
411222020				1			
TUFTED PUFFINS				IND			
411222040				1			
UNKNOWN PUFFINS				IND			
411222990				1			
GULLS				IND			
411212990				1			
COMMON MURRE				IND			
411218020				1			
GULL EGGS, UNKNOWN				IND			
431212990				1			
PUFFIN EGGS				IND			
431222990				1			
GEESE EGGS				IND			
430499000				1			
DUCK EGGS, UNKNOWN				IND			
430299000				1			
SEABIRD EGGS, UNKNOWN				IND			
431299000				1			
TERN EGGS				IND			
431226000				1			

WILD PLANTS.

DID MEMBERS OF YOUR HOUSEHOLD TRY TO HARVEST OR USE WILD PLANTS (INCLUDING FIREWOOD) BETWEEN APRIL 1, 2000, AND MARCH 31, 2001? YES: ____ NO: ____

IF YES, PLEASE COMPLETE THE FOLLOWING TABLE (POUNDS SHOULD INDICATE EDIBLE WEIGHT).

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	AMOUNT HARVESTED NUMBER	AMOUNT HARVESTED UNIT	RECEIVED Y/N	GAVE AWAY Y/N	NOTES
BERRIES				GAL			
601000000				4			
PLANTS/GREENS/MUSHROOMS				GAL			
602000000				4			
SEAWEED/KELP (FOOD)				GAL			
603099000				4			
WOOD				CORDS			
604000000				6			

EMPLOYMENT.

PLEASE INDICATE THE FOLLOWING INFORMATION FOR ALL JOBS HELD BY THE EMPLOYED PERMANENT HOUSEHOLD MEMBERS 16 OR OLDER LISTED ON PAGE 1 BETWEEN APRIL 1, 2000, AND MARCH 31, 2001.
FOR THOSE NOT EMPLOYED, PLEASE SPECIFY RETIRED, UNEMPLOYED, DISABLED, STUDENT, OR HOMEMAKER.

PERSON ID # *	JOB #	JOB TITLE	SOC	EMPLOYER CATEGORY	SIC	TYPE**	LOCATION	WHICH MONTHS WORKED APRIL 2000 - MARCH 2001	HRS/DAY	DAYS/ WEEK	WORK *** SCHEDULE	PERSONAL GROSS INCOME****
								A M J J A S O N D J F M				
								A M J J A S O N D J F M				
								A M J J A S O N D J F M				
								A M J J A S O N D J F M				
								A M J J A S O N D J F M				
								A M J J A S O N D J F M				
								A M J J A S O N D J F M				
								A M J J A S O N D J F M				
								A M J J A S O N D J F M				
								A M J J A S O N D J F M				

*** PERSON ID # = PERSON NUMBER FROM FIRST PAGE OF SURVEY.**

**** TYPE: (1) NATIVE PROFIT or (2) NATIVE NON-PROFIT; OTHERWISE LEAVE BLANK.**

***** WORK SCHEDULE = (1) FULLTIME (35+ HOURS/WK) (2) PARTTIME (<35 HOURS/WEEK) (3) SHIFT (2 WEEKS ON/2 OFF, 1 WEEK ON/1 OFF, ETC.) (4) COMMERCIAL FISHING, AND OTHER IRREGULAR, AS REQUIRED POSITIONS (5) SHIFT - PART TIME**

****** COMMERCIAL FISHING AND BUSINESS OWNERS - ADJUSTED GROSS AFTER EXPENSES. IF LESS THAN ZERO, ENTER 0.**

OTHER INCOME.

ANSWER ALL THAT APPLY. INDICATE ANNUAL AMOUNT FOR THE PERIOD OF APRIL 1, 2000, THROUGH MARCH 31, 2001.
OKAY TO LEAVE BLANK IF NOT APPLICABLE OR TO STATE SOME AMOUNT, AMOUNT UNKNOWN (-8) IF IT EXISTED.

AK PERMANENT FUND:	NUMBER:		AID TO FAMILIES WITH			DIVIDENDS/INTEREST (14)	$	
" ($1,964 EA) (32)	$		DEPENDENT CHILDREN (02)	$		ADULT PUBLIC ASSISTANCE (03)	$	
SOCIAL SECURITY (07)	$		PENSION/RETIREMENT (05)	$		LONGEVITY BONUS (06)	$	
SUPP. SECURITY INCOME (SSI) (10)	$		WORK COMP/INSURANCE (08)	$		($250/MONTH)		
NATIVE CORP. DIVIDEND (13)	$		FOOD STAMPS (11)	$		ENERGY ASSISTANCE (09)	$	
						UNEMPLOYMENT (12)	$	
						OTHER: _____ (____)	$	

[AK PERMANENT FUND 2000: 1- $1,964 2- $3,973 3- $5,892 4- $7,855 5- $9,819 6- $11,783 7- $13,747 8- $15,711 9- $17,675 10- $19,684]

FOOD:

PLEASE ESTIMATE YOUR MONTHLY EXPENSES TO PURCHASE FOOD: $_____/MONTH

WHAT PERCENTAGE OF ALL THE MEAT, FISH, AND BIRDS THAT YOU ATE IN THE LAST YEAR WAS FROM WILD RESOURCES? [33]

___ (1) NONE ___ (2) 1-25% ___ (3) 26-50% ___ (4) 51-75% ___ (5) 76-99% ___ (6) ALL

NOTES: _____

MAPPING.

OVER THE LAST TEN YEARS (OR SINCE YOU HAVE LIVED IN THIS COMMUNITY, IF LESS), WHERE HAVE YOU HUNTED OR FISHED THE FOLLOWING RESOURCES?

	HUNTED/GATHERE Y/N	MAPPED Y/N	OTHER AREAS NOT ON BASE MAP (IN ORDER OF ACTIVITY):		
MOOSE			1	2	3
211800000					
CARIBOU			1	2	3
211000000					
DALL SHEEP			1	2	3
212200000					
MOUNTAIN GOAT			1	2	3
211600000					
BLACK BEAR			1	2	3
210600000					
BROWN BEAR			1	2	3
210800000					
DEER			1	2	3
211200000					
BIRDS			1	2	3
400000000					
PLANTS			1	2	3
600000000					

	FISHED FOR Y/N	MAPPED Y/N	OTHER AREAS NOT ON BASE MAP (IN ORDER OF ACTIVITY):		
SOCKEYE SALMON			1	2	3
115000000					
COHO SALMON			1	2	3
112000000					
OTHER SALMON			1	2	3
119000000					
RAINBOW TROUT			1	2	3
126204000					
DOLLY VARDEN			1	2	3
125006000					
OTHER FRESHWATER FISH*			1	2	3
125999999					
MARINE FISH			1	2	3
120999999					
MARINE INVERTEBRATES			1	2	3
500000000					

* DOES NOT INCLUDE RAINBOW TROUT, DOLLY VARDEN, OR SALMON.

DO YOU HAVE ANY OTHER QUESTIONS, COMMENTS, OR CONCERNS?

BE SURE TO FILL IN THE STOP TIME ON THE FIRST PAGE!!!!

INTERVIEW SUMMARY:

APPENDIX C: FACTORS USED TO CONVERT RESOURCE HARVESTS INTO USABLE POUNDS

Code	Name	Unit[1]	Factor
111000001	Chum Salmon [CF Retention]	1	5.994
112000001	Coho Salmon [CF Retention]	1	5.400
113000001	Chinook Salmon [CF Retention]	1	18.202
115000001	Sockeye Salmon [CF Retention]	1	4.995
121800001	Halibut [CF Retention]	2	1.000
122800001	Sablefish (black cod) [CF Retention]	1	3.100
124200001	Wolffish [CF Retention]	1	0.500
501012991	Unknown Tanner Crab [CF Retention]	1	1.600
111000002	Chum Salmon [Rod and Reel]	1	5.994
112000002	Coho Salmon [Rod and Reel]	1	5.400
113000002	Chinook Salmon [Rod and Reel]	1	18.202
114000002	Pink Salmon [Rod and Reel]	1	1.832
115000002	Sockeye Salmon [Rod and Reel]	1	4.995
116000002	Landlocked Salmon [Rod and Reel]	1	1.500
119000002	Unknown Salmon [Rod and Reel]	1	5.610
120306002	Herring Spawn on Kelp [Rod and Reel]	4	7.000
120404002	Eulachon (hooligan, candlefish) [Rod and Reel]	4	3.250
121004002	Pacific Cod (gray) [Rod and Reel]	1	3.200
121008002	Pacific Tom Cod [Rod and Reel]	1	0.500
121012002	Walleye Pollock (whiting) [Rod and Reel]	1	1.400
121099002	Unknown Cod [Rod and Reel]	1	3.060
121406002	Starry Flounder [Rod and Reel]	1	3.000
121606002	Lingcod [Rod and Reel]	1	4.000
121699002	Unknown Greenling [Rod and Reel]	1	1.000
121800002	Halibut [Rod and Reel]	2	1.000
122602002	Black Rockfish [Rod and Reel]	1	1.500
122604002	Red Rockfish [Rod and Reel]	1	4.000
122699002	Unknown Rockfish [Rod and Reel]	1	1.950
122800002	Sablefish (black cod) [Rod and Reel]	1	3.100
123099002	Unknown Sculpin [Rod and Reel]	1	0.500
123299002	Unknown Shark [Rod and Reel]	1	9.000
123699002	Unknown Sole [Rod and Reel]	1	1.000
125006002	Dolly Varden [Rod and Reel]	1	1.400
125010002	Lake Trout [Rod and Reel]	1	1.400
125200002	Grayling [Rod and Reel]	1	0.700
125499002	Unknown Pike [Rod and Reel]	1	3.000
126202002	Cutthroat Trout [Rod and Reel]	1	1.400
126204002	Rainbow Trout [Rod and Reel]	1	1.400
126206002	Steelhead [Rod and Reel]	1	1.400
126299002	Unknown Trout [Rod and Reel]	1	1.400
126499002	Unknown Whitefish [Rod and Reel]	1	1.750
500602002	Butter Clams [Non Commercial Gear]	4	3.000
500606002	Horse Clams (Gaper) [Non Commercial Gear]	4	3.000
500608002	Pacific Littleneck Clams (Steamers) [Non Commercial Gear]	4	3.000
500612002	Razor Clams [Non Commercial Gear]	4	3.000
500899002	Unknown Cockles [Non Commercial Gear]	4	3.000
501004002	Dungeness Crab [Non Commercial Gear]	1	0.700
501012022	Tanner Crab, Bairdi [Non Commercial Gear]	1	1.600
501200002	Geoducks [Non Commercial Gear]	1	3.000
501800002	Limpets [Non Commercial Gear]	4	1.500
502099002	Unknown Mussels [Non Commercial Gear]	4	1.500

continued

APPENDIX C. Conversion Factors, continued

Code	Name	Unit[1]	Factor
502200002	Octopus [Non Commercial Gear]	1	4.000
503000002	Sea Cucumber [Non Commercial Gear]	4	2.000
503600002	Snails [Non Commercial Gear]	4	1.500
210600000	Black Bear	1	58.000
211000000	Caribou	1	150.000
211200000	Deer	1	43.200
211600000	Goat	1	72.500
211800000	Moose	1	540.000
221004000	Snowshoe Hare	1	2.000
410202000	Bufflehead	1	0.400
410208000	Gadwall	1	0.800
410210990	Unknown Goldeneye	1	0.800
410214000	Mallard	1	1.000
410216020	Common Merganser	1	0.900
410218000	Long-tailed Duck (Oldsquaw)	1	0.800
410220000	Northern Pintail	1	0.800
410226990	Unknown Scaup	1	0.900
410228040	Surf Scoter	1	0.900
410230000	Northern Shoveler	1	0.600
410232060	Green Winged Teal	1	0.300
410236020	American Wigeon	1	0.700
410299000	Unknown Ducks	1	0.740
410404060	Dusky Canada Geese	1	3.600
410404990	Unknown Canada Geese	1	1.200
411002000	Common Snipe	1	0.100
421802020	Spruce Grouse	1	0.700
421802040	Sharp-tailed Grouse	1	0.700
421802060	Ruffed Grouse	1	0.700
421804990	Unknown Ptarmigan	1	0.700
431212990	Unknown Gull Eggs	1	0.300
601000000	Berries	4	4.000
602000000	Plants/Greens/Mushrooms	4	4.000
603099000	Unknown Seaweed	4	4.000

[1] Standard unit of data collection. 1 = number of fish or animals; 2 = usable pounds; 4 = gallons

APPENDIX D: OVERVIEW OF STUDY FINDINGS

Wild Resources Harvests and Uses by Residents of Seward and Moose Pass, Alaska, 2000

An Overview of Study Findings

Division of Subsistence,
Alaska Department of Fish and Game

June 2003

Background

In March and April of 2001 researchers employed by the Alaska Department of Fish and Game's (ADF&G) Division of Subsistence conducted 203 interviews with residents of Moose Pass and Seward, two communities in the Kenai Peninsula Borough. The study was designed to collect information about the harvest and use of wild fish, game, and plant resources, demography, and aspects of the local cash economy such as employment and income. These communities were classified "non-rural" by the Federal Subsistence Board in 1990, which periodically reviews its classifications. This study was the first comprehensive harvest assessment done for these communities. Data were collected for the 12-month period between April 1, 2000 and March 31, 2001. The study was funded through a cooperative agreement between ADF&G and the US Forest Service Chugach National Forest.

Methods

Information was collected during face-to-face interviews using a standard survey form. The goal was to talk with representatives from a randomly selected sample of year-round households in the communities along the first 38 miles of the Seward Highway, grouped in this study as Moose Pass and Seward. Of all households contacted, a majority (81%) agreed to be interviewed. Households were asked for detailed information about their harvest and use of wild foods during the study year, as well as specific locations on the Kenai Peninsula and in Prince William Sound they used to hunt, fish, and gather wild plant resources over the previous ten year period.

Demography

Population growth in the study communities has been steady over the past twenty years. Between 1980 and 2000, the population in the city of Seward increased by 56.3%. The population of the Moose Pass area has also increased, and although census boundaries have changed of the years, it can be estimated that the area's population has grown approximately 82% between 1990 and 2000. Over 80% of the household heads in each study community were born outside of Alaska, with an average length of residency in the study communities of around 12 years (Table 1).

Table 1. Demographic Characteristics of Households
Moose Pass and Seward, 2000

Characteristics	Moose Pass	Seward
Sampled Households	99	104
Number of Households in the Community	148	1687
Percentage of Households Sampled	66.89	6.16
Average Household Size	2.72	2.69
Sample Population	269	280
Estimated Community Population	402.14	4541.9
Average Age	35.02	34.48
Average Length of Residency - Population	14.38	15.05
Average Length of Residency - Household Heads	12.19	12.36
Percent Household Heads Born in Alaska	15.1	11.00
Alaska Native		
Households (Either Head)		
Number	7.47	129.77
Percentage	5.05	7.69
Estimated Population		
Number	22.42	308.2
Percentage	5.58	6.79

SOURCE: Alaska Department of Fish and Game, Division of Subsistence,
Household Survey, 2001

Local Cash Economy

Most adults in these communities were employed: 74.5% in Moose Pass and 86.1% in Seward. Much of the work was seasonal. Of those individuals with jobs, about half were employed year-round (60% in Moose Pass and 50% in Seward) (Table 4). Government was the largest employer in Moose Pass (34% of employed individuals), while in Seward 38% were employed in the service sector. People from Seward mostly work in Seward (89.6%), and about half of the Moose Pass workforce commutes to Seward (51.1%). Average household income was similar for the two communities: $61,523 for Seward and $59,051 for Moose Pass. Households in each town reported a similar amount of money spent on food in the study year, $5,600 in Seward and $5,100 in Moose Pass, which represents 9.1% and 8.7% of the average household income, respectively.

Table 2. Resource Harvest and Use Characteristics, Seward and Moose Pass, 2000/2001

	Moose Pass	Seward
Percentage of Households:		
Using any resource	99%	97%
Attempting any resource harvest	92%	89%
Harvesting any resource	92%	89%
Receiving any resource	87%	87%
Giving away any resource	60%	65%
Mean Household Harvest	236 lbs	261 lbs
Per Capita Harvest	87 lbs	97 lbs
Mean Number of kinds of resources per household		
Used	7.87	7.54
Attempted	6.11	5.08
Harvested	5.28	4.44
Received	3.64	4.17
Gave Away	2.19	2.04

Harvests and Uses of Wild Resources

Table 2 shows selected findings about patterns of harvest and use of wild resources for home use in the study communities in 2000/2001. Almost all of the households used wild foods and a large majority fished, hunted, or gathered resources. Sharing of wild foods was also common, with 87% of households in each community receiving at least one resource during the study year. Reported harvests of wild food were 87 pounds per person (236 pounds per household) in Moose Pass and 97 pounds per person (261 pounds per household) in Seward, measured in pounds usable weight. Moose Pass households reported harvesting about 5.3 different resources during 2000/2001 and Seward households harvested approximately 4.4 resources.

Table 3 presents research findings for the harvest, use, and sharing of a selection of the total kinds of wild resources for Moose Pass and Seward. Figure 1 depicts seven resource categories and their contribution (in percentage of pounds edible weight) to the community harvest as a whole. (Note that there were no marine mammal harvests reported for either community.) Salmon was the most important wild resource for each community, constituting 48% of the total pounds harvested in Seward and 37% in Moose Pass (Figure 1). Per capita, salmon accounted for 46 pounds per person per year in

Seward, and 32 pounds in Moose Pass, far and away the largest contributor to the household wild food larder (Table 3).

Approximately 23% of all the salmon harvested in Seward came from a commercial catch, 74% was caught with rod and reel and 3% was harvested using subsistence methods. In Moose Pass, 76% of the salmon was harvested using rod and reel, 23% came from subsistence methods, and only 0.3% came from a commercial catch (Figure 2). Commercial fishing was also the source of 70% of the crab used in the average Seward home.

In Moose Pass, large land mammals composed 28% of total pounds of subsistence food harvested (Figure 1). About 16 pounds of moose meat was harvested per person, and caribou and deer each made up approximately 3 pounds per person. In Seward, the large land mammals were the third most important category behind other fish. The average person in Seward harvested approximately 12 pounds of moose meat and about 1 pound each of deer, caribou, and black bear. The Moose Pass households that reported using Dall Sheep and crab received the food from someone else; thus, the 0% harvest figure (Table 3).

Table 3. Estimated Harvest and Use of Selected Fish, Game, and Plant Resources, Moose Pass and Seward, 2000

Resource Name	Moose Pass						Seward					
	Percentage of Households			Pounds Harvested			Percentage of Households			Pounds Harvested		
	Use	Harv	Recv	Total	Mean HH	Percapita	Use	Harv	Recv	Total	Mean HH	Percapita
All Resources	99	91.9	86.9	35000.25	236.49	87.03	97.1	88.5	86.5	440383.54	261.05	96.96
Salmon	84.8	55.6	56.6	12838.98	86.75	31.93	86.5	56.7	58.7	210745.69	124.92	46.4
Lingcod	21.2	12.1	11.1	466.42	3.15	1.16	79.8	49	60.6	104366.9	61.87	22.98
Halibut	60.6	32.3	37.4	5422.72	36.64	13.48	20.2	11.5	10.6	6326.25	3.75	1.39
Rockfish	22.2	16.2	11.1	532.05	3.59	1.32	72.1	27.9	55.8	57763.53	34.24	12.72
Dolly Varden	18.2	14.1	4	372.54	2.52	0.93	29.8	17.3	16.3	17660.78	10.47	3.89
Lake Trout	20.2	16.2	5.1	410.21	2.77	1.02	19.2	17.3	3.8	12240.48	7.26	2.69
Rainbow Trout	38.4	30.3	10.1	625.79	4.23	1.56	7.7	6.7	1	442.84	0.26	0.1
Black Bear	17.2	6.1	11.1	520.24	3.52	1.29	9.6	3.8	6.7	4704.13	2.79	1.04
Caribou	10.1	1	9.1	1345.45	9.09	3.35	16.3	1	16.3	7299.52	4.33	1.61
Deer	14.1	3	11.1	1227.05	8.29	3.05	12.5	1.9	10.6	3503.77	2.08	0.77
Moose	41.4	8.1	36.4	6458.18	43.64	16.06	33.7	5.8	28.8	52556.54	31.15	11.57
Dall Sheep	5.1	0	5.1	0	0	0	0	0	0	0	0	0
Snowshoe Hare	6.1	6.1	0	86.71	0.59	0.22	3.8	2.9	1	162.21	0.1	0.04
Ducks	6.1	6.1	2	166.21	1.12	0.41	2.9	1.9	1	590.45	0.35	0.13
Spruce Grouse	17.2	17.2	0	299.29	2.02	0.74	5.8	5.8	0	533.68	0.32	0.12
Ptarmigan	16.2	15.2	1	145.46	0.98	0.36	7.7	4.8	3.8	2622.96	1.55	0.58
Pacific Littleneck Clams	0	0	0	0	0	0	5.8	3.8	1.9	656.96	0.39	0.14
Razor Clams	26.3	16.2	12.1	1854.48	12.53	4.61	14.4	5.8	10.6	14209.73	8.42	3.13
Crabs	6.1	0	6.1	0	0	0	13.5	2.9	11.5	7416.31	4.4	1.63
Vegetation	80.8	76.8	48.5	1794.54	12.13	4.46	84.6	77.9	45.2	29223.38	17.32	6.43

Figure 1. Harvests of Wild Resources for Home Use by Resource Category, Seward and Moose Pass, 2000/01

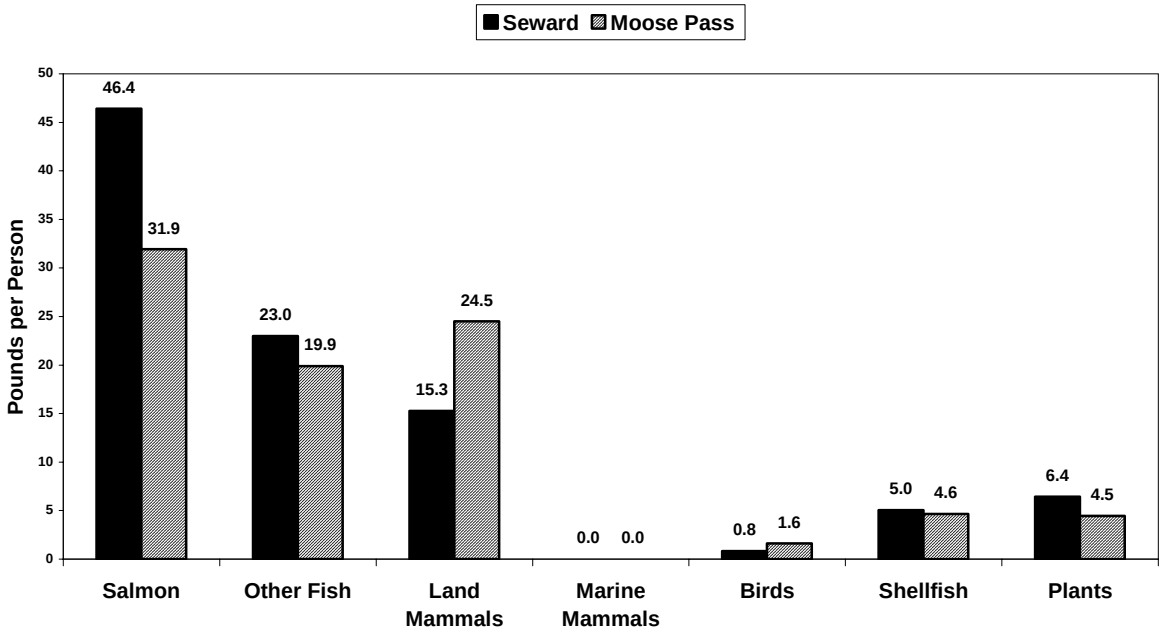

Figure 2. Salmon Harvest Methods (Percent of Total Numbers of Salmon), Seward and Moose Pass

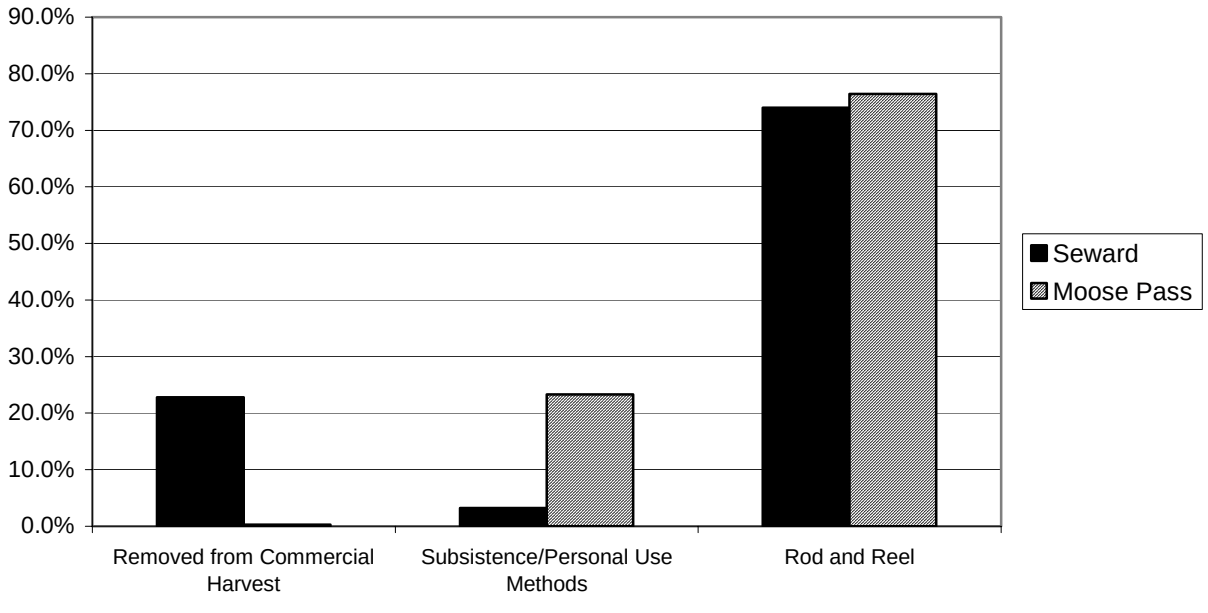

Figure 1 and Table 3 represent the importance of fish other than salmon to households in both communities. Fish other than salmon contributed approximately 24% of the total pounds of subsistence food in Seward, and 23% of pounds in Moose Pass. In both Seward and Moose Pass halibut was the most important non-salmon fish harvested, with an average of 13 pounds harvested per person. Rockfish, Dolly Varden, and ling cod round out the category in both communities. Birds, marine invertebrates and plants, hen combined for each community, constitute around 12% of the total subsistence harvest measured in pounds.

Both communities had a great disparity between high-harvesting households and those that reported taking little or no resources. In both Seward and Moose Pass a small segment of the population harvested most of the wild foods and used on average a much wider variety of wild foods. In Moose Pass the 25% highest harvesting households contributed 81.3% of the community's total; this top quartile in Seward harvested 81.8% of the total pounds. Looking even more narrowly, 70% of the harvest was taken by the top 15% of Moose Pass households and by 18% in Seward.

Conversely, the combined harvests for the 50% lowest harvesting households totaled only 3.4% in Moose Pass and 2.4% in Seward. These low harvesting households also used relatively few kinds of resources, an average of 5.0 kinds in Moose Pass and 4.5 kinds in Seward. In contrast, the top 25 percent of harvesting households in Moose Pass used 13.8 kinds of wild resources and those in Seward used 13.5 kinds. These figures indicate little re-distribution of resources from very active households to relatively inactive households, and the absence of a community-wide pattern of frequent and diverse uses of wild foods.

Comparing the Study Communities with Other Kenai Peninsula Communities

Table 4 presents demographic and economic information for Kenai Peninsula communities from recent Division of Subsistence household surveys, including Seward and Moose Pass from the 2000/2001 study. Surveyed areas display a range of population sizes, from over 6,000 people in Kenai, and 4,542 people in the Seward study area, to the small communities such as the Moose Pass study area (402 people), Cooper Landing, Hope, Nanwalek, and Port Graham. Nanwalek and Port Graham are largely Alaska Native communities (over 80 percent of the population is Alaska Native). In all other communities, Alaska Natives are a minority.

Seward and Moose Pass displayed high levels of employment and cash income. These study communities, along with Kenai, all reported year-round employment for greater than 50 percent of all employed individuals, with an average of around 10 months of employment. According to household survey results, per capita monetary incomes in Seward and Moose Pass are in the same range as those of Kenai, at the high end of the scale for the Kenai Peninsula Borough. Communities off of the road system--Seldovia, Port Graham and Nanwalek-- all had a relatively high level of seasonal employment and a relatively low per capita income. These measures indicate that, despite the presence of seasonally available employment in Seward and Moose Pass, employment is relatively available and reliable, with cash incomes comparable to the most populous areas of the state and generally higher than those of remote areas off the road system.

Table 4. Selected Demographic and Economic Characteristics, Kenai Peninsula Borough Communities

Community	Study Year	Household Survey Data[1]					
		Population	% Alaska Native	Average Length of Residency in Community, Household Heads	Per Capita Income[2]	Average Months Employed	Percent Employed Year-Round
Cooper Landing	1990	258	0.6%	13.2 yrs	$14,780	8.6	46.0%
Fritz Creek East	1998	434	0.5%	12.8 yrs	$17,400	8.6	42.9%
Homer	1982	5,633		11.8 yrs	$10,070	9.7	
Hope	1990	152	4.0%	15.0 yrs	$13,679	9.0	49.1%
Kenai	1993	6,372	4.2%	13.0 yrs	$19,642	10.3	65.7%
Moose Pass	**2000**	**402**	**5.6%**	**12.2 yrs**	**$21,733**	**9.8**	**59.7%**
Nanwalek	1993	141	88.9%	25.6 yrs	$7,787	7.4	26.8%
Nikolaevsk	1998	235	0.0%	17.9 yrs	$11,140	6.8	12.7%
Ninilchik	1998	1,073	9.6%	16.6 yrs	$18,664	8.9	43.4%
North Fork Road	1998	467	1.8%	14.5 yrs	$18,138	9.0	39.3%
Port Graham	1993	175	89.7%	30.5 yrs	$9,810	8.0	37.1%
Seldovia	1993	431	32.8%	19.7 yrs	$17,502	8.9	45.3%
Seward	**2000**	**4,542**	**6.8%**	**12.4 yrs**	**$22,851**	**9.6**	**50.0%**
Voznesenka	1998	327	0.0%	11.7 yrs	$10,160	8.2	10.0%

[1] Blank cells indicate data unavailable.

[2] Not adjusted for inflation.

Source: Scott et al. 1999, Seitz et al. 1994, Fall and Utermohle 1995, Reed 1985, Fall et al. 2000, and this study

In all Kenai Peninsula communities surveyed by the Division of Subsistence, a very large majority of households, always close to or at 100 percent, used at least one wild resource in the study year, and generally 80 to 90 percent or more harvested wild foods. Estimated pounds of wild foods harvested per household indicate different patterns of use for these communities, however. The road-connected communities, including Seward and Moose Pass, as well as Kenai, Homer, Cooper Landing and Hope, trend towards a per capita harvest of 90-100 pounds. (Ninilchik is unique among road-connected communities with a per capita harvest of 164.) Off the road system, the small, Alaska Native communities of Nanwalek and Port Graham averaged 212 to 305 pounds per person, respectively. Road-connectivity was also associated with a distinction between the average number of resources households used; the values for Seward and Moose Pass (7.5 and 7.9 kinds, respectively) are clearly in the same range as all the other road-connected places, while Nanwalek and Port Graham used about 16-20 kinds of wild foods. Seldovia's average was in-between these two sets of communities.

Conclusions

In summary, the study found strong similarities in the patterns of wild resource use as reported in the Seward and Moose Pass study areas in 2000/01. The study areas had similar levels of harvest, ranges of resources used, and harvest composition. Despite their contrasting population sizes, Seward and Moose Pass had very similar demographic and economic characteristics, such as length of residency, duration of cash employment, and cash income.

The study found that the patterns of using wild resources by residents of Moose Pass and Seward are much like those other road connected communities of the Kenai Peninsula, such as Hope, Cooper Landing, Kenai, Ninilchik, and Homer. This pattern is marked by a narrow range of resources used, relatively low harvest levels in general, and high harvest levels for a small segment of the population which account for much of the community's total harvest. No extensive networks of distribution and exchange exist that link the high harvesting households with the less productive. These elements contrast greatly with those in the more remote Kenai Peninsula communities of Nanwalek and Port Graham with high harvests, great diversity, and widespread sharing. Length of local residency tends to be higher and often life-long in these more remote communities, while cash employment is more sporadic and cash incomes much lower.

While people in Seward and Moose Pass do harvest and use wild foods in some quantity, the overall contribution of these wild foods to the socioeconomic system is less significant than in the more remote communities of the Kenai Peninsula. In Seward and Moose Pass, as well as in other road-connected communities in the area, the importance of hunting and fishing can best be described as a common mode of recreation and means of supplementing a primarily cash-based local economy.

For more information, see the final report for the project: Davis, B., J.A. Fall and G. Jennings, 2003. Wild Resource Harvests and Uses by Residents of Seward and Moose Pass, Alaska, 2000, Alaska Department of Fish and Game, Division of Subsistence Technical paper No. 271. You may contact the Division of Subsistence at 333 Raspberry Road, Anchorage, Alaska 99518; (voice) 907-267-2353; (fax) 907-267-2450. Selected study findings appear in the Community Profile Database which is accessed through the division's web page at: www.state.ak.us/local/akpages/FISH.GAME/subsist/subhome.htm.