

FISH AND WILDLIFE USES IN SIX ALASKA PENINSULA
COMMUNITIES: EGEKIK, CHIGNIK, CHIGNIK LAGOON,
CHIGNIK LAKE, PERRYVILLE, AND IVANOF BAY.

by

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ABSTRACT

This report describes uses of fish and wildlife resources in six Alaska Peninsula communities in 1984 based upon research conducted by the Division of Subsistence in 1984 and 1985. The study communities included Egegik on the Bristol Bay side of the peninsula, and Chignik Lake, Chignik Lagoon, Chignik, Perryville, and Ivanof Bay on the Pacific side. Most of the population is Alaska Native. Data gathering methods included key respondent interviews, resource use area mapping, and a random survey of 110 households, approximately 75 percent of all year-round households in the study area.

After a review of the history of the Alaska Peninsula, the report describes the services and facilities available in each community. During the study period, the cash economies of the study communities were dominated by commercial fishing. Egegik residents participated in the Bristol Bay salmon fishery, while some residents of the other five communities harvested crab, herring, and halibut in addition to salmon. Other cash earning opportunities in the villages were scarce, and most were part-time and seasonal, although the presence of land-based fish processors in Egegik and Chignik brought an influx of seasonal workers to these communities.

Because of environmental differences, residents of Egegik exhibited a different seasonal round and inventory of subsistence resources than the Pacific drainage communities. However, wild resource harvests played important roles in all six samples. Ninety nine percent of the entire sample used wild foods during the study year, and 94.5 percent of the 110 household were successful harvesters. Per capita harvests were high in all

the communities and exceeded those reported for urbanized, more accessible areas of the state such as Kenai and Homer. As measured in pounds dressed weight, per capita harvests were 194 pounds in Chignik, 229 pounds in Chignik Lagoon, 283 pounds in Chignik Lake, 385 pounds in Egegik, 391 pounds in Perryville, and 445 pounds in Ivanof Bay. Salmon provided the largest percentage of the harvest of any resource category in every community except Egegik, where land mammals, mostly caribou, made up 64 percent of the total catch by weight. Land mammals were the second largest category in the Pacific drainage villages, while salmon was second ranked at Egegik. Resources removed from commercial harvests, either targeted species such as salmon or crab, or incidentally taken species such as flounder and octopus, composed a notable portion of the harvests for home use in all six villages, ranging from 39 percent of the edible weight of the harvest in Chignik Lagoon to 7.7 percent of Perryville's harvest. After this general overview, the report gives more detailed information on patterns of use of caribou, moose, brown bear, and salmon.

The final chapter discusses similarities and differences between the six study communities and identifies several factors shaping subsistence use of wild resources on the Alaska Peninsula in the 1980s. The chapter notes the relatively high level of harvests and the prominence of commercial catches as a source of wild foods for local use. It contrasts the dominant role of caribou in Egegik's harvest with the more diverse harvests of the Pacific side communities. Several environmental, economic, and social factors shaped these patterns. These included the presence of year round open water on the Pacific side and the variety of commercial fisheries in which each Pacific drainage community engaged. The final chapter also notes that involvement in commercial fishing has shaped the

values and life styles of Alaska Peninsula residents. For example, this involvement is a major organizing factor for the seasonal round of harvest activities. Acculturation, cultural changes brought about by exchange and borrowing of ideas and values from other cultures, has also been a factor in affecting household harvests on the Alaska Peninsula. Acculturation has been occurring since the arrival of the Russians, intermarriage with other cultural groups, and the beginning of the fur trade in the 18th century, followed by the development of the commercial fisheries and processors with the seasonal influxes of people they brought.

The report also discusses potential issues regarding the common practice in which study community residents incorporated seasonal residents into harvest activities. These seasonal residents often considered the villages "home" although they spent the majority of the year elsewhere, returning in the summer for commercial fishing. Participation in subsistence uses was an important aspect of "being home" for these people, but in some other areas of the state, only year-round local residents qualify for subsistence permits.

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CHAPTER 1

INTRODUCTION

This report describes patterns of wild resource harvest and use in six communities on the Alaska Peninsula, southwest Alaska (Fig. 1): Egegik (population 72 in 1984), Chignik (141), Chignik Lagoon (46), Chignik Lake (153), Perryville (107), and Ivanof Bay (38) (Table 1). The report is based upon research conducted by the Division of Subsistence, Alaska Department of Fish and Game, from 1982 through 1985. In addition to data on fishing, hunting, and gathering activities, it provides demographic, economic, and historical descriptions for each community.

These six communities were selected for several reasons. First, it was recognized that the six villages held in common a range of cultural, economic, and geographic traits. For example, the communities were small, isolated, had a large Native population, and were economically dependent on the commercial fishing industry. The second reason for examining all six places was that in addition to the shared characteristics it was suspected that significant differences existed between these communities.

Another primary concern was to document resource use by local residents living on both sides of the Alaska Peninsula. On Bristol Bay, the community of Egegik was selected because little subsistence research had previously been conducted there. On the Pacific Coast side, Merry Tuten had worked in the Chignik area (1974) as had others including Petterson, Palinkas, and Harris (1982) and Payne (1983). However, other than Tuten's work, these projects did not focus on the harvest and use of wild resources for home consumption, and their findings related to subsistence use were fairly generalized. Therefore, five Pacific drainage

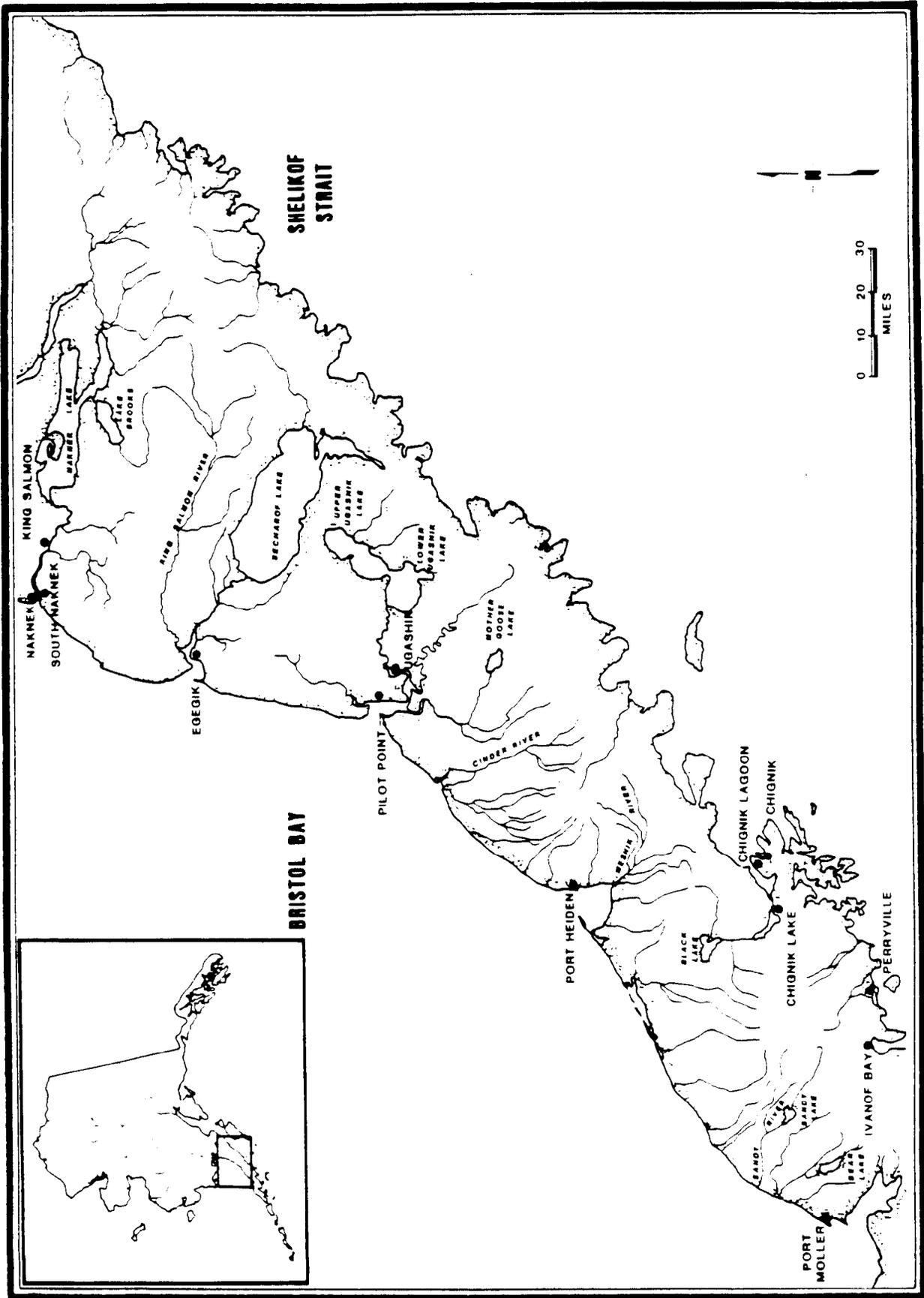


Figure 1. Map of Alaska Peninsula Showing Location of Study Communities.

TABLE 1. POPULATION HISTORY OF STUDY COMMUNITIES, 1880-1984.

<u>COMMUNITY</u>	<u>1880</u>	<u>1890</u>	<u>1900</u>	<u>1910</u>	<u>1920</u>	<u>1930</u>	<u>1940</u>	<u>1950</u>	<u>1960</u>	<u>1970</u>	<u>1980</u>	<u>1984</u>
Chignik (Chignik Village)								253	99	83	178	141
(Chignik Bay Village)		193		566				224				
Sutkoon	25											
Chignik Lagoon									58		48	46
Mitrofinia	22	49										
Chignik Lake									107	117	138	153
Katmai	218	132										
Kukak	37				85	93	92		93	94	111	107
Perryville												
Ivanof Bay							125	119	154	48	40	38
Egegik					83				150	148	75	72
Igagik	46											

Source: Recent figures ADF 1981, 1985; other figures from U.S. Census reports compiled in Rollins 1978.

communities (Chignik Lake, Chignik Lagoon, Chignik, Perryville, and Ivanof Bay) were included as they shared a number of economic and environmental characteristics yet retained distinct features as well. The desirability of establishing and maintaining a separate database on local resource use for each community was also a factor in the selection of these communities as sites for division research.

PURPOSE AND OBJECTIVES

The project had two primary goals. The first was to provide a description of fish and wildlife use in the mid-1980s by residents of the six Alaska Peninsula communities of Egegik, Chignik Lake, Chignik Lagoon, Chignik, Perryville, and Ivanof Bay. Second, the project sought to identify the causes of similarities and differences in fish and wildlife use patterns found among the communities.

Specifically, the following objectives were included in the research:

1. Descriptions of current patterns of resource use in the communities:
 - a. Seasonal rounds of harvest activities (timing and species) for the Bristol Bay drainage community of Egegik and the five Pacific drainage communities of Chignik Lake, Chignik Lagoon, Chignik, Perryville and Ivanof Bay;
 - b. Estimates of levels of household harvests of wild resources for each community for a 12 month study period in numbers of fish and animals and in pounds edible weight;
 - c. Estimates of levels of household participation in resource harvest activities for each community for a 12 month study period;

- d. Maps of resource harvest areas, by community, by species or resource group.
2. Data on current demographic and socioeconomic conditions in each community.
3. Descriptions of commercial fishing patterns for each drainage area (Bristol Bay and Pacific Ocean), including an evaluation of relationships between commercial fishing activities and natural resources used for home consumption. This included:
 - a. Documentation of the commercial fisheries in which members of each community participated;
 - b. Description of each fishery and relationship to community life;
 - c. Estimates of types and quantities of marine resources taken incidentally to commercial activities.

METHODOLOGY

Data collection methods included mapping of resource harvest areas, literature review, key respondent interviews, participant-observation, and systematic resource use surveys. All methodologies were designed to allow for the gathering of data on a household and community level, and also to retain individual household confidentiality. The research was conducted in several distinct phases (Table 2), which allowed the researchers to review data and formulate new research questions several times during the project.

TABLE 2. CHRONOLOGY OF DIVISION OF SUBSISTENCE RESEARCH IN SIX ALASKA PENINSULA STUDY COMMUNITIES

<u>Dates</u>	<u>Type of Research Method</u>
February 1982	Mapping of resource harvest areas of Egegik, Chignik, Chignik Lake, and Chignik Lagoon (Wright et al 1985).
March - July 1984	Key respondent interviews in Chignik Lake, Chignik Lagoon, Chignik, Egegik, and Perryville.
Feb. - March 1985	Resource use surveys in Egegik, Chignik Lake, Chignik Lagoon, Chignik, Perryville, and Ivanof Bay.
Oct. - Nov. 1985	Mapping of resource harvest areas of Perryville and Ivanof Bay.

Research was conducted by the Alaska Department of Fish and Game, Division of Subsistence staff. One permanent employee, a resource specialist, was stationed in King Salmon. Two seasonal Fish and Game technicians were hired to assist with the fieldwork. One was employed from March through June 1984. The second individual worked in February and March of 1985 and again in October and November of that year. In addition to ADF&G employees, a number of locally hired persons aided in compiling seasonal resource and socioeconomic data at the early stages of the project. These persons were paid with Bureau of Indian Affairs (BIA) funds administered through the Bristol Bay Native Association. These persons, located in Egegik, Chignik Lake, and Chignik Lagoon, were specially helpful in orientating the research staff to specific communities. Community visits related to this phase of the project began in early 1984. The final data gathering trip occurred in October 1985. Preliminary data analysis began in October and November 1985, and the written report was begun in 1986.

Mapping Methodologies

Areas used by residents in their hunting, fishing, and gathering activities, including travel to and from these activities, were documented for each of the six study communities. 1:250,000 maps were used to show areas used in harvesting resources by community members.

Mapping in Chignik, Chignik Lake, Chignik Lagoon, and Egegik occurred in February 1982 as a component of the Bristol Bay Area Plan (BBAP). The BBAP contains land use designations and management guidelines for state lands in southwest Alaska originally contained in the proposed Bristol Bay Cooperative Management Plan (BBCMP). The maps show use areas for a 20 year time period from 1962-1982. Details of the mapping methodology used during data collecting for the BBCMP can be found in Wright et al. 1985. A similar methodology was used in mapping resource use areas for Perryville and Ivanof Bay during October 1985. The time period for these maps is 1962-1984.

Literature Review

A literature review preceded the beginning of fieldwork. Little relating to the prehistory or recent history was found for any of the Chigniks or Egegik. Perryville, home of the descendants of the survivors of the Katmai eruption, had the most community history material available (Hussey 1971; Johnson 1968).

Written material, such as the community profiles by the Alaska Department of Community and Regional Affairs, Division of Community Planning (1982), Petterson, Palinkas, and Harris (1982), and Tuten (1978) provided a general introduction to the communities. Annual reports produced by the ADF&G, Division of Commercial Fisheries, furnished

information relating to finfish and shellfish resources and the commercial fishing industry (1982, 1983, 1984). The Alaska Department of Fish and Game Wildlife Notebook Series, Survey and Inventory reports (Division of Game, office files, King Salmon), and results of a study conducted by the Evergreen State College (1977), were among the sources used to provide an overview of the natural resources found on the peninsula.

Fieldwork associated with the BBCMP mapping project allowed the principal researcher to spend time in Egegik, Chignik, Chignik Lagoon, and Chignik Lake. This time and other community travel such as attending local fish and game advisory committee meetings, provided an opportunity to meet community members and facilitated logistical arrangements necessary to beginning the second phase of the project in 1984.

Key Respondent Interviews

During December 1983, the research staff contacted community leaders in Chignik Lake, Chignik Lagoon, and Chignik to describe the purpose of the project and formulate plans for beginning key respondent interviews. The interview sessions began in March 1984 when community representatives provided names of persons they felt would have information regarding types and timing of resource harvests for their village. Four to five local experts were interviewed in each of the communities except Ivanof Bay. Due to continual poor weather conditions no preliminary trips were made to Ivanof Bay. Subsequently, these key individuals were interviewed. Interview sessions were designed to elicit information about which wild plants and animals were used locally, the approximate time of harvesting activities, means and methods of harvest, transportation forms used, as well as the composition of resource processing and distribution groups.

The data were used to develop a composite seasonal round and species inventory for each community. Mid-March through mid-April 1984, was spent in Chignik Lake with day and overnight trips made to Chignik Bay, Chignik, and Perryville. Similar key respondent interviewing was conducted at Egegik in March and July of 1984, although there was no single extended community visit.

A second period of key respondent interviews occurred during the first two weeks of June 1984. At this time two researchers stayed at the commercial fishing camp used by Chignik Lake and Perryville residents at the cannery side of Chignik Lagoon. During this visit, subsistence fishing practices and other resource harvesting activities were documented.

Simultaneous to conducting key respondent interviews in March through July 1984, economic and demographic data for each community were gathered. These data were obtained through information provided by council administrators, seafood processors, and personnel from state agencies, as well as by community residents. Data were collected on various aspects the commercial fishing industry, including levels of participation, crew size and composition, targeted species, timing of runs, and marketing conditions.

Village and city council administrators identified occupied housing units. They also were able to supply corresponding demographic data. For unoccupied structures, these sources were generally able to identify when the household would return (ie. seasonal resident or year-round resident out for a short stay) and how the occupants were related to the community (through kinship, commercial fishing, etc.)

Structured Interviews

It became evident that two patterns of community residency existed in the study area: one during the commercial fishing season, approximately May through September, and one for the remainder of the year. In order to assess type and level of resource use by year-round community members, a structured interview instrument (Appendix A) was designed. Data were collected for the 1984 calendar year. A random sample of households from each community was selected. The sample included 75 percent of the total year-round households in each community (Table 3).

TABLE 3. SAMPLE SIZE, BY COMMUNITY, FOR SURVEY INSTRUMENT, 1985.

<u>Community</u>	<u>Total # of HH</u>	<u>Available # of HH*</u>	<u>Number of HH Sampled</u>	<u>Percent of Available HH</u>	<u>Date</u>
Egegik	42	33	25	76	2/85
Chignik Lake	31	31	23	74	2/85
Chignik Lagoon	22	22	17	77	2/85
Chignik	28	25	19	76	2/85
Perryville	27	26	20	77	3/85
Ivanof Bay	10	8	6	75	3/85
Total	160	145	110	76	

* Households were unavailable for a number of reasons, including being out of town throughout the interviewing period, illness, or occasionally, not wishing to participate in the project.

The survey instrument was designed to collect socio-economic data such as household composition, ethnic identification, and employment patterns, as well as natural resource information. In order to target on year-round residents, interviews took place in mid-winter. The success rate of finding household members in the community was high. Interviews in Chignik Bay, Chignik Lagoon, Chignik Lake, and Egegik were conducted in February of 1985. The Perryville and Ivanof Bay surveys were completed in March of the same year.

CHAPTER TWO

THE STUDY AREA

The Alaska Peninsula is a large land mass which runs approximately 475 miles southwest from Iliamna Lake to Unimak Island. Only the area utilized by the study communities, generally south of the Naknek and King Salmon area, will be described in the following section.

ENVIRONMENTAL SETTING

Physical Environment

The Aleutian Range, which runs the length of the Alaska Peninsula from Chakachamna Lake to Unimak Island, is a dominant influence on the Alaska Peninsula. It provides a natural barrier to weather systems, thus creating in two distinct climatic zones. Land forms and ice conditions on opposite sides of the range are dissimilar.

On the Pacific side of the peninsula, the Aleutian Range meets the water abruptly at the sea in rugged cliffs with a number of offshore rocks and islands. Several large bays and protected coves are found along the Pacific coastline created by peninsulas reaching out into the ocean. By contrast, on the Bering Sea side the Aleutian Range gradually slopes toward the Bristol Bay coastal plain. Numerous lakes and meandering streams dot the flat terrain.

The entire Alaska Peninsula is an area of considerable volcanic and tectonic activity. It is part of the "rim of fire" which surrounds the Pacific Basin. At least 14 volcanoes south of Katmai National Park have

been identified as active. The most recently active volcanoes in the immediate vicinity of the study communities are Veniaminof and Pavlof, both which erupted in the 1980s. Frequent seismic activity occurs along the Alaska Peninsula as a result of its proximity to the interface of the two continental plates.

Water Resources

Water, in a variety of forms, is a major feature on the Alaska Peninsula. Several large lakes and rivers, hundreds of streams, ponds and potholes, wetland areas, coastal bays, coves, lagoons, ports, tidal flats, and harbors are found throughout the area.

The most notable lake is Becharof, from which the Egegik River flows. It is the fourth largest lake in Alaska, covering an area of 290,000 acres. Other lakes of considerable size include Black Lake and Chignik Lake. On the Bering Sea side of the study area, the Egegik River and the King Salmon River (north of Egegik) are major streams. The Chignik River, draining out of Black Lake, and two rivers draining the snowfields of Mt. Veniaminof, Clarks (to the east) and Kametolook (to the south), are the three major river systems for the Pacific orientated study communities.

Climate

Egegik, on the Bering Sea side of the peninsula, is located in a climatic zone characterized as transitional between maritime and continental. The Bering Sea is a major factor in affecting local weather conditions; protracted cloud cover, fog, and drizzle are common conditions. Winter winds blow predominantly from the north and the summer winds blow

from the southeast. Both average about eight to ten miles per hour. April, May, and June tend to be the windiest months.

Data collected during 1942-1980 in King Salmon, which has conditions similar to Egegik, indicate average summer temperatures ranged from 42° to 63° Fahrenheit (National Oceanic & Atmospheric Administration 1980). Average winter temperatures ranged from -29° to 40° Fahrenheit. The highest recorded temperature was 88° Fahrenheit in 1953 and the lowest was -46° Fahrenheit in 1975. Precipitation averaged 19.62 inches annually.

The communities located on the Pacific side of the Aleutian Range tend to have more moderate temperatures, stronger winds, and heavier precipitation than does Egegik. The Aleutian Range acts as barrier to the prevailing moist winds off the Pacific Ocean from the south. Chignik, the only weather station among the Pacific side study communities, averaged 127 inches of annual precipitation with an annual snowfall of 58.5 inches (ADC&RA 1982). Average summer temperatures for Chignik ranged from 39° to 60° Fahrenheit. Winter temperature average from 21° to 50° Fahrenheit. The highest recorded temperature was 76° Fahrenheit and the lowest was 12° Fahrenheit. Wind speeds and low temperatures frequently led to a significantly lower "wind chill" factor than was evident in the temperature readings.

Official wind speeds are not available, but the U.S. Army Corps of Engineers estimated that in Chignik winds speed averages 10 miles per hour (ADC&RA 1982). Local residents indicated that winds generally blow from the north and northwest. In Chignik Lake spring and fall winds usually blow from the southeast. The prevailing winds in Ivanof Bay are said by residents to blow from the the southeast. Residents in all communities reported that winds often change direction quickly and in an unpredictable

manner. High winds are common along the coastal area and in the mountain passes.

Vegetation

The area encompassing the study communities includes portions of the Alaska Peninsula characterized by a lack of trees and spongy and/or hummocky ground, and dwarfed plants. Three types of vegetation: tundra, strand (beach), and high brush prevail. Differing from other Arctic tundra by a lack of permafrost, hardy vegetation such as lichen, lupines, crowberry, mosses, and sedges make up the tundra which is found extensively throughout most of the study area.

The tundra can be further subdivided into three plant communities: wet, moist, and alpine tundra. Wet tundra occurs on poorly drained organic soils on level terrain or open depressions; moist tundra is found in areas of greater relief and better drainage; and alpine tundra is found on exposed slopes and well-drained ridges. The alpine areas are comparatively arid and subject to high winds.

Strand (beach) and brush areas are more limited in their distribution. Along streambanks and on gentle lower slopes are found stands of willow, alder, cottonwoods, and birch. Herbs, grasses, ferns, and mosses comprise the understory in the bush community. The strand plant community is found along well drained coastal sand dunes. Beach rye grass and forbs characterize this vegetation zone.

Fauna

The Alaska Peninsula supports a wide range of animal resources, though population levels and times of abundance vary. Numerous marine

vertebrates and invertebrates are found along the coastlines and in the offshore waters, including halibut, herring, Pacific cod, pollock, crab (king, tanner, and dungeness), shrimp, and bivalves (cockles, razor and butter clams, blue mussels). Both sides of the peninsula provide habitat favorable to large populations of five salmon species (king, sockeye, pink, chum, coho). In the streams, rivers, and lakes are found aquatic species such as Dolly Varden, Arctic char, steelhead, and candlefish.

Among land mammals, the peninsula is most well-known for brown bear, caribou, and moose populations. Other terrestrial mammals present include, but are not limited to, wolverines, wolves, lynx, beaver, river otters, mink, weasels, foxes, porcupines, and Arctic hares. Marine mammals found in the peninsula coastal waters include harbor seals, sea lions, gray and belukha whales, walruses, and sea otters.

The peninsula provides abundant habitat for millions of birds, particularly pelagic birds, waterfowl, and shorebirds. Much of the waterfowl, such as dabbling ducks (ie. pintails, mallards, widgeons, teals, shovelers), diving ducks (ie. scoters, goldeneyes, eiders), and geese (ie. emperor, Canada, white-fronted, brant) use the peninsula as a staging area to and from their nesting grounds further north (ADF&G 1985). The warm ocean currents and ice-free waters encourage some waterfowl and shorebirds to winter along coasts and islands off the southern peninsula. Common upland birds include rock and willow ptarmigan.

REGIONAL HISTORY

Before the arrival of European explorers, the Alaska Peninsula south from Egegik was inhabited by Yupik Eskimos and Pacific Eskimos and Aleuts

(Dumond 1981). The Pacific Eskimos inhabited a large territory including Prince William Sound, Kodiak Island, and along the Pacific shore of the Alaska Peninsula (Fig. 2). The Pacific Eskimo area has been occupied for 6,000 years by maritime hunting cultures, called the North Pacific Maritime co-tradition (Workman 1980). According to Workman (1980: 60) the Chignik area appears to lie outside this tradition culturally as well as geographically. Ancestors of the modern communities of Perryville and Ivanof Bay who resided along the Shelikof Strait are included in the North Pacific Maritime co-tradition.

In the 1980s most residents of the study area referred to themselves as "Aleuts." This practice has a long history. The Russians, who began occupying the area during the late 1700s, referred to all the indigenous residents they encountered along the coast as "Aleuts." Furthermore, Russians actively resettled Natives from one area to another without regard for cultural or linguistic differences. This resettlement imposed by outsiders combined with internal shifting has led complex ethnic identification of Alaska Peninsula peoples.

Pacific Eskimos were maritime hunters who relied heavily on the products they obtained from marine mammals for food, oil, and clothing needs. They were extremely adept at using ocean going-craft, bidarkies and unimaks in their subsistence activities. They depended on the kamleika (raincoat) made from the intestines of whales, seals, sea lions, or bears to keep themselves dry and warm.

Egegik, located on the Bering Sea side of the peninsula, is located within the cultural sphere of the Central Yupik Eskimos. The Bering sea side of the peninsula seems to have been occupied by people who originally took advantage of the caribou resource (Dumond 1981) approximately 8,000

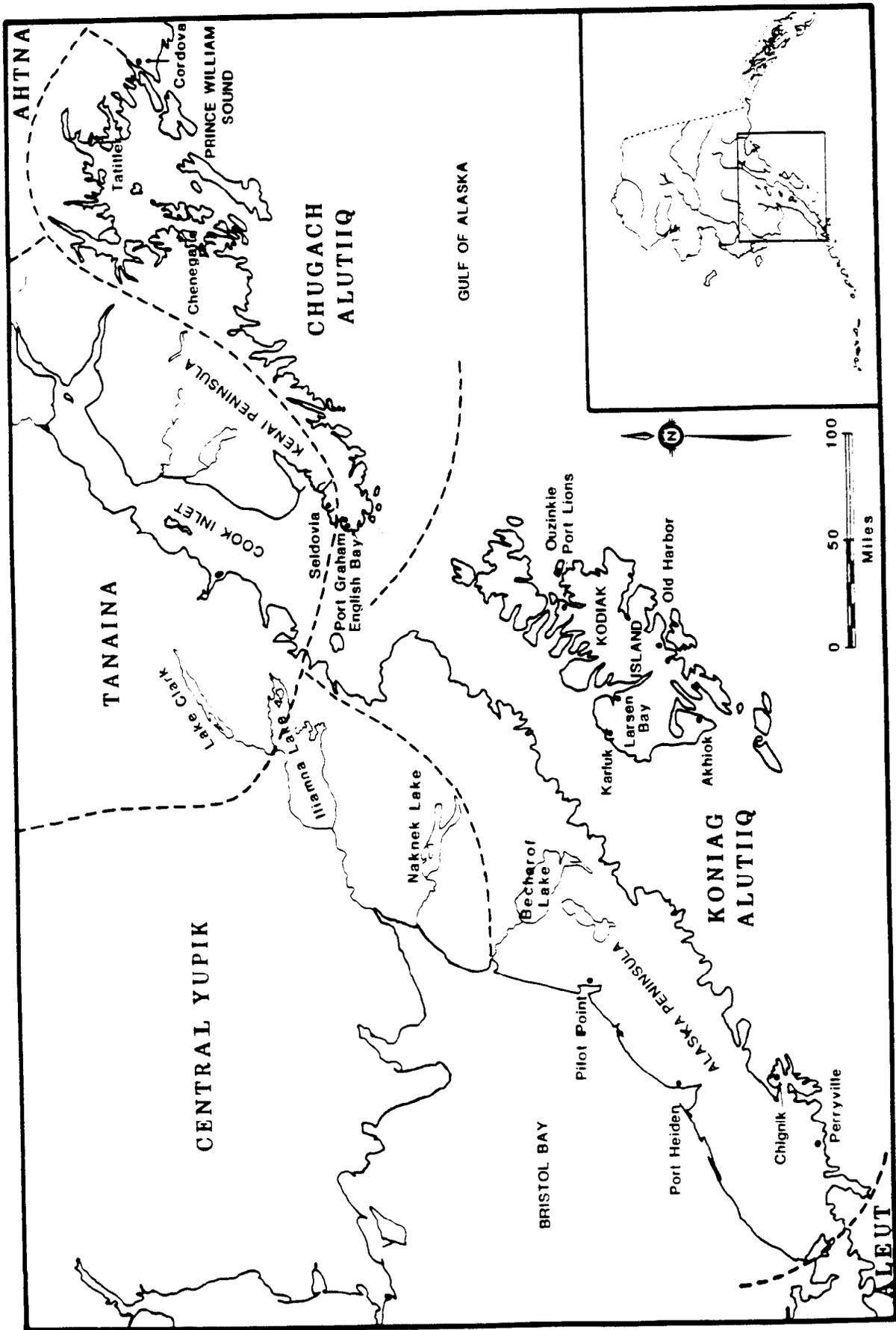


Figure 2. Languages of the Native Peoples of the Alaska Peninsula.

years ago. During the ensuing years these people widened their resource use patterns to include both salmon and other marine resources found on interior on the peninsula and across the Aleutian range on the Pacific coast. Using a series of established seasonal camps, these people followed a transhumance pattern of resource harvesting.

Captain Vitus Bering and Aleksei Chirikof were the first Europeans to set foot in Alaska in 1741. During the next three decades Russian exploration in Alaska was sporadic (Tuttle 1983) and much of the exploration and mapping was carried out by non-Russians such as Captain James Cook, Captain John Mears, and Captain Nathaniel Portlock.

The Russians gradually expanded their interest in Russia America in their search of a reliable supply of furs. In 1784 Gregorii Ivanvich Shelikov established a colony at Three Saints Bay on Kodiak Island. Operating from this location he quickly expanded his company's trade influence in southern Alaska. A series of trading posts was established including one at Katmai Village and at Sutwik Island.

In 1790 the first serious attempt to explore the Alaska Peninsula was undertaken when Dimitri Bocharov travelled up the Bering sea coastline as far as the Kvichak River. Exploration on Kodiak as well as on the Alaska Peninsula was limited to the coastline areas (Tuttle 1983). Throughout this period, the Russians used local Natives to harvest sea otters and whales.

The United States purchased Alaska from Russia in 1867. It was not until 1895, however, that Americans began exploring the area. In that year, George F. Becker and William H. Dall, U.S.G.S. geologists, conducted a survey of the southern coast of the Alaska Peninsula from Cape Douglas to

Unalaska Island. Stops along way included Katmai, Mitrofanina, Cold Bay (Puale Bay), Chignik Bay, and the Chignik River.

For years Natives had used trails for travel on the Alaska Peninsula. In 1903 Alfred G. Maddren described a number of important portages located on the general vicinity of the study area. These included: the Chignik Lake-Black Lake "Bidarka Portage" which provided transit from villages in the Chignik Bay area to the Bering Sea village of Unangashik which is now abandoned; a portage from Kujulik Bay to Meshik River; the Aniakchak Bay-Meshik River; the Wide Bay-Dog Salmon River route; several portages connecting Wide Bay to the Ugashik Lakes; the Kanatak-Egegik portage; Puale Bay-Becharof Lake route; and the Katmai Portage (Tuttle 1983). The established portages continued to be used by newcomers coming into the area for transporting mail, and traveling to the commercial salmon fisheries located on the Bering Sea coast and the gold mines in Nome.

When the American government assumed control of Alaska in 1867, commercial activities continued along the same lines as those established by the Russians, such as whaling and harvesting sea otter pelts. By 1911, the sea otter had been hunted almost to extinction and the hunting of them was prohibited. In the Kodiak region whaling supplied most of the oil produced by the American whaling fleet between 1835 and 1869.

Beginning in the 1880s, salmon fishing became the most important commercial resource harvesting industry in the study area, a role which has continued into the 1980s. Commercial fisheries developed on the both sides of the peninsula at approximately the same time. 1888 marked the beginning of the industry in Chignik Bay when the Fishermen's Packing Company of Astoria, Oregon packed 2,160 barrels of salted salmon. In 1889 the company built a cannery in Chignik Lagoon. The following year two more

canneries were established and in 1893 the three companies joined the Alaska Packer's Association. In Egegik, the Alaska Packer's Association established a salmon saltery in 1895.

The Alaska Peninsula was one of the first areas in Alaska to be explored for petroleum. In the summer of 1903 oil drilling began near Puale Bay. When no oil in commercial quantities was found the drilling ceased. The enactment of the Mineral Leasing Act in 1920 rekindled interest in the Puale Bay-Becharof Lake area. Numerous oil claims were found in the Aniakchak River valley and near Black Lake in the Chignik River watershed. An example of the impact of the oil industry was Kanatak (Fig.1), a small Native village which first appeared on a Russian map in 1849. During the oil boom of the 1920s it grew to a town with a population of nearly 200 people. With the decline of oil activities the community was all but abandoned in the 1950s.

Life has continued to change for peninsula residents. Table 4 outlines some important dates in the area's past. The Alaska National Interest Lands Claim Act (ANILCA) Of 1980 changed land status for much of the Alaska Peninsula. Katmai National Park and Preserve, Aniakchak National Monument and Preserve, Becharof National Wildlife Refuge, and the Alaska Peninsula Wildlife Refuge were either increased in size or established during this period. Through all the changes, subsistence fishing, hunting, and gathering activities have continued in importance for Alaska Peninsula residents.

TABLE 4. SIGNIFICANT HISTORICAL EVENTS, ALASKA PENINSULA

1741	Vitus Bering and Aleksei Chirikof land in Alaska.
1778	Captain James Cook leads first European exploration of Bristol Bay.
1804	Russian-American Company establishes trading posts at Katmai Village and Sutwik Island.
1867	The United States purchases Alaska from Russia.
1888	Salmon saltery established at Chignik Bay.
1895	Salmon saltery established at Egegik.
1903	Oil drilling begins at Puale Bay.
1912	Novarupta erupts forcing the residents of the villages of Katmai and Douglas to relocate. They establish a new village at Perryville.
1918	Katmai National Monument is established.
1918-19	An influenza epidemic severely reduces the Native population. Egegik moves to south side of the Egegik river. Other villages abandoned.
1922	Oil drilling begins again in Puale Bay. Kanatak becomes a boom town.
1923	A Russian Orthodox church is built at Perryville using ikons from Katmai and Douglas.
1940-45	A scarcity of labor caused by the Second World War results in more opportunities for participation in the commercial fisheries for local residents.
1949	School teachers establish Slavic Gospel Mission in Chignik.
1950	Perryville organizes under IRA charter.
1959	Alaska becomes the 49th state. Fish traps become illegal.
1950s-60s	The community of Chignik Lake begins as residents remain year-round at a seasonal trapping camp.
1965	Families from Perryville establish new village at Ivanof Bay.
1971	Alaska Native Claims Settlement Act: Bristol Bay Native Corporation formed.

TABLE 4. (continued) SIGNIFICANT HISTORICAL EVENTS, ALASKA PENINSULA

1975	Limited entry to Alaska's commercial salmon fishery is established.
1978	Secretary of Interior invokes emergency withdrawal powers and withdraws 110 million acres of land throughout Alaska including 4.3 million acres for the Alaska Peninsula Wildlife Refuge; 1.2 million acres for Becharof Wildlife Refuge; 350,000 acres for Aniakchak National Monument and expands Katmai National Monument by 1,370,000 acres.
1980	Alaska National Interest Lands Conservation Act; Alaska Peninsula and Becharof Wildlife Refuges, designated, Katmai National Monument redesignated as Katmai National Park and Preserve, and Aniakchak National Monument and Preserve increased by 164,000 acres and rural subsistence hunting and fishing established as the priority use of fish and wildlife resources on federal lands.
1984	Bristol Bay Area Plan adopted by the state, with a primary goal being the protection of the salmon resource.

COMMUNITY PROFILES

The six study communities are located on the Alaska Peninsula (Fig.1). Egegik is situated 42 miles south of King Salmon on the Bering Sea side of the peninsula. The remaining communities, Chignik Lake, Chignik Lagoon, Chignik, Perryville, and Ivanof Bay, are located on the Pacific coast, approximately 200 miles south of King Salmon. The following descriptions pertain to the communities for the period of 1983 to 1985. A detailed discussion of commercial fishing, not included in the community profiles, is found in following section.

Egegik

Location

The year-round community of Egegik is located along the southern shore of the Egegik River where it empties into Bristol Bay. During the study period, transportation to and from Egegik was primarily by single or twin engine fixed-winged aircraft. The nearest available jet transportation was provided in King Salmon. During ice-free conditions, ocean-going vessels had access to the community but there was not a deep sea harbor. No roads connected Egegik with any other community.

Community History

Linguistically, Egegik was the southernmost village in the Yupik-speaking Eskimo area (Dumond 1981). Though specific documentation is lacking, it appears that the general Egegik area was used as a Native fish camp for many years. A salmon saltery, established in 1895, and the

canneries which soon followed, set the tone for the contemporary community. The early processors attracted persons from the lower 48 states as well as local Native people to the area as fishermen and cannery workers. A portage between Becharof Lake and the Eskimo village of Kanatak provided relatively easy access to the Egegik fishing grounds for persons living on the Pacific coast.

Local sources reported that the contemporary village has moved from previous locations. One site mentioned was a bend along the shoreline between the modern village and the Goose Point spit. Other residents said their ancestors moved from the north side of the Egegik River to the present southside location during the 1918-19 flu epidemic in an attempt to isolate themselves from the disease. Reminders of the Russian fur trade and missionary effort, the commercial salmon industry, reindeer herders, as well as the indigenous population were reflected in the mixture of Russian, Scandinavian, Finnish, and Native surnames of Egegik residents in the mid-1980s.

Demography

The first census taken after the American purchase of Alaska (Petroff 1880) recorded 46 people in Igagik (sic). Table 1 presents historic census figures. The largest Egegik population recorded in census data was 150 residents in 1960. Since then the population has declined to approximately 75 persons (Table 5). A lack of year-round employment and opportunities for secondary education were said by some local residents to be major factors in the downward trend.

Located on the banks of a productive salmon river, the year-round community of Egegik experienced a substantial population increase during

TABLE 5. DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLED COMMUNITIES, ALASKA PENINSULA

COMMUNITY	1984 SURVEY			1980 CENSUS				
	# OF HH SURVEYED	POP. OF SURVEYED HH	AVERAGE HH SIZE	PERCENT ALASKA NATIVE	PERCENT BORN ALASKA	PERCENT BORN AK. PEN	# OF HH POP.	PERCENT ALASKA NATIVE
ECEGIK	25	58	2.32	78	88	74	32	75
CHIGNIK LAKE	23	116	5.04	99	99	86	38	138
CHIGNIK LAGOON	17	57	3.35	75	84	77	14	48
CHIGNIK	19	82	4.32	88	90	84	47	178
PERRYVILLE	20	85	4.25	100	99	95	31	111
IVANOF BAY	6	22	3.67	100	100	86	9	40

Source: U.S. Bureau of the Census 1980.

the commercial fishing season. From late April or early May as many as 1,000 persons from outside the Bristol Bay area, both fishermen and processors, arrived in Egegik (Nebesky et al. 1983). The majority of the outsiders left in early August. Many of the year-round families have kinship members associated with the fishery who returned "home." They stayed in separate housing units or shared a house with a relative. Non-kinship related persons lived on their boats, in fishing cabins, or in cannery quarters. Most of the processing personnel resided at company quarters.

An unofficial count during the winter of 1984-85 listed 80 persons in 35 households living in Egegik. Additionally, six individuals resided in the community but had no regularly fixed homes. Rather, these individuals shared homes with others or "housesat" for persons traveling out of the community. Among the surveyed households the average size was 2.3 persons, which was slightly higher than the total community average of 2.2.

Among the sample, 59 percent were males and 41 percent females (Fig. 3). Divided into ten year increments, the largest percentage (37.9 percent or 22 persons) of people were between ages 21 to 30 years. Among this group, males outnumbered females 14 to 8. Seventy-nine percent of the sample population was 40 years old or younger. The median age of males in Egegik was 28 years old and for females it was 25 year old.

Over 75 percent of the population sample was Native (Table 5). Eighty-eight percent of the group reported that at the time of their birth their mothers resided in Alaska. For 74 percent of these women the home of record at the time of giving birth was the Alaska Peninsula.

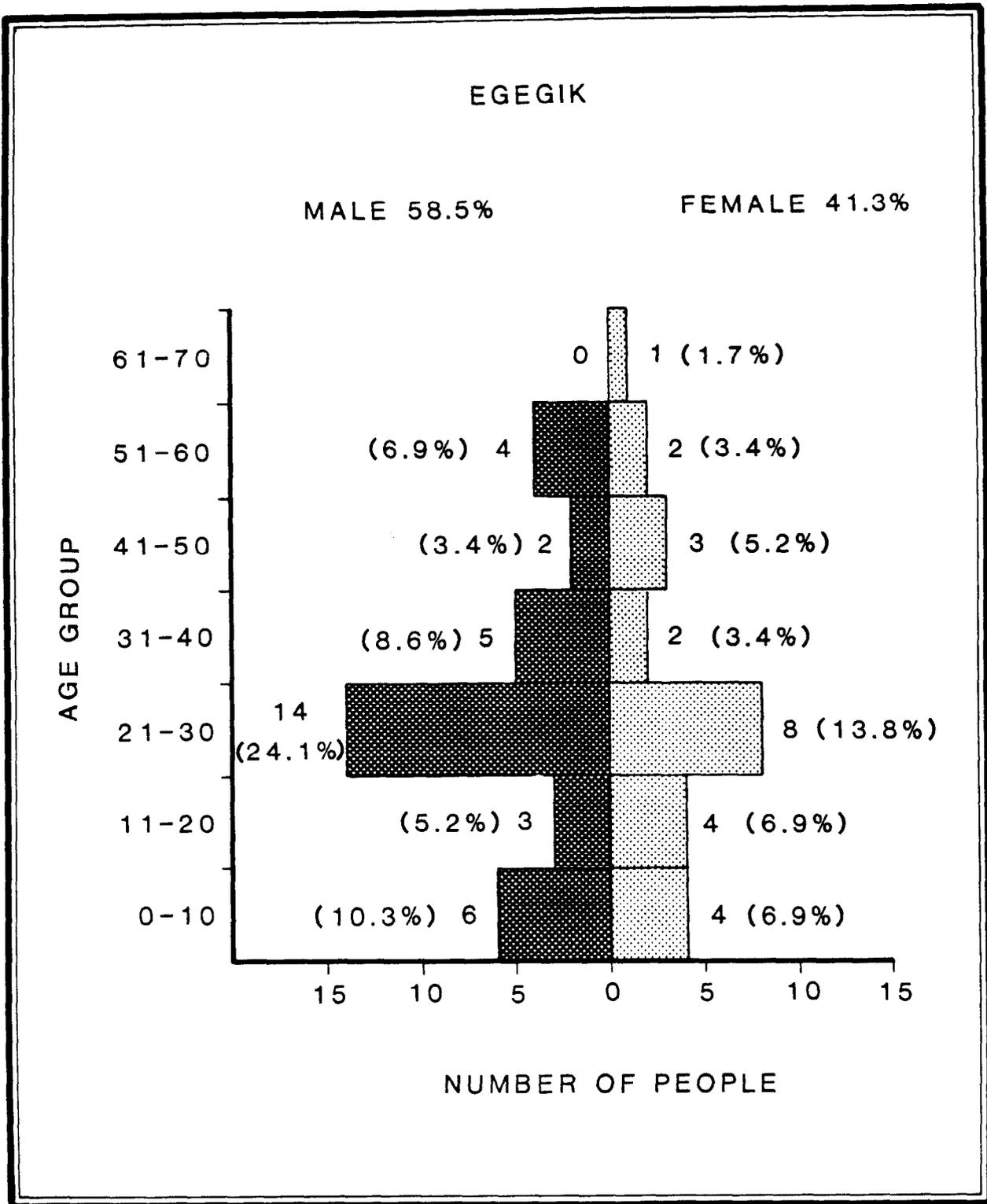


Figure 3. Age and Sex Structure for Sampled Egegik Households, N=25, in 1985.

Government, Services and Facilities

An unincorporated community, Egegik was represented by a traditional village council and a non-profit corporation, the Egegik Improvement Corporation. Both organizations were served by the same elected president and five-member council. Between these bodies, local political needs were met. Most Egegik residents also belonged to the Becharof Corporation, the local Native profit corporation.

Community services included an elementary school, health clinic, VPSO (Village Public Service Officer), and fire protection. The elementary school, consisting of a single teacher and a two classroom building, was operated by Lake and Peninsula School District out of King Salmon. The health clinic was operated by the Bristol Bay Area Health Corporation (BBAHC) with funding from the Alaska Area Native Health Service. A health aide ran the village-owned clinic. Russian Orthodox and Baptist churches were established in Egegik, but services were infrequent.

Transportation and communication needs were met by air taxi operators based in King Salmon or Naknek. Local dispatchers were hired by air taxi services during the summer months. Private telephones became available in 1984. Television and radio were received by Egegik residents. Mail was delivered to the local post office six times a week.

Other facilities included an electrical generating system and two dry goods stores. The electrical company was locally owned and operated, as was one store. The second store was part of a larger cannery operation. A liquor store was locally owned and operated. One land-based cannery operated during the 1984 commercial salmon season. Occasionally additional commercial enterprises, such as a sandwich shop, were available during the summer months.

Chignik Lake

Location

On the banks of the lake bearing the same name, Chignik Lake is located 265 southwest of Kodiak or 565 air miles from Anchorage via King Salmon. For travel outside the village, residents used skiffs and fixed-winged aircraft. Jet service was available in King Salmon and ferry service in Chignik.

Community History

The history of the community of Chignik Lake is linked to a woman born in 1903 at Bear River on the Bristol Bay side of the peninsula. Her parents were from Ugashik and Kodiak and she was raised at Old Village, on the far northeast side of Chignik Lagoon. During winters the family moved to Chignik Lake where food was more readily available and fur trapping more productive. After her marriage she continued to winter at Chignik Lake, using cabins both on Clarks River and Chignik Lake. Seventeen offspring were produced by this individual, many who have remained in Chignik Lake with their families (personal communication Dora Andre 1984).

A school was built by local residents at Chignik Lake in the early 1960s (personal communication Doris Lind, 1984). Once established the school served as a drawing card for families living in other peninsula areas, particularly from Old Village at Chignik Lagoon, Kanatak, Ilnik, and Port Moller. Before the school, younger children went to school in Pilot Point or Port Heiden and high school age children went to Kodiak or one of the Bureau of Indian (BIA) boarding schools.

Relocation, inter-marriage commencing with the arrival of Europeans, the seasonal migrations to locations for commercial fishing and schooling, and the recent in-migration of families into Chignik Lake have resulted in the mixed ethnicity of present-day residents. Chignik Lake residents contacted in 1985 had originally come from Ilnik, Perryville, Akutan, Sleetmute, the lower 48 states, Aleknagik, Kanatak, Port Moller, Chignik Bay, and Chignik Lagoon as well as Chignik Lake. Most Alaska Natives in Chignik Lake classified themselves as Aleut.

Chignik Lake fishermen participated in the Chignik salmon fishery. Unlike the communities of Chignik Bay, Chignik Lagoon, or Egegik, Chignik Lake did not receive an influx of outsiders during the commercial fishing season. Rather, many residents themselves moved to the eastern shore of Chignik Lagoon where they maintained summer residences. The annual move occurred in mid-May and families returned to Chignik Lake in August as the new school year approached.

Demography

The first census to include Chignik Lake was in 1960. As Table 1 illustrates the number of residents has been relatively stable. At the onset of the study period in March 1984, 29 households were identified. The total population was 140, 4.8 persons per household.

Among the sample population in 1985 were 23 households and 116 persons. Sixty three persons (54 percent) were male (Fig. 4). This percentage correlated closely with an unofficial total community profile which listed 77 males, or 55 percent of the population total (fieldnotes King Salmon Office: 1984).

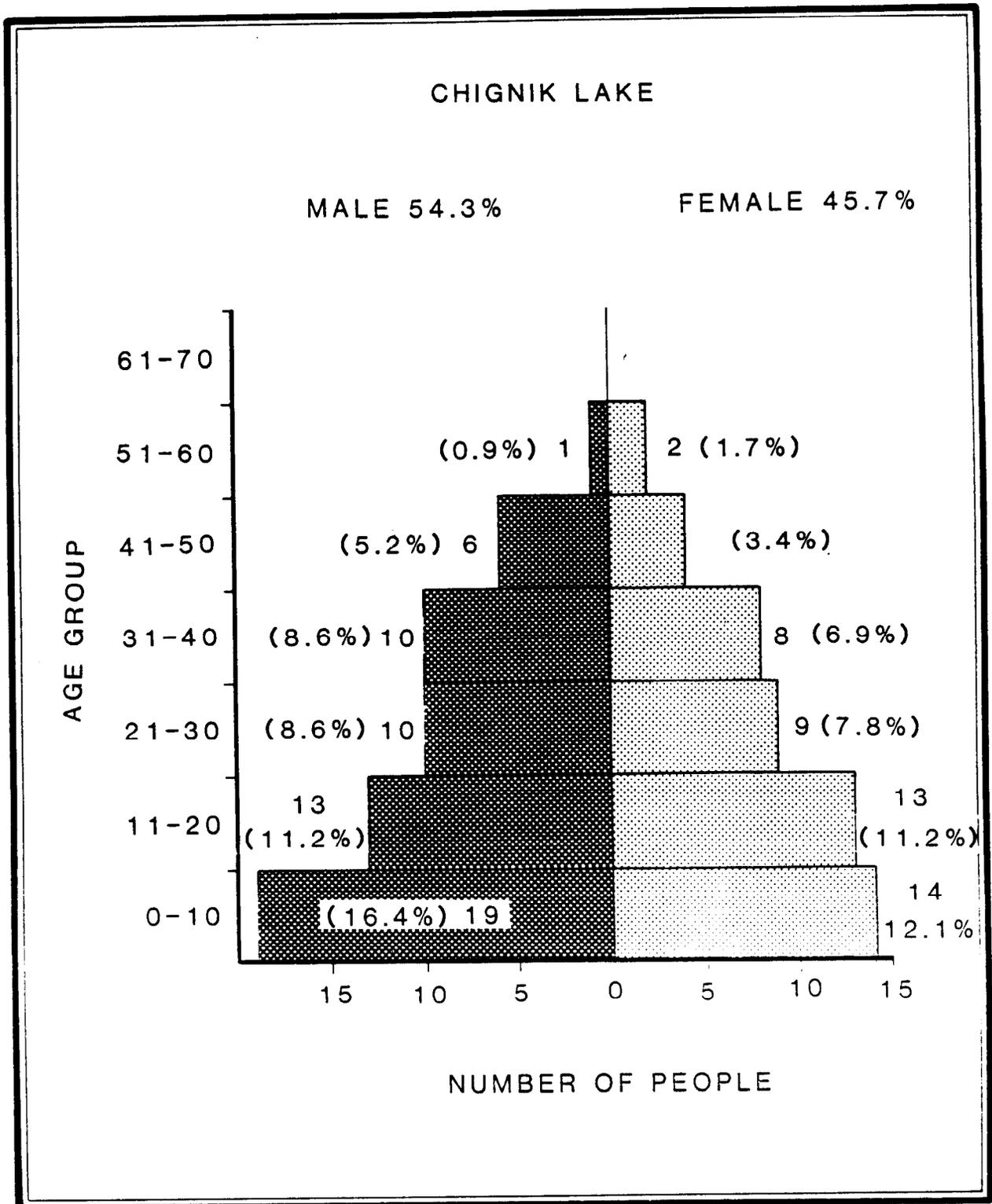


Figure 4. Age and Sex Structure for Sampled Chignik Lake Households, N=23, in 1985.

Just over 50 percent (50.8) of the sample population was under 21 years of age and 17.3 percent of the group was 41 years of age or older. Close to 30 percent (31.9) of the population fell within the 21-40 age group. The median age for both males and females was 20 years.

Natives made up 99 percent of the sample population (Table 5). Eighty-six percent of those surveyed reported that their mother's residence at parturition was the Alaska Peninsula. Only one person reported that his mother lived outside of Alaska at the time of his birth.

Government, Services, and Facilities

Local governmental needs were met by the Chignik Lake Village council which was composed of five members. An administrative clerk was hired by the council to handle business matters, including writing grant applications. The village Native corporation was Chignik River, Limited. In the mid-1980s it had become actively involved in controlling access to corporation lands. Steps taken to ensure control included charging guides and hunters a fee for using corporation land (personal communication Johnny Lind 1986).

Community services were provided in a number of ways. Lake and Peninsula School District, based in King Salmon, operated the local school. In 1984-1985, classes were held for pre-school through high school age students. The complex included a gym, library, classrooms, workshop, and teachers' quarters. Local health needs were provided through a clinic operated by BBAHC with funding from the Alaska Area Native Health Service. There was one health aide and one alternate. Chignik Lake residents, overwhelmingly Russian Orthodox, actively supported a church and priest. The runway was monitored by an Department of Transportation (DOT) employee.

A contract post office (CPO) provided mail service. Mail delivery was scheduled twice weekly.

Privately owned generators provided electricity to Chignik Lake homes. Most households had televisions and telephones. Wells and septic tanks were individually owned. A family run store provided pop, candy, and other assorted items. Residents tended to obtain supplies from the Columbia Wards Fishery (CWF) cannery store at Chignik Lagoon approximately 12 miles down river.

Chignik Lagoon

Location

Hugging the southwest shore of a lagoon flowing into Chignik Bay, Chignik Lagoon village is five-and one-half miles west of the community of Chignik and 13 miles down river from Chignik Lake. The runway, which intersected the community, was used by fixed-winged aircraft. Commercial air traffic was primarily out of King Salmon or Port Heiden. Fishing boats and skiffs made year-round use of open water conditions, Kodiak being the most frequent port of call out of the Alaska Peninsula area. The road system consisted of one to two miles in the community itself.

Community History

Chignik Lagoon's history is not well documented. Only two census figures were available for Chignik Lagoon, 1960 and 1980 (Table 5). The community's past is traced to European and Russian-Aleut ancestors, many of whom immigrated to the area in the 1900s (Davis 1986:69). It is known that

an early Native settlement, Old Village, was located on the northeastern shore of the lagoon (ibid.). It may have been a seasonal fish camp which grew into a year-round settlement with the arrival of the salmon industry in 1889.

Two other settlements in the general vicinity may have been significant in the history of Chignik Lagoon. Mitrofanina, a village of sea otter hunters located between Chignik and Kuiukta Bays, was reportedly founded in 1880 by a Russian and populated with people from Kodiak (Tuten 1977). A second village mentioned in early literature was Sutkhood or Sutkhum, located on Sutwik Island (ibid). Both sites were locations of small trading stores in the late 1800s (ibid.). For persons adept with using bidarkies, travel to and from the island to the mainland would have been fairly easy. Davis (1986:69) states that in the past some people moved from Mitrofanina to Chignik Lagoon.

The contemporary community stems from the intermarriage between local Native women and European men mainly coming into the area in conjunction with the commercial fishing industry. In addition to fishing, many of the local families were involved with commercial fur farming. Families lived on islands or bays, such as Nachemak, during part of the year on fur farms and moved to the lagoon for the fishing season.

Demography

In March of 1985, 22 households were occupied by a total of 76 persons. A large disparity existed between the summer and winter populations of Chignik Lagoon, reflecting the presence of an extensive dual residency pattern. Persons and families who returned to the community during the summer were generally directly involved with fishing activities.

Cannery and processing personnel did not live in the community of Chignik Lagoon, but on the CWF side of the lagoon or on floating processors.

Chignik Lagoon was a center of commercial fishing activities and 36 additional dwellings were identified as belonging to commercial fishermen and their families who spent anywhere from three to six months in the community. Twenty-four of these seasonal households were identified as belonging to persons related by kinship to one another other or to one of the year-round households. Many of the seasonal households had at one point lived full-time in Chignik Lagoon. Seattle, Kodiak City, and Anchorage were the most common winter addresses for the seasonal residents. A census was not conducted during fishing season, but it was estimated that the March population would be doubled or tripled in June (Personal Communication Marlene Worcester 1984).

Among the 1985 survey population, average household size was 3.4 persons. The number males and females was almost identical, 28 and 29 respectively. Age groupings in ten year categories showed that two categories accounted for over 50 percent of the population (Fig. 5). Persons ten years of age and under accounted for 28 percent of the surveyed group and those between the ages of 31 and 40, 25 percent. Only one adult between the ages of 41 thru 50 was included in the sample population, but a relatively large percent, 12 (seven persons), was more than 60 years of age. Median ages were 25 years for males and 30 years for females.

Alaska Natives constituted three quarters of the survey group. This correlated with the mother's place of residency at parturition. Seventy-seven percent of these mothers resided on the Alaska Peninsula, 7 percent in other parts of Alaska, and 16 percent outside of Alaska.

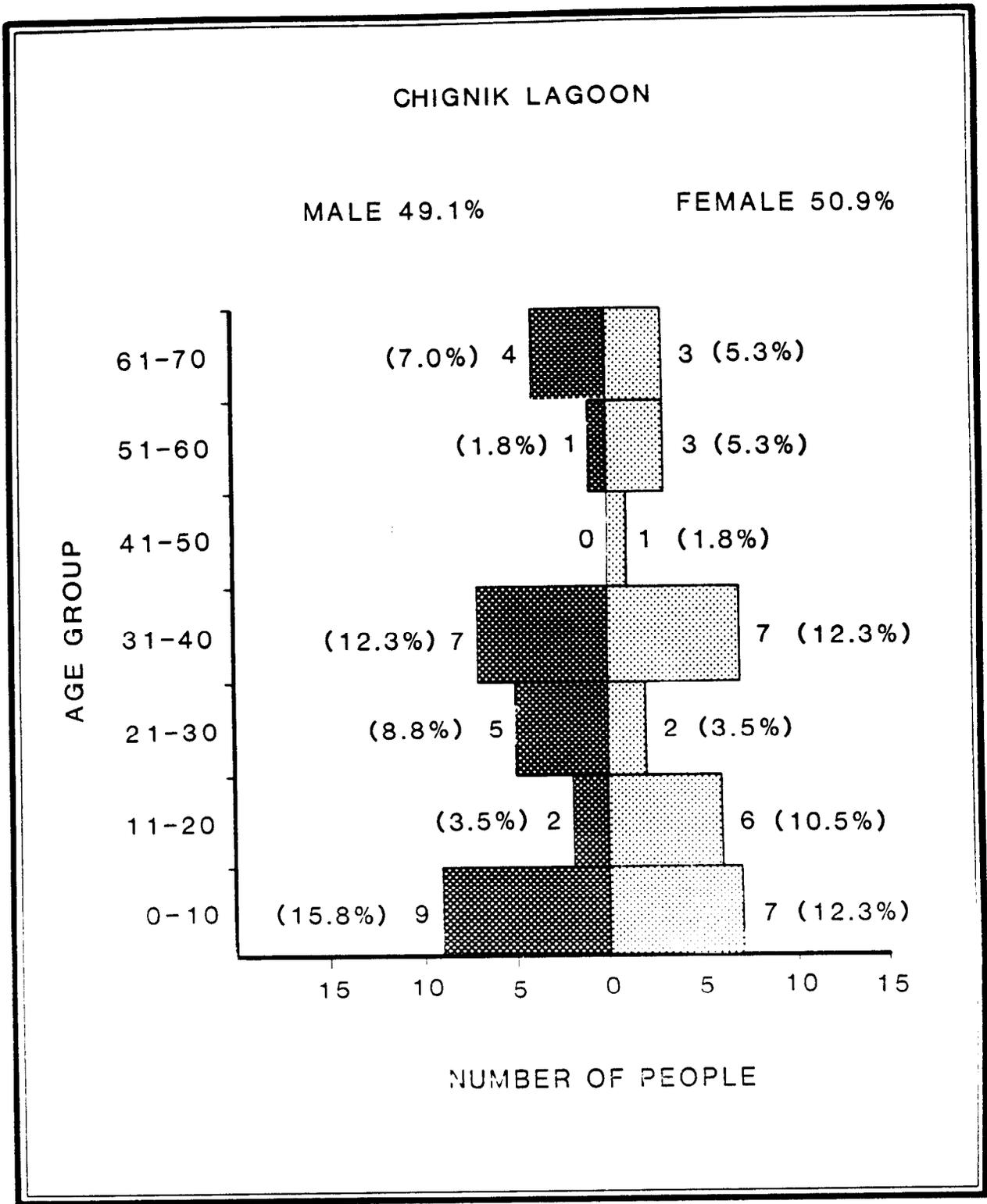


Figure 5. Age and Sex Structure for Sampled Chignik Lagoon Households, N=17, in 1985.

Government, Services, and Facilities

Local government in Chignik Lagoon consisted of a village council made up of seven members who were elected annually. The council also served as the traditional council representing the community's Native population. The council had a secretary and a grant writer and occasionally hired local residents to perform miscellaneous jobs. The local village corporation board consisted of four persons, but was not noticeably active during the course of the project.

Chignik Lagoon was included in the Lake and Peninsula School District. The school enrollment averaged 25 students in the fall months (39 in 1984) and 15 in the winter months. Normally the school has one teacher, though in 1984-85 there were two. The school was equipped with two classrooms and one teacher's apartment. A health clinic was operated by BBAHC with funding from the Alaska Area Native Health Service. A local health aide and alternate took care of daily health needs.

Mail was delivered twice weekly to a contract post office. No docking facilities were available; fishing boats and skiffs were anchored on the sandy flats during the fishing season and stored on the beach during the winter. Barge service was available once a year with supplies lightered ashore. Individual homes received television and radio broadcasts. Heating, electricity, water, and sewage were handled by individual homeowners.

Several small businesses were operated by Chignik Lagoon residents. These included a yarn shop, flower shop and greenhouse, a tackle shop, and a restaurant during the summer months. Food and dry goods were available from the store on the CWF side of the lagoon.

Chignik

Location

Located in Anchorage Bay, Chignik was accessible by air and sea. Among the study communities it had the most reliable and frequent marine service with both barges and ferries. Fixed-winged aircraft provided air transportation in the immediate area as well as to Kodiak, Sand Point, and King Salmon where jet transportation was available. A road system provided access to the airfield and scattered residential areas.

Community History

In the general vicinity of the contemporary setting of Chignik, the Native settlement of Kaluiak was mentioned by Petroff in 1880 but not listed again (Tuten 1977). A saltery was established at Chignik Bay in 1888, and in the 1890 census Chignik Bay village was listed with a population of 193. According to sources quoted by Davis (1986:89), two Native villages (previously noted in the Chignik Lagoon section) were found in the local area during the late 1800s, and additionally the commercial fishing industry brought a number of outsiders to the Chignik area.

Over the years, a number of Scandinavian, Italian, and other foreign fishermen as well as Chinese, Mongolian, Hawaiian, and Filipino cannery workers who originally came to Chignik as part of the salmon industry remained and established families. The pattern of inter-marrying has continued throughout the years and in the 1980s the community continued to be populated by members of a number of ethnic groups.

U.S. Census figures indicate that Chignik was a substantial community by the turn of the twentieth century (Table 1). The population declined

dramatically between 1950 and 1960. Although documented evidence was not available, this was apparently a period during which families became committed to a dual residency pattern. Many Chignik residents maintained two houses, one on the fishing grounds in Chignik and another, usually in Kodiak, nearer schools and more diversified wage-earning opportunities (personal communication Nina Anderson 1984). The pattern began to reverse itself in the 1970s when a number of families were looking for an alternative lifestyle to that found in more densely populated areas.

Demography

Chignik, as a center of commercial salmon fishing and processing activities, experienced an influx of outsiders during the fishing season. A population census compiled by the city of Chignik in November of 1983 indicated there were 37 occupied housing units (124 people) and 25 vacant units. The majority of the vacant units were occupied during the commercial fishing season.

Three categories of summer residents resided in Chignik. One group, including entire family units, returned on a regular basis and were associated with fishing activities, had kinship ties with local households and with one another, and maintained permanent homes in Chignik. A second group of summer residents was from Perryville and Ivanof Bay. This group maintained permanent residencies adjacent to one another near the airfield somewhat removed from the community center. A third seasonal group was composed of individuals associated with the processors. These individuals lived in bunkhouses and few had longterm ties with the Chignik community. The management staff was housed in quarters separate from the line workers. In the early 1980s, it was estimated that between 600 to 700

people moved to Chignik during the commercial fishing season (Nebesky, et al. 1983).

In February 1985, 25 households were occupied at Chignik. Among the sample population (19 households) the average household size was 4.3 persons. The age and sex of one person was missing. Of the remaining 81 persons, 48 percent, or 39 respondents, were male and 52 percent were female (Fig. 6). Two-thirds of the survey population was 30 years of age or younger. Children ten years old and younger comprised the largest percentage, 28, of the sampled population. Two ten-year age groupings with the smallest representation were those between the ages of 41 and 50 and 61 through 70. Median age for males was 25 years and 21.5 years for females.

Eighty-eight percent of the survey population was Alaskan Native (Table 5). Eight persons (10 percent) reported that their mothers were residing outside Alaska at the time of giving birth. Eighty-four percent of the mothers considered the Alaska Peninsula home at the time of parturition.

Government, Services, and Facilities

Chignik was incorporated as second class city in 1983 and became eligible for half the revenues received by the state as fish tax. This was estimated to provide the city \$250,000 to \$300,000 annually. A manager and clerk were hired by the seven member city council. A five member traditional council represented Chignik's Native population. The local village corporation was Far West, Inc.

As a second-class city, Chignik assumed a variety of powers. Since 1983, a new firehouse and community hall have been constructed and a fire truck and ambulance purchased. A water and sewer project has also been

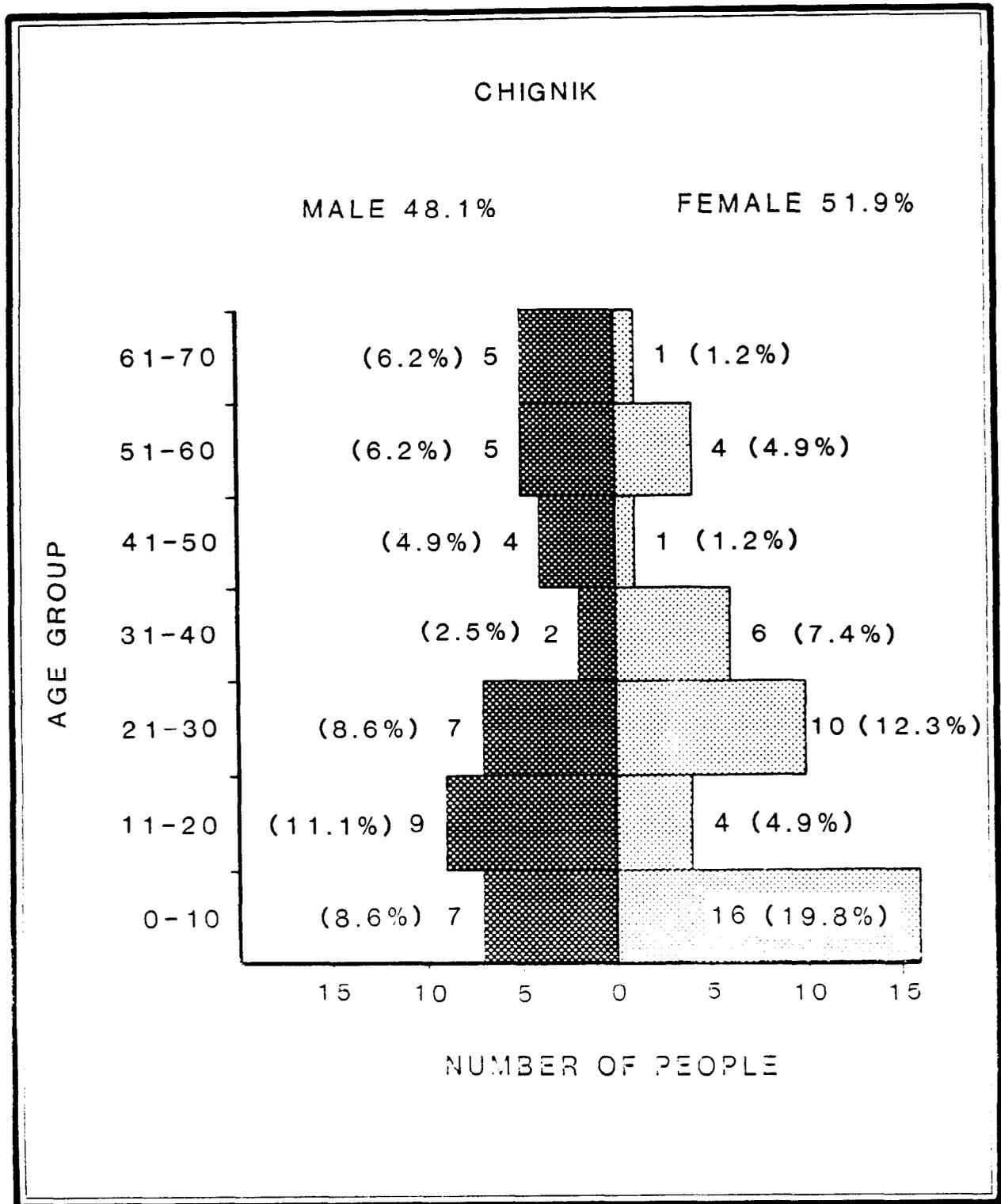


Figure 6. Age and Sex Structure for Sampled Chignik Households, N=19, in 1985.

completed. The city also constructed a new health clinic, staffed with a physician's assistant, and an emergency shelter. The city provided electrical power which was maintained by a full-time generator operator.

Other services found in Chignik included a Village Public Safety Officer (VPSO) funded by the Bristol Bay Native Association. The BBAHC, with funds provided through the Alaska Area Native Health Service, operated the village health clinic. One health aide and alternate were employed. The post office received mail from King Salmon three times a week. Private telephone service was available and radio and television were received. Lake and Peninsula School District, headquartered in King Salmon, operated the local school. The physical structures included a gym, four classrooms, a shop, teachers' quarters, kitchen, office, and maintenance facility. In 1984, approximately 30 students were enrolled in the elementary grades. No high school was operative in 1984-1985, but has been in other years. The school staff averaged three to four teachers during the 1980s.

The Chignik Bible Chapel operated under the auspices of Arctic Missions. Two lay missionary women provided leadership for the chapel and held a variety of bible and study groups. A badly deteriorated Russian Orthodox church was also located in Chignik. There was no resident priest and services were rarely held. During the summer of 1985 fund raisers were held to help rebuild the church.

A deep water dock allowed the services of ocean going vessels at Chignik. Service was provided by the Alaska Marine Highway ferry system and the Western Pioneer barge. In the mid-1980s one, and sometimes two, land-based fish processors operated in Chignik and processed much of the fish caught in Chignik Lagoon. The amount of time processors operated depended on the length of the season and size of the harvest.

A locally owned and operated food store was open on a year-round basis. During the summer fishing season a bakery and a restaurant were operated by women who return from Kodiak each year.

Perryville

Location

Perryville is located on the south coast of the Alaska Peninsula, approximately 39 air miles south of Chignik. The community had regularly scheduled air service out of King Salmon twice a week, and charters were available on other days. There was no harbor in Perryville and all goods arriving by barge or fishing vessels were lightered to shore. Skiffs provided water transportation in the immediate waters and to Ivanof Bay, approximately 20 miles south.

Community History

Perryville's origin is well documented. At the turn of the twentieth century, Perryville's founders lived in two small villages, Kaguyak (Douglas) and Katmai, on the Pacific coast of the Alaska Peninsula, in what is now Katmai National Park and Preserve. On June 6, 1912, when the volcano Novarupta erupted the families had moved to summer fish camps on Kafilia Bay where they were involved in commercial salmon operations. No deaths resulted from the eruption but the villages were destroyed. After being rescued by the Coast Guard and after a short stay on Kodiak Island, the survivors were transported aboard a Coast Guard cutter under the command of Captain Kermit W. Perry to a new village site. According to local sources after being put off at Ivanof Bay the newcomers were

frightened off by two white men living there who told them of the area's harsh winter conditions. The elders became convinced that they should not establish a permanent village at the Ivanof Bay site and moved to the current location of Perryville. The Perryville site had many of the characteristics of the former Katmai village including a broad plain surrounding a river and a volcano situated behind the community. These elements made the residents feel comfortable though lack of a good harbor has remained a problem for Perryville residents into the 1980s.

Demography

It was estimated that the relocation effort to Perryville in 1912 involved 75 persons. The 1920 census reported a population of 85 (Table 1). The community has exhibited a steady growth pattern over the past 65 years. A community census taken by the council in late 1983 listed 135 persons occupying 31 households (Personal Communication Elia Phillips 1984).

There has never been a cannery or any other type of commercial enterprise to encourage outsiders to permanently or seasonally migrate to Perryville. With very few exceptions, anyone who moved into the community was related by kinship to an established Perryville household. During the commercial salmon season many of the families moved to second homes located at Chignik or the CWF (eastern) side of Chignik Lagoon.

During February 1985, Perryville had 26 occupied households. Eighty-five people lived in these households, an average of 4.3 persons per unit. Almost half of the residents in the surveyed households were 20 years of age or younger (Fig. 7). Three persons, or 3.6 percent of the sample

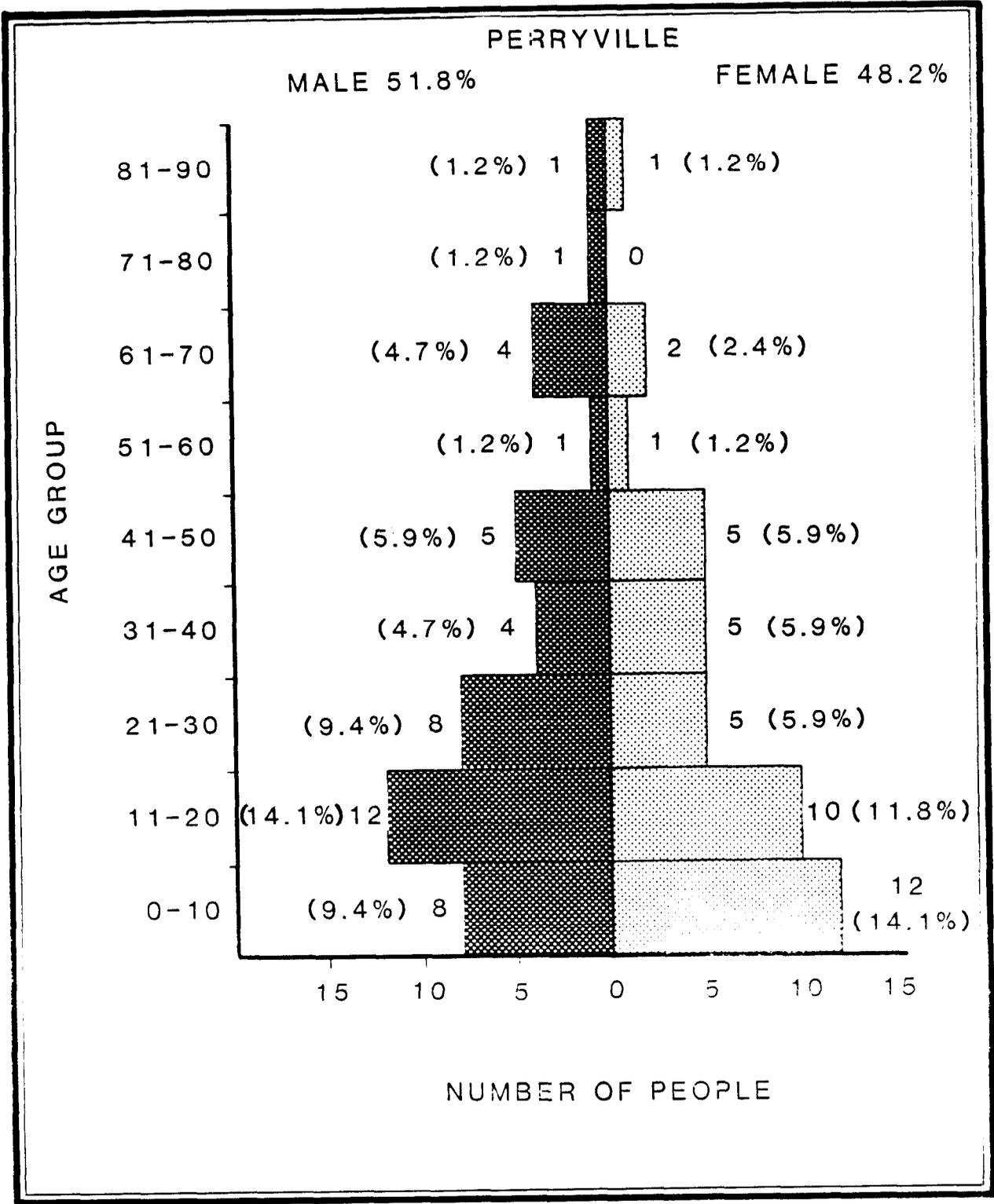


Figure 7. Age and Sex Structure for Sampled Perryville Households, N=20, in 1985.

group, were over 70 years of age. The median age for females was 18 years and for males 22 years.

Overall the ratio of males to females was relatively even, 51.8 percent males and 48.2 percent females. The number of males to females in each ten year age group was similar with the exception of youngsters ten years old and under and residents over 60 years of age. In the former age class there were 12 females to 8 males and in the latter, twice as many males as females over 60 years old.

Anthropologists consider the Katmai area, ancestral home of many Perryville residents, as part of the Peninsula Eskimo area. A least one resident thought he also had Athapaskan ancestors from the Lake Iliamna area (Personal Communication, Harry Kaiakokonok 1984). In the mid-1980s people from Kodiak, the Chigniks, as well as other Alaska areas had married into Perryville. In 1984 most Perryville residents referred to themselves as Aleut (Workman 1980; Dumond 1986). One hundred percent of those included in the survey were Alaska Natives (Table 5). Ninety-five percent were born to mothers who were Alaska Peninsula residents.

Government, Services, and Facilities

Perryville has been chartered under the Indian Reorganization Act (IRA) of 1934 since 1950. The six-member council, recognized by the federal government as the official tribal governing body of the village, was responsible for administering a variety of state and federal programs. The council has operated a central electrical generating system since 1982. The village also had a corporation, Oceanside Corporation, formed under Alaska Native Claims Settlement Act (ANCSA).

Lake and Peninsula school district operated the Perryville school. In 1984 five teachers were employed full-time for approximately 40 students enrolled kindergarten through high school. The building complex included classrooms, a shop, and a gym. St. John's Orthodox Church was built in 1923. The holy icons originally taken from the abandoned villages of Katmai and Kaguyak (Douglas) were placed in St. John's. The health clinic, operated in a private residence, was operated by the IRA council with funds provided from the Alaska Area Native Health Service through BBAHC.

Mail was received twice weekly. The post office was located in the community hall. Most air travel was through Peninsula Airways headquartered in King Salmon. Telephone service was available in private residences. Television was received via satellite. Radio reception was received from Dillingham during the day and occasionally from Anchorage in the evenings. As no dock facilities were available, commercial boats were stored in Sand Point or Chignik. Fuel oil was lightered ashore via skiffs from barges arriving from Homer.

Commercial facilities were limited to one locally owned and operated store. The store carried a limited supply of basic food and household goods. The IRA council ran a two-room hotel.

Ivanof Bay

Location

Ivanof Bay, located on the northeast end of Kupreanof Peninsula was mainly accessible by air and water. Commercial air taxis, principally operating out of King Salmon or Sand Point, provided service to the

village. Three-wheelers and skiffs were used for local transportation. There were no roads connecting Ivanof Bay to any other community nor was there a deep-water harbor.

Community History

Ivanof Bay and nearby Stepanof Flats were known to Perryville residents since they arrived in the area in 1912. Returning to established camps, family groups or hunting parties moved to the Ivanof area for hunting and trapping activities (Personal Communication Harry Kaiakokonok 1984). A salmon cannery was operative in Ivanof Bay from the 1930s until the early 1950s.

Due of the abundance of fish and game resources available in Ivanof Bay, moving the community had been discussed by Perryville residents since the 1950s (Davis 1986:9). In 1965 approximately 40 residents, six households, moved permanently to Ivanof Bay. A variety of reasons have been given for the move including a desire for a more peaceful lifestyle and closer proximity to productive hunting and trapping areas. It was also reported that the families, all members of the Slavic Gospel Mission, were seeking religious freedom (Nebesky et al. 1983:203).

Demography

According to the U.S. Bureau of Census, Ivanof Bay had a population of 15 in 1960, 48 in 1970 and 40 in 1980. In 1985, 51 persons were counted (Davis 1986). Most families moved during commercial salmon fishing to summer homes in Chignik.

An unofficial census by the research staff identified ten households in 1985. Residents of six households, 22 persons, were included in the

survey (Fig. 8). Of the sample population, 54.5 percent were male, one third of whom were in the 31-40 age bracket. Fifty percent of the females were ten years of age or under and forty percent were between 21 and 30 years old. The median age of males was 19 and for females it was 15.5 years.

The average household size in the sample was 3.7 persons. This figure was less than either the U.S. Census figure of 4.4 persons per household in 1980 or the 4.2 number given in 1985 (Davis 1986:12). Everyone included in the 1985 survey was Alaska Native, all of whom were offspring of women living in Alaska at parturition (Table 5).

Government, Services, and Facilities

The five member Ivanof Bay traditional council was recognized by the Bureau of Indian Affairs (BIA) as the official governing body of the village. The council handled programs and funding related to the welfare of the community. Bay View Corporation, the local village corporation, was organized under ANSCA. Like other study communities, Ivanof Bay belonged to BBNA and BBNC.

The health clinic was operated by the village council. Housed in a separate building, funding was provided by the Alaska Area Native Health Service through the Bristol Bay Area Health Corporation (BBAHC). Mail was received twice weekly and handled by a contract post office. Private phones became available in 1984 and television in 1983. An elementary school was operated by the Lake and Peninsula School District from headquarters located in King Salmon. One teacher was employed for 13 students in 1985 (Davis 1986). High schoolers left Ivanof Bay if they

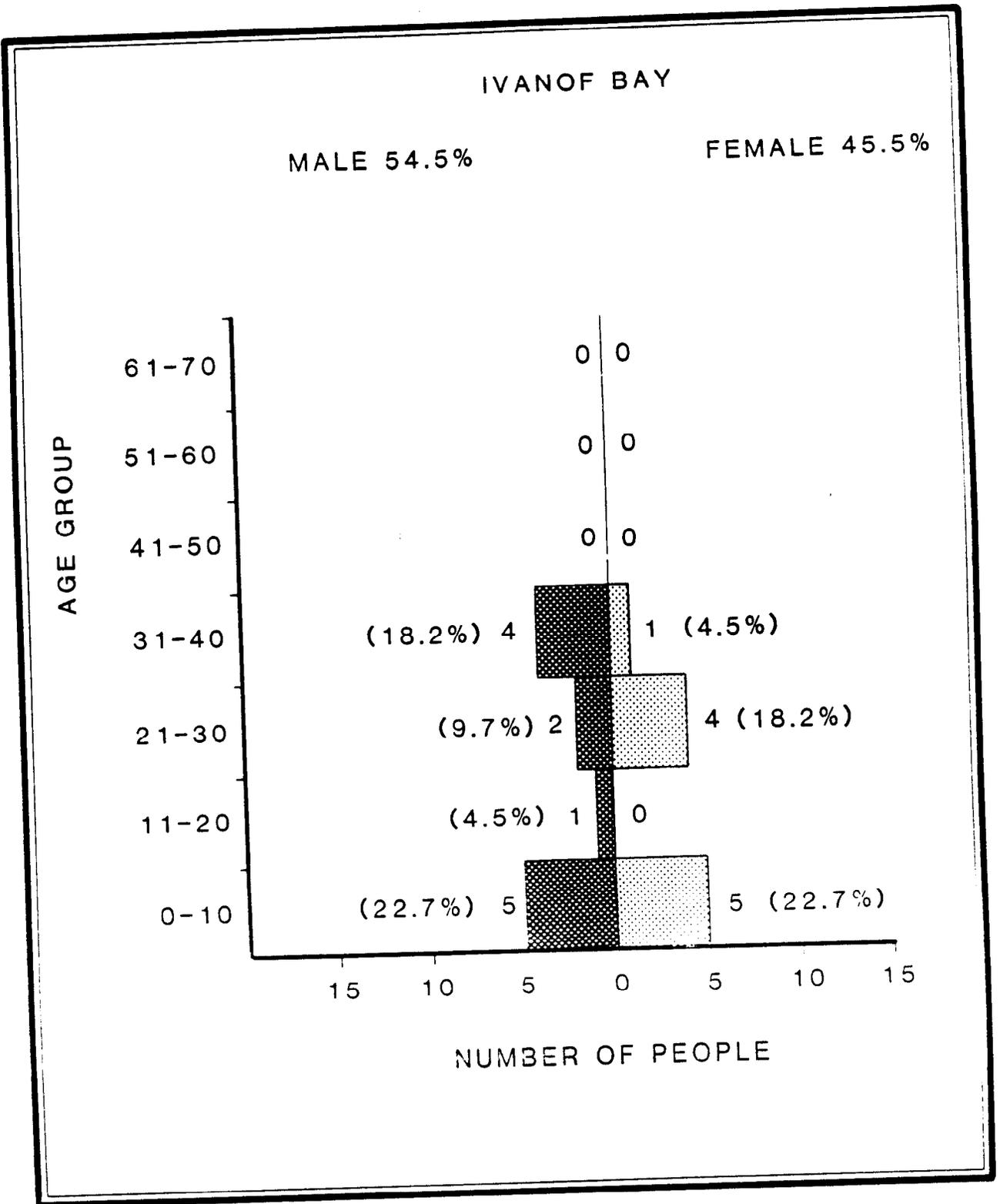


Figure 8. Age and Sex Structure for Sampled Ivanof Bay Households, N=6, in 1985.

wished to continue their studies. Most of these students went to school in Kodiak (Davis 1986:14).

A family-run store opened in 1981. Located in a private home it offered a variety of food items. Until 1984 missionaries from the Slavic Bible Church were stationed in the community. They operated a Bible Chapel in their home.

CHAPTER THREE

SOCIOECONOMIC BACKGROUND OF THE COMMUNITIES

The six study communities shared certain cultural, social, and economic characteristics. Some of those most relevant in terms of subsistence activities are discussed below. Due to the importance of commercial fishing, both from the economic standpoint and its role in household resource harvest and use patterns, it will be discussed separately.

SOCIAL ORGANIZATION

Major social themes in the study communities included the importance of family and kinship, identification with issues important to the Native community, and participation in commercial fishing activities. Kinship linked households and families within and between communities. Functioning as part of a large extended kinship group was a pervasive aspect in the daily life of most area residents. Work groups for both commercial and subsistence activities were generally established along consanguinal and affinal networks. Mutual aid was primarily handled within the kinship group and secondarily by the rest of the community.

Marriage routinely created bonds between families living in different communities. Perryville and Chignik Lake were closely linked in this manner, as were Chignik Bay and Chignik Lagoon. Though not as prevalent, marital ties existed between Chignik Lake and Chignik and Chignik Lagoon. Inter-community marriages between Ivanof Bay and Egegik and other study communities were not identified.

Role expectations defined by sexual identification were evident in all communities. Men and women operated in supportive, but often separate, spheres. Men assumed the major role in commercial fishing operations and other outdoor activities. Women went on commercial boats with their husbands or fathers, but usually as cooks and not as crew. In Egegik, women participated more frequently in actual fishing than in the Pacific drainage communities, often running their own commercial set net operations, although few worked on drift boats. Women frequently took care of the paper work and bookkeeping associated with the fishing operation. On the Pacific side of the peninsula, men took the lead role in obtaining subsistence salmon while in Egegik women were more active in subsistence fishing activities. In other harvesting activities women depended on men to run skiffs, airplanes, and other forms of transportation. Occasionally women reported accompanying men on trap lines or on hunting trips.

Health, education, and accounting appeared to be the province of women and they filled positions such as teacher's aides, health aides, and village administrators and secretaries. Men were often the community spokesperson, but details of transactions and day-to-day operations were often carried out by women. During fieldwork in 1985, in all the study communities men held the office of village council president or mayor but women in four communities were contact persons for detailed information on the actual workings of the community.

Native residents, mainly self-identified as Aleut, made up the majority in each of the communities (Table 5). In most instances, non-Natives had settled into the community through marriage with a local resident. The greatest numbers of non-marriage related and non-Native

residents were found in communities with active land-based fish processing operations, Chignik and Egegik.

Commercial salmon fishing was the dominant cash earning activity pursued by residents of the study communities. Not only did commercial fishing provide the base of the cash economy of the area, but skills and knowledge possessed by fishermen were highly valued. Persons associated with successful fishing operations were awarded high status and respect by other community residents.

ECONOMIC CHARACTERISTICS

Economic characteristics of each study community were similar. The cash economy was based on the commercial fishing industry, specifically salmon fishing. Other fish species, such as halibut and some shellfish, were included in the commercial fishing complex but their value remained secondary to salmon. The discussion begins with wage earning opportunities other than in the commercial fishing industry. A description of the commercial fishing industry then follows.

Lack of wage earning opportunities outside the commercial fishing industry was a feature in all communities. Employment tended to be dominated by seasonal, part-time positions. Funding for many positions was dependent on local, state, and federal agencies. Typically these agencies included village and city councils, Alaska Department of Transportation, Lake and Peninsula School District, and U. S. Postal Service (Table 6).

TABLE 6. EMPLOYER AS LISTED BY HOUSEHOLDS WITH EMPLOYED PERSONS, BY COMMUNITY, 1984.

Employer	Community					
	Chignik Bay	Chignik Lagoon	Chignik Lake	Egegik	Ivanof Bay	Perry ville
School	2	1	10	2	1	6
City/ Village	6	0	1	2	0	2
Federal	1	1	2	1	0	1
Cannery	6	0	0	4	0	2
State	1	3	1	3	1	2
Other	6	6	3	11	2	3

Many local employment opportunities were limited to unskilled labor positions. Work on construction projects, janitorial services, moving boats, and hauling fuel were typical types of employment offered in the communities. Skilled laborers, including plumbers, mechanics, or electricians, sporadically found work. Employment opportunities were generally dependent on the types and amount of contract work associated with grants or the schools occurring in the community at any given time. Self-employment, such as family run stores, owning rental units, or running video game machines, was another source of earned cash income.

Table 7 presents the mean number of weeks and hours worked per year by survey respondents. Many positions were on a less than full-time basis with a varied and flexible work schedule. Jobs were generally available for short, concentrated, periods of time. The data presented in Table 7 illustrate that adults in all communities relied on employment opportunities of a part-time nature.

Among the study communities, the number of households involved in wage employment varied (Table 8). Egegik and Chignik Bay reported the highest percentage households with non-fishing cash incomes, 68 and 60

TABLE 7. NON-FISHING WAGE EARNING CHARACTERISTICS FOR ADULTS (AGE 18 OR OLDER)
IN SELECTED COMMUNITIES, ALASKA PENINSULA, 1984.

Community	# HHs with Employed Adults	Number of Adults	Number of Working Adults	Mean Weeks Worked Per Year		Mean hours Worked Per Year		Mean Hours Worked Per Week
				All Adults	Working Adults	All Adults	Working Adults	
Chignik	13	49	21	12.8	29.9	422.8	986.5	33
Chignik Lagoon	9	35	10	12.3	43.1	232.6	814.0	19
Chignik Lake	11	67	15	6.2	27.7	180.4	805.6	29
Egegik	15	45	20	14.5	32.7	519.7	1169.3	36
Ivanof Bay	2	11	3	11.2	41.0	304.7	1117.3	27
Perryville	10	52	15	10.0	34.5	172.2	597.1	17
Total	61	259	84	10.7	33.0	295.9	912.3	28

respectively. Land-based fish processing plants were located in each of these communities. For example, some residents were hired before and after each fishing season to help open and close the facilities. Occasionally women, particularly younger women, worked during the processing season.

Communities with the fewest locally available services or commercial enterprises had the least number of households who reported an earned cash income outside of commercial fishing. For instance, Perryville and Chignik Lake had a limited amount activity in the commercial sector and of the households surveyed, 50 percent or less reported non-fishing incomes (Table 8). Chignik Lagoon households reported a number of home business, but unlike the other communities, there were few employment opportunities provided by the village government (Table 6). In the Ivanof Bay sample population two very active households accounted for all the non-fishing earned income.

TABLE 8. NUMBER AND PERCENTAGE OF HOUSEHOLDS PARTICIPATING IN NON-FISHING WAGE EMPLOYMENT IN SELECTED ALASKA PENINSULA COMMUNITIES, 1984

	EGEGIK N=25	CHIGNIK LAKE N=23	CHIGNIK LAGOON N=17	CHIGNIK N=19	PERRY- VILLE N=20	IVANOF BAY N=6
Number	15	11	9	13	10	2
Percentage	60	48	53	68	50	33

Total household income was derived from a combination of sources including earned income from commercial fishing, salaried positions, and self-employment, and unearned sources such as Aid to Dependent Children, retirement payments, unemployment, and social security. Table 9 presents 1978, 1981, and 1982 federal taxpayer profiles for available communities.

The data may not include all sources of income, most notably fishing income which was earned as part of a partnership or a corporation. Fishing income is presented in the commercial fishing discussion.

TABLE 9. AVERAGE TAXABLE INCOME, BY COMMUNITY, 1978, 1981, 1982.

<u>Community</u>	<u>1978</u>	<u>1981</u>	<u>1982</u>
Chignik	\$23,609	\$20,843	\$17,176
Chignik Lagoon	NA	31,361	23,937
Chignik Lake*	NA	NA	NA
Egegik	6,398	14,281	10,780
Ivanof Bay*	NA	NA	NA
Perryville	33,119	20,125	12,688

*Data were filed according to zip codes. Ivanof Bay and Chignik Lake have Anchorage zip codes.

COMMERCIAL FISHING

Commercial fishing has been the single most important cash producing activity for Alaska Peninsula residents for much of the twentieth century. It also has been a factor in use of local resources taken incidentally to commercial fishing. Appreciation of the far-reaching role commercial fishing has played in both the cash and non-cash economic sectors of the communities requires an awareness of the nature of the particular fisheries. Types of commercial fisheries and degree of participation among residents contacted during the 1985 survey are shown in Table 10. The data cover the 1984 season.

The variety of fisheries in which residents of the communities participated was influenced in part by their physical location. Egegik on Bristol Bay was far removed from the crab fisheries, and fishermen concentrated on the local salmon harvest. The percentage of household participation in commercial fishing was highest in Egegik (96). Fishermen

TABLE 10. COMMERCIAL FISHERIES IN WHICH SURVEYED HOUSEHOLDS PARTICIPATED, BY PERCENT, BY COMMUNITY, 1984.

FISHERY	CHIGNIK BAY N=19	CHIGNIK LAGOON N=17	CHIGNIK LAKE N=23	IVANOF BAY N=6	PERRY- VILLE N=20	EGEGIK N=25
SALMON	84.2	82.4	82.6	50.0	80.0	96.0
CRAB	15.8	11.8	0	0	0	0
HERRING	15.8	41.2	17.4	0	15.0	0
HALIBUT	0	29.4	0	33.3	25.0	0
ANY FISHERY	84.2	88.2	82.6	66.7	80.0	96.0

from Chignik and Chignik Lagoon participated in the widest variety of fisheries. Eighty-three percent of Chignik Lake households commercial fished for salmon and 17 percent (4) for herring. Perryville and Ivanof Bay had halibut and salmon fishermen while three households in Perryville also fished for herring. It was noted that both Chignik Lagoon and Perryville had households which participated in commercial fishing, but not for salmon.

The mean number of commercial fishermen per household among the communities was 1.28 (Table 11). Only Ivanof Bay had a community average of less than one fisherman per household (.67). Chignik Lake showed the highest number of fishing participants per household (1.74) and Egegik the next highest, a mean of 1.36. Perryville had a mean of 1.20 commercial fishermen per household, Chignik 1.16, and Chignik Lagoon 1.00. Fishing households in Chignik Lake were frequently composed of fathers and sons who worked together on the same seine operation. In Egegik several members of a household fished, but often they were involved in separate operations. For example, in Egegik one member might fish on a drift boat operation while another member stayed on the beach with a set net operation.

TABLE 11. NUMBER OF COMMERCIAL FISHERMEN IN SURVEYED HOUSEHOLDS, BY SUM AND MEAN, BY COMMUNITY, 1984.

<u>Community</u>	<u>Total Number of Fishermen</u>	<u>Mean per Household</u>
Chignik	22	1.16
Chignik Lagoon	17	1.00
Chignik Lake	40	1.74
Egegik	34	1.36
Ivanof Bay	4	.67
Perryville	24	1.20
Total	141	1.28

Each fishery required a particular strategy and the more fisheries in which a fisherman participated the more necessary it was to consider an increasing array of fishing strategies. For communities included in the study, one major salmon fishery was located in Bristol Bay on the Bering Sea side of the peninsula and another at Chignik, on the Pacific Ocean side. Additional fisheries in which local fishermen participated during the study period included herring (at Togiak, Chignik, Kodiak, and Prince William Sound), halibut, and crab. Each of these fisheries is described below.

Access to commercial salmon fishing within Alaska state waters is limited to persons holding a permit issued by the Commercial Fisheries Entry Commission (CFEC). Beginning in 1975, CFEC issued permits to qualified persons. Eligibility was determined by a complex system based on points awarded by criteria such as residency and past participation in the fishery. In 1984 salmon limited entry permit holders were required to renew the permit each year by purchasing a yearly license. In Bristol Bay and Chignik, herring and shellfish were not regulated by a limited entry system and could be harvested by any fishermen purchasing a yearly license. Halibut fishing was under the control of the International North Pacific Halibut Commission. To fish halibut a yearly commercial license was

required and all vessels over five tons were to be licensed by the Halibut Commission.

Contemporary Bristol Bay Commercial Salmon Fishing

In 1984 the Bristol Bay area included all coastal waters and inland drainages east of a line from Cape Newenham to Cape Menshikof, which included the districts of Togiak, Nushagak, Ugashik, Egegik, and Naknek-Kvichak (Fig. 9). Five Pacific salmon species were harvested in the Bristol Bay area. It has been largest producer of sockeye salmon in the world (ADF&G 1984a).

Each district within the Bristol Bay area is unique in regards to time and size of each species' run. Togiak is smallest sockeye producer in Bristol Bay, although it is an important producer of other salmon species. Between 1964-1984 it averaged 18 percent of the total number of kings, 20 percent of the chums, and 30 percent of the cohos landed in Bristol Bay. Nushagak is characterized by the multi-species aspect of the district and the occurrence of more than one major sockeye salmon-producing stream. Between 1964-1984 Nushagak accounted for over 70 percent of Bristol Bay's commercial production of king salmon, 16 percent of the sockeyes, 51 percent of the chums, 86 percent of even-year pinks, 51 percent of cohos (ADF&G 1984:40). The Naknek-Kvichak district is the largest producer of sockeye in Bristol Bay. Almost 60 percent (59.8) of the sockeye commercial catch was taken in the district for the period of 1965-1984 (ADF&G 1984:133). The district also reported producing 6 percent of the commercial king catch, 20 percent of the chums, 2 percent of the cohos, and 13 percent of the even-year pinks.

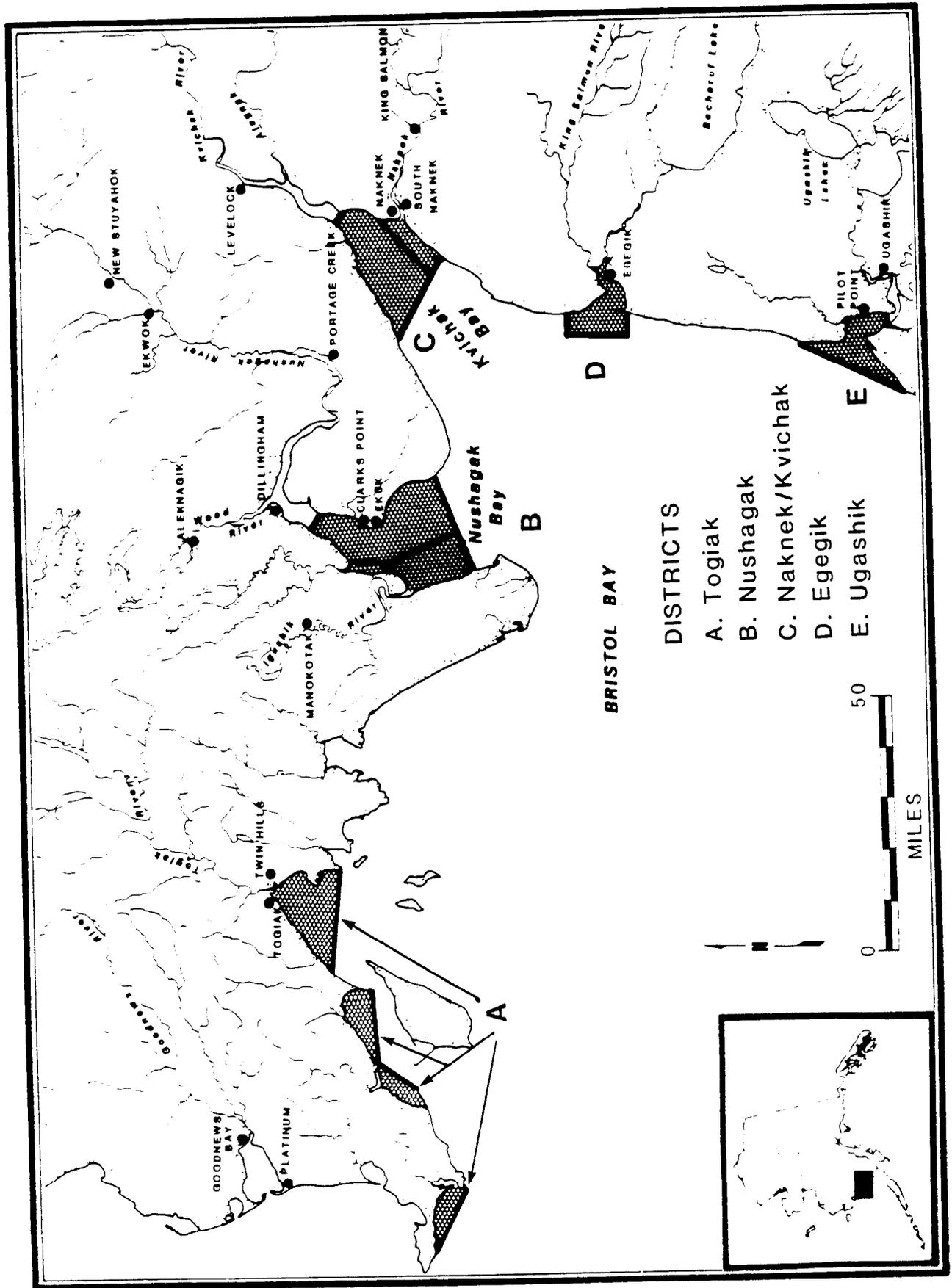


Figure 9. Bristol Bay Commercial Fisheries Salmon Management Districts.

The southernmost districts of Egegik and Ugashik accounted for 19 percent of the total salmon commercial catch average for 1965-1984 (ADF&G 1984:138). Egegik produced 2.4 percent of the commercial king catch for this time period, 16 percent of the sockeyes, 5.7 percent of the chums, less than one percent of the pinks, and 9 percent of the cohos. The commercial catch in the Ugashik district was 5 percent of the 20 year (1965-1984) total sockeye average, 2.5 of the kings, 3.4 of the chum catch, less than one percent of the pink catch, and 7.9 percent of the coho catch.

In early June king salmon fishing in the Nushagak District signals the beginning of the commercial season for Bristol Bay fishermen. Sockeyes begin running to all river systems around the third week of June, though exact timing in each system varies. Chums and pinks are mixed with the sockeye run while cohos are the latest fish to return to the Bristol Bay spawning grounds. In general commercial salmon seasons runs from June through August; however, many fishermen limit their effort to the peak of the sockeye run, the last week of June and the first two weeks of July. Local residents tended to fish both sides of the peak more consistently than do outside fishermen (Don Bill, personal communication 1987).

Set gill net or drift gill net may be used for commercial salmon fishing in the Bristol Bay area. In 1984, 1,818 drift gill net permits were issued and 99 percent were fished. For the same year, 962 set gill net permits were issued of which 90 percent were actually fished (ADF&G 1986).

According to regulations in place for the 1984 season, drift boats in Bristol Bay were limited to a length of 32 feet. Drift gill nets could not exceed 150 fathoms in length. Fishermen normally used two shackles of gear, each measuring 75 fathoms. Set gill nets could measure up to 50

fathoms in length. Gill nets were limited to no more than 28 meshes in depth.

During the study period, possessing a Bristol Bay limited entry permit enabled a fisherman to operate in any Bristol Bay district. Drift fishermen were more mobile than set netters, although both could legally fish in any district. During the 1984 season a fisherman was allowed to transfer between districts by giving Alaska Department of Fish and Game a 24 hour notice. Set netters also had to find an open site at whatever fishing location they chose. Access to set net sites was controlled through a leasing system managed by the Alaska Department of Natural Resources. Any site not leased was available on a first-come basis at the beginning of the commercial season. A fisherman had to be the first one to fish the site, and fish it consistently, to claim it for the season.

Egegik Fishermen

An overwhelming number of Egegik households were involved in commercial fishing. Ninety-six percent of the households contacted during the study reported commercially fishing during the 1984 season (Table 10). Several categories of fishing participation were possible including captain (usually the permit holder) of a drift boat, permit holder of a set net operation, and crew member on a set or drift operation. A number of households had members fishing in each category. In March 1984 among the residents of the 28 occupied households, 17 limited entry permits were identified (fieldnotes). Drift crews generally consisted of two persons who were in most cases related to the permit holder. Crews were drawn from local and non-local residents. Set gill net crews consisted of two to

three persons, often relatives, and like the drift crews were not limited to local residents.

Egegik fishermen commercially targeted all available salmon species. The majority of effort was directed at sockeyes. Of the fishing households included in the survey, 96 percent reported harvesting sockeyes, 25 percent kings, 21 percent chums, 17 percent pinks, and 63 percent cohos. It appeared from conversations with local fishermen that the majority tended to fish the Egegik or Ugashik districts.

The Chignik Commercial Salmon Fishery

The Chignik management area lies on the south side of the Alaska Peninsula between the Kodiak area to the east and the Alaska Peninsula to west. The area is divided into five districts: the Eastern, Central, Chignik Bay, Western, and Perryville (Fig. 10).

Prior to 1983, the Eastern district had been managed primarily for local stocks of pink and chum salmon. Beginning in 1983 fishermen were allowed to harvest sockeye salmon during periods running concurrently with Chignik Bay and Central Districts until July 15. The June fishery in the Eastern district was designed to redistribute the fishing effort which had been concentrated in Chignik Lagoon. During the 1984 season, 6.9 percent of the total Chignik sockeye catch was taken in the Eastern district. Thirty-three percent of the chums and 12.9 percent of the pinks were also produced in the Eastern District. The Central district produced 19.5 percent of the sockeye catch and 10.9 percent of the pink catch. Significant salmon catches occurred in the Western district where 39 percent of the pink total, 40 percent of the chums, and 40 percent of the cohos were taken. For 1984, the Perryville district of the Chignik Salmon

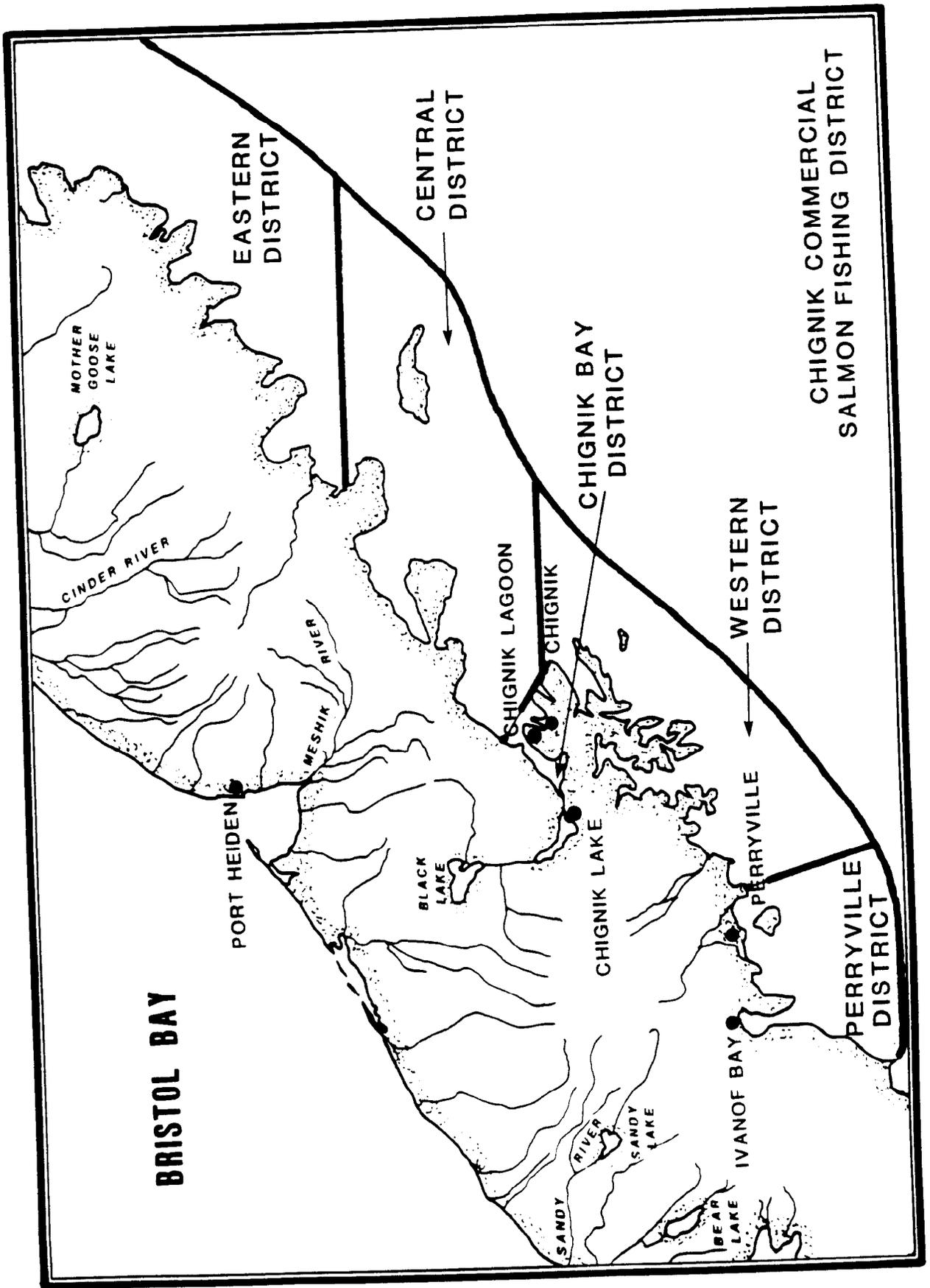


Figure 10. Chignik Area Commercial Fisheries Salmon Management Districts.

District produced very little in the overall catch. The district produced 1.8 percent of the area's coho catch and smaller amounts of the other four species (ADF&G 1984b).

Through 1984 by far the largest producer among all the Chignik districts has been the Chignik Bay district. Not surprisingly, most of fishing effort has been concentrated in this district. During the 1984 season the Chignik district accounted for 73 percent of the sockeye catch, 86 percent of the kings, 66 of the cohos, 37 percent of the pinks and 13 percent of the chums harvested (ibid. 32).

The sockeye run into the Chignik River system is the most important in the Chignik area. The total run occurs in two separate periods. The early run enters the system in early June, and peaks towards the end of June just as the late run begins. The second run peaks in the latter part of July and continues late into the fall. The four other salmon species are taken simultaneously with sockeyes. Kings generally run at the early part of the season, followed by pinks, chums, and cohos (ibid. 26).

In 1984 salmon for commercial purposes could be taken in the Chignik District by hand or purse seine only. In all districts except Chignik Bay seine gear could not be less than 100 nor more than 225 fathoms in length. In the Chignik Bay district not more than 125 fathoms in length of gear was allowed. The salmon season in Chignik Bay opened from June 9 through September 30 with weekly fishing periods established by emergency order. All other districts were opened by emergency order.

One hundred and one limited entry salmon permits were issued for Chignik in 1984. Eighty-four of the permits were owned by Alaska residents (ibid. 4). Due to the small size of the fleet, Chignik fishermen tended to know each other and were often kin-related. These factors led to the

fleet's being more self-regulating and unified in fishery management concerns than some other Alaska fisheries.

In early 1980s, the Chignik fleet was characterized by vessels concentrated in the 36-42 foot range. Data collected in 1980 showed that half of the vessels were five years old or less, all had diesel engines, and all but one had fiberglass or aluminum hulls. Average horsepower of the fleet was 219.37 (Langdon 1986:113).

Chignik Fishermen

As depicted in Table 10, the vast majority of the households in Pacific facing communities included in the survey participated in commercial salmon fishing. All fishing was by purse seine. Crews generally consisted of a skipper, skiffman, and three hands on deck. In the study communities, commercial fishing operations tended to be based on the domestic mode of production (in this case meaning that the fishing effort was organized among kinship-based units). This production characteristic was less true in the communities of Chignik Bay and Chignik Lagoon where a greater number of crew members were drawn from non-local, non-kin related persons (fieldnotes 1984 and Langdon 1986:145). Other salmon species run concurrently with sockeye and Chignik fishermen did not report selectively fishing for single species, but rather indicated that they fished for "salmon."

Commercial salmon fishermen from the five Pacific-facing study communities followed similar fishing strategies and had similar levels of participation (Table 12). Data collected from 1975 through 1983 indicated that in terms of crew composition, fishing locations, and gross earnings some differences could be demonstrated among the communities. Average

gross income from the salmon fishery between 1975-1983 for all the Chignik communities, except Ivanof Bay, is shown in Table 12.

TABLE 12. PER CAPITA GROSS EARNINGS OF SELECTED COMMUNITIES, CHIGNIK SALMON FISHERY, 1975-1983.

(Thousands of Dollars)

<u>Year</u>	<u>Chignik</u>	<u>Chignik Lake</u>	<u>Chignik Lagoon</u>	<u>Perryville</u>
1975	19.0	20.6	31.3	19.7
1976	54.9	62.4	75.7	62.4
1977	155.0	141.5	186.5	169.2
1978	106.8	145.6	159.0	197.8
1979	97.2	115.1	149.7	166.7
1980	56.9	51.4	78.1	73.9
1981	157.4	133.1	219.7	164.8
1982	106.6	99.1	195.9	131.9
1983	86.0	85.2	122.2	131.8

Source: Langdon 1986

Chignik and Chignik Lagoon fishermen have aggressively pursued commercial fishing (Langdon 1986). Not only have fishermen from these two communities consistently reported two of the three highest average gross incomes (Table 12), they have upgraded their vessels to be more adaptable for non-salmon fisheries (Langdon 1986). Fishing crews were drawn from local and non-local kin but there was a tendency away from a domestic mode of production. Captains were beginning to hire non-local residents for a lower percentage of the boat's earning than was normally offered to local residents. Finally, fishermen from these two communities have weakened their ties with processors in order to bargain independently and maximize the fishermen's economic position in the fishery (Langdon 1986:149).

The communities of Chignik Lake, Perryville, and Ivanof Bay were more traditional in their approach to commercial fishing than Chignik Lagoon or Chignik (Langdon 1986:145). They generally hired kin when selecting their

boats' crews. Chignik Lake fishermen evidently stayed in Chignik District throughout the season while those from Perryville tended to use other districts. The higher levels of harvest of pinks, chums, and cohos in these other districts was possibly related to the location of the communities. Perryville, and perhaps Ivanof Bay fishermen (although data are lacking), fished more frequently in areas closer to their home communities and on their way to Sand Point where their boats were stored during the winter months. Finally, unlike other Chignik communities fishermen, those from Chignik Lake, Perryville, and Ivanof Bay continued to maintain ties with processors as they did before becoming independent vessels owners (Langdon 1986:149).

Crab Fishing

A number of Chignik Bay and Chignik Lagoon households included in the survey fished for crab in 1984 (Table 10). Discussions with local residents indicated that participation in the crab fishery by local fishermen has declined in the last year or two.

King Crab

King crab fishing began in the Alaska Peninsula area in 1947. Trawl gear was used exclusively between 1947 and 1951. During the 1970s and early 1980s, 60 to 95 percent of the Area "M" harvest came from the Central District bays (Fig. 11). Chignik catches have been relatively stable at a low level. For the 1981-1982 season crab taken in the Chignik District comprised four-tenths of a percent of the Area "M" total and in 1982-1983 it was three percent. The fishery did not open in 1983-84 or 1984-85 (ADF&G 1986b).

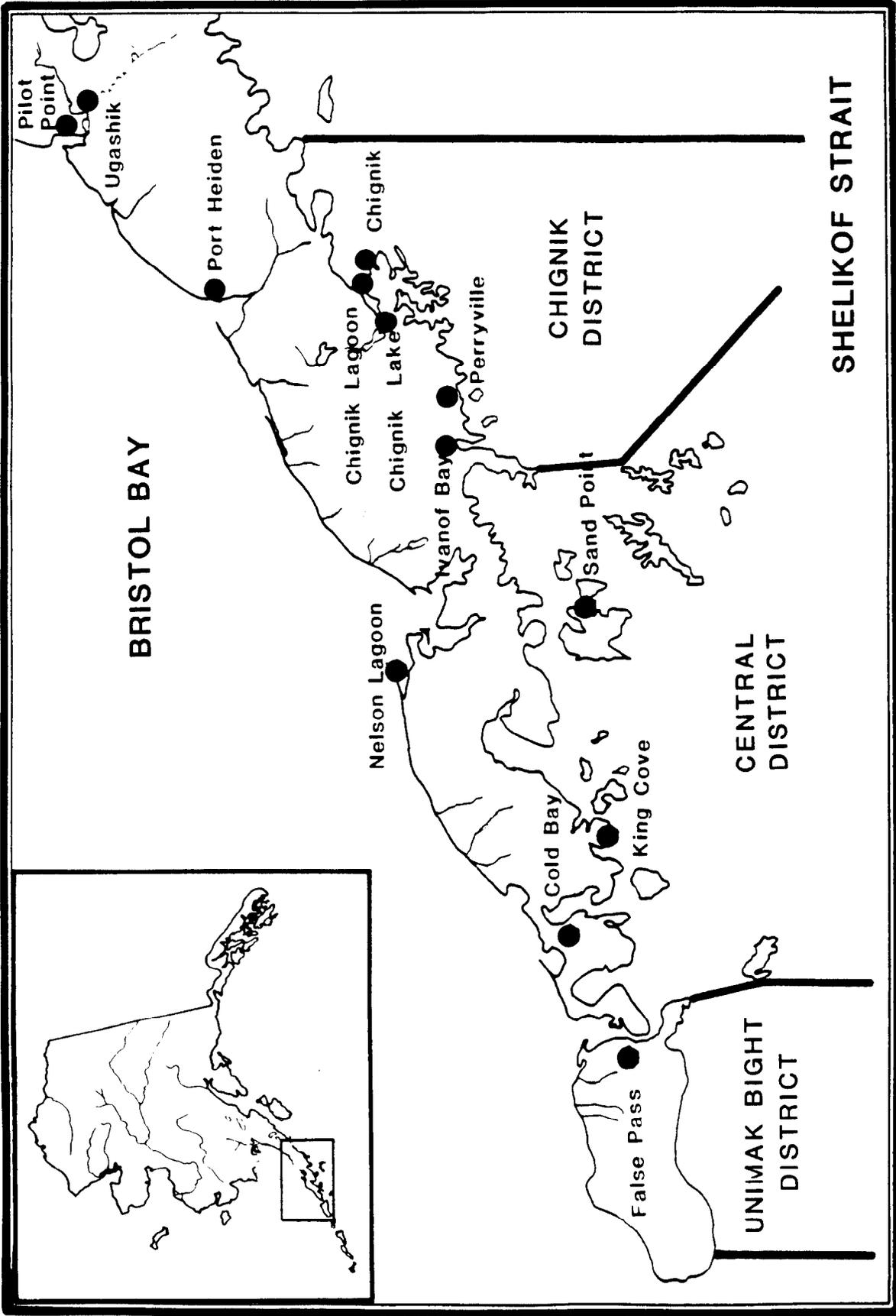


Figure 11. Chignik King and Tanner Crab Management Districts.

Tanner Crab

Since 1974, Tanner crab catches have fluctuated between 2.5 and 6.9 million pounds a year in the Chignik District. The stock size declined in the late 1970s due to poor recruitment. A guideline harvest level of five to ten million pounds was in effect until 1980 at which time harvest was in the 3.2 to 3.7 million pound range. In 1984 a total catch of 659,043 pounds was reported (ADF&Gb 1986). Seventeen vessels reported fishing the Chignik District. During the season, Chignik and South Peninsula districts were included in one super-exclusive registration area.

Dungeness Crab

Dungeness crab have been fished in the Alaska Peninsula District in the recent past although there was no fishing from 1974 through 1978 when populations dropped below harvestable levels. Increased effort occurred during the 1980s with declining king crab stocks and a strong market for dungeness. In the Chignik portion of the district (Fig. 12) fishing began in May and continued through December with peak fishing effort in July. In 1984-1985 six vessels reported landing 264,741 pounds of dungeness crab in the Chignik area (ADF&G 1986b).

Halibut

Halibut production has fluctuated in the Chignik region. In 1975 it contributed 18.3 percent of the total value of Chignik management area fisheries when halibut stocks were adequate and salmon stocks were low. When the reverse was true in 1981, only two tenths of a percent of the harvest value was provided by halibut (Langdon 1986:86).

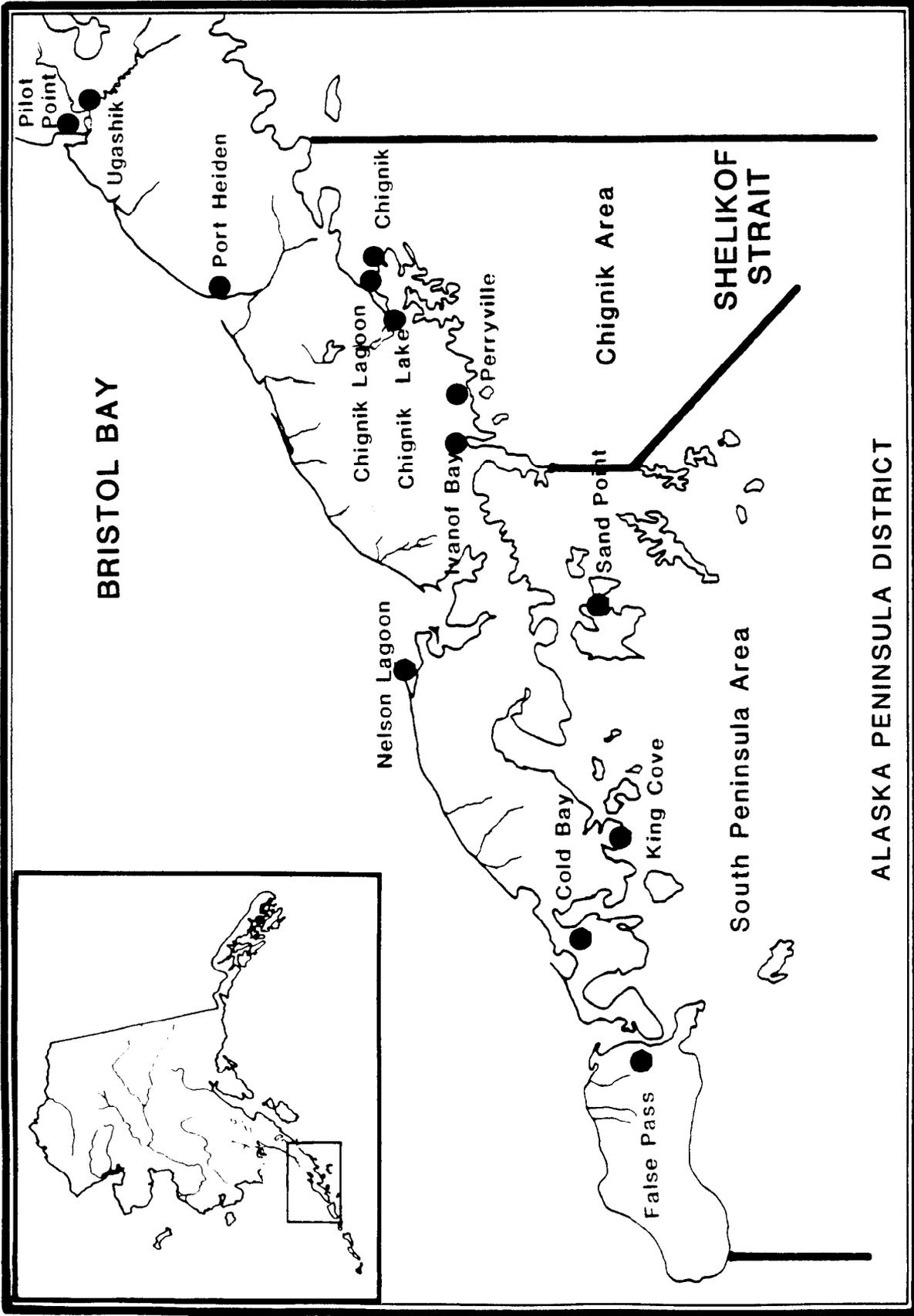


Figure 12. Chignik Dungeness Crab Management District.

The halibut harvest has increased in the Chignik region since the mid-1970s but among the surveyed households few participated in the fishery in 1984 (Table 10). Local halibut fishermen were located in Perryville (5 households), Chignik Lagoon (5 households), and Ivanof Bay (2 households).

The Chignik area communities are situated in regulatory area 3B (Fig. 13). The halibut fishing seasons was from June through September which conflicted with salmon openings. In 1984 there were four separate five day periods from June 16 and ending September 18 (International Pacific Halibut Commission 1983). Conversations with residents indicated that for those persons holding limited entry salmon permits, salmon was the preferred fishery over halibut.

Herring

Four areas were commercial fished for herring by survey respondents, these included: Chignik, Alaska Peninsula, Togiak, and Prince William Sound. Among those households surveyed, most fishermen operated in the Chignik and Togiak district (Table 13). No herring fishing was reported by households from Ivanof Bay or Egegik.

According to 1984 regulations, the designated herring season in Togiak was from April 25 to June 30, which is regulated by emergency order. The 1984 season was first opened in May 18 and the last opening was May 21 (ADF&G 1984a). The regulatory herring season in the Chignik Management Area opened April 13, although the first harvest did not occur until May 1. Twelve purse seiners fished the area, the majority which were Kodiak-based. A low harvest was reported. Divided among the 12 vessels, earnings averaged \$4,376.00 for each. The season closed by regulation on June 30.

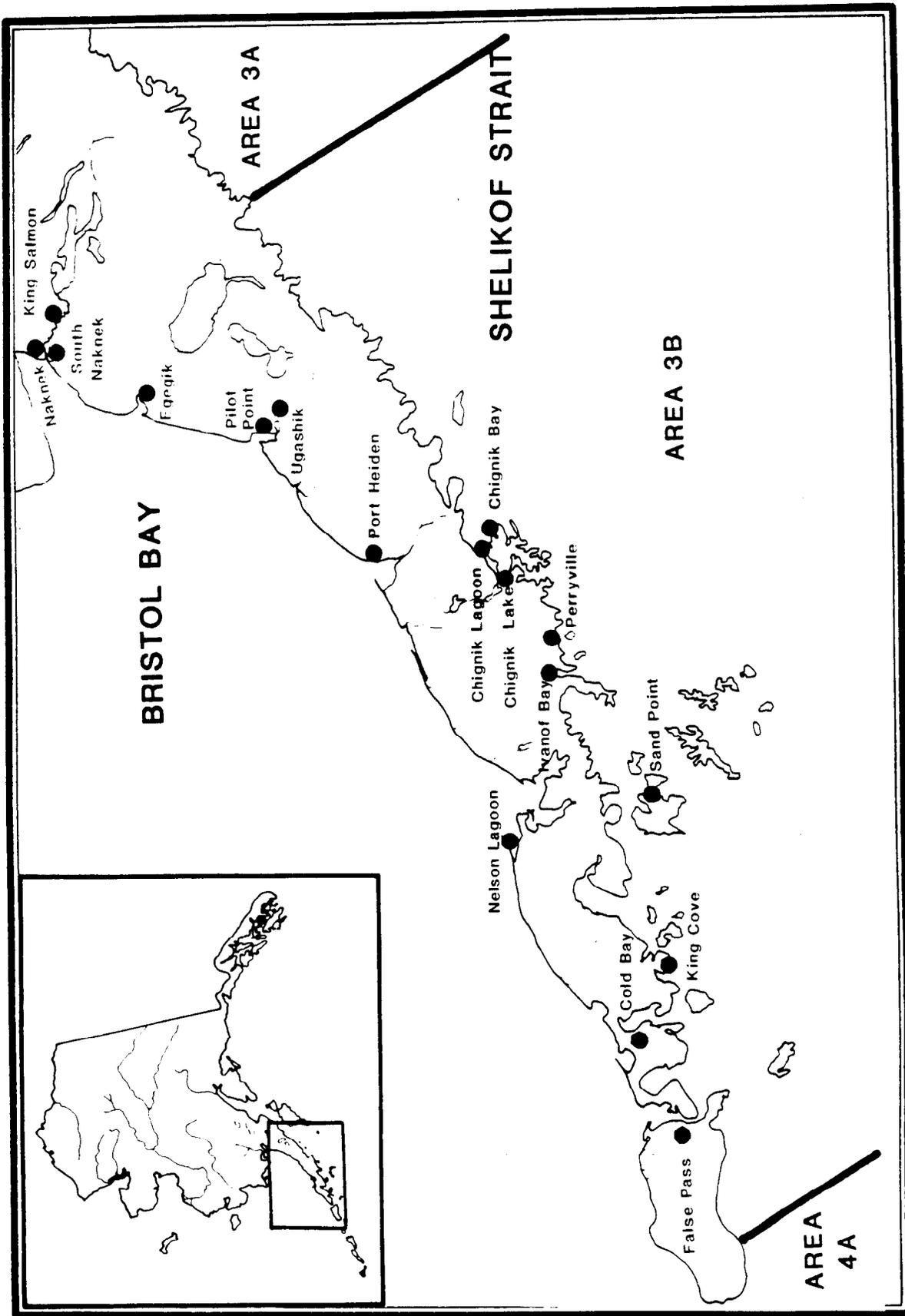


Figure 13. Regulatory Areas for the Pacific Halibut Fishery, 1983.

One household from Chignik reported participating in the Prince William Sound season where the sac roe fishery using purse seines or herring gill nets was under limited entry.

TABLE 13. NUMBER OF HOUSEHOLDS IN SAMPLED COMMUNITIES USING HERRING HARVEST AREAS, 1984.

<u>Area Fished</u>	<u>Chignik</u>	<u>Chignik Lagoon</u>	<u>Chignik Lake</u>	<u>Perryville</u>
Chignik	1	5	1	1
Togiak	3	2	3	0
Ak. Peninsula	1	0	0	2
Prince William Sound	1	0	0	0

Other Fisheries

Shrimp and some species of bottomfish have been harvested in past years by study community residents and have the potential for harvest in the future. However, during the study period none of the 110 households interviewed reported participating in the commercial harvest of cod, shrimp, groundfish, capelin, or any other species. It appeared that involvement in these fisheries by Chignik area residents fluctuated yearly because of a number of factors including size of the stock of each species, prices paid, and time of the openings.

CHAPTER FOUR

CONTEMPORARY SEASONAL ROUND AND RANGE OF RESOURCES HARVESTED

The following chapters describe patterns of resource use as found among the study communities during the years of 1983 and 1984. Descriptions of the seasonal round and the geography of harvest areas will be followed by an overview of the harvest and use patterns found in each community. Resource use of selected species is then described. Table 14 lists resources used in the communities by common and scientific names.

SEASONAL ROUND

Seasonal rounds are descriptions of resource harvesting patterns by residents of a particular geographic location following a yearly cycle of activities which is generally predictable. A seasonal round assumes slight variation from year to year in the timing and quantity of harvests. Variation is due to a number of factors, some controlled by environmental conditions such as weather and resource availability. Some non-environmentally dependent factors figured into the annual activities are determined by the harvesters, such as amount of effort or gear types used. Finally, there are non-environmental factors, such as changes in hunting and fishing regulations, or land ownership status, which are not controlled by members of the local community.

As described earlier, the environmental conditions found on the Bering Sea and Pacific Ocean sides of the Alaska Peninsula are distinctly different. One major difference is the presence of year round open water

TABLE 14. EDIBLE FISH, GAME, AND PLANT RESOURCES USED
IN SIX ALASKA PENINSULA COMMUNITIES.

<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>	<u>USED ON BRISTOL BAY SIDE</u>	<u>USED ON PACIFIC SIDE</u>
King Salmon	<i>Oncorhynchus tshawytscha</i>	x	x
Sockeye Salmon	<i>Oncorhynchus nerka</i>	x	x
Coho Salmon	<i>Oncorhynchus kisutch</i>	x	x
Pink Salmon	<i>Oncorhynchus gorbuscha</i>	x	x
Chum Salmon	<i>Oncorhynchus keta</i>	x	x
Candlefish	<i>Thaleichthys pacificus</i>		x
Dolly Varden/Arctic Char	<i>Salvelinus malma</i>	x	x
Grayling	<i>Thymallus arcticus</i>	x	
Halibut	<i>Hippoglossus stenolepis</i>		x
Lake trout	<i>Salvelinus namaycush</i>	x	
Pacific Cod	<i>Gadus macrocephalus</i>		x
Pacific herring	<i>Clupea harengus pallasii</i>	x	x
Rainbow trout\Steelhead	<i>Salmo gairdneri</i>	x	x
Sculpin	<i>Hemilepidotus sp.</i>		x
Smelt	<i>Osmerus mordax</i>	x	x
Starry Flounder	<i>Platichthys stellatus</i>	x	x
Whitefish	<i>Coregonus (genus)</i>	x	
Dungeness crab	<i>Cancer magister</i>	x	x
King crab	<i>Paralithodes camtschatica</i>		x
Tanner crab	<i>Chionoecetes bairdi</i>	x	x
Blue mussel	<i>Mytilus edulis Linne'</i>	x	x
Butter clam	<i>Soxidomus giganteus</i>	x	x
Chiton (Bidarkies)	<i>Katharina tunicata</i>		x
Cockle	<i>Climocardium nuttallii</i>		x
Horse clam	<i>Tresus capax</i>		x
Octopus	<i>Octopus dofleini</i>	x	x
Razor clam	<i>Siliqua patula</i>	x	x
Sea urchin	<i>Strongylocentrotus sp.</i>	x	x
shrimp	<i>Pandalus</i>		x
Belukha	<i>Delphinapterus leucas</i>	x	
Harbor seal	<i>Phoca vitulina</i>	x	x
Sea lion	<i>Eumetopias jubatus</i>		x
Walrus	<i>Odobenus rosmarus divergens</i>		x
Arctic hare	<i>Lepus othus</i>	x	x
Beaver	<i>Castor canadensis</i>	x	x
Brown bear	<i>Ursus arctos</i>		x
Caribou	<i>Rangifer tarandus</i>	x	x
Moose	<i>Alces alces</i>	x	x
Porcupine	<i>Erethizon dorsatum</i>	x	x
Snowshoe hare	<i>Lepus americanus</i>	x	x

TABLE 14. (CONTINUED) EDIBLE FISH, GAME, AND PLANT RESOURCES USED
IN SIX ALASKA PENINSULA COMMUNITIES.

<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>	<u>USED ON BRISTOL BAY SIDE</u>	<u>USED ON PACIFIC SIDE</u>
Black Brant	<i>Branta bernicla nigricans</i>	x	x
Canada goose	<i>Branta canadensis</i>	x	x
Emperor goose	<i>Anser canagicus</i>	x	x
Lesser Snow goose	<i>Anser c. caerulescens</i>		x
American green-winged teals	<i>Anas crecca carolinensis</i>	x	x
Canvesback	<i>Aythya valisineria</i>	x	x
Eiders	<i>Somateria sp.</i>	x	x
Goldeneye	<i>Bucephala sp.</i>	x	x
Greater scaup	<i>Aythya marila</i>	x	x
Mallard	<i>Anas platyrhynchos</i>	x	x
Oldsquaw	<i>Clangula hyemalis</i>	x	x
Pintail	<i>Anas acuta</i>	x	x
Common snipe	<i>Capella gallimago</i>	x	
Sandhill cranes	<i>Grus canadensis</i>	x	
Ptarmigan	<i>Lagopus sp.</i>	x	x
Gull eggs	<i>Larus sp.</i>	x	x
Blueberry	<i>Vaccinium uliginosum L.</i>	x	x
Crowberry	<i>Empetrum nigrum L.</i>	x	x
Lowbush cranberry	<i>Vaccinium vitis</i>	x	x
Salmonberry	<i>Rubus spectabilis Pursh.</i>		x
Salmonberry	<i>Rubus chamaemorus</i>	x	
Wild celery (petruskie)	<i>Angellica lucida</i>	x	x
	<i>Ligusticum hultenii</i>	x	x
	<i>Heracleum lanatum</i>	x	x
Wild rhubarb	<i>Polygonum alaskanum</i>	x	
Wild spinach (putchkie)	<i>Rumex arcticus Trautv.</i>	x	x

on the Pacific side. Therefore, separate seasonal rounds for Egegik and for the Pacific communities will be presented.

As resource harvesting activities occur in a continuous manner, any starting point within the calendar year may appear arbitrary. The arrival of the salmon in May or June is of tremendous importance for residents living on each side of the peninsula. In the past salmon was harvested solely for home consumption; throughout the twentieth century it has been harvested both as a commercial and subsistence resource. As such it is the backbone of the cash economy of all the communities and seems an appropriate starting point for a seasonal round description.

Egegik

Figure 14 illustrates the seasonal round for Egegik. The narrative description begins in late spring with preparations for the upcoming salmon harvest.

Late spring and early summer (May and mid-June)

In the early 1980s preparation for the Egegik salmon season signaled a change in activity patterns from those of the late winter and early spring months. As gear and supplies were readied for commercial activities, resource harvesting for home use continued.

Digging for clams which began earlier in the spring, continued into May. Butter clams were conveniently available near the village. Small fixed-winged aircraft were used to reach beaches on the Pacific side of the peninsula where razor clams were gathered. Sometimes one or two plane

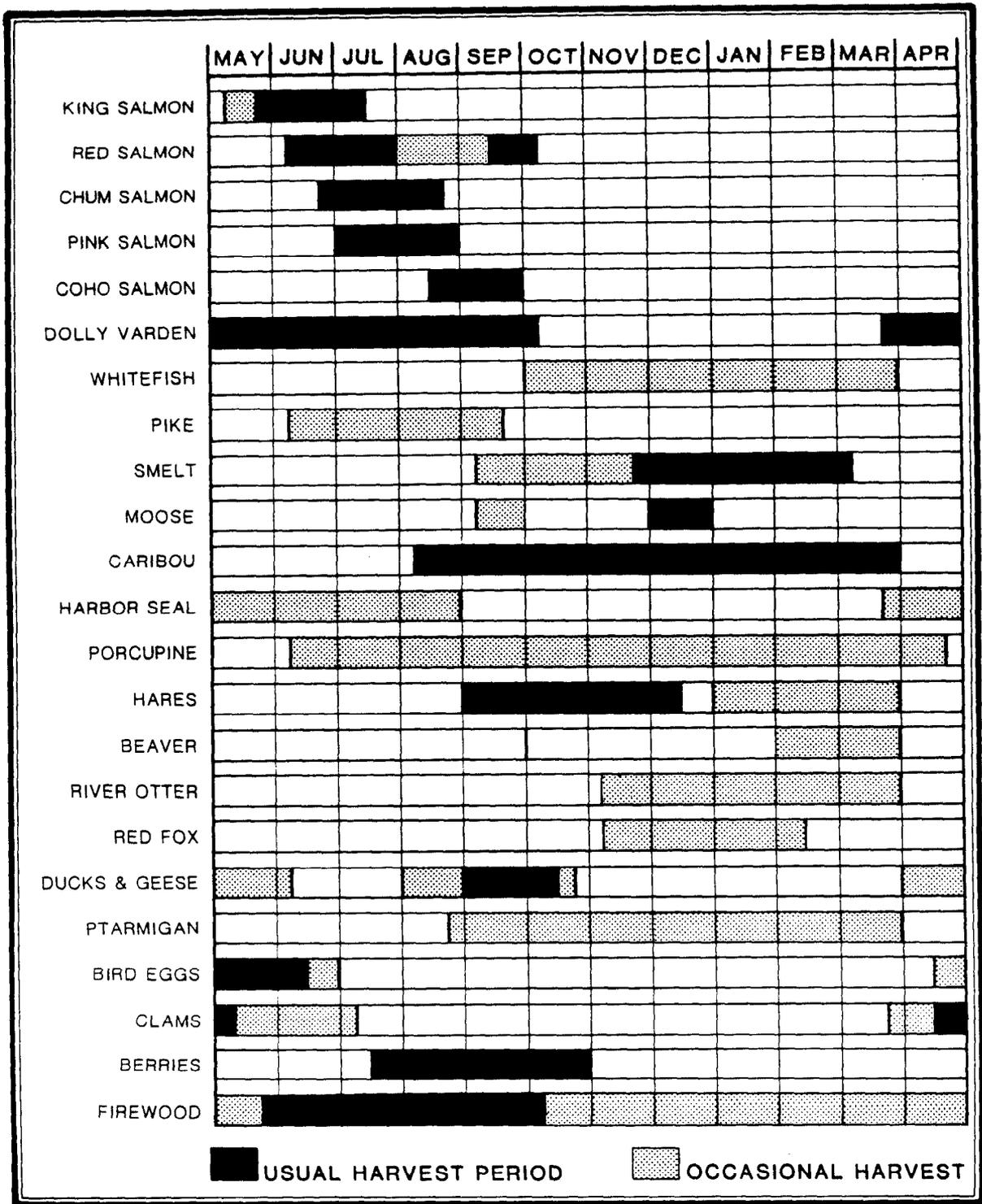


Figure 14. Egegik Seasonal Round, 1984.

loads of young men traveled to the Pacific beaches, returning with clams to be distributed among friends and relatives. Sea urchins were also gathered during this season.

Waterfowl hunting was a traditional spring activity. Partially due to international regulations prohibiting spring waterfowl hunting, the practice had diminished though not ceased. Species of ducks available during this period included mallards, canvasbacks, teals, and goldeneye. Geese, too, were present for a short time as they headed to their breeding grounds further north.

During the months of May and June, egg gathering, mostly gull eggs, was a popular activity. Eggs were gathered on Egg Island located in the Egegik River or on spits near Bristol Bay. Historically, egg gathering occurred in greater amounts when there was no other source of fresh eggs. As commercial supplies of domesticated eggs became available fewer wild eggs were collected, particularly in the large quantities which were stored and used throughout the year. Many of those collecting gull eggs gathered just enough to have a "taste" each spring of a favorite food.

Summer (Mid-June-August)

The first of the five species of Pacific salmon returning to Egegik River each year was the king (chinook). As early as May, but generally more into June, king salmon were caught in gill nets or with rod and reel.

As most households were dependent on commercial salmon fishing for their yearly cash income, during the sockeye salmon run, which began in June, local residents directed their energy toward the commercial harvest. Therefore, during the peak of the sockeye run, subsistence fishing was of

secondary concern though a number of households put up subsistence salmon when commercial fishing was closed. Others brought fish home from their commercial catches to process for family use during slack commercial periods.

Simultaneously with commercial fishing, harbor seals, considered a menace to the commercial fishery, were occasionally killed and taken home. The liver and oil were considered the most desirable parts of the seal.

Concentrated effort continued on commercial salmon through July, though by the latter part of the month the run had peaked. Silver (coho) salmon arrived during the month of August. Home use of silvers was second only to that of sockeyes. As commercial fishing slacked off more effort was directed to processing foods for home use. In addition to putting up silvers, July and August were important berry picking months. Salmonberries, a popular berry for making *agutak*, were the first of year's supply. They were found in boggy areas of the tundra. Snipe and porcupines were occasionally taken in late summer near Egegik.

No rod and reel fishing for freshwater species occurred during the salmon season. This activity resumed in late summer. Skiffs were used to run up the Egegik or King Salmon rivers where grayling, rainbow trout, and silver salmon were targeted.

The opening of caribou season in mid-August marked an important harvesting period. In the early season skiffs provided transportation on local waterways to hunting areas such as around Becharof Lake. Incidental harvests of other species, such as ptarmigan or waterfowl, also occurred during these trips.

Fall (September-October)

Moose hunting around Egegik began in early September. Traveling up to Becharof Lake or along the King Salmon and Egegik rivers, moose hunters exerted considerable effort during the short (10 day) season. Also, caribou hunting continued through September and October, but harvesting bulls during the peak of the rut was not popular. Indeed, many local residents preferred to wait and harvest caribou later in the year. During late September and early October some local residents traveled up the the Egegik River near the outlet of Becharof Lake and harvested small quantities of spawned-out sockeyes.

Other fall harvest activities by village residents included waterfowl hunting. The Egegik area is situated in productive waterfowl staging habitat. Ducks and geese were successfully hunted near Egegik and further south in the Pilot Point area. Also, berry picking continued through September and into October. Cranberries, blackberries, and blueberries were harvested locally. Skiffs, fishing boats, and airplanes were used for traveling to more remote locations.

Winter (November-February)

As the weather conditions became consistently colder and rivers impossible to negotiate with skiffs, harvest activities depended on the use of land vehicles or airplanes. Hunting land mammals continued. If conditions permitted, people began to fish through the ice for smelt or freshwater fish. When weather conditions permitted, moose were hunted during December. The December moose season can fall between periods of

safe travel; it is too late to use skiffs but too early for the ice to be safe for land travel. Small game, such as hare, ptarmigan, and porcupine, were hunted. Often taken opportunistically by hunters targeting on big game animals, small game were sometimes also the focus of hunting trips.

Trapping furbearers commenced in November and continued through March. Three-wheelers were commonly used for transport to nearby locations. Airplanes provided access to more remote trapping areas. Trappers generally lived at home and checked their trap lines in a single day. Among the furbearers taken, beavers provided not only pelts but meat for human consumption.

As ice conditions improved, usually between late December and mid-February, fishing for smelt began. Jigging through the ice for whitefish and smelt was popular. In general, winter activities, such as trapping and caribou hunting, continued as long as favorable weather conditions permitted. As daylight hours lengthened in February and March harvesting activities increased.

Early spring (March-April)

Break-up near Egegik can occur from February to May but generally falls between late March and late April. It was a slack period for resource harvesting due to difficult traveling conditions and lack of readily available resources. Trapping season was over, moose and caribou were not near, birds had not returned, and plants or berries were unavailable. When skiff travel was possible, freshwater fishing up the King Salmon River began. Clams were harvested when sufficient daylight and low tides coincided. But in general, Egegik residents spent the time

preparing for the return of the salmon, which signaled the beginning of a new resource harvesting cycle.

Pacific Coast Communities

As is shown in Figure 15, the seasonal round on the Pacific side of the Alaska Peninsula reflects the presence of year-round open water. As with Egegik, the narrative description begins with the return of the salmon in May.

Late spring and early summer (May and mid-June)

During the study period in the 1980s, the sockeye salmon season began earlier for residents on the Pacific coast than for those living on the Bristol Bay side. By mid-May, many of the families from Perryville, Chignik Lake, and Ivanof Bay had begun moving to summer quarters in the Chignik area. Men often readied fishing gear and housing before women and children arrived. Preceding the opening of commercial salmon fishing (June 9th), the first of the year's salmon were put up for home use. These were taken either with commercial seines or set gill net gear. Several households maintained smokehouses at the fishing grounds. Half-smoked and baked salmon was popular during the early season.

As greens such as eshtunguk and wild spinach appeared in May and June, they were picked and added to soups and casseroles. Other subsistence activities included gathering firewood and gull eggs. In Perryville, dipnetting for candlefish (eulachon) in a local creek was an annual occurrence. Sea lions and seals were taken year round, but especially

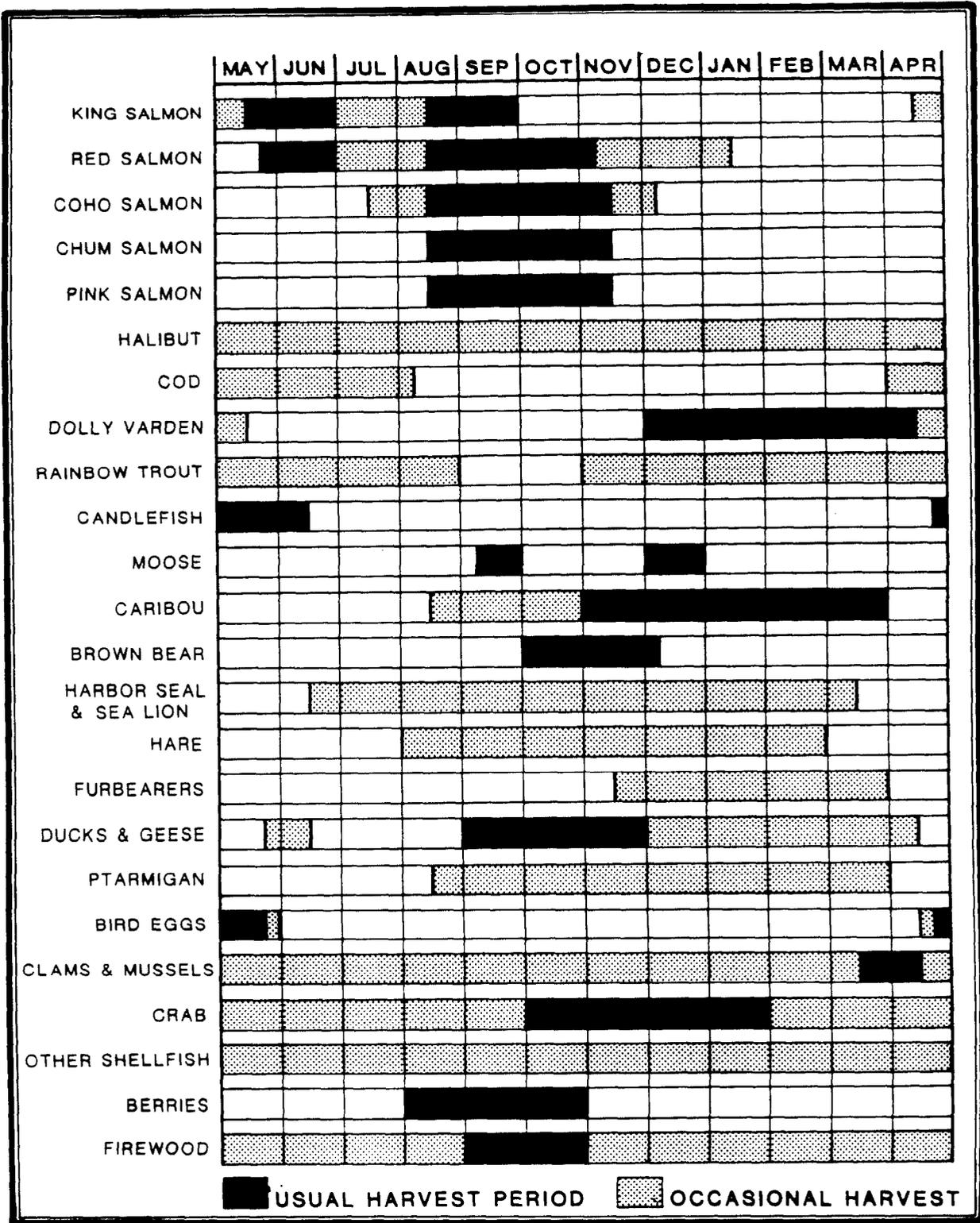


Figure 15. Pacific Coast Chignik Region Communities Seasonal Round, 1984.

during late spring and early summer. As brown bear emerged from their dens they were hunted by Chignik Lake, Ivanof Bay, and Perryville residents. Spring bears were said by local residents to have very tender meat. Ducks and geese were harvested as they passed through on their way to nesting grounds further north.

Once the commercial fishing season was in full swing, resource harvesting strictly for home use was curtailed. Species such as halibut, crab, sculpin, steelhead, or cod taken incidentally to the commercial catch were frequently kept for home use. Salmon taken immediately preceding the commercial fishery continued to be processed by non-fishing members of the family, which meant keeping the smokehouse going until the fish was properly cured.

Summer (Mid-June-August)

The sockeye salmon run was divided into two separate runs which continued into the fall. Subsistence activities, at least for permit holders and crews, continued to be shaped by commercial fishing activities.

When caribou season opened in August, hunting parties went out during commercial fishing closures. The fresh caribou meat was a welcomed change from the predominantly fish diet which had prevailed for the previous two months.

Berry season began when salmonberries ripened, usually in July. The season continued through August with blackberries available soon after salmonberries. Usually gathered by the women and children, berries were preserved in a number of ways including jams and jellies.

Fall (September-October)

As the temperatures cooled, commercial fishing slowed down, school resumed, and there was a shift to a balanced effort between commercial and subsistence harvesting activities. In 1984, moose season opened on September 10th for ten days. Hunting parties often traveled in commercial fishing vessels along the coastal areas looking for signs of moose or caribou. Once a potential site was selected, hunters traveled inland by foot or with three-wheelers, which had been carried aboard the boats, to continue the hunting effort.

In addition to hunting for moose and caribou in September and October, residents harvested waterfowl, picked berries, gathered marine invertebrates, and continued salmon fishing. Ducks and geese, including mallards, pintails, goldeneyes, and canvasbacks, as well as brants and emperor geese, were taken as they passed through the area on their return to southern wintering grounds. Some waterfowl species wintered over, particularly in the Ivanof Bay area, and continued to be harvested for several months. Cockles and other intertidal resources were harvested when low tides and sufficient daylight allowed.

Blackberries and blueberries were generally available through the end of September. Lowbush cranberries ripened after the first frost, usually sometime in August, and were gathered into October.

September and October were important subsistence salmon fishing months in Ivanof Bay and Perryville. Men began to return home from commercial fishing and helped with the harvest. All salmon species, except sockeyes, were available locally. The salmon, generally taken with gill nets, were smoked and salted. Silver salmon were also canned and dried.

In Chignik Lake, residents of Chignik Lake, Chignik Lagoon, and Chignik used small beach seines to harvest spawned out salmon during October. The fish were dried or smoked. Work groups for the harvesting and processing of spawned-out fish were generally composed of related men. Rod and reel fishing in the Chignik River for silver salmon was a popular fall time activity.

In addition to caribou and moose, other land mammals were harvested. Residents of Perryville, Ivanof Bay, and Chignik Lake considered October a good month to harvest brown bear. The fat, particularly desired to use with dried fish, was best at this time of the year. The bears were often found along streams feeding on spawning salmon. Fox and wolverine were occasionally taken when the fall season opened in November. Sporadic harvest of seals and snowshoe hare continued.

Winter (November -February)

Throughout the winter months, water resources continued to be important for Pacific coast residents. Due to presence of year-round open water, saltwater and intertidal harvesting activities were possible. Commercial fishing, specifically crabbing, afforded opportunity to acquire marine resources on an incidental basis. Freshwater streams, lakes, and rivers provided fishing in open water or through the ice depending on weather conditions.

Most of the crab consumed locally originated in commercial crab fishery. Households directly involved in the commercial crab fishery derived the most direct benefit from the harvest. However, many households reported receiving fresh crab from commercial boats. Other varieties of

fish, such as cod or halibut, were occasionally taken incidental to commercial catches.

Where conditions permitted, such as at Chignik Lake, Dolly Vardens were fished through the ice. Rainbow trout, too, were harvested with hook and line through the ice. In open freshwater salmon were taken as late as December or January.

Caribou harvesting continued throughout the winter months. Moose were hunted during the December season which ran from the first through the fifteenth of the month. Access to productive caribou areas was most convenient for Chignik Lake, Perryville, and Ivanof Bay residents. More caribou hunting and harvest was reported for these communities than for Chignik Lagoon and Chignik Bay.

While hunting for bigger game, men harvested small game and birds, such as ptarmigan, porcupine, and hare. Occasionally, these small game species were the primarily goal of a hunting trip. Fresh and saltwater ducks and geese which wintered in the local area were harvested also. Some households set out crab pots. During trapping season a limited number of furbearers were trapped.

Early spring (March-April)

Longer periods of daylight combined with good minus tides made March and April favorite months for digging clams. Butter clams and cockles were available in Mud Bay and near Old Village in Chignik Lagoon, and sometimes on beaches fronting Ivanof Bay and Perryville. Razor clams were mainly harvested at Humpback Bay, Long Beach, and Mitrofina Bay.

According to Perryville and Ivanof Bay residents, spring was the best time to hunt sea lions found in the waters adjacent to their villages. Also, Dolly Varden were harvested with hook and line or small beach seines. Because seining often produced sizable harvests, fish were usually distributed among a number of households. In April, gill nets set at Perryville and Ivanof Bay began catching an occasional king salmon. Some households were involved in commercial herring and a limited amount of herring was brought home. Other activities, such as caribou hunting, continued as weather and travel conditions permitted until thoughts turned to salmon. With preparations for salmon fishing, another seasonal round began.

CHAPTER FIVE
SUBSISTENCE RESOURCE HARVEST AREAS

ELEGIK

During the mid-1980s, the terrestrial resource harvest area used by Egegik households was located entirely on the Alaska Peninsula. This area stretched along the Bering Sea and inland from an area north of the King Salmon River, around Becharof Lake, south to approximately Cape Greig (Fig. 16). Also, sporadic harvesting of marine invertebrates occurred at Wide Bay and Alinchak Bay on the Pacific side of the peninsula.

During the seasonal caribou migrations, animals were hunted in local areas accessible with three or four-wheelers. Caribou were also hunted further away in areas reached by airplane or skiff. Moose hunting generally required travel to riverine environments, such as along the King Salmon river or along the shoreline of Becharof Lake to places such as Featherly Creek and Severson Peninsula. Furbearer trapping generally took place in much the same areas as caribou and moose hunting.

Salmon were taken with set gill nets in the Egegik River and Egegik Bay near the community. Beaches immediately adjacent to the town are located within the commercial district and could be fished only when the commercial fishery was open. It was necessary to go to Egg Island, approximately a mile above the confluence of the Egegik and King Salmon rivers, in order to place a subsistence gill net outside the commercial fishing district.

The Egegik River was also the location for smelt fishing after freeze up. Gull eggs were gathered from islands in the river. At the rapids,

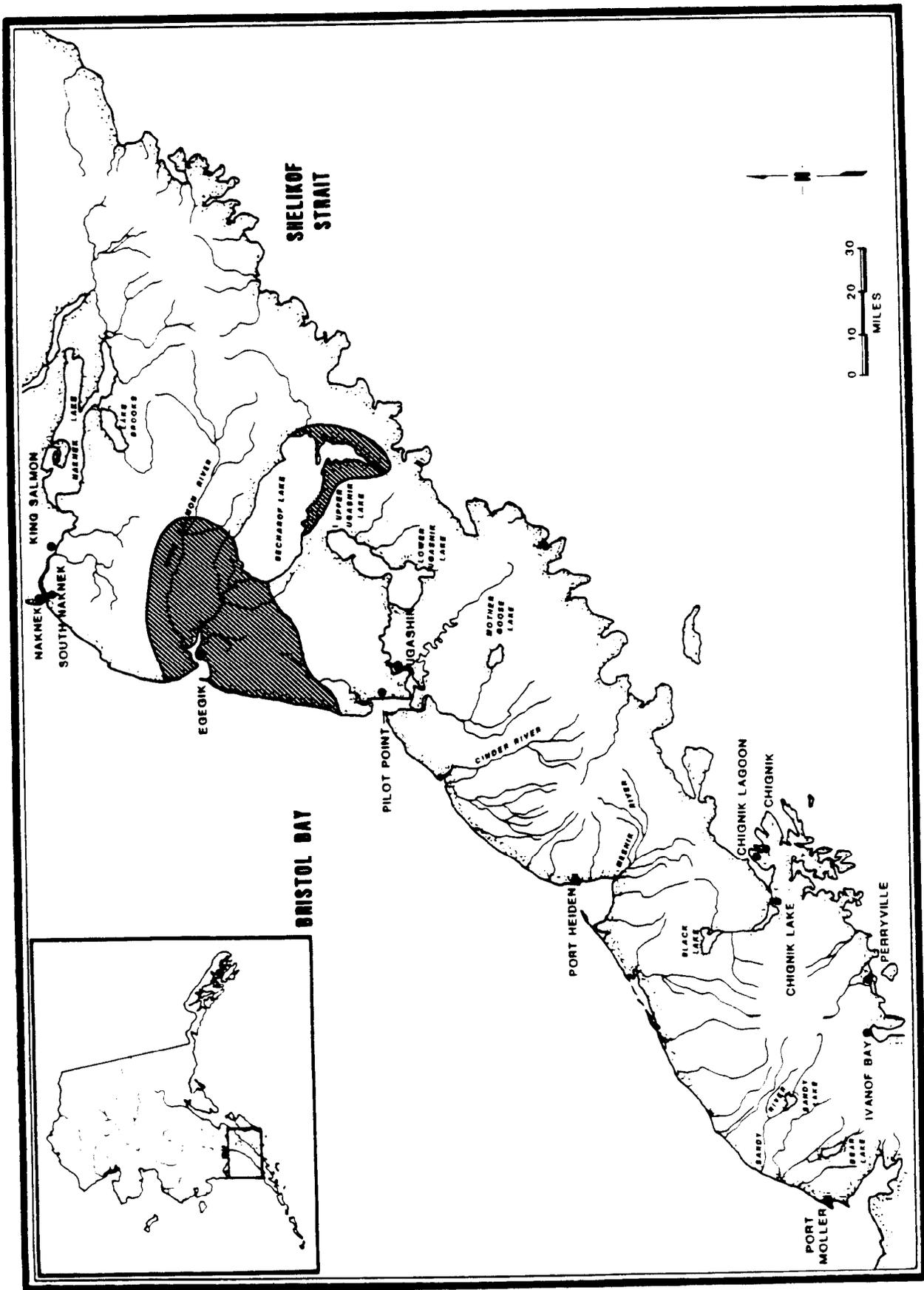


Figure 16. Egegik Resource Harvest Area, 1962-1982.

near the outlet of Becharof Lake, "red" fish (spawning salmon) were occasionally harvested. Freshwater fish, including rainbow trout, grayling, and Dolly Varden, were taken in the King Salmon river, Egegik River, and Becharof Lake.

During September and October some Egegik residents flew to Pilot Point where they hunted waterfowl with friends and relatives who lived there. This was not included in mapping data collected in 1982 and may be a recent activity.

CHIGNIK LAKE

Chignik Lake harvesters used land and water areas crossing the entire Alaska Peninsula as illustrated in Figure 17. A variety of transportation forms, including airplanes, skiffs, three and four-wheelers, and snowmachines, provided access to harvest areas.

The Ilnik area, on the Bering Sea side of the peninsula, was used for waterfowl and caribou hunting. During the spring months it also provided productive waterfowl and gull egg gathering.

Caribou, on their annual migration, were harvested as they journeyed between the swampy lowlands of the peninsula and the flanks of Mt. Veniaminof. Moose were occasionally taken in the same area, but more often were hunted along the Mt. Veniaminof, Black Lake, Chignik Lake, and Chignik River drainages. Waterfowl, too, were taken along and near these watercourses.

Water areas stretching from the Chignik River upstream from Chignik Lake into Chignik Bay provided habitat for anadromous and freshwater fish, waterfowl, marine invertebrates, and marine mammals which were harvested by

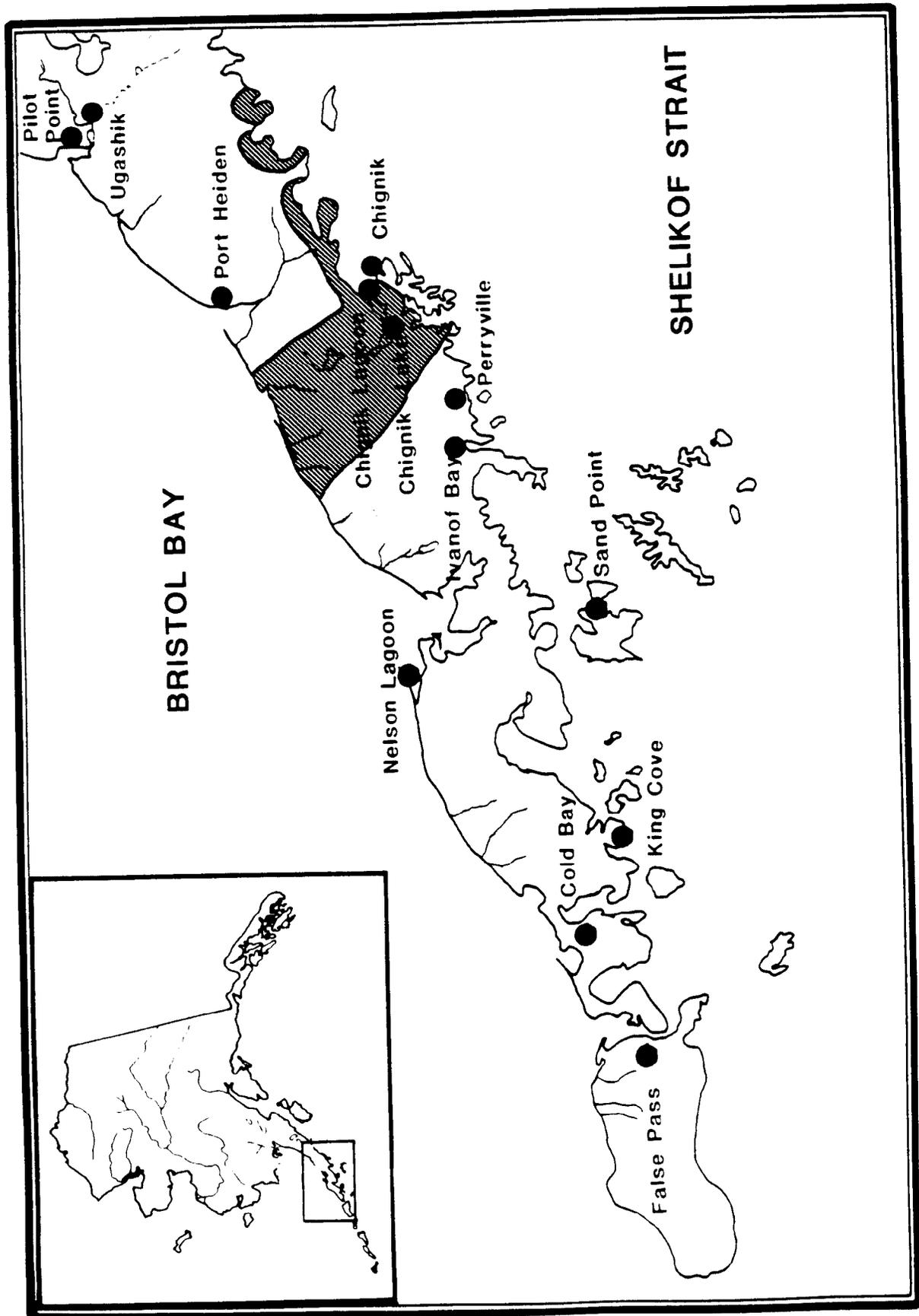


Figure 17. Chignik Lake Harvest Area, 1962-1982

Chignik Lake residents. Salmon were taken with beach seines or set gill nets in Clarks River, Chignik Lake, and in Chignik Lagoon. In the late summer coho salmon were taken with rod and reel in Chignik River and Chignik Lake. Mud Bay was a popular marine invertebrate harvest area. Various species of birds were available almost continuously in Chignik Lagoon where open water was generally found year-round.

To the north of Chignik Bay, the sheltered bays including Yantarni, Amber, Aniakchak, and Kujulik, were used for hunting, gathering, and fishing activities. They were used mainly when the commercial fishing fleet had boats in the water. Moose and caribou, along with other species were hunted in these areas. Driftwood, too, was gathered along the sheltered bays throughout the year, but mainly when commercial boats were available.

Berry gathering was popular in the drainages and hills around the village. Old Village, at Chignik Lagoon, was a favorite berry picking location. Fresh greens were gathered around fish camp homes at the lagoon in early spring and summer.

CHIGNIK LAGOON

Chignik Lagoon residents used the open water of Chignik Bay as access to many of their harvest areas. Often traveling aboard their commercial fishing vessels, hunters used the coastal areas surrounding their homes in harvesting activities. Figure 18 illustrates areas Chignik Lagoon harvesters indicated having used between the years of 1962-1982. It appeared from conversations in 1984 with residents that the Bering Sea side of the peninsula was used infrequently. Use levels appeared to be closely

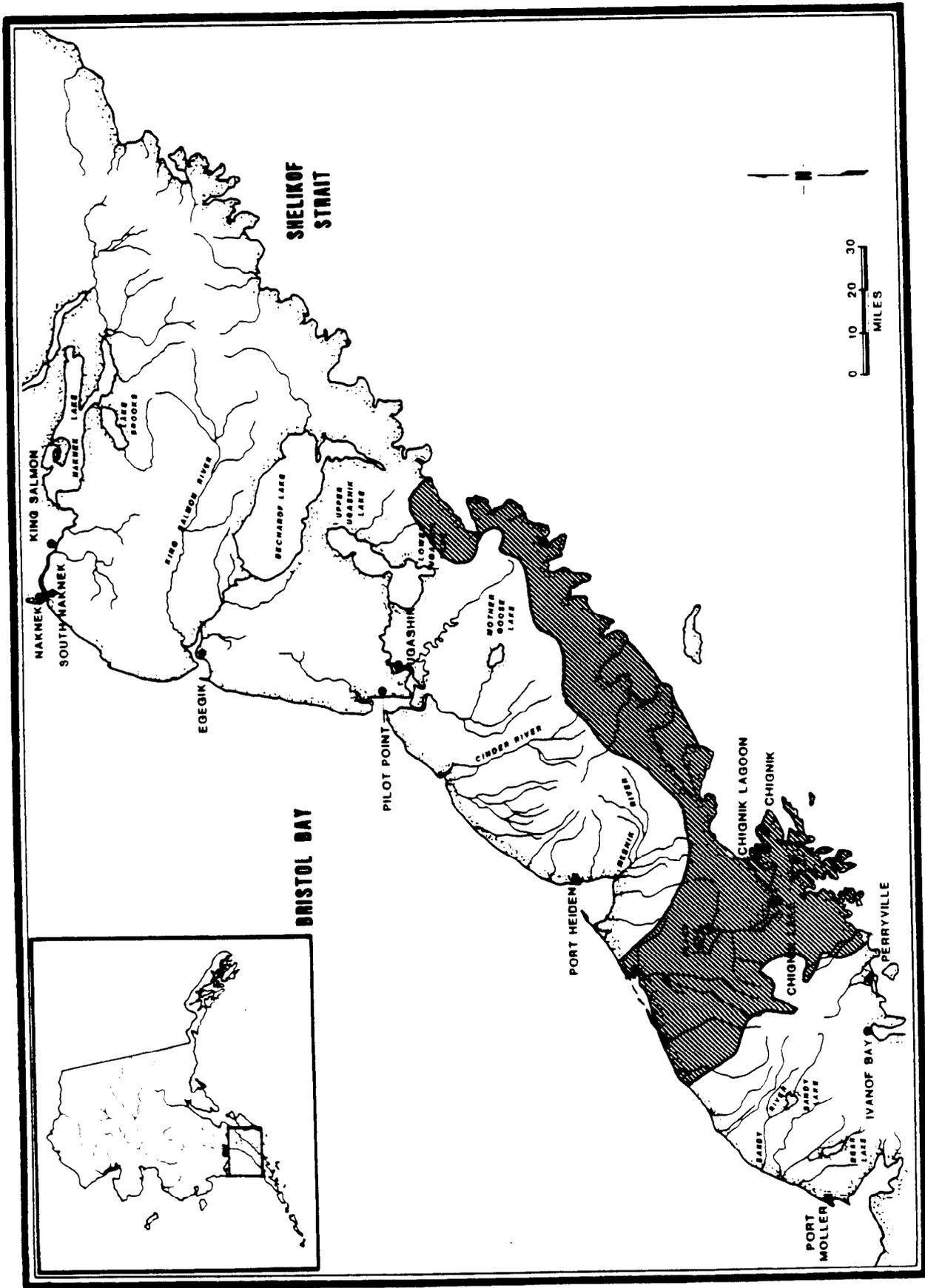


Figure 18. Chignik Lagoon Harvest Area, 1962-1982.

related to the number of privately owned aircraft available to local residents. At the time of the study, the number of privately owned aircraft was small.

Chignik Lagoon itself provided rich habitat for a variety of anadromous fish, marine invertebrates and mammals, as well as birds. Berries and other plant foods were gathered near the lagoon in areas bordering the community. Creeks such as Mitrofina, draining into the lagoon were mentioned as good trapping locations. Mitrofina also provided access to Portage Bay where waterfowl and marine invertebrates were taken.

Skiffs and fishing vessels provided transportation to the coastal areas ranging from Wide Bay to Castle Bay. Moose or caribou hunters traveled two to three miles inland from the shoreline on foot or by three-wheelers which had been transported on fishing boats. Occasionally, trap lines were set in the drainages of Kujulik Bay, Hook Bay, and the Aniakchak River. Waterfowl were hunted in these locations and periodically marine mammals or invertebrates were taken there.

CHIGNIK

Harvesting activities of Chignik residents were concentrated along the Pacific coastline and in lands adjacent to the community. The furthest inland area reportedly used for harvests was Chignik Lake, to which people traveled in the fall to harvest salmon. Chignik residents used open water to reach most of their resource harvest areas.

As Figure 19 illustrates, the coastal and tidal areas from Wide Bay to Castle Cape were well-known to local harvesters. Commercial fishing vessels, often with three-wheelers aboard, provided transportation to

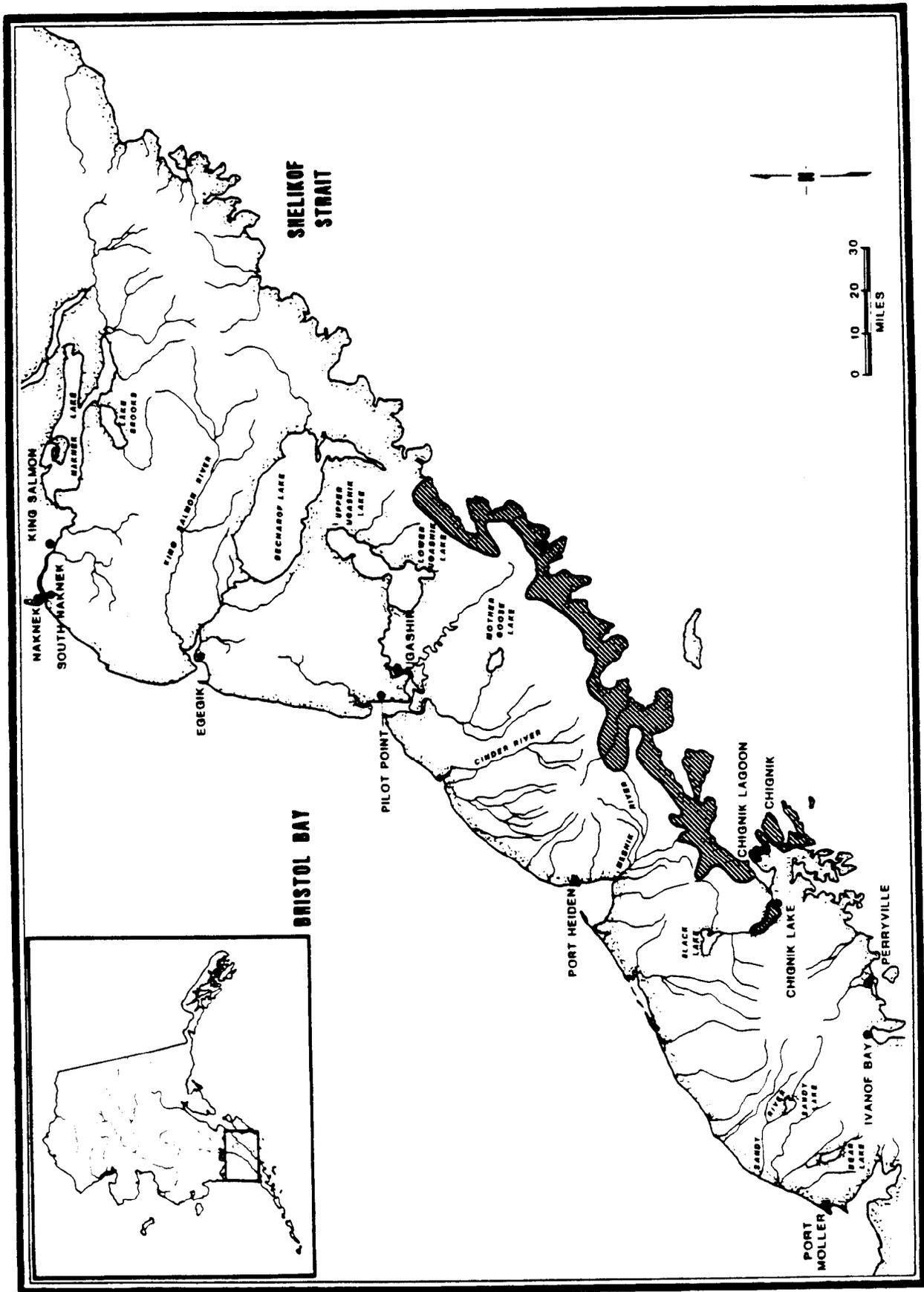


Figure 19. Chignik Harvest Area, 1962-1982.

hunting areas to the north where caribou and moose were sought. These areas were also productive areas for trapping furbearers, harvesting marine invertebrates and mammals, waterfowl, and gathering driftwood. During summer and fall months, berries were picked along the coastal area.

In Chignik, the drainage of a creek emptying into Anchorage Bay provided habitat where waterfowl, moose, and other resources were found. Waterfowl, marine fish, and marine invertebrates were also harvested in Anchorage Bay.

PERRYVILLE

An area ranging along the coastline north from Wide Bay south to Ramsey Bay was identified by Perryville residents as being used in resource harvesting for the years between 1962 and 1985 (Fig. 20). Travel to the areas north of Chignik and south of Perryville generally required the use of commercial fishing vessels. According to residents, the bulk of resource harvesting took place close to Perryville, with the area from Stepovak Flats to Red Bluff Creek being used most frequently.

The Kametook River drainage offered Perryville residents a richly varied harvest area. As Figure 20 illustrates, this drainage connected with the system which empties into Stepanof Flats, and formed an arc of riverine habitat behind the community. Moose, caribou, bear, furbearers, ptarmigan, and salmon were all taken in this area.

Immediately in front of the community, the shoreline, bay, and islands were abundant with marine and avian resources. Here marine mammals, fish, shellfish, marine invertebrates, and eggs were found.

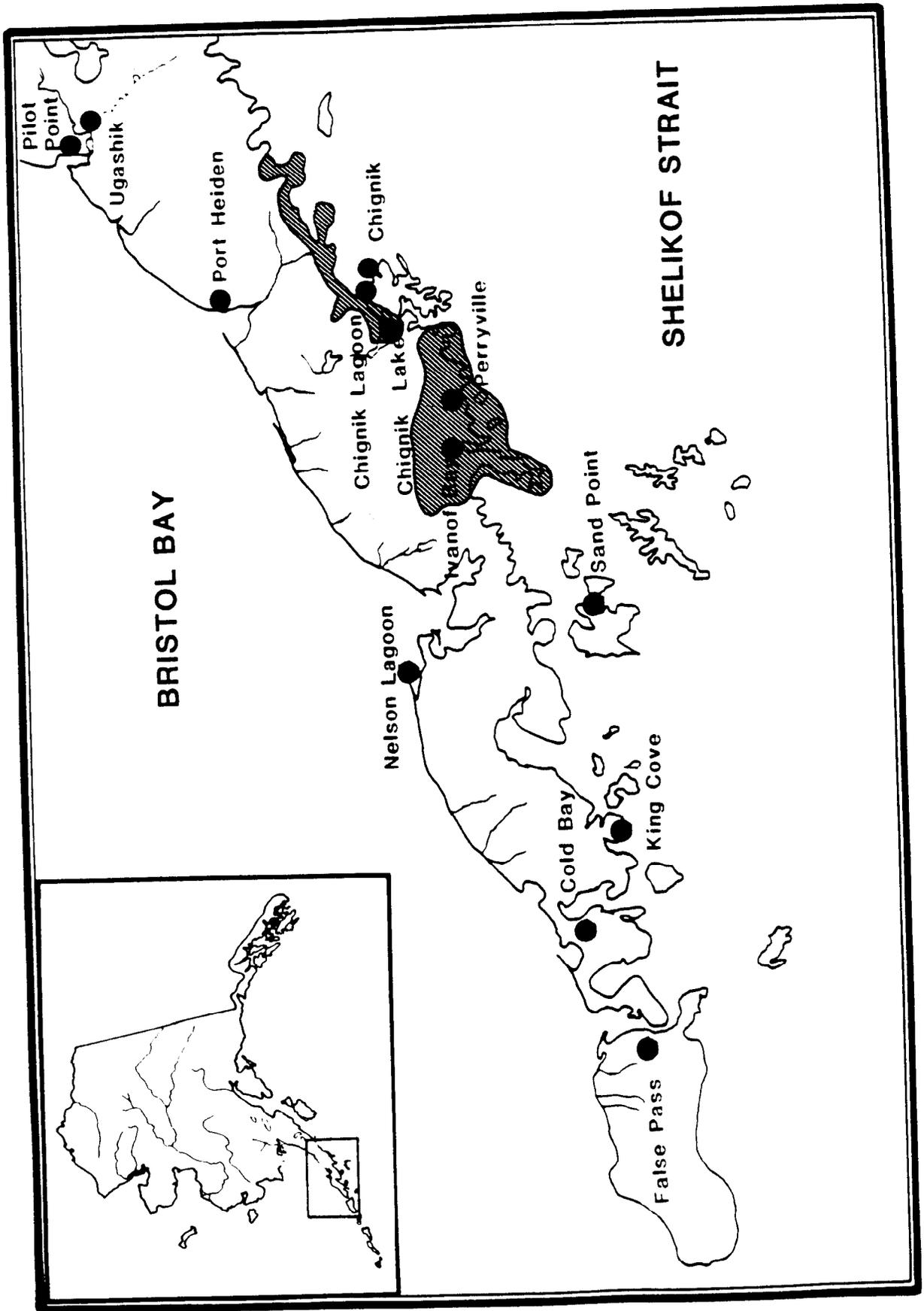


Figure 20. Perryville Harvest Area, 1962-1984.

Bearing the Russian word for gull, the Chiachi Islands were mentioned as particularly productive for egg collecting. Additionally, the islands provided sheltered areas for fishing and marine mammal hunting. Egg gathering was also reportedly good on the Brother Islands and sea lions were harvested at Spitz Island.

Long beach, stretching from Three Star Point to Coal Point, and Humpback Beach were popular areas for gathering bidarkies, clams, and driftwood. During winter months traplines were run along the beaches. Salmon were occasionally taken in creek mouths found along these beaches.

Many of the same resources found near Perryville were found around Ivanof Bay. When harvesting resources in Ivanof Bay, Perryville residents were generally accompanied by Ivanof Bay friends and relatives.

Sleepy Hollow and the Granville Portage provided access to the Stepanof Flats and were repeatedly mentioned as productive hunting areas for caribou, brown bear, and moose. Hunting in the Stepanof Flats was described by members of most active harvesting households. Access to the flats was by air or water. At least one Perryville household had a cabin there which allowed hunters to remain in the area for several days when on hunting or trapping trips. Large land mammals were most commonly taken in Stepanof Flats, and served as a productive trapping area in past years. Hunting and trapping also took place at Ramsey Bay and the Red Bluff Creek area.

While spending the summer at the commercial fishing grounds, several households harvested salmon in the Chignik area. Sockeyes, which are not as readily available at Perryville, were most frequently taken. Berries were gathered while at Chignik during the summer months.

IVANOF BAY

The land and water areas surrounding the community of Ivanof Bay provided habitat for a rich array of the natural resources which were used by residents (Fig. 21). Clams and salmon were found in the beach and river areas. Marine fish and mammals, shellfish, and salmon were taken in the bay immediately in front of the community. Located in Ivanof Bay, James and Road Islands were used for gathering bird eggs.

Like Perryville residents, people from Ivanof Bay hunted and trapped on the Stepanof Flats. Trap lines were run along the shoreline, river, and stream drainages. Bear, moose, and caribou were harvested throughout the flats and up to the foothills which form an arc behind the community and over to the Kametolook River drainage adjacent to Perryville.

Productive trapping, hunting, and fishing also occurred on the Kupreanof Peninsula. The pass between Hag Point and Island Bay was a particularly popular location for a variety of harvesting activities, including salmon fishing.

Open water between Alexander Point and Paul and Jacob Islands was used to harvest many marine resources. Additionally the shoreline from the point and along Humpback Bay provided sites for gathering clams and other marine invertebrates.

While fishermen and their families were at the fishing grounds during the commercial salmon season, resources for home consumption were harvested. Berries and fish were the two types of resources reportedly taken from the Chignik area during the summer season.

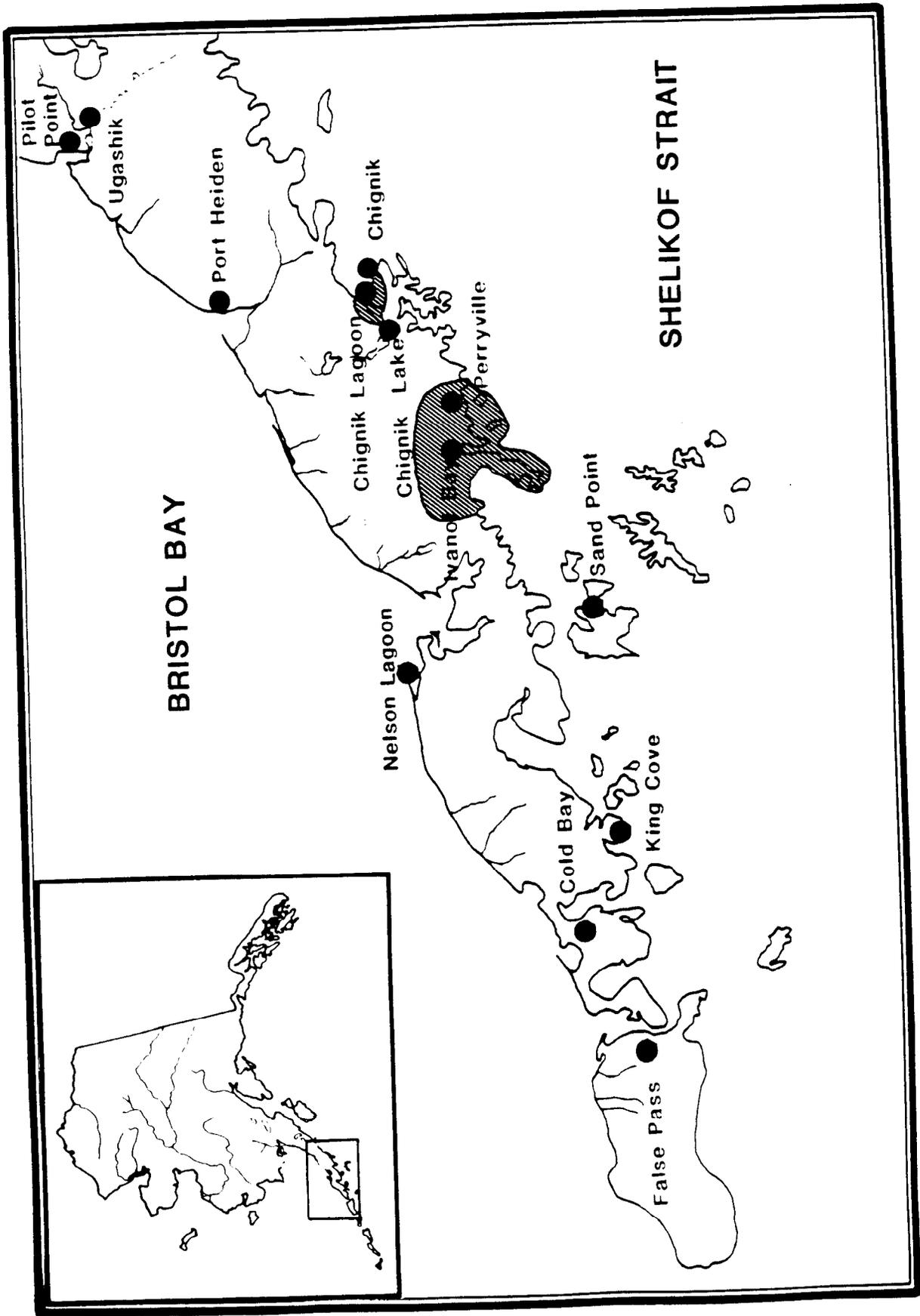


Figure 21. Ivanof Bay Harvest Area, 1962-1984.

CHAPTER SIX
LEVELS OF RESOURCE HARVEST AND USE

GENERAL OVERVIEW

Each community included in the study exhibited a distinctive combination of resource harvests and uses, but overall data from the harvest surveys showed a general harvest and use pattern in the study area. The following description provides a broad overview of resource harvest and use levels in 1984 by the Alaska Peninsula households included in the study. It is cautioned that harvest and use characteristics of individual communities may be hidden in the generalized discussion.

Overall, the sample of 110 households in the six communities were actively involved in wild resource harvest and use (Table 15). Ninety nine percent of the sample used at least one kind of wild resource during the 1984 study year, 94.5 percent attempted to harvest resources, and 94.5 percent were successful harvesters. The average number of resources used per household was 14.3, while the sampled households attempted to harvest 8.3 kinds of wild food, and actually harvested an average of eight kinds.

As with participation, levels of resource harvest as measured in pounds edible weight were also high among the sampled households in 1984. The mean harvest for the 110 households was 1,155.3 pounds of wild foods. The per capita harvest was 302.6 pounds.

For residents of the study area in 1984, salmon was the resource category making the greatest contribution to the subsistence harvest. Overall, 95.5 percent of the households used salmon, 88 percent fished for salmon, and 87.3 percent harvested salmon (Table 16). By weight, salmon

TABLE 15. CHARACTERISTICS OF RESOURCE USES, SIX ALASKA PENINSULA COMMUNITIES, 1984.

	ENTIRE SAMPLE (N=110)	ECEGIK (N=25)	CHIGNIK LAKE (N=23)	CHIGNIK LAGOON (N=17)	CHIGNIK BAY (N=19)	PERRY- VILLE (N=20)	IVANOF BAY (N=6)
Mean # of Resources Used Per HH	14.3	10.0	16.2	10.4	12.5	21.2	18.5
Mean # of Resources HH Attempted to Harvest	8.3	7.6	8.0	5.5	7.1	11.9	12.7
Mean # of Resources Harvested by HH	8.0	7.4	7.4	5.0	6.7	11.7	12.5
Mean # of Resources Received by HH	8.1	3.8	10.4	5.4	7.2	13.7	9.5
Mean # of Resources Given Away by HH	5.6	4.5	6.3	3.3	4.9	8.2	8.0
Mean HH Harvest in Pounds	1155.3	893.0	1424.7	767.9	839.1	1659.6	1632.6
Community Per Capita Harvest in Pounds	302.6	384.9	282.5	229.0	194.4	390.5	445.3
HH Per Capita Harvest in Pounds	377.1	477.9	310.4	281.1	226.2	550.7	384.8
% of HH Using Any Resource	99.1	100.0	100.0	94.1	100.0	100.0	100.0
% of HH Attempting to Harvest Any Resource	94.5	100.0	100.0	82.4	84.2	100.0	100.0
% of HH Harvesting Any Resource	94.5	100.0	100.0	82.4	84.2	100.0	100.0
% of HH Receiving Any Resource	90.0	76.0	95.7	82.4	94.7	100.0	100.0
% of HH Giving Away Any Resource	85.5	92.0	82.6	70.6	78.9	100.0	83.3

TABLE 16. PARTICIPATION IN RESOURCE HARVEST AND USES BY RESOURCE CATEGORY

	Entire Sample (N=110 hh)	Egegik (N=25 hh)	Chignik Lake (N=23 hh)	Chignik Lagoon (N=17 hh)	Chignik (N=19 hh)	Perryville (N=20 hh)	Ivanof Bay (N=6 hh)
Salmon							
% Using	95.5	96.0	100.0	88.2	94.7	100.0	83.3
% Attempting	88.0	92.0	100.0	70.6	78.9	95.0	83.3
% Harvesting	87.3	92.0	100.0	64.7	78.9	95.0	83.3
% Receiving	56.4	56.0	52.2	52.9	68.4	60.0	33.3
% Giving	56.4	56.0	47.8	47.1	68.4	60.0	66.7
Other Fish							
% Using	82.7	64.0	95.7	76.5	84.2	100.0	66.7
% Attempting	70.0	60.0	73.9	52.9	73.7	95.0	66.7
% Harvesting	70.0	60.0	69.6	52.9	73.7	95.0	66.7
% Receiving	58.2	24.0	69.6	47.1	68.4	85.0	66.7
% Giving	53.6	40.0	52.2	29.4	63.2	90.0	33.3
Marine Invertebrates							
% Using	81.8	44.0	91.3	88.2	94.7	100.0	83.3
% Attempting	64.0	36.0	56.5	64.7	78.9	90.0	83.3
% Harvesting	63.6	36.0	52.2	64.7	78.9	90.0	83.3
% Receiving	62.7	28.0	65.2	52.9	73.7	95.0	83.3
% Giving	46.4	24.0	39.1	35.3	52.6	75.0	83.3
Marine Mammals							
% Using	43.6	4.0	65.2	11.8	31.6	95.0	83.3
% Attempting	22.0	0.0	26.0	11.8	10.5	50.0	66.7
% Harvesting	19.1	0.0	13.0	11.8	10.5	50.0	66.7
% Receiving	35.5	4.0	56.5	5.9	21.1	85.0	50.0
% Giving	20.0	0.0	21.7	11.8	21.1	40.0	50.0

TABLE 16. (CONTINUED) PARTICIPATION IN RESOURCE HARVEST AND USES BY RESOURCE CATEGORY

	Entire Sample (N=110 hh)	Egegik (N=25 hh)	Chignik Lake (N=23 hh)	Chignik Lagoon (N=17 hh)	Chignik (N=19 hh)	Perryville (N=20 hh)	Ivanof Bay (N=6 hh)
Land Mammals							
% Using	90.9	96.0	100.0	82.4	68.4	100.0	100.0
% Attempting	64.0	80.0	73.9	41.2	42.1	70.0	66.7
% Harvesting	55.5	76.0	73.9	29.4	26.3	55.0	66.7
% Receiving	80.0	68.0	95.7	64.7	63.2	100.0	100.0
% Giving	58.2	68.0	73.9	35.3	36.8	65.0	66.7
Birds & Eggs							
% Using	86.4	80.0	91.3	82.4	78.9	95.0	100.0
% Attempting	66.4	76.0	65.2	52.9	52.6	75.0	83.3
% Harvesting	66.4	76.0	65.2	52.9	52.6	75.0	83.3
% Receiving	60.0	44.0	78.3	47.1	47.4	85.0	50.0
% Giving	40.0	52.0	60.9	17.6	15.8	40.0	50.0
Plants & Berries							
% Using	75.5	64.0	82.6	64.7	78.9	80.0	100.0
% Attempting	NA	NA	NA	NA	NA	NA	NA
% Harvesting	71.8	52.0	78.3	64.7	78.9	80.0	100.0
% Receiving	NA	NA	NA	NA	NA	NA	NA
% Giving	NA	NA	NA	NA	NA	NA	NA

composed 52.6 percent of the resource harvest (Fig. 22). Households averaged a harvest of 609.6 pounds of salmon. The per capita harvest of salmon was 159.6 pounds.

Seventy percent of the sampled households attempted to harvest at least one type of fish other than salmon, 70 percent successfully harvested, and 82.7 percent used non-salmon fish. Halibut, taken by 43 percent of the households, contributed 52.7 pounds per household to the resource harvest, the most of all non-salmon species (Table 17). For all non-salmon fish species, households averaged a harvest of 84 pounds, 7.3 percent of the total harvest. The per capita harvest was 22 pounds.

In 1984, the harvest of 11 types of marine invertebrates was recorded for the sampled households. Overall, 63.6 percent attempted and successfully harvested at least one type of marine invertebrate, and 81.8 percent used marine invertebrates. The average household harvest for all marine invertebrates was 37.5 pounds, 3.2 percent of the total harvest. The per capita harvest was 9.9 pounds. By weight, razor and butter clams made up 57 percent of the average household harvest of marine invertebrates.

Land mammals comprised the resource category with the second highest harvest level. Over 90 (90.9)percent of the the sampled households reported using some type of land mammal, 64 percent attempted to harvest land mammals, and 55.5 were successful in harvest efforts. The average household harvest of land mammals was 370.7 pounds. Per capita harvest was 97.1 pounds. By weight, land mammals comprised 32 percent of the total harvest.

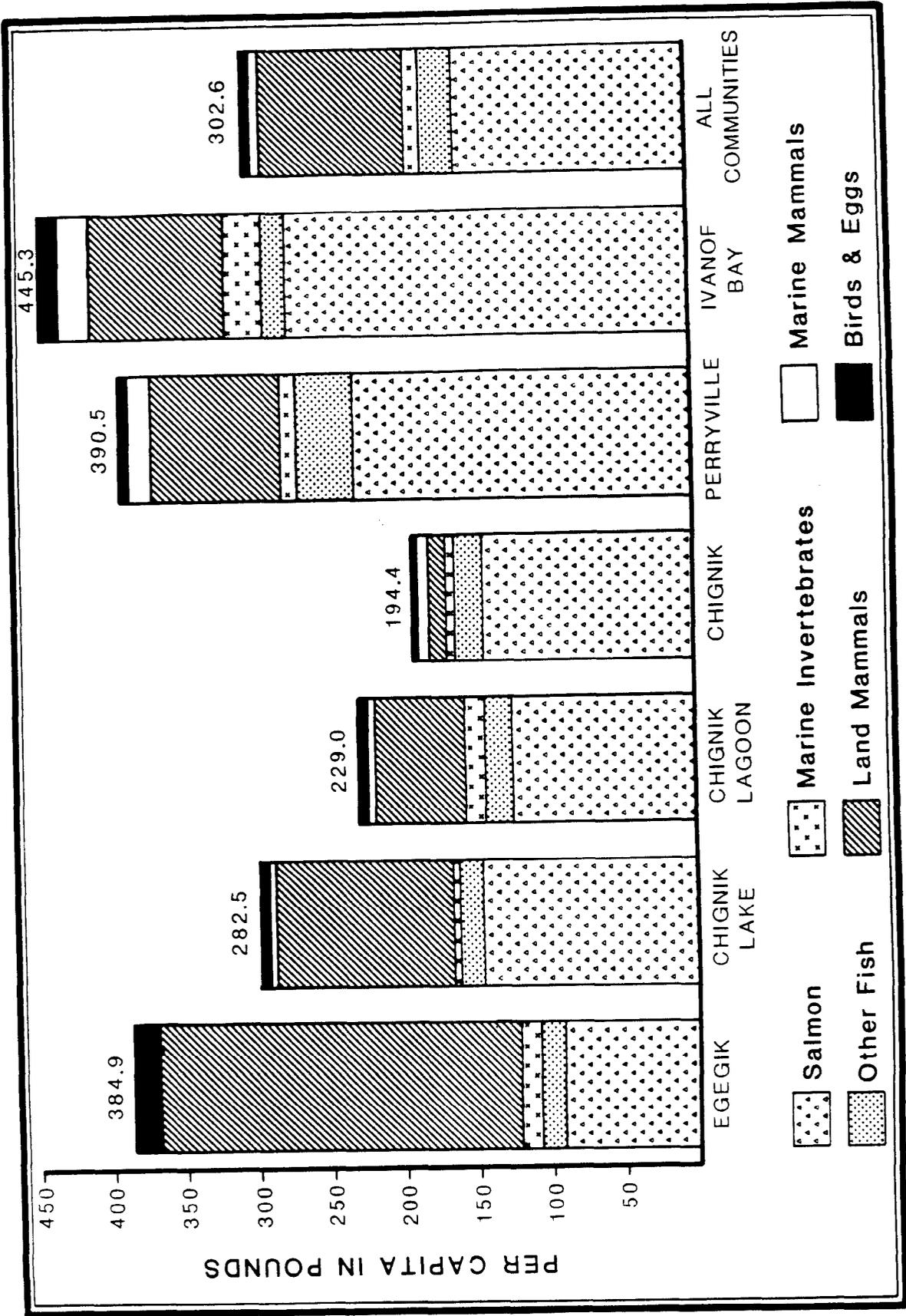


Figure 22. Harvest Levels of Resource Categories by Community, in Pounds, 1984.

TABLE 17. PROFILE OF HOUSEHOLD HARVEST AND USE OF EDIBLE FISH AND WILDLIFE RESOURCES BY RESIDENTS OF SIX COMMUNITIES OF THE ALASKA PENINSULA DURING 1984 (RANDOM SAMPLE, N = 110)

Resource	% of HH Using	% of HH Attempting to Harvest	% of HH Harvesting	Mean Harvest (n=110)	Range Quantities	Mean Lbs Hrvstd Per Successful HH	Mean Lbs Hrvstd All HH (n=110)	Mean Lbs Hrvstd Lbs Hrvstd (n=420)	% of HH Receiving	% of HH Giving
SALMON										
(88 % participation) *1										
King Salmon	45	36	35	1.6	0 - 20	68.6	23.7	6.2	16	18
Red Salmon	86	69	68	57.9	0 - 300	462.6	315.4	82.6	44	40
Chum Salmon	26	21	21	3.7	0 - 100	97.0	20.3	5.3	12	11
Pink Salmon	34	26	26	14.0	0 - 200	164.3	43.3	11.3	16	18
Coho Salmon	77	66	66	31.1	0 - 200	281.2	184.1	48.2	29	32
Salmon*Species Unknown	3	3	3	4.1	0 - 200	834.2	22.8	6.0	2	1
OTHER FISH										
(70 % participation) *1										
Dolly Varden	29	21	21	7.3	0 - 200	48.8	10.2	2.7	15	11
Rainbow Trout	9	9	9	0.8	0 - 30	13.2	1.2	0.3	1	4
Steelhead	3	3	3	0.1	0 - 3	2.3	0.1	0.0 *3	0	0
Lake Trout	5	3	3	0.2	0 - 10	8.4	0.2	0.1	2	1
Grayling	10	10	10	1.0	0 - 20	16.2	1.6	0.4	1	4
Whitefish	1	1	1	0.1	0 - 5	5.0	0.1	0.0 *3	0	1
Candlefish	27	16	15	64.7	0 - 2000	57.9	8.4	2.2	17	16
Smelt	21	14	12	32.0	0 - 1000	35.2	4.2	1.1	12	13
Herring	11	5	4	1.9	0 - 100	26.3	1.0	0.3	9	6
Halibut	67	44	43	1.7	0 - 15	123.2	52.7	13.8	43	36
Cod	44	26	24	3.1	0 - 50	13.0	3.1	0.8	28	19
Flounder	10	7	7	1.2	0 - 50	17.0	1.2	0.3	5	4

TABLE 17. (CONTINUED) PROFILE OF HOUSEHOLD HARVEST AND USE OF EDIBLE FISH AND WILDLIFE RESOURCES BY RESIDENTS OF SIX COMMUNITIES OF THE ALASKA PENINSULA DURING 1984 (RANDOM SAMPLE, N = 110)

Resource	% of HH Using	% of HH Attempting to Harvest	% of HH Harvesting	Mean Harvest (n=110)	Quantities		Mean Lbs Hrvstd Per Successful HH	Mean Lbs Hrvstd All HH (n=110)	Per capita Lbs Hrvstd (n=429)	% of HH Receiving	% of HH Giving	
					Range	Successful HH						
MARINE INVERTEBRATES												
(64 % participation) *1												
Shrimp	1	0	0	0.0	0 - 0	0	0.0	0.0	0.0	1	0	
King Crab	23	4	3	0.2	0 - 10	13.8	0.4	0.4	0.1	21	5	
Dungeness Crab	47	16	16	2.3	0 - 50	10.3	1.6	0.4	0.4	37	14	
Tanner Crab	34	6	6	2.4	0 - 200	71.5	3.9	1.0	1.0	30	13	
Octopus	36	16	16	0.6	0 - 10	14.1	2.2	0.6	0.6	25	10	
Razor Clams	30	17	17	38.3	0 - 1800	51.0	8.8	2.3	2.3	18	10	
Butter Clams	56	43	41	54.4	0 - 750	30.6	12.5	3.3	3.3	28	25	
Cockles	36	21	21	32.0	0 - 750	10.7	2.2	0.6	0.6	29	19	
Mussels	6	4	4	*2	*2	3.5	0.1	0.0 *3	0.0 *3	3	2	
Sea Eggs	27	20	20	*2	*2	14.3	2.9	0.8	0.8	19	16	
Bidarkis	40	30	30	*2	*2	9.7	2.9	0.8	0.8	28	21	
MARINE MAMMALS												
(22 % participation) *1												
Harbor Seal	43	19	16	0.3	0 - 4	75.0	12.3	3.2	3.2	34	18	
Sea Lion	16	6	6	0.1	0 - 2	228.6	14.6	3.8	3.8	12	6	
Walrus	1	0	0	0.0	0 - 0	0.0	0.0	0.0	0.0	1	0	
LAND MAMMALS												
(64 % participation) *1												
Caribou	90	55	48	1.8	0 - 15	546.2	263.2	68.9	68.9	76	53	
Moose	52	27	16	0.2	0 - 2	603.5	93.3	24.4	24.4	43	24	
Brown Bear	22	9	7	0.1	0 - 1	150.0	10.9	2.9	2.9	16	10	
Porcupine	15	11	9	0.3	0 - 6	21.6	2.0	0.5	0.5	7	6	
Arctic Hare	7	6	6	0.1	0 - 3	9.6	0.6	0.2	0.2	1	3	
Snowshoe Hare	3	1	1	0.0	0 - 2	4.0	0.0 *3	0.0 *3	0.0 *3	2	0	
Beaver	3	1	1	0.0	0 - 4	80.0	0.7	0.2	0.2	2	0	

TABLE 17. (CONTINUED) PROFILE OF HOUSEHOLD HARVEST AND USE OF EDIBLE FISH AND WILDLIFE RESOURCES BY RESIDENTS OF SIX COMMUNITIES OF THE ALASKA PENINSULA DURING 1984 (RANDOM SAMPLE, N = 110)

Resource	% of HH Using	% of HH Attempting to Harvest	% of HH Harvesting	Mean Harvest (n=110)	Range Quantities	Mean Lbs Harvested Per Successful HH	Mean Lbs Harvested All HH (n=110)	Per capita Lbs Harvested (n=420)	% of HH Receiving	% of HH Giving	
											0 - 200
BIRDS AND EGGS											
(66 % participation) *1											
Seagull Eggs	40	22	22	13.4	0 - 200	9.2	2.0	0.5	27	16	
Duck Eggs	4	1	1	0.2	0 - 20	3.0	0.0 *3	0.0 *3	4	1	
Geese Eggs	1	1	1	0.0	0 - 2	0.3	0.0 *3	0.0 *3	0	0	
Geese*Species Unknown	8	3	3	0.1	0 - 6	9.0	0.3	0.1	6	1	
Brants	4	3	3	0.1	0 - 6	12.0	0.3	0.1	2	2	
Emperor Geese	19	16	15	0.7	0 - 10	14.6	2.1	0.6	7	7	
Canada Geese	2	2	2	0.2	0 - 15	37.5	0.7	0.2	1	2	
Snow Geese	1	1	1	0.0	0 - 1	3.0	0.0 *3	0.0 *3	0	0	
Fresh Water Ducks	53	36	36	5.8	0 - 75	24.3	8.6	2.3	27	18	
Sea Ducks	36	20	20	2.7	0 - 40	20.3	4.1	1.1	25	9	
Other Ducks	6	6	6	1.5	0 - 50	34.7	2.2	0.6	3	4	
Ptarmigan	46	36	36	9.3	0 - 100	18.3	6.5	1.7	27	17	
Snipe	3	2	2	0.3	0 - 20	3.5	0.1	0.0 *3	1	0	
PLANTS AND BERRIES											
Berries	75	*2	69	*2	*2	*2	*2	*2	*2	*2	
Plants	38	*2	34	*2	*2	*2	*2	*2	*2	*2	

*1 Households that attempted to harvest the resource category during 1984

*2 Data not collected

*3 < 0.1 pound

Caribou was used in 90 percent of the 110 sampled households. Fifty-five percent of the households attempted to harvest caribou and 48 percent were successful. The average household harvest of caribou meat was 263.2 pounds, 68.9 pounds per capita. Caribou was shared extensively, with 76 percent of sampled households receiving caribou meat during 1984 and 53 percent reporting giving it to other households.

Moose was used in about half (52 percent) of sampled households. Twenty seven percent of the households attempted to harvest moose and 16 percent were successful. The average household harvest was 93.3 pounds. The per capita harvest was 24.4 pounds. Twenty-four percent of all households reported giving moose meat away and 43 percent were given moose meat.

Three marine mammals (harbor seal, sea lion, and walrus) were used by residents of the study communities. Overall, 43.6 percent of the households used marine mammals, 22 percent attempted to harvest marine mammals, and 19.1 percent were successful. The average household harvest of marine mammals was 26.9 pounds, 2.3 percent of the total harvest. The per capita harvest was seven pounds. By weight, sea lion, and harbor seal each constituted approximately half of the harvest. Harbor seals were the most widely used marine mammal among the surveyed households (43 percent).

Two-thirds of the households in the study communities attempted to harvest birds or bird eggs. Sixty six (66.4) percent were successful harvesters and avian products were used in 86.4 percent of the households. With an average of 26.9 pounds per households, 2.3 percent of the total resource diet consisted of birds and eggs. The per capita harvest was 7.0 pounds.

Gull eggs were used by 40 percent of the sampled Alaska Peninsula households. They were collected by 22 percent of households and given away by 16 percent. Duck or geese eggs were taken by one percent of the sample population. By weight, freshwater ducks contributed most heavily to the resource harvest total, 2.3 pounds per capita. They were harvested by 36 percent of the households and used in 53 percent of the surveyed households. Sea ducks were taken by 20 percent of the households and used in 36 percent. The mean pounds harvested per household was 4.1. Per capita harvest was 1.1 pounds. The average number of pounds of geese taken per household was 3.4 pounds. Per capita harvest of geese was one pound. Thirty-six percent of the survey group took ptarmigan. The average household harvest was 6.5 pounds. The per capita was 1.7 pounds. Snipe were taken by two percent of the group for average household harvest of .1 pounds. No harvest of sandhill cranes or swans was reported.

Harvest data were not collected by species for plants and berries. Three-fourths (75.5) percent of the sample population indicated using some type of vegetation, mostly berries. Berries known to be used included salmonberries, blackberries, and lowbush cranberries. Putchkies (wild celery) and petruskies (wild spinach) were the mostly commonly mentioned greens used by local households.

EGEGIK

Like the sample overall, the 25 interviewed households in Egegik in 1984, were actively involved in the use and harvest of wild resources. One hundred percent successfully harvested at least one type of resource (Table 15). Also, every sampled household reported using some type of wild

resource during 1984. The average number of resources harvested per household was 7.4, and the mean number used was ten. When grouped by resource categories, Egegik households harvested an average of 3.4 groups.

Harvest quantities, as measured in pounds edible weight, were also high during the study year in Egegik (Table 18). On average, the sampled households took 893 pounds per household, 384.9 pounds per capita. This was the third highest per capita harvest for the six sampled communities. The harvest was composed of 63.9 percent land mammals, 24.3 percent salmon, 4.2 percent fish other than salmon, 4.2 percent birds and eggs, and 3.5 percent marine invertebrates (Fig. 22).

Salmon was the second most widely used and harvested wild resource category in Egegik during the study year, with 96 percent of the households using salmon for home consumption. With a per capita harvest of 93.6 pounds, salmon made up 24.3 percent of the total harvest, second only to game in 1984.

The most commonly used salmon species were coho (88 percent use, 72 percent harvest), sockeye (76 percent use, 68 percent harvest), and kings (76 percent use, 64 percent harvest). Chums (20 percent use, 16 percent harvest) and pinks (12 percent use, 8 percent harvest) were less important. By weight, cohos made up 35.7 percent of the salmon catch, reds 28.6 percent, kings 22.8 percent, pinks 4.4 percent, and chums 3 percent. An additional 5.6 percent of the catch was salmon of unknown species. Salmon were preserved by freezing, canning, smoking, salting, and drying.

Salmon for home use were taken with set gill net gear under subsistence regulations and retained from commercial catches. Overall, 75.6 percent of all salmon, an average of 155 pounds per household, originated from the commercial catch. By species, 100 percent of the

TABLE 18. PROFILE OF HOUSEHOLD HARVEST AND USE OF EDIBLE FISH AND WILDLIFE RESOURCES BY EGEGIK RESIDENTS DURING 1984
(RANDOM SAMPLE, N = 25)

Resource	% of HH Using	% of HH Attempting to Harvest	% of HH Harvesting	Mean Harvest (n=25)	Range Quantities	Mean Lbs Hrvstd Per Successful HH	Mean Lbs Hrvstd All HH (n=25)	Percapita Lbs Hrvstd (n=58)	% of HH Receiving	% of HH Giving
SALMON										
(92 % participation) *1										
King Salmon	76	60	64	3.6	0 - 20	77.4	49.5	21.3	32	36
Red Salmon	76	68	68	13.8	0 - 50	91.6	62.3	26.8	32	28
Chum Salmon	20	16	16	1.3	0 - 12	40.0	6.4	2.8	8	8
Pink Salmon	12	8	8	3.0	0 - 50	118.4	9.5	4.1	8	8
Coho Salmon	88	72	72	14.9	0 - 60	107.8	77.6	33.4	32	32
Salmon*Species Unknown	4	4	4	2.2	0 - 55	302.5	12.1	5.2	4	0
OTHER FISH										
(60 % participation) *1										
Dolly Varden	24	24	24	2.2	0 - 25	12.8	3.1	1.3	0	8
Rainbow Trout	32	32	32	2.2	0 - 12	10.3	3.3	1.4	4	16
Steelhead	4	4	4	0.0	0 - 1	1.4	0.1	0.0 *3	0	0
Lake Trout	8	8	8	0.3	0 - 6	5.6	0.5	0.2	0	0
Grayling	40	40	40	4.0	0 - 20	16.8	6.7	2.9	4	16
Whitefish	4	4	4	0.2	0 - 5	5.0	0.2	0.1	0	4
Candlefish	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Smelt	52	44	44	95.6	0 - 1000	28.2	12.4	5.4	16	36
Herring	4	0	0	0.0	0 - 0	0.0	0.0	0.0	4	4
Halibut	12	4	4	0.2	0 - 4	128.0	5.1	2.2	8	8
Cod	4	4	4	0.1	0 - 2	2.0	0.1	0.0 *3	4	4
Flounder	24	20	20	5.1	0 - 50	25.4	5.1	2.2	12	16

TABLE 18. (CONTINUED) PROFILE OF HOUSEHOLD HARVEST AND USE OF EDIBLE FISH AND WILDLIFE RESOURCES
BY ECEGIK RESIDENTS DURING 1984 (RANDOM SAMPLE, N = 25)

Resource	% of HH Using	% of HH Attempting to Harvest	% of HH Harvesting	Mean Harvest (n=25)	Range Quantities	Mean Lbs Hrvstd Per Successful HH	Mean Lbs Hrvstd All HH (n=25)	Mean Lbs Hrvstd Lbs Hrvstd (n=58)	% of HH Receiving	% of HH Giving
MARINE INVERTEBRATES (36 % participation) *1										
Shrimp	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
King Crab	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Dungeness Crab	8	4	4	0.0	0 - 1	0.7	0.0 *3	0.0 *3	4	0
Tanner Crab	4	0	0	0.0	0 - 0	0.0	0.0	0.0	4	0
Octopus	4	0	0	0.0	0 - 0	0.0	0.0	0.0	4	0
Razor Clams	44	24	24	133.2	0 - 1800	127.7	30.6	13.2	28	20
Butter Clams	4	4	4	1.7	0 - 43	9.9	0.4	0.2	0	0
Cockles	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Mussels	12	12	12	*2	*2	4.3	0.5	0.2	0	8
Sea Eggs	0	0	0	*2	*2	0.0	0.0	0.0	0	0
Bidarkis	0	0	0	*2	*2	0.0	0.0	0.0	0	0
MARINE MAMMALS (0 % participation) *1										
Harbor Seal	4	0	0	0.0	0 - 0	0.0	0.0	0.0	4	0
Sea Lion	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Walrus	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
LAND MAMMALS (80 % participation) *1										
Caribou	96	80	72	3.6	0 - 15	750.0	540.0	232.8	60	64
Moose	36	16	4	0.0	0 - 1	540.0	21.6	9.3	32	8
Brown Bear	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Porcupine	36	32	32	1.0	0 - 6	25.0	8.0	3.5	8	20
Arctic Hare	4	4	4	0.1	0 - 2	11.2	0.5	0.2	0	4
Snowshoe Hare	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Beaver	4	0	0	0.0	0 - 0	0.0	0.0	0.0	4	0

TABLE 18. (CONTINUED) PROFILE OF HOUSEHOLD HARVEST AND USE OF EDIBLE FISH AND WILDLIFE RESOURCES
BY EGEKIK RESIDENTS DURING 1984 (RANDOM SAMPLE, N = 25)

Resource	% of HH Using	% of HH Attempting to Harvest	% of HH Harvesting	Mean Harvest (n=25)	Range Quantities	Mean Lbs Hrvstd Per Successful HH	Mean Lbs Hrvstd All HH (n=25)	Percapita Lbs Hrvstd (n=58)	% of HH Receiving	% of HH Giving
BIRDS AND EGGS (76 % participation) *1										
Seagull Eggs	40	32	32	19.0	0 - 144	8.9	2.8	1.2	16	32
Duck Eggs	4	4	4	0.8	0 - 20	3.0	0.1	0.1	4	4
Geese Eggs	4	4	4	0.1	0 - 2	0.3	0.0 *3	0.0 *3	0	0
Geese*Species Unknown	4	4	4	0.0	0 - 1	3.0	0.1	0.1	4	0
Brants	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Emperor Geese	0	4	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Canada Geese	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Snow Geese	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Fresh Water Ducks	52	48	48	11.6	0 - 45	36.4	17.5	7.5	16	28
Sea Ducks	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Other Ducks	4	4	4	2.0	0 - 50	75.0	3.0	1.3	0	0
Ptarmigan	72	72	72	19.6	0 - 60	19.1	13.8	5.9	24	36
Snipe	4	4	4	0.8	0 - 20	4.0	0.2	0.1	0	0
PLANTS AND BERRIES										
Berries	64	*2	52	*2	*2	*2	*2	*2	*2	*2
Plants	12	*2	12	*2	*2	*2	*2	*2	*2	*2

*1 Households that attempted to harvest the resources category during 1984

*2 Data not collected

*3 < 0.1 pound

pinks, 85 percent of the sockeyes, 84 percent of the chums, 76 percent of the kings, and 64 percent of the reds were taken with commercial gear.

With a per capita take of 15.7 pounds, fish other than salmon made up 4.1 percent of Egegik's resource harvest in 1984. Sixty four percent used these species, 60 percent attempted and successfully harvested them. Over half (52 percent) of the sample used smelt, making it the most commonly used resource in this category. Forty four percent of the sample harvested smelt for a per capita take of 5.4 pounds. In addition to smelt, fish other than salmon used by 24 percent or more of the sample included grayling (40 percent use, 40 percent harvest) rainbow trout (32 percent use, 32 percent harvest), Dolly Varden (24 percent use, 24 percent harvest), and flounder (24 percent use, 20 percent harvest).

Marine invertebrates made up 3.5 percent by weight of the Egegik resource harvest in 1984. Thirty six percent of the sample attempted and successfully harvested marine invertebrates, and 44 percent used them. The mean household harvest of marine invertebrates was 31.5 pounds; the per capita harvest was 13.4 pounds. Razor clams made up the majority of the harvest (98 percent).

Ninety six percent of the sampled Egegik households used land mammals in 1984, 80 percent hunted land mammals, and 76 percent harvested them. With a per capita harvest of 245.8 pounds, game composed 63.9 percent of the total harvest, by the most of any resource category. By weight, almost all of the game harvest (94.7 percent) was caribou, with a per capita take of 232.8 pounds. Ninety six percent of the households used caribou, 80 percent hunted caribou and 72 percent harvested it. Second in importance was moose, with a per capita harvest of 9.3 pounds. Over one third (36 percent) of the sampled Egegik households used moose meat in 1984. Sixteen

percent hunted moose, and four percent were successful harvesters. Other land mammals used by the sampled households in 1984 were porcupine (36 percent used, 32 percent harvested), Arctic hare (4 percent used, 4 percent harvested), and beaver (4 percent used, 0 percent harvested).

Harvest and use of marine mammals was included on the survey form. One household reported receiving and using harbor seal. No other use or attempted harvest of marine mammals was reported by the sample group for 1984.

Seventy six percent of the sampled households in Egegik attempted to harvest birds or bird eggs. The per capita harvest of 16.2 pounds accounted for 4.2 percent of the total resource harvest. Ptarmigan were hunted, harvested, and used (72 percent) more than any other species. Freshwater ducks were harvested by 48 percent of the sampled group and used by 52 percent. They made up 46 percent of the total avian harvest. Gull eggs were taken by 32 percent of the group and used in 40 percent of the households. The per capita harvest was 1.2 pounds. Four percent of the sample population harvested and used duck and geese eggs. The per capita harvest level was less than one tenth a pound for geese eggs and one tenth for duck eggs.

Berries were used widely in the households included in the Egegik sample. Over half (52 percent) harvested berries and nearly two-thirds (64 percent) of the households used them. Fresh greens and other plants were harvested and used in 12 percent of the sampled households.

CHIGNIK LAKE

The interviewed households of Chignik Lake were very actively involved in the use and harvest of wild resources during 1984 (Tab. 15,19). One hundred percent used, attempted to harvest, and successfully harvested wild foods. An average of 7.4 resources were taken by sampled households, and 3.7 resource categories. The mean number of resources used was 16.2.

As measured in pounds of edible weight, Chignik Lake residents reported a harvest of 282.5 pounds per capita. On the average, the sampled households took 1,424.7 pounds of wild resources, third highest household mean among the study communities. The harvest was composed of 52.1 percent salmon, 38.8 percent land mammals, 5.1 percent non-salmon fish, 1.7 percent birds and eggs, and 1.2 percent each marine mammals and marine invertebrates (Fig. 22).

Salmon was harvested and used in 100 percent of the sampled Chignik Lake households. It was the most widely used resource in 1984. The per capita harvest was 147.3 pounds, which was 52.1 percent of the total harvest.

By weight, sockeyes made up 40 percent of the total harvest and 77 percent of the salmon harvest. The per capita harvest was 113 pounds, and the average household harvest was 569.9 pounds. Sockeyes were harvested and used in 100 percent of the sampled households in 1984. The next most frequently used species was coho salmon (78 percent used, 65 percent harvested). Coho harvests made up 20 percent of the salmon harvest and 10 percent of the total resource harvest. The per capita harvest of king salmon was 2.8 pounds (48 percent use, 35 percent harvest). Small per

TABLE 19. PROFILE OF HOUSEHOLD HARVEST AND USE OF EDIBLE FISH AND WILDLIFE RESOURCES BY CHIGNIK LAKE RESIDENTS DURING 1984
(RANDOM SAMPLE, N = 23)

Resource	% of HH Using	% of HH Attempting to Harvest	% of HH Harvesting	Mean Harvest (n=23)	Range Quantities	Mean Lbs Hrvstd Per Successful HH	Mean Lbs Hrvstd All HH (n=23)	Mean Lbs Percapita Lbs Hrvstd (n=116)	% of HH Receiving	% of HH Giving
SALMON (100 % participation) *1										
King Salmon	48	44	35	0.8	0 - 6	40.1	14.0	2.8	13	22
Red Salmon	100	100	100	103.6	2 - 300	569.9	569.9	113.0	48	48
Chum Salmon	17	17	17	1.3	0 - 20	42.0	7.3	1.5	9	4
Pink Salmon	30	26	26	1.4	0 - 10	16.5	4.3	0.9	13	13
Coho Salmon	78	65	65	24.5	0 - 200	225.2	146.9	29.1	26	26
Salmon*Species Unknown	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
OTHER FISH (74 % participation) *1										
Dolly Varden	22	4	4	0.7	0 - 15	21.0	0.9	0.2	17	4
Rainbow Trout	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Steelhead	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Lake Trout	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Grayling	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Whitefish	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Candlefish	26	9	9	0.0	0 - 0	0.0	0.0	0.0	26	4
Smelt	35	17	9	49.1	0 - 1000	73.4	6.4	1.3	30	17
Herring	9	4	4	1.5	0 - 35	17.5	0.8	0.2	4	0
Halibut	96	65	61	1.9	0 - 5	98.3	59.8	11.9	52	48
Cod	52	35	35	4.2	0 - 30	12.0	4.2	0.8	22	22
Flounder	17	9	9	0.3	0 - 4	3.0	0.3	0.1	9	0

TABLE 19. (CONTINUED) PROFILE OF HOUSEHOLD HARVEST AND USE OF EDIBLE FISH AND WILDLIFE RESOURCES
BY CHIGNIK LAKE RESIDENTS DURING 1984 (RANDOM SAMPLE, N = 23)

Resource	% of HH Using	% of HH Attempting to Harvest	% of HH Harvesting	Mean Harvest (n=23)	Range Quantities	Mean Lbs Hrvstd Per Successful HH	Mean Lbs Hrvstd All HH (n=23)	Mean Lbs Hrvstd (n=116)	% of HH Receiving	% of HH Giving
MARINE INVERTEBRATES (56 % participation) *1										
Shrimp	4	0	0	0.0	0 - 0	0.0	0.0	0.0	4	0
King Crab	22	0	0	0.0	0 - 0	0.0	0.0	0.0	22	4
Dungeness Crab	48	9	9	0.9	0 - 15	7.4	0.6	0.1	39	17
Tanner Crab	44	0	0	0.0	0 - 0	0.0	0.0	0.0	44	17
Octopus	48	9	9	0.3	0 - 4	14.0	1.2	0.2	39	13
Razor Clams	26	4	4	3.3	0 - 75	17.3	0.8	0.2	22	9
Butter Clams	78	52	48	53.8	0 - 450	25.9	12.4	2.5	48	35
Cockles	52	22	22	21.2	0 - 150	6.8	1.5	0.3	44	26
Mussels	4	0	0	*2	*2	0.0	0.0	0.0	4	0
Sea Eggs	22	0	0	*2	*2	0.0	0.0	0.0	22	9
Bidarkis	39	9	9	*2	*2	2.5	0.2	0.0 *3	35	17
MARINE MAMMALS (26 % participation) *1										
Harbor Seal	65	26	13	0.2	0 - 2	60.0	7.8	1.6	57	22
Sea Lion	9	4	4	0.0	0 - 1	200.0	8.7	1.7	4	0
Walrus	4	0	0	0.0	0 - 0	0.0	0.0	0.0	4	0
LAND MAMMALS (74 % participation) *1										
Caribou	100	74	74	2.7	0 - 8	538.2	397.1	78.9	91	70
Moose	52	26	26	0.3	0 - 1	540.0	140.9	27.9	35	35
Brown Bear	48	17	9	0.1	0 - 1	150.0	13.0	2.6	39	22
Porcupine	17	9	4	0.0	0 - 1	8.0	0.4	0.1	13	9
Arctic Hare	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Snowshoe Hare	9	0	0	0.0	0 - 0	0.0	0.0	0.0	9	0
Beaver	4	0	0	0.0	0 - 0	0.0	0.0	0.0	4	0

TABLE 19. (CONTINUED) PROFILE OF HOUSEHOLD HARVEST AND USE OF EDIBLE FISH AND WILDLIFE RESOURCES
BY CHIGNIK LAKE RESIDENTS DURING 1984 (RANDOM SAMPLE, N = 23)

Resource	% of HH Using	% of HH Attempting to Harvest	% of HH Harvesting	Mean Harvest (n=23)	Range Quantities	Mean Lbs Hrvstd Per Successful HH	Mean Lbs Hrvstd ALL HH (n=23)	Percapita Lbs Hrvstd (n=116)	% of HH Receiving	% of HH Giving	
											0 - 120
BIRDS AND EGGS											
(65 % participation) *1											
Seagull Eggs	65	22	22	14.4	0 - 120	9.9	2.2	0.4	48	17	
Duck Eggs	13	0	0	0.0	0 - 0	0.0	0.0	0.0	13	0	
Geese Eggs	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0	
Geese*Species Unknown	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0	
Brants	13	9	9	0.3	0 - 5	9.0	0.8	0.2	9	4	
Emperor Geese	26	17	17	0.4	0 - 5	7.5	1.3	0.3	13	9	
Canada Geese	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0	
Snow Geese	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0	
Fresh Water Ducks	48	26	26	1.9	0 - 20	11.0	2.9	0.6	35	22	
Sea Ducks	61	35	35	7.4	0 - 40	31.9	11.1	2.2	48	30	
Other Ducks	17	17	17	3.7	0 - 30	31.9	5.5	1.1	13	17	
Ptarmigan	13	13	13	1.4	0 - 20	7.5	1.0	0.2	9	13	
Snipe	9	4	4	0.7	0 - 15	3.0	0.1	0.0 *3	4	0	
PLANTS AND BERRIES											
Berries	83	*2	74	*2	*2	*2	*2	*2	*2	*2	
Plants	44	*2	26	*2	*2	*2	*2	*2	*2	*2	

*1 Households that attempted to harvest the resource category during 1984

*2 Data not collected

*3 < 0.1 pound

capita amounts of pink (.9 pounds) and chum (1.5 pounds) salmon were also harvested. Pink salmon were harvested by 26 percent of the sampled households and used by 30 percent in 1984; chums were used and harvested by 17 percent.

Among the study communities Chignik Lake residents retained a relatively small percentage of salmon for home use from commercial catches. Still, 11.2 percent (1,912 pounds) of the total salmon harvest used in Chignik Lake households originated from commercial gear. By weight commercially harvested sockeyes were taken in the greatest quantity, 64.6 pounds per household, 11.3 percent of the household sockeye harvest. By weight, coho salmon were second in the average household harvest caught with commercial gear (7.8 pounds), followed by king salmon (5.9 pounds), and chums (4.9 pounds). No pinks were kept from the commercial catches by sampled households in 1984. The fish retained for non-commercial use from the commercial catch made up 66.7 percent of the all chums, 42.1 percent of the kings, 11.3 percent of the sockeyes, and 5.3 of all cohos.

Fish other than salmon contributed 14.5 pounds to the per capita harvest of sampled households in 1984. Eighty three percent of the per capita non-salmon fish harvest (11.9 pounds) was halibut. Halibut was harvested by 61 percent of the households and used by 96 percent. Smelt added 1.3 pounds to the per capita harvest (9 percent harvested, 35 percent used), and less than one pound per capita each of cod (35 percent harvested, 52 percent used), Dolly Varden (4 percent harvested, 22 percent used), herring (4 percent harvested, 9 percent used), and flounder (9 percent harvested, 17 percent used).

Like salmon, other fish species caught with commercial gear were retained for home use by Chignik Lake households. Overall, by weight, 86.7

percent of all non-salmon fish were caught with commercial gear. This included 100 percent of the herring and flounder, 88.4 percent of the halibut, and 79.2 percent of the cod.

Harvesting marine invertebrates was attempted by 56.5 percent of the sampled Chignik Lake households in 1984. The per capita harvest was 3.3 pounds. About fifty two (52.2) percent of the households successfully harvested marine invertebrates and 91.3 percent used them. Taken by 48 percent of the households and used by 78 percent, butter clams made up 74 percent of the marine invertebrate harvest. Cockles (22 percent harvest, 52 percent use) added 0.3 pounds to the per capita resource harvest. Several resources were taken by a few households and distributed widely throughout the community. These included dungeness crab (9 percent harvest; 48 percent use), octopus (9 percent harvest, 48 percent use), bidarkies (9 percent harvest, 39 percent use), and razor clams (4 percent harvest, 26 percent use). Marine invertebrates were taken with subsistence and commercial gear. Overall, 62.5 percent of the marine invertebrate harvest in 1984 was with commercial gear which included all the dungeness crab and 42.9 percent of the octopus catch.

By weight, the harvest of land mammals in 1984 by Chignik Lake sampled households was second only to the salmon harvest. Land mammals provided 38.8 percent of the total per capita harvest, 109.5 pounds. The average household harvest was 552 pounds. Seventy-four percent of the sampled households attempted to harvest land mammals, 74 percent were successful, and 100 percent used land mammals.

Caribou harvest made up 72 percent of the total land mammal harvest. Almost three-quarters (74 percent) of the survey group hunted and successfully took caribou. One hundred percent of the households used

caribou. The per capita harvest was 78.9 pounds. Moose harvest was attempted less frequently (26 percent), and approximately half the households used it (52 percent). The per capita harvest was 27.9 pounds.

Brown bear meat and fat were used in 48 percent of the sampled Chignik Lake households. Seventeen percent attempted to harvest brown bear and nine percent were successful. The per capita harvest was 2.6 pounds, 13 pounds per household. Another land mammal, porcupine was taken by four percent of the households and was used by 17 percent.

Marine mammal harvest was attempted by 26 percent of the sampled Chignik Lake households during the study period. The per capita harvest of harbor seal was 1.6 pounds. Harbor seal was used by 65 percent of the households and harvested by 13 percent. Sea lion was used by nine percent of the households and harvested by four percent. The per capita harvest of sea lion in 1984 among the sample households was 1.7 pounds.

During the study period, five pounds per capita of birds and bird eggs were harvested by sampled households, 1.7 percent of the total resource harvest. Sixty five (65.2) percent of the sampled households attempted to harvest bird and eggs and all were successful, and 91.3 percent used birds and eggs. By weight sea ducks made up the greatest percent (45) of the bird harvest and were used by the most households (61 percent). Sea ducks added 2.2 pounds to the total per capita resource harvest. Unidentified duck species were taken and used by 17 percent of the households. Other bird resources harvested included freshwater ducks (26 percent harvest, 48 percent use), emperor geese (17 percent harvest, 26 percent use), brant geese (9 percent harvest, 13 percent use), ptarmigan (13 percent harvest and use), and snipe (4 percent harvest and 9 percent use). Gull eggs were harvested by 22 percent of the sampled households.

The successful households shared their average take of 9.9 pounds of eggs resulting in 65 percent use of gull eggs in 1984.

In Chignik Lake, three fourths (74 percent) of the households harvested berries, and 83 percent used them. Greens and other plants were gathered by 26 percent of the sampled households and used by 44 percent.

CHIGNIK LAGOON

Measured by per capita harvest of edible pounds of resources, Chignik Lagoon was next to lowest among the study communities in 1984 (Table 15). However, participation in resource harvesting activities and use levels of wild resources were still high among the sampled households (Table 20). Eighty two percent of the households harvested fish, game, or plants during the study year. Ninety four percent used fish, game, or plants. The average number of resources harvested by sampled households was five, the lowest among all the study communities. The mean number of resources used was 10.4, more than twice the mean number harvested. In terms of resource categories (salmon, non-salmon fish, land mammals, marine mammals, birds, berries, and plants), the household average harvest included 2.8 categories.

The per capita wild resource harvest for sampled Chignik Lagoon residents in 1984 was 229.0 pounds. Sampled households took an average of 767.9 pounds of fish and game resources. Salmon (55.3 percent), non-salmon fish (8.1 percent), marine invertebrates (6.5 percent), land mammals (25.9 percent), marine mammals (1.0 percent), and birds (3.2 percent) comprised the household harvest (Fig. 22).

TABLE 20. PROFILE OF HOUSEHOLD HARVEST AND USE OF EDIBLE FISH AND WILDLIFE RESOURCES BY CHIGNIK LAGOON RESIDENTS DURING 1984
(RANDOM SAMPLE, N = 17)

Resource	% of HH Using	% of HH Attempting to Harvest	% of HH Harvesting	Mean Harvest (n=17)	Range quantities	Mean Lbs Hrvstd Per Successful HH	Mean Lbs Hrvstd All HH (n=17)	Percapita Lbs Hrvstd (n=57)	% of HH Receiving	% of HH Giving
SALMON										
(71 % participation) *1										
King Salmon	29	18	18	0.9	0 - 12	90.1	15.9	4.7	24	6
Red Salmon	82	65	59	64.7	0 - 200	605.0	355.9	106.1	41	47
Chum Salmon	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Pink Salmon	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Coho Salmon	53	47	47	8.8	0 - 70	111.8	52.6	15.7	18	18
Salmon*Species Unknown	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
OTHER FISH										
(53 % participation) *1										
Dolly Varden	6	0	0	0.0	0 - 0	0.0	0.0	0.0	6	0
Rainbow Trout	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Steelhead	6	6	6	0.1	0 - 1	1.4	0.1	0.0 *3	0	0
Lake Trout	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Grayling	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Whitefish	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Candlefish	6	0	0	0.0	0 - 0	0.0	0.0	0.0	6	6
Smelt	12	0	0	0.0	0 - 0	0.0	0.0	0.0	12	6
Herring	18	12	6	5.9	0 - 100	50.0	2.9	0.9	12	12
Halibut	77	53	53	1.8	0 - 15	110.2	58.4	17.4	35	24
Cod	47	24	12	1.2	0 - 15	10.0	1.2	0.4	35	12
Flounder	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0

TABLE 20. (CONTINUED) PROFILE OF HOUSEHOLD HARVEST AND USE OF EDIBLE FISH AND WILDLIFE RESOURCES
 BY CHIGNIK LAGOON RESIDENTS DURING 1984 (RANDOM SAMPLE, N = 17)

Resource	% of HH Using	% of HH Attempting to Harvest	% of HH Harvesting	Mean Harvest (n=17)	Range Quantities	Mean Lbs		Percapita Lbs Hrvstd (n=57)	% of HH Receiving	% of HH Giving
						Hrvstd Per Successful HH	Hrvstd All HH (n=17)			
MARINE INVERTEBRATES (65 % participation) *1										
Shrimp	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
King Crab	41	12	6	1.1	0 - 10	23.0	1.4	0.4	35	18
Dungeness Crab	59	24	24	4.9	0 - 50	14.5	3.4	1.0	41	24
Tanner Crab	65	24	24	13.7	0 - 200	93.2	21.9	6.5	47	29
Octopus	6	6	6	0.1	0 - 2	8.0	0.5	0.1	0	6
Razor Clams	12	6	6	3.5	0 - 60	13.8	0.8	0.2	6	0
Butter Clams	88	65	65	94.7	0 - 750	33.6	21.8	6.5	35	24
Cockles	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Mussels	0	0	0	*2	*2	0.0	0.0	0.0	0	0
Sea Eggs	0	0	0	*2	*2	0.0	0.0	0.0	0	0
Bidarkis	12	6	6	*2	*2	1.0	0.1	0.0 *3	12	0
MARINE MAMMALS (12 % participation) *1										
Harbor Seal	12	12	12	0.2	0 - 2	67.5	7.9	2.4	6	12
Sea Lion	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Walrus	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
LAND MAMMALS (41 % participation) *1										
Caribou	77	29	18	0.2	0 - 2	200.0	35.3	10.5	65	29
Moose	59	29	18	0.3	0 - 2	900.0	158.8	47.4	47	18
Brown Bear	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Porcupine	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Arctic Hare	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Snowshoe Hare	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Beaver	6	6	6	0.2	0 - 4	80.0	4.7	1.4	0	0

TABLE 20. (CONTINUED) PROFILE OF HOUSEHOLD HARVEST AND USE OF EDIBLE FISH AND WILDLIFE RESOURCES
BY CHIGNIK LAGOON RESIDENTS DURING 1984 (RANDOM SAMPLE, N = 17)

Resource	% of HH Using	% of HH Attempting to Harvest	% of HH Harvesting	Mean Harvest (n=17)	Range Quantities	Mean Lbs Hrvstd Per Successful HH	Mean Lbs Hrvstd ALL HH (n=17)	Per capita Lbs Hrvstd (n=57)	% of HH Receiving	% of HH Giving
BIRDS AND EGGS (53 % participation) *1										
Seagull Eggs	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Duck Eggs	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Geese Eggs	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Geese*Species Unknown	6	6	6	0.1	0 - 2	6.0	0.4	0.1	0	6
Brants	6	6	6	0.4	0 - 6	18.0	1.1	0.3	0	6
Emperor Geese	35	29	29	1.8	0 - 10	18.0	5.3	1.6	6	12
Canada Geese	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Snow Geese	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Fresh Water Ducks	71	47	47	10.7	0 - 75	33.9	16.0	4.8	29	18
Sea Ducks	29	18	18	1.1	0 - 10	9.0	1.6	0.5	12	0
Other Ducks	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Ptarmigan	18	6	6	0.2	0 - 4	2.8	0.2	0.1	12	0
Snipe	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
PLANTS AND BERRIES										
Berries	65	*2	65	*2	*2	*2	*2	*2	*2	*2
Plants	41	*2	41	*2	*2	*2	*2	*2	*2	*2

*1 Households that attempted to harvest the resource category during 1984

*2 Data not collected

*3 < 0.1 pound

Three species made up the salmon harvest and accounted for more than half (55 percent) of the total resource harvest of the sampled households in 1984. The 106.1 pounds per capita harvest of sockeyes accounted for 84 percent of all salmon taken. This was considerably more than the coho harvest, 15.7 pounds per capita (12 percent of all salmon), or kings, 4.7 pounds per capita (4 percent of all salmon). Sixty five percent of the sampled households attempted to harvest sockeyes, 59 percent were successful, and sockeyes were used in 82 percent of the households during 1984.

By weight, over half (56.2 percent) of the salmon used in Chignik Lagoon households during 1984 was taken with commercial gear. Fifty-four percent (53.6) of the sockeye catch, 12.5 percent of the kings, and 86.6 percent of the cohos were taken from commercial gear.

In 1984, non-salmon fish made up 8.2 percent (18.7 pounds per capita) of the total resource harvest by Chignik Lagoon residents sampled. Halibut was 93 percent (17.4 pounds per capita) of the non-salmon fish taken. It was harvested by 53 percent and used by 77 percent of the sampled households. Herring (6 percent harvest, 18 percent use) and cod (12 percent harvest, 47 percent use) were also included in the resource harvest. Six percent of the households harvested and used steelhead trout. Ninety-one percent of the non-salmon fish harvest originated in commercial catches. All the steelhead, cod, and herring were taken with commercial gear, as was 90.3 percent of the halibut.

Marine invertebrates, used by 88.2 percent of the sampled households in Chignik Lagoon made up 6.4 percent of the total resource harvest. The per capita harvest was 14.9 pounds, 49.9 pounds per household. Sixty-five percent of the households attempted to harvested marine invertebrates and

all were successful. Butter clams (65 percent harvest, 88 percent use) and tanner crabs (24 percent harvest, 65 percent use) each added 6.5 pounds to the per capita harvest. Also included in the marine invertebrate harvest was king crab (6 percent harvest, 41 percent use), dungeness crab (24 percent harvest, 59 percent use), octopus (6 percent harvest and use), razor clams (6 percent harvest, 12 percent use), and bidarkies (6 percent harvest and 12 percent use).

Overall, 23.6 percent of the marine invertebrate harvest was taken with commercial gear. This included king, dungeness, and tanner crab, and octopus. One hundred percent of the octopus and king crab, 39.8 percent of the dungeness crab, and 14.2 percent of the tanner crab came from commercial boats.

Eighty two (82.4) percent of the sampled Chignik Lagoon households used land mammals in 1984, 41 percent hunted game, and 29.4 percent harvested game. The per capita harvest of game, 59.3 pounds, made up 26 percent of the total resource harvest. By weight, 80 percent of the game harvest consisted of moose (47.7 pounds per capita). Moose were hunted by 29 percent of the sampled households, taken by 18 percent and used by 59 percent. Caribou was used in 77 percent of sampled households and harvested by 18 percent. Per capita caribou harvest was 10.5 pounds, 18 percent of the game harvest. Beaver was taken and used by 6 percent of sampled households adding 1.4 pounds to the per capita harvest.

In 1984 marine mammal harvest and use involved 12 percent of the sampled Chignik Lagoon households. Harvest consisted solely of harbor seal which contributed 2.4 pounds to the per capita harvest.

By weight, 3.2 percent of the total resource harvest by sampled households in 1984 consisted of birds. The per capita harvest of 7.4

pounds was made up of geese, ducks, and ptarmigan. Freshwater ducks were taken by 47 percent of the households for a total per capita weight of 4.8 pounds. They were used in 71 percent of the households. Sea ducks (18 percent harvest, 29 percent use) added .5 pound to the per capita harvest. The total geese harvest was 2 pounds per capita. Emperors, harvested by 29 percent of the sample and used by 35 percent, accounted for most of the geese harvest (1.6 pounds per capita). Ptarmigan harvest was minimal; in Chignik Lagoon it added .1 pound to the per capita harvest.

CHIGNIK

Among the study communities, Chignik harvest levels and participation rates were generally the lowest (Tables 15, 21). Even so, the per capita harvest of 194.4 pounds and overall resource use rate of 100 percent reveals that the harvest of fish and game resources continued to be important to sampled households in 1984. An average of 6.7 different resources were harvested and 12.5 used by households included in the survey. Households harvested an average of 3.2 of the six resource category groups. Overall, 84.2 percent of sampled Chignik households attempted to and successfully harvested fish, game, or plant resources in 1984. By weight, salmon made up 74.4 percent of the total resource harvest (Fig. 22). This was followed by non-salmon fish (10.5 percent), land mammals (7.3 percent), marine invertebrates (3.8 percent), marine mammals (2.7 percent) and birds (1.4 percent).

Salmon was harvested by 78.9 percent of the sampled Chignik households and used by 94.7 percent. By weight, sockeye made up 73.6 percent (106.4 pounds) of the total salmon per capita harvest (144.6

TABLE 21. PROFILE OF HOUSEHOLD HARVEST AND USE OF EDIBLE FISH AND WILDLIFE RESOURCES BY CHIGNIK RESIDENTS DURING 1984
(RANDOM SAMPLE, N = 19)

Resource	% of HH		Mean Harvest (n=19)	Range quantities		Mean Lbs		Mean Lbs Hrvstd All HH (n=19)	Per capita Lbs Hrvstd (n=82)	% of HH		
	Using	Attempting to Harvest		Harvesting	Successful HH	Per	HH			Receiving	Giving	
SALMON												
(79 % participation) *1												
King Salmon	47	32	1.3	0 - 12	67.6	21.4	4.9	16	5			
Red Salmon	95	74	83.5	0 - 300	623.5	459.4	106.4	58	63			
Chum Salmon	26	11	0.4	0 - 6	19.6	2.1	0.5	21	5			
Pink Salmon	42	26	3.3	0 - 25	39.1	10.3	2.4	26	16			
Coho Salmon	63	47	12.3	0 - 75	155.3	73.6	17.0	32	32			
Salmon*Species Unknown	5	5	10.5	0 - 200	1100.0	57.9	13.4	5	5			
OTHER FISH												
(74 % participation) *1												
Dolly Varden	5	5	0.2	0 - 3	4.2	0.2	0.1	0	0			
Rainbow Trout	5	5	1.6	0 - 30	45.0	2.4	0.5	0	0			
Steelhead	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0			
Lake Trout	5	0	0.0	0 - 0	0.0	0.0	0.0	5	0			
Grayling	5	5	0.3	0 - 6	10.2	0.5	0.1	0	0			
Whitefish	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0			
Candlefish	11	0	0.0	0 - 0	0.0	0.0	0.0	11	0			
Smelt	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0			
Herring	21	11	4.0	0 - 40	18.8	2.0	0.5	21	16			
Halibut	84	68	2.5	0 - 10	115.7	79.2	18.3	63	58			
Cod	37	26	3.5	0 - 25	13.2	3.5	0.8	21	21			
Flounder	5	5	0.2	0 - 3	3.0	0.2	0.0 *3	0	0			

TABLE 21. (CONTINUED) PROFILE OF HOUSEHOLD HARVEST AND USE OF EDIBLE FISH AND WILDLIFE RESOURCES
BY CHIGNIK BAY RESIDENTS DURING 1984 (RANDOM SAMPLE, N = 19)

Resource	% of HH Using	% of HH Attempting to Harvest	% of HH Harvesting	Mean Harvest (n=19)	Range Quantities	Mean Lbs Hrvstd Per Successful HH	Mean Lbs Hrvstd ALL HH (n=19)	Percapita Lbs Hrvstd (n=82)	% of HH Receiving	% of HH Giving	
											0 - 0
MARINE INVERTEBRATES (79 % participation) *1											
Shrimp	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0	
King Crab	42	5	5	0.3	0 - 6	13.8	0.7	0.2	37	5	
Dungeness Crab	63	16	16	2.6	0 - 20	11.7	1.8	0.4	58	21	
Tanner Crab	42	5	5	0.8	0 - 15	24.0	1.3	0.3	37	26	
Octopus	68	42	37	1.5	0 - 6	16.0	5.9	1.4	47	32	
Razor Clams	11	11	11	1.7	0 - 22	3.7	0.4	0.1	0	0	
Butter Clams	90	79	74	87.2	0 - 375	27.2	20.1	4.6	42	42	
Cockles	32	26	26	13.6	0 - 100	3.6	1.0	0.2	21	21	
Mussels	11	5	5	*2	*2	1.0	0.1	0.0 *3	5	0	
Sea Eggs	11	5	5	*2	*2	1.0	0.1	0.0 *3	5	5	
Bidarkis	42	37	37	*2	*2	1.7	0.6	0.1	16	26	
MARINE MAMMALS (11 % participation) *1											
Harbor Seal	32	11	11	0.3	0 - 4	112.5	11.8	2.7	21	21	
Sea Lion	5	5	5	0.1	0 - 1	200.0	10.5	2.4	0	5	
Walrus	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0	
LAND MAMMALS (42 % participation) *1											
Caribou	68	32	21	0.2	0 - 1	150.0	31.6	7.3	63	37	
Moose	26	21	5	0.1	0 - 1	540.0	28.4	6.6	21	16	
Brown Bear	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0	
Porcupine	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0	
Arctic Hare	5	5	5	0.2	0 - 3	16.8	0.9	0.2	0	0	
Snowshoe Hare	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0	
Beaver	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0	

TABLE 21. (CONTINUED) PROFILE OF HOUSEHOLD HARVEST AND USE OF EDIBLE FISH AND WILDLIFE RESOURCES
BY CHIGNIK BAY RESIDENTS DURING 1984 (RANDOM SAMPLE, N = 19)

Resource	% of HH Using	% of HH Attempting to Harvest	% of HH Harvesting	Mean Harvest (n=19)	Range Quantities	Mean Lbs Harvested Per Successful HH	Mean Lbs Harvested All HH (n=19)	Percapita Lbs Harvested (n=82)	% of HH Receiving	% of HH Giving
BIRDS AND EGGS										
(53 % participation) *1										
Seagull Eggs	5	0	0	0.0	0 - 0	0.0	0.0	0.0	5	0
Duck Eggs	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Geese Eggs	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Geese*Species Unknown	5	0	0	0.0	0 - 0	0.0	0.0	0.0	5	0
Brants	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Emperor Geese	32	26	26	1.1	0 - 6	12.0	3.2	0.7	11	11
Canada Geese	5	5	5	0.5	0 - 10	30.0	1.6	0.4	0	5
Snow Geese	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Fresh Water Ducks	32	16	16	1.3	0 - 15	12.0	1.9	0.4	21	0
Sea Ducks	26	21	21	2.2	0 - 20	15.8	3.3	0.8	5	0
Other Ducks	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Ptarmigan	21	11	11	2.3	0 - 40	15.1	1.6	0.4	16	0
Snipe	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
PLANTS AND BERRIES										
Berries	74	*2	68	*2	*2	*2	*2	*2	*2	*2
Plants	42	*2	37	*2	*2	*2	*2	*2	*2	*2

*1 Households that attempted to harvest the resource category during 1984

*2 Data not collected

*3 < 0.1 pound

pounds) and 55 percent of the total per capita resource harvest. Sockeye were harvested by 74 percent and used in 95 percent of the households in 1984. Coho salmon was the second most commonly used and harvested salmon specie. Coho salmon (47 percent harvest, 63 percent use) added 17 pounds to the per capita harvest. Adding to the per capita harvest were 4.9 pounds of king salmon (32 percent harvest, 47 percent use), .5 pounds of chums (11 percent harvest, 26 percent use), and 2.4 pounds of pinks (26 percent harvest, 42 percent use). Unidentified salmon was used by five percent of the households for a per capita total of 13.4 pounds.

Almost 30 percent (29.8) of the salmon harvest was taken with commercial gear, 39.1 pounds per capita. One hundred percent of the chums, 77.8 percent of the pinks, 50 percent of the kings, 28.5 percent of the sockeyes, 23.2 of the cohos were added to the household resource harvest from commercial gear.

Ten and a half percent (20.4 pounds per capita) of the total resource harvest of sampled Chignik households consisted of non-salmon fish. In 1984, 73.7 percent of the households attempted to harvest non-salmon fish, 73.7 percent were successful, and 84.2 percent used non-salmon fish. Halibut harvests of 18.3 pounds per capita made up 90 percent of the non-salmon fish harvest. Eighty-four percent of the sampled households used halibut and 68 percent harvested it. Other species harvested included cod (26 percent harvest, 37 percent use), herring (11 percent harvest, 21 percent use), flounder, grayling, rainbow trout, and Dolly Varden (each five percent harvest and use). Overall, 63.1 percent of the non-salmon fish were taken with commercial gear. Taken incidentally while commercial fishing were all the herring, two-thirds of the halibut (63.8 percent), and

a third of the cod (31.8 percent), adding 53.6 pounds to the mean household harvest of wild resources.

Marine invertebrates made up 4 percent of Chignik's resource harvest in 1984, 7.4 pounds per capita. Almost 95 percent (94.7) of the households used these species, 78.9 percent attempted to harvest them, and all were successful. Ninety percent of the sample used butter clams, making them the most commonly used resource in this category. Almost three-fourths of the sample (74 percent) harvested butter clams for a per capita take of 4.6 pounds. Taken by 37 percent of the sample and used by 68 percent, octopus was the second most commonly used marine invertebrate. Harvest was 1.4 pounds per capita in 1984. Also included in the marine invertebrate harvest were: king crab and tanner crab (5 percent harvest, 42 percent use), dungeness crab (16 percent harvest, 63 percent use), razor clams (11 percent harvest and use), cockles (26 percent harvest, 32 percent use), mussels and sea eggs (5 percent harvest, 11 percent use for each) and bidarkies (37 percent harvest, 42 percent use).

As with other marine resources, a sizable portion of the 1984 invertebrate harvest in Chignik was taken with commercial gear. By weight, 45.9 percent of the marine invertebrate catch came from commercial gear including all of the crab harvested by sampled by Chignik households during the study period. About ten (10.7) percent of the octopus was taken incidentally while commercial fishing.

The use and harvest of land mammals was less important in the total resource harvest to Chignik households in 1984 than that of marine resources. By weight, seven percent of the resource harvest consisted of land mammals. The per capita harvest was 14.1 pounds. Caribou harvest was attempted by 32 percent of sampled households, 21 percent were successful,

and 68 percent used caribou meat. The per capita harvest of 7.3 pounds was 51.9 percent of the game harvest. Five percent of the sample successfully took moose in 1984 while 21 percent attempted to harvest one. Moose was used in 26 percent of the households. Overall, 6.6 pounds per capita were harvested, or 46.6 percent of the game harvest. Five percent of the households harvested and used Arctic hare. The per capita harvest was .2 pounds.

.Two species of marine mammals were harvested by sampled Chignik households in 1984. Eleven percent of the sample attempted to and harvested marine mammals, and 31.6 percent used marine mammals. Harvest of harbor seal and sea lion totaled 5.1 pounds per capita (52.9 and 47.1 percent of the marine mammal harvest respectively).

By weight, the harvest of birds and bird eggs was relatively low for Chignik households in 1984. One (1.4) percent, 2.7 pounds per capita, of the total harvest consisted of ducks, geese, and ptarmigan. Almost 30 percent (28.4) of the per capita bird harvest was sea ducks (21 percent harvest, 26 percent use). Freshwater ducks were harvested by 16 percent of the households and used by 32 percent, with a per capita harvest of .4 pounds. Together Canada geese (5 percent harvest and use) and emperor geese (26 percent harvest and 32 percent use) harvest accounted for 41.1 percent of the per capita total, 1.1 pounds. The per capita harvest of ptarmigan (11 percent harvest, 21 percent use) was .4 pounds.

Berries were used by 74 percent of the sampled households. Sixty-eight percent of the households reported picking berries and 37 gathered greens and other plants. Greens were used in 42 percent of the households.

PERRYVILLE

Perryville households included in the resource sample were very active in the harvest and use of wild foods during 1984 (Table 22). One hundred percent of the sampled households attempted to harvest wild foods, all were successful, and all households used fish, game, or plant resources (Table 15). The mean number of resources taken by the households was 11.7. Among the study communities, Perryville residents averaged the most resources used per household, 21.5. For the six resource categories, the mean number taken by the sample was 4.8.

Harvest quantities 1984 were high in Perryville. By pounds edible weight the sampled households averaged 1,659.6 pounds. The per capita harvest was 390.5 pounds, second highest among the study communities. By weight, the harvest consisted of salmon (58.5 percent), land mammals (21.6 percent), non-salmon fish (10.8 percent), marine mammals (4.6 percent), birds (1.7 percent), and marine invertebrates (2.8 percent) (Fig. 22).

The resource category which supplied the most food to the per capita harvest was salmon. At 228.4 pounds per capita the salmon catch equaled 58.5 percent of the total resource harvest. Salmon were taken by 95 percent of the sampled households and used by 100 percent. Coho salmon (85 percent harvest, 95 percent use), made up 55 percent of the salmon harvest and 32 percent of the total resource harvest in 1984. The per capita harvest of cohos was 125.7 pounds. The second most commonly used salmon species were pinks, 46.7 pounds per capita. Taken by 65 percent of the sample they were used in 80 percent of the households. Sockeyes (30 percent harvest, 75 percent use), chums (50 percent harvest, 60 percent use), and kings (15 percent harvest and use) salmon were also included in the harvest.

TABLE 22. PROFILE OF HOUSEHOLD HARVEST AND USE OF EDIBLE FISH AND WILDLIFE RESOURCES BY PERRYVILLE RESIDENTS DURING 1984
(RANDOM SAMPLE, N = 20)

Resource	% of HH Using	% of HH Attempting to Harvest	% of HH Harvesting	Mean Harvest (n=20)	Range Quantities	Mean Lbs Hrvstd Per Successful HH	Mean Lbs Hrvstd All HH (n=20)	Percapita Lbs Hrvstd (n=85)	% of HH Receiving	% of HH Giving
SALMON										
(95 % participation) *1										
King Salmon	15	15	15	0.9	0 - 14	101.4	15.2	3.6	0	10
Red Salmon	75	30	30	23.3	0 - 200	426.3	127.9	30.1	50	15
Chum Salmon	60	50	50	7.2	0 - 50	80.1	40.0	9.4	15	25
Pink Salmon	80	65	65	64.1	0 - 200	305.5	198.6	46.7	35	45
Coho Salmon	95	85	85	89.1	0 - 200	628.6	534.3	125.7	40	45
Salmon*Species Unknown	5	5	5	10.0	0 - 200	1100.0	55.0	12.9	0	0
OTHER FISH										
(95 % participation) *1										
Dolly Varden	75	55	55	32.6	0 - 200	83.0	45.6	10.7	50	35
Rainbow Trout	5	5	5	0.2	0 - 3	4.5	0.2	0.1	0	0
Steelhead	5	5	5	0.2	0 - 3	4.2	0.2	0.0 *3	0	0
Lake Trout	10	5	5	0.5	0 - 10	14.0	0.7	0.2	5	5
Grayling	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Whitefish	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Candlefish	90	80	80	356.0	0 - 2000	57.9	46.3	10.9	35	75
Smelt	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Herring	5	0	0	0.0	0 - 0	0.0	0.0	0.0	5	5
Halibut	80	40	40	2.5	0 - 15	200.0	80.0	18.8	65	45
Cod	85	40	40	6.2	0 - 50	15.4	6.2	1.5	65	40
Flounder	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0

TABLE 22. (CONTINUED) PROFILE OF HOUSEHOLD HARVEST AND USE OF EDIBLE FISH AND WILDLIFE RESOURCES
 BY PERRYVILLE RESIDENTS DURING 1984 (RANDOM SAMPLE, N = 20)

Resource	% of HH Using	% of HH Attempting to Harvest	% of HH Harvesting	Mean Harvest (n=20)	Range Quantities	Mean Lbs Hrvstd Per Successful HH	Mean Lbs Hrvstd All HH (n=20)	Percapita Lbs Hrvstd (n=85)	% of HH Receiving	% of HH Giving
MARINE INVERTEBRATES										
(90 % participation) *1										
Shrimp	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
King Crab	15	5	5	0.1	0 - 2	4.6	0.2	0.1	15	0
Dungeness Crab	70	30	30	2.8	0 - 10	6.4	1.9	0.5	50	15
Tanner Crab	15	0	0	0.0	0 - 0	0.0	0.0	0.0	15	0
Octopus	55	30	30	0.7	0 - 5	8.7	2.6	0.6	25	5
Razor Clams	55	40	40	31.9	0 - 150	18.3	7.3	1.7	35	20
Butter Clams	25	15	15	16.9	0 - 150	25.8	3.9	0.9	25	15
Cockles	85	40	40	44.9	0 - 375	7.9	3.1	0.7	75	40
Mussels	5	0	0	*2	*2	0.0	0.0	0.0	5	0
Sea Eggs	95	85	85	*2	*2	16.7	14.2	3.3	70	65
Bidarkis	100	90	90	*2	0 - 0	14.1	12.7	3.0	80	60
MARINE MAMMALS										
(50 % participation) *1										
Harbor Seal	90	35	35	0.6	0 - 3	77.1	27.0	6.4	75	30
Sea Lion	70	20	20	0.3	0 - 2	250.0	50.0	11.8	55	20
Walrus	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
LAND MAMMALS										
(70 % participation) *1										
Caribou	100	40	35	1.1	0 - 6	471.4	165.0	38.8	95	50
Moose	85	50	30	0.3	0 - 1	540.0	162.0	38.1	75	50
Brown Bear	55	20	20	0.2	0 - 1	150.0	30.0	7.1	35	20
Porcupine	15	10	5	0.1	0 - 1	8.0	0.4	0.1	15	0
Arctic Hare	25	20	20	0.3	0 - 2	7.0	1.4	0.3	5	10
Snowshoe Hare	5	5	5	0.1	0 - 2	4.0	0.2	0.1	0	0
Beaver	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0

TABLE 22. (CONTINUED) PROFILE OF HOUSEHOLD HARVEST AND USE OF EDIBLE FISH AND WILDLIFE RESOURCES
BY PERRYVILLE RESIDENTS DURING 1984 (RANDOM SAMPLE, N = 20)

Resource	% of HH Using	% of HH Attempting to Harvest	% of HH Harvesting	Mean Harvest (n=20)	Range Quantities	Mean Lbs Hrvstd Per Successful HH	Mean Lbs Hrvstd All HH (n=20)	Percapita Lbs Hrvstd (n=85)	% of HH Receiving	% of HH Giving
BIRDS AND EGGS (75 % participation) *1										
Seagull Eggs	80	45	45	31.6	0 - 200	10.5	4.7	1.1	65	25
Duck Eggs	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Geese Eggs	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Geese*Species Unknown	20	0	0	0.0	0 - 0	0.0	0.0	0.0	20	0
Brants	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Emperor Geese	5	0	0	0.0	0 - 0	0.0	0.0	0.0	5	0
Canada Geese	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Snow Geese	5	5	5	0.1	0 - 1	3.0	0.2	0.0 *3	0	0
Fresh Water Ducks	60	40	40	2.5	0 - 20	9.4	3.8	0.9	30	15
Sea Ducks	75	30	30	3.1	0 - 24	15.3	4.6	1.1	60	10
Other Ducks	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Ptarmigan	95	60	60	20.3	0 - 100	23.6	14.2	3.3	75	30
Snipe	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
PLANTS AND BERRIES										
Berries	80	*2	80	*2	*2	*2	*2	*2	*2	0
Plants	50	*2	50	*2	*2	*2	*2	*2	*2	0

*1 Households that attempted to harvest the resource category during 1984

*2 Data not collected

*3 < 0.1 pound

Unspecified salmon was taken by 5 percent of the sampled households for a per capita harvest of 12.9 pounds.

Approximately 12 (11.9) percent of the salmon harvest in Perryville was taken with commercial gear. This included over half (55.6 percent) of the kings, 23.7 percent of the sockeyes, 12.9 percent of the cohos, and 3.5 percent of the chum harvest.

Fish other than salmon made up 10.8 percent of Perryville's resource harvest in 1984, 42.2 pounds per capita. Ninety five percent attempted to and successfully harvested these species and 100 percent used non-salmon fish species. By weight, the three species which provided the bulk of the harvest were halibut, candlefish, and Dolly Varden. Halibut (40 percent harvest, 80 percent use) added 18.8 pounds to the per capita harvest, candlefish (80 percent harvest, 90 percent use) harvest was 10.9 pounds per capita, and Dolly Varden (55 percent harvest, 75 percent use) harvest was 10.7 pounds per capita. Other species harvested included rainbow trout and steelhead (5 percent harvest and use), lake trout (5 percent harvest, 10 use), and cod (40 percent harvest, 85 percent use).

Non-salmon fish were taken with commercial gear (18.8 percent), rod and reel, dip net, and by jigging through the ice with a hook and line. Halibut was harvested with commercial gear (20 percent) and rod and reel (80 percent), Cod was taken incidental to commercial fishing (21.1 percent), by rod and reel (69.1 percent) and with subsistence seine (9.8 percent). One hundred percent of the candlefish harvest was with dip nets. Over half (58.6 percent) the Dolly Varden harvest was with rod and reel, 33.7 percent jigging through the ice, and 7.7 taken with subsistence seine. All steelhead, lake trout, and rainbow trout were taken with rod and reel.

A wide variety of marine invertebrates was used by surveyed Perryville households for a per capita harvest of 10.8 pounds. Dungeness, king, and tanner crabs were used, although only dungeness and king were harvested by the survey population. Octopus and razor clams each used by 55 percent of the households added a total of 2.3 pounds to the per capita harvest. Sea eggs (85 percent harvest) and bidarkies (90 percent harvest) were used by at least 90 percent of the households and were considered favored resources. They each added approximately three pounds to the per capita harvest.

Half of the households contacted in the survey attempted to harvest some type of marine mammal. Thirty-five percent of the households successfully took harbor seals and 20 percent took sea lion. Ninety percent of the households used harbor seal. Per capita harvests of 6.4 pounds of harbor seal and 11.8 pounds of sea lion were reported.

Harvested by 55 percent of the sampled households in Perryville, land mammals were used by 100 percent of the households. Seventy percent of surveyed households hunted land mammals. By weight they added 84.5 pounds to the per capita harvest, 21.6 of the total resource harvest.

All households reported using caribou during 1984. Thirty-five percent of the Perryville households successfully harvested caribou for a per capita harvest of 38.8 pounds. Approximately a third (30 percent) of the households took moose adding 38.1 pounds to the per capita harvest. Eighty five percent of the sampled households used moose in 1984. Brown bear, used by 55 percent of the household sample, were taken by 20 percent of the households. Four bear were harvested during the study period for a per capita harvest of 7.1 pounds to the Perryville survey. Hare were also taken and used by community households.

With the exception of geese, there was widespread use of bird eggs and bird meat by Perryville households. In 1984, 80 percent of the households interviewed reported using gull eggs, 60 percent used freshwater ducks, 75 percent used sea ducks, and 95 used ptarmigan. Geese were used by at least 20 percent of the sampled households although very little harvest was reported. Ptarmigan provided the most weight per capita, 3.3 pounds, for all birds harvested. Ducks provided two pounds per capita.

IVANOF BAY

There was widespread use of the wild fish, game, and plants among sampled households in Ivanof Bay for 1984 (Table 23). One hundred percent of the sampled households used wild foods, attempted to harvest the resources, and were successful (Table 15). The average number of resources harvested per household was 12.5, and 18.5 was the average number of resources used by Ivanof Bay households. Of the six categories, sampled households harvested resources from an average 4.7 groups.

During the study period interviewed households in Ivanof Bay harvested, by weight, the largest per capita quantity of wild resources among the study communities. The 1984 harvest was 445.26 pounds per capita harvest, or 1,632.6 per household. By weight, the harvest was composed of 61.7 percent salmon, 21.6 percent land mammals, 5.9 percent marine invertebrates, 4.8 percent marine mammals, 3.4 percent non-salmon fish, and 2.7 percent birds (Fig. 22).

Overall, salmon contributed the most weight to the harvest total, 274.6 pounds per capita. During the study year, 83.3 percent used salmon.

TABLE 23. PROFILE OF HOUSEHOLD HARVEST AND USE OF EDIBLE FISH AND WILDLIFE RESOURCES BY IVANOF BAY RESIDENTS DURING 1984
(RANDOM SAMPLE, N = 6)

Resource	% of HH		Mean Harvest (n=6)	Range Quantities		Mean Lbs		Mean Lbs Hrvstd All HH (n=6)	Percapita Lbs Hrvstd (n=22)	% of HH		
	Using	Attempting to Harvest		Harvesting	Harvest	Successful	Per HH			Receiving	Giving	
SALMON												
(83 % participation) *1												
King Salmon	33	33	0.7	0 - 2	33.8	11.3	3.1	33	0	33		
Red Salmon	83	83	81.7	0 - 200	539.0	449.2	122.5	17	50	50		
Chum Salmon	50	50	31.7	0 - 100	354.7	177.3	48.4	33	50	50		
Pink Salmon	50	50	14.2	0 - 50	87.8	43.9	12.0	17	50	50		
Coho Salmon	83	83	54.2	0 - 130	390.0	325.0	88.6	17	50	50		
Salmon*Species Unknown	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0	0		
OTHER FISH												
(67 % participation) *1												
Dolly Varden	67	67	12.8	0 - 35	27.0	18.0	4.9	17	33	33		
Rainbow Trout	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0	0		
Steelhead	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0	0		
Lake Trout	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0	0		
Grayling	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0	0		
Whitefish	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0	0		
Candlefish	50	0	0.0	0 - 0	0.0	0.0	0.0	50	17	17		
Smelt	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0	0		
Herring	17	0	0.0	0 - 0	0.0	0.0	0.0	17	0	0		
Halibut	67	33	1.0	0 - 4	96.0	32.0	8.7	33	33	33		
Cod	50	33	5.0	0 - 20	15.0	5.0	1.4	33	17	17		
Flounder	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0	0		

TABLE 23. (CONTINUED) PROFILE OF HOUSEHOLD HARVEST AND USE OF EDIBLE FISH AND WILDLIFE RESOURCES
BY IVANOF BAY RESIDENTS DURING 1984 (RANDOM SAMPLE, N = 6)

Resource	% of HH Using	% of HH Attempting to Harvest	% of HH Harvesting	Mean Harvest (n=6)	Range Quantities	Mean Lbs Hrvstd Per Successful HH	Mean Lbs Hrvstd All HH (n=6)	Percapita Lbs Hrvstd (n=22)	% of HH Receiving	% of HH Giving
MARINE INVERTEBRATES (83 % participation) *1										
Shrimp	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
King Crab	33	0	0	0.0	0 - 0	0.0	0.0	0.0	33	0
Dungeness Crab	50	17	17	6.7	0 - 40	28.0	4.7	1.3	50	0
Tanner Crab	67	17	17	3.3	0 - 20	32.0	5.3	1.5	67	0
Octopus	50	17	17	1.7	0 - 10	40.0	6.7	1.8	50	0
Razor Clams	17	17	17	12.5	0 - 75	17.3	2.9	0.8	0	0
Butter Clams	83	83	83	184.2	0 - 600	50.8	42.4	11.6	17	67
Cockles	83	83	83	312.5	0 - 750	26.3	21.9	6.0	50	50
Mussels	0	0	0	*2	*2	0.0	0.0	0.0	0	0
Sea Eggs	67	67	67	*2	*2	7.5	5.0	1.4	17	17
Bidarkis	83	83	83	*2	*2	9.4	7.8	2.1	33	33
MARINE MAMMALS (67 % participation) *1										
Harbor Seal	83	67	67	1.0	0 - 2	67.5	45.0	12.3	50	50
Sea Lion	17	17	17	0.2	0 - 1	200.0	33.3	9.1	17	17
Walrus	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
LAND MAMMALS (67 % participation) *1										
Caribou	100	67	67	2.0	0 - 5	450.0	300.0	81.8	83	67
Moose	67	17	0	0.0	0 - 0	0.0	0.0	0.0	67	0
Brown Bear	33	33	33	0.3	0 - 1	150.0	50.0	13.6	17	33
Porcupine	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Arctic Hare	17	17	17	0.3	0 - 2	11.2	1.9	0.5	0	0
Snowshoe Hare	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Beaver	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0

TABLE 23. (CONTINUED) PROFILE OF HOUSEHOLD HARVEST AND USE OF EDIBLE FISH AND WILDLIFE RESOURCES
BY IVANOF BAY RESIDENTS DURING 1984 (RANDOM SAMPLE, N = 6)

Resource	% of HH Using	% of HH Attempting to Harvest	% of HH Harvesting	Mean Harvest (n=6)	Range Quantities	Mean Lbs Harvested Per Successful HH	Mean Lbs Harvested All HH (n=6)	Percapita Lbs Hrvstd (n=22)	% of HH Receiving	% of HH Giving
BIRDS AND EGGS										
(83 % participation) *1										
Seagull Eggs	33	33	33	6.0	0 - 24	2.7	0.9	0.3	17	17
Duck Eggs	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Geese Eggs	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Geese*Species Unknown	33	17	17	1.0	0 - 6	18.0	3.0	0.8	17	0
Brants	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Emperor Geese	33	33	33	3.0	0 - 10	27.0	9.0	2.5	17	33
Canada Geese	17	17	17	2.5	0 - 15	45.0	7.5	2.1	17	17
Snow Geese	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
Fresh Water Ducks	67	33	33	7.0	0 - 30	31.5	10.5	2.9	50	33
Sea Ducks	17	17	17	1.0	0 - 6	9.0	1.5	0.4	17	17
Other Ducks	33	33	33	4.5	0 - 15	20.3	6.8	1.8	0	0
Ptarmigan	50	50	50	7.2	0 - 25	10.0	5.0	1.4	33	17
Snipe	0	0	0	0.0	0 - 0	0.0	0.0	0.0	0	0
PLANTS AND BERRIES										
Berries	100	*2	100	*2	*2	*2	*2	*2	*2	*2
Plants	67	*2	67	*2	*2	*2	*2	*2	*2	*2

*1 Households that attempted to harvest the resource category during 1984

*2 Data not collected

Eighty three (83.3) percent also attempted to harvest salmon and were successful.

Sockeye salmon made up 45 percent of the salmon harvest, 122.5 pounds per capita in Ivanof Bay during 1984. Eighty-three percent of the sample reported attempting to harvest, successfully harvesting, and using sockeyes. The second most commonly used species was coho which provided 88.6 pounds per capita to the harvest total (83 percent harvest and use). Chums were harvested and used by half of the sample for a per capita harvest of 48.4 pounds. Pink salmon (50 percent harvest and use) and king salmon (33 percent harvest and use) were also used by Ivanof Bay residents.

Ivanof Bay residents were diverse in the methods they used in harvesting salmon in 1984. Sockeyes were taken with commercial gear (51 percent), subsistence seines (41 percent), subsistence gill nets (2 percent), and rod and reel (6 percent). Half the king harvest was with commercial gear and half with rod and reel. Chums were taken with subsistence gill nets (79 percent) and subsistence seines (21 percent). Pinks were caught in subsistence seines (35 percent) and subsistence gill nets (65 percent). Cohos were taken from commercial gear (5 percent), subsistence seines (40 percent), subsistence gill nets (46 percent), and rod and reel (9 percent).

Non-salmon fish harvested by the sampled households constituted 3.4 percent of the harvest total, 15 pounds per capita. Halibut made up 58 percent of the non-salmon fish harvest (33 percent harvest, 67 percent use), 8.7 pounds per capita. The Dolly Varden harvest (67 percent harvest and use) followed at 4.9 pounds per capita, and cod (33 percent harvest, 50 use) with 1.4 pounds per capita. Half of the households reported using candlefish though none reported harvesting it. Two-thirds of the halibut

catch were with subsistence seine and the remaining third were taken with commercial gear. Cod were taken with commercial gear (33 percent) and with rod and reel (67 percent). All the Dolly Varden harvest occurred with rod and reel.

Eighty three (83.) percent of the sampled Ivanof Bay households attempted to harvest, and were successful harvesters of marine invertebrates. The same percentage (83.) also used marine invertebrates. The per capita harvest was 26.4 pounds. The household average was 96.6 pounds. By weight, the most commonly used species was butter clams which made up 43.7 percent of the marine invertebrate harvest (11.6 pounds per capita). They were harvested and used by 83 percent of the sampled households. Cockles were taken and used by the same percent (83) for a per capita harvest of six pounds. Bidarkies (83 harvest and use) made up 8.1 percent of the marine invertebrate harvest, 2.1 pounds per capita. Also included in the harvest were dungeness crab (17 percent harvest, 50 percent use), tanner crab (17 percent harvest, 67 percent use), octopus (17 percent harvest, 50 percent use), razor clams (17 percent harvest and use), and sea eggs (67 percent harvest and use). No marine invertebrates were reportedly taken from commercial gear.

Land mammals were hunted by 67 percent of the Ivanof Bay sampled households and all were successful. One hundred percent of the contacted households used land mammals. The per capita harvest in 1984 was 95.9 pounds. Caribou, harvested by 67 percent and used by 100 percent of the households, made up 85 percent of the land mammal harvest, 81.8 pounds per capita. Brown bear, was taken and used by 33 percent of the sample. It represented 14 percent of the land mammal harvest in 1984, 13.6 pounds per capita. The harvest of Arctic hare (17 percent harvest and use) added .5

pounds to the per capita harvest. No moose were harvested in 1984 by the sampled households, though 67 percent reported using moose meat.

Two-thirds (67 percent) of the households participated in hunting and successfully taking marine mammals. Eighty three percent used marine mammals in 1984. Both harbor seal and sea lion were harvested and utilized for a per capita harvest of 21.4 pounds. Harbor seal was used in five of the six sampled households (83 percent). It contributed 12.3 pounds to the per capita harvest total, and represented 57.5 percent of the marine mammal harvest. Per capita, 9.1 pounds of sea lion were also taken.

Eighty three percent of the sampled Ivanof Bay households attempted to harvest birds and birds eggs during the study period. All were successful (83 percent) and birds were used in 100 percent of the households. All totaled these resources added 12.1 pounds to the per capita harvest. By weight, emperor and Canada geese along with freshwater ducks were taken in the greatest quantities. Freshwater ducks (33 percent harvest, 67 percent use) contributed 2.9 pounds per capita to the harvest total. Emperor geese (33 percent harvest and use), made up 20.5 percent of the bird harvest, 2.5 pounds per capita. Canada geese (17 percent harvest and use) added 2.1 pounds per capita. Other species harvested included gull eggs (33 percent harvest and use), geese of undetermined species (17 percent harvest, 33 percent use), sea ducks (17 percent harvest and use), ducks of unknown species ("other ducks") (33 percent harvest and use), and ptarmigan (50 percent harvest and use).

CHAPTER SEVEN

CARIBOU, MOOSE, BROWN BEAR, AND SALMON HARVEST AND USE PATTERNS

The purpose of this chapter is to discuss in more detail several kinds of fish and game resources that played a prominent role in the resource harvest patterns of the six Alaska Peninsula study communities. Specifically, caribou, moose, brown bear, and salmon will be discussed.

CARIBOU

The majority of caribou taken by residents of the study communities inhabited GMU 9(E), home range of the Northern Alaska caribou herd. The herd calves between the Cinder River and Port Moller and winters between the Ugashik and Naknek rivers. Historically herd size has fluctuated greatly (Sellers and McNay 1984). Numbering 2,000 in 1949, the herd slowly increased to over 10,000 animals by 1963. Continued good calf production and mild winters have contributed to a steady increase in the herd size. In 1984 the herd consisted of approximately 20,000 animals.

During the summer months most of the cows and calves remain at the principal calving grounds, on or near the Bering Sea flats. Areas near Pinnacle Mountain, Yantarni Creek, and Nakalilok Bay, on the Pacific side of the peninsula, are also considered important calving grounds and some sizable groups spend the summer months in these and other mountain valleys. Bulls and yearlings scatter widely and are found throughout the Aleutian Range and from coast to coast (ADF&G 1985:113).

When their forage significantly decreases or as weather conditions dictate, caribou begin a northward migration. This movement may begin in

late July with some stragglers remaining below Port Heiden until late October.

Regulations

Caribou on the Alaska Peninsula have provided a favored wildlife resource for residents and non-residents alike. The liberal hunting regulations characteristic of the last several years reflect the healthy, stable condition of the herd. Local residents believe that some regulatory changes are the result of increased outside hunting pressure. One such regulation was the ban on same day airborne hunting in 1977-78. Table 24 illustrates caribou regulations for GMU 9(E) for 1960 through the 1984-85 season.

Non-local Residents' Harvest and Use Patterns

Caribou hunters have been required to use harvest tickets since 1977. More non-local hunters obtain and return harvest tickets than do local residents (Sellers and McNay 1984:31). Therefore, harvest results based on returned tickets are seriously biased due to the low reporting rate of local residents. In spite this difficulty, pressure from outside hunters can be surmised.

According to returned harvest tickets (Table 25), based on residency, GMU 9(E) hunters have been far out numbered by non-local hunters. Most non-locals hunt in the fall and concentrate on bulls which provide trophies and excellent meat before the rut (Sellers and McNay 1984:25). The regulation which allowed only one caribou before November 1 was designed to

TABLE 24. CARIBOU HUNTING REGULATIONS, GMU 9 (E), 1960-1985

YEAR	SEASON DATE	BAG LIMIT
(For all of GMU 9)		
1960	Jan. 1-Mar. 31 Aug. 20-Dec. 31	3 caribou
(Data missing for 1961-1963)		
1963-64	Aug. 10-Mar. 31	3 caribou
1964-65	Aug. 10-Mar. 31	4 caribou
1965-66	Aug. 10-Mar. 31	3 caribou
1966-67 through 1971-72	Same as 1965-66	
1972-73	July 1-June 30	3 caribou
1973-74	July 1-June 30	5 caribou; not more than three may be taken from Aug. 10- Nov. 30.
1974-75 and 1975-76 1976-77	Same as 1973-74 Aug 10. Oct. 15 Dec. 1-Mar. 31	3 antlered caribou provided provided that not more than one caribou may taken from Aug. 10-Oct. 15.
1977-78	Aug. 10-Mar. 31	4 antlered caribou, provided that not more than 1 caribou may be taken from Aug. 10 - Oct. 31
(Sub-units within GMU created in 1978-79).....		
1978-79 (9E)	Aug 10-Mar. 31	4 antlered caribou, provided that not more than 1 caribou may be taken from Aug. 10-Oct. 31.
1979-80 1980-81	Same as 1978-79 Aug. 10-Mar 31.	4 caribou; however not more than 1 caribou may be taken from Aug. 10-Oct. 31
1981-82	Same as 1980-81	
1982-83	Same as 1980-81	
1983-84	Same as 1980-81	
1984-85	Same as 1980-81	

TABLE 25. REPORTED HARVEST FOR THE NORTHERN ALASKA PENINSULA CARIBOU HERD, BY HUNTER RESIDENCY, 1980-1983.

<u>Year</u>	<u>Number of Hunters</u>				<u>Number of Caribou Harvested</u>			
	<u>9C</u>	<u>9E</u>	<u>Other Ak.</u>	<u>Nonres.</u>	<u>9C</u>	<u>9E</u>	<u>Other Ak.</u>	<u>Nonres.</u>
80/81	20	6	260	171	40	8	429	171
81/82	31	8	268	205	54	16	432	205
82/83	26	11	235	127	49	25	393	127
83/84	26	8	254	168	48	16	418	168

Source: Sellers and McNay 1984:29.

limit the number of animals taken during the rut by hunters mainly interested in antlers.

Restricted bag limits during the early season are one consequence of the popularity of caribou hunting on the Alaska Peninsula. Local residents also noted increased air traffic, evidence of caribou or moose meat being used as bear bait, and numerous instances of meat abandoned in the field. Meat was also brought back to local villages for distribution; sometimes it had been well cared for and was in good condition, other times it was unfit to eat. Non-locals trespassing on private property for hunting purposes was a concern expressed in all study communities.

Harvest and Use Patterns of Study Communities

With a mean household harvest of 263.2 pounds (Table 17), by weight caribou contributed more than any other resource except sockeye salmon to the supply of wild foods in the 110 sampled households in the six communities in 1984. Caribou made up 22.8 percent of the total resource harvest. Ninety percent of the sampled households used caribou, 55 percent hunted caribou, and 48 percent harvested caribou in 1984.

The resource use survey documented differences between the six study communities in caribou harvest and use levels (Table 26). Caribou harvests were most prominent in Egegik, where the 232.8 pound per capita take of caribou was 60.5 percent of the community's total harvest. Eighty percent of Egegik's households hunted caribou, more than any other study community, while 72 percent harvested caribou, second only to Chignik Lake's 74 percent.

Caribou also comprised a large portion of the wild resource harvest of Chignik Lake (27.9 percent), Ivanof Bay (18.4 percent) and Perryville (9.9 percent) as shown in Table 26. Most households in Chignik Lake (74 percent) and Ivanof Bay (67 percent) harvested caribou in 1984, while 35 percent of the Perryville sample did as well.

The pattern of caribou use was different in Chignik Lagoon and Chignik. For example, harvests were relatively lower than the other four communities, with a per capita harvest of 10.5 pounds in Chignik Lagoon (4.6 percent of the total harvest) and 7.3 pounds in Chignik (3.8 percent). Also, smaller segments of the sample harvested caribou in Chignik (21 percent) and Chignik Lagoon (18 percent) than in the other sampled villages. Access to productive caribou harvest areas was probably the biggest factor influencing the harvest patterns among the study communities.

Table 27 illustrates the expanded 1984 caribou harvest for each community. Based on mean household harvests and a 95 percent confidence factor, expanded community harvest totals ranged from 126 animals in Egegik to a low of 5 caribou in Chignik Lagoon. Data presented Table 27 compared to that shown in Table 25 illustrate the low rate of compliance for using harvest tickets. Harvest tickets are issued by ADF&G for each regulatory

TABLE 26. HARVEST AND USE OF CARIBOU, SIX ALASKA PENINSULA COMMUNITIES, 1984

	Entire Sample (N=110 hh)	Egegik (N=25 hh)	Chignik Lake (N=23 hh)	Chignik Lagoon (N=17 hh)	Chignik (N=19 hh)	Perryville (N=20 hh)	Ivanof Bay (N=6 hh)
% Using	90.0	96.0	100.0	76.5	68.4	100.0	100.0
% Hunting	54.5	80.0	73.9	29.4	31.6	40.0	66.7
% Harvesting	48.2	72.0	73.9	17.6	21.1	35.0	66.7
% Receiving	75.5	60.0	91.3	64.7	63.2	95.0	83.3
% Giving	52.7	64.0	69.6	29.4	36.8	50.0	66.7
Mean hh Harvest, lbs.	263.2	540.0	397.1	35.3	31.6	165.0	300.0
Per Capita, Harvest, lbs.	68.9	232.8	78.9	10.5	7.3	38.8	81.8
% of Total Harvest	22.8	60.5	27.9	4.6	3.8	9.9	18.4

year (July 1 through June 30) and are to be carried with the hunter while hunting. At the time of a kill the hunter is required to punch the ticket recording the date of the harvest. This is to be done with each animal killed. This means that each hunter should have a running total of current harvest with him whenever hunting. At the end of the season, a postcard recording the hunter's success, type of transportation used, number of days effort, and weapon used is to be returned. Among the study communities, there has been a low rate of use harvest tickets. Therefore totals shown in Table 25 do not accurately reflect actual harvest. Reasons given for the low rate of use vary, but include unfamiliarity with the ticket, suspicion of how the information might be used, difficulty in obtaining the tickets in rural areas, and simply forgetting to return the tickets at the end of the season.

TABLE 27. HOUSEHOLD CARIBOU HARVEST AND EXPANDED COMMUNITY TOTALS FOR ALASKA PENINSULA COMMUNITIES, BY NUMBER OF ANIMALS, 1984.

<u>Community</u>	Mean Household Harvest by Survey Sample	Total Harvest by Survey Sample	Expanded Harvest for Community (CI 95%)
Egegik	3.6	90	126 (+/-27)
Chignik Lake	2.7	61	82 (+/-15)
Chignik Lagoon	.2	4	5 (+/-3)
Chignik	.2	4	6 (+/-2)
Perryville	1.1	22	34 (+/-15)
Ivanof Bay	2.0	12	22 (+/-16)
Total			275

Comparing data from 1974-5 to that collected for 1984, mean household caribou harvests in Chignik, Chignik Lagoon, and Chignik Lake fell (Table 28). Caribou harvests have increased in Egegik according to 1973 figures. In 1975 it was estimated that Chignik residents took 1.2 caribou per household, Chignik Lagoon 2.1 caribou per household, and Chignik Lake

households 3.6 caribou (Tuten 1977:46). In 1974 Egegik residents reported a household mean harvest of 2.9 animals (Gasbarro 1974), lower than than the 3.6 figure found in 1984.

TABLE 28. COMPARISON OF MEAN HOUSEHOLD CARIBOU HARVESTS, IN POUNDS, FOR SELECTED COMMUNITIES ON THE ALASKA PENINSULA, 1974 AND 1984.

<u>Community</u>	<u>Mean household harvest,*</u>	<u>Mean household harvest, 1984</u>	<u>Change</u>
Egegik*	427.5	540.0	+112.5
Chignik Lake	534.3	397.8	-136.5
Chignik Lagoon	312.5	35.3	-277.2
Chignik	173.0	31.6	-141.4
Perryville	NA	165.0	
Ivanof Bay	NA	300.0	

* 1973 harvest year for Egegik; 4/1974-4/1975 for Chignik, Chignik Lagoon, and Chignik Lake.

Source: Tuten 1977; Gasbarro 1974

Overall, 55 percent of the sampled households on the Alaska Peninsula attempted to harvest caribou in 1984. Caribou hunting was often divided into two distinct periods, "fall" and "winter." The fall season included the period from opening day (August 10) through October 31. Winter season referred to the remainder of the open season, November 1 through March 31. Approximately forty percent of the sampled households attempted to harvest caribou in each the fall and winter seasons. Fifty-two percent of the harvest total occurred in the fall season.

In 1984 a hunter could take either cows or bulls. Of the 148 animals identified by sex (53.4 percent of the total caribou harvest), sampled hunters reported taking 30 percent cows and 70 percent bulls.

Transportation used to reach harvest areas depended on geographic locations within the region. On the Pacific shoreline, hunters often used commercial fishing vessels to reach the valleys or areas where caribou had

been spotted. Switching to three-wheelers or proceeding on foot, hunters traveled inland for two to three miles in search of game. Skiffs also provided transportation to shoreline harvest areas. Skiffs were generally used on adjacent rivers or areas near the hunter's home.

For point to point land travel, single-engine aircraft offered one preferred means of transportation for caribou hunting. In general, planes were used when hunting on the mid-portion of the peninsula such as around Wildman Lake. When caribou moved near a community on their annual migration, such as generally happens around Egegik, residents used three-wheelers in hunting activities.

Ninety percent of those households included in the survey group reported using caribou during 1984. Use levels varied between 100 percent in Chignik Lake, Perryville, and Ivanof Bay to a low of 68 percent in Chignik. Three-quarters of sampled households reported receiving caribou during the previous year while 53 percent reported giving caribou meat away. Egegik, the community with the highest per capita caribou harvest, reported the lowest rate of receiving caribou, 60 percent, and Perryville households reported the highest, 95 percent. At least half of the households in all communities except Chignik and Chignik Lagoon reported giving away caribou (Table 26).

Networks for caribou distribution were not documented; however, it was apparent that kinship ties were the dominant link in all the study communities. For example, residents in Chignik sent caribou to relatives living on Kodiak where it was unavailable. Residents of Perryville, Chignik Lagoon, and Chignik Lake received caribou from relatives living in Port Heiden and Pilot Point. In some cases residents from these study

communities traveled to the Pilot Point or Port Heiden to hunt with their relatives.

MOOSE

Though present on the Alaska Peninsula at the turn of the twentieth century, moose were thinly distributed and their abundance was limited. Moose populations increased substantially in the 1930s and 1940s, and by 1952 a ten day hunting season had been established. The population continued to grow until the late 1960s. By then, the peninsula had become known worldwide for its large "trophy" moose. However, moose trend surveys suggested that between 1972 and 1984 moose numbers declined by 60 percent (Sellers and McNay 1984:31). Large harvests and poor calf recruitment contributed to the decline of moose on the Alaska Peninsula. In 1983 moose densities averaged 0.9 moose per square mile. An extrapolation of the census indicated a moose population in 9(E) of 2,500 animals in that year.

An average of 197 moose was harvested by all users for the years 1968 through 1984. The largest harvest was in 1973 when 549 animals were taken and the smallest in 1982 with a harvest of 48. For the period between 1973 and 1982, local 9(E) residents averaged five percent of the reported moose harvest. For 1984, the reported moose harvest in 9(E) was 75 moose, nine percent which was by local 9(E) residents. Low reporting compliance undoubtedly influenced the figures; however, additional data collected in 1973, 1983, and 1985, suggest that harvest levels have been consistently low among peninsula residents (Sellers and McNay 1984:32; Division of Subsistence files, King Salmon).

Regulations

Since statehood, hunting regulations have consistently allowed a bag limit of one or two moose. Season dates and legal targets, based on antler size or sex of the animal, have generally become more restrictive. The increasingly restrictive regulations have occurred in response to declining moose populations and increasing outside hunting pressures. Table 29 outlines moose hunting regulations for 9 (E) since 1960.

Non-local Residents' Harvest and Use Patterns

Moose have been a favored resource for hunters seeking both meat and a "trophy." As stated earlier, the low compliance of returning harvest tickets undoubtedly influenced harvesting statistics based on reported harvests. Regardless of low reporting by local residents, it is known that Alaska Peninsula moose are renowned worldwide and non-local hunters value a trophy from the peninsula (Sellers and McNay 1984:32).

Non-local moose hunters, more so than caribou hunters, tend to employ a professional hunting guide. This is due, in part, to the short season, 10 days in 1984, and the desire to make maximum use of time and resources. The same concerns expressed about caribou hunters were repeated about non-local moose hunters, although the strongest complaint seemed to be about wanton waste of meat. Some residents from the study communities felt that the fall hunting seasons were designed with the trophy hunter in mind as most locals do not want to take an animal in rut. Outside hunting pressures also influenced seasons in terms of not wanting to be the first open moose season in the state and thereby attracting too much attention.

TABLE 29. MOOSE HUNTING REGULATIONS, GMU 9(E), 1960-1985

<u>YEAR</u>	<u>SEASON DATES</u>	<u>BAG LIMIT</u>
1960	Aug. 20-Dec. 31	One bull a year
(Data missing for 1961-63)		
1963-64	Aug. 20 - Dec. 31	One moose
1964-65	Aug. 20 - Dec. 31	Two moose
1965-66		
1967-68		
1968-69	Aug. 20 - Dec. 31	Two moose; provided that only one moose may be taken before Nov. 1.
1969-70	Aug. 20 - Dec. 31	Two moose; provided that only one moose may be taken before Nov. 2.
1970-71	Aug. 20 - Dec.	Two moose, provided that only one moose may be antlered bull.
1971-72		Antlered moose may not be taken between Oct. 1 - Oct. 31.
1972-73	Aug. 20 - Dec. 31	Two moose, only one which may be antlered bull.
1973-74		
1974-75	Aug. 20 - Dec. 31	One moose
1975-76	Sept. 20 - Nov 30	One moose; provided that antlered bulls may be taken only from Sept. 20-Oct.6
1976-77	Sept.10 - Oct 10 Dec. 1- Dec. 31	One moose, provided that antlerless moose may be taken only from Dec 1 - Dec.31. Antlered moose must have minimum antler spread of 50" or 3 brow tines on one side

TABLE 29. MOOSE HUNTING REGULATIONS, GMU 9(E), 1960 - 1985 (CONTINUED)

1977-78	Sept.10 - Oct. 10	Antlered moose only with spread of 50" or 3 brow tines on one side of the antlers.
1978-79 1979-80 1980-81	Sept. 10 - Oct. 10 Dec. 1 - Dec. 31	One moose; however antlerless moose may taken only from Dec.1 - Dec. 31. Antlered moose must have minimum antler spread of 50" or three brow tines on one side
1981-82 1982-83	Sept.10 - Sept. 20 Dec. 1 - Dec. 31	One moose; however antlerless moose may taken only from Dec.1 - Dec. 31. Antlered moose must have minimum antler spread of 50" or 3 brow tines on one side
1983-84	Sept. 10 - Sept. 20 Dec. 1 - Dec. 31	One bull moose with a minimum antler spread of 50" or 3 brow tines on one side
1984-85	Sept.10 - Sept. 20 Dec. 1 - Dec. 15	One antlered moose; however, moose taken from Sept. 10 - Sept. 20 must have a minimum antler spread of 50" or 3 brow tines on one side.

Not having overlapping brown bear and moose seasons was also calculated to reduce outside hunting pressure.

Harvest and Use Patterns of Study Communities

Moose made up eight percent of the total resource harvest by Alaska Peninsula households sampled in 1984. Fifty-two percent of the 110 households used moose in 1984, 27 percent hunted moose, and 16 percent harvested it (Table 30).

Differences in moose harvest and use patterns were found among the study communities. Moose comprised 20.7 percent of the total resource harvest in Chignik Lagoon, 47.4 pounds per capita. In Perryville (38.1 pounds per capita) and Chignik Lake (27.9 pounds per capita) moose made up almost 10 percent of the harvest total. Moose was less important in Chignik where it was 3.4 percent of the harvest (6.6 pounds per capita) and Egegik where it was 2.4 percent of the harvest (9.3 pounds per capita). In 1984 no moose were taken by sampled Ivanof Bay households.

Hunting effort was quite similar among Egegik (16 percent), Chignik Lake (26 percent), Chignik Lagoon (29 percent), Chignik (21 percent), and Ivanof Bay (17 percent). Perryville households reported almost twice as much moose hunting effort (50 percent). The success rate (percent who tried and got a moose) was best in Chignik Lake (100 percent), Chignik Lagoon (60 percent), and Perryville (60 percent). Chignik households reported a success rate of 25 percent, as did Egegik. Overall, the success rate for moose hunters was 59 percent.

Table 31 illustrates the harvest figures and expanded totals on a community level. The expanded 1984 community harvests ranged from zero to

TABLE 30. HARVEST AND USE OF MOOSE, ALASKA PENINSULA COMMUNITIES, 1984.

	Entire Sample (N=110 hh)	Egegik (N=25 hh)	Chignik Lake (N=23 hh)	Chignik Lagoon (N=17 hh)	Chignik (N=19 hh)	Perryville (N=20 hh)	Ivanof Bay (N=6 hh)
% Using	51.8	36.0	52.2	58.8	26.3	85.0	66.7
% Hunting	27.3	16.0	26.1	29.4	21.1	50.0	16.7
% Harvesting	15.5	4.0	26.1	17.6	5.3	30.0	0.0
% Receiving	42.7	32.0	34.8	47.1	21.1	75.0	66.7
% Giving	23.6	8.0	34.8	17.6	15.8	50.0	0.0
Mean hh Harvest, lbs.	93.3	21.6	140.9	158.8	28.4	162.0	0.0
Per Capita, Harvest, lbs.	24.4	9.3	27.9	47.4	6.6	38.1	0.0
% of total Harvest	8.1	2.4	9.9	20.7	3.4	9.8	0.0

nine moose. The total expanded harvest for the six study communities was 26 moose. The figures were determined with a 95 confidence factor. While still low, the expanded harvest was higher than the reported harvest of seven animals by 9(E) residents. The discrepancy was probably due to low use of harvest tickets.

TABLE 31. HOUSEHOLD MOOSE HARVEST AND EXPANDED COMMUNITY TOTALS FOR ALASKA PENINSULA COMMUNITIES, BY NUMBER OF ANIMALS, 1984.

Community	Mean Household Harvest by Survey Sample	Total Harvest by Survey Sample	Expanded Harvest for Community (CI 95%)
Egegik	.04	1	1 (+/-2)
Chignik Lake	.26	6	8 (+/-3)
Chignik Lagoon	.29	5	7 (+/-4)
Chignik	.05	1	1 (+/-2)
Perryville	.30	6	9 (+/-4)
Ivanof Bay	.00	0	0

Compared to harvest data collected a decade previously, 1984 harvests were generally lower (Table 32). In 1975 it was estimated that 0.4 (216 pounds) moose per household for Chignik was taken, 0.3 (162 pounds) for Chignik Lake, and 0.6 (324 pounds) for Chignik Lagoon (Tuten 1975). Comparing the two years, Chignik Lake's moose harvests remained relatively stable while Chignik and Chignik Lagoon harvests have dropped. A survey conducted in Egegik in 1974 reported a mean household moose harvest of less than 0.1 animal (54 pounds) (Gasbarro 1974). This correlates closely with the 1984 harvest. No data were available for comparative purposes for Perryville or Ivanof Bay. According to local residents, declining populations and correspondingly increased difficulty in finding moose contributed to the lower harvest levels.

Overall, 16 percent of the sampled households took moose in 1984. There were two moose hunting seasons on the Alaska Peninsula in 1984.

These included a ten day season in September and a 15 day season in December. Fifty-eight percent of the harvest of the sampled households took place during the first season.

TABLE 32. COMPARISON OF MEAN HOUSEHOLD MOOSE HARVEST, IN POUNDS, FOR SELECTED COMMUNITIES ON THE ALASKA PENINSULA, 1974 AND 1984.

<u>Community</u>	<u>Mean household harvest*</u>	<u>Mean household harvest 1984</u>	<u>Change</u>
Egegik	27.0	21.6	- 5.4
Chignik Lake	149.6	140.9	- 8.7
Chignik Lagoon	441.7	158.8	-282.9
Chignik	308.3	28.4	-279.9
Perryville	NA	162.0	
Ivanof Bay	NA	0	

*1973 harvest year for Egegik; 4/1974-4/1975 for Chignik, Chignik Lagoon, and Chignik Lake.

Source: Gasbarro 1974; Tuten 1977

According to Chignik and Chignik Lagoon residents, moose were frequently seen during the fall months along the Pacific coastal areas of Kujulik Bay, Aniakchak Bay, and Amber Bay. Chignik Lake residents said they generally hunted closer to home, often in the hills around Chignik Lake or in the drainages around Black Lake. Egegik hunters used the Egegik and King Salmon river drainages as well as the southeastern Becharof Lake shoreline and adjacent areas. Weather conditions were often better for traveling during September than in December.

Fifty-two percent of the sampled households used moose in 1984. Community use varied from a high of 85 percent of the sampled households in Perryville to 26 percent in Chignik. Moose was shared among households: 43 percent of the total sample received moose in 1984 and 24 percent gave moose to other households. By percentage, Perryville (75 percent) and Ivanof Bay (67 percent) had the most households where moose had been

received from other households. Perryville was also the community with the greatest percent of households giving moose away and Ivanof Bay the lowest (0 percent). Distribution networks were not documented but, as with caribou, it was evident from conversations that kinship was the main organizing principle for organizing the sharing of moose meat.

BROWN BEAR

To many people the Alaska Peninsula is most famous for its resident brown bears. Over 25 percent of all reported brown bear harvest in Alaska since 1959 has come from the Alaska Peninsula. In 1968 it was estimated that the brown bear population on the Alaska Peninsula south of the Naknek River was 2,000 animals. Bear management objectives in GMU 9 have been based on two goals: provide for a liberal opportunity to hunt bears, and secondly, ensure that a large bear population contains a sufficient number of adult males to provide opportunity to take a trophy bear (Personal Communication: Richard Sellers 1986:76). There have not been any special provisions designed for persons harvesting brown bear primarily as a food source. Historically bears were used by residents throughout the region for food and clothing (Hussey 1971).

Regulations

Hunting regulations in the 1980s allowed for a hunter to harvest a brown bear in GMU 9 once every four years. In 9 (E) the seasons were established to provide an open season every other spring and fall. For example, during the 1983 regulatory year, open seasons were October 7 -

October 21, 1983, and May 10 - May 25, 1984. There was no open season for the 1984 regulatory year. In practice what occurs, then, is one open hunting period each calendar year alternating between the spring and fall seasons. The taking of cubs and females accompanied by cubs is prohibited.

Harvest and Use Patterns

From data collected during the course of the study, it was found that into the 1980s brown bear continued to be used for human consumption by community members; 22 percent of the sampled households reported using brown bear, nine percent of the households attempted to harvest brown bear, and seven percent of the households were successful (Table 33). The mean household harvest was 10.9 pounds, or 2.9 pounds per capita. While the harvest of brown bear was less than one percent of the resource harvest for the entire sample, it was almost two percent of the Perryville harvest (1.8 percent) and three percent of the Ivanof Bay harvest.

Hunting effort was quite similar among Chignik Lake (17 percent), Perryville (20 percent), and Ivanof Bay (33 percent) households. All hunters were successful except in Chignik Lake where only 50 percent, or two out of four households, were successful bear harvesters. Sharing occurred in all three communities where brown bear was harvested. In Chignik Lake, 39 percent of the households reported receiving brown bear and 22 percent gave it away. In Perryville, 35 percent of the households received brown bear and 20 percent gave it away, and in Ivanof Bay 17 percent received brown bear and 33 gave it away.

In addition to information on the general harvest survey, any brown bear use for human consumption in either 1983 or 1984 by the household was

TABLE 33. HARVEST AND USE OF BROWN BEAR, SIX ALASKA PENINSULA COMMUNITIES, 1984

	Entire Sample (N=110 hh)	Egegik (N=25 hh)	Chignik Lake (N=23 hh)	Chignik Lagoon (N=17 hh)	Chignik (N=19 hh)	Perryville (N=20 hh)	Ivanof Bay (N=6 hh)
% Using	21.8	0.0	47.8	0.0	0.0	55.0	33.3
% Hunting	9.1	0.0	17.4	0.0	0.0	20.0	33.3
% Harvesting	7.3	0.0	8.7	0.0	0.0	20.0	33.3
% Receiving	15.5	0.0	39.1	0.0	0.0	35.0	16.7
% Giving	10.0	0.0	21.7	0.0	0.0	20.0	33.3
Mean hh Harvest, lbs.	10.9	0.0	13.0	0.0	0.0	30.0	50.0
Per Capita, Harvest, lbs.	2.9	0.0	2.6	0.0	0.0	7.1	13.6
% of Total Harvest	0.9	0.0	0.9	0.0	0.0	1.8	3.1

recorded during the research. May was the only legal season for bears in GMU 9(E) during 1984, so a two year period of general use was included to elicit possible use that was not immediately remembered. When asked in this way, among the sampled households, all communities except Chignik Lagoon had households in which brown bear had been used during 1983 or 1984 (Table 34). This reinforced survey data which indicated that brown bear continued to be commonly used in Perryville, Chignik Lake, and Ivanof Bay, but not in the other three communities.

TABLE 34. NUMBER OF HOUSEHOLDS USING BROWN BEAR MEAT OR FAT IN 1983 OR 1984, SELECTED ALASKA PENINSULA COMMUNITIES.

	Egegik (N=25)	Chignik Lake (N=23)	Chignik Lagoon (N=17)	Chignik (N=19)	Perry- ville (N=20)	Ivanof Bay (N=6)
Number	1	15	0	1	15	2
Percent	4	75	0	5	75	50

Among the local residents who reported using brown bear, the fat was mentioned as the favored portion. Meat was used, both fresh and preserved either by salting or freezing. Brown bear was taken both in the spring and fall months. It appeared from conversations with hunters that specific trips were made to harvest bear, though they were also taken opportunistically.

SALMON

Salmon made up a significant portion of the resource harvest and was used extensively in every community (Table 35). Overall, salmon constituted 52.8 percent of the total resource harvest. Over ninety five

TABLE 35. HARVEST AND USE OF SALMON, SIX ALASKA PENINSULA COMMUNITIES, 1984.

	Entire Sample (N=110 hh)	Egegik (N=25 hh)	Chignik Lake (N=23 hh)	Chignik Lagoon (N=17 hh)	Chignik (N=19 hh)	Perryville (N=20 hh)	Ivanof Bay (N=6 hh)
% Using	95.5	96.0	100.0	88.2	94.7	100.0	83.3
% Fishing	87.3	92.0	100.0	70.6	78.9	95.0	83.3
% Harvesting	87.3	92.0	100.0	64.7	78.9	95.0	83.3
% Receiving	56.4	56.0	52.2	52.9	68.4	60.0	33.3
% Giving	56.4	56.0	47.8	47.1	68.4	60.0	66.7
Mean hh							
Harvest, lbs.	609.5	217.3	742.3	424.4	624.6	971.0	1,006.7
Per Capita, Harvest, lbs.	159.6	93.7	147.2	126.6	144.7	228.5	274.6
% of Total Harvest	52.8	24.3	52.1	55.3	74.4	58.5	61.7

percent (95.5) of the sampled households used salmon, 88 percent attempted to harvest it, and 87.3 percent successfully took salmon.

Harvest quantities, as measured in pounds edible weight, were high. On the average, the sampled households took 609.5 pounds per household, or 159.6 pounds per capita. Ivanof Bay households reported the highest harvest per household, 1,006.7 pounds. By weight, Perryville households averaged the second highest household harvest, 971 pounds, followed by Chignik Lake (742.3 pounds), Chignik (624.6 pounds), Chignik Lagoon (424.4 pounds), and Egegik (217.3 pounds). Salmon catches were most significant in Chignik where they made up 74.4 percent, by weight, of the total resource harvest. In Ivanof Bay, salmon constituted 61.7 percent of the total resource harvest, 58.5 percent in Perryville, 55.3 percent in Chignik Lagoon, in Chignik Lake 52.1 percent, and in Egegik 24.3 percent of the resource harvest.

Salmon were taken by a variety of methods including rod and reel, subsistence seine, subsistence gill net, and commercial gear. Figures 23 through 26 illustrate the harvest by percent of total weight by each method. Salmon harvest methods varied in part by location of subsistence fishing areas, preferred species, weather conditions, and size of the salmon run. By weight, salmon taken with rod and reel made up the smallest percentage of the harvest. Salmon from commercial catches was very significant.

Salmon were harvested under three types of regulations, including commercial, subsistence, and sports fishing. Once salmon was harvested and entered the local food supply it was referred to as "subsistence fish" or "salmon" without reference to method of catch.

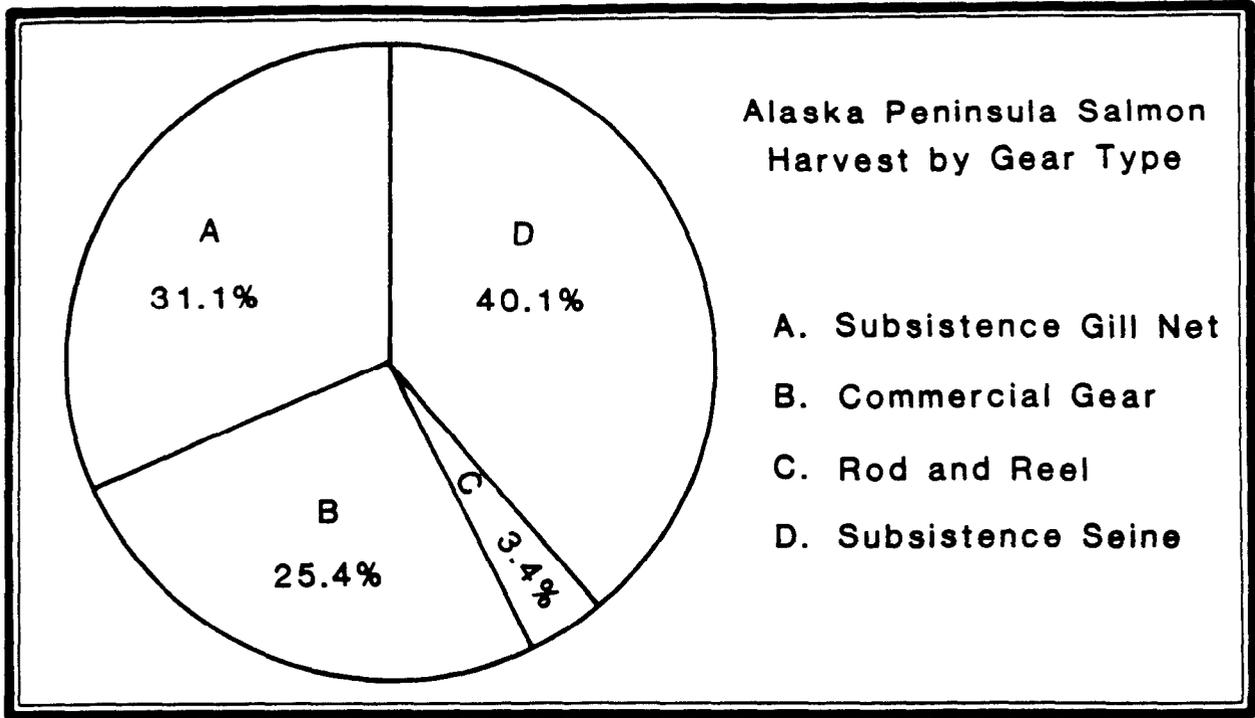


Figure 23. Salmon Harvested by Gear Type, Alaska Peninsula, Percent of Total Pounds Harvested, 1984.

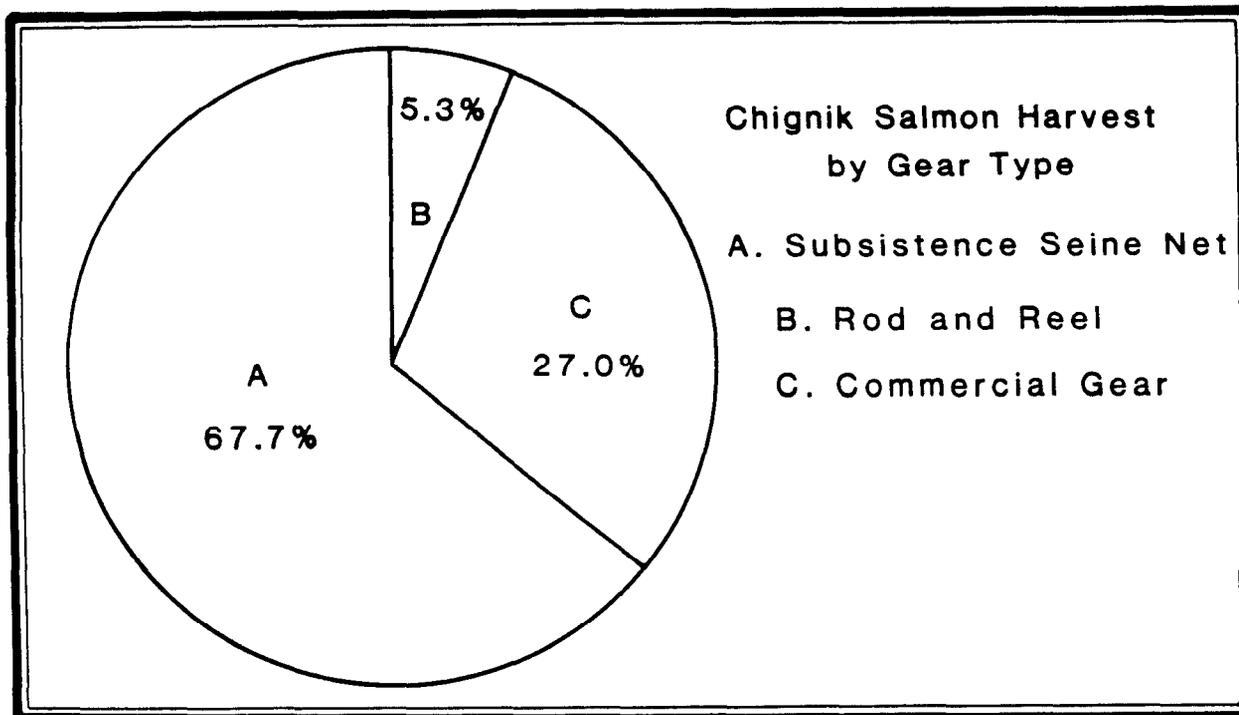
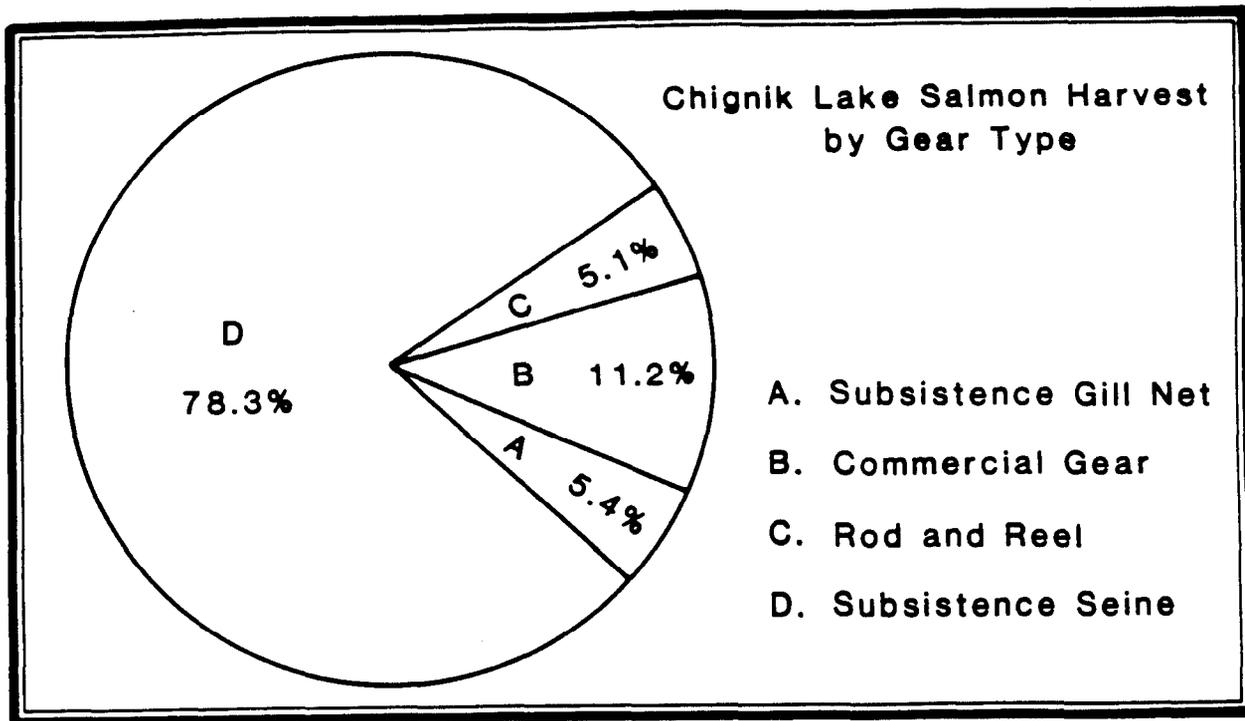


Figure 24. Salmon Harvest by Gear Type, Chignik Lake and Chignik, Percent of Total Pounds Harvested, 1984.

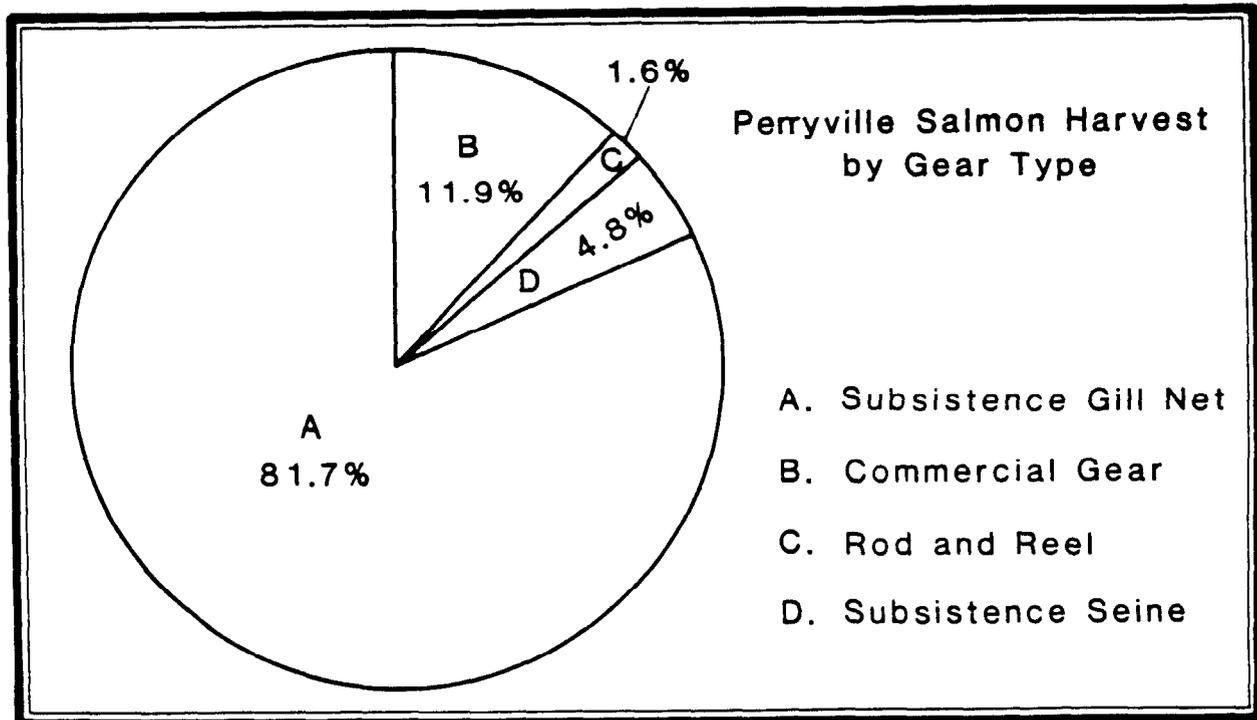
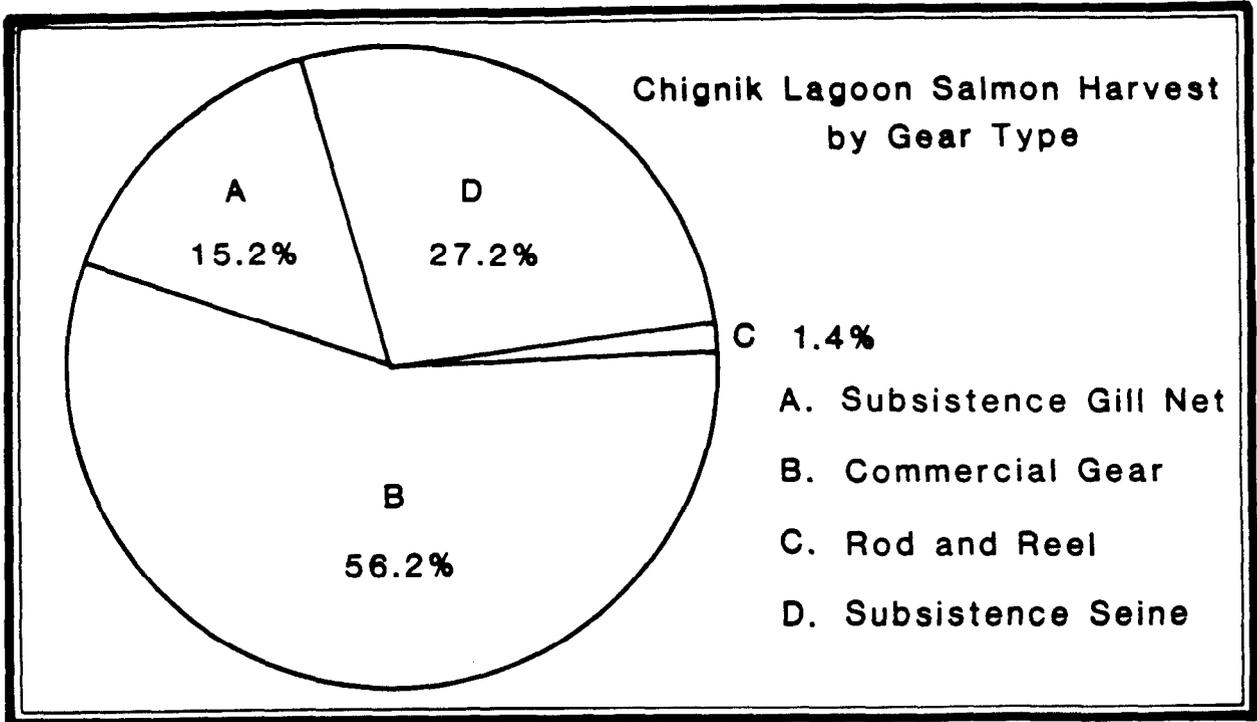


Figure 25. Salmon Harvest by Gear Type, Chignik Lagoon and Perryville, Percent of Total Pounds Harvested, 1984.

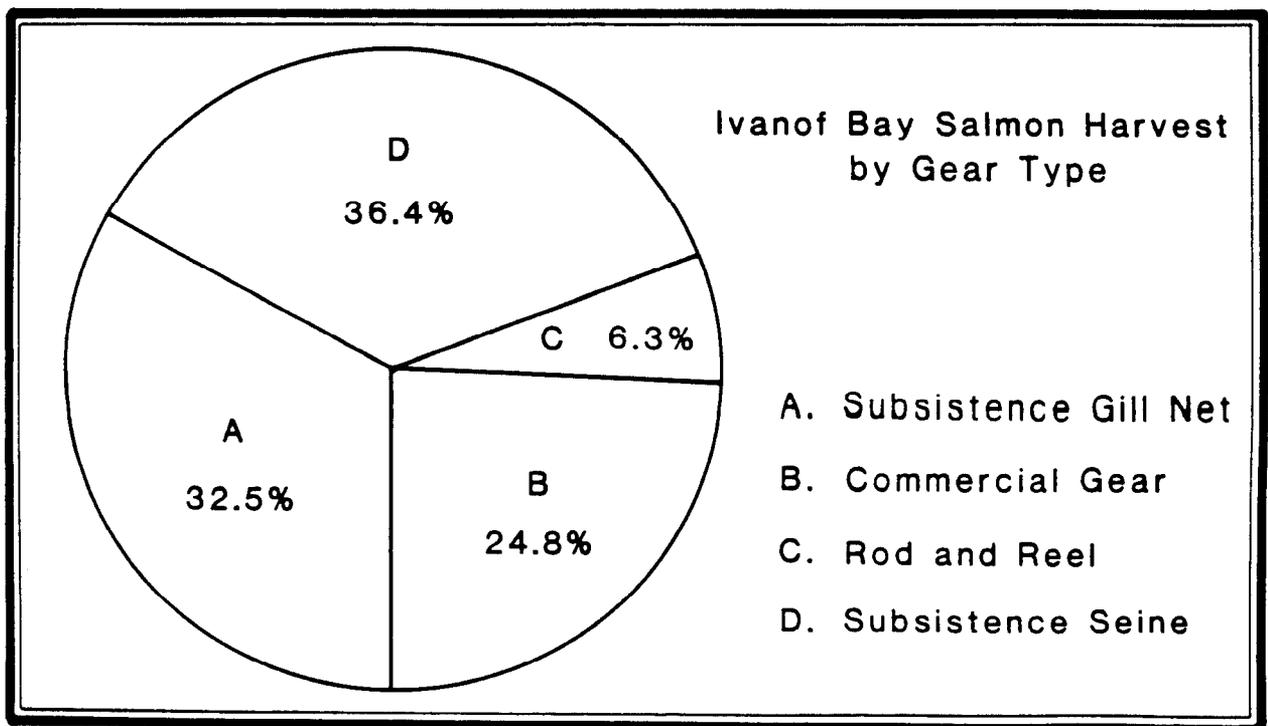
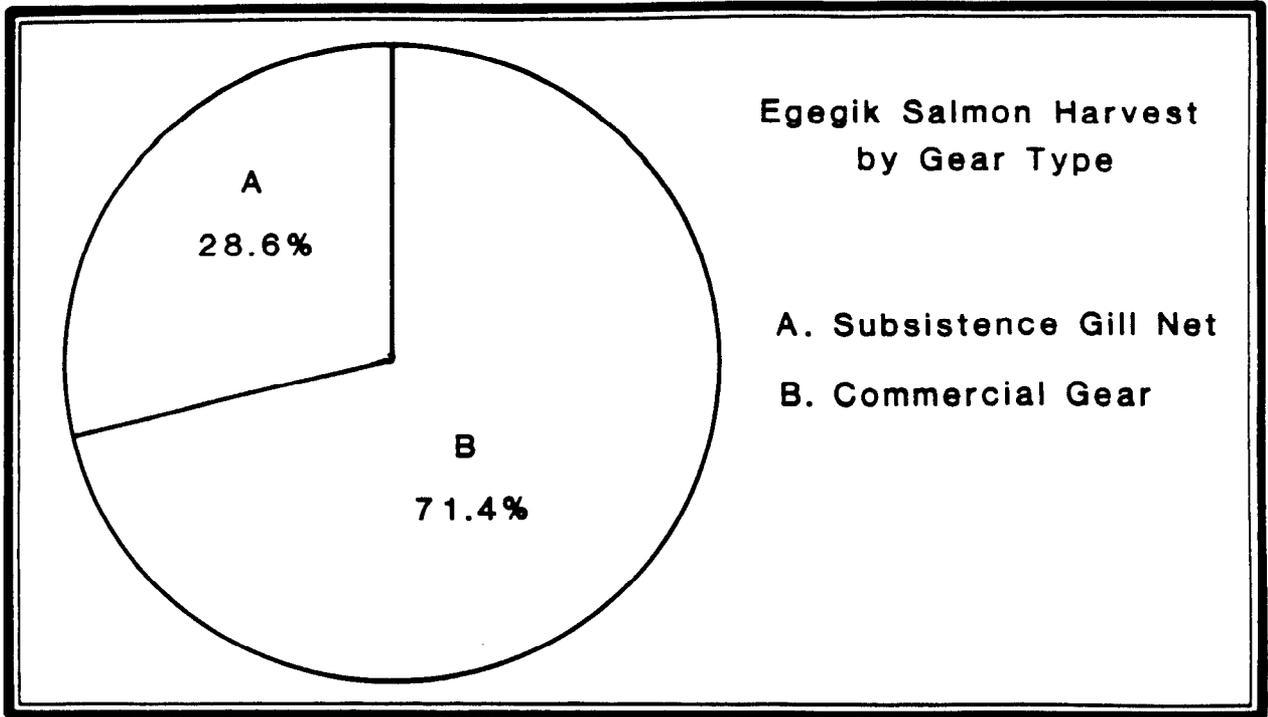


Figure 26. Salmon Harvest by Gear Type, Egegik and Ivanof Bay, Percent of Total Pounds Harvested, 1984.

Subsistence Regulations

Subsistence harvests and uses of salmon were shaped, in part, by harvest regulations passed by the Alaska Board of Fisheries. Regulations influenced the types of gear used, harvest levels, species targeted, and fishing locations. Regulations for the subsistence fishery in the Bristol Bay area were significantly different than those for the Chignik District.

Egegik District

Subsistence fishing was allowed in the Egegik River with 10 fathoms of set gill net. Fishing was also permitted in the commercial district using 25 fathoms of gear (Fig. 27). Within the commercial district, subsistence fishing was allowed only when commercial fishing was open, and fishermen could not operate commercial and subsistence gear simultaneously. One permit was issued per household. Permits were issued in person or through the U.S. mail by ADF&G personnel stationed in King Salmon. During the emergency order period, June 23 through 9:00 a.m. July 17, subsistence nets could be set only from 9:00 a.m. Tuesday through 9:00 a.m. Wednesday and 9:00 a.m. Saturday through 9:00 a.m. Sunday (ADF&G 1984a).

Chignik District

Regulations governing subsistence salmon fishing in the Chignik district allowed seine and gill net gear. In 1984 there was no restriction on amount of gear or dates which could be fished. A permit was required to take subsistence salmon. Local residents reported inconsistency as to how

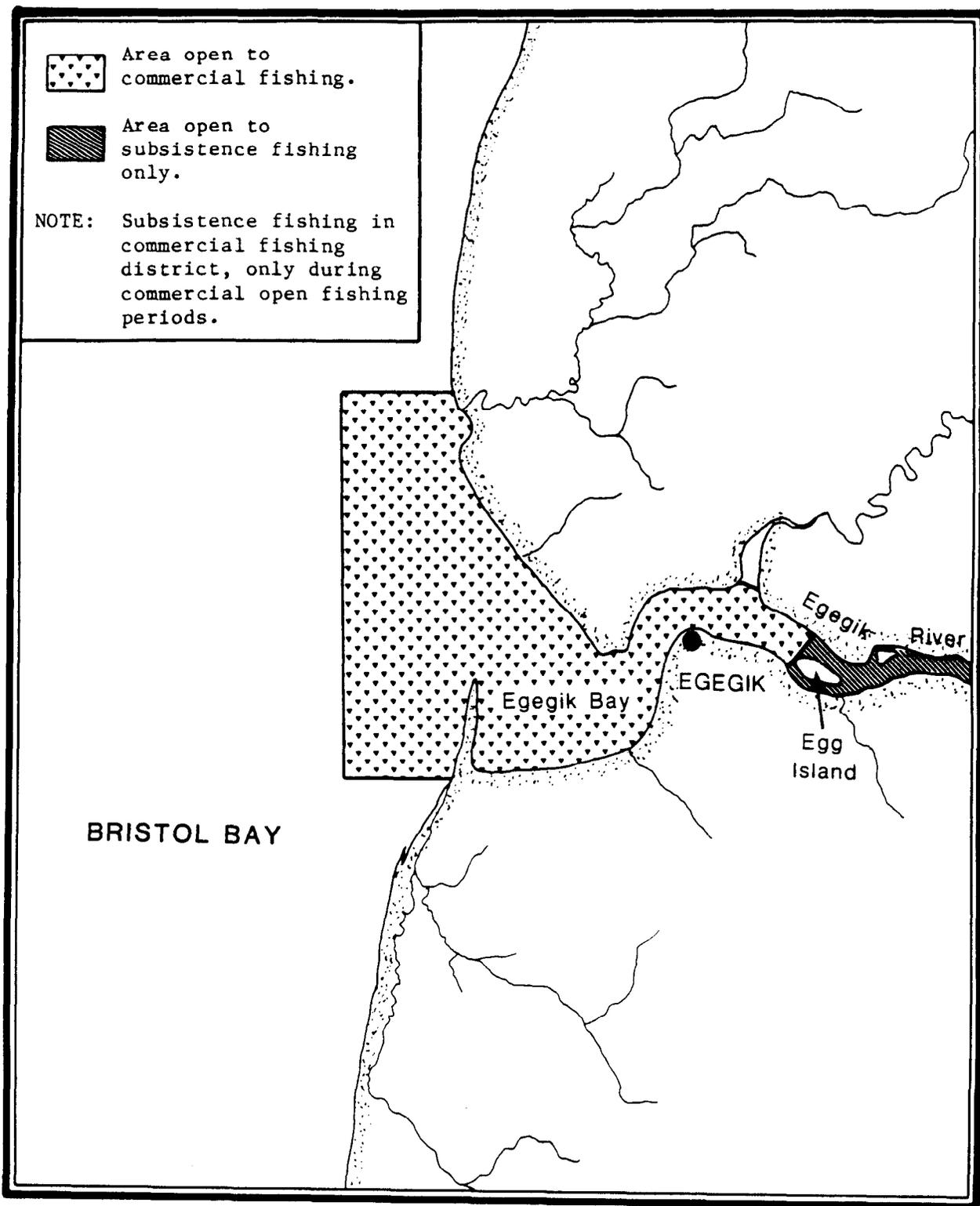


Figure 27. Egegik Subsistence Fishing Area.

or when ADF&G issued the permits. According to a local license vendor, in some years she received the permits to issue and in other years she did not (personal communication Karen Carlson, 1983). The permits also could be obtained from ADF&G personnel at Kodiak or at the weir on the Chignik River. The catch limit was 250 salmon unless the ADF&G granted an exception. In 1984, no fishing was allowed upstream from the department weir site or counting tower in the Chignik River, in Chignik Lake, Black Lake, or any tributary to these lakes (ADF&G 1984a). Regulations were changed in 1985 which provided for subsistence fishing in Chignik Lake (Fig. 28) (ADF&G 1986).

Sport Fishing Regulations

Sport fishing regulations under which salmon were taken with rod and reel gear were the same for residents in Egegik and on the Pacific side of the peninsula. Except for Egegik, all the study communities were within the Alaska Peninsula and Aleutian Islands Area for sport fishing purposes. Egegik was in the Bristol Bay Area.

In 1984 there was no closed season for taking salmon under sport fishing regulations in either area. The daily bag limit was ten salmon and ten in possession. No more than five of these could be king salmon of which only two could be over 28 inches long (ADF&G 1984b).

Harvest and Use Patterns

Though high salmon harvest levels were evident throughout the study region, they varied significantly among the communities during 1984. Per

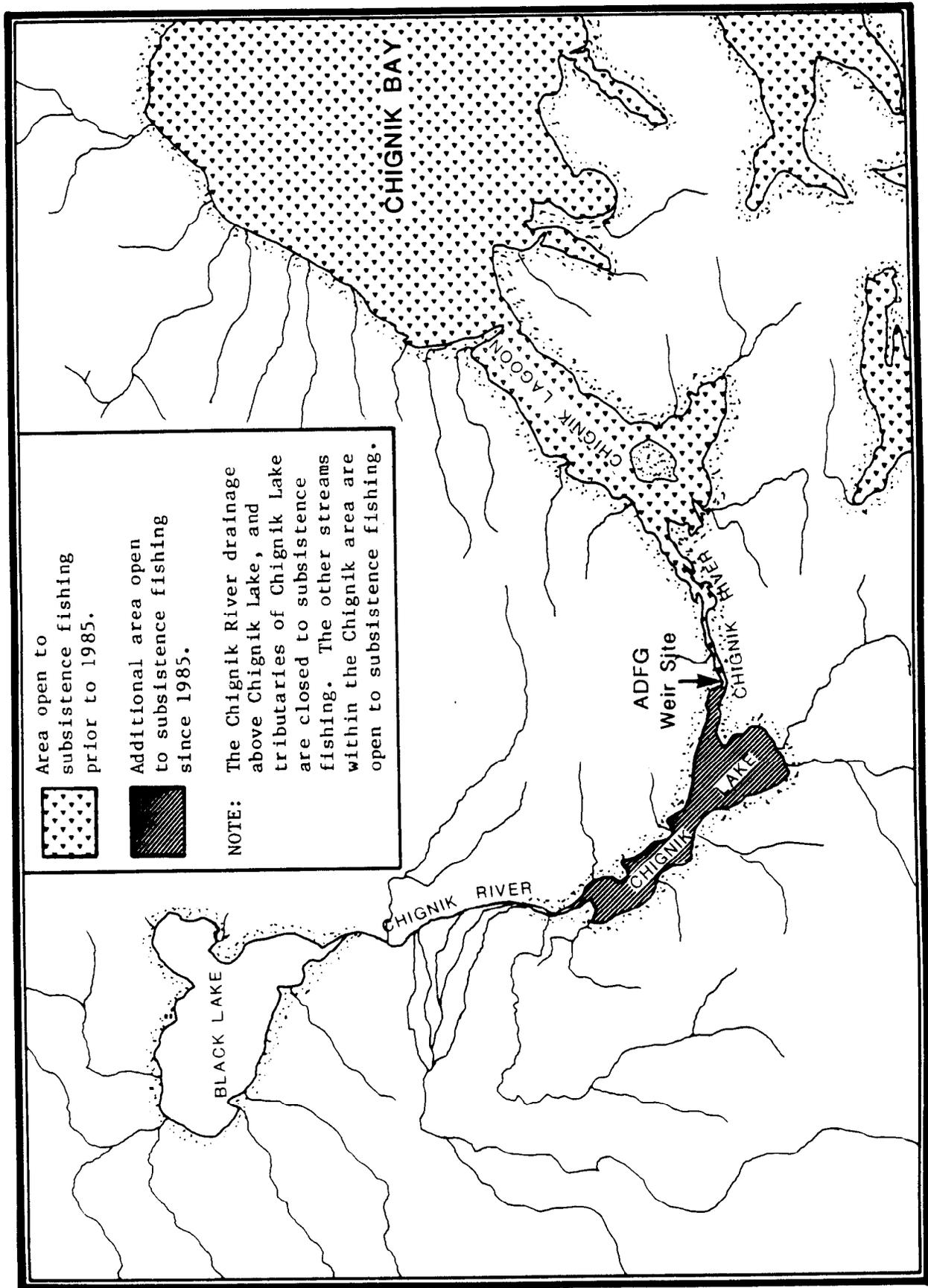


Figure 28. Chignik Area Subsistence Fishing Area.

capita, Ivanof Bay (274.6 lbs.) residents took approximately two-thirds more salmon than did Egegik (93.7 lbs) (Table 35). After Ivanof Bay, the next highest per capita harvest was in Perryville (228.5 pounds), followed by Chignik Lake (147.2 pounds), Chignik (144.7 pounds), and Chignik Lagoon (126.6 pounds).

Table 36 presents historic subsistence salmon harvests for Egegik permits and Table 37 for Chignik. The data include harvests for the district, regardless of the residency the permit holder. Totals are for subsistence permits only and do not include salmon used for home consumption obtained from other sources, such as the commercial catch.

In Egegik almost 75 percent of the salmon harvest was from the commercial sector. Residents reported keeping fish from a household member's commercial fishing operation. In Chignik, fishermen using commercial equipment usually divided the haul among the captain and crew members of a particular vessel. Single households or extended family groups were usually involved in subsistence gill net operations. Gill net harvests were smaller than those from a commercial seine and required a longer period of fishing.

For the three Chignik communities spring and early summer fishing took place in Chignik Lagoon. Few gill nets were seen during the pre-season activities in 1984, with most people taking fish with commercial gear. In the fall the pattern changed and residents in all three communities took fish with subsistence gear in Chignik Lake. Fresh and spawned out sockeyes and cohos were mainly harvested.

During April set gill nets were set in Perryville and Ivanof Bay for the first kings of the season. The nets, approximately four to five fathoms in length, were set on the beaches adjacent to the community.

TABLE 36. EGEGIK DISTRICT SUBSISTENCE HARVESTS, EXPANDED FROM RETURNED PERMITS, 1972-1984*.

<u>Year</u>	<u>Permits</u>		<u>Number of Fish</u>					<u>Total</u>
	<u>Issued</u>		<u>Sockeye</u>	<u>King</u>	<u>Chum</u>	<u>Pink</u>	<u>Coho</u>	
1972	2						100	100
1973	3						100	100
1974	7		300	+	+		+	300
1975	3		200	+	+	+	+	200
1976	2							
1977	20		100	+	100	+	200	400
1978	13		200		100		200	500
1979	8		300				100	400
1980	3		100					100
1981	4		+	+				+
1982	19		2,400	+			+	2,400

<u>Year</u>	<u>Permits</u>		<u>Number of Fish</u>					<u>Total</u>
	<u>Issued</u>	<u>Number returned:</u>	<u>Sockeye</u>	<u>King</u>	<u>Chum</u>	<u>Pink</u>	<u>Coho</u>	
1983								
Egegik	5	5	463	1	0	0	10	474
Other BB	2	0	0	0	0	0	0	0
Other AK	6	5	0	0	0	0	0	0
Total	13	10	463	1	0	0	10	474

1984								
Egegik	21	11	554	57	36	50	460	1,157
Other BB	2	2	16	1	8	0	3	28
Other AK	1	1	19	0	43	0	10	72
Total	24	14	589	58	87	50	473	1,257

* Years 1972-1982 are rounded off to the nearest 100 fish.

+ Less than 50 fish.

TABLE 37. CHIGNIK AREA, ESTIMATED SUBSISTENCE SALMON CATCH, DIVISION OF COMMERCIAL FISHERIES.

<u>Year</u>	<u>Permits</u>		<u>Species</u>					<u>Total</u>
	<u>Iss.</u>	<u>Ret.</u>	<u>Kings</u>	<u>Reds</u>	<u>Coho</u>	<u>Pinks</u>	<u>Chums</u>	
1981	27	07	100	5,840	0	0	NA	5,950
1982	68	15	2	2,320	8	1	NA	2,331
1983	32	20	0	3,438	1,880	1,680	1,136	8,134
1984	65	53	26	8,222	553	403	247	9,451
1985	52	42	1	7,615	60	32	31	7,739

Sockeye salmon were occasionally harvested in late May and early June near Perryville, but more frequently they were taken in Chignik Lagoon just prior to commercial fishing. Fresh salmon was sometimes flown back to Perryville for immediate processing or were salted at fish camps and taken to Perryville at the end of the commercial season. All species of salmon except sockeyes were available during September and November at Ivanof Bay and Perryville. Fishermen harvested fresh and spawned-out fish. Coho salmon were a preferred species for smoking.

Most rod and reel salmon fishing occurred in Chignik Lake, Perryville, and Ivanof Bay. The Chignik and Kametolook rivers were favorite fall rod and reel fishing sites, particularly for coho salmon. By pounds of edible weight, the rod and reel salmon catch did not figure significantly in the salmon harvest of the study communities (Figs. 23-26).

Members of all communities froze, smoked, salted, canned, and dried salmon. At the beginning of the season, fish were frequently half-smoked and then baked. Freezers and smokehouses were commonly shared by a number of households. Non-local relatives of community members, as well non-local commercial fishing friends also used the smokehouses. In Egegik six active smokehouses were operative during the summer of 1984 which were shared by a number of households.

Men were more directly involved in subsistence fishing activities, including processing and preserving, in the Pacific facing communities than was apparent in Egegik. In addition to harvesting salmon on the seiners, men worked in groups loosely organized by kinship or in groups of age mates during the fall seasons in harvesting fish with subsistence gear. In Egegik, women appeared to take a more active role in harvesting and preserving salmon.

CHAPTER EIGHT
COMMUNITY COMPARISONS

As noted in Chapter 1, one goal of this study was to examine how subsistence uses on the Alaska Peninsula varied between communities depending on factors such as the geographic location of the community and the nature of the local commercial fishery. This concluding chapter includes a comparison of community harvest patterns as well as a discussion of factors which account for differences between the six villages.

SIMILARITIES OF COMMUNITY HARVESTS

Compared with other Alaska communities in which resource harvest studies have been conducted, per capita resource harvest levels for the study communities were within the same general range, 194.4 to 445.3 pounds (Table 38). Compared to urban areas, such as Kenai or Homer, harvest quantities were considerably higher in the Alaska Peninsula communities.

According to data provided by the U. S. Department of Agriculture (1983) the average American consumed 222 pounds of domestic fish, meat, and poultry annually. Since most of the wild resources harvested by Alaska Peninsula residents consisted of meat, fish, or birds, it is evident that locally procured food was extremely important in the diets of the survey respondents.

Community residents took salmon and caribou in high proportion to other wild resources. The two resource categories provided between 60 percent (Chignik Lagoon) to 84 percent (Egegik) by weight of the total household harvest in the study communities. At least 71 percent or more of

TABLE 38. HARVEST QUANTITIES FROM SELECTED ALASKA COMMUNITIES.

<u>Community</u>	<u>Region</u>	<u>Pop.</u>	<u>Mean HH Harvest in Lbs.</u>	<u>HH Size</u>	<u>Per Capita Harvest in Lbs.</u>
Sheldon Point	Y-K	102	9784.0	7.0	1397.0
Nondalton	S.W.	224	6098.0	5.7	1217.0
Stebbins	Y-K	331	6375.0	6.3	1006.0
New Stuyahok	S.W.	331	5538.0	5.9	939.0
Pedro Bay	S.W.	60	2545.0	3.0	866.0
Karluk	Kod.	102	3296.3	4.0	834.5
Newhalen	S.W.	124	3696.0	4.8	765.0
Quinhagak	Y-K	427	3656.0	4.8	756.0
Kokhanok	S.W.	123	3704.0	5.3	697.0
Igiugig	S.W.	32	3911.0	3.7	618.0
Emmonak	Y-K	567	2759.0	4.5	612.0
Akhiok	Kod	103	1975.2	3.8	518.4
Kotlik	Y-K	293	342.0	6.7	510.0
Old Harbor	Kod	355	1758.3	3.8	463.9
IVANOF BAY	S.W.	40	1633.0	3.7	445.0
Iliamna	S.W.	129	1622.0	3.9	416.0
PERRYVILLE	S.W.	111	1659.6	4.3	390.0
EGEGIK	S.W.	75	893.0	2.3	385.0
Larsen Bay	Kod.	180	1558.0	4.2	374.7
Lake Clark-					
Port Alsworth	S.W.	NA	1306.0	3.7	361.0
Ouzinkie	Kod.	233	1196.3	3.3	352.2
CHIGNIK LAKE	S.W.	138	1424.7	5.0	282.5
South Naknek	S.W.	136	753.0	2.8	278.0
Tyonek	S.C.	273	964.0	3.5	272.0
Nabesna Road	C.B.	50	1104.5	4.1	269.4
Port Lions	Kod.	291	865.9	3.3	262.4
CHIGNIK LAGOON	S.W.	48	768.0	3.4	229.0
King Salmon	S.W.	374	666.0	3.0	227.0
Naknek	S.W.	369	586.0	3.0	212.0
Gakona	C.B.	87	644.0	3.1	201.7
CHIGNIK	S.W.	178	839.1	4.3	194.4
Chickaloon	M.V.	69	443.7	2.3	190.1
Kodiak City	Kod.	5,873	588.7	3.3	177.3
Chitina	C.B.	42	295.1	1.8	165.5
Cantwell	C.B.	136	335.2	2.5	135.0
Mentasta	C.B.	59	442.0	3.4	129.2
Gulkana	C.B.	104	313.4	2.8	114.0
Homer City	K.P.	2,588	287.1	2.8	102.6
Copper Center	C.B.	213	344.7	3.4	102.6
Homer Area	K.P.	2,069	294.2	3.3	98.1
Ninilchik	K.P.	341	262.0	3.0	87.3
Glennallen	C.B.	511	228.3	3.4	67.3
Seldovia	K.P.	505	190.5	3.5	54.4
Kenai	K.P.	4,558	122.1	3.2	38.2

Source: Wolfe 1984. Updated 1986.

surveyed households in each community attempted to harvest salmon for household consumption. An even greater percent of the each community used salmon. By weight, coho and sockeye salmon were taken in greatest quantity in all communities except Perryville. In Perryville, cohos were taken in the greatest quantity, followed by pinks and then sockeyes. Like salmon, caribou was consumed in a majority of households in each community.

Some types of resources were taken incidentally to the commercial fishing industry. These included fish and invertebrates which could be captured with commercial fishing gear. These species added substantially to the per capita harvests in the study communities. Regionwide, 65 percent of the households reported retaining marine resources taken in conjunction with commercial fishing activities. Table 39 illustrates that portion of the resource harvest for each community which originated from commercial gear. Use of resources originating from the commercial fisheries

TABLE 39. CHARACTERISTICS OF RESOURCE COMPOSITION AND HARVESTS RETAINED FROM COMMERCIAL CATCHES, ON THE ALASKA PENINSULA BY COMMUNITY, 1984.

<u>Community</u>	<u>Number of Resources Retained*</u>	<u>Percent of Households Retaining Resources</u>	<u>Percent of Total Resource Harvest</u>
Chignik	12	73.7	27.0
Chignik Lagoon	11	58.8	39.3
Chignik Lake	10	69.6	9.9
Egegik	10	80.0	18.0
Ivanof Bay	5	33.3	16.0
Perryville	8	55.0	7.7

*Included were all species of salmon, Dolly Varden, steelhead, herring, halibut, cod, flounder, king crab, dungeness crab, tanner crab, and octopus.

presumably was even more widespread than harvest. The way the survey was structured, only those households who participated in commercial fishing

were asked questions about use of resources originating from commercial gear.

Retaining resources for home use from commercial catches has been documented in other studies (Morris 1984; Braund 1986; Fall et al. 1986). Commercial fishing took precedence over all other activities in terms of time and capital expenses. This emphasis resulted in many households supplying personal consumption needs when not commercial fishing (due to a closure, for example), utilizing a species not marketable, or bringing home family fish while simultaneously testing gear for the upcoming season. Keeping a marine fish or invertebrate from the commercial boat or net allowed families to know when time and manpower were available for putting up the fish. It also added variety to the diet by including species which would require time and gear that the household was directing to commercial harvesting. Not wasting resources was an expressed concern of many residents of the study communities. Using species taken incidental to the commercial harvest was seen as not being wasteful of resources.

COMMUNITY DIFFERENCES IN HARVESTS

The previous discussion presented aspects of the resource harvest of the study communities which were similar in 1984. While similarities were noted, differences in community resource harvest and use patterns were perhaps more significant.

Most of the total resource harvest by weight in each of the study communities consisted of salmon and land mammals (mainly caribou). By weight, the proportion of the harvest of each of these two resources varied significantly. As shown in Table 40, salmon and land mammals were

harvested in almost exact opposite proportions by Egegik residents in comparison with Chignik Lagoon, Ivanof Bay, and Perryville. Harvest composition was even more disparate when comparing Chignik and Egegik. By weight, 74.4 percent of the Chignik per capita harvest consisted of salmon while salmon made up 24.3 percent of the Egegik harvest. In Egegik, 63.8 of the per capita harvest consisted of land mammals (60 percent of the total resource harvest by weight was caribou) and 7.3 percent in Chignik (3.8 percent of the total resource harvest was caribou).

TABLE 40. PERCENT OF PER CAPITA HARVEST BY RESOURCE CATEGORY, BY COMMUNITY, 1984.

	Egegik	Chignik Lake	Chignik Lagoon	Chignik	Perry- ville	Ivanof Bay
Salmon	24.3	52.1	55.3	74.4	58.5	61.7
Other Fish	4.1	5.1	8.1	10.5	10.8	3.4
Marine						
Invertebrates	3.5	1.2	6.5	3.8	2.8	5.9
Land Mammals	63.8	38.8	25.9	7.3	21.6	21.6
Marine Mammals	.0	1.2	1.0	2.7	4.6	4.8
Birds and eggs	4.2	1.7	3.2	1.4	1.7	2.7

Based on harvest totals of salmon and land mammals, by weight three harvest patterns were evident among the study communities. Land mammals dominated the harvest in Egegik but salmon was still important. Between 52 and 62 of the resource harvest in in Chignik Lake, Chignik Lagoon, Perryville, and Ivanof Bay was salmon, and harvest of land mammals ranged between almost 22 and 39 percent of the resource harvest. In Chignik, the harvest of salmon was very high, 74.4 percent of the total harvest while the land mammal harvest was low, 7.3 percent (Fig. 29).

Other features of resource harvest and use indicated the presence of distinct community patterns. In Perryville, Ivanof Bay, and Chignik Lake between 33 and 55 percent of the households reported consuming brown bear

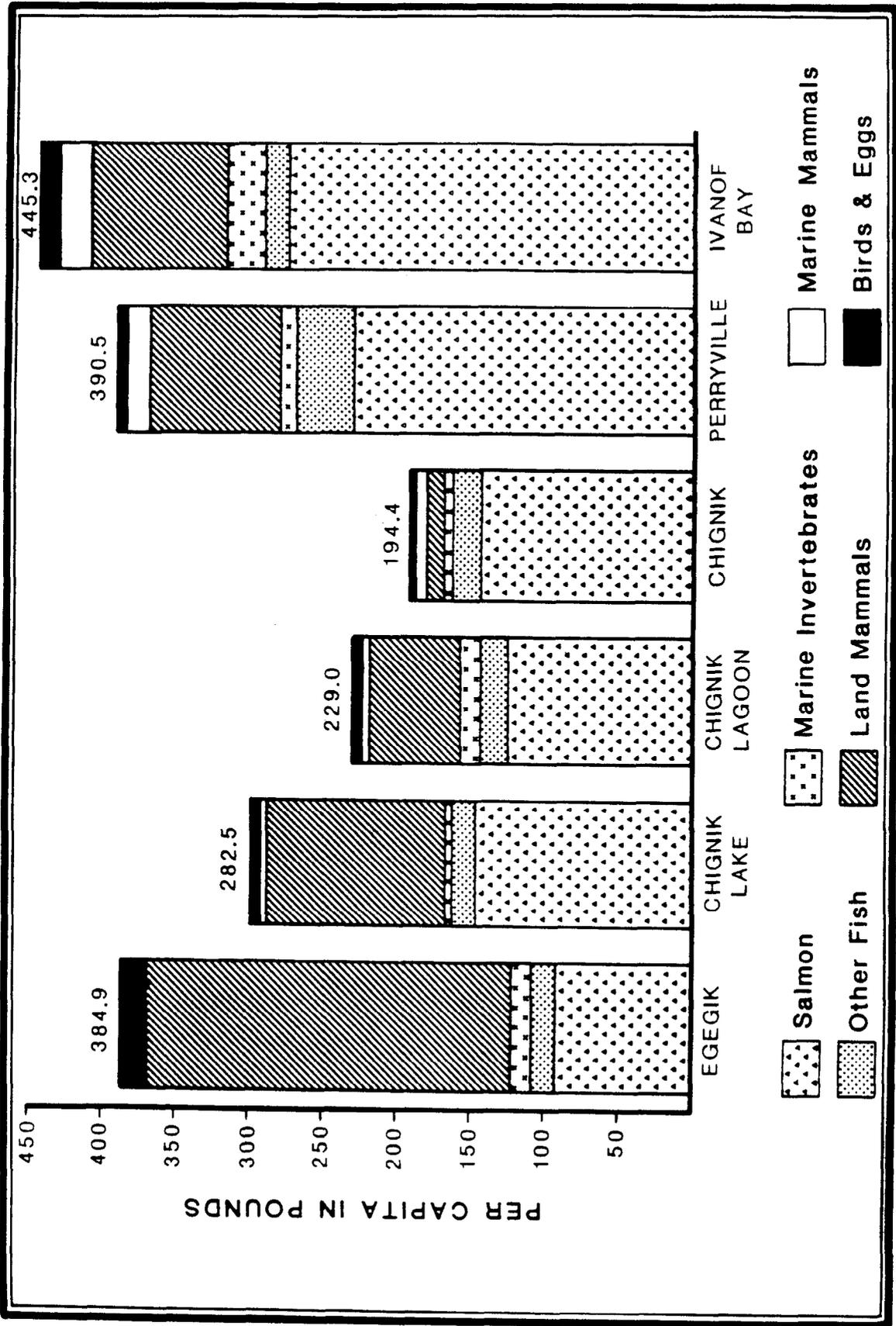


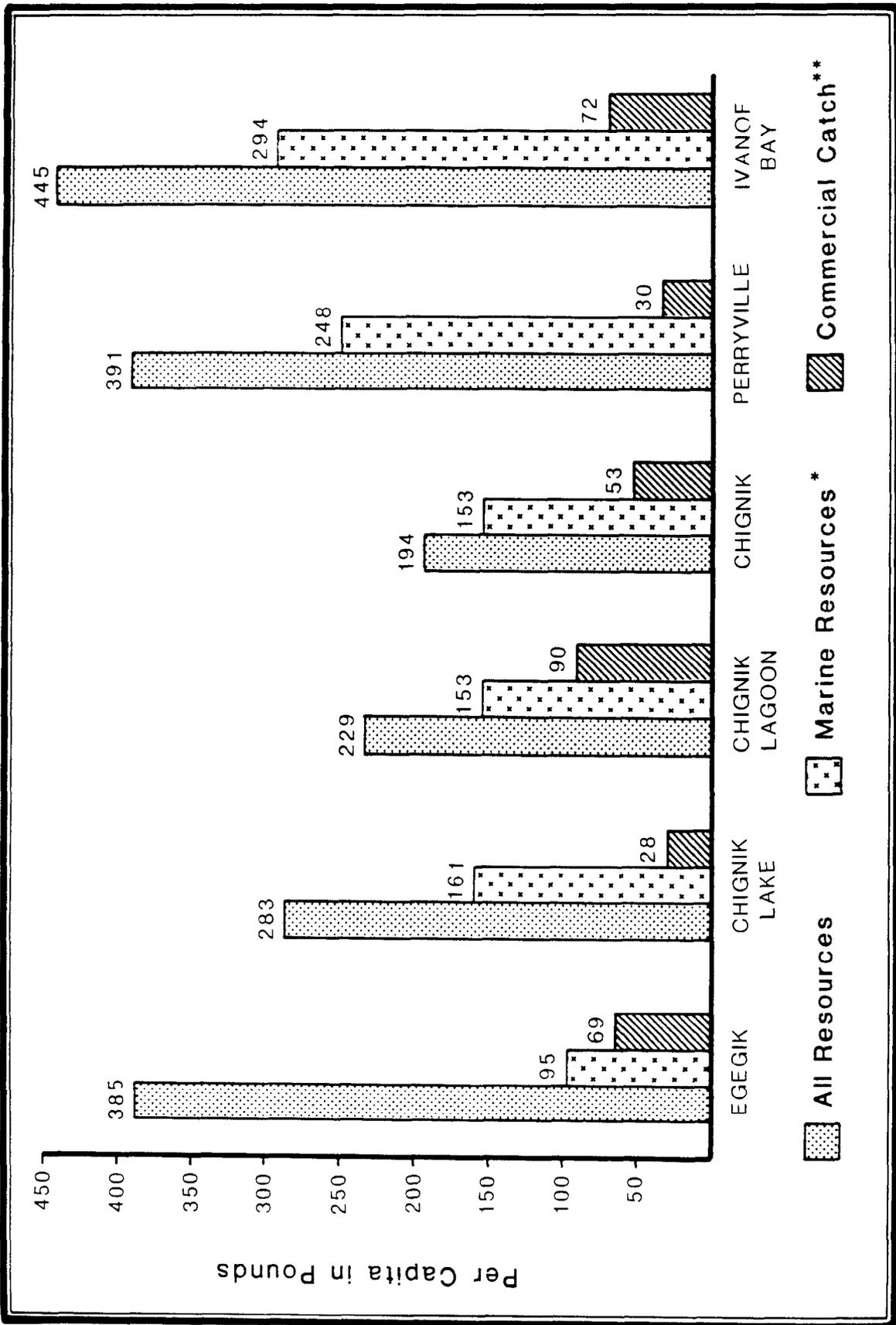
Figure 29. Per Capita Harvest Illustrated by Resource Category for Six Alaska Peninsula Communities, 1984.

during 1984. None of the survey respondents in the other three communities reported using brown bear. Marine mammal use also varied. Ivanof Bay and Perryville reported similar per capita harvest, 21.4 pounds (4.6 percent) and 18.2 pounds (4.8 percent) respectively. Chignik Lake residents took 3.3 pounds per capita (1.2 percent) and those in Chignik Lagoon took a comparable harvest, 2.4 pounds per capita (2.7 percent). Somewhat between the two harvests was Chignik where marine mammal harvest was 5.1 pounds per capita (2.7 percent). No one in Egegik reported harvesting marine mammals in 1984 (Fig. 29).

Figure 30 shows the proportion of marine fish and invertebrates taken compared to the total resource harvest. Marine resources taken with commercial fishing gear contributed unevenly to community harvests of these resources. In Egegik, the amount of these marine resources taken with all gear types accounted for 24.5 percent of the total harvest by weight; 73.4 percent of this harvest was taken with commercial gear, for 18 percent of the total resource harvest in Egegik. In Ivanof Bay, by weight, marine harvests by all gear types made up 66 percent of the total take. However, the portion of this harvest actually taken with commercial gear was only 24.3 percent, and represented 16 percent of the total resource harvest.

FACTORS INFLUENCING RESOURCE USE AND HARVEST

The composition of the resource harvests and gear types used in harvesting varied among the communities. Harvest characteristics were influenced by a number of environmental, economic, and social factors, some obvious, other less so.



* Marine Resources refers to those species that were removed from commercial catch by at least one commercial fishing household.
 **Commercial Catch refers to the pounds of resources removed from commercial catch for home use by a household.
 The column shows the total pounds of these species removed by ALL households.

Figure 30. Proportion of Per Capita Marine Harvest Taken with Commercial Gear, by Community, 1984.

Environmental Factors

Among the most obvious factors affecting the harvest and use of renewable resources were those which were environmentally determined. These included the availability of open water, proximity of harvestable species to local residents, and weather conditions.

One environmental factor which influenced the resource harvest was perennially ice-free water on Pacific side. Table 41 shows that per capita harvest levels of selected marine resources were higher for communities located on the Pacific side of the peninsula. The variety of harvesting activities illustrated in the seasonal round of the Pacific-facing communities (Fig. 15) as compared to that of Egegik (Fig. 14) reaffirms the

TABLE 41. PER CAPITA MARINE RESOURCE HARVEST, BY POUNDS, BY COMMUNITY, ALASKA PENINSULA 1984.

	Egegik	Chignik Lake	Chignik Lagoon	Chignik Chignik	Perry- ville	Ivanof Bay
Halibut	2.2	11.9	17.4	18.3	18.8	8.7
Cod	*	.8	.4	.8	1.5	1.4
Flounder	2.2	.1	.0	*	.0	0
King Crab	0	0	.4	.2	.1	.0
Dungeness Crab	*	.1	1.0	.4	.5	1.3
Tanner Crab	0	0	6.5	.3	.0	1.5
Octopus	0	0.2	.1	1.4	.6	1.8
Razor Clams	13.2	.2	.2	.1	1.7	.8
Butter Clams	.2	2.5	6.5	4.6	.9	11.6
Cockles	0	.3	0	.2	.7	6.0
Mussels	.2	0	0	*	0	0
Sea Eggs	0	0	0	*	3.3	1.4
Bidarkies	0	*	*	.1	3.0	2.1
Harbor Seal	0	1.6	2.4	2.7	6.4	12.3
Sea Lion	0	1.7	0	2.4	11.8	9.1
Total	18.0	21.00	35.0	31.7	49.2	57.8

* Less than .1 pound per capita harvest.

importance of open water. It provided year-round access to water resources as well as habitat for the resources. Community residents were able to use skiffs and commercial vessels to harvest species such as cod, halibut, crab, and octopus throughout the year.

Like the environmental factor of ice-free water, the degree of resource availability in proximity to each community was a major factor in harvest and use patterns. Situated along the migration route of the Alaska Peninsula caribou herd, Egegik residents attempted harvesting caribou at a much higher rate (80 percent) than did residents of Chignik (32 percent) or Chignik Lagoon (29 percent). Caribou were not readily available near either of these communities. Harvest effort of other resources, such as halibut, butter clams, or candlefish, reflects similar resource proximity (Table 41). Higher harvest levels of resources in communities where residents have easy access and predictable resource availability is expected. Another example of this was the harvest of emperor geese by Ivanof Bay households. Emperor geese winter over near Ivanof Bay and residents were able to harvest them during this time. They reported a per capita harvest of 2.5 pounds, higher than other study communities where emperors were not readily available.

Weather conditions, highly variable and unpredictable on the Alaska Peninsula, controlled many resource harvesting and processing activities. Hunters could not depend on any particular set of hunting conditions to exist on either a short or long term basis. For instance, travel conditions conducive for snowmachines may not occur for one or two years, but then be required for travel the next. Other times late freezing conditions limit the effectiveness three-wheelers on the tundra. High winds or low visibility often thwarted hunting or gathering activities

which depend on air or water travel. Occasionally a short open hunting season, such as moose, was missed entirely due poor weather conditions.

However, during some years certain resources were available year round for harvest. Caribou did not normally move totally out of the area and many marine resources were constantly available. Salmon were present from May through November, and according to some local sources into January. Some type of waterfowl could often be found in the open water along the Pacific coastline. Furthermore, private and commercial boats, skiffs, and aircraft provided hunters and gatherers access to remote areas throughout the year. Inclement weather might inhibit travel for a day or matter of days, but rarely for more than a week or two at any one time.

Preferred transportation in each community depended on a number of factors, including community location, resources to be targeted, and personal preference of the hunter. Privately owned single-engine airplanes were commonly used by several Chignik Lake residents. Planes were used year round for a number of transportation needs such as picking up supplies at Chignik Lagoon, checking mail at the lake during the summer, or visiting relatives in Pilot Point. Airplane ownership and piloting had been a feature for many years in Chignik Lake; residents were comfortable with private planes and pilots. Planes were used and shared among family members like automobiles were in other communities. Planes also provided Chignik Lake residents access to resource harvest areas. They were the normal mode of travel for caribou hunting on the Bering Sea side of the peninsula, for egg gathering at Ilnik, or marine invertebrate gathering in Perryville. Egegik and Perryville residents displayed similar affinities to airplanes and air travel.

Less daily use of private aircraft and increased water travel was found among the communities of Chignik and Chignik Lagoon. It was also in these communities that the use of commercial fishing vessels for resource harvesting was more commonly mentioned. In addition to cultural factors which affect preferred methods, the flying conditions along the Pacific coast, which meant winds, high mountains, and short runways, combined with the almost certain availability of open water for boats and skiffs, contributed to less consistent use of airplanes for these communities.

A philosophy often expressed by study community residents was to take resources, particularly caribou or fish, at whatever time they were needed. Long term storage of resources was not so crucial when users were accustomed to finding some edible resources throughout the year. It was relatively easy and more efficient for some residents to obtain fresh caribou or fish when the household's supply was low as to store large quantities of meat or fish when electricity for running freezers was expensive.

Commercial Fishing Factors in Subsistence Production

During the commercial season, fishermen were accustomed to capturing incidental marine species while targeting on one of commercial importance. Untargeted resources wound up in the household's food supply. Seine fishermen could be more selective in what they kept as species inadvertently taken could frequently be thrown back in the water without harming them. Due to the nature of the gear, gill net fishermen could not be as selective.

In communities where the commercial fishing industry was more diversified, greater variety was seen in retained resources taken with commercial gear. In Chignik Lagoon fishermen were diversified, using commercial gear for salmon, herring, halibut, and crab (Table 10). Not only did this increase the range of targeted species, it resulted in some type of commercial gear being fished throughout much of the year. This in turn increased the possibility of more and greater levels of marine harvests of which portions could be diverted for household consumption. Conversely, in Egegik the commercial fleet concentrated on salmon. This resulted in a single gear type in the water for a relatively short period of time. The end result was fewer incidental species taken over a shorter period of the year.

No apparent relationship existed between the volume and value of the commercial salmon fishery to the fishermen of any community and the size of the per capita resource harvest. Data presented by Langdon (1986) indicated that in 1983 Perryville fishermen reported the highest average gross income from commercial fishing among four of the study communities (comparable data did not exist for Ivanof Bay and Egegik). Of the four comparable communities, Perryville reported the highest per capita resource harvest in 1984. The second highest gross income was reported by Chignik Lagoon fishermen who produced the third lowest per capita resource harvest. Chignik Lake and Chignik reported less than a thousand dollar difference in the reported gross commercial salmon fishing income. In terms of subsistence harvest, Chignik residents reported the lowest per capita level while Chignik Lake reported the next to the highest.

Wage Employment

There is not simple relationship between levels of a household's wage employment and subsistence harvest levels. It had been hypothesized that as households' involvement in wage employment increases, as measured by the number of months employed for adult members of the household, subsistence production would decrease. The decrease, according to the hypothesis, would be as a consequence of lack of time to devote to subsistence harvesting activities and decreased need as cash income allowed for the purchasing of substitutions for wild resources (Fall et al. 1986).

In testing the hypothesis in the study communities it was found that Egegik and Chignik residents reported the highest mean number of weeks and hours worked per year by adult community members (Table 7). However, in terms of per capita resource harvest the two communities were on opposite ends of the scale, with Egegik (384.9 pounds per capita) on the high side and Chignik (194.4 pounds per capita) on the low. Therefore no simple relationship between wage labor and level of household resource harvest could be discerned.

With the exception of land based fish processors, employment opportunities available to local residents were fairly consistent among the communities. As was shown in Table 6, the majority of the jobs were funded through federal, state, or local government agencies. Fish processing was the single most important private industry. Of the study communities, only Egegik and Chignik had land based processors operating in 1984. A processor was located across the lagoon from Chignik Lagoon but not in the community proper.

The commercial fishing industry, including land-based processors, has certainly influenced the values and life style of residents on the Alaska Peninsula. The degree and type of influence has undoubtedly varied according to a number of circumstances. Two factors are be the amount of time and the relative size of the commercial operation located in a particular community. In the 1980s commercial fishing enterprises in Chignik and Egegik have varied substantially. In Chignik, processors have not only worked salmon, but have been active during the crab season. This necessitated that the facility be opened longer, thus providing not only more options for local employment, but increasing the time during the year that outsiders were in the community, including management personnel who have taken an active role in the community. Conversely, in Egegik, the salmon season is traditionally shorter than on the Pacific side and no other species were processed. Therefore, non-local fishermen and processors were in the community less time. Furthermore, as most Egegik residents were involved in commercial salmon fishing they were not interested in cannery work. Therefore, while the presence of a land-based processor impacted Egegik and brought forces to the community which were not present in Chignik Lake, Perryville, or Ivanof Bay, it was not the factor it was in Chignik.

Acculturation Factors

Unstated in the previous discussions on factors affecting household resource harvests is the encompassing concept referred to as acculturation. Cultural modification involving intercultural exchange and borrowing of ideas and values from different cultures has been a significant factor in

patterns of resource harvest and use of the 1980s. In the acculturation process, the rate and character of change involves numerous factors which affect its course.

Before the advent of commercial fishing in southwest Alaska, Russian fur buyers were exerting tremendous pressure for change in all aspects of life, including the economic sector. Since the turn of the twentieth century, the commercial fishing industry has been the dominant economic influence. Associated with this industry has been the influx of outsiders coming to fish and process the harvest. Generally these workers were men who frequently married local women and remained in the local area to raise their families and stake their future. In the early days of commercial fishing, men from Scandinavia brought new ideas and values to the area, many of which were grafted onto the local traditions.

In the 1980s, many people continued to come to the Alaska Peninsula for one of two reasons, to fish commercially or to process the commercial salmon or to crab catch. Information collected in this study, as well as that noted in other research (Davis 1986) suggests that a high percent of those involved in fishing were connected by kinship to year-round households. However, there was generally no connection between local residents and processing personnel. This did not preclude the growth of a number of friendships and an occasional marriage through the years between fishermen and processing personnel; it only suggests that bonding was generally different between the two groups of outsiders.

The annual influx of outsiders into Chignik, Chignik Lagoon, and Egegik was an important aspect of community life. A number of family members seasonally returned to the communities. For example, in Chignik Lagoon in 1984 there were 33 seasonal housing units; 24 were identified as

kin-related households to other non-seasonal local households. In Egegik, 23 seasonal housing units were identified with all but four associated with members of local extended kinship groups. In Chignik Bay, seasonal units fell into three categories: cannery personnel, Ivanof Bay residents, and members of the extended kinship groups of Chignik year-round residents.

In addition to seasonal immigrants occupying housing units during summer months, the composition of existing households was often altered seasonally. Figure 31 illustrates the change in one Egegik extended family during the summer of 1984. In this instance, a single family with school aged to adult children returned to Egegik each summer to fish. Some of the adult children resided year round in Egegik. Other adult siblings lived in other Alaska areas. The parents along with their high school aged children lived in the Anchorage area during the school year, returning "home" to Egegik each summer. As the family members returned, some moved in with their parents, some lived with brothers or sisters, and still others lived alone. The pattern illustrated by this family was repeated throughout the study area. Other times, sons, daughters, nieces, cousins, aunts and so forth "camped" with community family members. These individuals had a boat or cabin for sleeping purposes, but used a relative's home for bathing, eating, washing clothes, receiving messages, and socializing.

Perryville, Ivanof Bay and Chignik Lake experienced a decline in population as families moved to summer seasonal homes located at the fishing grounds either at Chignik Lagoon or Chignik. Therefore the presence and influence of outsiders in these three community settings was negligible. The lack of annual influx also helped convey a feeling of closeness and isolation from the outside influences.

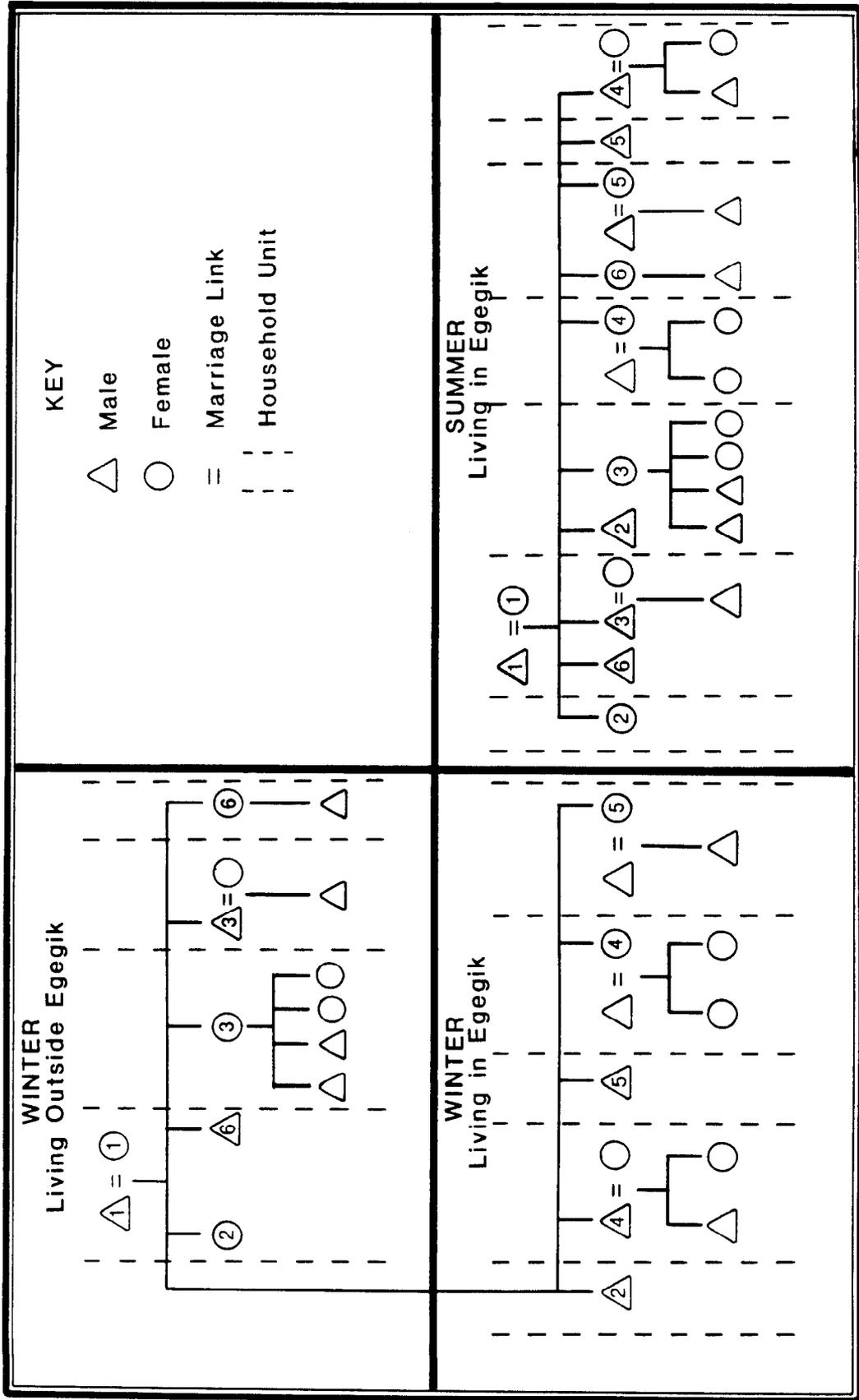


Figure 31. Egegik Household Adjustments Made During Commercial Fishing Season, 1984.

Several factors point to three of the communities, Perryville, Chignik Lake, and Ivanof Bay as being more "traditional" than the other three study communities. This is due to fewer seasonal outsiders integrated in each community, greater use of traditional natural resources (for example bird eggs and brown bear), importance of the Russian Orthodox Church in Perryville and Chignik Lake, as well as the organization of commercial fishing around extended kinship groups as opposed to hiring non-related, non-local crew members as evidenced in other communities (fieldnotes). The grouping is not perfect, however. Egegik is in the more traditional group in terms of commercial fishing practices, but not in others. Ivanof Bay residents have adopted a new religion, divesting themselves of their historic connection with the Russian Orthodox religion.

It was found that resource harvest was divided into distinct categories by local residents: subsistence, sport, and commercial. These were basically the same distinctions made by resource managers. However, local meanings of the terms differed in some respects from that of the state or federal governments.

Commercial fishing was viewed locally as the basis for the cash economy. Identification as a commercial fishermen, particularly as a permit or boat owner, carried high status within the local communities. Subsistence fishing and processing were viewed as activities which provided a preferred food source for household consumption and a source of "geographic" or "ethnic" identity and pride. Putting up "fish" for the family was seen as an important activity, but did not confer the same status as being "top boat" in the commercial fleet.

Acculturation, including the high status of commercial fishing, has affected the perceptions of many Alaska Peninsula residents about

"subsistence." When household members described the types and levels of "subsistence" harvest in their households, much of what occurred in conjunction with commercial harvesting activities commonly was not mentioned. Yet, as discussed above, resources obtained with commercial gear and during commercial seasons added substantially to household consumption levels.

The perception of what is or is not a subsistence harvest on the Alaska Peninsula calls into question activities that are rarely an issue in many interior or northern communities where commercial and non-commercial harvest activities of renewable resources do not occur concurrently. In Alaska Peninsula communities, residents place their highest priority on commercial fishing activities during the commercial salmon season. Periodically some of the resource harvest was redirected or diverted to home use, where resources were further divided and distributed among other community members. Resources obtained in this manner were rarely classified as "subsistence" by local users. Nevertheless, these resources served the same function with regards to "edible pounds of food" as resources harvested as "subsistence" in other communities.

Apart from the fish, there is confusion with the term "subsistence" according to some local residents. According to Fish and Game regulations on the Alaska Peninsula only the taking of fish, and specifically salmon, has been defined as a subsistence activity. Before 1986-1987 no regulations for GMU 9 specifically defined a "subsistence caribou season," or "subsistence waterfowl season," and so forth. Rather, it had been the policy of the Boards of Fisheries and Game to address subsistence needs through general regulations whenever possible. Altering bag limits by the season dates in GMU 9E where only one caribou could be taken before

November 1, offers an example of how general regulations were adapted to accommodate local subsistence needs. Throughout the study area local harvesters have been subject to the same regulations, including seasons, and license requirements and harvest reports, as all other resident hunters.

Separating "subsistence" harvest from "sport" harvest has been attempted by biologists and land managers (e.g. USFWS Becharof National Wildlife Refuge plan). This has not been an easy task since all hunters operate under the same rules and regulations. Residency has been the only feasible criteria for differentiating among harvest totals. Even asking about "subsistence" caribou on one hand and simultaneously stressing to local residents that there is no "subsistence" season or bag limit confuses hunters. One common way of responding to this bureaucratic behavior is to repeat "we take only what we need."

Another factor affecting local resource use was the practice of incorporating seasonal residents into harvesting activities. The fluctuating population numbers, frequently consisting of extended family members, experienced in three of the six communities suggests substantial consequences for resource harvest. It also brings into question distribution and sharing patterns between the transient and permanent residents. Seasonal residents also relied on equipment and companionship offered by the kin group for renewable resource harvesting and processing activities designed for household consumption. Salmon were taken under subsistence fishing regulations or kept from commercial catches. Smokehouses were shared with a number of families, both local and non-local, often based on kinship affiliation. Smoked salmon was shared with relatives living elsewhere who had not come "home" for the fishing season.

The caribou season opened while commercial fishing was still underway. Many fishermen took advantage of the opportunity to harvest caribou to take to their winter homes. Moose and waterfowl were also hunted near the summer fishing grounds with equipment, such as three-wheelers, boats or skiffs, which might have been used in commercial activities or borrowed from local family members.

The seasonal patterns which characterize these communities have implications in assessing current harvest patterns. They also point to issues which may impact future considerations in terms of managing resources and developing regulations. If resource shortages were to occur, how would the harvest characteristics of the seasonal residents be addressed? Some of the seasonal residents consider the community to which they return each summer, or each fishing season, as "home" and indeed many spend several months a year in the area. The returning seasonal resident often has kinship ties to other community residents and frequently has his own home. Resource harvesting activities are often viewed as part of the experience of being "home." The activities are carried out with family members and resources are taken which reinforce the seasonal members' sense of being "home" and belonging to the community. Year-round relatives often defend their seasonal kin's right to harvest and use local wild resources while resenting non-kinship related seasonal residents participating in the similar activities.

The answer to the question of seasonal residents' qualification for participating in subsistence seasons will be difficult. Some Bristol Bay area subsistence fishing regulations already state that a person must be domiciled in a particular drainage to qualify for a subsistence fishing permit (5 ACC 01.330 d & e). In one case (the Naknek drainage), others may

qualify for a "personal use" permit, with reduced bag limits. Many persons who feel they qualify for subsistence permits spend upwards to five months a year in Anchorage or other Alaska areas.

CONCLUSIONS

In conclusion, the harvest and use of natural resources continue an important element of life for residents of the Alaska Peninsula communities of Egegik, Chignik Lake, Chignik Lagoon, Chignik, Perryville, and Ivanof Bay. Activities associated with the harvest, preservation, and serving of indigenous foods follows a seasonal pattern which is woven into the socioeconomic character of the area. Also, it was found that though the communities are located in the same general geographic area, each community has adapted use patterns to fit into the unique set of conditions which identify each locality.

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APPENDIX A

ALASKA PENINSULA SURVEY

Household ID# _____

Researcher _____

Contact ID# _____

Date _____

The purpose of this survey is to gather information about the fish and game resources that members of your household used last year (1984). When we ask "Did you use a resource", we mean did you eat it, serve it, or use it in your home?

1. COMMERCIAL FISHING

Did members of your household participate in commercial fishing during 1984? yes _____ no _____ If yes, please complete the following table:

SPECIES	FISHED		CHECK ALL LOCATIONS USED						ID #'S OF FISHERMEN
	Yes	No	BRBAY	BRBAY	CHGNK	AKPEN	TGIAK	BERNG	
King Salmon			DRIFT	SEINT				SEA	
Red Salmon									
Chum Salmon									
Pink Salmon									
Silver Slmn									
King Crab									
Dungnss Crb									
Tanner Crab									
Herring									
Roe on Kelp									
Cod									
Halibut									
Shrimp									
Ground Fish									
Capelin									
Other									

2. NON-COMMERCIAL FISHING

Did your household use any type of fish or marine invertebrate in 1984?

yes ____ no ____

If yes, please complete the following table:

SPECIES	USED		TRIED TO HARVEST		NUMBER FROM COMM	HARVESTED BY GEAR TYPE					RECVD		GAVE	
	yes	no	yes	no		GILNT	SEINE	ICE FSHNG	ROD& REEL	yes	no	yes	no	
King Slm														
Red Slmn														
Chum Slm														
Pink Slm														
Coho Slm														
DollyVrd														
Rainbow														
Steelhead														
Lake Trt														
Grayling														
WhiteFsh														
CandleFs														
Smelt														
Herring														
RoeOnKlp														
Halibut														
Cod														
Flounder														
Capelin														
Shrimp														
KingCrab														
Dungenes														
TannerCr														
Octopus														
RazorClm														
ButtrClm														
Cockles														
Mussels														
Sea Eggs														
Bidarkis														
Other														
Other														

3. CARIBOU

- a. Did your household use caribou meat during 1984? yes ___ no ___
- b. Did your household receive caribou meat in 1984? yes ___ no ___
- c. Did your household give away caribou meat in 1984? yes ___ no ___
- d. Did your household hunt for caribou during 1984? yes ___ no ___

If yes, please complete the following table:

	Winter (January - March)	Fall (August - December)
Number of Bulls Harvested		
Number of Cows Harvested		
ID# of Hunters		

4. MOOSE

- a. Did your household use moose meat during 1984? yes ___ no ___
- b. Did your household receive moose meat in 1984? yes ___ no ___
- c. Did your household give away moose meat in 1984? yes ___ no ___
- d. Did your household hunt for moose during 1984? yes ___ no ___

If yes, please complete the following table:

	Fall-September	Winter--December
Number of Bulls Harvested		
Number of Cows Harvested		
ID# of Hunters		

5. MARINE AND OTHER MAMMALS

Did your household use any of the species listed in the table below during 1984?

yes ____ no ____

If yes, please complete the table:

SPECIES	USED		TRIED TO HARVEST		NUMBER HARVESTED	NUMBER USED FOR FOOD	RECVD		GAVE	
	yes	no	yes	no			yes	no	yes	no
harbor seal										
ringed seal										
sea otter										
sea lions										
brown bear										
porcupine										
arctic hare										
snowshoe hare										
belukha										
walrus										

6. FURBEARERS

a. Did anyone in your household use furbearers during 1984?

yes ____ no ____

If yes, please complete the following table:

SPECIES	USED		TRIED TO HARVEST		NUMBER HARVESTED	NUMBER USED FOR FOOD	RECVD		GAVE	
	yes	no	yes	no			yes	no	yes	no
Beaver										
Mink										
Red Fox										
Wolf										
Wolverine										
Land Otter										
Muskrat										
Lynx										
Squirrel										

b. Location of your trapline: _____

c. Transportation used for trapping: _____

d. ID # of trappers in your household: _____

9. MISCELLANEOUS

- a. Did your household smoke salmon in 1984? yes ____ no ____
- b. Did your household salt salmon in 1984? yes ____ no ____
- c. Did you eat brown bear meat or fat during 1983-84? yes ____ no ____
- d. Where did your household live during 1984 (if
 other than here?) _____

10. HOUSEHOLD INFORMATION

ID#	M/F	BIRTH DATE	RESIDENCE OF MOTHER WHEN YOU WERE BORN	ETHNICITY	EMPLOYED 84?	
					(NOT CMM FSHNG) YES	NO
1						
2						
3						
4						
5						
6						
7						

11. EMPLOYMENT INFORMATION

Please complete the following information for all jobs held by the employed household members listed above:

ID# FROM TABLE ABOVE	JOB TITLE	# OF MONTHS WORKED PER YEAR	# OF HOURS WORKED PER WEEK

APPENDIX B

CONVERSION FACTORS FOR ALASKA PENINSULA DATA ANALYSIS

	Weight per animal	Source
King Salmon (Egegik)	18.69	a
Red Salmon (Egegik)	5.79	a
Chum Salmon (Egegik)	6.85	a
Pink Salmon (Egegik)	3.75	a
Silver Salmon (Egegik)	6.93	a
King Salmon (Chignik)	23.1	b
Red Salmon (Chignik)	7.0	b
Chum Salmon (Chignik)	8.0	b
Pink Salmon (Chignik)	3.7	b
Silver Salmon (Chignik)	7.7	b
Salmon, unknown	5.5	Researcher Estimate
King Crab	2.3	KANA 1983
Dungeness Crab	1.6	KANA 1983
Tanner Crab	.7	KANA 1983
Herring	.5	
Cod	1.0	KANA 1983
Halibut	32.0	Stanek 19185
Smelt	.13	Researcher Estimate
Whitefish	1.0	Wright et al. 1985
Rainbow Trout	1.5	
Lake Trout	1.4	Wright et al. 1985
Grayling	.7	Wright et al. 1985
Dolly Varden	1.4	Wright et al. 1985
Butter Clams	.23	Stanek 1985
Razor Clams	.23	Stanek 1985
Cockles	.07	
Octopus	4.0	
Caribou	150.0	Wright et al. 1985
Moose	540.0	Wright et al. 1985
Brown Bear	100.0	Wright et al. 1985
Porcupine	8.0	Wright et al. 1985
Snowshoe Hare	2.0	Wright et al. 1985
Arctic Hare	5.6	Wright et al. 1985
Harbor Seal	45.0	
Sea Lion	200.0	Stanek 1985
Beaver	20.0	Wright et al. 1985
Ptarmigan	.7	Wright et al. 1985
Sea Ducks	1.5	Stanek 1985
Other Ducks	1.5	Stanek 1985
Geese	3.0	Stanek 1985
Eggs	.15	

^aAverage 1984 Round Weight of Commercial Salmon, Egegik District,
Conversion

	Weight	Factors	Usable Weight
King	18.7	.73	13.6
Red	5.8	.78	4.5
Chum	6.9	.75	5.0
Pink	3.8	.85	3.2
Silver	6.9	.73	5.2

^bAverage 1984 Round Weight of Commercial Salmon, Chignik District
Conversion

	Weight	Factors	Usable Weight
King	23.1	.73	16.9
Red	7.0	.78	5.5
Chum	8.0	.75	6.0
Pink	3.7	.85	3.1
Silver	7.7	.73	5.6

Sources: Alaska Department of Fish and Game 1984a: 6;
Alaska Department of Fish and Game 1984b: 120
KANA 1983.

